## FINAL REPORT

Comparative Demonstration of Active and Semi-Passive In Situ Bioremediation Approaches for Perchlorate Impacted Groundwater: Active In Situ Bioremediation Demonstration (Aerojet Facility)

ESTCP Project ER-200219

December 2012

Evan Cox Thomas Krug GeoSyntec Consultants

This document has been cleared for public release





## TABLE OF CONTENTS

		Page
1. IN	TRODUCTION	1
1.1	Background	1
1.2	Objectives of the Demonstration	3
1.3	Regulatory Drivers	4
2. TH	ECHNOLOGY	5
2.1	Technology Description	5
2.2	Technology Development	6
2.2	2.1 Biodegradation of Perchlorate	6
2.2	2.2 Biodegradation of TCE	8
2.3	Advantages and Limitations of the Technology	10
3. PE	ERFORMANCE OBJECTIVES	13
3.1	Ease of Installation	13
3.2	Ease of Electron Donor Delivery Events	13
3.3	Enhancement of Microbiological Activity	13
3.4	Ease of Performance Monitoring and Validation	15
3.5	Reduction in Perchlorate Concentration	15
3.6	Radius of Influence and Distance for Degradation	16
4. SI	TE DESCRIPTION	17
4.1	Site Location and History	17
4.2	Site Geology/Hydrogeology	17
4.3	Groundwater Chemistry	20
5. Dl	ESIGN	22
5.1	Conceptual Experimental Design	22
5.2	Baseline Hydraulic and Chemical Characterization	22
5.3	Design and Layout of Technology Components	24
5.3	3.1 System Infrastructure	24

Geosyntec <sup>©</sup>	>
------------------------	---

_	$\sigma \sigma_{J} = \sigma_{\sigma}$	
	consult	ants

5.3.	2 Basis for Electron Donor Addition Rates	24
5.3.	3 Bioaugmentation	26
5.4	Field Testing	29
5.4.	1 System Operation and Monitoring	29
5.5	Sampling Methods	31
5.6	Sampling Results	33
5.6.	1 Baseline Conditions	33
5.6.	2 Pump Testing and Groundwater Modeling	36
5.6.	3 Tracer Testing	38
5.6.	4 Redox and pH Trends	42
5.6.	5 Results of Perchlorate Analysis	42
5.6.	6 Results of Trichloroethene Analysis	61
5.6.	7 Results of Supporting Groundwater Chemistry	63
6. PEI	RFORMANCE ASSESSMENT	69
6.1	Ease of Installation	69
6.2	Ease of Electron Donor Delivery Events	69
6.3	Enhancement of Microbiological Activity	71
6.4	Ease of Performance Monitoring and Validation	71
6.5	Reduction in Perchlorate Concentration	72
6.6	Radius of Influence and Distance for Degradation	73
7. CO	ST ASSESSMENT	74
7.1	Cost Model	74
7.2	Cost Drivers	80
7.3	Cost Analysis	
8. IMI	PLEMENTATION ISSUES	
0 1	Additional Courses of Information	00
8.1	Additional Sources of Information	
8.2	Potential Environmental Issues	
8.2.		
8.2	2 Air Discharge	89

## Geosyntec Consultants

	consultants
8.2.3 Wastewater Discharge	89
8.2.4 Waste Storage, Treatment, and Disposal	90
8.3 End-User Issues	90
8.4 Procurement Issues	90
8.5 Design Issues	90
9. REFERENCES	92



## LIST OF TABLES

Table 3-1	Performance Objectives	
Table 5-1	Summary of Laboratory Analytical Methods	
Table 5-2	Electron Donor Demand Calculations	
Table 5-3	Electron Donor Addition Schedule	
Table 5-4	Demonstration Test Sampling Schedule	
Table 5-5	Baseline Groundwater Chemistry	
Table 5-6	Results of Pump Test Analysis	
Table 5-7	Tracer Test Results	
Table 5-8	Field Parameter Measurements	
Table 5-9	Results of Chemical Analysis	
Table 6-1	Performance Objectives and Results	
Table 7-1	Site Characteristics and Design Parameters for EISB of Perchlorate	
	Impacted Groundwater	
Table 7-2	Summary of Costs for Treatment of Perchlorate Impacted Groundwater	
Table 7-3	Impact of Site Characteristics and Design Parameters on Costs for Active	
	EISB	

## LIST OF FIGURES

Figure 2-1	Pathway for the Biodegradation of Perchlorate
Figure 2-2	Pathways for the Biodegradation of Chlorinated Ethenes
Figure 4-1	Site Location Map
Figure 4-2	Test Site Layout
Figure 4-3	Generalized IRCTS Hydrostratigraphic Cross-Section A-A'
Figure 5-1	Numerical Model Simulation of Groundwater Capture and Injection
Figure 5-2	Bromide Tracer Testing Results
Figure 5-3	Dissolved Oxygen and Oxidation-Reduction Potential Trends
Figure 5-4	Perchlorate Biodegradation Results
Figure 5-5	Trichloroethene Biodegradation Results
Figure 5-6	Nitrate and Sulfate Concentration Trends
Figure 5-7	Chloride and Methane Concentration Trends
Figure 5-8	Dissolved Iron and Manganese Concentration Trends
Figure 7-1	Base Case Plume and Biobarrier Configuration
Figure 7-2	Cumulative Costs for Perchlorate Treatment



### LIST OF APPENDICES

Appendix A Points of Contact

Appendix B Hydraulic Analysis and Design

Appendix C Laboratory Reports for Chemical Analysis

Appendix D Statistical Analysis of ORP and Perchlorate Data

#### LIST OF ACRONYMS

AEL Aerojet's Environmental Laboratory

AP ammonium perchlorate

ASTM American Standard for Testing and Materials

BAZ biologically active zone bgs below ground surface BOD biological oxygen demand

btoc below top of casing

CDG chlorine dioxide generator

CDHS California Department of Health Services
CDWR California Department of Water Resources

cis-1,2-DCE cis-1,2-Dichloroethene cm/sec centimeters per second COD chemical oxygen demand

°C degrees Celsius
ClO<sub>4</sub> Perchlorate
DCE Dichloroethene
demonstrate/validate

DGGE denaturing gradient gel electrophoresis

Dhc Dehalococcoides

DHGs Dissolved hydrocarbon gases

DNA deoxyribonucleic acid DO dissolved oxygen DOD Department of Defense DOE Department of Energy

DOT Department of Transportation EISB enhanced *in situ* bioremediation

EPA U.S. Environmental Protection Agency

ESTCP Environmental Security Technology Certification Program

EVO emulsified vegetable oil

EW Extraction Well

ft ft

ft/day feet per day ft/ft feet per feet ft/yr feet per year ft<sup>2</sup> square feet

ft<sup>2</sup>/day square feet per day

GAO Government Accountability Office

gpm gallons per minute HASP Health and Safety Plan

#### LIST OF ACRONYMS (CONTINUED)

HASP Health and Safety Plan IC ion chromatography ID inside diameter

IRCTS Inactive Rancho Cordova Test Site

K hydraulic conductivity

L liter

LHAAP Longhorn Army Ammunition Plant

NFESC Naval Facilities Engineering Service Center

m meters

m<sup>2</sup> square meters m/yr meters per year

MCL maximum contaminant levels

MEAL methanol, ethanol, acetate and lactate

mg/L milligrams per Liter

MNA Monitored Natural Attenuation

MSDS safety data sheet

mV millivolts

NASA National Aeronautics and Space Administration

NIROP Naval Industrial Reserve Ordnance Plant

NPV net present value

O&M Operation and Maintenance

OM&M Operation, Maintenance and Monitoring

ORP oxidation reduction potential

OSHA Occupational Safety and Health Administration
OSWER Office of Solid Waste and Emergency Response

PAL provisional action level
PCR polymerase chain reaction
PLC programmable logic controller

ppb parts per billion

PQL practical quantitation limit PRG preliminary remediation goal

P&T Pump and Treat

RCRA Resource Conservation and Recovery Act

RW Recharge Well

QAPP Quality Assurance Project Plan SAP Sampling and Analysis Plan

SERDP Strategic Environmental Research and Development Program

vii

SIU Southern Illinois University

SAP Sampling and Analysis Plan

### LIST OF ACRONYMS (CONTINUED)

SAP Sampling and Analysis Plan

SERDP Strategic Environmental Research and Development Program

SIU Southern Illinois University

TCE Trichloroethene
TDS total dissolved solids
TWA time weighted average

UCB University of California at Berkeley

USEPA United States Environmental Protection Agency

VC vinyl chloride VFA volatile fatty acids

VOCs Volatile organic compounds

WNN Western Non-Aerospace Non-Industrial

μg/L micrograms per Liter μmol/L micromoles per Liter



## Acknowledgements

Funding of this work was provided by Aerojet General Corporation (Aerojet) and the Department of Defense, Environmental Security Technology Certification Program (ESTCP). The authors wish to thank Mr. Rodney Fricke and Jamey Rosen for their work on the field demonstration test as well as Dr. Andrea Leeson and Dr. Jeffery Marquese of ESTCP and Bryan Harre of the Naval Facilities Engineering Service Center (NFESC) for their support during the project and for comments provided on the report.

## **Executive Summary**

Perchlorate is an inorganic anion that consists of chlorine bonded to four oxygen atoms. It is a primary ingredient in solid rocket propellant and has been used for decades by Department of Defense (DOD), National Aeronautics and Space Administration (NASA), and the defense industry in the manufacturing, testing, and firing of rockets and missiles. Perchlorate exhibits high solubility and mobility in water and has been identified in groundwater at numerous sites across the U.S. at concentrations above the upper limit of U.S. Environmental Protection Agency's (EPA's) provisional cleanup guidance for perchlorate of 18 parts per billion (ppb). Enhanced *in situ* bioremediation (EISB) of perchlorate impacted groundwater offers the potential to treat and destroy perchlorate without the need for disposal of residuals containing recovered perchlorate (as with above ground ion exchange) or extensive above ground treatment (as with *ex situ* bioremediation).

This Report describes work conducted to demonstrate/validate the use of an active EISB approach at the Western Non-Aerospace Non-Industrial (WNN) Easement of the Inactive Rancho Cordova Test Site (IRCTS) in Rancho Cordova, California. The goal of this work was to demonstrate the efficacy of this approach at a scale that is large enough to generate accurate full-scale design and cost information for widespread technology consideration and application at DOD and related sites.

The active EISB approach involves on-going groundwater recirculation and delivery of electron donor to create a biologically active zone or biobarrier across a perchlorate plume, for the purposes of promoting perchlorate biodegradation and controlling plume migration. The active EISB test consisted of an active biobarrier, whereby groundwater containing perchlorate and trichloroethene (TCE) was extracted from the shallow aquifer, amended with carbon-based electron donor (ethanol), and recharged to the shallow aquifer to promote in situ biodegradation of the perchlorate and TCE to environmentally-acceptable end products. The active biobarrier provided containment and treatment of a 600-foot wide section of the perchlorate and TCE plume in the shallow aguifer along the WNN Easement using two groundwater extraction wells and a single groundwater recharge (electron donor delivery) well. The results of the test demonstrated that indigenous bacteria are capable of biodegrading perchlorate using ethanol as an electron donor. Perchlorate concentrations as high as 4,300 µg/L were reduced to less than the practical quantitation limit (PQL) of 4 µg/L within 50 feet of the electron donor delivery / recharge well. The perchlorate biodegradation half-life was estimated to be approximately 1 day, consistent with perchlorate biodegradation half-lives reported for other sites (Cox et al., 2001). TCE dechlorination was also observed at the downgradient monitor well following bioaugmentation of the shallow aquifer with dehalorespiring (TCE-degrading) bacteria at the recharge well.

With respect to operations, the test demonstrated that the active biobarrier approach is capable of providing effective containment and treatment of impacted groundwater. System operation time



was very high (greater than 98%), with system shutdowns primarily related to the two bioaugmentation events (therefore intentional). Injecting electron donor over a one hour period of time every 24 hours followed by injection of chlorine dioxide was effective in controlling biofouling in the electron donor delivery / recharge well over a sustained period (more than 6 months).

Based on the experience and observations made during the demonstration, all of the performance objectives for the demonstration were achieved. The performance objectives were demonstrated as follows:

- The ease of installation of electron donor delivery components This objective was achieved based on experience with the actual installation of the groundwater recirculation and electron donor delivery systems at the IRCTS. The equipment required for the active groundwater recirculation and injection of electron donor was all readily available through local drillers and plumbing suppliers. The ClO<sub>2</sub> biofouling control system was also available and straightforward to install. The procedures used to install the equipment were standard and well established procedures for local drillers and the procedures were simple enough to be conducted by field technicians with training in basic plumbing techniques.
- The ease of electron donor delivery events This objective was achieved based on experience of field staff with the actual electron donor delivery events. The activities and procedures required for the electron donor delivery events were simple enough to be conducted by field staff with minimal specialized training and effort. It is believed that the pulsed injection of electron donor over one hour each day followed by an injection of ClO<sub>2</sub> was an effective operating strategy for controlling biofouling of the injection well
- The enhancement of microbiological activity This objective was achieved based on the results of chemical and geochemical characterization. Groundwater monitoring data for chemical and geochemical parameters demonstrated that electron donor addition enhanced microbiological activity in the treatment zone. Significant and sustained reductions in ORP were observed following addition of electron donor and provide the first indication that biological activity was enhanced by the addition of electron donor. Additional evidence of enhanced microbial activity was demonstrated by the reductions in perchlorate concentrations. Groundwater sampling of performance monitoring wells demonstrated that the average perchlorate concentrations were reduced to below the PQL of 4.0 μg/L during the operating period. The average perchlorate concentrations measured in: (1) MW-1 from Day 29 to the end of amendment injection period (2.6 μg/L); and (2) STSW-138A from Day 85 to the end of amendment injection period (2.9 μg/L) were all less than 4.0 μg/L.

- The ease of performance monitoring and validation This objective was achieved based on the data obtained during the demonstration. The quality of the data obtained and the ability to interpret this data and quantify biodegradation with confidence demonstrates that the performance monitoring network allowed for straightforward data collection, interpretation and validation.
- The reduction in perchlorate concentrations This objective was achieved based on groundwater sampling of performance monitoring wells that demonstrated that the average perchlorate concentrations were reduced to below the practical quantitation limit (PQL) of 4.0 µg/L during the during the operating period.
- The radius of influence and distance for degradation This objective was achieved based on groundwater sampling results from performance monitoring wells during the tracer tests and following electron donor delivery which demonstrated that the radius of influence of the system extends between the recirculation wells and that perchlorate was degraded before groundwater reached downgradient performance monitoring wells.

An assessment of the costs to implement EISB for perchlorate impacted groundwater using the active approach was also conducted. A cost model was developed for a template site based on a typical site with perchlorate impacted shallow groundwater. Using these site conditions, the cost model identifies the major cost drivers for the active approach and provides an estimate of costs for the capital, O&M, and long-term monitoring. A cost estimate was also prepared for other approaches to EISB (passive, semi-passive and a trench biowall) and a conventional pump and treat system to provide points of comparison with the active EISB approach. The cost model focused on treatment of a contaminated plume of groundwater and did not include costs for possible source zone treatment. The cost assessment includes estimates of the Net Present Value (NPV) of future costs to help assess the life-cycle costs.

The template site base case design incorporates one biobarrier on the downgradient edge of a plume to treat water as it flows across the line of the biobarrier. Based on the groundwater seepage velocity of 10 meters per year (m/yr) or 33 feet per year (ft/yr), a plume that extends for 240 meters (800 feet) along the direction of groundwater flow and the assumed need to flush two pore volumes of clean water through the impacted aquifer to achieve clean-up standards, it would be expected to take approximately 48 years for the plume to be treated in the base case.

The perchlorate treatment objective that was used for the template site was based on the chronic exposure reference dose (and the resulting drinking water equivalent concentration) selected by the U.S. Environmental Protection Agency in 2005 (<a href="http://www.epa.gov/iris/subst/1007.htm">http://www.epa.gov/iris/subst/1007.htm</a>) of 24.5  $\mu$ g/L or 0.0245 milligrams per liter (mg/L). A lower treatment objective would increase the costs associated with the remediation. The active EISB approach can achieve low treatment criteria (i.e., below 4.0  $\mu$ g/L or 0.004 mg/L) but to achieve lower target treatment criteria, a higher safety factor would be required in the design and operation of each of the remedy such



that pockets or layers of low hydraulic conductivity geological material containing untreated groundwater with some perchlorate do not remain or transmit perchlorate in groundwater following treatment and the system may need to be operated for a longer period of time.

The costs to implement active EISB for perchlorate impacted groundwater will vary significantly from site to site. The key costs drivers are listed below.

- The dimensions and depth of the plume to be treated.
- Ambient groundwater velocity.
- Hydraulic conductivity (K) of the geological media containing the impacted groundwater and the degree of variation in the K of different layers in the geological media.
- Concentration of perchlorate and other electron acceptors in impacted groundwater and the target treatment concentration.

The capital and operation and maintenance (O&M) cost for the active EISB system and for a comparable pump and treat system at the template site are presented in the table below.

	Active Biobarrier	Pump and Treat
Capital Costs	\$430,000	\$490,000
Annual O&M Costs	\$60,000	\$74,000
NPV of 30 Years of O&M Costs	\$1,200,000	\$1,470,000
NPV of 30 Years of Total Remedy Costs	\$1,980,000	\$2,310,000
Total 30-Year Remedy Costs	\$2,700,000	\$3,160,000

The active remedial approach could be used in a modified configuration to treat source areas below the water table. This active source area treatment approach could be coupled with monitored natural attenuation (MNA) of the downgradient plume and could have the benefit of a significantly reduced time frame for operation than that of a system that simply treats a downgradient plume of perchlorate. Applying an active approach in the source area would have a higher initial capital cost and annual O&M costs but overall savings may be achieved because of a shorter duration of operation.

#### 1. INTRODUCTION

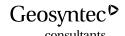
This Final Report has been prepared by Geosyntec Consultants (Geosyntec) for the Environmental Security Technology Certification Program (ESTCP) to present the results of the active enhanced *in situ* bioremediation (EISB) demonstration that was conducted at the Western Non-Aerospace Non-Industrial (WNN) Easement of the Inactive Rancho Cordova Test Site (IRCTS) in Rancho Cordova, California (the "Site") in 2003 and 2004. The results of a semi-passive EISB demonstration that was conducted at the Longhorn Army Ammunitions Plant (LHAAP) in north-eastern Texas also as part of ESTCP Project CU-0219, "Comparative Demonstration of Active and Semi-Passive *In Situ* Bioremediation Approaches for Perchlorate Impacted Groundwater" are presented in a previous Final Report (Geosyntec, 2009a) and Cost and Performance Report (Geosyntec, 2009b). A demonstration test of the active EISB technology was initiated at the Naval Industrial Reserve Ordnance Plant (NIROP) portion of the ATK Thiokol, Inc. (ATK) Bacchus Works Facility in West Valley City, Utah, but completion of this demonstration was delayed and the results of the test at the IRCTS is being used to demonstrate the performance of the active EISB technology for ESTCP Project CU-0219.

Section 1 of this Report presents background information and summarizes the objectives of the demonstration. Section 2 describes the active bioremediation technology demonstrated in this work. Section 3 presents the performance objectives for the demonstration. Section 4 presents information on the IRCTS where the demonstration was conducted. Section 5 presents the test design and results of the demonstration. Section 6 presents the results of the performance assessment. Section 7 presents the results of a cost assessment of the technology and Section 8 discusses potential implementation issues with the technology. Appendix A presents a list of contacts of those involved in conducting the demonstration test and preparing this report; Appendix B presents the hydraulic analysis and design; Appendix C presents laboratory reports for chemical analysis; and Appendix D presents the results of a statistical analysis of oxidation/reduction potential (ORP) data.

#### 1.1 Background

Perchlorate is an inorganic anion that consists of chlorine bonded to four oxygen atoms (ClO<sub>4</sub>). It is a primary ingredient in solid rocket propellant and has been used for decades by Department of Defense (DOD), National Aeronautics and Space Administration (NASA), and the defense industry in the manufacturing, testing, and firing of rockets and missiles. On the basis of 1998 manufacturer data, it is estimated that 90 percent of the several million pounds of perchlorate produced in the United States (U.S.) each year is used by the military and NASA. Private industry has used perchlorate to manufacture products such as fireworks, safety flares, automobile airbags, and commercial explosives.

Perchlorate exhibits high solubility and mobility in water and is very stable, being degraded only under anaerobic conditions. Consequently, when perchlorate is released into a typical groundwater or surface water environment, it tends to persist and can migrate to great distances (many miles) in groundwater, as has been observed at many sites. Perchlorate released to the



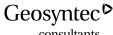
subsurface many decades ago can also be retained in the pore spaces of low permeability materials such as silts and clays, representing a long term threat to groundwater and surface water. This can be particularly problematic in areas where artificial recharge has resulted in rising groundwater elevations, solubilizing perchlorate previously held within the unsaturated soil matrices.

The frequency of detection of perchlorate in groundwater and surface water has been steadily increasing since its initial identification as a chemical of regulatory concern in 1997. To date, U.S. federal and state regulatory agencies have reported detecting perchlorate in soil, groundwater, surface water, and/or drinking water at almost 400 sites in 35 states, the District of Columbia, and two U.S. commonwealths (United States Government Accountability Office (GAO), 2005). Detections were reported for military installations, commercial manufacturers, public water systems, private wells and residential areas. While concentrations exceeded part per million (ppm) levels at some military and manufacturing sites, approximately two-thirds of the sites (249 of 395) reported perchlorate levels at or below 18 micrograms per Liter ( $\mu$ g/L), the upper limit of US EPA's provisional cleanup guidance for perchlorate in 2005. More than half of the sites (224 of 395) were located in Texas and California, where regulatory agencies have conducted broad investigations to determine the extent of perchlorate in the environment. The highest concentrations of perchlorate (more than 500,000  $\mu$ g/L for 11 different sites) were reported for sites in Arkansas, California, Nevada, Texas, and Utah, primarily related to rocket manufacturing or to the manufacture of perchlorate itself (GAO, 2005).

Perchlorate impacts at 110 of the sites was reportedly due to activities related to defense and aerospace, such as propellant manufacturing, rocket motor research and test firing, or explosives disposal. At 58 sites, perchlorate impacts were reportedly from manufacturing and handling, agriculture, and a variety of commercial activities such as fireworks and flare manufacturing. Interestingly, the source of the perchlorate was either undetermined or naturally occurring at more than 227 sites, of which 105 sites are located in the Texas high plains region, where perchlorate concentrations range from 4 to 59  $\mu$ g/L (GAO, 2005).

The source of perchlorate in water supplies has typically been attributed to DOD, NASA and/or defense contractor facilities that have used ammonium perchlorate (AP) in rocket and missile propellants. However, in recent years, the reporting of sites impacted by perchlorate from non-military activities, including agriculture, mining and construction, fireworks displays, and production and use of electrochemically-produced (ECP) chlorine chemicals, has dramatically increased, changing the paradigm that perchlorate is solely a DOD cleanup responsibility.

Conventional technologies for the treatment of perchlorate-impacted groundwater are expensive. In California alone, the costs for remediation of perchlorate-impacted groundwater are expected to be in the billions of dollars, the cost of which may jeopardize major DOD and propulsion contractor production programs. Of the technologies being developed, bioremediation is among the most promising, because it has the potential to destroy perchlorate rather than transferring it to another waste stream (e.g., impacted resin or brine) requiring costly treatment or disposal. Recent bench- and small-scale field demonstrations are providing strong evidence that *in situ* 



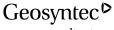
bioremediation can provide a less costly and less Operation and Maintenance (O&M)-intensive approach to remediating perchlorate-impacted groundwater. Specifically, EISB has potential to both destroy perchlorate source areas and to control the migration of the perchlorate plumes that are threatening drinking water supplies.

Enhanced in situ bioremediation of perchlorate impacted groundwater offers the potential to treat and destroy perchlorate without the need for disposal of residuals containing recovered perchlorate (as with above ground ion exchange) or extensive above ground treatment (as with ex situ bioremediation). One of the main factors that affects the success and cost of in situ bioremediation systems is the effectiveness of nutrient (electron donor) delivery and mixing in the subsurface. A variety of active, semi-passive and fully passive electron donor delivery systems have been employed to promote contaminant biodegradation. As further discussed in Sections 2, each of these delivery configurations has associated benefits and limitations with respect to ease of implementation and cost. This Report describes work conducted to demonstrate/validate (Dem/Val) the use of an active EISB approach at the IRCTS in California. The results of a separate demonstration of the use of a semi-passive EISB approach are presented in separate reports. The goal of the program is to demonstrate the efficacy of both approaches at a scale that is large enough to generate accurate full-scale design and cost information for widespread technology consideration and application at DOD and related sites.

### 1.2 Objectives of the Demonstration

The specific objectives of this technology demonstration are:

- 1. Demonstrate that perchlorate can be biodegraded in situ to acceptable levels (i.e., the practical quantitation limit or PQL of 4.0 µg/L) using in situ bioremediation with an active electron donor delivery methodology;
- 2. Evaluate the effectiveness of the electron donor delivery approach under in situ conditions, and generate design and performance data for full-scale application using this approach (e.g., cost per unit area or unit volume groundwater treated);
- 3. Evaluate the effects of the electron donor delivery approach on the acclimation, development and stability of the *in situ* microbial communities;
- 4. Evaluate the effects of the electron donor delivery approach on groundwater quality (e.g. production of sulfides or methane, or mobilization of dissolved metals), and assess its suitability for use in drinking water aquifers (to address direct regulatory concerns); and
- 5. Identify design and operational factors that influence successful implementation and continued operation of the *in situ* bioremediation approach.



consultants

One of the advantages of the active electron donor amendment approach over passive and semipassive injection approaches is the potential to have less impact on secondary water quality characteristics because large quantities of electron donor are not injected at one time. The approach taken in the demonstration at the IRCTS was to limit the addition of electron donor to minimize the impact on secondary water quality characteristics while allowing for biodegradation of perchlorate.

#### 1.3 Regulatory Drivers

In 2009, the United States Environmental Protection Agency (USEPA) established an Interim Drinking Water Health Advisory for perchlorate of 15  $\mu$ g/L. The Office of Solid Waste and Emergency Response (OSWER) has also established a preliminary remediation goal (PRG) at National Priority List sites of 15  $\mu$ g/L. Numerous states have promulgated enforceable standards for perchlorate in drinking water. For example, Massachusetts and California have established enforceable standards for perchlorate in drinking water of 2  $\mu$ g/L and 6  $\mu$ g/L respectively. These concentrations are considerably less than the concentrations present in groundwater at many sites throughout the United States. While *ex situ* treatment alternatives exist for perchlorate-impacted groundwater, they are often cost intensive, and therefore, this demonstration seeks to validate a more cost-effective technology that can meet the pending remediation goals. For this demonstration, the remediation target will be reduction of perchlorate concentrations to the current common PQL, which is 4.0  $\mu$ g/L in most jurisdictions.

#### 2. TECHNOLOGY

This Section describes the active EISB technology which is the subject of the demonstration described in this Report. Section 2.1 provides a description of the technology; Section 2.2 describes the development of the technology; and Section 2.3 discusses the advantages and limitations of the technology.

#### 2.1 Technology Description

Enhanced in situ bioremediation has proven to be a cost effective approach for the treatment of perchlorate impacted groundwater under many different site conditions. One of the main factors that affects the success and cost of EISB systems is the effectiveness of nutrient (electron donor) delivery and mixing in the subsurface. A variety of active, semi-passive and fully passive electron donor delivery systems have been employed to promote in situ biodegradation. Each of these delivery configurations has associated benefits and limitations with respect to ease of implementation and cost. Active EISB systems have been shown to be effective (Geosyntec, 2002) in providing migration control over reasonably wide (and deep) perchlorate plumes with only a few extraction/injection wells. However, due to the continuous operation of active systems, permanent ex situ infrastructure is required, and operations and maintenance (O&M) costs can be significant. By comparison, passive systems employing slow-release electron donors do not require permanent ex situ infrastructure and minimize short term O&M costs, but the tight spacing of the injection points or wells makes the capital costs of the installations prohibitive for large and/or deep plumes. Longer term O&M costs for reinjection of additional electron donor required every year to several years can also be high. Passive systems also involve injecting large quantities of electron donor at one time and can reduce the hydraulic conductivity of the aquifer and have significant negative impacts on secondary water quality characteristics. Semi-passive systems integrate aspects of both the active approach (wider well spacing and less impact on secondary water quality characteristics) and the passive approach (minimal permanent ex situ infrastructure, lower O&M), and can provide a balance of capital and O&M costs for bioremediation deployment.

Active EISB of perchlorate involves on-going groundwater recirculation and the addition of electron donor on a continuous basis to stimulate natural microbiological populations. Active EISB approaches are similar to semi-passive approaches in that groundwater is recirculated between injection and extraction wells; however, with the semi-passive approach, groundwater is recirculated for an "active phase" of a limited duration (e.g., several days to several weeks) to distribute the electron donor, and then the recirculation system is shut off for a "passive phase" of longer duration (e.g., several months).

Groundwater extracted from one or several well, is amended with electron donor and injected into other wells along the line of the biobarrier. Some of the injected water flows back to the extraction well or wells and some water moves out in other directions. The ambient flow of groundwater from upgradient of the biobarrier is collected in the extraction well and some of the



flow is diverted around the ends of the biobarrier. The recirculation of groundwater is conducted on a continuous basis.

The electron donor used for the active approach must be sufficiently mobile to travel some distance between the injection and extraction wells, in order to achieve the desired electron donor coverage. Soluble electron donors such as sodium lactate, citric acid, or ethanol have been used in field applications, and it may be possible to use mobile forms of emulsified vegetable oil, methyl esters and other slower release forms of electron donor as well.

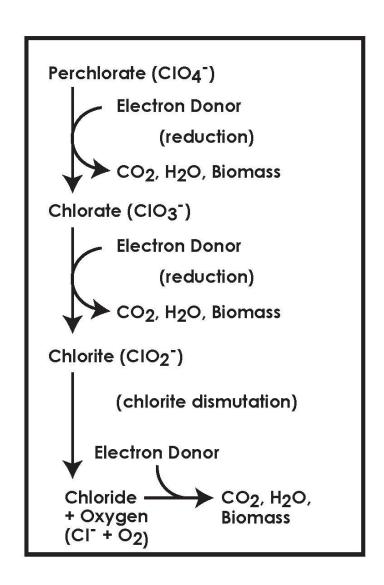
#### 2.2 Technology Development

This section discusses the development of technologies for biodegradation of perchlorate and chlorinated ethenes such as TCE.

#### 2.2.1 Biodegradation of Perchlorate

Laboratory research in the past has shown that perchlorate biodegradation results from microbially-mediated redox reactions, whereby perchlorate serves as an electron acceptor, and is reduced via chlorate to chlorite. Chlorite then undergoes a biologically-mediated dismutation reaction, releasing chloride and oxygen and carbon dioxide (CO<sub>2</sub>) (Figure 2-1). A variety of electron donors have been used to stimulate perchlorate reduction using pure or mixed microbial cultures, including alcohols (e.g., ethanol, methanol), organic acids (e.g., acetate, lactate, citrate, oleate), edible oils (e.g., canola oil) and some sugar mixtures (e.g., corn syrup). A variety of microorganisms have been identified as possessing the ability to reduce perchlorate (Coates et al., 1999), including various Dechlorosoma, Dechloromonas, Rhodocyclus, Azospirillum, and Ferribacterium species, and perchlorate-degrading bacteria have generally been shown to be ubiquitous in subsurface environments.

In 1999, three research groups, including Geosyntec, Envirogen and the Southern Illinois University (SIU; Dr. John Coates) were awarded research grants under the U.S. DOD Strategic Environmental Research & Development Program (SERDP) to evaluate the ubiquity of perchlorate-degrading bacteria in differing geographical, geological and geochemical environments, and to assess the widespread applicability of in situ bioremediation as a remediation technology for perchlorate-impacted DOD sites. Through this research, laboratory microcosm studies were conducted for more than 12 independent DOD and defense contractor test sites around the nation. Perchlorate biodegradation was observed at essentially all test sites (pH adjustment was required for some test sites), indicating that the distribution of perchloratebiodegrading bacteria in subsurface environments is widespread. Perchlorate biodegradation was stimulated over site-specific perchlorate concentrations ranging from 250 µg/L to in excess of 660,000 µg/L. Biodegradation typically reduced perchlorate concentrations below the PQL of 4 μg/L, making *in situ* bioremediation an appropriate technology for site remediation. The key to successfully implementing in situ bioremediation of perchlorate appears to be the addition of appropriate carbon substrates in adequate quantities to reduce competing electron acceptors



Pathway for the Biodegradation of Perchlorate Active Perchlorate Bioremediation Demonstration

August 2012

Geosyntec consultants

2-1

**Figure** 

reronorate rati

Guelph



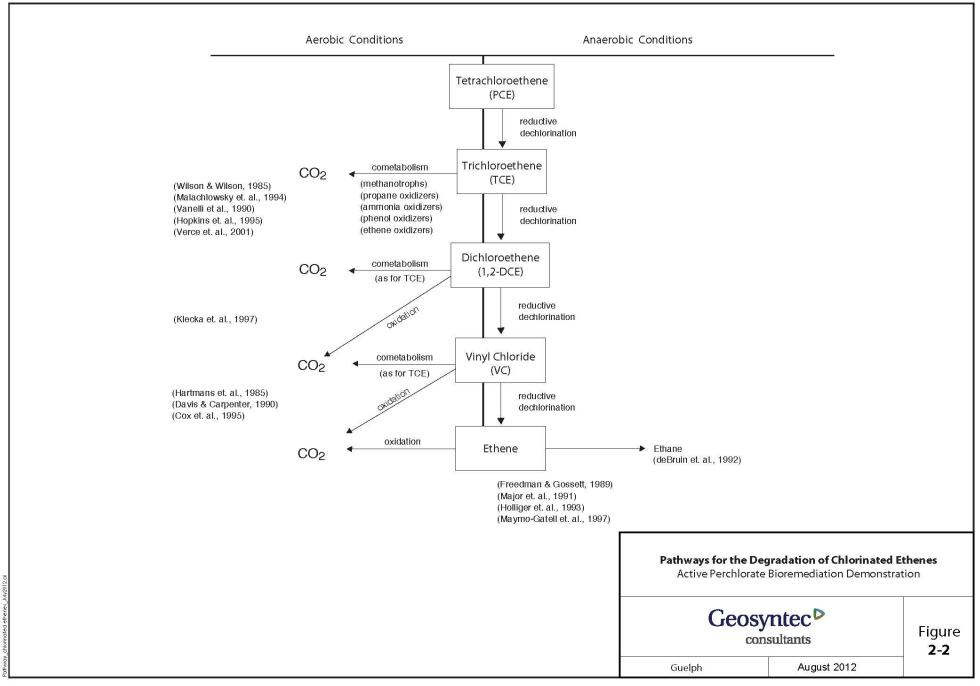
present in the groundwater (e.g., oxygen and nitrate), and to promote the perchlorate reduction reaction.

While data from bench-scale and small field tests provide evidence that *in situ* bioremediation has the potential to be a cost-effective remediation alternative for perchlorate-impacted sites, little had been done to critically evaluate *in situ* bioremediation design configurations that can be widely applied to perchlorate sites. Experience indicates that the greatest factor determining success of *in situ* bioremediation for perchlorate plumes is effective electron donor delivery. Perchlorate plumes at many DOD sites are very wide and deep, prohibiting standard bioremediation approaches (e.g., injection or emplacement of electron donors using direct push [e.g., geoprobe] methodologies). Therefore, new electron donor delivery strategies need to be developed for these types of sites.

As indicated earlier, laboratory research programs conducted under the SERDP have conclusively shown that perchlorate-reducing bacteria are ubiquitous, and that electron donor addition can effectively promote perchlorate degradation from a wide range of starting concentrations under varying geochemical conditions. Further to these laboratory studies, Geosyntec has successfully demonstrated *in situ* bioremediation of perchlorate in several small-scale field demonstrations at sites in California and Nevada. In one demonstration (SERDP CU-1164), Geosyntec demonstrated perchlorate biodegradation in a deep aquifer (100 feet below ground surface) at the Aerojet Superfund site in California (Cox et al., 2001). Perchlorate concentrations in the groundwater declined from 8,000  $\mu$ g/L to less than the PQL of 4  $\mu$ g/L within 35 feet of the electron donor delivery well. More recently, Geosyntec has successfully demonstrated *in situ* bioremediation of perchlorate at a second field demonstration site, reducing perchlorate concentrations from 220  $\mu$ g/L to <4  $\mu$ g/L in water being recharged to a drinking water aquifer (at 100 to 150 gallons per minute {gpm}) from an existing *ex situ* treatment system. In both studies, ethanol and acetate were shown to be effective electron donors.

#### 2.2.2 Biodegradation of TCE

Laboratory and field demonstrations have shown that naturally-occurring microorganisms in subsurface environments (e.g., groundwater) can degrade chlorinated volatile organic compounds (VOCs) such as tetrachloroethene (PCE) and TCE to non-chlorinated, environmentally-acceptable end products such as ethene, CO<sub>2</sub>, water and chloride (Major et al., 2002). While these biodegradation reactions can occur under a wide range of environmental conditions, the dominant TCE biodegradation mechanism in groundwater environments is reductive dechlorination, which involves the sequential replacement of chlorine atoms on the alkene molecule with hydrogen atoms. Under reducing conditions, TCE serves as an electron acceptor and is dechlorinated via cis-1,2-dichloroethene (cis-1,2-DCE) and vinyl chloride (VC) to ethene. Hydrogen, typically produced during the bacterial metabolism of simple organic carbon compounds such as alcohols, organic acids, sugars or edible oils, serves as the electron donor in the dechlorination reactions. **Figure 2-2** shows the common biodegradation pathways for TCE.





Specific dehalorespiring bacteria called *Dehalococcoides* (*Dhc*) are now known to mediate the complete dechlorination of PCE and TCE to ethene (Maymó-Gatell et al., 1997). While sulfate-reducing and methanogenic bacteria appear to possess the ability to mediate the initial steps of dechlorination of PCE and TCE to cis-1,2-DCE, specific dehalorespiring microorganisms appear to be required to mediate further and complete dechlorination of cis-1,2-DCE via VC to ethene. Unfortunately, these dehalorespiring microorganisms do not appear to be ubiquitous. As a result, dechlorination of PCE and TCE stalls at cis-1,2-DCE at many sites, resulting in the accumulation of cis-1,2-DCE.

Research in the last few years has resulted in the isolation of several natural, non-pathogenic microbial consortia that are capable of mediating complete dechlorination of TCE to ethene. For example, the General Electric Company and Remediation Technologies Development Forum (RTDF; a collaboration between industry and government) isolated the Pinellas culture, while Geosyntec and the University of Toronto isolated a dehalorespiring culture referred to as KB-1<sup>TM</sup> (KB-1). These cultures have not been genetically modified in any manner; but are simply enrichments derived from naturally-occurring bacteria in soil and groundwater where TCE degradation occurs. Microbial testing has consistently found these microbial cultures to be free of pathogens. Field demonstrations at sites across the United States have shown that these microorganisms can be added to aquifers (a process termed bioaugmentation) to promote PCE and TCE dechlorination to ethene at sites where this activity otherwise does not occur, or does not occur at sufficient rates to meet remedial objectives. To date, KB-1 has been used to improve bioremediation at more than 300 sites in 36 US States, Canada, five European countries and in Malaysia.

### 2.3 Advantages and Limitations of the Technology

The active EISB technology or approach which is the subject of this demonstration can be used as an alternative to groundwater extraction and above ground treatment (pump and treat) or as an alternative to other EISB approaches (i.e., semi-passive or passive). Advantages and limitations of the active EISB approach relative to each of these alternatives are discussed below.

The active EISB technology has the following advantages over pump and treat technologies which involve long-term groundwater extraction and *ex situ* treatment typically using bioreactors (fluidized-bed or fixed-film) or ion exchange:

- Active EISB will destroy perchlorate rather than simply transferring it to another medium such is accomplished with above ground treatment using ion exchange.
- Active EISB can directly treat perchlorate in source areas, as well as perchlorate-impacted groundwater as it pass through a linear biobarrier system.
- Active EISB has the ability to treat co-contaminants such as TCE as part of a single treatment strategy, which is not possible with ex situ ion exchange or bioreactor technology.

The active EISB technology has the following limitations over pump and treat technologies:

- The effectiveness of active EISB may be limited by the occurrence of specific geochemical conditions (e.g., high sulfate) that may require larger quantities of electron donor and sulfide production.
- Active EISB has the potential to adversely impact secondary groundwater quality through mobilization of metals and production of sulfides or methane if excess amounts of electron donor are added.
- The effectiveness of active EISB may be limited by the presence of co-contaminants that may be inhibitory to biodegradation (e.g., chloroform, hydrogen sulfide).

The active EISB approach, with ongoing operation of a groundwater recirculation system, has the following advantages over passive EISB approaches:

- Active systems require fewer wells or injection points because the groundwater recirculation provides an induced flow to distribute electron donor across the natural flow of groundwater across greater distances. This factor is particularly relevant when the target treatment zone is deep and the costs to install wells or injection points are high.
- Active systems do not inject unduly high concentrations of electron donor at one time as is typical with passive systems. The more moderate concentration of electron donor added to active systems reduces the potential for impacts to secondary water quality characteristics (such as increasing the concentrations of iron and manganese, sulfide and methane) and reduces the tendency for electron donor to be consumed in biological pathways that will not contribute to perchlorate reduction (i.e., methane generation).
- Active systems do not inject large volumes of oil emulsion that can reduce the hydraulic conductivity of the treatment zone and cause diversion of groundwater around the treatment zone.

The active approach has the following limitations relative to passive approaches:

- Active systems require the installation of permanent injection wells to allow for groundwater recirculation and amendment of electron donor. Passive systems can use direct push injection points rather than permanent wells.
- Active systems require ongoing groundwater recirculation and amendment with electron donor.

The active approach has the following advantage relative to semi-passive approaches:

• The active approach results in less variation in the concentration of electron donor than semi-passive systems but both active and semi-passive have less variations than with the



passive approach. As discussed earlier, variations in the concentration of electron donor can negatively impact secondary water quality characteristics.

The active approach, with continuous operation rather than periodic operation of a groundwater recirculation system, has the following disadvantages over semi-passive approaches:

- The groundwater recirculation equipment of an active system needs to be dedicated to a specific set of injection and extraction wells and cannot be moved from one area to another in sequence, thus avoiding significant capital costs.
- The operating costs for active systems can be greater than for semi-passive systems because: 1) the active system is operated continuously; and 2) the injection wells can be more susceptible to biofouling because the injection of electron donor is done on a continuous rather than periodic basis.
- The equipment required for active operation can be more complex and is more likely to require complex controls and permitting because of the continuous nature of the operation.

#### 3. PERFORMANCE OBJECTIVES

The performance objectives for this Demonstration are shown in **Table 3-1** and are discussed in more detail below.

#### 3.1 Ease of Installation

The ease of installation of electron donor injection components is an important factor in maintaining low installation costs for the EISB technology. Ideally, the installation can be accomplished using standard, readily available materials and components by contractors without special training or knowledge.

This criterion can be evaluated based on the experience of demonstration operators and the actual availability and costs of installed equipment.

This objective was achieved during the demonstration based on experience with the actual installation of the electron donor delivery system at the IRCTS. The equipment required for the active recirculation and injection of electron donor were all readily available through local drillers and plumbing suppliers. The ClO<sub>2</sub> biofouling control system was also available and straightforward to install. The procedures used to install the equipment were standard and well established procedures for local drillers and the procedures were simple enough to be conducted by field technicians with training in basic plumbing techniques.

#### 3.2 Ease of Electron Donor Delivery Events

The ease of electron donor delivery is an important factor in maintaining low O&M costs. Ideally, the electron donor delivery can be conducted with minimal special training for operators conducting the events, with minimal special equipment and in a short period of time.

This criterion can be evaluated based on the experience of operators and the costs of operating the system.

This objective was achieved during the demonstration based on experience of field staff with the actual operation of the system. The activities and procedures required for the recirculation of groundwater and addition of electron donor delivery were simple enough to be conducted by field staff with minimal specialized training and effort. It is believed that the pulsed injection of electron donor over one hour each day followed by an injection of ClO<sub>2</sub> was an effective operating strategy for controlling biofouling of the injection well.

#### 3.3 Enhancement of Microbiological Activity

The enhancement of microbiological activity is a critical factor to the success of the EISB technology because it is this activity that degrades the perchlorate in the subsurface.



# TABLE 3-1: PERFORMANCE OBJECTIVES Active Perchlorate Bioremediation Demonstration

Performance Objective	Data Requirement	Success Criteria		
Qualitative Performance Objectives	Qualitative Performance Objectives			
Ease of Installation of Electron     Donor Delivery Components	Experience of demonstration operators; actual availability and costs of installed equipment	Electron donor delivery system can be readily installed by standard industry procedures/contractors		
Ease of Electron Donor     Delivery Events	Experience of demonstration operators; and costs of events	Electron donor delivery events can be conducted with minimal training and effort		
Enhancement of     Microbiological Activity	Groundwater and soil analyses for geochemical characterization	Electron donor addition enhances microbiological activity in the treatment zone		
Ease of Performance     Monitoring and Validation	Quality of data and ability to interpret and quantify biodegradation with confidence	Performance monitoring network allows straightforward data collection, interpretation and validation		
Quantitative Performance Objectives	Quantitative Performance Objectives			
5) Reduction in Perchlorate Concentration	Groundwater sampling of performance monitoring wells	Perchlorate concentrations reduced to practical quantitation limit of 4 µg/L		
6) Radius of Influence and Distance for Degradation	Groundwater sampling of performance monitoring wells	Radius of influence for electron donor addition will extend to target treatment area and perchlorate will be degraded before groundwater reaches the furthest downgradient performance monitoring wells.		

Notes:

 $\mu g/L$  - micrograms per Liter



This criterion can be evaluated based on the results of groundwater and soil analyses for geochemical parameters.

This objective was achieved based on the results of chemical and geochemical characterization. Groundwater monitoring data for chemical and geochemical parameters demonstrated that electron donor addition enhanced microbiological activity in the treatment zone. Significant and sustained reductions in ORP were observed following addition of electron donor and provide the first indication that biological activity was enhanced by the addition of electron donor. Additional evidence of enhanced microbial activity was demonstrated by the reductions in perchlorate concentrations. Groundwater sampling of performance monitoring wells demonstrated that the average perchlorate concentrations were reduced to below the PQL of 4.0  $\mu$ g/L during the operating period. The average perchlorate concentrations measured in: (1) MW-1 from Day 29 to the end of amendment injection period (2.6  $\mu$ g/L); and (2) STSW-138A from Day 85 to the end of amendment injection period (2.9  $\mu$ g/L) were all less than 4.0  $\mu$ g/L.

#### 3.4 Ease of Performance Monitoring and Validation

The ease of performance monitoring and validation is an important factor to demonstrate that the objective of perchlorate reduction has been accomplished.

This criterion can be evaluated by assessing the quality of data and ability to interpret and quantify biodegradation with confidence.

This objective was achieved during the demonstration based on the data obtained during the demonstration. The quality of the data obtained and the ability to interpret this data and quantify biodegradation with confidence demonstrated that the performance monitoring network allowed for straightforward data collection, interpretation and validation.

#### 3.5 Reduction in Perchlorate Concentration

The reduction of perchlorate concentrations in groundwater is the most critical objective of demonstration. This is a quantitative objective of achieving an average concentration of perchlorate to the practical quantitation limit (PQL) of  $4 \mu g/L$ .

This criterion can be assessed based on the results of chemical analysis of groundwater samples collected from performance monitoring wells.

This objective was achieved based on groundwater sampling of performance monitoring wells which demonstrated that the average perchlorate concentrations were reduced to below the PQL of 4 µg/L during the operating period.



#### 3.6 Radius of Influence and Distance for Degradation

The radius of influence and distance for degradation of perchlorate is an important factor in determining the effectiveness of the electron donor distribution system.

This criterion can be assessed based on groundwater sampling of performance monitoring wells during the tracer test and following electron donor addition to demonstrate that the radius of influence for electron donor addition extends between injection and extraction wells and perchlorate is degraded before groundwater reaches downgradient performance monitoring wells.

This objective was achieved during the demonstration based on groundwater sample results from performance monitoring wells following system operation which demonstrated that the radius of influence for electron donor extends to the performance monitoring wells and that perchlorate was degraded before groundwater reached downgradient performance monitoring wells.

#### 4. SITE DESCRIPTION

This Section presents information on the IRCTS where the demonstration was conducted. Section 4.1 describes the site location and history; Section 4.2 describes the site geology/hydrogeology; and Section 4.3 describes the contaminant distribution.

#### 4.1 Site Location and History

**Figure 4-1** provides a site location map showing the boundaries of the IRCTS and the WNN Easement. The demonstration test area is located within Aerojet's 60-foot WNN Easement on the western boundary of the original IRCTS configuration. **Figure 4-2** shows the location of the extraction, recharge and monitoring wells used as part of the demonstration test.

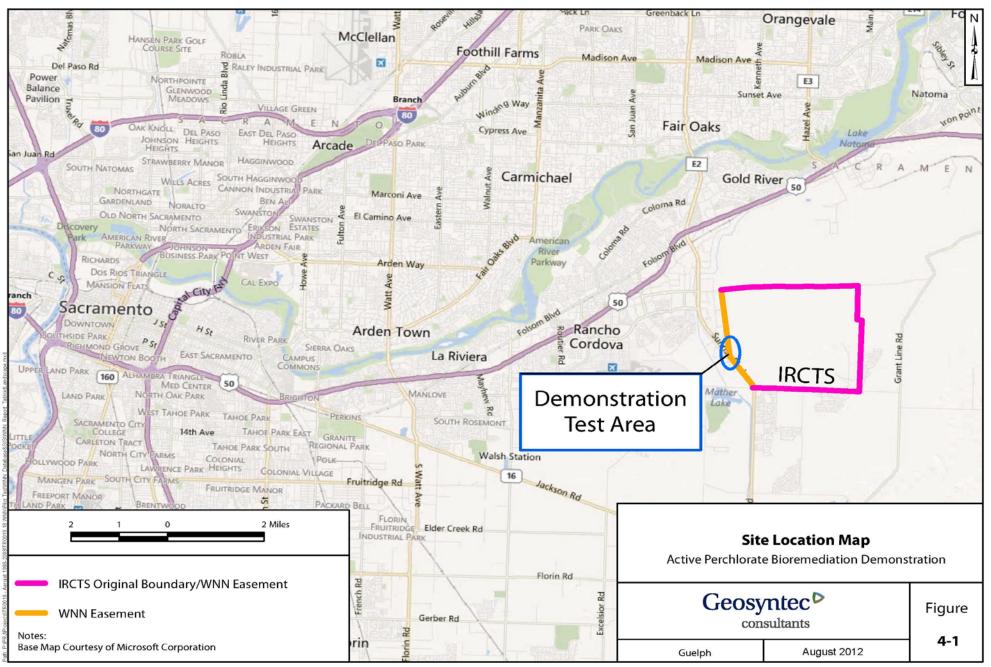
The IRCTS was used between 1956 and 1969 for a variety of aerospace related activities including testing of solid-rocket motors and liquid rocket engines.

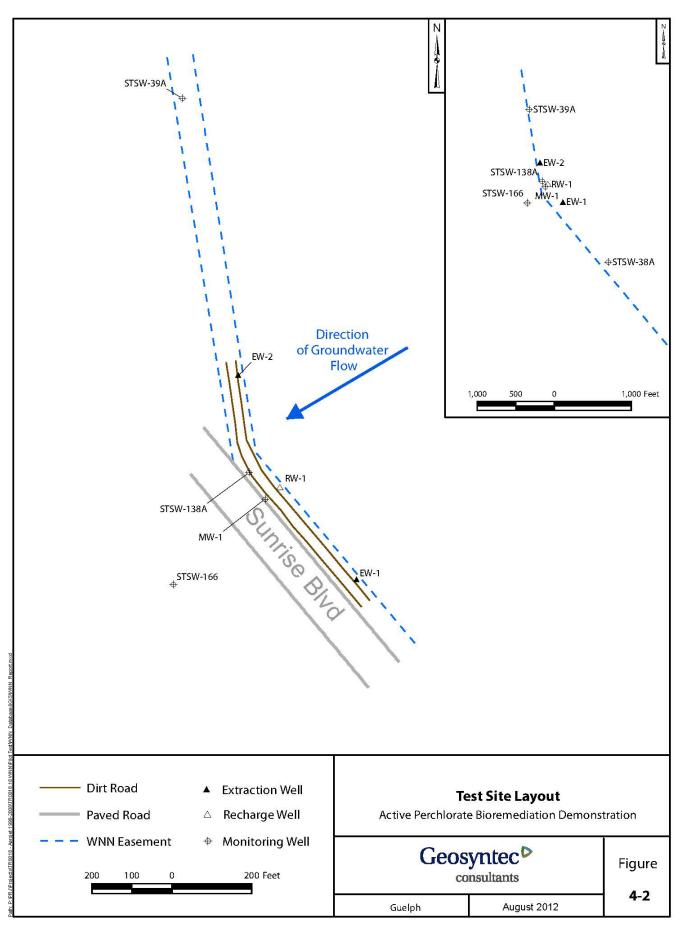
#### 4.2 Site Geology/Hydrogeology

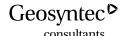
The Site is situated on a dissected alluvial plain in the southeastern margin of the Sacramento Valley. The area is underlain by over 1,000 feet of sediments that include, from youngest to oldest: the Quaternary South Fork Gravels, the Quaternary-Tertiary Laguna Formation, the Tertiary Mehrten, Valley Springs, and Ione Formations, and the Cretaceous Chico Formation (CDWR, 1964, 1974).

Groundwater at the site occurs in various hydrostratigraphic units within the Laguna and Mehrten Formations. The Laguna Formation is described as a predominately fine-grained, non-volcanic fluvial deposit. Contact with the underlying Mehrten Formation is gradual, and a 60- to 100-foot transition zone has been defined in the general area of the IRCTS and areas to the west (ENSR, 2001). The transition zone has been identified by the presence of intercalated brown and black sands of volcanic origin and lower natural gamma response (ENSR, 2001). Underlying the transition zone, the Mehrten Formation consists of interbedded black sands and gravels with occasional thin silts and clays. A blue clay is present under these sands and gravels, which represents the top of the underlying Valley Springs Formation. In the vicinity of the demonstration test area, the top of the Mehrten Formation is shown to be at an elevation of approximately -100 feet below sea level or a depth of about 250 feet below ground surface (bgs) (CDWR, 1964).

Groundwater flow in the region is primarily to the west-southwest under horizontal gradients between 0.0027 and 0.0032 foot per foot (ft/ft) (ENSR, 2001). Vertical gradients across the Site range from no gradient to downward gradients of up to 0.12 ft/ft. Pumping tests (step-drawdown and constant-rate) were performed at RW-1 during January 2003 by GeoTrans, Inc. (GeoTrans). Results of the pumping tests indicated that the hydraulic conductivity of the shallow aquifer ranges from 65 to 100 ft/day (see Section 5.2.1 for more details on these tests).



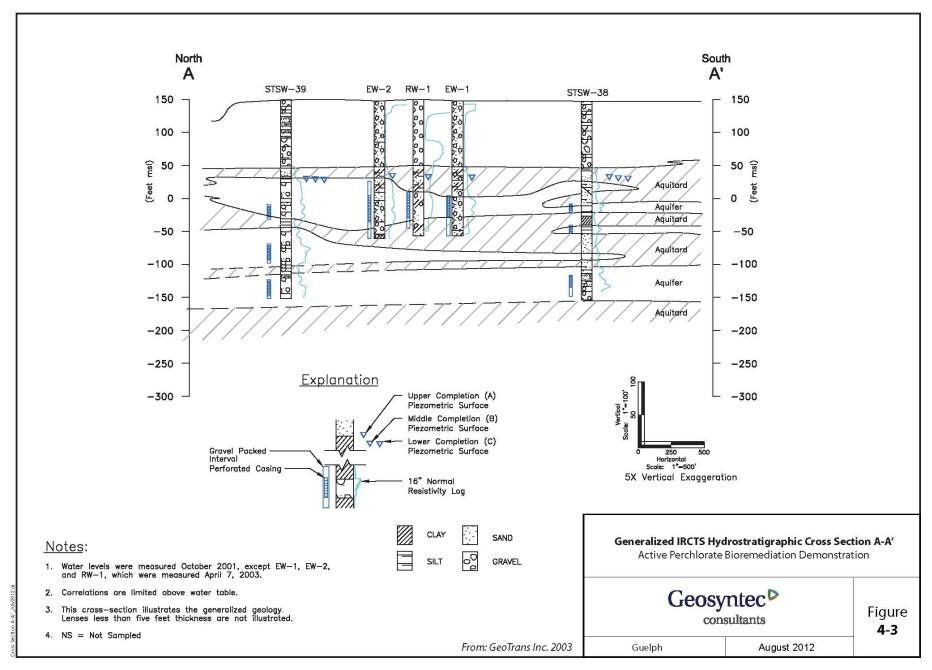




**Figure 4-3** shows a generalized hydrostratigraphic cross-section in the vicinity of the test site. In this area, undifferentiated quaternary deposits are present from ground surface to approximately 100 ft bgs, which is underlain by a low permeability layer of silty clay (10 to 75 ft), prior to encountering the Laguna formation. The demonstration test was conducted in the shallowest aquifer of the local Laguna Formation, which extends from 120 to 182 feet bgs (thickness of 62 feet). In the demonstration test area the Laguna formation consists of gravel and silty and clayey sands. Another low permeability silty clay layer is present below the Laguna formation, followed by the Laguna-Mehren transition zone to a depth of approximately 250 ft bgs. Depth to groundwater was approximately 122 feet bgs prior to the initiation of the pilot test, which suggests that aquifer is unconfined or partially confined because the water level is near the top of the aquifer.

## 4.3 Groundwater Chemistry

The wells in the vicinity of the test area produce a calcium-magnesium bicarbonate groundwater with a total dissolved solids (TDS) concentration of approximately 160 mg/L. Prior to the initiation of the test, the water contained perchlorate and TCE at concentrations of up to 4,600 μg/L and 17 μg/L respectively. The concentrations of cis-1,2-DCE and VC were below their Practical Quantitation Limits (PQLs), indicating intrinsic TCE biodegradation was negligible. Nitrate and sulfate concentrations were low (maximums of 2.1 and 11 mg/L, respectively). Dissolved oxygen (DO) concentrations in the various wells ranged from 0.86 to 4.55 mg/L, suggesting aerobic conditions, however oxidation-reduction potentials (ORP) ranged from –128 to 188 mV, suggesting some variability in baseline redox conditions in the demonstration test area. Measurements of general indicators of biological activity, including volatile fatty acid (VFA) and dissolved hydrocarbon gas (DHG) testing, biochemical and chemical oxygen demand (BOD and COD), and testing for general bacterial DNA as well as *Dehaloccoides ethenogenes* (*Dhc*), indicated limited biological activity in the groundwater.



#### DESIGN

This section describes the design and the results of the demonstration test. Section 5.1 presents a conceptual experimental design; Section 5.2 describes the baseline characterization that was conducted; Section 5.3 describes the design and layout of the technology components for the demonstration; Section 5.4 describes the field testing that was conducted; Section 5.5 describes the sampling methods; and Section 5.6 presents the results of the sampling conducted to monitor the field demonstration.

#### 5.1 Conceptual Experimental Design

The goal of this demonstration test was to demonstrate an active *in situ* bioremediation approach that involved continuous recirculation of groundwater and delivery of electron donor to create a biologically active zone or biobarrier across a perchlorate plume, for the purposes of promoting perchlorate biodegradation and controlling plume migration.

In concept, the active biobarrier approach involved the use of alternating extraction and injection (recirculation) wells installed across a perchlorate plume. To add and mix the electron donor across the plume, groundwater was extracted, amended with electron donor, and recharged to the aquifer to promote *in situ* biodegradation of perchlorate and prevent migration of perchlorate beyond the biobarrier.

The active biobarrier consisted of two groundwater extraction wells (EW-1 and EW-2) and a single central electron donor delivery / recharge well (RW-1). These wells were oriented along a line approximately perpendicular to the prevailing direction of groundwater flow and were located within the WNN Easement. The extraction and recharge wells are all screened within the shallow aquifer: EW-1 is screened from 146 to 176 feet below ground surface (ft bgs); EW-2 is screened from 147 to 187 ft bgs; and RW-1 is screened from 140 to 180 ft bgs. During demonstration test operation, groundwater was extracted from EW-1 and EW-2, combined, amended with electron donor (ethanol), and recharged via RW-1. Demonstration test performance (hydraulic and biodegradation) was monitored using three performance monitoring wells in the test area (MW-1, STSW-138A and STSW-166). MW-1 was installed in April 2003, is located approximately 50 feet downgradient from RW-1, and is screened from 145 to 185 ft bgs. STSW-138A is located approximately 85 feet transgradient from RW-1, and is screened from 160 to 180 ft bgs. STSW-166 was installed in January 2004, is located approximately 350 feet downgradient from RW-1, and is screened from 120 to 180 ft bgs. Figure 4-2 presents the site layout and the locations of these well.

#### 5.2 Baseline Hydraulic and Chemical Characterization

Hydraulic characterization within the vicinity of the demonstration test was performed through pump testing and tracer testing. These activities are described below.



Hydraulic testing was conducted at recharge well RW-1, prior to the installation of the extraction wells to characterize the hydraulic properties of the shallow aquifer in the vicinity of the demonstration test. Two pumping tests were conducted by GeoTrans: (1) a step-drawdown test to evaluate the specific capacity of each well; and (2) a constant-rate test to determine the transmissivity and storage coefficient of the shallow zone of the aquifer.

The step-drawdown test consisted of five sequential 2-hour periods of constant-rate pumping at increasingly higher pumping rates. The five flow rates ranging from 30 gallons per minute (gpm) to 200 gpm. Drawdown was measured at RW-1 and used to determine the specific capacity of the well. Based on these data, the recharge capacity of RW-1 was then determined using the method of Driscoll (1986).

The constant-rate test was conducted at a pumping rate of 151 gpm for 25.5 hours. This rate was near the sustainable well yield for RW-1. Drawdown was measured in MW-1 and STSW-138A. The data were analyzed using the Cooper-Jacob straight line method, and the Hantush method for leaky aquifers, to determine the transmissivity, hydraulic conductivity and storativity of the aquifer. (Appendix B)

A numerical groundwater flow model was previously created with Visual MODFLOW<sup>TM</sup> to simulate the flow conditions in the vicinity of the biobarrier. After the pumping test results were analyzed, the data were used in combination with lithological data from the wells to refine the groundwater model. The refined model was then used to predict the capture zones and to optimize spacing and pumping rates for the extraction wells.

A conservative tracer test was conducted in August 2003 to: (1) evaluate groundwater flow patterns in the test area; and (2) confirm groundwater flow velocities and system residence times. Sodium bromide, prepared as a 0.35 kg/L stock solution in de-ionized water, was added continuously at a rate of 10.3 mL/min over a 14-day period to groundwater recharge at RW-1. This yielded a time weighted average (TWA) concentration of approximately 25 mg/L bromide. Breakthrough of the conservative tracer at the monitoring and extraction wells was monitored via collection and analysis of samples from test area wells on a semi-weekly to weekly basis. Samples were analyzed by ion chromatography (IC) by Aerojet's Environmental Laboratory (AEL).

Baseline groundwater conditions were determined from sampling activities conducted in the spring and summer months preceding implementation of demonstration test activities. Samples were analyzed for:

- Field parameters (specific conductivity, DO, ORP, pH and temperature);
- Perchlorate and associated degradation products (e.g., chlorate and chloride);
- VOCs:

- Dissolved hydrocarbon gases (DHGs; methane, ethane and ethene);
- Anions (chloride, bromide, nitrate, nitrite, phosphate and sulfate);
- Dissolved Metals;
- Ethanol and volatile fatty acids (VFAs; acetate, propionate);
- General carbon indicators (biological oxygen demand (BOD) and chemical oxygen demand (COD);
- Metabolic products (e.g., sulfide); and
- Microbial analysis (*Dhc* presence/absence).

Samples were collected from wells RW-1, MW-1, STSW-138A, STSW-39A/B, STSW-38A, and STSW-166, and were submitted to (depending on the analyte) either AEL, SiREM Laboratories, Calscience Environmental Laboratories and/or California Laboratory Services for analysis by the methods listed in **Table 5-1**.

### 5.3 Design and Layout of Technology Components

This section describes the design and layout of the technology components. Section 5.3.1 describes the system infrastructure; Section 5.3.2 describes the basis for electron donor addition rates; and Section 5.3.3 describes the bioaugmentation with a microbial culture to enhance degradation of chlorinated solvents.

### 5.3.1 System Infrastructure

The demonstration test infrastructure was installed and instrumented during the spring of 2003, and was completed in August 2003 (with the exception of monitoring well STSW-166, installed in January 2004). Well installations (RW-1, EW-1, EW-2, MW-1 and STSW-166) were completed by WDC Exploration and Wells by GeoTrans or Kleinfelder. Aerojet utilized various contractors for the installation of piping and electrical controls between the wells, the instrumentation of the electron donor delivery and biofouling control systems; and the construction of a secure control facility. **Figure 4-2** presents the layout of the groundwater extraction, electron donor delivery and monitoring wells in the demonstration test area. Aerojet removed the above-ground facilities after completion of the test operations.

#### 5.3.2 Basis for Electron Donor Addition Rates

Ethanol was used as the electron donor because of its efficiency in promoting perchlorate degradation and because it does not adversely impact groundwater quality (other than a transient redox and alkalinity shift). Calculations to determine the electron donor demand for perchlorate

TABLE 5-1: SUMMARY OF LABORATORY ANALYTICAL METHODS

P aram eter	Analytical Method	Method	Analytical Laboratory	Quantitation Limit	Sample Container	Preservative	Holding Time
Field Parameters (pH, DO, ORP, temperature)	Field Instrumentation	Field	NA	Varies	NA	NA	NA
Perchlorate, chlorate	Ion Chromatography	EPA 314, 300	AAL, CLS	4 μg/L, 0.02 μg/L	120 mL plastic	cool to 4°C	14 days
Volatile Organic Compounds	Gas Chromatography /Mass Spectrometry	EPA 601, 602	AAL	0.25 to 20 μg/L	2 x 40 mL VOA	HCl, cool to 4°C	14 days
Metals (dissolved)	Ion Chromatography (field filtered)	SW-846, 6010	AAL	See Table 4B	500 mL plastic	cool to 4°C	28 days
Anions (bromide, chloride, nitrate, nitrite, sulfate, phosphate)	Ion Chromatography	EPA 300	AAL	0.03 to 0.05 mg/L	120 mL plastic	cool to 4°C	2 to 28 days
Ethanol	Gas Chromatography /Mass Spectrometry	SW-846, 8260M	CEL	0.5 μg/mL	2 x 40 mL VOA	HCl, cool to 4°C	7 days
Volatile Fatty Acids (butyric, proprionic, lactic, acetic and pyruvic acids)	HPLC/UV	HPLC/UV	CEL	0.5 to 1 mg/L	250 mL amber glass	phosphoric acid, cool to 4°C	14 days
Dissolved Hydrocarbon Gases (ethene, ethane, methane)	Gas Chromatography/ Flame Ionizing Detector	RSK-175	CEL	1 mg/L	250 mL amber glass	HCL, cool to 4°C	7 days
Sulfide	Titrimetry, Potentiometry	NB 3653:139, EPA 376.2	CEL	0.05 mg/L	250 mL plastic	zinc acetate, sodium hydroxide to pH>9, cool to 4°C	7 days
Biochemical Oxygen Demand	Oxygen Electrode	EPA 405.1	CEL	1.0 mg/L	1000 mL pastic	cool to 4°C	2 days
Chemical Oxygen Demand	Titrimetry	EPA 410.4	CEL	5.0 mg/L	250 mL plastic	sulfuric acid to pH<2, cool to 4°C	28 days
Dehalococcoides	PCR Assay	NA	SiREM	NA	2 x 1L plastic	cool to 4°C	30 days

#### Notes:

AAL - Aerojet Analytical Laboratories, Rancho Cordova, California

CLS - California Laboratory Services, Rancho Cordova, California

CEL - CalScience Environmental Laboratory, Garden Grove, California

SiREM - SiREM Laboratories, Guelph, Ontario

NA - Not Applicable

DO - Dissolved Oxygen

and TCE in the groundwater at the demonstration test area are presented in **Table 5-2.** Degradation of perchlorate requires the addition of sufficient electron donor to reduce oxygen and nitrate prior to perchlorate reduction, whereas degradation of TCE requires the reduction of oxygen, nitrate, perchlorate, and sulfate prior to TCE reduction. The 24-hour time-weighted average electron donor concentration was initially 6 mg/L from demonstration test initiation through 16 March 2004, and 18 mg/L for the remainder of the pilot test. The initial concentration reflected the amount of electron donor stoichiometrically required to degrade perchlorate and TCE without excess. Following 16 March 2004, the concentration was increased 3-fold to provide excess electron donor to enhance the rate and extent of TCE dechlorination. Electron donor demand was calculated based on baseline concentrations of 0.02 mg/L TCE, 11 mg/L of sulfate, 1 mg/L perchlorate, 1 mg/L nitrate and 4 mg/L DO. Electron donor addition was achieved through 1-hour daily pulse additions of 2,580 mL pure ethanol at 43 mL/min (for the period of to 16 March 2004) and 4,150 mL pure ethanol at 69 mL/min (for the remainder of the demonstration test). The schedule of electron donor addition concentrations is presented in **Table 5-3**.

Additional electron donor was added immediately prior to each bioaugmentation event to provide suitable conditions for introduction of the dehalorespiring bacteria, as described in Section 5.3.3.

### 5.3.3 Bioaugmentation

Two separate bioaugmentation events were conducted to evaluate the potential to enhance TCE bioremediation. The first event (Bioaugmentation A) was conducted on 10 November 2003 (Day 63 of the demonstration test); the second event (Bioaugmentation B) was conducted on 24 March 2004 (Day 198). Both events consisted of amending the shallow aquifer with approximately 40 liters (L) of KB-1 (provided by SiREM Laboratories), a microbial consortium that contains the dehalorespiring bacteria *Dehalococcoides*.

Bioaugmentation A consisted of the injection of KB-1 via recharge well RW-1. The bioaugmentation sequence can be summarized as follows:

- i) Approximately 6,200 gallons of groundwater from EW-1 and 170 gallons of groundwater from MW-1 were extracted into a surface holding tank for use in dispersing KB-1 from the recharge well following bioaugmentation. Ethanol was added to the extracted water to reduce oxygen levels so as to not adversely affect KB-1 during the flushing/dispersion process. Despite best efforts, the DO concentration in the tank water prior to KB-1 injection remained above 1 mg/L.
- ii) The recirculation system was shut off and approximately 6 L of ethanol was injected into RW-1 over a 4 hour period to allow development of suitable redox conditions in RW-1 for KB-1 delivery.
- iii) Approximately 40 L of KB-1 was injected into RW-1 under nitrogen/argon blanket to reduce exposure of the culture to oxygen.

### TABLE 5-2: ELECTRON DONOR DEMAND CALCULATIONS

Active Perchlorate Bioremediation Demonstration

Electron Acceptor	Chemical Formula	Stoichiometry <sup>a</sup>	Ethanol Balanced Redox Reaction <sup>b</sup>	Molar Ratio <sup>c</sup>
Oxygen (O <sub>2</sub> )	$O_2$	$O_2 + 4H^+ + 4e^- = 2H_2O$	$C_2H_6O + 3O_2 = 2CO_2 + 3H_2O$	1/3
Nitrate (NO <sub>3</sub> <sup>-</sup> )	NO <sub>3</sub>	$2NO_3^- + 12H^+ + 10e^- = N_2 + 6H_2O$	$5C_2H_6O + 12NO_3^- + 12H^+ = 6N_2 + 10CO_2 + 21H_2O$	5/12
Sulfate (SO <sub>4</sub> <sup>2-</sup> )	SO <sub>4</sub>	$SO_4^{2-} + 10H^+ + 8e^- = H_2S + 4H_2O$	$2C_2H_6O + 3SO_4^{2-} + 6H^+ = 3H_2S + 4CO_2 + 6H_2O$	2/3
Perchlorate (ClO <sub>4</sub> <sup>-</sup> )	ClO <sub>4</sub> -	$ClO_4^- + e^- = ClO^- + 2O_2$	$2C_2H_6O + 3ClO_4^- = 3Cl^- + 4CO_2 + 6H_2O$	2/3
Trichloroethene (C <sub>2</sub> HCl <sub>3</sub> )	C <sub>2</sub> HCl <sub>3</sub>	$C_2HCl_3 + 6e^2 + 3H^4 = C_2H_4 + 3Cl^2$	$C_2H_6O + 2C_2HCl_3 + 3H_2O = 2C_2H_4 + 2CO_2 + 6H^+ + 6Cl^-$	1/2

Molecular Weight (g/mol)	In Situ Concentrations <sup>d</sup> (mg/L)	Molar Ratio	Ethanol Demand (mg/L)								
32.0	4.0	1/3	1.9								
62.0	1.0	5/12	0.3								
99.5	1.0	2/3	0.3								
96.1	11	2/3	3.5								
131.4	0.02	1/2	0.004								
Electron Donor Demand to Reduce Oxygen, Nitrate and Perchlorate  Electron Donor Demand to Reduce Oxygen, Nitrate, Perchlorate, Sulfate and TCE  6.0											
	32.0 62.0 99.5 96.1 131.4 e Oxygen, Nitrate and Perchlo	32.0 4.0 62.0 1.0 99.5 1.0 96.1 11 131.4 0.02	32.0 4.0 1/3 62.0 1.0 5/12 99.5 1.0 2/3 96.1 11 2/3 131.4 0.02 1/2  e Oxygen, Nitrate and Perchlorate								

#### Notes:

<sup>&</sup>lt;sup>a</sup>Complete mineralization to the appropriate end products was assumed.

<sup>&</sup>lt;sup>b</sup>Balanced redox reactions using ethanol were developed by adding the appropriate constituent half-reactions with the half-reaction for ethanol; whereby the ethanol ( $C_2H_6O$ ) half-reaction is given by:  $C_2H_6O + 3H_2O = 2CO_2 + 12H^+ + 12e^-$  (solutions are non-unique)

<sup>&</sup>lt;sup>c</sup>Molar ratio is the number of moles of electron donor consumed per mole of constituent.

<sup>&</sup>lt;sup>d</sup>Baseline perchlorate and trichloroethene results from STSW-39A measured from Nov '00 to July '01

Oxygen, Nitrate and Sulfate results estimated from previous microcosm studies for Alpha & Sigma Complex and former GET F Sprayfield

## TABLE 5-3: ELECTRON DONOR ADDITION SCHEDULE

Active Perchlorate Bioremediation Demonstration

						Stoichiometric			
			24-Hour Time-	Stoichiometric		Demand to Reduce			
			Weighted Average	Demand to Reduce		Oxygen, Nitrate,	1000		
			Electron Donor	Oxygen, Nitrate	Increase Over	Perchlorate,	Increase Over		
			Concentration	and Perchlorate	Stoichiometric	Sulfate and TCE	Stoichiometric	Flow from	Flow from
Date Range	Start Day	End Day	Added (mg/L)	(mg/L)	Demand	(mg/L)	Demand	EW-1 (gpm)	EW-2 (gpm)
8-Sep-03 to 18-Dec-03	0	104	6	2.5	2.4X	6	1X	20	40
18-Dec-03 to 3-Jan-04 <sup>1</sup>	104	120	0	2.5	0X	6	0X	0	0
3-Jan-04 to 16-Mar-04	120	193	6	2.5	2.4X	6	1X	20	40
16-Mar-04 to 30-Apr-04	193	238	18	2.5	7X	6	3X	30	40

Notes:

1. System shut-down for holidays

consultants

- iv) After a static period of 24 hours, the water in the holding tank was then injected via RW-1 at a rate of 60 gpm to disperse KB-1 from the recharge well and into the demonstration test area.
- v) Standard system operation was resumed.

Bioaugmentation B consisted of injection of KB-1 via monitoring well MW-1. The bioaugmentation sequence can be summarized as follows:

- i) Approximately 2,100 L of water was extracted from MW-1 into a surface holding tank and amended with ethanol to reduce DO concentrations and to achieve an ethanol concentration of 100 mg/L.
- ii) Approximately 1,000 L of amended water was then injected back into MW-1 to create a zone of anoxic water around the screen of this well.
- iii) Approximately 40 L of KB-1 was injected into MW-1 under nitrogen/argon blanket.
- iv) The remainder of the water in the surface holding tank was then injected via MW-1 to disperse KB-1 from the well screen and into the formation.
- v) Standard system operation was resumed, and the ethanol injection concentration was increased to a stoichiometric equivalent of three times the stoichiometric demand to enhance survival and activity of the added organisms.

## 5.4 Field Testing

The demonstration system was operated from September 2003 to April 2004. The activities conducted during the operation are described in the following subsections.

## 5.4.1 System Operation and Monitoring

## **System Operation**

The system was initially operated by extracting groundwater from wells EW-1 and EW-2 at rates of approximately 20 gpm and 40 gpm respectively, beginning on 08 September 2003. On 16 March 2004, the flow rate at EW-1 was increased to 30 gpm to improve groundwater capture at this well. The demonstration test was terminated on 30 April 2004 (day 238). The extraction wells were equipped with submersible pumps set at 140 ft below top of casing (btoc). Pressure transducers with a pressure range of 10 psi were set at 133 ft btoc. Level controls were set at 130 ft btoc for low-level shut-off to limit drawdown and protect the pump and at 122 ft btoc for highlevel "on" (assuming a static water level of 120 ft btoc). However, to the extent possible, the flow rate from each well was maintained at a sustainable flow rate that did not induce cycling of the pump.



The recharge well, RW-1 was operated at a flow rate of approximately 60 gpm, for the period up to 16 March 2004, and at a rate of approximately 70 gpm for the remainder of the demonstration test. RW-1 contained a back pressure valve at the wellhead and a pressure transducer with a range of 50 psi set at 122 ft btoc. A static water level of 120 ft btoc was assumed, thus level controls were set with a high-level shutoff at 92 ft btoc and a low-level "on" at 118 ft btoc. The high-level/pump-shutoff would prevent overflow in the event of well fouling (biological or mineral).

Groundwater from both extraction wells was combined and then directed through a filter system to remove particulates. The filter system was equipped with two sets of filters in parallel to allow filter change out without system shutdown. Following filtration, in-line flow sensors installed in each flow stream were used to continuously measure the flow rate of extracted groundwater from the individual wells. These data were logged automatically at 5-minute intervals. The flow from the two streams was then combined at a manifold "tee" and flowed through a third flow sensor. This latter sensor provided feedback control to the pumps to maintain steady extraction/recharge rates and controlled the delivery of tracer and/or electron donor solution to maintain a fixed concentration of these components in the amended groundwater to the recharge well. Following this third flow sensor, a Signet model 3-8750-1 probe continuously measured pH and ORP in the extracted groundwater, logging data at 5-minuite intervals. The combined groundwater was then amended with electron donor (see Section 5.5) using a chemical metering pump, and passed through an in-line mixer prior to recharge to the shallow aquifer via a submerged delivery line in the recharge well RW-1.

The system operation was controlled using a programmable logic controller (PLC) connected to a personal computer. The control system recorded the groundwater extraction rate and total volume, individual electrode measurements, and water levels in the extraction and recharge wells at 5-minute intervals.

#### System Maintenance and Monitoring

Operations and maintenance activities were performed by both Aerojet and Geosyntec. Monitoring tasks conducted by Aerojet personnel included:

- Inspection of the groundwater circulation system;
- Dosing of the RW-1 with chlorine dioxide for biofouling control;
- Filling of electron donor and tracer supply tanks as needed;
- Replacement of filters as needed; and
- Sampling and chemical analysis of samples.

Geosyntec personnel provided oversight of:

- Periodic downloading of automated data collection systems; and
- Bioaugmentation activities.

## **Biofouling Control**

Chlorine dioxide gas was used to control biofouling of the electron donor delivery / recharge well. The chlorine dioxide generator (CDG) from CDG Technologies, Inc., used a pre-blended compressed gas cylinder to supply a pressurized mixture of nitrogen and chlorine gas (96% nitrogen: 4% chlorine), which was passed through a cylinder of sodium chlorite (NaClO<sub>2</sub>) within the unit housing, generating 8% chlorine dioxide gas (ClO<sub>2</sub>) in nitrogen. The amount of chlorine dioxide delivered during each dosing event was regulated by the gas flow rate, and the gas was piped directly into the recharge water at the well-head to control biofouling within RW-1. Chlorine dioxide dosing was accomplished by adding daily one-hour doses of 1 mg/L of ClO<sub>2</sub>.

#### Performance Monitoring

Performance monitoring of groundwater chemistry at demonstration test wells consisted of weekly to monthly measurements of field parameters, perchlorate and other electron acceptors, and bioremediation parameters. The sampling frequencies for the various parameters are presented in **Table 5-4**.

Performance monitoring of groundwater microbiology consisted of periodic collection and analysis of groundwater samples for molecular characterization of *Dhc* using 16S rRNA polymerase chain reaction (PCR) techniques (SiREM Laboratories). These data confirmed the introduction, migration and survival of *Dhc* in the demonstration test groundwater following each bioaugmentation event.

Monitoring at injection well RW-1 was conducted by collecting samples from a sample valve located within the treatment system after electron donor addition and before the chlorine dioxide unit. Data provided for RW-1 represent the concentrations and chemistry of the water being injected into RW-1. These data provide "background" data to measure changes in groundwater chemistry and concentration between RW-1 and MW-1 that can be used to evaluate the effectiveness of the treatment system.

### 5.5 Sampling Methods

Depending on the analytical parameter, samples were submitted to either AEL, SiREM Laboratories, Calscience Environmental Laboratories and/or California Laboratory Services for analysis by the methods listed in **Table 5-1**.

31

TABLE 5-4: DEMONSTRATION TEST SAMPLING SCHEDULE

Parameter		Sampli	ng Frequency		
	Baseline/Final	Semi-Weekly	Weekly	Bi-Weekly	Monthly
Baseline/Final Characterization					
Water Levels	All Wells <sup>1</sup>	==	:==		:==
Field Parameters <sup>3</sup>	All Wells	==.	( <del></del> -		, <del></del> ,
Perchlorate, Chlorate	All Wells	H=1	:	:	( <del>= -</del> )
Volatile Organic Compounds	All Wells	==1	1		
Dissolved Metals	All Wells	<u>000</u> X	4 <u></u> -	<u> </u>	( <u>122</u> )
Anions <sup>4</sup>	All Wells	572×		<u> </u>	7 <u>24</u> 2
Ethanol, Volatile Fatty Acids <sup>5</sup>	All Wells	527	8 <u>44</u>	524	
Dissolved Hydrocarbon Gases <sup>6</sup>	All Wells	227	9 <u>44.0</u>	224	3 <u>500-5</u> 0
Sulfide	All Wells	EE)	1 <del>-1</del>	991	9 <del>0000</del>
BOC, COD	All Wells		1 <del></del>		:==:
Dehalococcoides ethenogenes	EW-1, EW-2, RW-1				
Tracer Testing (2 weeks)					
Water Levels	225	PTA Wells <sup>2</sup>	122	224	
Bromide		PTA Wells	1 <del>7.5</del>	<del></del> x	
Performance Monitoring					
Water Levels			PTA Wells		1
Field Parameters	<u>k-araj</u> k	<u> </u>	PTA Wells	223	( <u>122</u> 62)
Perchlorate	E750K	550	PTA Wells	55Ex	1 <del>555</del> )
Anions		==:	PTA Wells		(AR
Volatile Organic Compounds				PTA Wells	
Dissolved Hydrocarbon Gases				PTA Wells	
Dissolved Metals			<del></del>	PTA Wells	
Ethanol, Volatile Fatty Acids	550	550	.==	PTA Wells	155
Chlorate			:		PTA Wells
Sulfide		<b></b> :	:		PTA Wells

## Notes:

- 1 All Wells = EW-1, EW-2, RW-1, MW-1, STSW-138A, STSW-166, STSW-38A, STSW-39A/B
- 2 PTA wells = EW-1, EW-2, MW-1, STSW-138A, STSW-166
- 3 Field Parameters = pH, dissolved oxygen, oxidation-reduction potential, temperature
- 4 Anions = chloride, nitrate, nitrite, phosphate, sulfate
- 5 Volatile Fatty Acids = acetic acid, butyric acid, lactic acid, propionic acid, pyruvic acid
- 6 Dissolved Hydrocarbon gases = methane, ethane, ethene

### 5.6 Sampling Results

This section presents the results obtained during the demonstration. Section 5.6.1 presents data collected during baseline monitoring; Section 5.6.2 presents the results of pump testing and groundwater modeling; Section 5.6.3 presents the results of the tracer testing; Section 5.6.4 presents the results of redox and pH measurements; Section 5.6.5 presents the results of analysis of perchlorate analysis; Section 5.6.6 presents the results of TCE analysis; and Section 5.6.7 presents the results of supporting groundwater geochemistry.

#### 5.6.1 Baseline Conditions

This section presents the results of baseline monitoring conducted prior to the injection of electron donor at the Site.

**Table 5-5** presents the results of the baseline geochemical characterization of the test area wells. The laboratory reports for chemical analysis are presented in Appendix C. The key baseline groundwater chemistry can be summarized as follows:

- Baseline DO concentrations ranged from 0.86 to 4.55 mg/L. Baseline ORP values ranged from –128 to 188 mV.
- The groundwater pH was near-neutral, ranging from 6.9 to 7.8.
- Perchlorate concentrations ranged from non-detect (STSW-38A) at a PQL of 4 μg/L) to 2,600 μg/L (wells EW-2 and STSW-138A). Outside of the demonstration test area, perchlorate concentrations ranged up to 4,300 μg/L, with the highest concentration detected at well STSW-39A.
- Chlorate concentrations ranged from non-detect at a PQL of 0.02 mg/L to 0.32 mg/L.
- Chloride was detected in the demonstration test area at concentrations in the range of 2 to 4 mg/L.
- Nitrate concentrations were low, ranging from non-detect to 1.7 mg/L.
- Sulfate was detected in all wells at concentrations of 9 to 10 mg/L. Sulfide was not detected in any of the wells, at a PQL of 0.05 mg/L.
- Trichloroethene was detected in all wells except for EW-1. Concentrations ranged from 0.74 to 23 μg/L. Cis-1,2-dichloroethene and vinyl chloride, potential intermediate products of TCE dechlorination, were not detected above their PQL of 0.5 μg/L.

TABLE 5-5: BASELINE GROUNDWATER CHEMISTRY

			2			Well	Identification			
Parameter	Units	Lab	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-38A	STSW-39A	STSW-39B
Field Parameters										
Dissolved Oxygen	mg/L	FLD	4.55	3.84	0.860	3.00	0.98	1.25	1.39	2.39
Oxidation-Reduction Potential	mV	FLD	133	169	-110	188	-101	-128	-10	-44
pН	pH units	FLD	7.37	7.49	7.10	7.15	7.01	7.61	6.90	7.31
Temperature	°C	FLD	20.8	19.6	21.4	19.9	20.5	19.2	20.2	21.5
Perchlorate and Degradation Products										
Perchlorate	μg/L	AAL	300	2600	1400	2500	2600	<4	4300	410
Chlorate	mg/L	CLS	0.021	0.02	0.32	< 0.02	< 0.02	0.01	< 0.02	< 0.02
Chloride	mg/L	AAL	3.1	3.4	2.6	3.0	2.4	4.1	7.7	38
Anions										
Nitrate	mg/L	AAL	1.2	1.4	1.0	1.4	1.7	0.71	2.1	5.5
Phosphate	mg/L	AAL	< 0.3	0.31	< 0.1	< 0.3	0.21	0.11	0.1	< 0.1
Sulfate	mg/L	AAL	8.9	9.4	9.0	9.8	9.7	9.5	11	18
Sulfide	mg/L	CEL	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Biodegradation Parameters										
Acetic Acid	mg/L	CEL	1.8	<1	3.7	NA	2.9	NA	NA	NA
Butyric Acid	mg/L	CEL	<1	<1	<1	NA	<1	NA	NA	NA
Propionic Acid	mg/L	CEL	<1	<1	<1	NA	2.9	NA	NA	NA
Pyruvic Acid	mg/L	CEL	< 0.5	< 0.5	< 0.5	NA	< 0.5	NA	NA	NA
Lactic Acid	mg/L	CEL	<1	<1	<1	NA	<1	NA	NA	NA
Biochemical Oxygen Demand	mg/L	CEL	<1	<1	<1	NA	<1	<1	<1	<1
Chemical Oxygen Demand	mg/L	CEL	<5	<5	<5	NA	<5	<5	<5	<5
Ethanol	mg/L	CEL	< 0.1	< 0.1	< 0.1	NA	< 0.1	NA	NA	NA
Dehalococcoides	+/-	SiR	ND	+++	NA	NA	NA	NA	NA	NA
Dissolved Hydrocarbon Gases										
Ethane	μg/L	CEL	<1	<1	<1	NA	<1	NA	NA	NA
Ethene	μg/L	CEL	<1	<1	<1	NA	<1	NA	NA	NA
Methane	μg/L	CEL	<1	<1	<1	NA	<1	NA	NA	NA

TABLE 5-5: BASELINE GROUNDWATER CHEMISTRY

	j	1				Well	Identification			
Parameter	Units	Lab	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-38A	STSW-39A	STSW-39B
Volatile Organic Compounds										
Trichloroethene	μg/L	AAL	< 0.5	4.8	3.3	3.8	0.74	23	17	2.0
cis/trans1,2-Dichloroethene	μg/L	AAL	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	μg/L	AAL	NA	NA	NA	NA	NA	NA	NA	NA
Dissolved Metals										
Barium	mg/L	AAL	0.012	0.023	0.0061	0.022	0.022	0.047	0.024	0.075
Calcium	mg/L	AAL	13	12	11	12	12	19	16	31
Iron	mg/L	AAL	< 0.3	< 0.3	0.66	< 0.3	< 0.3	< 0.3	< 0.3	0.74
Magnesium	mg/L	AAL	6.7	7.3	6.7	7.4	7.1	5.8	9.5	18
Manganese	mg/L	AAL	< 0.005	< 0.005	0.055	< 0.005	0.0090	0.019	0.017	0.034
Potassium	mg/L	AAL	<2	<2	<2	<2	<2	<2	<2	<2
Sodium	mg/L	AAL	9.8	7.9	8.1	8.1	8.1	10	9.1	17
Vanadium	mg/L	AAL	0.0088	0.0062	< 0.006	0.0072	0.0064	0.0065	< 0.006	< 0.006
Zine	mg/L	AAL	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1

#### Notes:

AAL - Aerojet Analytical Laboratories, Rancho Cordova, California

CLS - California Laboratory Services, Rancho Cordova, California

CEL - CalScience Environmental Laboratory, Garden Grove, California

SiR - SiREM Laboratories, Guelph, Ontario

FLD - Field

NA - Not Applicable

< - analyte not detected; associated value is the reporting limit

ND - analyte not detected

Scale - Qualititative score for measurement of Dehalococcoides presence

Baseline samples were collected in August and September 2003

- Ethene and ethane, potential end products of TCE dechlorination, were not detected. Similarly, methane, an indicator of microbial (anaerobic) activity was not detected in these wells. The PQL for these dissolved hydrocarbon gases was  $1 \,\mu g/L$ .
- Manganese was detected in STSW-138A, STSW-38A, STSW-39A and STSW-39B at concentrations from 0.009 to 0.034 mg/L. Iron was only detected in groundwater from STSW-39B (0.74 mg/L) and was not detected in the other wells above a PQL of 0.3 mg/L.
- *Dehalococcoides* presence was tested for groundwater samples from extraction wells EW-1 and EW-2. *Dehalococcoides* were detected in EW-2 at low levels.
- Acetic acid was detected in EW-1, MW-1 and STSW-138A at concentrations ranging from 1.8 to 3.7 mg/L. Propionic acid was only detected in STSW-138A at a concentration of 2.9 mg/L.
- BOD and COD concentrations were below PQLs of 1 and 5 mg/L respectively at all wells.

#### 5.6.2 Pump Testing and Groundwater Modeling

The step-drawdown test of RW-1 established a linear relationship between discharge and drawdown, and therefore RW-1 was an efficient well for the discharge rates of the test. A specific capacity of 10 gallons per minute per foot of drawdown (gpm/ft) was obtained, which indicates a transmissivity of approximately 2,700 feet²/day (ft²/day). Driscoll (1986) states that the addition of positive head in a recharge well should not exceed one-fifth of the depth from the ground surface to the top of screen to minimize the potential for fracturing the formation and/or damaging the hydraulic conductivity of the aquifer. This distance is 28 feet in RW-1, therefore the theoretical recharge capacity of RW-1 was 280 gpm. However, based on Aerojet experience and the potential for fine-grained materials to reduce the capacity of a recharge well, a conservative estimated recharge capacity for RW-1 was assumed to be 140 gpm.

The constant-rate drawdown data were analyzed using the Cooper-Jacob straight line method and the Hantush method for leaky aquifers. The resultant transmissivity and hydraulic conductivity values are presented in **Table 5-6**. Pump test analysis is presented in Appendix B.

The site-specific information generated by the pumping tests and lithologic data from the wells were used to refine a numerical groundwater flow model previously created with Visual MODFLOW™ to simulate the pilot project flow conditions. The revised model was used to estimate optimal pumping rates for the two extraction wells and recharge for RW-1 and to estimate the capture zone of this system. Based on these analyses (as presented in Appendix B), a spacing of 600 feet was selected for the extraction wells (300 feet north and 300 feet south of RW-1). This spacing allowed flexibility in achieving adequate hydraulic capture through adjustment of flow rates as operational data were collected pertaining to well capacity, aquifer



# TABLE 5-6: RESULTS OF PUMP TEST ANALYSIS

	Drawdown Test									
Well ID	Transmissivity (ft²/day)	Hydraulic Conductivity (ft/day)	Solution							
MW-1	2,600	65	Confined - Cooper-Jacob (straight line)							
STSW-138A	2,900	73	Confined - Cooper-Jacob (straight line)							

hydraulic parameters, and bromide tracer recovery. Simulations of particle tracking indicated this configuration would create a nominal 800-foot wide biobarrier with pumping rates as low as 20 gpm per well for an extraction/recharge zone transmissivity of 2,600 ft²/day. However, the well capacities provided a safety factor in case the flow rate needed to be higher based on operations data.

The refined flow model from the pre-test analysis was calibrated to water levels measured during the constant-rate pumping test and the tracer test. The model layers included an aquitard above and below the pumped aquifer and included simulated leakage through the aquitards. To minimize boundary effects, the upgradient and downgradient boundaries were changed from constant-head boundaries to general-head boundaries. The modeled drawdown matched the observed drawdown for the following input parameters:

- Hydraulic conductivity = 65 ft/day
- Aquifer thickness = 40 ft
- Aquitard vertical hydraulic conductivity = 0.0035 ft/day
- Storativity =  $4 \times 10^{-6}$

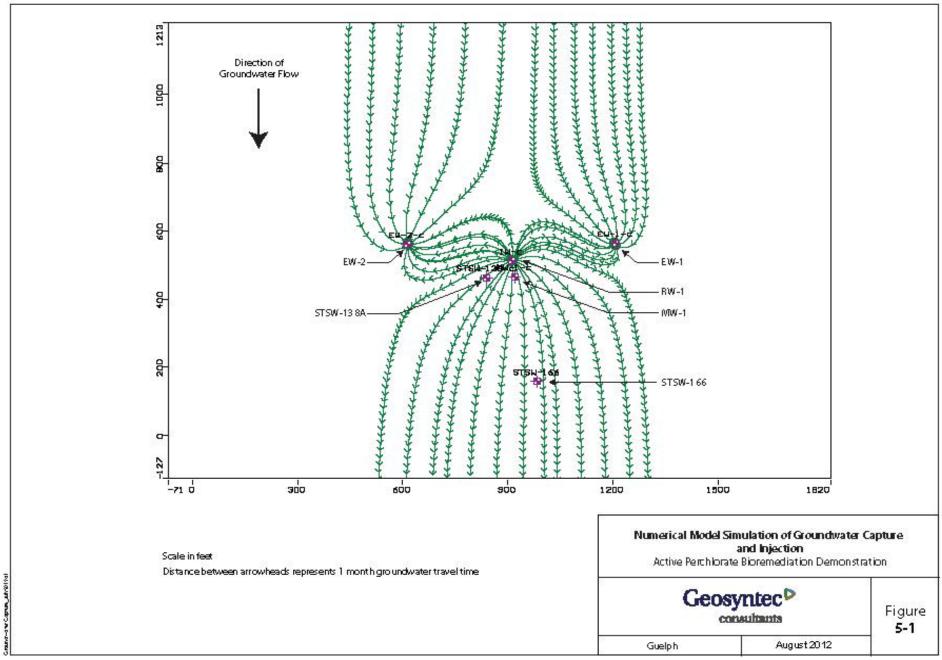
This combination of hydraulic conductivity and aquifer thickness corresponds to a transmissivity of 2,600 ft<sup>2</sup>/day, which is comparable with the results from the analysis of specific capacity and the Cooper-Jacob method.

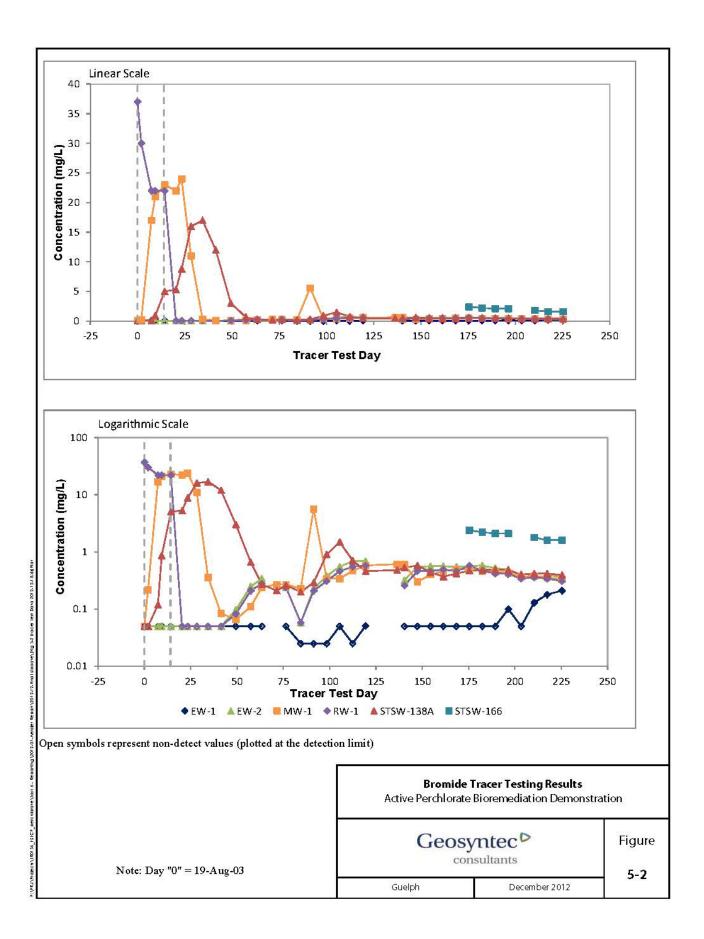
The design recommendations that were implemented based on the modeling included: (1) extraction well spacing of 600 feet with RW-1 located equidistant (300 feet) from EW-1 and EW-2; (2) initial extraction rates at EW-1 and EW-2 of 20 gpm and 40 gpm (respectively); and (3) initial recharge rate at RW-1 of 60 gpm. The extraction rate at EW-2 was higher than at EW-1 because the aquifer is thicker at EW-2 than at EW-1. An illustration of this scenario created by the numerical model is presented in **Figure 5-1**.

#### 5.6.3 Tracer Testing

**Figure 5-2** shows the results of the bromide tracer test of demonstration test area hydraulics (data are in **Table 5-7**). Maximum breakthrough concentrations at MW-1 occurred on 11 September 2003 (Day 24 of the tracer test), with a concentration of 24 mg/L. This maximum breakthrough concentration was 96% of the 25 mg/L time-weighted average injection concentration. The average travel time for groundwater from RW-1 to MW-1 was approximately 16 days.

Breakthrough at the transgradient monitoring well STSW-138A reached a maximum concentration of 17 mg/L by 22 September 2003 (Day 35 of the tracer test). This breakthrough





**TABLE 5-7: TRACER TEST RESULTS** 

	Tracer	Day from Start of						
Date Sampled	Injection	Tracer Injection	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166
19-Aug-03	Start	0	< 0.05	< 0.05	< 0.05	37	< 0.05	N/A
21-Aug-03		2 7	< 0.05	< 0.05	0.22	30	< 0.05	N/A
26-Aug-03		7	< 0.05	< 0.05	17	22	0.12	N/A
28-Aug-03		9	< 0.05	< 0.05	21	22	0.87	N/A
2-Sep-03	End	14	< 0.05	< 0.05	23	22	5.0	N/A
8-Sep-03		20	< 0.05	< 0.05	22	< 0.05	5.3	N/A
11-Sep-03		23	< 0.05	< 0.05	24	< 0.05	8.8	N/A
16-Sep-03		28	< 0.05	< 0.05	11	< 0.05	16	N/A
22-Sep-03		34	< 0.05	< 0.05	0.36	< 0.05	17	N/A
29-Sep-03		41	< 0.05	< 0.05	0.084	< 0.05	12	N/A
7-Oct-03		49	< 0.05	0.097	0.066	0.083	3.0	N/A
15-Oct-03		57	< 0.05	0.25	0.11	0.21	0.66	N/A
21-Oct-03		63	< 0.05	0.34	0.24	0.28	0.27	N/A
29-Oct-03		71	N/A	N/A	0.27	N/A	0.21	N/A
3-Nov-03		76	< 0.05	0.24	0.27	0.24	0.26	N/A
11-Nov-03		84	< 0.025	0.058	0.23	0.058	0.20	N/A
18-Nov-03		91	< 0.025	0.23	5.6	0.21	0.29	N/A
25-Nov-03		98	< 0.025	0.38	0.34	0.31	0.9	N/A
2-Dec-03		105	< 0.05	0.55	0.34	0.46	1.5	N/A
9-Dec-03		112	< 0.025	0.69	0.47	0.55	0.71	N/A
16-Dec-03		119	0.051	0.69	0.58	0.58	0.46	N/A
2-Jan-04		136	N/A	N/A	0.61	N/A	0.48	N/A
6-Jan-04		140	< 0.05	0.32	0.60	0.26	0.53	N/A
13-Jan-04		147	< 0.05	0.55	0.30	0.46	0.58	N/A
20-Jan-04		154	< 0.05	0.56	0.40	0.46	0.44	N/A
27-Jan-04		161	< 0.05	0.56	0.46	0.49	0.37	N/A
3-Feb-04		168	< 0.05	0.55	0.50	0.46	0.42	N/A
10-Feb-04		175	< 0.05	0.56	0.49	0.57	0.47	2.4
17-Feb-04		182	< 0.05	0.58	0.46	0.47	0.48	2.2
24-Feb-04		189	< 0.05	0.52	0.45	0.42	0.49	2.1
2-Mar-04		196	0.10	0.49	0.43	0.41	0.48	2.1
9-Mar-04		203	< 0.05	0.40	0.37	0.34	0.40	N/A
16-Mar-04		210	0.13	0.42	0.38	0.36	0.42	1.8
23-Mar-04		217	0.18	0.41	0.36	0.34	0.42	1.6
31-Mar-04		225	0.21	0.35	0.33	0.31	0.39	1.6

#### Notes:

< - not-detected; associated value is the reporting limit All results in milligrams per litre (mg/L) as bromide N/A - not analyzed

concentration constituted approximately 68% of the injection concentration of bromide. The average travel time for groundwater from RW-1 to STSW-166 was approximately 23 days.

Bromide breakthrough was observed in both extraction wells. Breakthrough at EW-1 was observed on 16 December 2003 (Day 120 of the tracer test), at a concentration of 0.05 mg/L or 0.2% of the injection concentration. Breakthrough at EW-2 was observed by 7 October (Day 50 of the tracer test), at concentrations of 0.097 to 0.690 mg/L or 0.4 to 2.8% of the injection concentration. These results provide confidence that the biobarrier was providing some capture across the full 600 foot reach of the biobarrier.

The numerical flow model was also used to simulate the transient flow field during the tracer test and was coupled with a transport model to simulate the breakthrough of bromide in the monitoring wells and extraction wells. The following input parameters resulted in a reasonable match between observed and modeled concentrations at MW-1 and STSW-138A, and extraction wells EW-1 and EW-2:

- Hydraulic gradient = 0.005
- Longitudinal dispersivity = 5 ft
- Transverse dispersivity = 0.5 ft
- Effective porosity = 0.28

### 5.6.4 Redox and pH Trends

**Figure 5-3** presents trends in ORP and DO conditions in the test area over the duration of the demonstration test. Data are also presented in **Table 5-8**.

The extracted groundwater from EW-1 and EW-2 was typically aerobic and oxidizing, with median DO values of 2.9 and 2.3 mg/L, respectively, and median ORP values of 93 and 78 mV, respectively. Following addition of electron donor, the redox conditions at the monitoring wells MW-1 and STSW-138A declined, with DO typically below 1 mg/L and negative ORP.

The pH of the test area groundwater generally remained stable and generally neutral throughout the pilot test (**Table 5-8**).

#### 5.6.5 Results of Perchlorate Analysis

**Figure 5-4** presents trends in perchlorate concentrations in the demonstration test area groundwater over the duration of the demonstration test. Perchlorate data are presented in **Table 5-9**.

Perchlorate concentrations were quite different in the extraction wells, including relatively low and increasing concentrations at EW-1, and much higher but declining concentrations at EW-2.

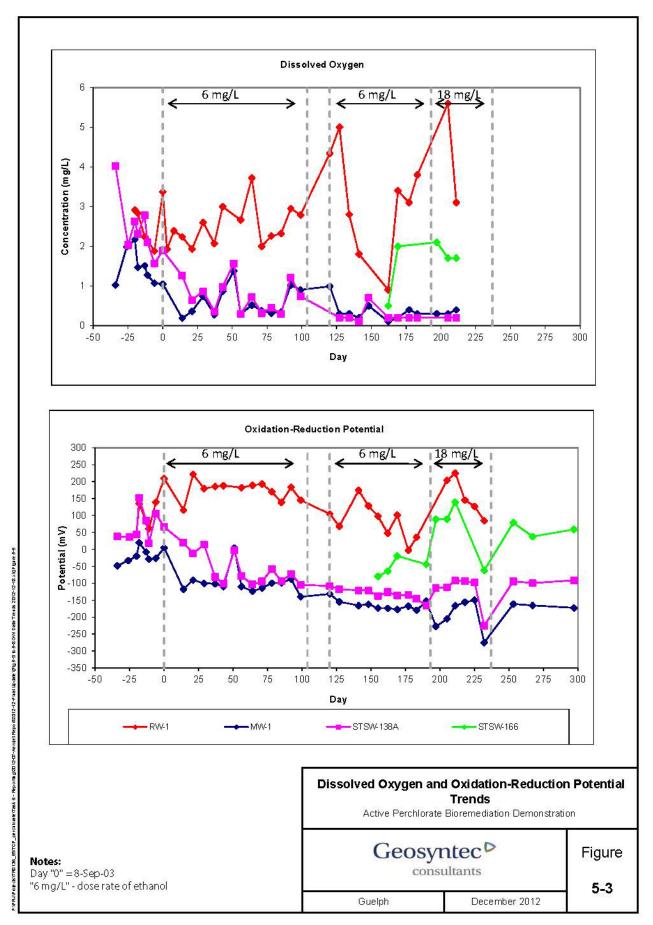


TABLE 5-8: FIELD PARAMETER MEASUREMENTS

	Days from Start of Electron									
Date Sampled	Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Commence of the commence of th	r (feet below top of casing)									
04-Aug-03	-35			129		129		124	129	134
13-Aug-03	-26			129						
14-Aug-03	-25					129				
19-Aug-03	-20	126	128	129	123	129				
21-Aug-03	-18			129		129				
26-Aug-03	-13	126	128	129	122	129				
28-Aug-03	-11	126	128	129	122	129				
02-Sep-03	-6	126	128	129	122	129				
08-Sep-03	0	126	126	130	130	130				
11-Sep-03	3	126	128	129	122	129				
16-Sep-03	8	127	128	129	121	129				
22-Sep-03	14	127	128	129	121	129				
29-Sep-03	21	127	128	129	120	129				
07-Oct-03	29	127	128	129	120	129				
15-Oct-03	37	127	128	129	120	129				
21-Oct-03	43	127	128	129	119	129				
29-Oct-03	51			130		130				
03-Nov-03	56	127	129	129	119	129				
11-Nov-03	64	127	128	130	120	130				
18-Nov-03	71	126	128	129	119	129				
25-Nov-03	78	126	127	128	118	128				
02-Dec-03	85	126	127	128	117	128				
09-Dec-03	92	125	127	128	116	128				
16-Dec-03	99	126	127	128	116	128				
06-Jan-04	120	125	126	127	116	127				
13-Jan-04	127	125	127	127	115	127				
20-Jan-04	134	125	126	127	114	127				
27-Jan-04	141	125	126	127	116	127				
03-Feb-04	148	124	126	126	115	127				
10-Feb-04	155	125	126	127	115	127	117			
17-Feb-04	162	124	126	127	115	127	117			
24-Feb-04	169	124	125	126	109	127	117			
03-Mar-04	177	124	125	126	108	126				
09-Mar-04	183	124	125	126	107	127				
16-Mar-04	190	125	125	126	103	127	117			
23-Mar-04	197	123	124	126	127	127	117			
31-Mar-04	205	125	126	127	102	127	117			
06-Apr-04	211	125	126	127	101	127	118			
13-Apr-04	218	126	126	127	98.8	127	118			
20-Apr-04	225	126	126	127	97.5	127	= #X			
27-Apr-04	232	126	126	127	95.0	127	118	123	128	130

TABLE 5-8: FIELD PARAMETER MEASUREMENTS

	Days from Start of Electron									
Date Sampled	Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Dissolved Oxygen (m	illigrams per litre)									
04-Aug-03	-35								1.39	2.39
05-Aug-03	-34			1.02		4.02		1.25	1.55	2.55
13-Aug-03	-26			1.98		7.02		1.25		
14-Aug-03	-25	4.45	3.38	1.50		2.03				
19-Aug-03	-20	2.6	2.85	2.17	2.91	2.63				
21-Aug-03	-18	2.31	2.65	1.47	2.83	2.31				
26-Aug-03	-13	2.15	2.35	1.51	2.24	2.78				
28-Aug-03	-11	1.96	2.42	1.27	2.14	2.10				
02-Sep-03	-6	1.91	1.91	1.07	1.88	1.57				
08-Sep-03	0	2.62	3.07	1.05	3.37	1.89				
11-Sep-03	3	2.37	1.95	1.03	1.93	1.09				
16-Sep-03	8	3.39	2.08		2.39					
22-Sep-03	0 14	2.29	2.35	0.19	2.24	1.26				
North-tensors (theory)	21	2.29			1.93	0.65				
29-Sep-03 07-Oct-03		2.04	1.84	0.36						
AND ASSASSING	29	1909-1903-1903	2.76	0.74	2.60	0.86				
15-Oct-03	37	2.27	2.19	0.28	2.07	0.36				
21-Oct-03	43	4.55	3.84	0.86	3.00	0.98				
29-Oct-03	51	0.000,4400	* 250/125-250	1.38	15.75.55000	1.57				
03-Nov-03	56	2.44	2.22	0.29	2.66	0.29				
11-Nov-03	64	3.36	3.42	0.52	3.72	0.72				
18-Nov-03	71	2.42	1.86	0.38	2	0.32				
25-Nov-03	78	2.62	2.13	0.32	2.26	0.45				
02-Dec-03	85	2.65	2.18	0.34	2.32	0.29				
09-Dec-03	92	3.52	2.92	1.02	2.95	1.21				
16-Dec-03	99	2.90	2.52	0.90	2.79	0.74				
06-Jan-04	120			0.99	4.34					
13-Jan-04	127	2.30	2.30	0.30	5.00	0.20				
20-Jan-04	134	2.30	2.10	0.30	2.80	0.20				
27-Jan-04	141	2.10	1.70	0.20	1.80	0.10				
03-Feb-04	148	4.90	3.40	0.50		0.70				
10-Feb-04	155		0.70							
17-Feb-04	162	0.80	0.70	0.10	0.90	0.20	0.50			
24-Feb-04	169	3.40	2.50	0.20	3.40	0.20	2.00			
03-Mar-04	177	3.70	3.10	0.40	3.10	0.20				
09-Mar-04	183	3.40	2.30	0.30	3.80	0.20				
23-Mar-04	197	3.10	2.50	0.30	8001F3501	800970JE9	2.10			
31-Mar-04	205	3.70	2.70	0.30	5.60	0.20	1.70			
06-Apr-04	211	4.20	2.80	0.40	3.10	0.20	1.70			

TABLE 5-8: FIELD PARAMETER MEASUREMENTS

	Days from Start of Electron									
Date Sampled	Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Oxidation-Reduction	Potential (millivolts)									
04-Aug-03	-35								-10	-44
05-Aug-03	-34			-48		38		-128		
13-Aug-03	-26			-33						
14-Aug-03	-25	133	74			37				
19-Aug-03	-20	20	63	-20	45	44				
21-Aug-03	-18	141	152	20	134	153				
26-Aug-03	-13	106	105	-7	82	85				
28-Aug-03	-11	52	127	-29	61	19				
02-Sep-03	-6	203	170	-26	139	105				
08-Sep-03	0	187	214	5	209	66				
11-Sep-03	3	(T) (A)								
16-Sep-03	8									
22-Sep-03	14	91	78	-118	116	20				
29-Sep-03	21	173	174	-91	221	-11				
07-Oct-03	29	94	91	-100	180	14				
15-Oct-03	37	85	101	-101	186	-81				
21-Oct-03	43	133	169	-110	188	-101				
29-Oct-03	51	133	103	5	100	-3				
03-Nov-03	56	111	57	-109	183	-79				
11-Nov-03	64	76	77	-124	189	-103				
18-Nov-03	71	51	47	-114	193	-94				
25-Nov-03	78	52	86	-100	170	-58				
02-Dec-03	85	25	53	-98	139	-94				
09-Dec-03	92	-44	-176	-88	184	-72				
16-Dec-03	99	19	10	-140	146	-105				
06-Jan-04	120	96	117	-132	105	-108				
13-Jan-04	127	179	152	-155	68	-118				
27-Jan-04	141	32	47	-166	174	-121				
03-Feb-04	148	23	46	-162	128	-122				
10-Feb-04	155	87	93	-173	98	-137	-80			
17-Feb-04	162	57	69	-174	48	-126	-64			
24-Feb-04	169	12	38	-177	102	-135	-20			
03-Mar-04	177	60	87	-167	-2	-135	20			
09-Mar-04	183	-40	7	-180	36	-146				
16-Mar-04	190	125	í	-153	50	-166	-44			
23-Mar-04	197	152	155	-228		-114	88			
31-Mar-04	205	96	77	-205	204	-111	90			
06-Apr-04	211	137	122	-167	225	-92	140			
13-Apr-04	218	105	89	-156	146	-93	140			
20-Apr-04	225	120	87	-150	127	-98				
27-Apr-04	232	139	97	-275	85	-225	-62	-231	-124	-98
18-May-04	253	139	21	-161	0.5	-223 -94	-02 79	-231	-124	-20
01-Jun-04	267			-166		-100	38			
01-Jul-04	297			-172		-91	59			

TABLE 5-8: FIELD PARAMETER MEASUREMENTS

	Days from Start of Electron									
Date Sampled	Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
102/12/1021 TERM										
pH (pH units)	1210								8000	2 20
04-Aug-03	-35								6.90	7.31
05-Aug-03	-34			6.67		6.74		7.61		
13-Aug-03	-26			6.16						
14-Aug-03	-25	7.42	7.30			7.29				
19-Aug-03	-20	7.34	6.92	6.75	7.00	6.62				
21-Aug-03	-18	7.26	7.27	7.44	7.79	7.78				
26-Aug-03	-13	7.11	7.03	6.77	6.91	6.80				
28-Aug-03	-11	6.89	6.80	6.89	7.09	6.90				
02-Sep-03	-6	6.87	7.25	7.20	6.88	6.90				
08-Sep-03	0	7.54	7.50	6.93	7.29	7.18				
11-Sep-03	3			7.26		7.36				
16-Sep-03	8			7.17		7.22				
22-Sep-03	14	7.09	7.06	6.80	6.55	6.54				
29-Sep-03	21	7.29	7.36	7.02	6.95	6.81				
07-Oct-03	29	7.15	7.25	6.96	6.81	7.60				
15-Oct-03	37	7.20	7.31	6.95	7.16	6.81				
21-Oct-03	43	7.37	7.49	7.10	7.15	7.01				
29-Oct-03	51			8.69		8.59				
03-Nov-03	56	7.55	7.47	7.39	7.10	6.84				
11-Nov-03	64	7.00	6.86	7.31	7.16	6.82				
18-Nov-03	<b>71</b> ·	7.36	7.21	7.10	7.21	7.11				
25-Nov-03	78	6.95	7.02	7.05	6.75	7.20				
02-Dec-03	85	7.42	7.44	7.43	7.34	7.36				
09-Dec-03	92	7.14	7.14	7.23	7.30	7.05				
16-Dec-03	99	7.42	7.25	7.38	7.53	7.28				
06-Jan-04	120	7.45	7.35	7.63	7.33	7.40				
13-Jan-04	127	7.44	7.35	7.64	7.31	7.38				
20-Jan-04	134		7,100	7.95	7.02	7.44				
27-Jan-04	141	7.43	7.30	7.67	7.29	7.39				
3-Feb-04	148	7.36	6.62	6.62	7.16	7.57				
10-Feb-04	155	7.42	7.38	7.70	7.28	7.39	7.28			
17-Feb-04	162	7.41	7.29	7.69	7.29	7.31	7.35			
24-Feb-04	169	7.40	7.26	7.71	7.28	7.36	7.25			
03-Mar-04	177	7.36	7.25	7.66	7.29	7.34	1.20			
09-Mar-04	183	7.47	7.30	7.69	7.25	7.36				
16-Mar-04	190	7.30	7.28	7.60	1.43	7.30	7.25			
23-Mar-04	190 197	7.24	7.14	7.66		7.23	7.14			
23-Mar-04 31-Mar-04	205	7.24	7.14	7.74	7.22	7.23 7.33	7.14			
31-Mar-04 06-Apr-04	203	6.51	6.35	6.91	7.23 6.47	6.42	6.33			
AND THE RESERVE THE PROPERTY OF THE PERSON O							0.33			
13-Apr-04	218	6.18	6.03	6.59	6.19	6.08				
20-Apr-04	225	6.90	6.76	7.31	6.75	6.78		0.15	<b>#</b> 0.1	
27-Apr-04	232	7.39	7.26	8.32	7.37	7.67	7.25	8.15	7.94	7.6

TABLE 5-8: FIELD PARAMETER MEASUREMENTS

	Days from Start of Electron									
Date Sampled	Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW-138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Teperature (degrees F)	- If								42.9	20 2
04-Aug-03	-35								68.4	70.7
05-Aug-03	-34			68.2		66.9		66.6		
13-Aug-03	-26			70.5						
14-Aug-03	-25	67.3	65.5			66.9				
19-Aug-03	-20	67.5	67.1	70.2	69.1	69.3				
21-Aug-03	-18	68.5	65.7	75.4	66.7	74.5				
26-Aug-03	-13	68.5	66.7	70.0	66.9	70.0				
28-Aug-03	-11	68.2	66.6	69.6	67.1	68.7				
02-Sep-03	-6	69.3	67.1	71.4	66.9	70.9				
08-Sep-03	0	69.1	66.6	70.2	69.1	69.1				
11-Sep-03	3	68.5	66.9	71.4	66.9	70.7				
16-Sep-03	8	69.1	66.4	68.7	66.0	67.8				
22-Sep-03	14	69.3	67.1	70.0	66.7	69.3				
29-Sep-03	21	69.6	68.9	70.0	65.8	67.5				
07-Oct-03	29	68.5	66.0	68.7	66.2	67.3				
15-Oct-03	37	68.5	66.0	69.4	66.0	68.0				
21-Oct-03	43	69.4	67.3	70.5	67.8	68.9				
29-Oct-03	51			69.6		69.1				
03-Nov-03	56	67.6	65.7	67.6		66.7				
11-Nov-03	64	68.0	66.4	69.3	65.1	68.0				
18-Nov-03	71	68.2	65.5	67.1	64.8	66.9				
25-Nov-03	78	67.6	65.7	66.7	64.4	66.9				
02-Dec-03	85	68.0	65.7	68.0	65.7	68.2				
09-Dec-03	92	65.8	63.9	66.0	64.9	66.2				
16-Dec-03	99	66.7	65.1	68.4	64.4	67.3				
06-Jan-04	120		02.1	65.7	63.7	65.3				
13-Jan-04	127	65.8	64.4	65.3	62.8	65.7				
20-Jan-04	134	66.0	64.2	65.7	64.2	65.8				
27-Jan-04	141	63.7	63.3	64.0	63.3	63.9				
03-Feb-04	148	65.8	63.7	63.9	05.5	63.7				
10-Feb-04	155	68.7	66.7	64.4	65.8	67.3	67.6			
17-Feb-04	162	65.8	64.9	64.4 65.5	65.3	66.4	67.6 64.6			
	169				65.5		64.6 67.1			
24-Feb-04		68.4	65.3	66.4		66.4	0/.1			
03-Mar-04	177	67.8	65.3	65.1	65.3	66.2				
09-Mar-04	183	69.6	73.4	67.5	69.3	68.7	60.1			
16-Mar-04	190	-co.7		69.4		69.3	69.1			
23-Mar-04	197	68.7	66.0	66.0		68.0	68.0			
31-Mar-04	205	67.5	65.8	67.3	66.9	67.8	67.8			
06-Apr-04	211	68.2	66.4	66.0	64.8	66.7	67.5			
13-Apr-04	218	1		67.5	65.3	67.8				
20-Apr-04	225			66.2		66.2				
27-Apr-04	232			70.0		70.0	67.6	67.6	66.7	67.1

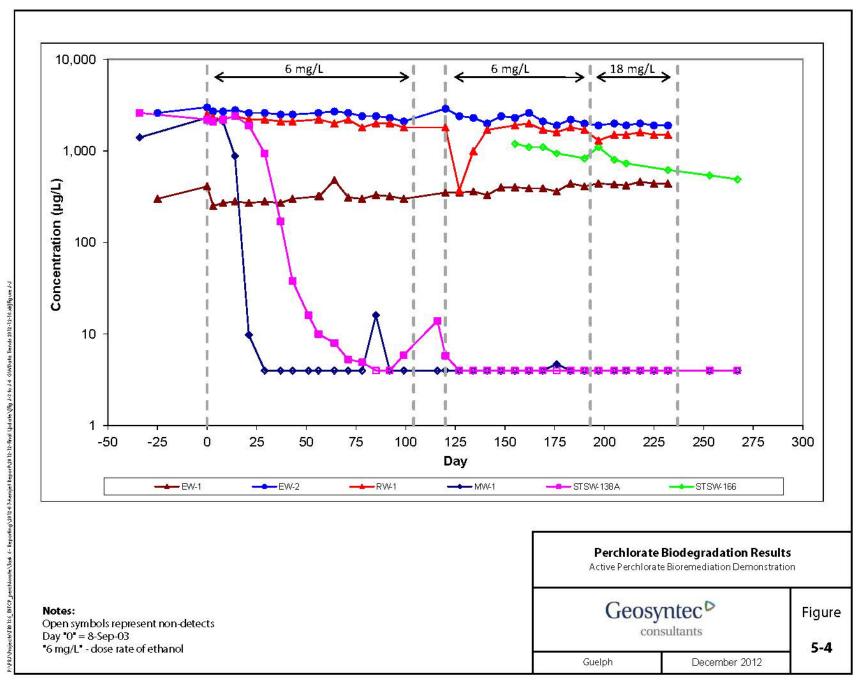




TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of Electron Donor					STSW-				
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Tiesters & constant											
Electron Acceptors Chlorate (mg/L)	04-Aug-03	-35	1							<0.02	< 0.02
Ciliorate (ing/L)	05-Aug-03	-34			0.32		< 0.02		0.01	10.02	10.02
	14-Aug-03	-25	0.021	0.02	0.02		10.02		0.01		
	08-Sep-03	0	0.021	0.02	< 0.02	< 0.02	0.045				
	29-Sep-03	21	<0.02	< 0.02	<0.02	< 0.02	< 0.02				
	29-Oct-03	51		-0.02	< 0.02		< 0.02				
	03-Nov-03	56	< 0.02	< 0.02		< 0.02	1000000				
	25-Nov-03	78	<0.02	< 0.02	< 0.02	<0.02	< 0.02				
	06-Jan-04	120	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02				
	03-Feb-04	148	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02				
	02-Mar-04	176	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02				
	31-Mar-04	205	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02				
	27-Apr-04	232	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02			
Nitrate (mg/L)	04-Aug-03	-35								2.1	5.5
2 2 2	05-Aug-03	-34			1.0		1.7		0.71		
	14-Aug-03	-25	1.2	1.4							
	08-Sep-03	0	1.3	1.4	1.1	1.4	1.3				
	11-Sep-03	3	1.6	1.3	1.2	1.4	1.4				
	16-Sep-03	8	1.6	1.3	0.22	1.3	1.3				
	22-Sep-03	14	1.6	1.3	< 0.05	1.4	1.0				
	29-Sep-03	21	1.7	1.3	< 0.05	1.4	0.58				
	07-Oct-03	29	1.7	1.4	0.12	1.4	0.1				
	15-Oct-03	37	1.6	1.2	< 0.05	1.3	< 0.05				
	21-Oct-03	43	1.6	1.3	< 0.05	1.3	< 0.05				
	29-Oct-03	51			< 0.025		< 0.025				
	03-Nov-03	56	1.8	1.4	< 0.025	1.4	< 0.025				
	11-Nov-03	64	1.3	1.5	< 0.025	1.4	< 0.025				
	18-Nov-03	71	1.7	1.4	< 0.025	1.4	< 0.025				
	25-Nov-03	78	1.7	1.3	< 0.025	1.3	< 0.025				
	02-Dec-03	85	1.8	1.3	< 0.05	1.4	< 0.05				
	09-Dec-03	92	1.8	1.3	< 0.025	1.3	< 0.025				
	16-Dec-03	99	1.8	1.3	< 0.05	1.3	< 0.05				
	02-Jan-04	116			< 0.5		< 0.5				
	06-Jan-04	120	1.8	1.5	< 0.05	1.6	< 0.05				
	13-Jan-04	127	1.9	1.4	1.6	1.5	0.22				
	20-Jan-04	134	1.8	1.2	< 0.05	1.3	< 0.05				
	27-Jan-04	141	1.8	1.2	< 0.05	1.3	< 0.05				
	03-Feb-04	148	1.8	1.2	< 0.05	1.2	< 0.05				
	10-Feb-04	155	1.9	1.2	< 0.05	1.4	< 0.05	0.96			
	17-Feb-04	162	1.8	1.3	< 0.05	1.4	< 0.05	0.9			
	24-Feb-04	169	1.9	1.2	< 0.05	1.3	< 0.05	0.83			
	02-Mar-04	176	1.9	1.2	<0.05	1.3	< 0.05	0.85			
	09-Mar-04	183	1.7	1.0	< 0.05	1.2	< 0.05				
	16-Mar-04	190	1.8	1.1	<0.1	1.2	<0.1	0.67			
	23-Mar-04	197	1.9	1.1	<0.1	1.0	<0.1	0.83			
	31-Mar-04	205	1.8	1.1	<0.1	1.3	<0.1	0.63			
	06-Apr-04	211	1.9	1.1	<0.1	1.3	< 0.1	0.61			
	13-Apr-04	218	1.8	1.1	<0.1	1.2	< 0.1				
	20-Apr-04	225	1.8	1.1	<0.1	1.2	<0.1	5057004	00002	69,000	2000
	27-Apr-04	232	1.7	1.0	<0.1	1.2	<0.1	0.5	0.76	1.5	5.8
	18-May-04	253	1		<0.1		< 0.1	0.44			
	01-Jun-04	267	1		< 0.1		< 0.1	0.41			



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of Electron Donor					STSW-				
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	
Perchlorate (µg/L)	04-Apr-02	-522								3,900	170
	05-Apr-02	-521							<4.0		
	08-Apr-02	-518									
	02-Dec-02	-280									400
	20-Dec-02	-262					2,100		<4.0	4,200	
	31-Dec-02	-251			1,600						
	06-Jan-03	-245				1,600					
	05-May-03	-126	440	2,800							
	21-May-03	-110					2,200				
	22-May-03	-109							<4.0	4,600	410
	04-Aug-03	-35								4,300	410
	05-Aug-03	-34			1,400		2,600		<4.0		
	14-Aug-03	-25	300	2,600							
	08-Sep-03	0	410	3,000	2,300	2,500	2,200				
	11-Sep-03	3	250	2,700	2,200	2,300	2,100				
	16-Sep-03	8	270	2,700	2,100	2,200	2,200				
	22-Sep-03	14	280	2,800	880	2,400	2,400				
	29-Sep-03	21	270	2,600	9.8	2,200	1,900				
	07-Oct-03	29	280	2,600	<4.0	2,200	940				
	15-Oct-03	37	270	2,500	<4.0	2,100	170				
	21-Oct-03	43	300	2,500	<4.0	2,100	38.0				
	29-Oct-03	51			<4.0		16.0				
	03-Nov-03	56	320	2,600	<4.0	2,200	10.0				
	11-Nov-03	64	480	2,700	<4.0	2,000	8.0				
	18-Nov-03	71	310	2,600	<4.0	2,200	5.3				
	25-Nov-03	78	300	2,400	<4.0	1,800	4.9				
	02-Dec-03	85	330	2,400	16.0	2,000	<4.0				
	09-Dec-03	92	320	2,300	<4.0	2,000	<4.0				
	16-Dec-03	99	300	2,100	<4.0	1,800	5.9				
	02-Jan-04	116	300	2,100	<4.0	1,000	14.0				
	06-Jan-04	120	350	2,900	<4.0	1,800	5.8				
	13-Jan-04	127	350	2,400	<4.0	370	<4.0				
	20-Jan-04	134	360	2,300	<4.0	990	<4.0				
	20-Jan-04 27-Jan-04	141	330	2,000	<4.0	1,700	<4.0				
	03-Feb-04	148	400	2,400	<4.0	<4.0	<4.0				
			0.000					1.000			
	10-Feb-04	155	400	2,300	<4.0	1,900	<4.0	1,200			
	17-Feb-04	162	390	2,600	<4.0	2,000	<4.0	1,100			
	24-Feb-04	169	390	2,100	<4.0	1,700	<4.0	1,100			
	02-Mar-04	176	360	1,900	4.7	1,600	<4.0	940			
	09-Mar-04	183	440	2,200	<4.0	1,800	<4.0				
	16-Mar-04	190	410	2,000	<4.0	1,700	<4.0	830			
	23-Mar-04	197	440	1,900	<4.0	1,300	<4.0	1,100			
	31-Mar-04	205	430	2,000	<4.0	1,500	<4.0	800			
	06-Apr-04	211	420	1,900	<4.0	1,500	<4.0	730			
	13-Apr-04	218	460	2,000	<4.0	1,600	<4.0				
	20-Apr-04	225	440	1,900	<4.0	1,500	<4.0				
	27-Apr-04	232	440	1,900	<4.0	1,500	<4.0	620	<4.0	3,800	630
	14-May-04	249								4,000	610
	17-May-04	252							<4.0		
	18-May-04	253			<4.0		<4.0	540			
	01-Jun-04	267	I		<4.0		<4.0	490			

TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

A nalyte	Date Sampled	Days from Start of Electron Donor Addition	EW-1	EW-2	MW-1	RW-1	STSW- 138A	STSW-166	STSW-38A	STSW-39A	STSW-39E
Sulfate (mg/L)	04-Aug-03	-35								11.0	18.0
	05-Aug-03	-34	1		9.0		9.7		9.5		
	14-Aug-03	-25	8.9	9.4							
	08-Sep-03	0	8.9	9.9	9.4	9.8	9.6				
	11-Sep-03	3	9.0	9.8	9.6	9.7	9.6				
	16-Sep-03	8	8.9	9.6	9.8	9.5	9.3				
	22-Sep-03	14	8.6	9.3	8.9	9.2	9.1				
	29-Sep-03	21	8.4	9.1	8.8	9.0	9.0				
	07-Oct-03	29	8.5	9.3	9.0	9.2	9.1				
	15-Oct-03	37	8.1	8.9	8.7	8.8	8.6				
	21-Oct-03	43	8.4	9.3	9.0	9.1	9.0				
	29-Oct-03	51	1		8.7		8.9				
	03-Nov-03	56	8.36	9.3	9.0	8.8	9.0				
	11-Nov-03	64	8.1	9.3	8.5	9.1	8.6				
	18-Nov-03	71	8.1	9.0	8.0	8.9	8.7				
	25-Nov-03	78	8.1	8.9	8.2	8.8	8.6				
	02-Dec-03	85	8.2	9.1	8.3	8.9	8.8				
	09-Dec-03	92	8.1	9.1	8.0	8.9	8.8				
	16-Dec-03	99	8.2	9.1	7.8	9.0	8.7				
	02-Jan-04	116	150290 602		6.7		7.9				
	06-Jan-04	120	8.6	10.0	8.0	9.5	9.0				
	13-Jan-04	127	8.4	9.6	7.8	9.4	8.2				
	20-Jan-04	134	7.8	8.9	6.9	8.6	7.4				
	27-Jan-04	141	7.9	8.9	6.7	8.8	7.1				
	03-Feb-04	148	8.2	9.2	7.1	9.0	7.3				
	10-Feb-04	155	8.3	9.3	6.4	9.1	7.1	9.3			
	17-Feb-04	162	8.1	9.3	6.0	9.1	6.8	9.1			
	24-Feb-04	169	8.2	9.2	5.4	9.0	6.7	9.2			
	02-Mar-04	176	8.3	9.3	5.5	9.2	6.5	9.2			
	09-Mar-04	183	7.8	8.8	5.2	8.8	5.8				
	16-Mar-04	190	8.0	9.0	5.0	8.7	5.7	8.9			
	23-Mar-04	197	8.0	8.9	2.8	8.0	5.5	9.1			
	31-Mar-04	205	8.1	8.9	0.16	8.8	5.1	9.0			
	06-Apr-04	211	8.0	9.0	<0.1	8.7	3.8	8.9			
	13-Apr-04	218	7.2	8.0	< 0.1	8.4	2.0				
	20-Apr-04	225	7.6	8.4	<0.1	8.2	0.75				
	27-Apr-04	232	7.6	8.4	<0.1	8.1	0.33	8.2	9.3	9.2	18.0
	18-May-04	253	619%	RISHA	0.82	V (80 ±	0.24	8.1	3838 <del>33</del> 8	200 AF-22-23	WARRENCE OF THE PARTY
	01-Jun-04	267	l		0.69		0.26	8.0			



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of Electron Donor					STSW-				
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW-39E
<u>Ions</u>		10.01									
Chloride (mg/L)	04-Aug-03	-35								7.7	38.0
	05-Aug-03	-34	240	4.3	2.6		2.4		4.1		
	14-Aug-03	-25	3.1	3.4	9200	12412	9320920				
	08-Sep-03	0	2.5	3.2	3.1	3.0	2.6				
	11-Sep-03	3	2.6	3.0	3.0	2.9	2.7				
	16-Sep-03	8	2.5	3.1	4.1	2.9	2.9				
	22-Sep-03	14	2.6	3.0	3.5	3.0	3.1				
	29-Sep-03	21	2.6	3.0	3.9	2.9	3.1				
	07-Oct-03	29	2.5	3.0	3.9	2.9	3.4				
	15-Oct-03	37	2.4	2.9	3.9	2.9	3.7				
	21-Oct-03	43	2.4	2.9	3.9	2.8	3.9				
	29-Oct-03	51	22505 60		3.7		3.6				
	03-Nov-03	56	2.4	2.9	3.8	2.7	3.7				
	11-Nov-03	64	2.4	3.1	3.8	3.0	4.0				
	18-Nov-03	71	2.3	2.9	3.7	2.7	3.6				
	25-Nov-03	78	2.2	2.7	3.5	2.6	3.5				
	02-Dec-03	85	2.4	2.8	3.6	2.8	3.7				
	09-Dec-03	92	2.3	2.8	3.5	2.7	3.7				
	16-Dec-03	99	2.3	2.8	3.6	2.7	3.7				
	02-Jan-04	116			3.2		3.3				
	06-Jan-04	120	2.4	3.1	3.6	2.9	3.7				
	13-Jan-04	127	2.4	2.9	3.9	2.8	3.6				
	20-Jan-04	134	2.3	2.9	4.2	2.8	3.6				
	27-Jan-04	141	2.4	2.9	3.6	2.8	3.7				
	03-Feb-04	148	2.4	2.9	3.7	2.9	3.7				
	10-Feb-04	155	2.5	3.0	3.8	2.9	3.7	3.0			
	17-Feb-04	162	2.4	3.1	3.6	2.9	3.6	3.0			
	24-Feb-04	169	2.4	3.0	3.6	2.9	3.6	3.0			
	02-Mar-04	176	2.5	3.0	3.7	2.9	3.7	3.1			
	09-Mar-04	183	2.5	3.1	4.1	3.0	4.1				
	16-Mar-04	190	2.4	2.9	3.5	2.9	3.5	3.1			
	23-Mar-04	197	2.4	2.9	3.3	2.8	3.4	2.9			
	31-Mar-04	205	2.4	2.9	3.6	2.8	3.5	3.1			
	06-Apr-04	211	2.4	3.0	3.4	2.7	3.5	3.0			
	13-Apr-04	218	2.2	2.5	3.5	2.5	3.5				
	20-Apr-04	225	2.3	2.8	3.3	2.7	3.4				
	27-Apr-04	232	2.4	2.9	3.3	2.7	3.4	3.0	3.9	4.5	43.0
	18-May-04	253	8930000		3.5		3.6	3.3			
	01-Jun-04	267			3.5		3.7	3.3			

TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of						
		Electron Donor					STSW-	
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166 STSW-38A STSW-39A STSW-39I
Organic Acids								
Acetic Acid (mg/L)	13-Aug-03	-26			3.7			
R5447-	14-Aug-03	-25	1.8	<1.0			2.9	
	08-Sep-03	0	1.5	1.5	1.5	1.7	1.6	
	11-Sep-03	3	1.5	1.5	1.2	1.5	1.5	
	16-Sep-03	8	1.5	2.0	2.1	1.6	2.1	
	29-Sep-03	21	1.1	1.3	1.6	1.8	1.4	
	15-Oct-03	37	1.2	1.2	1.1	1.6	1.3	
	29-Oct-03	51			<1.0		<1.0	
	03-Nov-03	56	<1.0	<1.0		<1.0		
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	1.2	<1.0	<1.0	
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0	
	06-Jan-04	120	<1.0	1.2	<1.0	<1.0	<1.0	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0	
	03-Feb-04	148	<1.0	<1.0	<1.0	1.7	<1.0	
	10-Feb-04	155						<1.0
	17-Feb-04	162	<1.0	<1.0	1.2	<1.0	<1.0	
	02-Mar-04	176	2.0	2.5	1.7	1.9	2.1	
	31-Mar-04	205	<1.0	<1.0	13.0	<1.0	<1.0	
	13-Apr-04	218	<1.0	<1.0	13.0	<1.0	<1.0	
	27-Apr-04	232	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Butyric Acid (mg/L)	13-Aug-03	-26			<1.0			
	14-Aug-03	-25	<1.0	<1.0			<1.0	
	08-Sep-03	0	<1.0	<1.0	<1.0	<1.0	<1.0	
	11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0	
	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0	
	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Oct-03	51			<1.0		<1.0	
	03-Nov-03	56	<1.0	<1.0		<1.0		
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	<1.0	
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0	
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	<1.0	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0	
	03-Feb-04	148	<1.0	<1.0	<1.0	<1.0	<1.0	
	10-Feb-04	155						<1.0
	17-Feb-04	162	<1.0	<1.0	<1.0	<1.0	<1.0	
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	<1.0	
	31-Mar-04	205	<1.0	<1.0	<1.0	<1.0	<1.0	
	13-Apr-04	218	<1.0	<1.0	<1.0	<1.0	<1.0	
	27-Apr-04	232	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Lactic Acid (mg/L)	13-Aug-03	-26		200040	<1.0		70.00 (62)	
l	14-Aug-03	-25	<1.0	<1.0	5 ac		<1.0	
l	08-Sep-03	0	<1.0	<1.0	<1.0	<1.0	<1.0	
	11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0	
l	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0	
l	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0	
l	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Oct-03	51		31123	<1.0	2020	<1.0	
	03-Nov-03	56	<1.0	<1.0	ga W	<1.0	22.0	
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	<1.0	
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0	
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	<1.0	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0	
	03-Feb-04	148	<1.0	<1.0	<1.0	<1.0	<1.0	Parties.
	10-Feb-04	155		11 hours 2 hours	2000		10/10 00	<1.0
	17-Feb-04	162	<1.0	<1.0	<1.0	<1.0	<1.0	
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	<1.0	
	31-Mar-04	205	<1.0	<1.0	<1.0	<1.0	<1.0	
	13-Apr-04	218	<1.0	<1.0	<1.0	<1.0	<1.0	Partie.
	27-Apr-04	232	<1.0	<1.0	15.0	<1.0	<1.0	<1.0



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

	1	Days from Start of									
		Electron Donor					STSW-				
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW_39B
Propionic Acid (mg/L)	13-Aug-03	-26	EW-I	E 11 -2	<1.0	17.11-1	1502	51511-100	515W-56A	315W-07A	51517-051
1 1 op 1 om 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14-Aug-03	-25	<1.0	<1.0			2.9				
	08-Sep-03	0	<1.0	<1.0	<1.0	<1.0	<1.0				
	11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0				
	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0				
	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0				
	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	<1.0				
	29-Oct-03	51	341.0	41.0	<1.0	11.0	<1.0				
	03-Nov-03	56	<1.0	<1.0	11.0	<1.0	31.0				
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0				
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	<1.0				
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0				
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	<1.0				
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0				
	03-Feb-04	148	<1.0	<1.0	<1.0	<1.0	<1.0				
	10-Feb-04	155	×1.0	1.0	~1.0	1.0	×1.0	<1.0			
	17-Feb-04	162	<1.0	<1.0	<1.0	<1.0	<1.0	×1.0			
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	<1.0				
	31-Mar-04	205	<1.0	<1.0	4.2	<1.0	<1.0				
	13-Apr-04	218	<1.0	<1.0	5.3	<1.0	<1.0				
	27-Apr-04	232	<1.0	<1.0	5.9	<1.0	<1.0	<1.0			
Pyruvic Acid (mg/L)	13-Aug-03	-26	N1.0	×1.0	<0.5	×1.0	NI.0	×1.0			
ryidvic Acid (ing/L)	14-Aug-03	-25	<0.5	< 0.5	~0.5		< 0.5				
	08-Sep-03	0	<0.5	<0.5	< 0.5	< 0.5	<0.5				
	11-Sep-03	3	<0.5	<0.5	<0.5	<0.5	<0.5				
	16-Sep-03	8	<0.5	<0.5	<0.5	<0.5	<0.5				
	29-Sep-03	21	<0.5	<0.5	<0.5	<0.5	<0.5				
	15-Oct-03	37	<0.5	<0.5	<0.5	<0.5	<0.5				
	29-Oct-03	51	<b>\0.3</b>	<b>\0.</b> 3	<0.5	<b>\(0.</b> )	<0.5				
	03-Nov-03	56	<0.5	< 0.5	NO.3	<0.5	~0.5				
	11-Nov-03	64	<0.5	<0.5	< 0.5	<0.5	< 0.5				
	25-Nov-03	78	<0.5	<0.5	<0.5	<0.5	<0.5				
	09-Dec-03	92	<0.5	<0.5	<0.5	<0.5	<0.5				
	09-Dec-03 06-Jan-04	120	<0.5	<0.5	<0.5	<0.5	<0.5				
	20-Jan-04	134	<0.5	<0.5	<0.5	<0.5	<0.5				
	03-Feb-04		<0.5								
	Control of the Contro	148	<0.5	<0.5	0.72	< 0.5	<0.5	-0.6			
I	10-Feb-04	155	Z0.5	ZO 5	ZO 5	Z0.5	<0.5	<0.5			
1	17-Feb-04	162	< 0.5	< 0.5	< 0.5	< 0.5					
1	02-Mar-04	176	<0.5	<0.5	< 0.5	<0.5	<0.5				
1	31-Mar-04	205	<0.5	< 0.5	< 0.5	< 0.5	<0.5				
1	13-Apr-04	218	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	-0.5			
1	27-Apr-04	232	<0.5	<0.5	<0.5	<0.5	<0.5	< 0.5			

TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of					50W 1002-100				
N N N		Electron Donor	10.000000000000000000000000000000000000				STSW-	Name and American		12.20.000.010.011	
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
Volatile Organic Compounds	21 0 1 22	42					40 E				
cis/trans1,2-Dichloroethene (μg/L)	21-Oct-03	43					<0.5				
	29-Oct-03	51 56	40 C	40 F	<0.5	40 E	< 0.5				
	03-Nov-03	58	<0.5	<0.5	<0.5	<0.5					
	05-Nov-03		<0.5	<0.5	<0.5	<0.5	<0.5				
	11-Nov-03 25-Nov-03	64 78	<0.5	<0.5	<0.5	<0.5	<0.5				
	09-Dec-03	92	<0.5	<0.5	<0.5	<0.5	<0.5				
	02-Jan-04	116	<b>\0.</b> 5	70.3	<0.5	10.3	<0.5				
	02-Jan-04 06-Jan-04	120	<0.5	<0.5	<0.5	<0.5	<0.5				
	20-Jan-04	134	<0.5	<0.5	<0.5	<0.5	<0.5				
	03-Feb-04	148	<0.5	<0.5	<0.5	<0.5	<0.5				
	10-Feb-04	155	. 50.5	NO.3	NO.3	<b>\0.</b> J	NO.3	< 0.5			
	17-Feb-04	162	<0.5	< 0.5	<0.5	<0.5	<0.5	<0.5			
	24-Feb-04	169	<b>~0.3</b>	10.5	<b>~0.</b> 3	70.3	40.5	<0.5			
	02-Mar-04	176	<0.5	<0.5	< 0.5	<0.5	< 0.5	<0.5			
	16-Mar-04	190	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
l	31-Mar-04	205	<0.5	<0.5	1.7	<0.5	<0.5	<0.5			
I	31-Mar-04 13-Apr-04	218	<0.5	<0.5	1.7	<0.5	<0.5	<b>~</b> 0.3			
	27-Apr-04	232	<0.5	<0.5	4.5	<0.5	<0.5	< 0.5			
Trichloroethene (µg/L)	04-Apr-02	-522		~~~	- 110		0.0	-0.0		12.0	1.9
Themorecardic (µg/L)	05-Apr-02	-521							16.0	12.0	1.2
	08-Apr-02	-518							10.0		
	02-Dec-02	-280									2.3
	20-Dec-02	-262					< 0.5		22.0	16.0	2.0
	31-Dec-02	-251			< 0.5					10.0	
	06-Jan-03	-245				< 0.5					
	05-May-03	-126	<0.5	2.5		225.053					
	21-May-03	-110	5,555				0.54				
	22-May-03	-109							23.0	17.0	2.0
	05-Aug-03	-34			< 0.5		< 0.5				
	14-Aug-03	-25	<0.5	6.7							
	08-Sep-03	0	<0.5	4.8	3.3	3.8	0.74				
	11-Sep-03	3	<0.5	5.1	3.6	3.8	1.2				
	16-Sep-03	8	< 0.5	4.8	3.9	5.8	2.1				
	29-Sep-03	21	<0.5	4.3	3.2	3.5	3.2				
	15-Oct-03	37	< 0.5	4.6	3.2	4.0	3.3				
	21-Oct-03	43			3.0		2.8				
	29-Oct-03	51			3.3		3.2				
	03-Nov-03	56	< 0.5	5.1		3.9					
	05-Nov-03	58			3.5						
	11-Nov-03	64	< 0.5	5.2	3.6	4.4	3.1				
	25-Nov-03	78	< 0.5	5.3	4.2	4.7	3.7				
	09-Dec-03	92	<0.5	5.8	4.2	4.7	3.9				
	02-Jan-04	116			4.1		4.0				
	06-Jan-04	120	<0.5	7.6	3.7	5.8	3.0				
	20-Jan-04	134	<0.5	7.1	5.1	5.4	4.0				
	03-Feb-04	148	<0.5	7.3	5.1	5.6	4.2				
l	10-Feb-04	155						0.74			
l	17-Feb-04	162	<0.5	8.2	4.7	6.2	4.2	0.64			
l	24-Feb-04	169	9,2003					1.5			
l	02-Mar-04	176	<0.5	8.2	6.2	5.9	5.2	1.1			
	16-Mar-04	190	<0.5	8.2	5.3	6.2	4.7	1.2			
l	31-Mar-04	205	<0.5	8.8	1.5	5.9	5.1	1.3			
l	13-Apr-04	218	<0.5	8.9	2.8	6.3	5.5				
	27-Apr-04	232	<0.5	9.0	3.3	6.3	4.9	1.7			
l	14-May-04	249	I						17 <u>1-</u> 180 (180	17.0	1.6
l	17-May-04	252	l		7/2011		5000 minutes	e de la constante de la consta	27.0		
l	18-May-04	253	l		1.1		3.5	1.8			
l	01-Jun-04	267	I		1.6		4.9	2.4			
	01-Jul-04	297			2.2		4.7	2.8			



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of									
		Electron Donor					STSW-				
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW-39B
V inyl chloride (µg/L)	21-Oct-03	43					<0.5				
	29-Oct-03	51			< 0.25		< 0.25				
	03-Nov-03	56	< 0.5	< 0.25		< 0.25					
	05-Nov-03	58	10000		<0.5						
	11-Nov-03	64	< 0.25	< 0.25	< 0.25	< 0.25	<0.25				
	25-Nov-03	78	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25				
	09-Dec-03	92	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25				
	02-Jan-04	116 120	ZO 25	< 0.25	<0.25 <0.25	< 0.25	<0.25 <0.25				
	06-Jan-04 20-Jan-04	134	<0.25 <0.25	<0.25	<0.25	<0.25	<0.25				
	03-Feb-04	148	< 0.25	<0.25	<0.25	< 0.25	< 0.25				
	10-Feb-04	155	10.25		10.25		10.25	< 0.25			
	17-Feb-04	162	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25			
	24-Feb-04	169	10.23					< 0.25			
	02-Mar-04	176	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25	< 0.25			
	16-Mar-04	190	< 0.5	<0.5	<0.5	< 0.5	< 0.5	< 0.5			
	31-Mar-04	205	<0.5	<0.5	<0.5	<0.5	< 0.5	<0.5			
	13-Apr-04	218	<0.5	< 0.5	< 0.5	< 0.5	< 0.5				
	27-Apr-04	232	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5			
	14-May-04	249	527250							< 0.5	< 0.5
	17-May-04	252							< 0.5		
	18-May-04	253			< 0.5		< 0.5	< 0.5			
	01-Jun-04	267			<0.5		<0.5	<0.5			
	01-Jul-04	297			<0.5		<0.5	< 0.5			
Bioremediation Parameters											
Biochemical Oxygen Demand (mg/L)	04-Aug-03	-35								<1.0	<1.0
	05-Aug-03	-34			<1.0		<1.0		<1.0		
	14-Aug-03	-25	<1.0	<1.0							
	27-Apr-04	232	<1.0	<1.0	14.0	<1.0		<1.0	<1.0	<1.0	<1.0
Chemical Oxygen Demand (mg/L)	04-Aug-03	-35								<5.0	<5.0
	05-Aug-03	-34	535.55	6,000	<5.0		<5.0		<5.0		
	14-Aug-03	-25	<5.0	<5.0			400		15.0		
Dehalococcoides presence (Scale)	27-Apr-04	232 -25	10.0 ND	5.1 3.0	26.0	5.1	10.0	7.7	<5.0	15.0	13.0
Defialococcoldes presence (scale)	14-Aug-03 27-Nov-03	-2J 80	ND	3.0	2.0	ND					
	16-Dec-03	99			ND	ND	ND				
	10-Feb-04	155			IND	IND	IND	ND			
	23-Mar-04	197			ND						
	27-Apr-04	232	ND	ND	2.0		ND				
Ethanol (mg/L)	13-Aug-03	-26			<0.1						
	14-Aug-03	-25	<0.1	< 0.1			<0.1				
	08-Sep-03	0	<0.1	<0.1	<0.1	260	<0.1				
	11-Sep-03	3	<0.1	<0.1	<0.1	260	< 0.1				
	16-Sep-03	8	<0.1	<0.1	<0.1	260	<0.1				
	29-Sep-03	21	<0.1	<0.1	<0.1	260	< 0.1				
	15-Oct-03	37	<0.1	<0.1	<0.1	280	<0.1				
	29-Oct-03	51	2300000	195211952	<0.1	200 CO	<0.1				
	03-Nov-03	56	<0.1	<0.1	100000 Pt 185	0.54					
	11-Nov-03	64	<0.1	<0.1	<0.1	230	<0.1				
	25-Nov-03	78	<0.1	<0.1	<0.1	280	<0.1				
	09-Dec-03	92	<0.1	<0.1	<0.1	< 0.1	<0.1 <0.1				
	06-Jan-04	120 134	<0.1	<0.1 <0.1	<0.1 <0.1	290 260	<0.1 <0.1				
	20-Jan-04 03-Feb-04	134	<0.1	<0.1	<0.1	250	<0.1				
	03-Feb-04 17-Feb-04	148	<0.1	<0.1	<0.1	250	<0.1				
	02-Mar-04	176	<0.1	<0.1	<0.1	10.0	<0.1	< 0.1			
	16-Mar-04	190	<0.1	<0.1	<0.1	270	<0.1	<0.1			
	31-Mar-04	205	<0.1	<0.1	<0.1	300	<0.1	<0.1			
	13-Apr-04	218	<0.1	<0.1	<0.1	290	<0.1				
	27-Apr-04	232	<0.1	<0.1	<0.1	<0.1	<0.1	< 0.1			



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

		Days from Start of Electron Donor					STSW-	
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166 STSW-38A STSW-39A STSW-39B
Dissolved Hydrocarbon Gases	Due sumpress	11 00101011	211 1	LII 2	14111 1	1.11	10011	SIST TOO SIST OUT SIST OF SIST OF
Ethane (µg/L)	13-Aug-03	-26	l		<1.0			
* 5	14-Aug-03	-25	<1.0	<1.0			<1.0	
	08-Sep-03	0	<1.0	<1.0	<1.0	<1.0	<1.0	
	11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0	
	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0	
	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Oct-03	51			<1.0		<1.0	
	03-Nov-03	56	<1.0	<1.0		<1.0		
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	<1.0	
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0	
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	<1.0	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0	
	03-Feb-04	148	<1.0	<1.0	<1.0	<1.0	<1.0	24.0
	10-Feb-04	155	244.0		244.0			<1.0
	17-Feb-04	162	<1.0	<1.0	<1.0	<1.0	<1.0	
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	<1.0	
	31-Mar-04	205	<1.0	<1.0	<1.0	<1.0	<1.0	
	13-Apr-04	218	<1.0	<1.0	<1.0	<1.0	<1.0	21.0
Ethono (coff)	27-Apr-04	232	<1.0	<1.0	<1.0 <1.0	<1.0	<1.0	<1.0
Ethene (µg/L)	13-Aug-03	-26	-10	~1 O	<1.0		<1.0	
	14-Aug-03	-25 0	<1.0 <1.0	<1.0 <1.0	<1.0	<1.0	<1.0	
	08-Sep-03 11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0	
	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0	
	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Oct-03	51	10.0		<1.0	×1.0	<1.0	
	03-Nov-03	56	<1.0	<1.0	341.0	<1.0	1.0	
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	<1.0	
	09-Dec-03	92	<1.0	<1.0	<1.0	<1.0	<1.0	
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	<1.0	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	<1.0	
	03-Feb-04	148	<1.0	<1.0	<1.0	<1.0	<1.0	
	10-Feb-04	155	475047					<1.0
	17-Feb-04	162	<1.0	<1.0	<1.0	<1.0	<1.0	
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	<1.0	
	31-Mar-04	205	<1.0	<1.0	<1.0	<1.0	<1.0	
	13-Apr-04	218	<1.0	<1.0	<1.0	<1.0	<1.0	
	27-Apr-04	232	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methane (μg/L)	13-Aug-03	-26			<1.0			
20062-40004-6 - 840	14-Aug-03	-25	<1.0	<1.0			<1.0	
	08-Sep-03	0	<1.0	<1.0	<1.0	<1.0	<1.0	
	11-Sep-03	3	<1.0	<1.0	<1.0	<1.0	<1.0	
	16-Sep-03	8	<1.0	<1.0	<1.0	<1.0	<1.0	
	29-Sep-03	21	<1.0	<1.0	<1.0	<1.0	<1.0	
	15-Oct-03	37	<1.0	<1.0	<1.0	<1.0	1.1	
	29-Oct-03	51	327 - 254		1.1		<1.0	
	03-Nov-03	56	<1.0	<1.0		<1.0		
	11-Nov-03	64	<1.0	<1.0	<1.0	<1.0	<1.0	
	25-Nov-03	78	<1.0	<1.0	<1.0	<1.0	2.41	
	09-Dec-03	92	<1.0	<1.0	6.4	<1.0	3.68	
	06-Jan-04	120	<1.0	<1.0	<1.0	<1.0	2.6	
	20-Jan-04	134	<1.0	<1.0	<1.0	<1.0	2.73	
	03-Feb-04	148	<1.0	<1.0	2.15	<1.0	6.34	
	10-Feb-04	155	1					<1.0
	17-Feb-04	162	<1.0	<1.0	2.09	<1.0	10.3	
	02-Mar-04	176	<1.0	<1.0	<1.0	<1.0	1.33	
	31-Mar-04	205	<1.0	<1.0	12.1	<1.0	7.7	
	13-Apr-04	218	<1.0	<1.0	23.2	<1.0	7.17	
	27-Apr-04	232	<1.0	<1.0	48.6	<1.0	20.4	<1.0



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

Active Perchlorate Bioremediation Demonstration

2 22	7.46	Days from Start of Electron Donor				2000	STSW-	OTROTAL 1.CC	GERGINI GOA	CHICKLE CO.	amani von
Analyte	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	818W-39B
Dissolved Metals	04.403	25								< 0.3	0.74
fron (mg/L)	04-Aug-03	-35			0.44		10.0			<0.3	0.74
	05-Aug-03	-34	40 D	-0.0	0.66		< 0.3		<0.3		
	14-Aug-03	-25	<0.3	< 0.3							
	28-Aug-03	-11	.0.0	.0.0		.0.0	.0.0				
	08-Sep-03	0	<0.3	< 0.3	< 0.3	< 0.3	< 0.3				
	11-Sep-03	3	<0.3	< 0.3	< 0.3	< 0.3	< 0.3				
	16-Sep-03	8	<0.3	< 0.3	< 0.3	< 0.3	< 0.3				
	22-Sep-03	14		10.0		< 0.3					
	29-Sep-03	21	< 0.3	< 0.3	0.68	< 0.3	< 0.3				
	07-Oct-03	29	~~~~			< 0.3					
	15-Oct-03	37	<0.3	< 0.3	0.64	< 0.3	0.3				
	21-Oct-03	43			0.67	< 0.3	0.36				
	29-Oct-03	51			0.98		0.45				
	03-Nov-03	56	< 0.3	< 0.15		< 0.15					
	11-Nov-03	64	< 0.15	< 0.15	0.79	< 0.15	0.49				
	18-Nov-03	71				< 0.15					
	25-Nov-03	78	< 0.15	< 0.15	0.57	< 0.15	0.45				
	02-Dec-03	85	1727122	Programa.		< 0.15	2020				
	09-Dec-03	92	< 0.15	< 0.15	0.43	< 0.15	0.54				
	16-Dec-03	99				< 0.15					
	02-Jan-04	116	0.00	12117.2	0.91	121112	1.5				
	06-Jan-04	120	< 0.15	< 0.15	0.41	< 0.15	0.56				
	13-Jan-04	127				< 0.15					
	20-Jan-04	134			0.32		0.55				
	27-Jan-04	141				< 0.15					
	03-Feb-04	148	< 0.15	< 0.15	0.45	< 0.15	0.56	UKDAT			
	10-Feb-04	155			191119	< 0.15	5122	0.34			
	17-Feb-04	162			0.45		0.55	<0.15			
	24-Feb-04	169				< 0.15					
	02-Mar-04	176	< 0.15	< 0.15	< 0.15	< 0.15	0.57	<0.15			
	09-Mar-04	183	9334.6			<0.3					
	16-Mar-04	190	<0.3	< 0.3	< 0.3	< 0.3	0.59	< 0.3			
	31-Mar-04	205	< 0.3	< 0.3	0.94	< 0.3	0.56	0.56			
	06-Apr-04	211				< 0.3		< 0.3			
	13-Apr-04	218	<0.3	< 0.3	0.42	< 0.3	0.61				
	20-Apr-04	225	52752			< 0.3					
	27-Apr-04	232	<0.3	< 0.3	0.34	<0.3	0.66	< 0.3	<0.3	< 0.3	<0.3
	18-May-04	253			0.56		0.69	< 0.3			
	01-Jun-04	267	I		0.56		0.69	< 0.3			



TABLE 5-9: RESUTS OF CHEMICAL ANALYSIS

Active Perchlorate Bioremediation Demonstration

		Days from Start of									
Analyte		Electron Donor					STSW-				
	Date Sampled	A ddition	EW-1	EW-2	MW-1	RW-1	138A	STSW-166	STSW-38A	STSW-39A	STSW-39I
Manganese (mg/L)	04-Aug-03	-35								0.017	0.034
	05-Aug-03	-34			0.055		0.009		0.019		
	14-Aug-03	-25	< 0.005	< 0.005							
	28-Aug-03	-11									
	08-Sep-03	0	< 0.005	< 0.005	0.01	< 0.005	< 0.005				
	11-Sep-03	3	< 0.005	< 0.005	0.0055	< 0.005	< 0.005				
	16-Sep-03	8	< 0.005	< 0.005	0.099	< 0.005	< 0.005				
	22-Sep-03	14				< 0.005					
	29-Sep-03	21	< 0.005	< 0.005	0.14	< 0.005	0.019				
	07-Oct-03	29				< 0.005					
	15-Oct-03	37	< 0.005	< 0.005	0.096	< 0.005	0.024				
	21-Oct-03	43			0.089	< 0.005	0.029				
	29-Oct-03	51			0.086		0.036				
	03-Nov-03	56	< 0.005	< 0.0025		< 0.0025					
	11-Nov-03	64	< 0.0025	< 0.0025	0.085	0.0057	0.039				
	18-Nov-03	71				< 0.0025					
	25-Nov-03	78	< 0.0025	< 0.0025	0.11	< 0.0025	0.033				
	02-Dec-03	85				< 0.0025					
	09-Dec-03	92	< 0.0025	< 0.0025	0.11	< 0.0025	0.031				
	16-Dec-03	99				< 0.0025					
	02-Jan-04	116			0.12		0.044				
	06-Jan-04	120	< 0.0025	< 0.0025	0.12	< 0.0025	0.033				
	13-Jan-04	127				< 0.0025					
	20-Jan-04	134			0.13		0.026				
	27-Jan-04	141				< 0.0025					
	03-Feb-04	148	< 0.0025	< 0.0025	0.14	< 0.0025	0.025				
	10-Feb-04	155				< 0.0025		0.0094			
	17-Feb-04	162			0.15		0.024	0.0079			
	24-Feb-04	169				< 0.0025					
	02-Mar-04	176	< 0.0025	< 0.0025	0.17	< 0.0025	0.021	< 0.0025			
	09-Mar-04	183				< 0.005					
	16-Mar-04	190	< 0.005	< 0.005	0.18	< 0.005	0.021	0.0084			
	31-Mar-04	205	< 0.005	< 0.005	0.29	< 0.005	0.019	< 0.005			
	06-Apr-04	211	4000A00000	THE PROPERTY OF	SURFACE SE	< 0.005	3.8800.00389	< 0.005			
	13-Apr-04	218	< 0.005	< 0.005	0.33	< 0.005	0.019	-			
	20-Apr-04	225				< 0.005					
	27-Apr-04	232	< 0.005	< 0.005	0.36	< 0.005	0.02	< 0.005	0.011	0.023	0.0065
	18-May-04	253	701000 (FAR.S)	00000FU7,Til	0.38	00000F0F0F0F0	0.032	< 0.005	V2004010.07	seer attack.	1001818181818
	01-Jun-04	267			0.41		0.036	< 0.005			

µg/L - micrograms per litre
mg/L - milligrams per litre
Scale - Qualititative score for measurement of *Dehalococcoides* presence

Perchlorate varied from 250 to 480  $\mu$ g/L at EW-1 (median: 350  $\mu$ g/L) and from 1,900 to 3,000  $\mu$ g/L at EW-2 (median: 2,400  $\mu$ g/L). Influent concentrations at RW-1 tracked EW-2 concentrations and typically ranged from 1,300 to 2,500  $\mu$ g/L over the course of the study (median: 1,900  $\mu$ g/L, excluding a questionable non-detect and two anomalously low values).

Following electron donor addition, perchlorate concentrations declined rapidly in monitoring well MW-1, reaching non-detect on 7 October 2003 (Day 30), and generally remained non-detect throughout the remainder of the pilot test, and for over 2 years after the test. Moreover, "normal" perchlorate concentrations ( $\sim$ 1,500 µg/L) had not returned to MW-1 ( $\sim$ 70 µg/L) by late 2009. Evaluation of the perchlorate concentrations at MW-1 indicates that there was very little acclimation period before perchlorate degradation occurred following addition of the electron donor. Based on the data for MW-1, the half-life for perchlorate biodegradation can be calculated as 1.1 days, consistent with perchlorate biodegradation half-lives measured for other perchlorate sites (Cox et al., 2001).

At monitoring well STSW-138A, perchlorate concentrations declined to non-detect on 2 December 2003 (Day 86) and generally remained non-detect throughout the remainder of the pilot test, and for approximately five months after the test. Normal perchlorate concentrations returned to STSW-138A during late 2005, approximately one year after perchlorate was detected again.

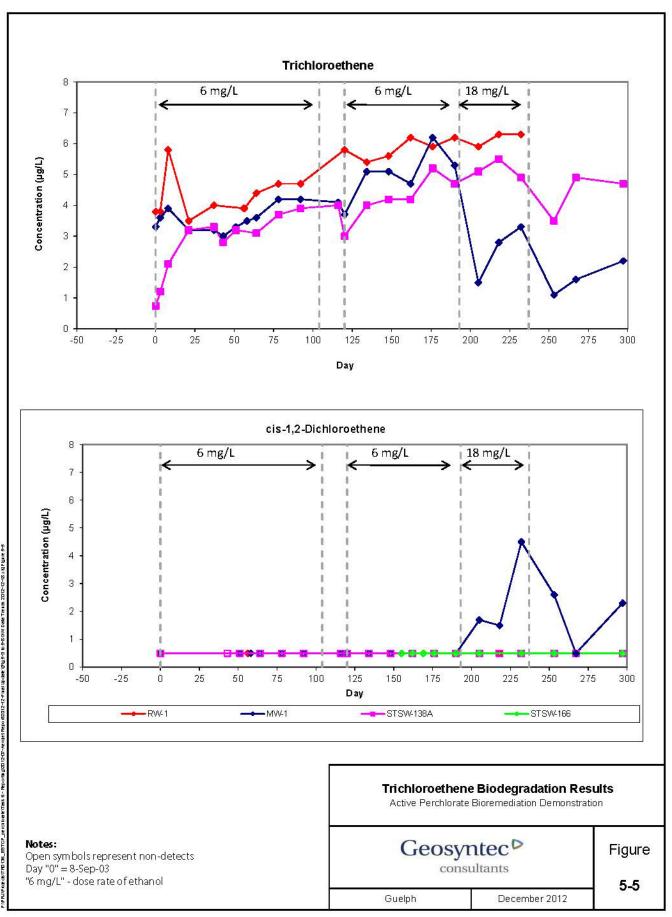
Perchlorate biodegradation was able to continue after the demonstration test because the ethanol dosing was able to create and sustain a large mass of bacteria within a biologically-active zone (BAZ) between RW-1 and MW-1. Without ethanol, the bacterial mass would have declined and living bacteria would feed on dead bacteria while consuming perchlorate, nitrate, and dissolved oxygen in the groundwater flowing into the bacterial mass. MW-1 was probably located near the center of this biomass and was able to maintain the degradation of perchlorate much longer than the peripheral location of STSW-138A. The locations of these wells suggest a maximum BAZ width between 150 and 200 feet for the 7.8-month test. The BAZ continued to reduce perchlorate concentrations around MW-1 for over 5 years after the test.

Perchlorate at STSW-166 was found to be declining during the latter third of the test (new well) and for over 6 months after the test. Normal perchlorate concentrations probably returned to STSW-166 during 2008. These data show that treated groundwater migrated downgradient of the BAZ into the vicinity of STSW-166.

#### 5.6.6 Results of Trichloroethene Analysis

**Figure 5-5** presents trends in TCE concentrations in the demonstration test area groundwater over the duration of the test. TCE data are presented in Table 5-9.

TCE concentrations at EW-2 generally increased during the pilot test, ranging from 4.3 to 9.0  $\mu$ g/L, whereas TCE was not detected at EW-1 based on a PQL of 0.5  $\mu$ g/L. Influent





concentrations at RW-1 ranged between 3.5 and 6.3  $\mu$ g/L and generally increased during the course of the test, consistent with EW-2.

TCE concentrations at the monitoring wells MW-1 and STSW-138A began increasing, consistent with RW-1, throughout much of the pilot test, and to a lesser extent at STSW-166, because the indigenous bacteria could not degrade the TCE. Following Bioaugmentation B at MW-1, the TCE concentration decreased to 1.5  $\mu$ g/L within 7 days. Coincident with the decline in TCE concentrations at MW-1, cis-1,2-DCE concentrations increased from non-detect (<0.5  $\mu$ g/L) to a maximum of 4.5  $\mu$ g/L, as shown in **Figure 5-5**. After the ethanol was consumed near MW-1, TCE concentrations began to increase while cis-1,2-DCE began to decrease. Normal TCE concentrations returned to MW-1 after approximately 2 years and cis-1,2-DCE persisted for approximately 20 months.

TCE concentrations at STSW-138A declined slowly after the end of the pilot test and reached minimum values (1.1  $\mu$ g/L) between December 2005 and May 2006 before increasing again. The groundwater did not contain any cis-1,2-DCE.

TCE concentrations at STSW-166 was similar to MW-1 until early 2007, and cis-1,2-DCE occurred sporadically during the first two years after the demonstration test. Vinyl chloride and ethene were never detected above their respective PQLs, and therefore, TCE biodegradation was limited even with increased electron donor and bioaugmentation. Several factors may explain this result. First, *Dehalococcoides* use TCE as a respiratory substrate. The concentration of TCE in the demonstration test area groundwater was very low, and was probably not sufficient to support the establishment and activity of the microbial population. Secondly, the increase of electron donor was tightly constrained throughout the demonstration test, to avoid creation of secondary water quality impacts (e.g., manganese mobilization). These conditions likely limited the establishment of geochemical conditions favorable for Dehalococcoides, and hence limited establishment and growth of the culture. Finally, the aerobic nature of the feed water to the active biobarrier made introduction of KB-1 into an appropriate anaerobic environment significantly challenging. It is worth clarifying that bioaugmentation with KB-1 did not fail: Dehalococcoides were detected in the aquifer at several wells following their introduction. Rather, operating conditions favoring establishment and activity of KB-1 could not be created and maintained throughout the demonstration test area over a sufficiently long term. Future potential use of KB-1 should consider only areas where sufficient VOCs are present to establish and maintain the culture. Moreover, the delivery method should include an adequately-sized well (minimum 4-inch instead of 2-inch) within the BAZ to disperse KB-1 into the aguifer.

# 5.6.7 Results of Supporting Groundwater Chemistry

The following sections summarize the inorganic results for key supporting geochemical parameters, including nitrate, sulfate, DHGs, dissolved metals and VOCs (listed in **Table 5-9**).

# Nitrate and Sulfate

**Figure 5-6** presents the trends in the concentrations of nitrate in the demonstration test area groundwater. Nitrate concentrations in the extraction and recharge wells EW-1, EW-2 and RW-1 remained relatively stable throughout the pilot study, ranging between 1.0 and 1.9 mg/L. Some reduction is noticeable at EW-2 and RW-1 toward the end of the test, as more water impacted by the addition of electron donor was circulated to these wells. Nitrate concentrations in groundwater at monitoring well MW-1 declined from a background of approximately 1.0 mg/L to non-detect at a PQL of 0.05 mg/L within 14 days of electron donor addition. Nitrate was still non-detect approximately 2.5 years after the test. Similarly, nitrate concentrations in the transgradient monitoring well STSW-138A declined from approximately 1.3 mg/L to <0.05 mg/L within 37 days after the addition of electron donor. Nitrate had recovered at STSW-138A to pre-test concentrations after approximately one year. At STSW-166, nitrate declined during the latter part of the pilot test and continued to decline for a year after the test. Moreover, nitrate concentrations have recovered slowly since the well continues to receive groundwater from the vicinity of MW-1.

**Figure 5-6** also presents the trends in the concentrations of sulfate in the demonstration test area groundwater. Sulfate concentrations remained relatively stable during the period when the electron donor concentration was constrained to 1X the stoichiometric demand. Sulfate concentrations decreased rapidly in MW-1 following the second bioaugmentation event, when the electron donor concentration was increased to 3X the stoichiometric demand, and were non-detect until the end of the test. Similarly, sulfate decreased at STSW-138A but was delayed slightly and the decrease was less. Sulfate also declined at STSW-166 as groundwater from the MW-1 flowed past STSW-166. The overall sulfate data confirm that perchlorate degradation can be accomplished without sulfate reduction, through control of electron donor addition, but that electron donor addition levels required for TCE reduction cause sulfate reduction.

Sulfate recovered to normal concentrations within approximately 15 months at STSW-166 and with approximately 22 months at STSW-138A. Conversely, sulfate at MW-1 rebounded within five months to twice the pretest concentrations and then declined to near-normal concentrations by December 2006.

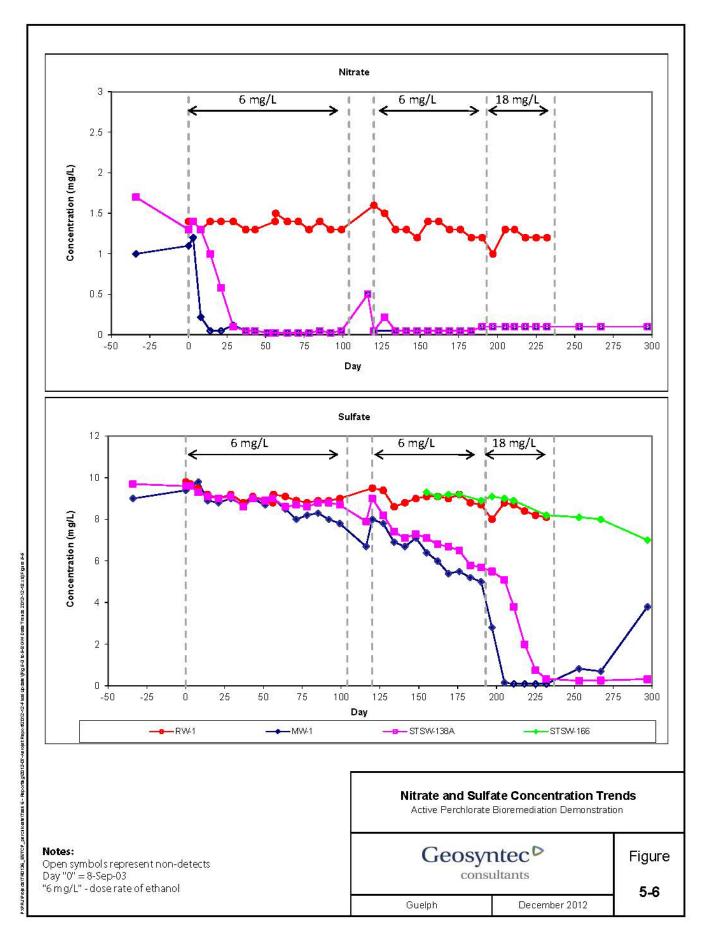
# Dissolved Hydrocarbon Gases

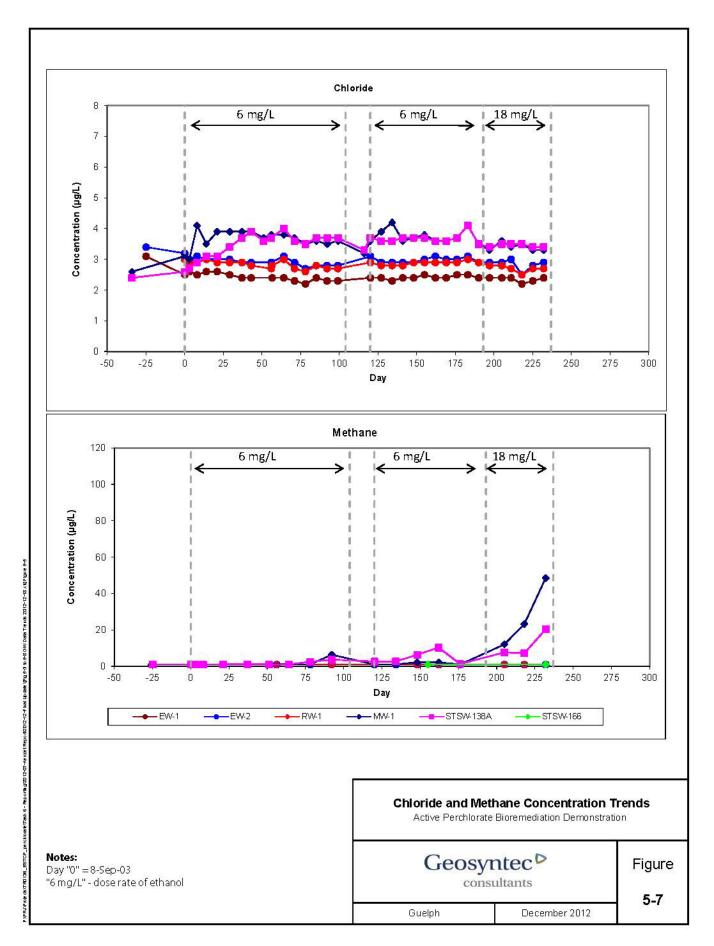
Ethane and ethene were not detected throughout the pilot test in all wells. Similarly, methane was not detected at EW-1, EW-2, RW-1 or STSW-166, although methane concentrations increased at wells MW-1 and STSW-138A, particularly in response to the second bioaugmentation event and associated increase in electron donor dose rate. **Figure 5-7** presents methane

concentration

trends.

64

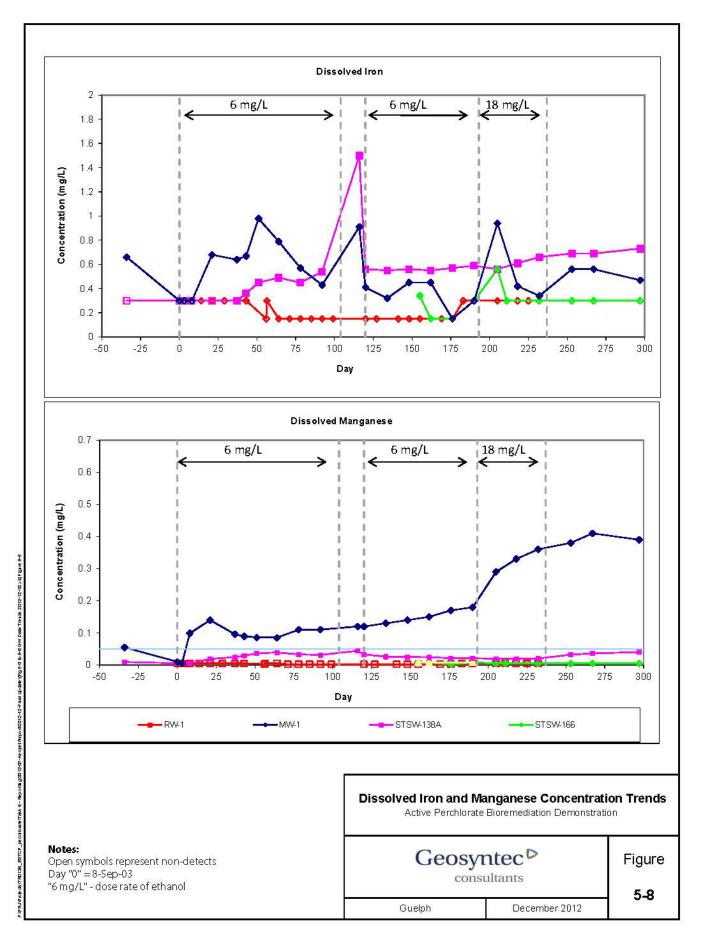




# **Dissolved Metals**

**Figure 5-8** presents the concentration trends for dissolved iron and dissolved manganese, two metals known to be mobilized under anaerobic conditions. Iron was present at monitoring well MW-1 prior to the test, showed some fluctuations during the pilot test and then declined after the test until December 2005 when concentrations began to increase. Conversely, iron at STSW-138A was not detected until over 3 weeks after starting the demonstration test and then rose quickly before leveling off. Iron concentrations rose slightly near the end of the test, possibly due to the higher ethanol dosing in the last period of the test. Iron at STSW-138A remained relatively high for several months after the test and then iron was non-detect by August 2005. Iron concentrations at downgradient monitoring well STSW-166 were virtually non-detect based on a PQL of 0.3 mg/L), which also is the secondary MCL for iron. The high iron in MW-1 groundwater appeared to have attenuated before arriving at STSW-166 until late 2006, as shown by the steady iron non-detects, but then increased thereafter, similar to active values of the pilot test.

Manganese concentrations increased in monitoring wells MW-1 and STSW-138A following the initiation and subsequent increases in electron donor delivery. Concentrations in MW-1 appeared to be less than 0.1 mg/l prior to the test and then increased steadily to nearly 0.2 mg/L during the perchlorate degradation period. After the bioaugmentation of MW-1 in late March 2004, manganese concentrations increased again to nearly 0.6 mg/l shortly after the termination of the test. Manganese at MW-1 decreased slightly thereafter, but has remained at approximately 0.5 mg/l though September 2009. Importantly, manganese concentrations at well STSW-138A remained below the secondary MCL for manganese (0.05 mg/L) throughout the study. Manganese concentrations at downgradient monitoring well STSW-166 were below the secondary MCL during the latter portion of the pilot test and were non-detect for nearly one year thereafter. However, manganese has been detected at STSW-166 at concentrations below the secondary MCL.



# 6. PERFORMANCE ASSESSMENT

The performance objectives and results for this Demonstration are shown in **Table 6-1** and are discussed below.

#### 6.1 Ease of Installation

The ease of installation of electron donor delivery components was evaluated based on the experience of field staff and the actual availability and costs of installed equipment. The success criterion for this objective is that the electron donor delivery system can be readily installed using standard industry procedures and contractors.

This objective was achieved based on experience with the actual installation of the groundwater recirculation and electron donor delivery systems at the IRCTS. The equipment required for the active groundwater recirculation and injection of electron donor was all readily available through local drillers and plumbing suppliers. The ClO<sub>2</sub> biofouling control system was also available and straightforward to install. The procedures used to install the equipment were standard and well established procedures for local drillers and the procedures were simple enough to be conducted by field technicians with training in basic plumbing techniques.

# 6.2 Ease of Electron Donor Delivery Events

The ease of electron donor delivery events was evaluated based on the experience of field staff who conducted the actual electron donor events. The success criterion for this objective is that electron donor delivery events can be conducted by field staff with minimal training and effort.

This objective was achieved based on experience of field staff with the actual electron donor delivery events. The activities and procedures required for the electron donor delivery events were simple enough to be conducted by field staff with minimal specialized training and effort.

Electron donor was added to the groundwater recirculation injection well on a daily basis. Commercially available ethanol was used as the electron donor. There were some safety issues to be addressed with the use of ethanol as a result of its flammability, but once the appropriate storage equipment and procedures were put in place there were no significant issues with the addition of electron donor.

The groundwater recirculation system was operated on a continuous basis and there were no indications that significant fouling was occurring in the groundwater injection well. The injection well was equipped with a high level shut off switch to shut off the recirculation of groundwater if the water level in the injection well rose indicating that the well was becoming fouled but no such events occurred during operation. It is believed that the pulsed injection of electron donor over one hour each day followed by an injection of ClO<sub>2</sub> was an effective operating strategy for controlling biofouling of the injection well.



# TABLE 6-1: PERFORMANCE OBJECTIVES AND RESULTS

Active Perchlorate Bioremediation Demonstration

Performance Objective	Data Requirement	Success Criteria	Results
Qualitative Performance Objectives			
Ease of Installation of Electron     Donor Delivery Components	Experience of demonstration operators; actual availability and costs of installed equipment		Objective achieved - experience with system installation demonstrates that electron donor delivery system can be readily installed by standard industry procedures/contractors
Ease of Electron Donor Delivery Events	Experience of demonstration operators; and costs of events	Electron donor delivery events can be conducted with minimal training and effort	Objective achieved - Experience of operators demonstrates that electron donor delivery events can be conducted with minimal training and effort
Enhancement of Microbiological     Activity	Groundwater and soil analyses for geochemical characterization	Electron donor addition enhances microbiological activity in the treatment zone	Objective achieved - Groundwater monitoring data demonstrates that electron donor addition enhances microbiological activity in the treatment zone
4) Ease of Performance Monitoring and Validation	Quality of data and ability to interpret and quantify biodegradation with confidence	Performance monitoring network allows straightforward data collection, interpretation and validation	Objective achieved - Quality of data and ability to interpret and quantify biodegradation with confidence demonstrates that performance monitoring network allows straightforward data collection, interpretation and validation
Quantitative Performance Objectives			
5) Reduction in Perchlorate Concentration	Groundwater sampling of performance monitoring wells	quantitation limit of 0.004 mg/L	Objective achieved - Groundwater sampling of performance monitoring wells demonstrates that the average perchlorate concentrations were reduced to below the practical quantitation limit of 4 µg/L
6) Radius of Influence and Distance for Degradation	Groundwater sampling of performance monitoring wells	perchlorate will be degraded before groundwater reaches the furthest downgradient performance monitoring wells	Objective achieved - Groundwater sampling of performance monitoring wells during tracer test and following electron donor addition demonstrate that the area of influence extends between injection and extraction wells and perchlorate was degraded before groundwater reaches downgradient performance monitoring wells

70

Notes:

µg/L - micrograms per Liter

# 6.3 Enhancement of Microbiological Activity

The enhancement of microbiological activity was evaluated using groundwater analysis for geochemical parameters. The success criterion for this objective is that electron donor addition enhances microbiological activity in the treatment zone.

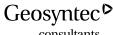
This objective was achieved based on the results of chemical and geochemical characterization. Groundwater monitoring data for chemical and geochemical parameters demonstrated that electron donor addition enhanced microbiological activity in the treatment zone. Significant and sustained reductions in ORP were observed following addition of electron donor and provide the first indication that biological activity was enhanced by the addition of electron donor. A statistical analysis of ORP data was conducted (see Appendix D) and shows a very high level of confidence that the injection of electron donor in the biobarrier resulted in significant reductions in ORP that are indicative of enhanced biological activity. The ORP values measured in monitoring wells: (1) MW-1; and (2) STSW-138A were evaluated before (day -34 to day -6) and during amendment with electron donor (day 56 to day 232).

The mean and standard deviation of the ORP values from each monitoring well in each of the two time periods were calculated and are presented in Appendix D Tables D-1 and D-2. In addition, a one-tailed Student's t-test was conducted at a 5% level of significance and assuming equal sample variances. The null hypothesis of the t-test is that the mean ORP value for the time period following the amendment with electron donor was greater than or equal to the mean ORP value for the time period preceding the amendment, or the mean baseline ORP. Tables D-1 and D-2 show the p-values from the t-tests for ORP data from MW-1 and STDW-138A, respectively. The p-value is the probability of obtaining a test statistic at least as extreme as the one observed. If the p-value is less than the specified alpha level, i.e., 0.05, then there is sufficient evidence to reject the null hypothesis. The p-values for the comparison of means from the period of time before amendment and after amendment for MW-1 and STSW-138A are 1.56 x 10<sup>-10</sup> and 6.5 x 10<sup>-6</sup>, respectively. As these values are significantly lower than 0.05, the null hypothesis is rejected and we can conclude that the mean ORP after amendment is statistically lower than that at the baseline. Therefore, the results of the t-test confirm that ORP concentrations did indeed decrease after amendment.

The reductions in perchlorate concentrations in groundwater observed following addition of electron donor provide additional indications that biological activity was enhanced by the addition of electron donor and that this biological activity included microorganisms capable of degradation of perchlorate. The reductions in perchlorate are discussed further in Section 6.5.

# 6.4 Ease of Performance Monitoring and Validation

The ease of performance monitoring and validation was evaluated based on the quality of the data obtained and the ability to interpret and quantify biodegradation with confidence. The



success criterion for this objective is that the performance monitoring network and sampling conducted allows for straightforward data collection, interpretation and validation.

This objective was achieved based on the data obtained during the demonstration. The quality of the data obtained and the ability to interpret this data and quantify biological activity (by the reduction in ORP) with confidence and reduction in perchlorate demonstrated that the performance monitoring network allowed for straightforward data collection, interpretation and validation.

The monitoring well network installed for the demonstration allowed the collection of groundwater samples for measurement of field parameters and for chemical analysis from key locations in the demonstration test area.

Measurement of field parameters and analysis of samples collected from monitoring wells allowed for data to be collected which demonstrated significant reductions in ORP associated with the enhancement of biological activity resulting from the addition of electron donor. The reduction in ORP in samples from monitoring wells in the demonstration area provided a quantitative measure of the biological activity in the subsurface. The monitoring well network allowed for the collection of data that showed the reduction in perchlorate concentrations to validate the performance of the technology.

#### 6.5 Reduction in Perchlorate Concentration

The reduction in perchlorate concentrations was evaluated based on groundwater sampling of performance monitoring wells. The success criterion for this objective is that perchlorate concentrations are reduced to the practical quantitation limit of 4.0 µg/L. Figure 5-4 shows the concentration of perchlorate in key monitoring wells in the biobarrier over the course of the demonstration test. Appendix D presents the statistical analysis of the data to support this conclusion.

The concentrations of perchlorate in monitoring wells: (1) MW-1; and (2) STSW-138A varied between 1,400 µg/L and 2,600 µg/L before operation of the groundwater recirculation and amendment addition system was initiated at Day "0". The concentration of perchlorate in MW-1 dropped very quickly and was non-detect (i.e., <4.0 µg/L) by day 29. The concentration remained less than 4.0 µg/L until the end of the test at Day 232 with the exception of two excursions to 16 and 4.7 µg/L on Day 85 and Day 176.

The concentration of perchlorate in STSW-138A dropped down more slowly than in MW-1 but was non-detect (i.e., <4.0 μg/L) by day 85. The groundwater recirculation and electron donor amendment system was shut off from day 104 to day 120. During this period of time, the concentration of perchlorate in monitoring well STSW-138A increased up to 14 µg/L at day 116 but dropped back down to less than 4.0 µg/L on day 127 and remained less than 4.0 µg/L to the end of amendment injection period at day 232. It is likely that when the recirculation system was shut off at day 104, un-amended groundwater from upgradient of STSW-138A began to flow



into the monitoring well and resulted in the short term increase in perchlorate concentrations in this monitoring well.

The average perchlorate concentrations measured in: (1) MW-1 from day 29 to the end of amendment injection period (2.6  $\mu g/L$ ); and (2) STSW-138A from day 85 to the end of amendment injection period (2.9  $\mu g/L$ ) were all less than 4.0  $\mu g/L$ . The 95<sup>th</sup> percentile perchlorate concentrations measured in: (1) MW-1 from day 29 to the end of amendment injection period (3.6  $\mu g/L$ ); and (2) STSW-138A from day 127 to the end of amendment injection period (2.0  $\mu g/L$ ) were all less than 4.0  $\mu g/L$ .

This objective was achieved based on groundwater sampling of performance monitoring wells that demonstrated that the average perchlorate concentrations were reduced to below the PQL of  $4.0 \,\mu\text{g/L}$  during the during the operating period.

# 6.6 Radius of Influence and Distance for Degradation

The radius of influence and distance for degradation was evaluated based on the results of groundwater samples collected from the performance monitoring wells. The success criterion for this objective is that the radius of influence for electron donor addition will extend between recirculation wells and that perchlorate will be degraded before groundwater reaches the furthest downgradient performance monitoring well.

This objective was achieved based on groundwater sampling results from performance monitoring wells during the tracer tests and following electron donor delivery which demonstrated that the radius of influence of the system extends between the recirculation wells and that perchlorate was degraded before groundwater reached downgradient performance monitoring wells.

A summary of the results of the tracer test is shown in **Figures 5-2.** The figures show the tracer concentrations in wells in the demonstration test area. During the tracer test, groundwater was extracted from EW-1 at a rate of 20 gpm and from EW-2 at a rate of 40 gpm and all of the extracted groundwater was injected into RW-1. The tracer was observed in EW-2 after approximately 50 days demonstrating a hydraulic connection between the injection and extraction well. The tracer was observed at EW-1 with a lower extraction rate starting at about 200 days again demonstrating a hydraulic connection between the injection and extraction well.

The distance for degradation was demonstrated by the reductions in perchlorate in monitoring wells MW-1 and STSW-138A approximately 50 feet and 85 feet from the injection well RW-1. Degradation of perchlorate occurred in wells very close to the alignment of the biobarrier indicating that the degradation of perchlorate can occur within a very short distance from the electron donor injection point.

# 7. COST ASSESSMENT

This section presents the results of a cost assessment to implement EISB for perchlorate impacted groundwater using the active approach for the addition of electron donor. Section 7.1 describes a costing model that was developed for the application of EISB with a comparison to other approaches to implementing EISB and to a pump and treat system, Section 7.2 presents an assessment of the cost drivers for the application of the technology, and Section 7.3 presents the results of an analysis of the costing model.

#### 7.1 Cost Model

A cost model was developed for EISB for this report and for the recently released SERDP/ESTCP monograph on *In Situ* Bioremediation of Perchlorate in Groundwater (Stroo and Ward, 2009).

The cost model was developed for a template site based on a typical site with perchlorate impacted shallow groundwater. The specific site characteristics used are presented in **Table 7-1** and an illustration of the plume and biobarrier are provided in **Figure 7-1**. Cost estimates were prepared for an active EISB remedy along with three other approaches to implementing EISB and for a conventional pump and treat system. Using the template site conditions, the cost model identifies the major cost drivers for the active approach and provides an estimate of costs for the capital, O&M, and long-term monitoring. Capital costs included design and permitting activities, mobilization, site preparation, well installation, chemical reagents, management, and derived waste disposal. O&M costs included mobilization, equipment replacement and supplies (e.g., electron donor). Long-term monitoring costs included field supplies, sampling equipment, laboratory analysis and regulatory reporting. Labor associated with the planning, procurement and implementation of all aspects of the active EISB approach is also included. Excluded from consideration are the costs of pre-remediation investigations (e.g., plume delineation, risk determination, and related needs), treatability studies, source zone treatment, and post remediation decommissioning activities.

The cost estimates focused on treatment of a contaminated plume of groundwater and costs for possible source zone treatment are not included. In reality, it may be appropriate to treat source areas which may contain a significant mass of perchlorate and contribute slowly to elevated concentrations in groundwater. A perchlorate "source" may take a variety of forms including:

- 1. perchlorate in the geological media above the water table (the "vadose zone") which is carried into the groundwater by water infiltrating from the surface and flushing the perchlorate into the groundwater;
- 2. perchlorate in the vadose zone which dissolves into the groundwater as groundwater elevations increase (possibly on an intermittent basis) and saturate the vadose zone containing the perchlorate;
- 3. perchlorate disposed of below the water table in a manner that allows the perchlorate to be releases into the groundwater over an extended period of time; and



TABLE 7-1: SITE CHARACTERISTICS AND DESIGN PARAMETERS FOR EISB OF PERCHLORATE IMPACTED GROUNDWATER Active Perchlorate Bioremediation Demonstration

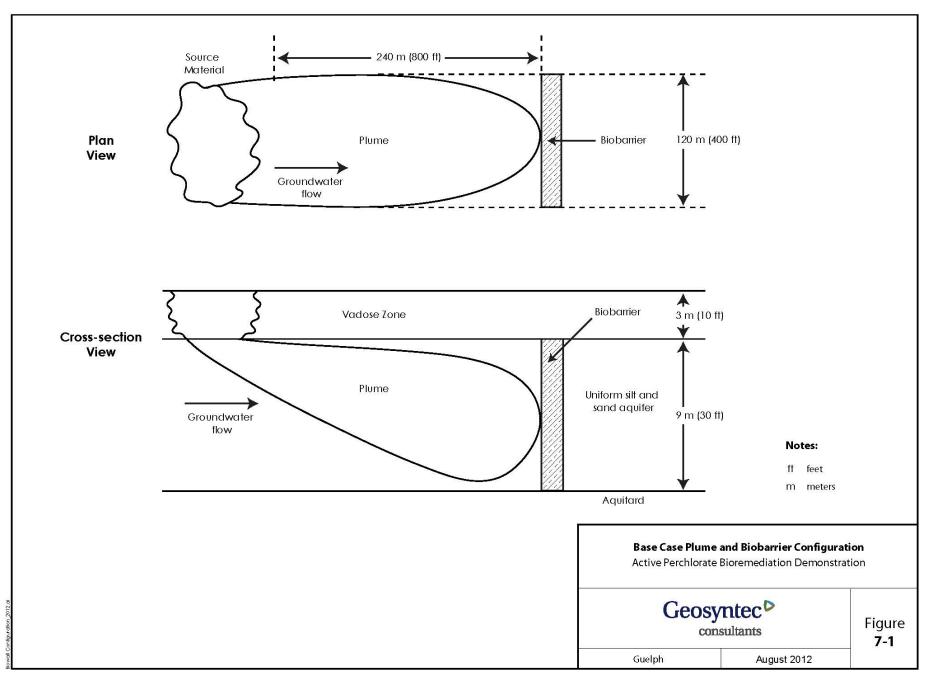
						Scer	ario / Case	Description	and Numbe	r		W	200	
Design Parameter	units	Base Case	Accelerated Clean Up Case	Low Perchlorate Conc. Case	High Perchlorate Conc. Case	Low Donor Demand Case	High Donor Demand Case	Low GW Velocity Case	High GW Velocity Case	Deep GW Case	Thin Interval Case	Thick Interval Case	Narrow Plume Case	Wide Plume Case
		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8	Case 9	Case 10	Case 11	Case 12	Case 13
Width of Plume	meters	120	120	120	120	120	120	120	120	120	120	120	30	240
	feet	400	400	400	400	400	400	400	400	400	400	400	100	800
Length of Plume	meters	240	240	240	240	240	240	240	240	240	240	240	240	240
5005	feet	800	800	800	800	800	800	800	800	800	800	800	800	800
Porosity		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Gradient		0.008	0.008	0.008	0.008	0.008	0.008	0.0008	0.016	0.008	0.008	0.008	0.008	0.008
Hydraulic Conductivity*	cm/sec	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001
Upgradient Perchlorate Concentration	mg/L	2	2	0.4	10	2	2	2	2	2	2	2	2	2
Downgradient Perchlorate Concentration	mg/L	1.1	1.1	0.22	5.5	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Nitrate Concentration	mg/L	15	15	15	15	5	30	15	15	15	15	15	15	15
Dissolved Oxygen Concentration	mg/L	5	5	5	5	2	8	5	5	5	5	5	5	5
Depth to Water	m bgs ft bgs	3 10	3 10	3 10	1000	3 10	3 10		3 10	3550350	3 10	3 10	3 10	3 10
Vertical Saturated Thickness	m ft	9	9	9	9	9	9	9	9	9	3	15 50	9	9
Cross Sectional Area of Plume	m <sup>2</sup> ft <sup>2</sup>	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	1,080 12,000	360 4,000	1,800 20,000	270 3,000	2,160 24,000
GW Seepage Velocity	m/year	10	10	10	10	10	10	1	20	10	10	10	10	10
Perchlorate Treatment Objective	ft/year	0.0245	0.0245	0.0245	0.0245	0.0245	0.0245	3.3 0.0245	0.0245	0.0245	0.0245	0.0245	0.0245	0.0245
Assumed Number of Pore Volumes to Flush Plume	mg/L	0.0243	0.0243	2.0243	2.0	2.0243	0.0243	0.0243	0.0243	0.0243	0.0243	0.0243	2.0	2.
Number of Barriers Perpendicular to GW Flow		1	5	1	1	1	1	1	1	1	1	1	1	1
GW Travel Time to Barrier(s)	years	24	5	24	24	24	24	240	12	24	24	24	24	24
Years to Clean Up GW	years	48	10	48	48	48	48	480	24	48	48	48	48	48

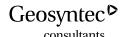
notes: \* hydraulic conductivity based on uniform silty sand aquifer

bgs - below ground surface cm/sec - centimeters per second ft - feet
GW - groundwater kg - kilograms L - liters

m - meters mg/L - milligrams per liter Conc. - Concentration

- input parameters changed from base case





4. perchlorate which was released into the groundwater at high concentrations and diffused into low hydraulic conductivity (K) units in the geological media and which continue to diffuse out of the low K units as the upgradient source of perchlorate is depleted.

If the "source" material is not treated, it may continue to feed the plume for an extended period of time and it may be necessary to treat the plume for a longer period of time until the source zone is sufficiently depleted. The active remedial approach could be used in a modified configuration to treat source areas below the water table. The benefits of an active approach in the source area would be that the time frame for operation could be significantly less than that for a system that simply treats a downgradient plume of perchlorate as it released from the source area. Applying an active approach in the source area would likely be more expensive than a downgradient barrier in terms of initial capital costs and annual O&M costs but overall savings may be achieved because of a shorter duration of operation. Costs for active treatment of source areas are discussed in Section 7.3. Sources of perchlorate above the water table may be treated using other approaches such as enhanced flushing of the vadose zone that are beyond the scope of the cost estimate presented in this chapter.

To obtain a clearer picture of life-cycle costs for the various options, estimates include the Net Present Value (NPV) of future costs. The NPV calculations provide cash flow analysis for 30 years, showing the costs by category for each year. The future costs are only carried forward for 30 years on the basis that the NPV of future costs beyond the 30-year time frame are small and the future costs beyond the 30-year period of time are difficult to predict. O&M and long-term monitoring costs are discounted at a rate of 3%, to develop the NPV estimates of future costs (DOD, 1995). The rate of 3% is based on the U.S. Federal Government Office of Management and Budget "Real Interest Rates on Treasury Notes and Bonds" for 20-year and 30-year notes and bonds of 2.8% (Office of Management and Budget, 2008).

The cost model also estimates the impact of changes in site characteristics and design parameters. Using the template site as a baseline condition, site characteristics and design parameters (e.g., depth to groundwater, contaminant plume width, and groundwater velocity) were varied individually and the twelve iterations are shown in **Table 7-1**. This specific analysis provides some insight into how capital, O&M, and long-term monitoring costs are affected by changing specific variables.

The base case assumes a homogenous silty sand aquifer from a depth of 3 meters (m) (approximately 10 feet [ft]) below ground surface to 12 m (40 ft) below ground surface with a hydraulic conductivity of 0.001 cm/sec, a horizontal gradient of 0.008 m/m and a porosity of 0.25. These aquifer characteristics result in a groundwater seepage velocity of approximately 10 m/year (yr) (33 ft/yr)}. The plume of perchlorate-impacted groundwater extends along the direction of groundwater flow for 240 m (800 ft) and is 120 m (400 ft) in width. The concentration of perchlorate at the upgradient side of the plume is 2 mg/L and the concentration on the downgradient side is 1.1 mg/L. Oxygen and nitrate will contribute demand for electron donor and the assumed concentrations of dissolved oxygen and nitrate are 5 mg/L and 15 mg/L respectively.



The base case also assumes that two pore volumes of clean water will need to flush through the impacted areas to achieve the clean-up objectives. In reality, the number of pore volumes of clean water required to flush through the subsurface to achieve target treatment objectives will be determined by a number of factors, such the degree of heterogeneity of the geological media. Variations in the K of the aquifer material can allow significant mass of perchlorate to diffuse into low K layers and then act as an ongoing source of perchlorate to the higher K zone as the perchlorate is flushed from the higher K zones. In most geological settings, more than two pore volumes will be required to achieve treatment objectives and longer-term operation of the remedial measures will be required. The assumption that two pore volumes of flushing are required to achieve treatment objectives could only be valid for situations where there is very uniform K of the geological media and is likely an optimistic assumption for most real world situations.

The base case design incorporates one biobarrier on the downgradient edge of the plume to treat water as it flows across the line of the biobarrier. Based on the groundwater seepage velocity of 10 m/yr (33 ft/yr), a plume that extends for 240 m (800 ft) along the direction of groundwater flow and the assumed need to flush two pore volumes of clean water through the impacted aquifer to achieve clean-up standards, it would be expected to take approximately 48 years for the plume to be treated in the base case. If more than two pore volumes of flushing are actually required to achieve treatment objectives, the biobarrier would need to be operated beyond the 30-year time frame considered in this costing exercise but the concentrations to be treated would likely be reduced significantly and operating requirements reduced. The costs of this potential future operation would be incurred more than 30 years into the future and the NPV of these costs would not be as significant as the costs incurred for operation in the near and medium term (i.e., less than 30 years).

The perchlorate treatment objective that was used for the template site was based on the chronic exposure reference dose (and the resulting drinking water equivalent concentration) selected by the U.S. Environmental Protection Agency in 2005 (<a href="http://www.epa.gov/iris/subst/1007.htm">http://www.epa.gov/iris/subst/1007.htm</a>) of 24.5  $\mu$ g/L (0.0245 mg/L). A lower treatment objective would increase the costs associated with the implementation of the approaches presented here.

The active bioremediation approach considered can achieve low treatment criteria (i.e., below 0.004 mg/L) but to achieve lower target treatment criteria, a higher safety factor will be required in the design and operation of each of the remedies such that pockets or layers of low K geological material containing untreated groundwater with some perchlorate do not remain or transmit perchlorate in groundwater following treatment and the system may need to be operated for a longer period of time. If a very low target treatment objective is required, even small pockets or layers of untreated groundwater could result in groundwater samples exceeding the target criteria. Layers of low K geological material exist at many sites where inter-bedded clay, silts, and sands are present and can serve as longer term repositories for perchlorate from which diffusion is the dominant transport mechanism. These pockets or layers may release perchlorate to flowing groundwater after treatment of perchlorate in the higher K units has been completed.



As discussed above, the presence of significant low K repositories of perchlorate and low target treatment concentrations would affect the assumption used in the base case that two pore volumes of groundwater need to be flushed through the plume to achieve the target treatment objectives. If additional clean groundwater needs to be flushed through the plume area to achieve remedial action objectives then the treatment system will need to be operated for a longer period of time and incur additional long-term O&M and monitoring costs. The additional safety factor in design and possibly longer-term operation will increase costs to achieve lower target treatment objectives but the impact of a specific change in the target treatment concentration is difficult to predict without extensive and very detailed site characterization and contaminant transport modeling.

The active biobarrier alternative assumes that a series of injection and extraction wells will be installed along the alignment of the biobarrier and a groundwater recirculation system will be constructed to recirculate groundwater and distribute electron donor across the biobarrier. Groundwater will be recirculated between injection and extraction wells and a soluble electron donor will be added to the water being recirculated to distribute the electron donor across the plume of perchlorate impacted groundwater. For the purpose of this cost model it is assumed that this initial system installation is the same as would be used for a semi-passive approach to the addition of electron donor. The costing has been developed based on circulating groundwater and adding electron on a continuous basis. The operating costs would be higher than for a semi-passive system as a result of the increased operating requirements and increased potential for biofouling of injection wells.

The other EISB approaches considered here include: passive electron donor injection, semi-passive electron donor injection, and a trench biowall. The passive EISB system assumes that a series of injection wells are installed across the plume and that emulsified vegetable oil (EVO) is injected into these wells every three years. The semi-passive system would be set up in a manner almost identical to the active system but would be operated on an intermittent rather than a continuous basis. The trench biowall EISB system assumes that a trench is excavated to intercept the plume of perchlorate-impacted groundwater and is backfilled with mulch and EVO. It is assumed that the biowall is rejuvenated by injecting additional EVO after 4 and 8 years and every 3 years thereafter.

The groundwater extraction and treatment or pump and treat system included for comparison would be similar to the biobarrier system in that a row of extraction and injection wells would be used to bring groundwater to the surface and to re-inject the groundwater but rather than amending the groundwater with electron donor the groundwater would be treated to remove perchlorate prior to reinjection on a continuous basis. The groundwater treatment component of this system would be a small-scale bioreactor to degrade perchlorate.

A series of twelve variations in site conditions and/or design parameters were developed and the cost implications of these variations on the active EISB system were estimated. The first variation of the base case, Case 2: Accelerated Clean Up Case, utilizes five biobarriers aligned perpendicular to the direction of groundwater flow distributed every 48 m (160 ft) within the 240

m (800 ft) long plume. This will provide treatment of the plume at one downgradient and four intermediate locations rather than just at the downgradient edge of the plume. Based on the seepage velocity of 10 m/yr (33 ft/yr) and the assumption that two pore volumes of clean water need to flow through the plume area to achieve clean up, this case will require approximately 10 years to treat the groundwater rather than the 48 years of the base case.

The 3<sup>rd</sup> and 4<sup>th</sup> cases incorporate reduced and elevated concentrations of perchlorate in groundwater as shown in **Table 7-1**. The 5<sup>th</sup> and 6<sup>th</sup> cases assume lower and higher concentrations of nitrate and dissolved oxygen that will result in a higher and lower demand for electron donor. The 7<sup>th</sup> and 8<sup>th</sup> cases incorporate lower and higher groundwater seepage velocities resulting from changes in the hydraulic gradient from the base case. The 9<sup>th</sup> case assumes that the depth to groundwater is 30 m (100 ft) rather than the 3 m (10 ft) in the base case. The 10<sup>th</sup> and 11<sup>th</sup> cases assume thin and thick vertical interval of 3 m (10 ft) and 15 m (50 ft) rather than the 9 m (30 ft) of the base case. The 12<sup>th</sup> and 13<sup>th</sup> case assume a narrow plume (30 m [100 ft] in width) and a wide plume (240 m [800 ft] in width) rather than the 120 m (400 ft) width of the base case.

The costs of the base case and the variations are discussed in Section 7.3.

#### 7.2 Cost Drivers

The costs to implement EISB for perchlorate impacted groundwater using the active approach for the addition of electron donor will vary significantly from site to site. The key costs drivers are listed below followed by a brief discussion of the impact on cost.

- Width of Plume (perpendicular to the direction of groundwater flow) Treatment systems for wider plumes require more recirculation wells, equipment, electron donor and labor to operate. Some system costs, such as design and mobilization will be relatively insensitive to the size of a system but many costs will increase in direct proportion with an increase in the width of the area to be treated.
- Length of Plume to be Treated Treatment systems may be designed to treat the entire length of a plume in a shorter time period by installing recirculation wells at many locations along the length of the plume or they may be designed to treat a plume over a longer period of time as the groundwater flows through a few biobarriers aligned perpendicular to the direction of groundwater flow. In either case, the costs will be higher for plumes of greater length. Systems designed to treat plumes quickly will require more recirculation wells, more equipment, more electron donor and more labor to operate than systems designed to treat perchlorate over a longer period of time. Systems designed to treat plumes as they flow through a small number of biobarriers will need to operate for longer periods of time if the plume to be treated has a greater length.
- Vertical thickness of the area of impacted groundwater Systems designed to treat plumes with a greater vertical thickness will be more expensive as they will require

longer screen in the recirculation wells, higher capacity pumps, piping and other equipment, more electron donor and some additional labor to operate. As with the length of the plume, some system costs, such as design and mobilization costs, will be relatively insensitive to the size of a system but many costs will increase in direct proportion with an increase in the vertical thickness of the area to be treated.

- **Depth of the interval to be treated** System designed to treat perchlorate at greater depths will be somewhat more expensive than shallow plumes as a result of the higher costs of installation recirculation wells. Most other capital and operating costs will not be impacted greatly by the need to treat deeper plumes of perchlorate impacted groundwater.
- The area of the plume of impacted groundwater to be treated As discussed above, systems may be designed to treat the entire length of a plume on a short time frame by installing recirculation wells at many locations along the length of the plume or they may be designed to treat a plume over a longer period of time as the groundwater flows through a few biobarriers aligned perpendicular to the direction of groundwater flow. Treating the entire plume will increase the initial capital costs relative to treating the plume as water flows through a small number of biobarriers but the long-term costs will be less because treatment will be completed over a shorter period of time.
- Ambient groundwater velocity Systems design to treat higher ambient groundwater velocities will be more expensive because: higher groundwater recirculation rates or additional recirculation wells will likely be required to distribute electron donor across the width of the plume and the higher groundwater velocities will result in greater demand for electron donor as higher quantities of perchlorate and other electron acceptors will be flowing through the target treatment zone. A higher groundwater velocity will, however, usually allow for clean-up criteria to be achieved in a shorter period of time as water flows faster through the impacted geological media.
- Hydraulic conductivity (K) of the geological media containing the impacted groundwater Sites with a high K will generally have high groundwater velocities and associated higher costs as discussed above. Systems at low K sites will generally be less expensive because of the lower groundwater velocity but the amount of the costs savings may be reduced somewhat by the need for a greater number of recirculation wells which may be required to recirculate a sufficient amount of groundwater to maintain hydraulic control.
- The variation in the K of different layers in the geological media Sites with a high degree of variation in the K of different layers in the geological media will have increases costs as a result of the greater number of pore volumes of clean water required to flush through the subsurface to achieve target treatment objectives. Variations in the K of the aquifer material can allow significant mass of perchlorate to diffuse into low K layers and then act as an ongoing source of perchlorate to the higher K zone as the perchlorate is flushed from the higher K zones. The need for more pore volumes of water to flush the

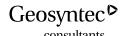
subsurface will result in the need to operate the system for a longer period of time with an associated increase in OM&M costs.

- Concentration of perchlorate in impacted groundwater Higher concentrations of perchlorate may not impact the initial capital costs to a large extent but will increase OM&M costs for systems in two ways. First, higher concentrations of perchlorate will require more clean water to flush the perchlorate from the geological media and therefore a longer period of operation. Second, the higher concentrations will require more electron donor to degrade the perchlorate present, although the impact of this factor may be small at most sites where the total demand for electron donor is dominated by parameters such DO, nitrate and sulfate rather than by the perchlorate concentration.
- Target treatment concentration EISB can achieve low treatment criteria (i.e., below 4 µg/L) but the lower the target treatment criteria, the higher the safety factor required in the design and operation of the system so that pockets or layers of low K geological material containing untreated groundwater with some perchlorate do not remain or transmit perchlorate in groundwater following treatment. If a very low target treatment objective is required, even small pockets or layers of untreated groundwater could result in groundwater samples exceeding the target criteria and operation of the system for a long period of time may be required. Layers of low K geological material exist at many sites where inter-bedded clay, silts, and sands are present and can serve as longer term repositories for perchlorate from which diffusion is the dominant transport mechanism. These pockets or layers may release perchlorate to flowing groundwater after substantial treatment of perchlorate in the higher K units has been completed.
- Concentration of other electron acceptors High concentration of other electron acceptors such as DO and nitrate will increase the amount of electron donor required to degrade perchlorate. The increased electron donor demand will increase the operating costs somewhat for the system.

# 7.3 Cost Analysis

The detailed breakdown of the estimated capital costs, annual O&M costs, long-term monitoring costs and the NPV of these costs for: (1) the semi-passive EISB; (2) the passive EISB; (3) the active EISB; (4) the trench biowall EISB; and (5) the equivalent P&T system are presented in the Final Report. A summary of these costs is presented in **Table 7-2**.

The capital cost, including design, installation of wells, installation of the groundwater recirculation and amendment system and system start up and testing for the active EISB system is approximately \$430,000 and the annual O&M cost is estimated to be \$60,000 per year. The NPV of the operation and maintenance represents an additional \$1,200,000 of costs over a 30-year life. The NPV of the long-term monitoring costs is estimated to be \$350,000 to give a total current value cost for the alternative of \$1,980,000. The total cost of the remedy over 30 years is estimated to be \$2,700,000. The cross sectional area of the plume for this scenario is 1,080



square meters (m<sup>2</sup>) or 12,000 square feet (ft<sup>2</sup>). The unit costs for capital and annual O&M are

therefore \$398/m<sup>2</sup> (\$36/ft<sup>2</sup>) and \$56/m<sup>2</sup> (\$5/ft<sup>2</sup>) respectively.

The capital cost for the pump and treat alternative is \$490,000; somewhat higher than for the active biobarrier at \$430,000. The O&M costs are estimated to be \$73,000 per year versus \$60,000 for the active biobarrier. The NPV of the O&M costs for the pump and treat approach are estimated to be \$1,470,000, also higher than for the EISB alternative of \$1,200,000. The NPV of the long-term monitoring costs is estimated to be same as for the EISB alternative at \$350,000 to give a total current value cost for the alternative of \$2,310,000 versus \$1,980,000 for The total cost of the remedy over 30 years is estimated to be \$3,160,000 versus \$2,700,000 for EISB. The unit costs for capital and annual O&M for the pump and treat alternative is \$453/m<sup>2</sup> (\$41/ft<sup>2</sup>) and \$68.5/m<sup>2</sup> (\$6.1/ft<sup>2</sup>) respectively.

Figure 7-2 shows the cumulative costs by year for the EISB and pump and treat alternatives evaluated above.

**Table 7-3** shows the estimates of the impact of variations in the site characteristics and design parameters on the costs for the EISB technology. Of the changes in site characteristics and design parameters considered in this evaluation, the most significant cost driver is the decision to accelerate the clean-up of the entire zone of perchlorate impacted groundwater rather than treating groundwater at the downgradient limit and allowing the impacted groundwater to flow through this location over time. As a result of the size of the plume a significant number of separate biobarrier systems would be required to provide sufficient coverage of the impacted groundwater to accelerate clean up.



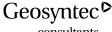
TABLE 7-2: SUMMARY OF COSTS FOR TREATMENT OF PERCHLORATE IMPACTED GROUNDWATER Active Perchlorate Bioremediation Demonstration

Alternative	Capital Costs	Total O&M Costs (year 1 to 30)	Average Annual O&M Costs (year 1 to 30)	NPV of 30 Years of O&M Costs	NPV of 30 Years of Monitoring Costs	NPV of 30 Years of Total Remedy Costs	Total 30-Year Remedy Costs
Semi-Passive Biobarrier	\$430,000	\$1,160,000	\$38,700	\$780,000	\$350,000	\$1,560,000	\$2,060,000
Passive Biobarrier	\$280,000	\$1,500,000	\$50,000	\$990,000	\$350,000	\$1,620,000	\$2,250,000
Active Biobarrier	\$430,000	\$1,800,000	\$60,000	\$1,200,000	\$350,000	\$1,980,000	\$2,700,000
Trench Biowall	\$320,000	\$1,250,000	\$41,700	\$780,000	\$350,000	\$1,450,000	\$2,040,000
Pump and Treat	\$490,000	\$2,200,000	\$73,300	\$1,470,000	\$350,000	\$2,310,000	\$3,160,000
Cross Sectional Area of Biobarrier (m <sup>2</sup> )	1,080	1,080	1,080	1,080	1,080	1,080	1,080
Cross Sectional Area of Biobarrier (ft2)	12,000	12,000	12,000	12,000	12,000	12,000	12,000
		Unit Cost B	Basis (\$ per m <sup>2</sup> of bio	obarrier)			
Semi-Passive Biobarrier	\$398	\$1,100	\$36	\$720	\$324	\$1,400	\$1,900
Passive Biobarrier	\$259	\$1,400	\$46	\$920	\$324	\$1,500	\$2,100
Active Biobarrier	\$398	\$1,700	\$56	\$1,110	\$324	\$1,800	\$2,500
Trench Biowall	\$296	\$1,200	\$39	\$720	\$324	\$1,300	\$1,900
Pump and Treat	\$454	\$2,000	\$68	\$1,360	\$324	\$2,100	\$2,900
		Unit Cost E	Basis (\$ per ft <sup>2</sup> of bio	obarrier)			,
Semi-Passive Biobarrier	\$36	\$97	\$3.20	\$65	\$29	\$130	\$170
Passive Biobarrier	\$23	\$125	\$4.20	\$83	\$29	\$140	\$190
Active Biobarrier	\$36	\$150	\$5.00	\$100	\$29	\$170	\$230
Trench Biowall	\$27	\$104	\$3.50	\$65	\$29	\$120	\$170
Pump and Treat	\$41	\$183	\$6.10	\$123	\$29	\$190	\$260

 $\it notes: \ \rm NPV$  - Net Present Value; current value of future costs based on a 3% annual discount rate

O&M - Operation and Maintenance  $ft^2$  - square feet

m<sup>2</sup> - square meters



As discussed earlier in Section 7.1, the active remedial approach could be used in a modified configuration to treat source areas below the water table. This active source area treatment approach could be coupled with monitored natural attenuation (MNA) of the downgradient plume and could have the benefit of a significantly reduced time frame for operation than that of a system that simply treats a downgradient plume of perchlorate. Applying an active approach in the source area would have a higher initial capital cost and annual O&M costs but overall savings may be achieved because of a shorter duration of operation.

For example, if a source area can be treated over a period of five years with an active recirculation system costing 20% more than a single downgradient active barrier and the downgradient plume is small and can be addressed via MNA, the costs would be significantly less than for the 30 year treatment options described in Table 7-2. The capital costs for such a system would be \$520,000, the annual O&M costs would be \$72,000, and the system would operate for 5 years. The total NPV cost of this approach would be about \$1,000,000, relative to a cost of \$1,450,000 for a trench biowall, the least expensive barrier alternative, operated for 30 years.

The cost effective implementation of this approach could be limited by: (1) the size of the source area (a larger source area would require additional costs to treat); and (2) the agreement of stakeholders to allow the downgradient plume of perchlorate to be addressed via MNA.

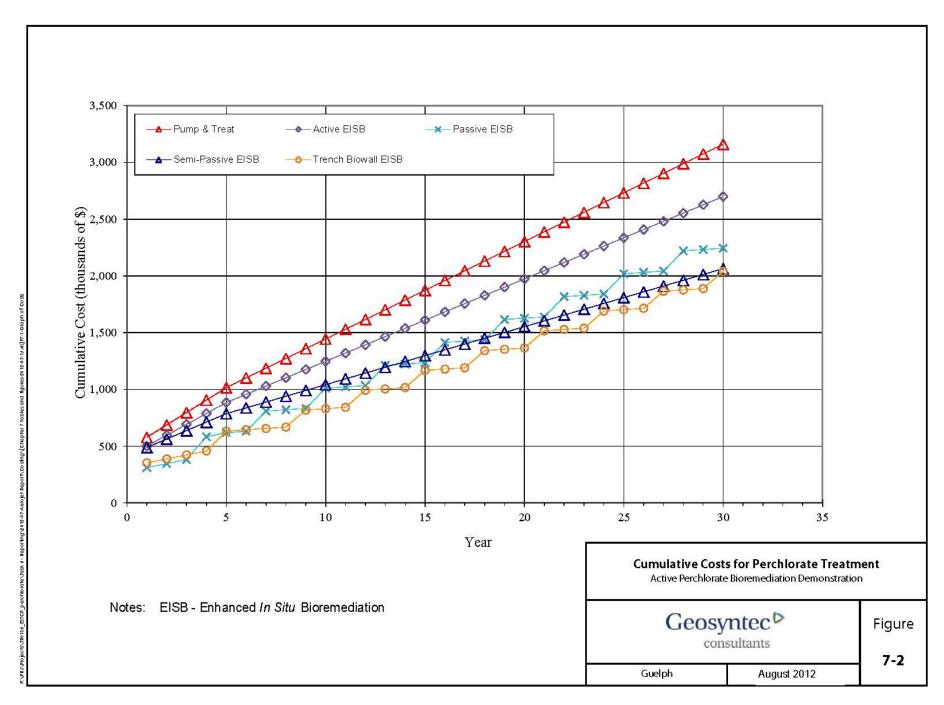




TABLE 7-3: IMPACT OF SITE CHARACTERISTICS AND DESIGN PARAMETERS ON COSTS FOR ACTIVE EISB Active Perchlorate Bioremediation Demonstration

Cost Component	Base Case	Accelerated Clean Up Case		Low Perchlorate Concentration Case		High Perchlorate Concentration Case		Low Donor Demand Case		High Donor Demand Case		Low GW Velocity Case	
	Case 1	Cas	se 2	Case 3		Case 4		Case 5		Case 6		Case 7	
	Cost	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost
Capital Cost	\$430,000	4.50	\$1,935,000	0.98	\$421,400	1.05	<b>\$</b> 451,500	0.95	\$408,500	1.15	\$494,500	0.90	\$387,000
NPV of O&M Costs	\$1,200,000	1.75	\$2,100,000	0.95	\$1,140,000	1.05	\$1,260,000	0.90	\$1,080,000	1.15	\$1,380,000	0.90	\$1,080,000
NPV of Monitoring Costs	\$350,000	1.25	\$437,500	1.00	\$350,000	1.00	\$350,000	1.00	\$350,000	1.00	\$350,000	1.00	\$350,000
NPV of Total Costs	\$1,980,000	2.26	\$4,472,500	0.97	\$1,911,400	1.04	\$2,061,500	0.93	\$1,838,500	1.12	\$2,224,500	0.92	\$1,817,000

Cost Component	High GW Velocity Case		High GW Velocity Case Deep GW Case		Thin Inte	rval Case	Thick Inte	erval Case	Narrow Plume Case		Wide Plume Case	
	Case 8		Case 9		Case 10		Case 11		Case 12		Case 13	
	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost	Factor	Cost
Capital Cost	1.15	\$494,500	1.25	\$537,500	0.90	\$387,000	1.15	\$494,500	0.35	<b>\$</b> 150,500	1.85	\$795,500
NPV of O&M Costs	1.10	\$1,320,000	1.00	\$1,200,000	0.90	\$1,080,000	1.15	\$1,380,000	0.45	<b>\$</b> 540,000	1.75	\$2,100,000
NPV of Monitoring Costs	0.90	\$315,000	1.00	\$350,000	1.00	\$350,000	1.00	\$350,000	0.50	\$175,000	1.50	\$525,000
NPV of Total Costs	1.08	\$2,129,500	1.05	\$2,087,500	0.92	\$1,817,000	1.12	\$2,224,500	0.44	\$865,500	1.73	\$3,420,500

notes: All costs are in thousands of dollars

Factor - factor increase or decrease in costs relative to the Base Case

NF - not feasible, costs not estimated

NPV - Net Present Value

O&M - Operation and Maintenance

EISB - Enhanced In Situ Bioremediation

# 8. IMPLEMENTATION ISSUES

This section describes implementation issues with EISB using active addition of electron donor to treat perchlorate impacted groundwater.

#### 8.1 Additional Sources of Information

Many guidance documents are available from organizations such as US EPA, Interstate Technology & Regulatory Council (ITRC), and Air Force Centre for Engineering and the Environment (AFCEE) dealing with EISB for perchlorate and chlorinated solvents. Many design issues with EISB for chlorinated solvents are also common to perchlorate. A list of recent relevant guidance documents is presented below:

- SERDP ESTCP Environmental Technology Series. H.F. Stroo and H.C. Ward Editors. 2009. *In Situ* Bioremediation of Perchlorate in Groundwater. Springer Publishing Company. <a href="http://www.springer.com/environment/environmental+management/book/978-0-387-84920-1">http://www.springer.com/environment/environmental+management/book/978-0-387-84920-1</a>
- Interstate Technology & Regulatory Council (ITRC) Perchlorate Team. 2005.
   Perchlorate: Overview of Issues, Status, and Remedial Options. September 2005. <a href="http://www.itrcweb.org/Documents/PERC-1.pdf">http://www.itrcweb.org/Documents/PERC-1.pdf</a>
- Interstate Technology & Regulatory Council (ITRC) Perchlorate Team. 2008.
   Remediation Technologies for Perchlorate Contamination in Water and Soil. March 2008. <a href="http://www.itrcweb.org/Documents/PERC-2.pdf">http://www.itrcweb.org/Documents/PERC-2.pdf</a>
- Interstate Technology & Regulatory Council (ITRC) Bioremediation of DNAPLs Team. 2008. In Situ Bioremediation and Chlorinated Ethene: DNAPL Source Zones. June 2008. http://www.itrcweb.org/Documents/bioDNPL Docs/BioDNAPL3.pdf
- Interstate Technology & Regulatory Council (ITRC) Enhanced Attenuation: Chlorinated Organics Team. 2008. Enhanced Attenuation: Chlorinated Organics. April 2008 <a href="http://www.itrcweb.org/Documents/EACO-1.pdf">http://www.itrcweb.org/Documents/EACO-1.pdf</a>
- Interstate Technology & Regulatory Council (ITRC) In Situ Bioremediation Team. 2002. A Systematic Approach to In Situ Bioremediation in Groundwater. April 2002 <a href="http://www.itrcweb.org/Documents/ISB-8.pdf">http://www.itrcweb.org/Documents/ISB-8.pdf</a>
- Permeable Reactive Barriers: Lessons Learned/New Directions. 2005. Interstate Technology & Regulatory Council (ITRC) Permeable Reactive Barrier Team. February 2005 <a href="http://www.itrcweb.org/Documents/PRB-4.pdf">http://www.itrcweb.org/Documents/PRB-4.pdf</a>
- Solutions EIS. 2006. Protocol for Enhanced In Situ Bioremediation Using Emulsified Vegetable
   Oil. Prepared for ESTCP. May

consultants

2006. <a href="http://www.estcp.org/viewfile.cfm?Doc=ER%2D0221%20Final%20Protocol%20V2%2Epdf">http://www.estcp.org/viewfile.cfm?Doc=ER%2D0221%20Final%20Protocol%20V2%2Epdf</a>

- US EPA. 2005. Perchlorate Treatment Technology Update US EPA Federal Facilities Forum Issue Paper. US EPA – Solid Waste and Emergence Response. May 2005. http://www.clu-in.org/download/remed/542-r-05-015.pdf
- US Air Force. 2007. Protocol for In Situ Bioremediation of Chlorinated Solvents Using Edible Oil. Prepared for Air Force Center for Engineering and the Environment (AFCEE) Environmental Science Division Technology Transfer Outreach Office. October 2007. <a href="http://www.clu-in.org/download/remed/Final-Edible-Oil-Protocol-October-2007.pdf">http://www.clu-in.org/download/remed/Final-Edible-Oil-Protocol-October-2007.pdf</a>
- Hoponick, J. R. 2006. Status Report on Innovative In Situ Remediation Technologies
   Available to Treat Perchlorate-Contaminated Groundwater. Prepared for US EPA –
   Office of Superfund Remediation & Technology Innovation Technology Innovation &
   Field Services Division. August 2006. <a href="http://www.clu-in.org/download/studentpapers/J\_Hoponick\_Final.pdf">http://www.clu-in.org/download/studentpapers/J\_Hoponick\_Final.pdf</a>

### 8.2 Potential Environmental Issues

# 8.2.1 Regulatory Issues

The implementation of EISB in most jurisdictions requires a groundwater reinjection permit. This permit must allow for extraction of groundwater, amendment with electron donor, and reinjection of the mixture. It is not normally difficult to obtain permits to implement such a program because: (1) the groundwater that will be extracted will be reinjected close to where it was extracted; (2) electron donors normally consist of innocuous organic compounds; and (3) bioaugmentation (addition of a microbiological culture) is seldom required for EISB for treatment of perchlorate.

Additional permits or other regulatory approvals may be if flammable electron donors, such as ethanol, are used or if chlorine gas is used to clean injection well screens.

# 8.2.2 Air Discharge

The EISB process described will not normally result in discharge of chemicals to the atmosphere.

#### 8.2.3 Wastewater Discharge

The EISB process described will not normally result in the generation of wastewater streams. Extracted groundwater is normally re-injected into the injection wells. Some small quantities of



wastewater may be generated during well installation and groundwater sampling events and must be managed as they would be for other investigation derived waste.

# 8.2.4 Waste Storage, Treatment, and Disposal

The EISB process described will not normally result in the generation of significant waste streams. Some waste may be generated during well installation and must be managed as they would be for other investigation derived waste.

# 8.3 End-User Issues

Potential end-users of this technology include responsible parties for contaminated sites where perchlorate is present in groundwater. End-users will have an interest in the technology because it can potentially treat groundwater *in situ* at an overall cost much less than for conventional pump and treat remediation approaches. End-users and other stakeholders may have concerns regarding: (1) the effectiveness of the technology in reducing concentrations of target compounds below appropriate criteria; (2) potential negative impacts of excess electron donor on water quality downgradient of the treatment zone; and (3) potential negative impacts of the electron donor addition on secondary water characteristics.

#### 8.4 Procurement Issues

There are no specialized equipment components required to implement EISB using the active approach and no specialized services required. There are no significant procurement issues with the application of this technology.

# 8.5 Design Issues

Based on the results of the demonstration conducted at the IRCTS and a review of other applications of the technology, potential design issue to be considered in the development of the design of active EISB systems were identified. These design issues are discussed below.

- Sites with a low hydraulic conductivity It can be difficult to obtain high groundwater recirculation rates at sites where the hydraulic conductivity is low and therefore longer periods of time are required to distribute electron donor between injection and extraction wells. Sites with a low hydraulic conductivity also normally have a low groundwater velocity and therefore it will take a significant period of before electron donor or the impacts of electron donor move downgradient from the biobarrier.
- Sites with significant variations in hydraulic conductivity It can be difficult or impossible to obtain a uniform distribution of electron donor at sites where there are significant variations in the hydraulic conductivity (i.e., significant interbedding of low K units). Electron donor will migrate much faster and further in higher K zones than in low



K zones making it difficult to obtain uniform distribution of electron donor, however, because the flux of groundwater and of perchlorate in the higher K zones is higher than in low K zones, these higher K zones require more electron donor to degrade the perchlorate.

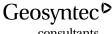
- Sites with high concentrations of competing electron acceptors The requirements for electron donor will be high at sites with high concentrations of competing electron acceptors such as DO and nitrate in the groundwater. Costs for electron donor will be higher at these sites that at sites with low concentrations of competing electron acceptors.
- Sites with high concentrations of naturally occurring metals in the soil Groundwater monitoring should be conducted following addition of electron donor at sites with high concentrations of naturally occurring metals in the soil to make sure that the addition of electron donor does not result in the mobilization of significant concentrations of metals to areas downgradient of where the electron donor is injected. Modest amounts of electron donor should be added initially to evaluate the potential to mobilize metals such as iron and manganese. Active approaches to EISB will have less potential to mobilize naturally occurring metals downgradient of the biobarrier than semi-passive or passive EISB approaches.

# 9. REFERENCES

- California Department of Water Resources (CDWR), 1964, Folsom-East Sacramento Ground Water Quality Investigation, Bulletin 133.
- California Department of Water Resources (CDWR), 1974, Evaluation of Ground Water Resources: Sacramento County, Bulletin 118-3.
- Coates, J.D., U. Michaelidou, R. Bruce, S. O'Connor, J. Crespi, and L. Achenbach. 1999. Ubiquity and diversity of dissimilatory (Per)chlorate-reducing bacteria. Appl. Environ. Microbiol. 65:5234-5241.
- Cox, E.E., M. McMaster and S. Neville. 2001. Perchlorate in groundwater: Scope of the problem and emerging remedial solutions. Symposium of Engineering Geology & Geotechnical Engineering. March 2001, Las Vegas.
- DoD, 1995. U.S. Department of Defense (DoD) Instruction 7041.3: Economic Analysis for Decision-Making.

  November

  17, 1995. http://www.dtic.mil/whs/directives/corres/pdf/704103p. pdf
- Driscoll, F. G., 1986. Groundwater and Wells.
- ENSR. November 2001. Draft Soil Remedial Investigation and Baseline Risk Assessment: Alpha/IOC-1 Study Area.
- Geosyntec Consultants. 2002. *In Situ* Bioremediation of Perchlorate-Impacted Groundwater Final Technical Report. Strategic Environmental Research & Development Program (SERDP). June 2002.
- Geosyntec Consultants, 2009a. Final Report, Comparative Demonstration of Active and Semi-Passive *In Situ* Bioremediation Approaches for Perchlorate Impacted Groundwater (Longhorn Army Ammunition Plant). ESTCP Project ER-0219.
- Geosyntec Consultants, 2009b. Cost and Performance Report, Comparative Demonstration of Active and Semi-Passive *In Situ* Bioremediation Approaches for Perchlorate Impacted Groundwater (Longhorn Army Ammunition Plant). ESTCP Project ER-0219.
- GeoTrans, Inc., 2003, Generalized IRCTS Hydrostratigraphic Cross-Section A-A', Figure 3 in Aquifer Test Data for WNN Area, Rancho Cordova, California.
- Major, D., M. McMaster, E. Cox, E. Edwards, S. Dworatzek, E. Hendrickson, M. Starr, J. Payne and L. Buonamici, 2002. Field Demonstration of Successful Bioaugmentation to Achieve Dechlorination of Tetrachloroethene to Ethene. *Environ. Sci. Technol.* 36: 5106-5116.



- Maymo-Gatell, X., J.M. Gossett and S.H. Zinder. 1997. Dehalococcus Ethenogenes Strain 195: Ethene production from halogenated aliphatics. In: In Situ and On-Site Bioremediation: Volume 3. Alleman, B.C. And Leeson, A. (Eds). Battelle Press, Columbus, OH.
- Office of Management and Budget. 2008. Discount Rates for Cost-Effectiveness, Lease, Purchase and Related Analysis http://www.whitehouse.gov/omb/circulars/a094/a94\_appx-c.html
- Stroo, H.F., and H.C. Ward. 2009. In Situ Bioremediation of Perchlorate in Groundwater. SERDP ESTCP Environmental Technology Series. Springer Publishing Company.
- United States Government Accountability Office (GAO). 2005. Perchlorate: A System to Track Sampling and Cleanup Results is needed. Report to the Chairman, Subcommittee on Environment and Hazardous Materials, Committee on Energy and Commerce, House of Representatives. May 2005. GAO-05-462.



# APPENDIX A POINTS OF CONTACTS

TABLE A-1: POINTS OF CONTACT
Active Perchlorate Bioremediation Demonstration

Point of Contact	Organization	Phone/Fax/E-mail	Role in Project
Rodney Fricke	Aerojet	(916) 355-5161 FAX (916) 355-6145 rodney.fricke@aerojet.com	Project Manager, Aerojet Site Remediation
Evan Cox	ecox@geosyntec.com (519) 822-2230 Ext. 242		Principal Investigator
Tom Krug			Co-Principal Investigator
Jamey Rosen	Geosyntec Consultants	(519) 822-2230 Ext. 226 Fax (519) 822-3151 jrosen@geosyntec.com	Project Manager



# APPENDIX B HYDRAULIC ANALYSIS AND DESIGN

# DRAFT MEMORANDUM

**TO:** Rodney Fricke, Aerojet

**FROM:** E. Cox, J. Gallinatti, J. Rosen, GeoSyntec Consultants

**DATE:** 19 February 2003

SUBJECT: Final Extraction Well Design for WNN In-Situ Bioremediation Pilot

Project

GeoSyntec Consultants, Inc. (GeoSyntec) has been retained by Aerojet General Corporation (Aerojet) and The Boeing Company (Boeing) to conduct a pilot test of in situ bioremediation of perchlorate and trichloroethene (TCE) within the WNN Easement (the Site) in Rancho Cordova, California (Figure 1). The proposed pilot project utilizes an active in-situ biobarrier oriented perpendicular to groundwater flow. Groundwater will be extracted via two extraction wells (EW-1 and EW-2), amended with soluble electron donors (e.g., ethanol or citric acid), and recharged back to the aquifer via a recharge well (RW-1) for in-situ treatment (Figure 2).

Two pumping tests (step-drawdown, and constant rate) were performed at RW-1 during January 2003 by GeoTrans, Inc. (GeoTrans). Results of the pumping tests have been used to refine the layout and design flow rates for the pilot project extraction and recharge system. The following discussion presents our analysis of the pumping tests, numerical model simulations of the pilot project steady state flow field, and modifications to the extraction well locations and flow rates.

#### Step-Drawdown Pumping Test

The step-drawdown pumping test consisted of five sequential 2-hour periods of constant rate pumping at increasingly higher pumping rates. The step-drawdown

Rodney Fricke 19 February 2003 Page 2 of 5

test results were as follows:

Discharge	<u>Drawdown</u>	Specific Capacity
(gpm)	(ft)	(gpm/ft)
30	3.3	9.1
60	6.5	9.2
90	8.9	10.1
150	15	10.0
200	20.3	9.9

The relatively constant values of specific capacity indicate a linear relation between discharge and drawdown and suggest an efficient well for the discharge rates of the test. A specific capacity of 10 gallons per minute per foot of drawdown (gpm/ft) typically indicates a transmissivity of approximately 2,700 feet<sup>2</sup>/day.

#### Recharge Well Capacity

According to Driscoll (1986¹), the addition of positive head (water level) in a recharge well should not exceed one-fifth (0.2) of the depth from ground surface to the top of screen in order to minimize the potential for fracturing the formation and/or damaging the hydraulic conductivity of the aquifer. For RW-1, the additional water level would be 28 feet since the top of the screen is 140 feet below ground (140 \* 0.2). Using the specific capacity of 10 gpm/ft, RW-1 might be capable of receiving approximately 280 gpm with the 28-foot rise in water level. However, the capacity of a recharge well is not typically equal to an extraction well because fine-grained materials (sediments, precipitates), air bubbles, and bacteria can plug the screen and reduce the capacity of the recharge well. Driscoll (1986) suggests that recharge wells should be constructed with twice as much screen as extraction wells; and Aerojet has reported that recharge rates are typically one-half extraction rates. As such, the estimated recharge capacity of RW-1 will be assumed to be 140 gpm for planning purposes.

<sup>1</sup> Driscoll, F. G., Groundwater and Wells, Johnson Division, St. Paul, Minn. 55112, 1986.

#### **Constant Rate Pumping Test**

A constant rate pumping test in RW-1 was run at an average rate of 151 gpm for 25.5 hours. Drawdown recorded in monitoring wells MW-1 and STSW-138A were analyzed to estimate hydraulic parameters of the aquifer. The Cooper-Jacob straight line method (Figures 3 and 4) was matched to early-time data and yielded the following parameters. Aquifer thickness based on the geophysical log of RW-1 is 40 feet.

Well	<b>Transmissivity</b>	<b>Hydraulic Conductivity</b>	<b>Storativity</b>
	(ft <sup>2</sup> /day)	(ft/day)	
MW-1	2,590	65	1.72e-4
STSW-138A	2,910	73	1e-4

When the same results are compared to the standard Theis curve (the theoretical pump test response in an uniform, confined aquifer), the late-time data fall below the curve, indicative of water gain from the underlying and/or overlying units ("leaky" aquifer). Therefore, the Hantush method to analyze leaky aquifers was applied, and this analysis yielded the following parameter ranges (Figures 5 and 6):

Well	<b>Transmissivity</b>	<b>Hydraulic</b>	<b>Storativity</b>	Leakance
	(ft <sup>2</sup> /day)	<b>Conductivity</b>		(day <sup>-1</sup> )
		(ft/day)		
MW-1	2,600 – 4,000	65 - 100	1.62e-4	0.005
STSW-138A	2,910	72	1.04e-4	0.005

Rodney Fricke 19 February 2003 Page 4 of 5

#### Numerical Simulation of Flow Field

A numerical groundwater flow model was previously created with Visual MODFLOW<sup>TM</sup> to simulate the pilot project flow conditions<sup>2</sup>. The model was set up to encompass a horizontal domain of 4,000 by 10,000 feet using a variable grid with cell dimensions between 20 and 150 feet, and a vertical domain between 150 and –150 feet below mean sea level (msl) using 11 layers to provide appropriate discretization. The thickness of these unit vary from 11 to 60 feet.

Prior to the availability of site-specific hydraulic data, the previous model utilized a transmissivity of 4,920 ft²/day for the aquifer (thickness of 60 feet, hydraulic conductivity of 82 ft/day). Based on the results of the pumping tests at RW-1, the numerical model was modified to use the site-specific values of hydraulic parameters. The simulations used a transmissivity in the extraction/recharge zone of 2,600 feet²/day (thickness of 40 feet, hydraulic conductivity of 65 feet/day). To simulate leakance, a 20-foot layer was defined below the pumped layer with a horizontal hydraulic conductivity of 20 feet/day and a vertical hydraulic conductivity of 0.1 feet/day (leakance of 0.005 day¹¹).

#### Modifications to Extraction/Recharge System Design

The revised numerical model was used to predict the capture zones and to optimize the pumping rates of the two extraction wells and recharge via RW-1. Ideally, the zones of influence of the extraction wells will overlap with the zone of influence of the recharge well so that 20 to 40% of recharged water will be re-captured by the extraction wells. This overlap will prevent untreated water from passing through the biobarrier without being extracted, amended and recharged. As described in the workplan, a bromide (conservative) tracer will be added to the recharge water to confirm the hydraulic capture.

\_

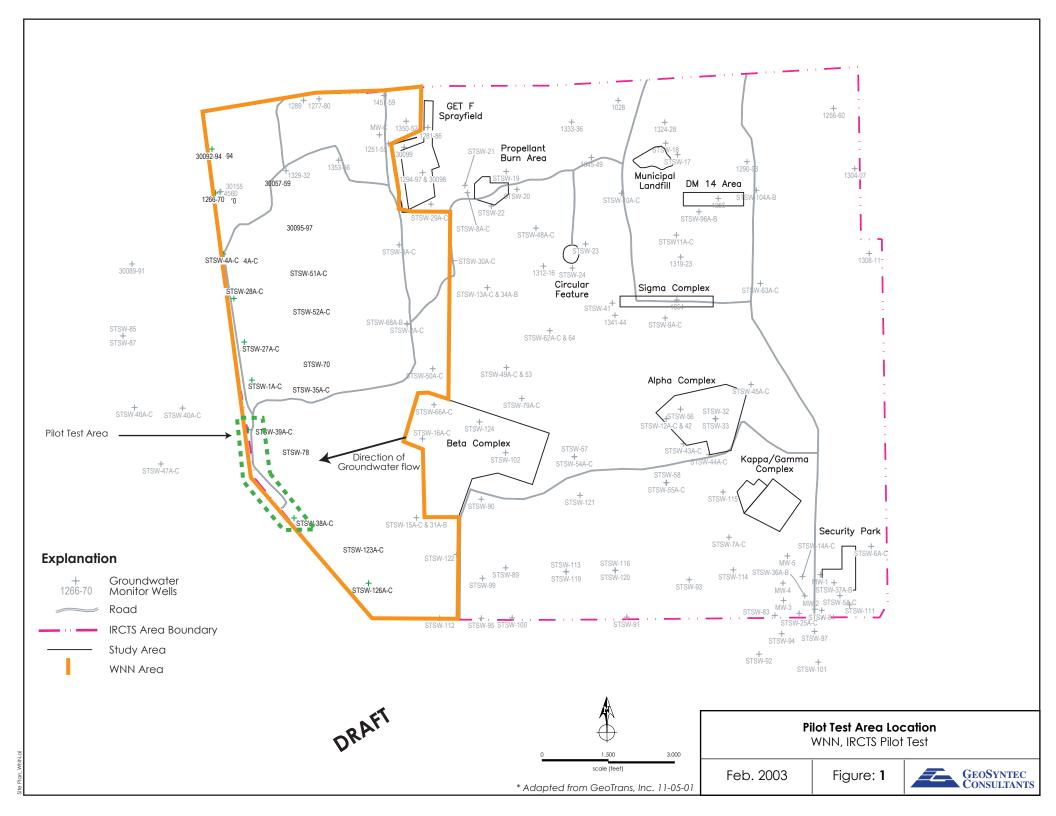
<sup>&</sup>lt;sup>2</sup> GeoSyntec Consultants, Inc., 14 June 2002, "Workplan for a Pilot Test of In Situ Bioremediation of Perchlorate and Trichloroethene in Groundwater, Inactive Rancho Cordova Test Site, Northern Groundwater Study Area."

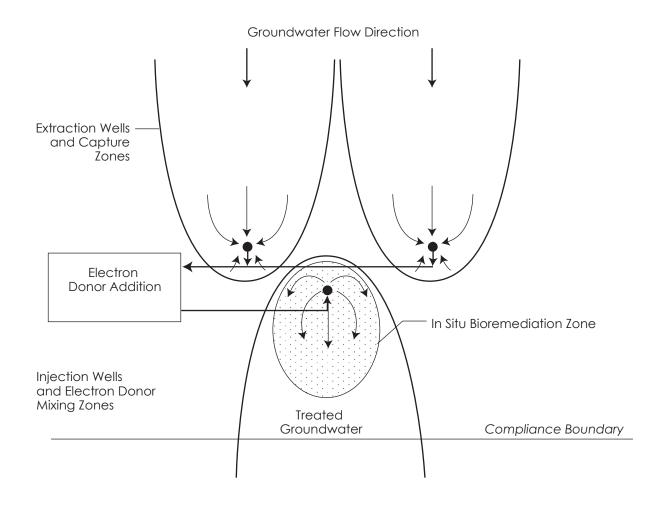
Based on these simulations, and considering the range of hydraulic parameters and well yield (extraction and recharge), a spacing of 600 feet between extraction wells (300 feet north and 300 south of RW-1) is recommended. This spacing allows for flexibility in maintaining both adequate hydraulic capture and sufficient recirculation (overlap) by adjusting the operating flow rate as operational data is collected pertaining to well capacity, aquifer hydraulic parameters, and bromide tracer recovery. Simulations of particle tracking indicate that this configuration would create a nominal 800 foot wide biobarrier with pumping rates as low as 20 gpm per well for an extraction/recharge zone transmissivity of 2,600 feet²/day (Fig. 7). However, the well capacities provide a generous factor of safety if the flow rate needs to be increased based on data collected during operations.

Based on the data from the recent site-specific pumping tests conducted by GeoTrans, the evaluation of the data by GeoSyntec, and the simulations of the steady state groundwater flow field, the following design modifications are recommended. The proposed initial flow rate is expected to be conservatively high and may be reduced if the extent of overlap is found to exceed 20%.

	Final Design	Preliminary Design
	(February 2003)	(June 2002)
Extraction Well Spacing	600 ft	1,000 ft
(RW-1 at center)		
Initial Extraction Rate (2 wells,	30 gpm	77 gpm
each)		
Initial Recharge Rate (1 well)	60 gpm	154 gpm

\* \* \* \* \*





DRAFT

Conceptualization of Pilot Scale Active
In Situ Biobarrier

WNN, IRCTS Pilot Test

Feb. 2003

Figure: 2



#### **GeoSyntec Consultants** 1500 Newell Ave, Ste 800

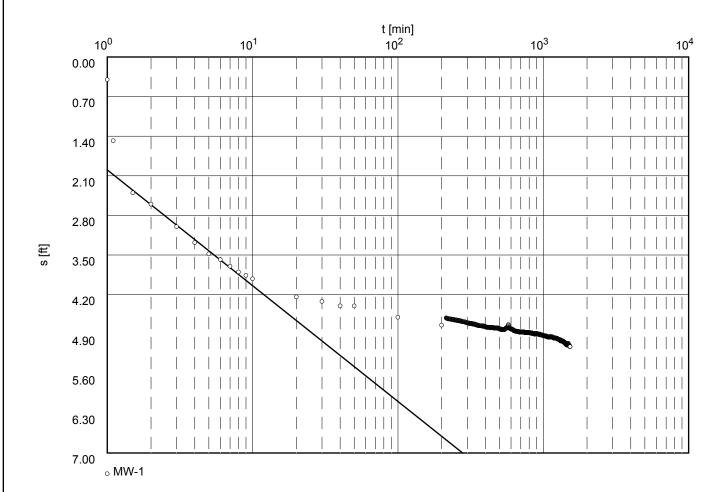
Walnut Creek, CA 94596 ph.(925)943-3034 Pumping test analysis
Time-Drawdown-method after
COOPER & JACOB
Confined aquifer

Date: 29.01.2003 Page 1

Project: WNN Pilot study

Evaluated by: jdg

Pumping Test No. Constant Rate RW-1 @ 151 gpm	Test conducted on: January 9-10, 2003
Observation MW-1	
Discharge 151.00 U.S.gal/min	



Transmissivity [ft²/min]: 1.80 x 10<sup>0</sup>

Hydraulic conductivity [ft/min]: 4.51 x 10<sup>-2</sup>

Aquifer thickness [ft]: 40.00

Storativity: 1.72 x 10<sup>-4</sup>

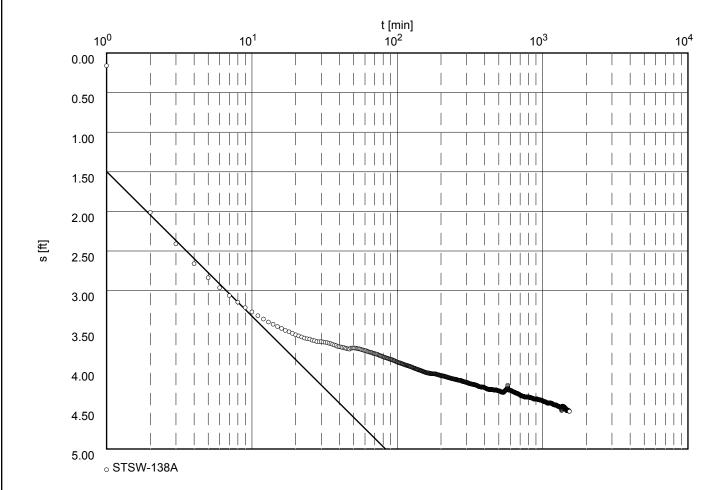


Cooper-Jacob Analysis - MW-1 WNN, IRCTS Pilot Test **GeoSyntec Consultants** 1500 Newell Ave, Ste 800 Walnut Creek, CA 94596

ph.(925)943-3034

Pumping test analysis Time-Drawdown-method after COOPER & JACOB Confined aquifer Date: 29.01.2003 Page 1
Project: WNN Pilot study
Evaluated by: jdg

Pumping Test No. RW-1 Constant Rate Discharge - 151 gpm	Test conducted on: January 9-10, 2003
STSW-138A Observation	
Discharge 151.00 U.S.gal/min	



Transmissivity [ft²/min]: 2.02 x 10<sup>0</sup>

Hydraulic conductivity [ft/min]: 5.05 x 10<sup>-2</sup>

Aquifer thickness [ft]: 40.00

Storativity: 1.00 x 10<sup>-4</sup>

DRAFT

Cooper-Jacob Analysis - STSW-138a WNN, IRCTS Pilot Test

Feb. 2003

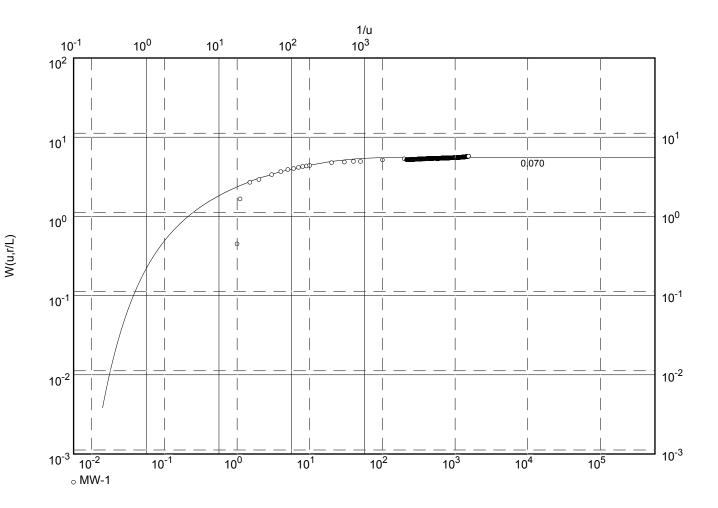
Figure: 4



# GeoSyntec Consultants 1500 Newell Ave, Ste 800

Walnut Creek, CA 94596 ph.(925)943-3034 Pumping test analysis HANTUSH's method Leaky aquifer, no aquitard storage Date: 29.01.2003 Page 1
Project: WNN Pilot study
Evaluated by: jdg

Pumping Test No. Constant Rate RW-1 @ 151 gpm	Test conducted on: January 9-10, 2003
Observation MW-1	
Discharge 151.00 U.S.gal/min	



Transmissivity [ft²/min]: 1.80 x 10<sup>0</sup>

Hydraulic conductivity [ft/min]: 4.50 x 10<sup>-2</sup>

Aquifer thickness [ft]: 40.00

Storativity: 1.62 x 10<sup>-4</sup>

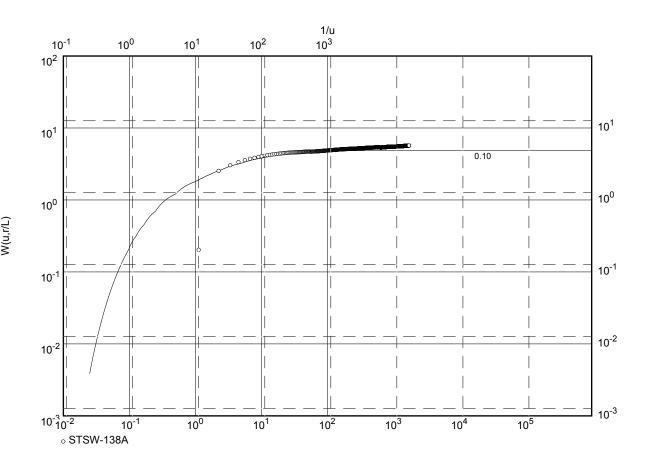
Hydraulic resistance (c) [min]: 2.83 x 10<sup>5</sup>





GeoSyntec Consultants 1500 Newell Ave, Ste 800 Walnut Creek, CA 94596 ph.(925)943-3034 Pumping test analysis HANTUSH's method Leaky aquifer, no aquitard storage Date: 29.01.2003 Page 1
Project: WNN Pilot study
Evaluated by: jdg

Pumping Test No. RW-1 Constant Rate Discharge - 151 gpm	Test conducted on: January 9-10, 2003
STSW-138A Observation	
Discharge 151.00 U.S.gal/min	



Transmissivity [ft²/min]: 2.02 x 10<sup>0</sup>

Hydraulic conductivity [ft/min]: 5.05 x 10<sup>-2</sup>

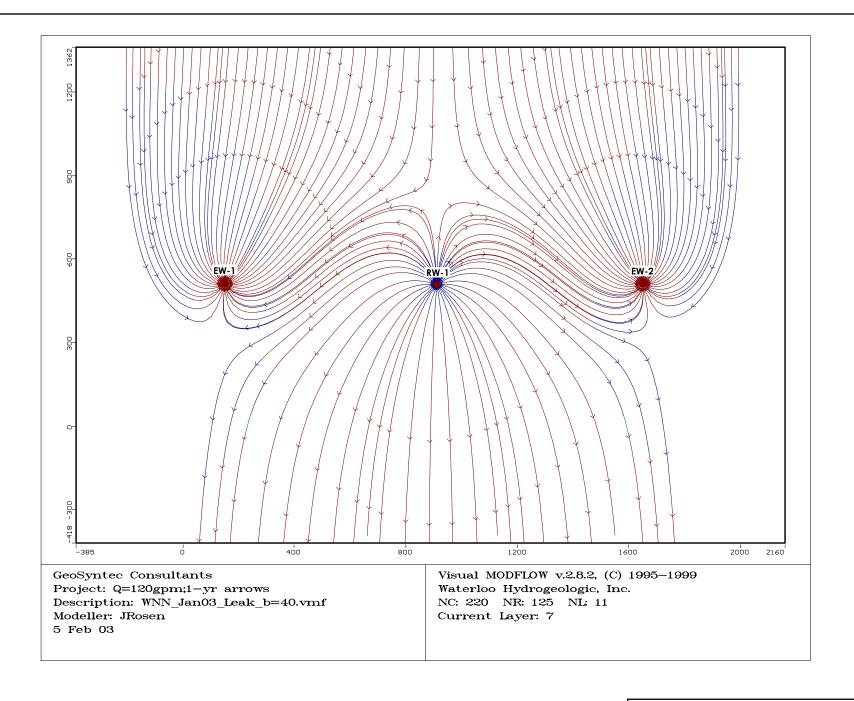
Aquifer thickness [ft]: 40.00

Storativity: 1.04 x 10<sup>-4</sup>

Hydraulic resistance (c) [min]: 3.40 x 10<sup>5</sup>



Hantush Analysis-STSW-138a WNN, IRCTS Pilot Test



\_\_\_\_\_\_ 1 year travel time



Numerical Simulation WNN, IRCTS Pilot Test

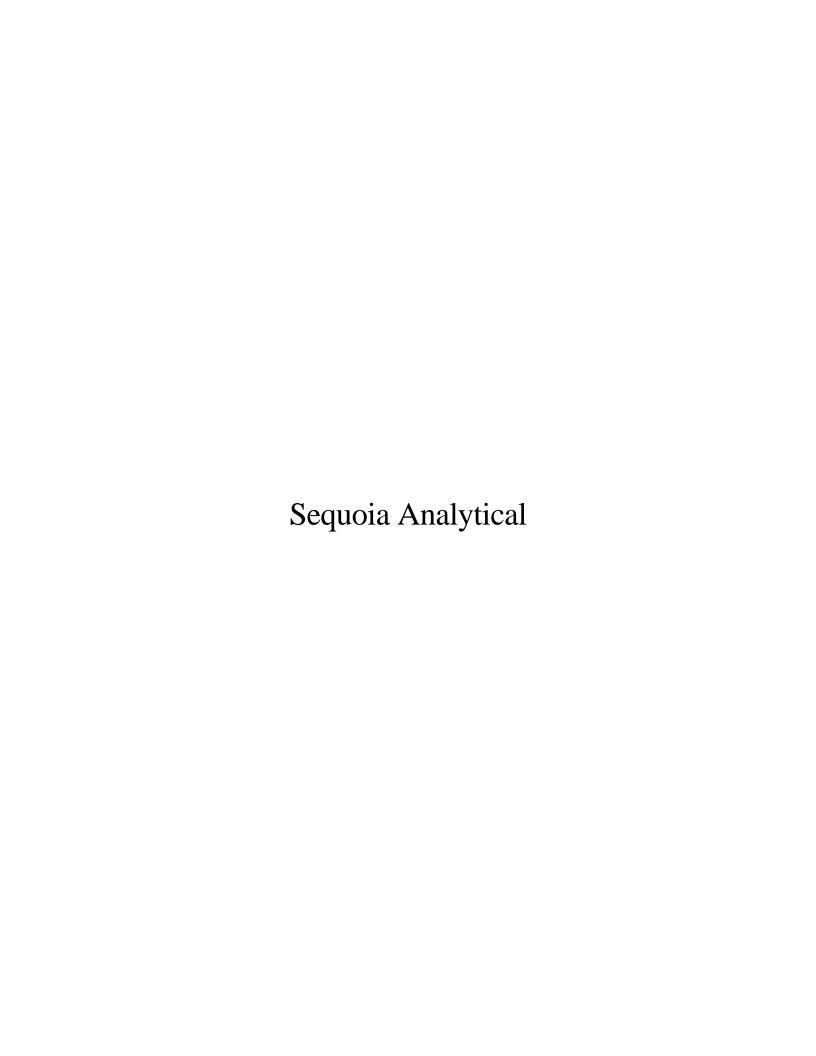
Feb. 2003

Figure: 7





# APPENDIX C LABORATORY REPORTS FOR CHEMICAL ANALYSIS







GeoSyntec Consultants - Oakland

475 14th St, Suite 450 Oakland CA, 94612 Project: Aerojet-WNN

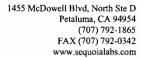
Project Number: NA

Project Manager: Graham Bradner

S407055 Reported: 07/16/04 11:14

# EPA 601/602 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
MW1-0701-1153 (S407055-03) Water	Sampled: 07/01/0	04 11:53 R	eceived:	07/01/04 1	4:15				
Benzene	ND	0.50	ug/l	1	4070161	07/13/04	07/13/04	EPA 624	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	н	"	"	"	
Bromomethane	ND	1.0	"	"	**	"	"	"	
Carbon tetrachloride	ND	0.50	**	"	**	"	"	"	
Chlorobenzene	ND	0.50	**	"	**	**	11	n .	
Chloroethane	ND	0.50	11	**	11	**	**	н	
Chloromethane	0.62	0.50	19	"	11	**	11	н	
Chloroform	ND	0.50	"	"	"	"	н	"	
Dibromochloromethane	ND	0.50	"	11	н	"	u	"	
Ethylbenzene	ND	0.50	**	"	"	"	н	"	
1,2-Dichlorobenzene	ND	0.50	"	**	"	"	н	"	
1,3-Dichlorobenzene	ND	0.50	"	**	"	"	н	"	
1,4-Dichlorobenzene	ND	0.50	*	"	"	"	**	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	**	"	"	**	11	"	
1,1-Dichloroethene	ND	0.50	"	"	**	"		**	
cis-1,2-Dichloroethene	2.3	0.50	"	н	11	"	II .	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	**	**	
1,2-Dichloropropane	ND	0.50	**	**	"	"	**	**	
cis-1,3-Dichloropropene	ND	0.50	**	**	11	**	**	11	
trans-1,3-Dichloropropene	ND	0.50	11	17	11	"	19	ı,	
Methylene chloride	ND	1.0	17	11	11	11	li .	· ·	
1,1,1-Trichloroethane	ND	0.50	11	**	**	"	н	"	
1,1,2,2-Tetrachloroethane	ND	1.0	н	"	**	"	"	**	
Tetrachloroethene	ND	0.50	**	**	"	"	"	"	
Toluene	ND	0.50	**	**	"	"	"		
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	н	"	
Trichlorofluoromethane	ND	0.50	"	"	**	"	**	"	
Trichloroethene	2.2	0.50	"	"	**	"	**	*	
Vinyl chloride	ND	0.50	"	"	"	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	u	"	
Surrogate: 1,2-DCA-d4		113 %	70	-130	"	"	. 11	,,	
Surrogate: Toluene-d8		105 %	70	-130	"	"	"	"	
Surrogate: 4-BFB		103 %	70	-130	,,	,,	"	"	





Aerojet Corporation PO Box 13222 Bldg. 2001, Dept. 0330 Sacramento CA, 95813-6000 Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P409394 Reported: 10/05/04 17:05

STSW MW-1 (P409394-05) Water Sampled: 09/20/04 12:49 Received: 09/21/04 15:30

#### Volatile Organic Compounds - 8021 list by EPA Method 8260A Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
							-		1100
Bromodichloromethane	ND	0.50	ug/l "	1	4100016	10/01/04	10/01/04	EPA 8260B	
Bromoform	ND	0.50		"		,,	"	,,	
Bromomethane	ND	0.50		,,	,,		"	"	
Carbon tetrachloride Chlorobenzene	ND	0.50	,,	"	"		"	,	
Chloroethane	ND	0.50	,,	,,	,,	"	"	"	
	ND	0.50	,,	"				"	
Chloroform Chloromethane	ND	0.50		"	"	,,	,,	,,	
	ND	0.50	"	"	"	,,	"	"	
Dibromochloromethane	ND	0.50	,,		"	,,	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	.,	"	"	,,	,,	"	
1,2-Dichlorobenzene	ND	0.50	,,	"	,,	"		"	
1,3-Dichlorobenzene	ND	0.50			,,				
1,4-Dichlorobenzene	ND	0.50		"		"	" .	"	
Dichlorodifluoromethane	ND	0.50	"	"	"	"	,,	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	**	"	
,2-Dichloroethane	ND	0.50	"	"	"	"	**	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	2.1	0.50	"	**	"	"	11	"	
rans-1,2-Dichloroethene	ND	0.50	"	"	**	"	"	"	
,2-Dichloropropane	ND	0.50	**	"	**	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	**	"	"	"	U	"	
rans-1,3-Dichloropropene	ND	0.50	"	"	"	"	н	"	
Freon 113	ND	0.50	"	"	,,	"	**	•	
Methylene chloride	ND	0.50	"	"	"	"	"	"	
,1,2,2-Tetrachloroethane	ND	0.50	"	"	**	"	**	"	
Tetrachloroethene	ND	0.50	"	"	"	"	**	"	
1,1,2-Trichloroethane	ND	0.50	**	"	**	11	11	"	
1,1,1-Trichloroethane	ND	0.50	"	••	**	"	"	"	
<b>Frichloroethene</b>	2.9	0.50	"	"	**	**	"	"	
Trichlorofluoromethane	ND	0.50	"	"	11	"		11	
Vinyl chloride	ND	0.50	"	*		"	"	"	
Surrogate: Dibromofluoromethane		121 %	84-	122	"	"	,,	"	
Surrogate: 1,2-Dichloroethane-d4		106 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		104 %	84-	119	"	"	#	"	
Surrogate: 4-Bromofluorobenzene		116 %	86-	119	"	"	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project:IRCTS
Project Number:N/A
Project Manager:Rodney Fricke

S412029 Reported: 12/14/04 18:26

## Volatile Organic Compounds 8021B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
WNN-MN-14 (S412029-01) Water	Sampled: 11/29/04 1	5:34 Rece	ived: 11	/30/04 12:1	10				
Benzene	ND	0.50	ug/l	1	4120124	12/12/04	12/13/04	EPA 8260B	
Bromodichloromethane	ND	0.50	*	,,	н	"	**	*	
Bromoform	ND	0.50	"	н	"	"	"	**	
Bromomethane	ND	1.0	11	"	11	"	11	R	
Carbon tetrachloride	ND	0.50	"	**	**	**	11	*	
Chlorobenzene	ND	0.50	"	**	v	**	н	•	
Chloroethane	ND	0.50	"	**	**	"	"	*	
Chloroform	ND	0.50	"	**	"	"	**	"	
Chloromethane	ND	0.50	"	**	"	"	"	"	
Dibromochloromethane	ND	0.50	**	11	19	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	**	"	,,	**	"		
1,2-Dichlorobenzene	ND	0.50	"	**	*	**	*		
1,3-Dichlorobenzene	ND	0.50	**	**	**	"			
1,4-Dichlorobenzene	ND	0.50	**	"		4	"	"	
Dichlorodifluoromethane	ND	0.50	"	"	"	**	**		
1,1-Dichloroethane	ND	0.50	"	"	"	**	H	•	
1,2-Dichloroethane	ND	0.50	"	**	"	**	"	11	
1,1-Dichloroethene	ND	0.50	"	**	"	11	н		
cis-1,2-Dichloroethene	1.2	0.50	**	"	*	11	11		
trans-1,2-Dichloroethene	ND	0.50		"	"	**	n		
1,2-Dichloropropane	ND	0.50	"	•	"	*	,,	**	
cis-1,3-Dichloropropene	ND	0.50	**	11	,,			11	
trans-1,3-Dichloropropene	ND	0.50	,,	,,	11	,,	"	**	
Ethylbenzene	ND	0.50		,,	"	,,	,,	11	
Freon 113	ND	0.50	"	"	,,	**	"	"	
Methylene chloride	ND	0.50	"		**		"	11	
1,1,2,2-Tetrachloroethane	ND	1.0		н	**	"		"	
Tetrachloroethene	ND	0.50		,,		*1		"	
Toluene	ND	0.50	**	**	"	17	**	11	
1,1,1-Trichloroethane	ND	0.50	**	"	"	,	"	"	
1,1,2-Trichloroethane	ND	0.50	,1		"	**		"	
Trichloroethene	2.5	0.50			**	"	"	*	
Trichlorofluoromethane	ND	0.50		**	"	"	**	и	
Vinyl chloride	ND ND	0.50	,,	**	"		,,	**	
Xylenes (total)	, ND	0.50	*		"	**		"	
Surrogate: Dibromofluoromethane		94 %	70	)-130	"	"	"	"	
Surrogate: 1,2-DCA-d4		100 %	70	)-130	"	"	"	"	
Surrogate: Toluene-d8		98 %	70	)-130	"	"	"	"	
Surrogate: 4-BFB		101 %	70	0-130	"	~	"	"	

Sequoia Analytical - Sacramento

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.

KLEINFELDER 3077 FITE CIRCLE SACRAMENTO, CA 95827-1815 (916) 366-1701 17571 SEQ ŝ RECEIVING LAB: Pink - Lab Copy Sand Results To: Attn: CHAIN OF CIISTODY 150 70 ź CON-TAINERS \$ \$ CON-TAINERS P ሌ Ç Lemple Control Recommendate (Signature) MATRIX 3 1386 138 B 5TSW 138 A AOL TREES. Signature/Number SAMPLERS: Signature/Number SAMPLERS: Gignature/Number Soc 2 11-404 1630 WNN-MN -1 SAMPLE 1.D. KLEINFELDER PROJECT NAME SAMPLE 1.D. TIME HH-MM-SS 1433 1534 707 42060- ADI L.P. NO. (P.O. NO. 11.29.04 MM/DD/YY DATE က 9 80 6 13 15 16 18 19 2 12 7 17





Aerojet Corporation PO Box 13222 Bldg. 2001, Dept. 0330 Sacramento CA, 95813-6000 Project:Kleinfelder/IRCTS
Project Number:42060-A01
Project Manager:Rodney Fricke

P502206 Reported: 02/25/05 11:32

WNN-MW-1 (P502206-01) Water Sampled: 02/07/05 11:45 Received: 02/11/05 13:20

#### Volatile Organic Compounds - 8021 list by EPA Method 8260A Sequoia Analytical - Petaluma

	-	Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromodichloromethane	ND	0.50	ug/l	1	5020270	02/19/05	02/19/05	EPA 8260B	
Bromoform	ND	0.50	**	н	"	"	H	н	
Bromomethane	ND	0.50	11	U	n	"	"	н	
Carbon tetrachloride	ND	0.50	11	n	н	"	II	"	
Chlorobenzene	ND	0.50	11	**	н	#	II	н	
Chloroethane	ND	0.50	"	"	"	**	n	н	
Chloroform	ND	0.50	п	*	"	**	fi	п	
Chloromethane	ND	0.50	"	"	**	"	н	11	
Dibromochloromethane	ND	0.50	n	"	н	"	11	U	
1,2-Dibromoethane (EDB)	ND	0.50	11	**	0	**	n	н	
1,2-Dichlorobenzene	ND	0.50	н	H	II .	*	н	II .	
1,3-Dichlorobenzene	ND	0.50	11	Ħ	H	**	II	н	
1,4-Dichlorobenzene	ND	0.50	н	n	н	H	II	h	
Dichlorodifluoromethane	ND	0.50	"	n	u	"	II	n	
1,1-Dichloroethane	ND	0.50		11	н	н	It	н	
1,2-Dichloroethane	ND	0.50	11	II .	II .	II .	H	н	
1,1-Dichloroethene	ND	0.50	11	n	Ħ	II.	n	п	
cis-1,2-Dichloroethene	1.2	0.50	n	,	"	"	H	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	n .	*	n	n .	
1,2-Dichloropropane	ND	0.50	"	*	11	"	Ü	н	
cis-1,3-Dichloropropene	ND	0.50	"	*	"	"	II	"	
trans-1,3-Dichloropropene	ND	0.50	*	*	"	"	11	"	
Freon 113	ND	0.50	*	"	*	n	н	**	
Methylene chloride	ND	0.50	H	"	"	n	**	"	
1,1,2,2-Tetrachloroethane	ND	0.50	*	*	*	"	II	"	
Tetrachloroethene	ND	0.50	"	"	"	"	II	н	
1,1,2-Trichloroethane	ND	0.50	*	H	*	11	ij	п	
1,1,1-Trichloroethane	ND	0.50		"	**	"	II	а	
Trichloroethene	3.1	0.50	"	11	Ħ	**	II .	**	
Trichlorofluoromethane	ND	0.50			**	н	m	**	
Vinyl chloride	ND	0.50	II .	n	n	"		#	
Surrogate: Dibromofluoromethane		85 %	84	-122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		83 %	74	-135	"	"	"	"	
Surrogate: Toluene-d8		101 %	84	-119	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93 %	86-	-119	"	"	"	"	





Aerojet Project:IRCTS
P.O. Box 13222, Dept. 0330, Bldg. 2001 Project Number:N/A
Sacramento CA, 95813-6000 Project Manager:Rodney Fricke

S508407 Reported: 09/01/05 17:55

# Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	Result	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WNN WM1 (S508407-02) Water	Sampled: 08/15/05 11:39		ved: 08/18/						
Freon 113	ND	0.50	ug/l	1	5080372	08/29/05	08/29/05	EPA 8260B	
Bromodichloromethane	ND	0.50	U	11	**	"	11	H	
Bromoform	ND	0.50	"	**	11	"	**	78	
Bromomethane	ND	1.0	"	"	"	n	"	"	
Carbon tetrachloride	ND	0.50	"	"	"		**	tt	
Chlorobenzene	ND	0.50	"		**		11	er.	
Chloroethane	ND	1.0	,,	**	"	**	**	er	
Chloroform	ND	0.50	H	**	**	"	n	H.	
Chloromethane	ND	1.0	**	**	11	**	11	tt.	
Dibromochloromethane	ND	0.50	11	**	11	**	T)	It	
1,2-Dibromoethane (EDB)	ND	0.50	11	"	11	"	***	II.	
1,2-Dichlorobenzene	ND	0.50	**	**	"	"	H.	tt	
1,3-Dichlorobenzene	ND	0.50	11	**	11	**	**	н	
1,4-Dichlorobenzene	ND	0.50	11	**	11	**	**	tr	
Dichlorodifluoromethane	ND	0.50	**	**	11	**	tr	u	
1,1-Dichloroethane	ND	0.50	17	**	***	**	н	н	
1,2-Dichloroethane	ND	0.50	н	0	**	n n	11	"	
1,1-Dichloroethene	ND	0.50	н	"	"	"	11	"	
cis-1,2-Dichloroethene	0.75	0.50	"	17	u	**	**	"	
trans-1,2-Dichloroethene	ND	0.50	**	"		**	"	"	
1,2-Dichloropropane	ND	0.50	**	**	n	ч	**	"	
cis-1,3-Dichloropropene	ND	0.50	**	. 11	**	"	"	"	
trans-1,3-Dichloropropene	· ND	0.50	11	п	"	н	H	"	
Methylene chloride	ND	1.0	11	"	11	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	11	"	"	11	ıı	**	
Tetrachloroethene	ND	0.50	**	"	"	"	ıı	u .	
1,1,1-Trichloroethane	ND	0.50	"	**	u	"	II .	**	
1,1,2-Trichloroethane	ND	0.50	11	**	11	"	"	**	
Trichloroethene	2.9	0.50	**	**	n	u	**	**	
Trichlorofluoromethane	ND	0.50	"	"	11	"	**	11	
Vinyl chloride	ND	0.50	**	"	· ·	**	17	**	
Surrogate: 1,2-DCA-d4		106%	70-1.	30	"	"	"	п	
Surrogate: Toluene-d8		102 %	70-1.	30	"	"	"	n	
Surrogate: 4-BFB		105 %	70-1.	30	"	"	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001

Sacramento CA, 95813-6000

Project:IRCTS
Project Number:42060 QT4
Project Manager:Rodney Fricke

S512394 Reported: 01/05/06 16:21

#### Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	Reg Result	Dorting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
WNN-MW-1 (S512394-03) Water	Sampled: 12/14/05 11:08	Rece	ived: 12/16	5/05 13:00	)				
Freon 113	ND	0.50	ug/l	1	5120433	12/27/05	12/27/05	EPA 8260B	
Bromodichloromethane	ND	0.50	11	**	"	**	"	**	
Bromoform	ND	0.50	**	"	"	"	"	H	
Bromomethane	ND	1.0	"	"	"	"	"	н	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	H	
Chlorobenzene	ND	0.50	"	"	"	"	**	**	
Chloroethane	ND	1.0	"	"	ч	"	"	"	
Chloroform	ND	1.0	11	"	"	"	**	**	
Chloromethane	ND	1.0	11	"	"	u	и	**	
Dibromochloromethane	ND	0.50	"	"	"	11	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	**	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	11	11	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	**	H	**	11	n	4	
Dichlorodifluoromethane	ND	0.50	*	H	11	tr	**	11	
1,1-Dichloroethane	ND	0.50	11	H	11	**	19	11	
1,2-Dichloroethane	ND	0.50	11	11	"	н	11	"	
1,1-Dichloroethene	ND	0.50	"	**	**	11	11	11	
cis-1,2-Dichloroethene	0.50	0.50	H	"	"	11	**	**	
trans-1,2-Dichloroethene	ND	0.50	"	"	u	11	11	**	
1,2-Dichloropropane	ND	0.50	"	**	"	n	11	**	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	н	**	n .	
trans-1,3-Dichloropropene	ND	0.50		"	"	"	"	"	
Methylene chloride	ND	1.0	"	"	"	"	"		
1,1,2,2-Tetrachloroethane	ND	1.0	"	"	п	11	Ħ	"	
Tetrachloroethene	ND	0.50	"	"		"	**	**	
1,1,1-Trichloroethane	ND	0.50	"	**	п	11	"	n	
1,1,2-Trichloroethane	ND	0.50	u	11	"	**	"	n	
Trichloroethene	2.2	0.50	**	Ħ	u	"	"	R	
Trichlorofluoromethane	ND	0.50	"	#	u	*	ч	Ħ	
Vinyl chloride	ND	0.50	TI .	n	"	"	"	"	
Surrogate: 1,2-DCA-d4		02 %	70-1.	30	"	"	"	"	
Surrogate: Toluene-d8		93 %	70-1.	30	"	"	"	"	
Surrogate: 4-BFB		98 %	70-1.	30	"	"	n	"	



Aerojet
P.O. Box 13222, Dept. 0330, Bldg. 2001
Sacramento CA, 95813-6000

Project:IRCTS
Project Number:N/A
Project Manager:Rodney Fricke

S602282 Reported: 03/02/06 19:51

## EPA 601 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

Analyte	Re Result	porting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
WNN-MW1 (S602282-02) Water	Sampled: 02/13/06 11:30	Recei	ved: 02/15/	06 10:20					
Bromodichloromethane	ND	0.50	ug/l	1	6020302	02/27/06	02/27/06	EPA 624	
Bromoform	ND	0.50	"	"	"	**	"	II .	
Bromomethane	ND	1.0	"	"	**	**	11	11	
Carbon tetrachloride	ND	0.50	"	"	**	"	11		
Chlorobenzene	ND	0.50	"	**	19	"	11	ii	
Chloroethane	ND	1.0	n	"	"	"	н	II .	
Chloroform	0.67	0.50	н	**	"	"	II .	u	
Chloromethane	ND	1.0	**	11	"	"	"	II .	
Dibromochloromethane	ND	0.50	**	"	"	"	n .	n .	
1,2-Dichlorobenzene	ND	0.50	Ħ	"	"	n	**	u	
1,3-Dichlorobenzene	ND	0.50	н	"	"	"	n	u .	
1,4-Dichlorobenzene	ND	0.50	н	"	"	**	u	н	
1,1-Dichloroethane	ND	0.50	**	"	11	"	II	"	
1,2-Dichloroethane	ND	0.50	n	"	"	**	"	n .	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	u	n	
1,1-Dichloroethene	ND	0.50	"	11	**	n	н	"	
trans-1,2-Dichloroethene	ND	0.50		17	"	"	H	•	
1,2-Dichloropropane	ND	0.50	*	н	и	u	**	**	
cis-1,3-Dichloropropene	ND	0.50	**	11	II .	"	H .	"	
trans-1,3-Dichloropropene	ND	0.50	11		"	n n	"	Ħ	
Methylene chloride	ND	1.0	**		**	n	"	m .	
1,1,2,2-Tetrachloroethane	ND	1.0	**	"	**	m	"	H	
Tetrachloroethene	ND	0.50	11	n	н	n	n	*	
1,1,1-Trichloroethane	ND	0.50	"	**	п	n	**	n	
1,1,2-Trichloroethane	ND	0.50	"	19	u	ii	Ħ	*	
Trichloroethene	2.2	0.50	n	#	n	"	"	н	
Trichlorofluoromethane	ND	0.50	11	#	11	**	"	ti .	
Vinyl chloride	ND	0.50	"	#	u	**		tt	
Surrogate: 1,2-DCA-d4	1	15%	70-13	70	"	"	"	"	
Surrogate: Toluene-d8		97 %	70-13	80	"	"	"	n	
Surrogate: 4-BFB		91 %	70-13	0	"	"	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001

Project: IRCTS

Project Number: 42060

S605080 Reported: 05/19/06 15:58

Sacramento CA, 95813-6000

Project Manager: Rodney Fricke

Perchlorate by EPA 314.0

	Sequo	ia Ana	lytical	l - Morga	an Hill				
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW166 (S605080-01) Water	Sampled: 05/01/06 10:30	Receive	d: 05/02	/06 10:05					
Perchlorate STSW138A (S605080-02) Water	89 Sampled: 05/01/06 12:2	16 8 Receiv	ug/l ed: 05/0	4 2/06 10:05	6E10020	05/05/06	05/05/06	EPA 314.0	
Perchlorate WWN-MW-1 (S605080-03) Water	2100 er Sampled: 05/01/06 13:	400 15 Rece	ug/l eived: 05	100 5 <b>/02/06 10:</b> 0	6E10020	05/05/06	05/05/06	EPA 314.0	
Perchlorate	ND	4.0	ug/l	1	6E10020	05/05/06	05/05/06	EPA 314.0	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001

Sacramento CA, 95813-6000

Project: IRCTS

Project Number: 42060 Project Manager: Rodney Fricke \$605080 Reported: 05/19/06 15:58

# Physical Parameters by APHA/ASTM/EPA Methods

#### Sequoia Analytical - Morgan Hill

Analyte	R Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW166 (S605080-01) Water	Sampled: 05/01/06 10:30	Received	: 05/02/06	6 10:05					
Specific Conductivity @ 25 C STSW138A (S605080-02) Water	190 Sampled: 05/01/06 12:28	2.0	mhos/cm ed: 05/02/	1 06 10:05	6E08029	05/08/06	05/08/06	SM 2510B	
Specific Conductivity @ 25 C WWN-MW-1 (S605080-03) Wat	160 er Sampled: 05/01/06 13:		mhos/cm ved: 05/0	1 <b>2/06 10:</b> 0	6E08029	05/08/06	05/08/06	SM 2510B	
Specific Conductivity @ 25 C	190	1.0 u	mhos/cm	1	6E08029	05/08/06	05/08/06	SM 2510B	





Aerojet

Project: IRCTS

S605080

P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project Number: 42060 Project Manager: Rodney Fricke Reported: 05/19/06 15:58

#### Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
STSW166 (S605080-01) Water	Sampled: 05/01/06 10:30	Received	1: 05/02/	06 10:05					
Freon 113	ND	0.50	ug/l	1	6050037	05/04/06	05/05/06	EPA 8260B	
Bromodichloromethane	ND	0.50	"	"	"	11	**	н	
Bromoform	ND	0.50	**	"	"	"	"	"	
Bromomethane	ND	1.0	#	"	**	**	"	**	
Carbon tetrachloride	ND	0.50	**	"	**	11	II .	*	
Chlorobenzene	ND	0.50	**	11	**	91	"	r	
Chloroethane	ND	1.0	"	"	**	"	"	**	
Chloroform	ND	0.50	"	"	"	11		**	
Chloromethane	ND	1.0	**	11	**	"		H	
Dibromochloromethane	ND	0.50		"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	**	Ħ	
1,2-Dichlorobenzene	ND	0.50	"	и	"	"	"	Ħ	
1,3-Dichlorobenzene	ND	0.50	"	**	"	n	"	Ħ	
1,4-Dichlorobenzene	ND	0.50	"	**	"	u	"	n	
Dichlorodifluoromethane	ND	0.50	11	n	"	"	**	ч	
1,1-Dichloroethane	ND	0.50	"	n	"	n	17	H	
1,2-Dichloroethane	ND	0.50	"	н	**	Ħ	11	н	
1,1-Dichloroethene	ND	0.50	*1	11	Ħ	11	,,	Ħ	
cis-1,2-Dichloroethene	0.50	0.50	"	"	"	"	"	**	
trans-1,2-Dichloroethene	ND	0.50	"	"	и	н	"	W	
1,2-Dichloropropane	ND	0.50	"	"	"	"	n		
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	**	R	
trans-I,3-Dichloropropene	ND	0.50	11	**	n	**	**	*	
Methylene chloride	ND	5.0	"		"	"	Ħ	*	
1,1,2,2-Tetrachloroethane	ND	1.0	**	**	n	n	n	#	
Tetrachloroethene	ND	0.50	**	**	n	**	n	**	
1,1,1-Trichloroethane	ND	0.50	**	**		"	**	"	
1,1,2-Trichloroethane	ND	0.50	H	**	**	*	**	n	
Trichloroethene	2.3	0.50	"	**	*	"	**		
Trichlorofluoromethane	ND	0.50	**	**	"	"	"	"	
Vinyl chloride	ND	0.50	n	**	"		н	и	
Surrogate: 1,2-DCA-d4		103 %	70-	130	"	"	"	"	
Surrogate: Toluene-d8		104 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		96 %	70-	130	"	и	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project: IRCTS
Project Number: 42060
Project Manager: Rodney Fricke

\$605080 Reported: 05/19/06 15:58

## Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

		eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW138A (S605080-02) Water	Sampled: 05/01/06 12:28	Receiv	ed: 05/02	/06 10:05					
Freon 113	ND	0.50	ug/l	1	6050037	05/04/06	05/05/06	EPA 8260B	
Bromodichloromethane	ND	0.50	"	Ħ	"	"	**	"	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0		11	**	"	**	"	
Carbon tetrachloride	ND	0.50	"	Ħ	"	"	*	н	
Chlorobenzene	ND	0.50	"	**		"	"	н	
Chloroethane	ND	1.0	11	"	"	"	**	н	
Chloroform	ND	0.50	"	**	"	"	"	u	
Chloromethane	ND	1.0	"	#	**	u	"	"	
Dibromochloromethane	ND	0.50	"	#	**	"	"	и	
1,2-Dibromoethane (EDB)	ND	0.50	"	Ħ	*1	"	"	**	
1,2-Dichlorobenzene	ND	0.50	"	*	"	"	"	11	
1,3-Dichlorobenzene	ND	0.50	**	н	*	н	"	"	
1,4-Dichlorobenzene	ND	0.50	**	"	11	Ħ	"	11	
Dichlorodifluoromethane	ND	0.50	**	"		**	11	"	
1,1-Dichloroethane	ND	0.50	"	n		H	*	"	
1,2-Dichloroethane	ND	0.50	"	*	**	*	**	n	
1,1-Dichloroethene	ND	0.50	11	*	11	**	**	**	
cis-1,2-Dichloroethene	ND	0.50	"	#	**	*1	"	п	
trans-1,2-Dichloroethene	ND	0.50	"	"	**	#	"	"	
1,2-Dichloropropane	ND	0.50	"	#	**	Ħ	11	"	
cis-1,3-Dichloropropene	ND	0.50	"	#	"	n	"	**	
trans-1,3-Dichloropropene	ND	0.50	"	#	"	*	*	"	
Methylene chloride	ND	5.0	**	Ħ	"	n	"	n	
1,1,2,2-Tetrachloroethane	ND	1.0	"	H	**	W	**	"	
Tetrachloroethene	ND	0.50	"	*	*	11	**	,,	
1,1,1-Trichloroethane	ND	0.50	"	*	"	#	"	H	
1,1,2-Trichloroethane	ND	0.50	"	н	**	"	u	n	
Trichloroethene	1.1	0.50	**	H	**	77	"	u	
Trichlorofluoromethane	ND	0.50	**	n	*	"	"	**	
Vinyl chloride	ND	0.50	**	"			*	"	
Surrogate: 1,2-DCA-d4		108 %	70-	130	"	"	"	"	
Surrogate: Toluene-d8		104 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		101 %	70-	130	"	"	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project: IRCTS
Project Number: 42060
Project Manager: Rodney Fricke

\$605080 Reported: 05/19/06 15:58

# Volatile Organic Compounds 8010B list by EPA Method 8260B

#### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
WWN-MW-1 (S605080-03) Water	Sampled: 05/01/06	13:15 Recei	ived: 05/0	2/06 10:0	)5				
Freon 113	ND	0.50	ug/l	1	6050037	05/04/06	05/05/06	EPA 8260B	
Bromodichloromethane	ND	0.50	**	"	"	11	"	n .	
Bromoform	ND	0.50	"	"	u	"	"	"	
Bromomethane	ND	1.0	"	"	n	"	"	"	
Carbon tetrachloride	ND	0.50	"	**	H	n	"	"	
Chlorobenzene	ND	0.50	"	**	н	"	"	n	
Chloroethane	ND	1.0	"	"	n	"	"	n .	
Chloroform	ND	0.50	"	"	#1	"	u	"	
Chloromethane	ND	1.0	"	H	**	u		n	
Dibromochloromethane	ND	0.50	"	**	n	11	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	**	н	**	n	"	n	
1,2-Dichlorobenzene	ND	0.50	"	**	н	n	n	"	
1,3-Dichlorobenzene	ND	0.50	u .	rr	u	n	"	n	
1,4-Dichlorobenzene	ND	0.50	"	**	n	n	**	u	
Dichlorodifluoromethane	ND	0.50	**	**	n	Ħ	**	ч	
1,1-Dichloroethane	ND	0.50	и	н	11	11	"	"	
1,2-Dichloroethane	ND	0.50	"	"	н	н	"	•	
1,1-Dichloroethene	ND	0.50	**	"	"	"	"	Ħ	
cis-1,2-Dichloroethene	ND	0.50	**	"	"		"	u	
trans-1,2-Dichloroethene	ND	0.50	**	"		H.	n.	ч	
1,2-Dichloropropane	ND	0.50	11	"	"	11	*	u	
cis-1,3-Dichloropropene	ND	0.50	"		"	0	н	**	
trans-1,3-Dichloropropene	ND	0.50	**	"	**	n	**	*	
Methylene chloride	ND	5.0	lt.		**	n	"	n	
1,1,2,2-Tetrachloroethane	ND	1.0	tt.	"	*	H	"	**	
Tetrachloroethene	ND	0.50	**	"	"	"	#	u	
1,1,1-Trichloroethane	ND	0.50	"		"	"	*	н	
1,1,2-Trichloroethane	ND	0.50	"		**	"	*	n .	
Trichloroethene	2.9	0.50	"	"	**	"	"	ц	
Trichlorofluoromethane	ND	0.50	"	"	**	"	Ü	ų	
Vinyl chloride	ND	0.50	"	"		"		"	
Surrogate: 1,2-DCA-d4		107 %	70-1	30	"	"	"	"	
Surrogate: Toluene-d8		100 %	70-1	30	"	"	"	"	
Surrogate: 4-BFB		99 %	70-1	30	"	"	"	"	





GeoSyntec Consultants - Oakland

475 14th St, Suite 450 Oakland CA, 94612 Project: Aerojet-WNN

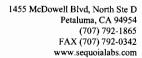
Project Number: NA

Project Manager: Graham Bradner

S407055 Reported: 07/16/04 11:14

## EPA 601/602 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

Analyte	Result	Reporting	I Imita	Dile	D-4-L	Denversed	A 1	Made 4	<b>.</b> .
		Limit	Units	Dilution		Prepared	Analyzed	Method	Note
138A-0701-1240 (S407055-04) Water	Sampled: 07/01/	04 12:40 Re	ceived:	07/01/04 1	14:15				
Benzene	ND	0.50	ug/l	1	4070161	07/13/04	07/13/04	EPA 624	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	**	"	**	"	"	
Bromomethane	ND	1.0	"	"	"	"	89	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	**	"	
Chlorobenzene	ND	0.50	17	11	"	"	**	"	
Chloroethane	ND	0.50	11	"	"	"	"	"	
Chloromethane	ND	0.50	17	"	**	"	"	19	
Chloroform	ND	0.50	"	"	"	"	**	"	
Dibromochloromethane	ND	0.50	"	"	17	11	"	"	
Ethylbenzene	ND	0.50	"	"	"	u u	11	"	
1,2-Dichlorobenzene	ND	0.50	"	"	11	n	**	"	
1,3-Dichlorobenzene	ND	0.50	"	11	"	"	#	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"		**	"	
1,1-Dichloroethane	ND	0.50	"	н	"	"	**	"	
1,2-Dichloroethane	ND	0.50	"	tt	"	"	**	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"		
cis-1,2-Dichloroethene	ND	0.50	"	"	"	**	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	**	"	**	**	"	
1,2-Dichloropropane	ND	0.50	"	**	**	**	**	*	
cis-1,3-Dichloropropene	ND	0.50	"	"	**	**	"	,,	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	**	"	"	
Methylene chloride	ND	1.0	"	11	**	"	"	"	
1,1,1-Trichloroethane	ND	0.50	"	"	"	11	75	"	
1,1,2,2-Tetrachloroethane	ND	1.0	"	п	**	11	11	"	
Tetrachloroethene	ND	0.50	"	*1	"	н	"	"	
Toluene	ND	0.50	**	**	"	"	**	"	
1,1,2-Trichloroethane	ND	0.50	**	"	"	**	**	**	
Trichlorofluoromethane	ND	0.50	"	"	**	"	"	**	
Trichloroethene	4.7	0.50	"	"	**	"	**	"	
Vinyl chloride	ND	0.50	"	"	**	"	"	"	
Xylenes (total)	ND	0.50	"	"	"	"	"	**	
Surrogate: 1,2-DCA-d4		114 %	70-	130	"	"	"	"	
Surrogate: Toluene-d8		105 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		101 %	70-	130	"	"	n	"	





Aerojet Corporation PO Box 13222 Bldg. 2001, Dept. 0330 Sacramento CA, 95813-6000 Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P409394 Reported: 10/05/04 17:05

STSW 138A (P409394-06) Water Sampled: 09/20/04 13:30 Received: 09/21/04 15:30

#### Volatile Organic Compounds - 8021 list by EPA Method 8260A Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
Bromodichloromethane	ND	0.50	ug/l	1	4100016	10/01/04	10/01/04	EPA 8260B	
Bromoform	ND	0.50	"	,,	"	11	"	"	
Bromomethane	ND	0.50	"	**	*1	"	**	"	
Carbon tetrachloride	ND	0.50	**	**	**	"	**	"	
Chlorobenzene	ND	0.50	"	**	**	"	**	,,	
Chloroethane	ND	0.50	"	**	"	"	**	**	
Chloroform	ND	0.50	"	**	"	"	**	"	
Chloromethane	ND	0.50	"	**	"	"	"	11	
Dibromochloromethane	ND	0.50	"		"	"	"	11	
1,2-Dibromoethane (EDB)	ND	0.50	"	u	"	,,	"	"	
1,2-Dichlorobenzene	ND	0.50	"		"	"	"	u .	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	**	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.50	"		"	"	**	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	,,,	
1,2-Dichloroethane	ND	0.50	"	*	H	**	**	"	
1,1-Dichloroethene	ND	0.50	"		"	**	**	II .	
cis-1,2-Dichloroethene	ND	0.50	"		"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	11	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	#	"	"	
Freon 113	ND	0.50	"	11	"	**	"	"	
Methylene chloride	ND	0.50	"	u	"	**	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	u u	"	"	"	11	
Tetrachloroethene	ND	0.50	"	"	"	"	"	II.	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Trichloroethene	4.9	0.50	"	"	*	"	"	**	
Trichlorofluoromethane	ND	0.50	"	u u	"	"	"	"	
Vinyl chloride	ND	0.50	,,	"	"			***	
Surrogate: Dibromofluoromethane		119 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		102 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		105 %	84-	119	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116%	86-	119	"	"	"	"	





Aerojet P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project:IRCTS
Project Number:N/A
Project Manager:Rodney Fricke

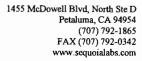
S412029 Reported: 12/14/04 18:26

## Volatile Organic Compounds 8021B list by EPA Method 8260B Sequoia Analytical - Sacramento

	R	eporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
STSW 138A (S412029-02) Water	Sampled: 11/29/04 14:33	Recei	ved: 11/30	/04 12:10					
Benzene	ND	0.50	ug/l	1	4120124	12/12/04	12/13/04	EPA 8260B	
Bromodichloromethane	ND	0.50	"	*	"	"	"	11	
Bromoform	ND	0.50	"	H	"	"	*	"	
Bromomethane	ND	1.0	10	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	•	"	и	"	
Chlorobenzene	ND	0.50	**	"	"	"	"	11	
Chloroethane	ND	0.50	"	,,	"	"	"	**	
Chloroform	ND	0.50	**	"	"	"	"	"	
Chloromethane	ND	0.50	"	"	"	"		"	
Dibromochloromethane	ND	0.50	11	n	**	"	"		
1,2-Dibromoethane (EDB)	ND	0.50	,,	"	**	"	"	**	
1,2-Dichlorobenzene	ND	0.50	*	"	,,	**	**	"	
1,3-Dichlorobenzene	ND	0.50		"	"	"	"		
1,4-Dichlorobenzene	ND	0.50		11	"	"	n	"	
Dichlorodifluoromethane	ND	0.50		**	**	"	#	**	
1,1-Dichloroethane	ND	0.50	"	"	,,	**	11	**	
1,2-Dichloroethane	ND	0.50	"	**	11	11	11	"	
1,1-Dichloroethene	ND	0.50	Ħ	"	,,	н	11		
cis-1,2-Dichloroethene	ND	0.50	**	*		H	"		
trans-1,2-Dichloroethene	ND	0.50	11	n	"		n	**	
1,2-Dichloropropane	ND	0.50	*		11	"	"	**	
cis-1,3-Dichloropropene	ND	0.50	,,	"	**	**		n	
trans-1,3-Dichloropropene	ND	0.50		"	**	**	"	**	
Ethylbenzene	ND	0.50		*	**	"	,	**	
Freon 113	ND	0.50	"	"	**	,,	,,		
Methylene chloride	ND	0.50	"	"		H	**	,,	
1,1,2,2-Tetrachloroethane	ND	1.0	**		"	*			
Tetrachloroethene	ND	0.50	н					**	
Toluene	ND	0.50	**	"	**	"	н	**	
1,1,1-Trichloroethane	ND	0.50			**	**	"	11	
1,1,2-Trichloroethane	ND	0.50	**	"		*	,	"	
Trichloroethene	4.1	0.50	11	v	"	"	"	"	
Trichlorofluoromethane	ND	0.50	11	**	"	11	n	11	
Vinyl chloride	ND	0.50	"	**	"	"	**	"	
Xylenes (total)	ND	0.50	u	,,	"	"	ıt	н	
Surrogate: Dibromofluoromethane		92 %	70-1	30	"	"	"	"	
Surrogate: 1,2-DCA-d4		100 %	70-1	30	"	"	,,	"	
Surrogate: Toluene-d8		96 %	70-1	30	,,	"	"	"	
Surrogate: 4-BFB		99 %	70-1	30	"	"	"	"	
·									

Sequoia Analytical - Sacramento

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.





Aerojet Corporation PO Box 13222 Bldg. 2001, Dept. 0330 Sacramento CA, 95813-6000 Project:Kleinfelder/IRCTS
Project Number:42060-A01
Project Manager:Rodney Fricke

P502206 Reported: 02/25/05 11:32

WNN-138A (P502206-02) Water Sampled: 02/07/05 13:05 Received: 02/11/05 13:20

#### Volatile Organic Compounds - 8021 list by EPA Method 8260A Sequoia Analytical - Petaluma

Analyte
Bromoform         ND         0.50         "         <
Bromomethane         ND         0.50         "
Carbon tetrachloride         ND         0.50         "
Chlorobenzene         ND         0.50         "
Chloroethane ND 0.50 " " " " " " " " " " " " " " " " " " "
Chloroform         ND         0.50         "
Chloromethane ND 0.50 " " " " " " " " " " " " " " " " " " "
Dibromochloromethane
1,2-Dibromoethane (EDB)       ND       0.50       "
1,2-Dichlorobenzene       ND       0.50       "
1,3-Dichlorobenzene       ND       0.50       "
1,4-Dichlorobenzene       ND       0.50       "
Dichlorodifluoromethane         ND         0.50         "<
1,1-Dichloroethane       ND       0.50       "
1,2-Dichloroethane       ND       0.50       "
1,1-Dichloroethene ND 0.50 " " " " " "
cis-1,2-Dichloroethene ND 0.50 " " " " " "
trans-1,2-Dichloroethene ND 0.50 " " " " " "
1,2-Dichloropropane ND 0.50 " " " " "
cis-1,3-Dichloropropene ND 0.50 " " " " "
trans-1,3-Dichloropropene ND 0.50 " " " " " "
Freon 113 ND 0.50 " " " " "
Methylene chloride ND 0.50 " " " " "
1,1,2,2-Tetrachloroethane ND 0.50 " " " " " "
Tetrachloroethene ND 0.50 " " " " "
1,1,2-Trichloroethane ND 0.50 " " " " " "
1,1,1-Trichloroethane ND 0.50 " " " " " "
Trichloroethene 3.9 0.50 " " " " "
Trichlorofluoromethane ND 0.50 " " " " " "
Vinyl chloride ND 0.50 " " " " " "
Surrogate: Dibromofluoromethane 100 % 84-122 " " " "
Surrogate: 1,2-Dichloroethane-d4 104 % 74-135 " " " "
Surrogate: Toluene-d8 92 % 84-119 " " " "
Surrogate: 4-Bromofluorobenzene 99 % 86-119 " " " "





Aerojet
P.O. Box 13222, Dept. 0330, Bldg. 2001
Sacramento CA, 95813-6000

Project:IRCTS
Project Number:N/A
Project Manager:Rodney Fricke

S508407 Reported: 09/01/05 17:55

## Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

	Re	porting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
STSW 138B (S508407-03) Water	Sampled: 08/15/05 12:37	Receiv	ved: 08/18	3/05 11:30					
Freon 113	ND	0.50	ug/l	1	5080372	08/29/05	08/29/05	EPA 8260B	
Bromodichloromethane	ND	0.50	"	"	"	"	"	"	
Bromoform	ND	0.50	"	"	**	"	ur .	н	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	**	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	•	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	**	"	19	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	**	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	n	**	"	"	"	
1,3-Dichlorobenzene	ND	0.50	11	"	tr	"	11	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.50	"	"	u	"	11	"	
1,1-Dichloroethane	ND	0.50	**	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	H	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	**	
trans-1,2-Dichloroethene	ND	0.50	**	"	17	"	II .	**	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	11	н	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	II .	"	"	"	
Methylene chloride	ND	1.0	"	**	11	"	**	"	
1,1,2,2-Tetrachloroethane	ND	1.0	"	**	**	"	11	u	
Tetrachloroethene	ND	0.50	"	"	**	"	**	"	
1,1,1-Trichloroethane	ND	0.50	n	"	**	"	"	u	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	u	
Trichloroethene	1.8	0.50	"	"	**	"	"	н	
Trichlorofluoromethane	ND	0.50	"	"	u	"	"	"	
Vinyl chloride	ND	0.50		"	н	n	"	**	
Surrogate: 1,2-DCA-d4		106 %	70-1	30	"	"	"	"	
Surrogate: Toluene-d8	i	100 %	70-1	30	"	"	"	"	
Surrogate: 4-BFB	i	106 %	70-1	30	"	"	"	"	

550X407			/// Seguroa	REMARKS	3.43 21 1/21'		)							SINO	3		Send Results To	KLEINFELDER / 3077 FITE/ORCLE	SACBAMENTO, CA 95827 (946) 386-1701		$\rightarrow$	Pink ab Copy NIO GAE 4
		/////// on		TAINERS ( CO)	CIX		4 X - 03										s) Adamerks	tanket	Par	ry by:		Canary - Return Copy To Shipper
KLEINFELDER	NAME	RUTS	SAMPLERS; (Signature/Number)	SAMPLE I.D.	575W 166	M										1	Date(I) me Received by: Skonafore)	Date/Time Received by: (Signature	06544 8/17/65 DGS Kalter A	Shartime Received for Laboratory by:	Will Complete	AAIIIG - OKIII DIGI
	PROJ NO PROJECT NAME		P. NO. SAMPLERS	MPLE	8/15/05 1018	1134	1237										Aerinquisned by: (Signature)	Reprophished by: (Signaphre)	Sun le Calmon	Heriotos Afficiant lines	M-80	1





Aerojet

P.O. Box 13222, Dept. 0330, Bldg. 2001 Sacramento CA, 95813-6000 Project:IRCTS
Project Number:42060 QT4
Project Manager:Rodney Fricke

S512394 Reported: 01/05/06 16:21

#### Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

		porting						-	
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
STSW-138A (S512394-02) Water	Sampled: 12/14/05 12:01	Recei	ved: 12/1	6/05 13:00					
Freon 113	ND	0.50	ug/l	1	5120433	12/27/05	12/27/05	EPA 8260B	
Bromodichloromethane	ND	0.50	"	"	11	"	"	"	
Bromoform	ND	0.50	"	"	4	"	**	n	
Bromomethane	ND	1.0	**	"	11	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	#	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	n	Ħ	
Chloroethane	ND	1.0	*	"	"	"	"	"	
Chloroform	ND	1.0	"	*	*	"	"	*	
Chloromethane	ND	1.0		**	"	"	"	19	
Dibromochloromethane	ND	0.50		"	**	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	•	"	"	*	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	**	"	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	**	"	"	"	
Dichlorodifluoromethane	ND	0.50	"	"	п	"	"	н	
1,1-Dichloroethane	ND	0.50	"	"	"	11	*	"	
1,2-Dichloroethane	ND	0.50	11	**	"	"	н	"	
1,1-Dichloroethene	ND	0.50	"	"	11	"	"	*	
cis-1,2-Dichloroethene	ND	0.50	*	"	"	*	"	**	
trans-1,2-Dichloroethene	ND	0.50	**	"	"	н	н	"	
1,2-Dichloropropane	ND	0.50	"	H	**	"	"	н	
cis-1,3-Dichloropropene	ND	0.50	"	11	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	#	11	"	
Methylene chloride	ND	1.0	**	"	"	**	"	n	
1,1,2,2-Tetrachloroethane	ND	1.0	"	"	**	"	"	*	
Tetrachloroethene	ND	0.50	n	"	IT	"	"	11	
1,1,1-Trichloroethane	ND	0.50		11	11	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Trichloroethene	1.1	0.50	*	"	"	11	"	11	
Trichlorofluoromethane	ND	0.50	**	"	"	**	"	"	
Vinyl chloride	ND	0.50	11	"		st	н	11	
Surrogate: 1,2-DCA-d4	1	00 %	70-	130	"	"	"	"	
Surrogate: Toluene-d8		94 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		98 %	70-	130	"	"	"	"	





Project:IRCTS
Project Number: N/A
Project Manager: Rodney Fricke

S602282 Reported: 03/02/06 19:51

### EPA 601 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

		porting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW 138A (S602282-01) Water	Sampled: 02/13/06 09:50	Recei	ved: 02/15	/06 10:20					
Bromodichloromethane	ND	0.50	ug/l	1	6020302	02/27/06	02/27/06	EPA 624	
Bromoform	ND	0.50	Ħ	"	*	"	"	H	
Bromomethane	ND	1.0	11	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	n	"	**	**	**	
Chlorobenzene	ND	0.50	"	н	u,	"	"	**	
Chloroethane	ND	1.0	"	**	"	"	11	**	
Chloroform	0.82	0.50	*	n	"	**	"	"	
Chloromethane	ND	1.0	**	"	11	**	"	н	
Dibromochloromethane	ND	0.50	**	"	n	"	"	"	
1,2-Dichlorobenzene	ND	0.50	**	"	"	"	"	u u	
1,3-Dichlorobenzene	ND	0.50	**	11	**	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	"	**	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	**	H	"	"	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	11	"	*	"	11	
1,1-Dichloroethene	ND	0.50	**	*	**	"	**	"	
trans-1,2-Dichloroethene	ND	0.50	*	Ħ	**	"	**		
1,2-Dichloropropane	ND	0.50			11	ur .	"	n	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	u	
trans-1,3-Dichloropropene	ND	0.50	"		**	"	"	"	
Methylene chloride	ND	1.0	11	,,	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	"	"	**	и		"	
Tetrachloroethene	ND	0.50	н	**	"	"	"	н	
1,1,1-Trichloroethane	ND	0.50	19		"	"	"	n	
1,1,2-Trichloroethane	ND	0.50	#	"	"	**	**	"	
Trichloroethene	1.1	0.50	*	"	"	**	**	n	
Trichlorofluoromethane	ND	0.50	**	"	"	11	*	n .	
Vinyl chloride	ND	0.50	**	"	,,	"	fr	H	
Surrogate: 1,2-DCA-d4	1	20 %	70-1.	30	"	"	"	"	
Surrogate: Toluene-d8		97%	70-1.	30	"	"	"	"	
Surrogate: 4-BFB		94 %	70-1.	30	"	"	"	"	





GeoSyntec Consultants - Oakland

475 14th St, Suite 450 Oakland CA, 94612 Project: Aerojet-WNN

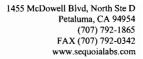
Project Number: NA

Project Manager: Graham Bradner

S407055 Reported: 07/16/04 11:14

# EPA 601/602 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Unite	Dilusi	Datah	Desmand	A malama d	Mathad	<b>N</b> 7
-			Units	Dilution	Batch	Prepared	Analyzed	Method	Not
166-0701-1001 (S407055-01) Water	Sampled: 07/01/04		eived: 0	7/01/04 14:	15				
Benzene	ND	0.50	ug/l	1		07/13/04	07/13/04	EPA 624	
Bromodichloromethane	ND	0.50	"	"	"	"	11	"	
Bromoform	ND	0.50	"	"	н	"	19	"	
Bromomethane	ND	1.0	"	"	"	"	11	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	17	"	
Chlorobenzene	ND	0.50	"	"	"	"	11	"	
Chloroethane	ND	0.50	"	"	"	"	"	**	
Chloromethane	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	*1	"	"	"	11	"	
Dibromochloromethane	ND	0.50	"	"	"	"	11	"	
Ethylbenzene	ND	0.50	**	"	"	"	11	"	
1,2-Dichlorobenzene	ND	0.50	**	11	"	"	11	"	
,3-Dichlorobenzene	ND	0.50	**	"	"	**	11	"	
,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	n	
,1-Dichloroethane	ND	0.50	"	н	"	"	н	"	
,2-Dichloroethane	ND	0.50	"	H	"	"	"	•	
,1-Dichloroethene	ND	0.50	"	**	"	"	"	"	
eis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
rans-1,2-Dichloroethene	ND	0.50	"	"	"	"	**	"	
,2-Dichloropropane	ND	0.50	n	"	"	**	11	"	
eis-1,3-Dichloropropene	ND	0.50	"	"	**	11	11	"	
rans-1,3-Dichloropropene	ND	0.50	"	11	**	"		"	
Methylene chloride	ND	1.0	"	"	"	"	н	"	
1,1,1-Trichloroethane	ND	0.50	*	u	"	"	"	"	
,1,2,2-Tetrachloroethane	ND	1.0	"	**	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	11	"	
Coluene	ND	0.50	"	**	n	•	u	"	
,1,2-Trichloroethane	ND	0.50	"	"	u	"	H	"	
richlorofluoromethane	ND	0.50	"	"	u	**	tt	"	
Trichloroethene	2.8	0.50	**	"	"	"	**	"	
/inyl chloride	ND	0.50	**	"	"	"	"	**	
(total)	ND	0.50	**	u u	#	"	**	11	
Surrogate: 1,2-DCA-d4		111%	70-	130	"	"	"	"	
Surrogate: Toluene-d8		107 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		103 %	70-	130	"	"	"	"	



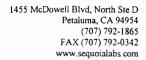


Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P409394 Reported: 10/05/04 17:05

STSW 166 (P409394-04) Water Sampled: 09/20/04 11:42 Received: 09/21/04 15:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromodichloromethane	ND	0.50	ug/l	1	4100016	10/01/04	10/01/04	EPA 8260B	
Bromoform	ND	0.50	**	"	"	"	"	"	
Bromomethane	ND	0.50	"	"	**	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	**	"	**	
Chlorobenzene	ND	0.50	**	"		"	"	**	
Chloroethane	ND	0.50	**	**	**	"	"	**	
Chloroform	ND	0.50	"	"	"	"	"	**	
Chloromethane	ND	0.50	"	**	"	"	"		
Dibromochloromethane	ND	0.50	"	"	"	"	**	**	
1,2-Dibromoethane (EDB)	ND	0.50	**	**	11	"	"	*	
1,2-Dichlorobenzene	ND	0.50	"	**	**	"	"	*	
1,3-Dichlorobenzene	ND	0.50	"	"	"	**	u	"	
1,4-Dichlorobenzene	ND	0.50		u	"	**	"	"	
Dichlorodifluoromethane	ND	0.50	"	"	11	**	"	**	
1,1-Dichloroethane	ND	0.50	"	**	11	"	"		
1,2-Dichloroethane	ND	0.50	"	"	11	"	,,	"	
1,1-Dichloroethene	ND	0.50	"	"	**	"	"		
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	*	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"		
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	**	**	"	"	**	
trans-1,3-Dichloropropene	ND	0.50	"	"	**	"	"	**	
Freon 113	ND	0.50	"	"	11	"	"		
Methylene chloride	ND	0.50	**	**	n	"	n .		
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	11	"	"	**	
Tetrachloroethene	ND	0.50	"	"	**	"	"	**	
1,1,2-Trichloroethane	ND	0.50			**	**	"	,,	
1,1,1-Trichloroethane	ND	0.50	"	**	н	"	"	"	
Trichloroethene	3.2	0.50	**			"	**	"	
Trichlorofluoromethane	ND	0.50	n	**	**	"	"	**	
Vinyl chloride	ND	0.50		"	**	"	"	•	
Surrogate: Dibromofluoromethane		118 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		106 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		103 %		119	,,	"	"	"	
Surrogate: 4-Bromofluorobenzene		116%		119	,,	,,	"	"	
surrogaie. 4-bromojiuorovenzene		110 %	80-	117					





Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P412325 Reported: 01/07/05 13:32

WNN 166 (P412325-04) Water Sampled: 12/13/04 13:22 Received: 12/16/04 13:30

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromodichloromethane	ND	0.50	ug/l	1	4120519	12/27/04	12/27/04	EPA 8260B	
Bromoform	ND	0.50	n	,	"	"	н	*	
Bromomethane	ND	0.50	**	n	44	"	"	,	
Carbon tetrachloride	ND	0.50	"	*	"	*	*	*	
Chlorobenzene	ND	0.50	"	n	"	"	н	10	
Chloroethane	ND	0.50	"	"	*	*	"	"	
Chloroform	ND	0.50		"	n	,	n	•	
Chloromethane	ND	0.50	**	"	"		"	*	
Dibromochloromethane	ND	0.50	н	"	"	*	"	,	
1,2-Dibromoethane (EDB)	ND	0.50	**	"	"	H	11	•	
1,2-Dichlorobenzene	ND	0.50	н	le .	"	"	**	*	
1,3-Dichlorobenzene	ND	0.50	"	"	"	".	н	,	
1,4-Dichlorobenzene	ND	0.50	#	n	"	п	п	"	
Dichlorodifluoromethane	ND	0.50	н	"	•	"	11	•	
1,1-Dichloroethane	ND	0.50	11	**	"	"	н		
1,2-Dichloroethane	ND	0.50	н	*	"	**	"	"	
1,1-Dichloroethene	ND	0.50	17	"	"	,	"	*	
cis-1,2-Dichloroethene	0.60	0.50	"	*	•	n	Ħ	**	В
trans-1,2-Dichloroethene	ND	0.50	n	"	*	"	#	"	
1,2-Dichloropropane	ND	0.50		н	"	"	n	*	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	."		
trans-1,3-Dichloropropene	ND	0.50	•	"	•		n	"	
Freon 113	ND	0.50	н	"	"	"	19	. "	
Methylene chloride	ND	0.50	н		"	*	"	,,	
1,1,2,2-Tetrachloroethane	ND	0.50	19	"	"	n	*	**	
Tetrachloroethene	ND	0.50	,,	"	"	*	u u	"	
1,1,2-Trichloroethane	ND	0.50	17	"	"	"	11	н	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	*	"	
Trichloroethene	2.8	0.50	**	"	"	"	4	"	В
Trichlorofluoromethane	ND	0.50	"	"	"		"	"	
Vinyl chloride	ND	0.50		"	"	"	"	н	
Surrogate: Dibromofluoromethane		97 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		96 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		104 %	84-	119	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	86-	119	"	"	"	"	





Project:IRCTS
Project Number:N/A
Project Manager:Rodney Fricke

\$508407 Reported: 09/01/05 17:55

# Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	R Result	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW 166 (S508407-01) Water	Sampled: 08/15/05 10:18	Receive	ed: 08/18	/05 11:30				•	
Freon 113	ND	0.50	ug/l	1	5080372	08/29/05	08/29/05	EPA 8260B	
Bromodichloromethane	ND	0.50	"	0	"	"	"	,,	
Bromoform	ND	0.50	"	**	"	"	"	"	
Bromomethane	ND	1.0	**	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	**	"	"	"	"	**	
Chlorobenzene	ND	0.50	"	"	"	"	"	**	
Chloroethane	ND	1.0	"	"	"	11	"	**	
Chloroform	ND	0.50	"	19	"	**	"	"	
Chloromethane	ND	1.0	"	u	19	11	11	**	
Dibromochloromethane	ND	0.50	"	ч	"	"	"	11	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	*1	"	"	U	"	
1,3-Dichlorobenzene	ND	0.50	**	**	"	**	11	"	
1,4-Dichlorobenzene	ND	0.50	**	**	"	"	"	11	
Dichlorodifluoromethane	ND	0.50	"	**	"	"	19	"	
1,1-Dichloroethane	ND	0.50	**	**	"	"	"	н	
1,2-Dichloroethane	ND	0.50	17	**	"	"	**	"	
1,1-Dichloroethene	ND	0.50	**	11	**	"	17	**	
cis-1,2-Dichloroethene	ND	0.50	**	11	**	**	"	**	
trans-1,2-Dichloroethene	ND	0.50	11	11	**	**	"	**	
1,2-Dichloropropane	ND	0.50	"	**	"	"	11	10	
cis-1,3-Dichloropropene	ND	0.50	"	11	**	**	**	**	
trans-1,3-Dichloropropene	ND	0.50	**	**	"	"	**	19	
Methylene chloride	ND	1.0	**	**	"	**	"		
1,1,2,2-Tetrachloroethane	ND	1.0	"	"	"	**	"	19	
Tetrachloroethene	ND	0.50	"	н	**	**	11	"	
1,1,1-Trichloroethane	ND	0.50	11	"	**	11	19	**	
1,1,2-Trichloroethane	ND	0.50	"	"	"	11	"	"	
Trichloroethene	2.3	0.50	u	11		"	**	"	
Trichlorofluoromethane	ND	0.50	**	**	"	"	"	**	
Vinyl chloride	ND	0.50	**	"	н	"	"	"	
Surrogate: 1,2-DCA-d4		114%	70-	130	"	"	"	,,	
Surrogate: Toluene-d8		101 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		102 %	70-	130	"	"	"	"	





Project:IRCTS
Project Number:42060 QT4
Project Manager:Rodney Fricke

S512394 Reported: 01/05/06 16:21

### Volatile Organic Compounds 8010B list by EPA Method 8260B Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Not
STSW-166 (S512394-01) Water	Sampled: 12/14/05 10:15	Receive	d: 12/16	6/05 13:00					
Freon 113	ND	0.50	ug/l	1	5120433	12/27/05	12/27/05	EPA 8260B	
Bromodichloromethane	ND	0.50	**	**	"	#	*	н	
Bromoform	ND	0.50	"	#	**	н	"	"	
Bromomethane	ND	1.0	"	**	"	11	"	"	
Carbon tetrachloride	ND	0.50	11	"	n	н	"	"	
Chlorobenzene	ND	0.50	11	**	#	#	"	"	
Chloroethane	ND	1.0	11	"	**	"	"	"	
Chloroform	ND	1.0	н	"	**	**	"	"	
Chloromethane	ND	1.0	н	"	**	"		**	
Dibromochloromethane	ND	0.50	"	"	"	"	"	Ħ	
1,2-Dibromoethane (EDB)	ND	0.50	*	"	11	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	**	"	
1,3-Dichlorobenzene	ND	0.50	"	"	11	11	"	"	
1,4-Dichlorobenzene	ND	0.50	11	"	"	н	"	"	
Dichlorodifluoromethane	ND	0.50	"	"	**	H	"	11	
1,1-Dichloroethane	ND	0.50	**	"	**	n	"	"	
1,2-Dichloroethane	ND	0.50	**	"	**	H	"	"	
1,1-Dichloroethene	ND	0.50	11	"	"	Ħ	**	и	
cis-1,2-Dichloroethene	0.68	0.50	11	"	,,	н	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	*	**	н	"	"	
1,2-Dichloropropane	ND	0.50	**	"	**	,	**	"	
cis-1,3-Dichloropropene	ND	0.50	11	"	**	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	11	"	**	"	**	9	
Methylene chloride	ND	1.0	ч	"	**	"	"	II .	
1,1,2,2-Tetrachloroethane	ND	1.0	**	"	"	"	"	"	
Tetrachloroethene	ND	0.50	**	Ħ	"	11	"	н	
1,1,1-Trichloroethane	ND	0.50	**	,	11	п	"	"	
1,1,2-Trichloroethane	ND	0.50	**	Ħ	"	**	"	"	
Trichloroethene	2.5	0.50	"	"	**	"	"	**	
Trichlorofluoromethane	ND	0.50	11		"	"	"	m	
Vinyl chloride	ND	0.50	"	"	"	"	H	"	
Surrogate: 1,2-DCA-d4		99 %	70	-130	"	"	"	"	
Surrogate: Toluene-d8		93 %	70	-130	"	"	"	n	
Surrogate: 4-BFB		98 %	70	-130	"	"	"	"	



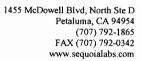


Project:IRCTS
Project Number:42060
Project Manager:Rodney Fricke

S602280 Reported: 03/02/06 19:43

### EPA 601 Volatile Organic Compounds by EPA Method 624 Sequoia Analytical - Sacramento

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
STSW 166 (S602280-01) Water	Sampled: 02/14/06 10:18	Receive	ed: 02/15/	06 10:20					
Bromodichloromethane	ND	0.50	ug/l	1	6020305	02/28/06	02/28/06	EPA 624	
Bromoform	ND	0.50	"	"	"	"	"	"	
Bromomethane	ND	1.0	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	"	"	"	"	"	
Chloroethane	ND	1.0	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Chloromethane	ND	1.0	"	*	"	"	"	•	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	**	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"	#	"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,1-Dichloroethane	ND	0.50	11	"	*	"	#	**	
1,2-Dichloroethane	ND	0.50	"	"	"	"	"	**	
1,1-Dichloroethene	ND	0.50	"	"	"	**	"	**	
cis-1,2-Dichloroethene	0.52	0.50	"	"	"	**	"	**	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	**	"	*	
1,2-Dichloropropane	ND	0.50	"	"	"	**	"	**	
cis-1,3-Dichloropropene	ND	0.50	*	"	*	"	"	**	
trans-1,3-Dichloropropene	ND	0.50	"	"	**	**	"	**	
Methylene chloride	ND	1.0	"	"	"	"	"	**	
1,1,2,2-Tetrachloroethane	ND	1.0	"	"	n	"		"	
Tetrachloroethene	ND	0.50	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.50	"	"	*	"	"	**	
1,1,2-Trichloroethane	ND	0.50	"	"	*	11	"	"	
Trichloroethene	2.6	0.50	"	"	"	"	"	**	
Trichlorofluoromethane	ND	0.50	"	"	"	"	11	"	
Vinyl chloride	ND	0.50	"	"	"	"	"		
Surrogate: 1,2-DCA-d4		133 %	70-	130	"	"	"	"	S01
Surrogate: Toluene-d8		105 %	70	130	"	"	"	"	
Surrogate: 4-BFB		99 %	70-	130	"	"	"	"	



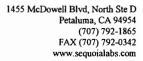


Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P411347 Reported: 11/29/04 12:22

STSW 38A (P411347-15) Water Sampled: 11/09/04 13:25 Received: 11/11/04 12:10

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
									1100
Bromodichloromethane	ND	0.50	ug/l	1	4110570	11/22/04	11/22/04	EPA 8260B	
Bromoform	ND	0.50	"	"	"	"	"	<b>"</b>	
Bromomethane	ND	0.50	"	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	**	"	*	"	"	
Chlorobenzene	ND	0.50	"	H	"	"	"	"	
Chloroethane	ND	0.50	"	"	"	"	"	*	
Chloroform	ND	0.50	"	"	"	*	"	"	
Chloromethane	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
1,3-Dichlorobenzene	ND	0.50	"	"	"	*	"	"	
1,4-Dichlorobenzene	ND	0.50	"	*	"	"	"	"	
Dichlorodifluoromethane	ND	0.50	"	**	"	*	"	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	"	"	
1,2-Dichloroethane	ND	0.50	"	**	"	"	н	"	
1,1-Dichloroethene	ND	0.50	"	*	"	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	*	"	"	
1,2-Dichloropropane	ND	0.50	"	"	"	*	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
Freon 113	ND	0.50	"	"	"	"	"	"	
Methylene chloride	ND	0.50	"	"	**	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	"	"	"	II .	"	
1,1,2-Trichloroethane	ND	0.50	**	"	"	"	"	*	
1,1,1-Trichloroethane	ND	0.50	*	"	"	H	"	"	
Trichloroethene	31	0.50	"	"	"	"	"	11	
Trichlorofluoromethane	ND	0.50	**	"	*	11	"	"	
Vinyl chloride	ND	0.50	"	"	"	"	"		
Surrogate: Dibromofluoromethane		99 %	84-12	22	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		102 %	74-13	35	"	"	"	"	
Surrogate: Toluene-d8		103 %	84-11	9	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	86-11	9	"	"	"	"	



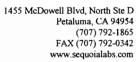


Project:Kleinfelder/IRCTS
Project Number:42060-A01
Project Manager:Rodney Fricke

P504116 Reported: 04/20/05 14:55

STSW 38A (P504116-03) Water Sampled: 04/06/05 11:30 Received: 04/11/05 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
Bromodichloromethane	ND	0.50	ug/l	1	5040131	04/15/05	04/15/05	EPA 8260B	
Bromoform	ND	0.50	"	,	"	"	11	"	
Bromomethane	ND	0.50	**	Ħ	"	**	II.	**	
Carbon tetrachloride	ND	0.50	**		н		п	u .	
Chlorobenzene	ND	0.50	**		"	**	н		
Chloroethane	ND	0.50	"	и	"	*	"	•	
Chloroform	ND	0.50	**		"	"		•	
Chloromethane	ND	0.50	"	*	"	"	**	"	
Dibromochloromethane	ND	0.50			"	•	**	"	
1,2-Dibromoethane (EDB)	ND	0.50	•	"	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	*	"	"	II.	•	
1,3-Dichlorobenzene	ND	0.50	"	"	*	"	II .		
1,4-Dichlorobenzene	ND	0.50	"	н	"	•	ır	"	
Dichlorodifluoromethane	ND	0.50	n	**	"	"	"	"	
1,1-Dichloroethane	ND	0.50	*		**	"	II .	"	
1,2-Dichloroethane	ND	0.50	"		**	**		"	
1,1-Dichloroethene	ND	0.50	•	*	**		"	"	
cis-1,2-Dichloroethene	ND	0.50	"	*	*	"	ıı	"	
trans-1,2-Dichloroethene	ND	0.50	**	*	"	"	н	"	
1,2-Dichloropropane	ND	0.50	•	"		*	"	"	
cis-1,3-Dichloropropene	ND	0.50	**	*	"	*	•	"	
trans-1,3-Dichloropropene	ND	0.50	**	"	**	"	11	"	
Freon 113	ND	0.50	"	**	,	"	"	"	
Methylene chloride	ND	0.50	11	"	"	"	"	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	u	"	"	"	
Tetrachloroethene	ND	0.50		•	11		"	"	
1,1,2-Trichloroethane	ND	0.50	"	*	*	*	fr .	"	
1,1,1-Trichloroethane	ND	0.50	"	•	**	"	**	"	
Trichloroethene	31	0.50	"	**	n	"	"	"	
Trichlorofluoromethane	ND	0.50	"	"	11	"	n	n .	
Vinyl chloride	ND	0.50	"	"	**	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	"		
Surrogate: Dibromofluoromethane		103 %	84-1.	22	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		107 %	74-1.	35	"	"	"	"	
Surrogate: Toluene-d8		101 %	84-1	19	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	86-1	19	"	"	"	"	





Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P411347 Reported: 11/29/04 12:22

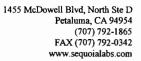
STSW 39A (P411347-12) Water Sampled: 11/09/04 12:55 Received: 11/11/04 12:10

### Volatile Organic Compounds - 8021 list by EPA Method 8260A Sequoia Analytical - Petaluma

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
Bromodichloromethane	ND	0.50	ug/l	1	4110570	11/22/04	11/22/04	EPA 8260B	
Bromoform	ND	0.50	ug/i	"	#	"	"	"	
Bromomethane	ND	0.50		•	#	"	"	#	
Carbon tetrachloride	ND	0.50	"	*	**	"		*	
Chlorobenzene	ND	0.50		,,	"		**		
Chloroethane	ND	0.50	**	•		"	*	n	
Chloroform	17	0.50	17	"	"	"	**	"	
Chloromethane	ND	0.50	**	"	"	**	"	"	
Dibromochloromethane	ND	0.50	,,	"	,	**	"	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	**	*	"	
1,2-Dichlorobenzene	ND	0.50	**	"	"	*	**	"	
1,3-Dichlorobenzene	ND	0.50	"		**	н	"	"	
1,4-Dichlorobenzene	ND	0.50	**	**	*	"	"	п	
Dichlorodifluoromethane	ND	0.50	**	**		"	"	**	
1,1-Dichloroethane	ND	0.50	"	"	"	"	**	"	
1,2-Dichloroethane	ND	0.50		"	n	**	**	**	
1,1-Dichloroethene	ND	0.50	**	"	"	*	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	**	"	**	"	*	
trans-1,2-Dichloroethene	ND	0.50	"	#	"	**	"	*	
1,2-Dichloropropane	ND	0.50	"	"	"	"	**	H	
cis-1,3-Dichloropropene	ND	0.50	"	n	"	"	**	Ħ	
trans-1,3-Dichloropropene	ND	0.50	"	μ	"	"	"	"	
Freon 113	ND	0.50	"	"	"	"	"	**	
Methylene chloride	ND	0.50	"	"	"	*	*	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	"	"	"	
Tetrachloroethene	ND	0.50	"	**	"	"	"	41	
1,1,2-Trichloroethane	ND	0.50	"	U	"	*	*	**	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	"	"	
Trichloroethene	23	0.50	"	"	"	"	"	n	
Trichlorofluoromethane	ND	0.50	"	"	"	"	"	"	
Vinyl chloride	ND	0.50	"	*	"	"		11	
Surrogate: Dibromofluoromethane		103 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		104 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		105 %	84-	119	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %		119	"	"	n	"	

Sequoia Analytical - Petaluma

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Unless otherwise stated, results are reported on a wet weight basis. This analytical report must be reproduced in its entirety.



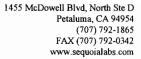


Project:Kleinfelder/IRCTS
Project Number:42060-A01
Project Manager:Rodney Fricke

P504116 Reported: 04/20/05 14:55

STSW 39A (P504116-08) Water Sampled: 04/08/05 09:12 Received: 04/11/05 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Not
Bromodichloromethane	ND	0.50			5040135	04/15/05	04/15/05	EPA 8260B	
Bromoform	ND ND	0.50	ug/l "	1	3040133	04/15/05	04/15/05	EPA 8200B	
Bromomethane	ND ND	0.50	н		,,	,,	и		
Carbon tetrachloride	ND	0.50		11	,,	,,	и		
Carbon tetractionide Chlorobenzene	ND ND	0.50		n	"			,	
Chloroethane	ND ND	0.50				,,	"	,	
Chloroform	18	0.50		**	н		"	,	
Chloromethane	ND	0.50	,	,,	"	"			
Dibromochloromethane	ND	0.50		*	"	,,	**		
1,2-Dibromoethane (EDB)	ND	0.50		n	"		,,	"	
1,2-Dichlorobenzene	ND	0.50	**	н		,	11	*	
1,3-Dichlorobenzene	ND	0.50			,,	"		"	
1,4-Dichlorobenzene	ND	0.50	**	**	**		"		
Dichlorodifluoromethane	ND	0.50	н						
1,1-Dichloroethane	ND	0.50				п	"	*	
1,2-Dichloroethane	ND	0.50	**	**	**	11	**	*	
1,1-Dichloroethene	ND	0.50		**	**	**	н	•	
cis-1,2-Dichloroethene	ND	0.50	"	*	"	**	n		
trans-1,2-Dichloroethene	ND	0.50		**	**	•	"	,	
1,2-Dichloropropane	ND	0.50	**		**	•	"	,	
cis-1,3-Dichloropropene	ND	0.50	•	,,	"	"		"	
trans-1,3-Dichloropropene	ND	0.50	"	"	"	,,	"		
Freon 113	ND	0.50		"	"	**	"		
Methylene chloride	ND	0.50	"	11	"		"		
1,1,2,2-Tetrachloroethane	ND	0.50	**	**	"	"	"	•	
Tetrachloroethene	ND	0.50	"	**	,,	"	II	"	
1,1,2-Trichloroethane	ND	0.50		"	"	"	н	*	
1,1,1-Trichloroethane	ND	0.50			ıı	**	"	*	
Trichloroethene	24	0.50	**	,,	"	"		**	
Trichlorofluoromethane	ND	0.50		*	"	"	"		
Vinyl chloride	ND	0.50	"	"	**	"		*	
Surrogate: Dibromofluoromethane		107 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		105 %		135	"	"	"	"	
Surrogate: Toluene-d8		111 %	84-		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		116 %	86-		"	"	"	"	



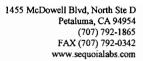


Project:Kleinfelder/IRCTS
Project Number:23-482130-A01
Project Manager:Rodney Fricke

P411347 Reported: 11/29/04 12:22

STSW 39B (P411347-11) Water Sampled: 11/09/04 11:30 Received: 11/11/04 12:10

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Bromodichloromethane	ND	0.50	ug/l	1	4110570	11/22/04	11/22/04	EPA 8260B	
Bromoform	ND	0.50	"	"	*		"	"	
Bromomethane	ND	0.50	"	"	"	"	n	"	
Carbon tetrachloride	ND	0.50	"	11	"	"	"	"	
Chlorobenzene	ND	0.50	**	11	"	*	Ħ	*	
Chloroethane	ND	0.50	"	**	"	*	**		
Chloroform	ND	0.50	"	*	"	*	*		
Chloromethane	ND	0.50	"	Ħ	n	"	"	"	
Dibromochloromethane	ND	0.50	"	n	"	ıı .	"	. "	
1,2-Dibromoethane (EDB)	ND	0.50	"	II.	"	"	"	"	
1,2-Dichlorobenzene	ND	0.50	"	u	"	"	n	**	
1,3-Dichlorobenzene	ND	0.50	"	"	"	"		"	
1,4-Dichlorobenzene	ND	0.50	"	"	"	"	"	"	
Dichlorodifluoromethane	ND	0.50	"	Ħ	"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"		"	"	**	
1,2-Dichloroethane	ND	0.50	"	**	"	"	"	"	
1,1-Dichloroethene	ND	0.50	"	"	"	"	n	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	"	
trans-1,2-Dichloroethene	ND	0.50	"	"	"	"	"	*	
1,2-Dichloropropane	ND	0.50	"	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	11	u	"	"	**	*	
trans-1,3-Dichloropropene	ND	0.50	*	"	"	"	"	"	
Freon 113	ND	0.50	**	**	"	"	"	"	
Methylene chloride	ND	0.50	**	**	"	"	u	•	
1,1,2,2-Tetrachloroethane	ND	0.50	"	**	**	"	**	"	
Tetrachloroethene	ND	0.50	"	**	**	"	"	"	
1,1,2-Trichloroethane	ND	0.50	"	"	"	"	"	"	
1,1,1-Trichloroethane	ND	0.50	"	"	"	"	н	"	
Trichloroethene	2.1	0.50	"	"	ч	"	*	"	
Trichlorofluoromethane	ND	0.50	"	**	**	"	**	"	
Vinyl chloride	ND	0.50		h	"	"	"	"	
Surrogate: Dibromofluoromethane		99 %	84-	122	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		104 %	74-	135	"	"	"	"	
Surrogate: Toluene-d8		104 %	84-	119	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	86-	119	"	"	"	"	





Project:Kleinfelder/IRCTS
Project Number:42060-A01
Project Manager:Rodney Fricke

P504116 Reported: 04/20/05 14:55

STSW 39B (P504116-04) Water Sampled: 04/06/05 13:39 Received: 04/11/05 11:40

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	No
			Units	Dilution					
Bromodichloromethane	ND	0.50	ug/l	1	5040131	04/15/05	04/15/05	EPA 8260B	
Bromoform	ND	0.50	"	**	"	"	**	•	
Bromomethane	ND	0.50	"	"	11	**	"	"	
Carbon tetrachloride	ND	0.50	"	"	"	"	"	"	
Chlorobenzene	ND	0.50	"	18	"	"	**	"	
Chloroethane	ND	0.50	н	18	**	"	n	*	
Chloroform	ND	0.50	**	"	"	"	**	"	
Chloromethane	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	н	"	
1,2-Dibromoethane (EDB)	ND	0.50	"	"	"	"	*		
,2-Dichlorobenzene	ND	0.50	"	"	**	"	**	"	
1,3-Dichlorobenzene	ND	0.50	**	•	"	**	н	"	
1,4-Dichlorobenzene	ND	0.50	"	•	**	"	II .	"	
Dichlorodifluoromethane	ND	0.50	"		"	"	"	"	
1,1-Dichloroethane	ND	0.50	"	"	11	*	n	"	
1,2-Dichloroethane	ND	0.50	H	11	u	"	II .	u	
1,1-Dichloroethene	ND	0.50	"	n	н	"	"	u u	
eis-1,2-Dichloroethene	ND	0.50	ч	D	u u	"	*	*	
rans-1,2-Dichloroethene	ND	0.50	"	"	н	"	11	"	
1,2-Dichloropropane	ND	0.50	"	*	**	*	**	"	
eis-1,3-Dichloropropene	ND	0.50	n	**	**	11	#	"	
rans-1,3-Dichloropropene	ND	0.50	"	"	11	"	**	•	
Freon 113	ND	0.50	"	H*	"	"	"	n	
Methylene chloride	ND	0.50	"	"	"	"	11	"	
1,1,2,2-Tetrachloroethane	ND	0.50	"	"	"	**	11	"	
Tetrachloroethene	ND	0.50	n .		,	"	"	"	
1,1,2-Trichloroethane	ND	0.50	•	.,	**	"	*	"	
,1,1-Trichloroethane	ND	0.50	•	**	*	*	**	*	
Trichloroethene	1.9	0.50			"	"	11	•	
Trichlorofluoromethane	ND	0.50	"	и	"	**.	n	"	
Vinyl chloride	ND	0.50	*	"	**	*	n	"	
Surrogate: Dibromofluoromethane		98 %	84-1.	22	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		103 %	74-1.	35	"	"	"	"	
Surrogate: Toluene-d8		96 %	84-1	19	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	86-1	19	"	"	n	"	





GeoSyntec Consultants - Oakland

475 14th St, Suite 450 Oakland CA, 94612 Project: Aerojet-WNN

Project Number: NA

Project Manager: Graham Bradner

S407055 **Reported:** 07/16/04 11:14

# EPA 601/602 Volatile Organic Compounds by EPA Method 624

### Sequoia Analytical - Sacramento

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
80A-0701-1050 (S407055-02) Water	Sampled: 07/01/0	4 10:50 Rec	eived: 0	7/01/04 14	:15				
Benzene	ND	0.50	ug/l	1	4070161	07/13/04	07/13/04	EPA 624	
Bromodichloromethane	ND	0.50	19	**	11	"	"		
Bromoform	ND	0.50	11	11	"	"	"	"	
Bromomethane	ND	1.0	**	"	"	"	"	"	
Carbon tetrachloride	ND	0.50	"	"	**	"	"	**	
Chlorobenzene	ND	0.50	"	11	"	"	"	"	
Chloroethane	ND	0.50	"	u	"	"	"	"	
Chloromethane	ND	0.50	"	**	**	"	**	**	
Chloroform	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	**	"	"	"	
Ethylbenzene	ND	0.50	"	"	"	"	**	**	
1,2-Dichlorobenzene	ND	0.50	"	"	**	"	"	**	
1,3-Dichlorobenzene	ND	0.50	"	11	"	"	"	"	
1,4-Dichlorobenzene	ND	0.50	"	**	"	"	**	"	
1,1-Dichloroethane	ND	0.50	"	"	"	"	**	"	
1,2-Dichloroethane	ND	0.50	11	n	"	"	"	"	
1,1-Dichloroethene	ND	0.50	**	"	**	"	"	"	
cis-1,2-Dichloroethene	ND	0.50	"	"	"	"	*	**	
trans-1,2-Dichloroethene	ND	0.50	u	11	"	**	"	"	
1,2-Dichloropropane	ND	0.50	**	"	"	"	"	"	
cis-1,3-Dichloropropene	ND	0.50	"	"	"	"	"	"	
trans-1,3-Dichloropropene	ND	0.50		"	"	"	"	"	
Methylene chloride	ND	1.0	**	**	**	"	"	"	
1,1,1-Trichloroethane	ND	0.50	"	**	"	**	"	"	
1,1,2,2-Tetrachloroethane	ND	1.0	*1	11	"	"	"		
Tetrachloroethene	ND	0.50	**	**	**	н	*	**	
Toluene	ND	0.50	"	"	"	**	**	"	
1,1,2-Trichloroethane	ND	0.50	и	"	"	"	**	"	
Trichlorofluoromethane	ND	0.50	"	11	"	**	"	"	
Trichloroethene	1.2	0.50	"	11	"	"	"	*	
Vinyl chloride	ND	0.50	"	н	**	"	"	*	
Xylenes (total)	ND	0.50	**	**	"	**	"	"	
Surrogate: 1,2-DCA-d4		109 %	70-	130	"	,,	"	"	
Surrogate: Toluene-d8		106 %	70-	130	"	"	"	"	
Surrogate: 4-BFB		104 %	70-	130	"	"	"	,,	



Client Sample ID:

STSW-138A

Lab Sample ID:

C5513-16

By

BD

Date Sampled: 04/30/09 Date Received: 05/01/09

Matrix: Method: AQ - Ground Water SW846 8260B

DF

1

Percent Solids: n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

Analyzed

05/05/09

Prep Date n/a

Prep Batch n/a

**Analytical Batch** VW202

Run #1 Run #2

Purge Volume

Run #1

10.0 ml

File ID

W5946.D

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	0.79	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
<b>78-87</b> -5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	30.1	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 2 of 2

Client Sample ID: STSW-138A

Lab Sample ID: Matrix:

C5513-16

Date Sampled: 04/30/09

Method:

AQ - Ground Water SW846 8260B

Date Received: 05/01/09 Percent Solids: n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

### VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		60-130%
2037-26-5	Toluene-D8	100%		60-130%
460-00-4	4-Bromofluorobenzene	95%		60-130%

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 1

Client Sample ID: STSW-138A

Lab Sample ID:

C5513-16

AQ - Ground Water

Date Sampled: 04/30/09

Date Received: 05/01/09 Percent Solids: n/a

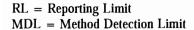
Project:

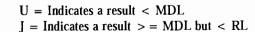
Matrix:

SL205493018-Inactive Rancho Cordova Test Site

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	Ву	Method
Perchlorate by IC Perchlorate	1010	200	91	ug/l	50	05/05/09 17:13	HD	EPA 314
Specific Conductivity	193	1.0	1.0	umhos/cm	1	05/04/09	RL	SM18 2510B/EPA 120.1







Client	Sample ID:	STSW-38A
--------	------------	----------

Lab Sample ID:

C5513-45

AQ - Ground Water

DF

1

Date Sampled: 05/01/09 Date Received: 05/01/09

Matrix: Method:

SW846 8260B

Percent Solids: n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

Analytical Batch Prep Batch

Run #1

W6020.D Run #2

Analyzed By 05/07/09 BD Prep Date n/a

n/a

VW205

Purge Volume

Run #1

10.0 ml

File ID

Run #2

**VOA Special List** 

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	ND	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	9.2	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected

MDL - Method Detection Limit

J = Indicates an estimated value

RL = Reporting Limit

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound

E = Indicates value exceeds calibration range



Page 2 of 2

Client Sample ID: STSW-38A

Lab Sample ID:

C5513-45

Date Sampled: 05/01/09

Matrix: Method: AQ - Ground Water SW846 8260B

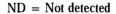
Date Received: 05/01/09 Percent Solids: n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

### VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		60-130%
2037-26-5	Toluene-D8	99%		60-130%
460-00-4	4-Bromofluorobenzene	97%		60-130%



MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 1

Client Sample ID: STSW-38A

Lab Sample ID: Matrix:

C5513-45

AQ - Ground Water

Date Sampled: 05/01/09

Date Received: 05/01/09

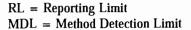
Percent Solids: n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	Ву	Method
Perchlorate by IC Perchlorate	1.8 U	4.0	1.8	ug/l	1	05/05/09 06:12	HD	EPA 314
Specific Conductivity	160	1.0	1.0	umhos/cm	1	05/04/09	RL	SM18 2510B/EPA 120.1



U = Indicates a result < MDLJ = Indicates a result > = MDL but < RL



Client Sample ID: STSW-80A

Lab Sample ID:

C5513-41

AQ - Ground Water

1

Date Sampled: 05/01/09 Date Received: 05/01/09

Matrix: Method:

SW846 8260B

Percent Solids: n/a

n/a

Project:

SL205493018-Inactive Rancho Cordova Test Site

05/07/09

File ID DF Analyzed Prep Date By

BD

Prep Batch n/a

Analytical Batch VW205

Run #1 Run #2

Purge Volume

Run #1

10.0 ml

W6016.D

Run #2

VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	0.45	0.50	0.30	ug/l	J
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	30.1	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected

MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Client Sample ID: STSW-80A

Lab Sample ID:

C5513-41

AQ - Ground Water

Date Sampled: 05/01/09

Matrix:

Percent Solids: n/a

Date Received: 05/01/09

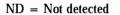
Method:

SW846 8260B SL205493018-Inactive Rancho Cordova Test Site

Project:

### VOA Special List

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	97%		60-130%
2037-26-5	Toluene-D8	100%		60-130%
460-00-4	4-Bromofluorobenzene	95%		60-130%



MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound



Page 1 of 1

Client Sample ID: STSW-80A

Lab Sample ID:

C5513-41

AQ - Ground Water

Date Sampled: 05/01/09

Date Received: 05/01/09

Percent Solids: n/a

Project:

Matrix:

SL205493018-Inactive Rancho Cordova Test Site

General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	Ву	Method
Perchlorate by IC Perchlorate	3.7 J	4.0	1.8	ug/l	1	05/06/09 12:02	HD	EPA 314
Specific Conductivity	159	1.0	1.0	umhos/cm	1	05/04/09	RL	SM18 2510B/EPA 120.1





09/30/09



### Technical Report for

Aerojet

SL205493018-Aerojet-Inactive Rancho Cordova Test Site

WNN-IRCTS GW Monitoring

Accutest Job Number: C7478

Sampling Date: 09/15/09

### Report to:

Aerojet-General Corporation 10951 White Rock Road, Suite B Rancho Cardova, CA 95670

rodney.fricke@aerojet.com; kerik.kouklis@aerojet.com; randy.kellerman@ch2m.com; tleo@elmontgomery.com

ATTN: Rodney Fricke

Total number of pages in report: 74





Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.

Client Service contact: Anne Kathain 408-588-0200

Certifications: CA (08258CA)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.



Laurie Glantz-Murphy

**Laboratory Director** 

### **Sections:**

# W

### G

### 0

<b>Fable of Contents</b>
--------------------------

-1	

Section 1: Sample Summary	3
Section 2: Sample Results	5
<b>2.1:</b> C7478-1: WNN-MW-1	6
<b>2.2:</b> C7478-1F: WNN-MW-1	10
<b>2.3:</b> C7478-2: STSW-38A	11
<b>2.4:</b> C7478-2F: STSW-38A	
<b>2.5:</b> C7478-3: STSW-39A-PURGE	16
<b>2.6:</b> C7478-3F: STSW-39A-PURGE	20
<b>2.7:</b> C7478-4: STSW-39A-BAG	21
<b>2.8:</b> C7478-5: STSW-78A	24
<b>2.9:</b> C7478-5F: STSW-78A	
<b>2.10:</b> C7478-6: STSW-138A-PURGE	29
<b>2.11:</b> C7478-6F: STSW-138A-PURGE	33
<b>2.12:</b> C7478-7: STSW-138A-BAG	34
<b>2.13:</b> C7478-8: STSW-166	37
<b>2.14:</b> C7478-8F: STSW-166	41
Section 3: Misc. Forms	<b>42</b>
3.1: Chain of Custody	43
Section 4: GC/MS Volatiles - QC Data Summaries	44
4.1: Method Blank Summary	45
4.2: Blank Spike Summary	48
4.3: Matrix Spike/Matrix Spike Duplicate Summary	54
Section 5: Metals Analysis - QC Data Summaries	58
<b>5.1:</b> Prep QC MP1609: Fe,Mn	59
<b>5.2:</b> Prep QC MP1637: Fe,Mn	64
Section 6: General Chemistry - QC Data Summaries	69
6.1: Method Blank and Spike Results Summary	70
6.2: Blank Spike Duplicate Results Summary	71
6.3: Duplicate Results Summary	72
6.4: Matrix Spike Results Summary	73
6.5: Matrix Spike Duplicate Results Summary	74



# **Sample Summary**

Aerojet

Job No: C7478

SL205493018-Aerojet-Inactive Rancho Cordova Test Site Project No: WNN-IRCTS GW Monitoring

Sample Number	Collected Date	Time By	Received	Matri		Client Sample ID
runner	Date	тине ву	Received	Coue	Type	запіріс 11
C7478-1	09/15/09	10:20 ERIC	09/16/09	AQ	Ground Water	WNN-MW-1
C7478-1F	09/15/09	10:20 ERIC	09/16/09	AO	Groundwater Filtered	WNN-MW-1
C7478-2	00/15/00	13-17 EDIC	00/16/00	40	Ground Water	STSW-38A
C1410-2	09/13/09	13.17 EKIC	09/10/09	AQ	Ground Water	313W-30A
~=			00/4 4/00			GT GT 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4
C7478-2F	09/15/09	13:17 ERIC	09/16/09	AQ	Groundwater Filtered	STSW-38A
C7478-3	09/15/09	09:32 ERIC	09/16/09	AQ	Ground Water	STSW-39A-PURGE
C7478-3F	09/15/09	09:32 ERIC	09/16/09	AQ	Groundwater Filtered	STSW-39A-PURGE
C7478-4	09/15/09	09:15 ERIC	09/16/09	AO	Ground Water	STSW-39A-BAG
C7478-5	00/15/00	11.21 EDIC	00/16/00	40	Ground Water	STSW-78A
C1416-3	09/13/09	11.21 EKIC	09/10/09	AQ	Ground Water	313W-/0A
~= .= . = .			00/4 4/00			
C7478-5F	09/15/09	11:21 ERIC	09/16/09	AQ	Groundwater Filtered	STSW-78A
C7478-6	09/15/09	12:35 ERIC	09/16/09	AQ	Ground Water	STSW-138A-PURGE
C7478-6F	09/15/09	12:35 ERIC	09/16/09	AQ	Groundwater Filtered	STSW-138A-PURGE
C7478-7	09/15/09	12:20 ERIC	09/16/09	AQ	Ground Water	STSW-138A-BAG
C7479 9	00/15/00	08-26 EDIC	00/16/00	40	Ground Water	CTCW 166
C/4/0-0	07/13/09	00.20 EKIC	07/10/09	AŲ	Ground water	919 M-100
C7478-7 C7478-8					Ground Water Ground Water	STSW-138A-BAG STSW-166





# Sample Summary (continued)

Aerojet

Job No: C7478

SL205493018-Aerojet-Inactive Rancho Cordova Test Site Project No: WNN-IRCTS GW Monitoring

Sample	Collected			Matri	ix	Client
Number	Date	Time By	Received	Code	Type	Sample ID
C7478-8F	09/15/09	08:26 ERIC	09/16/09	AQ	Groundwater Filtered	STSW-166



# Sample Results

Report of Analysis



Page 1 of 2

Client Sample ID: WNN-MW-1

 Lab Sample ID:
 C7478-1
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch
Run #1 W8510.D 1 09/25/09 BD n/a n/a VW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	ND	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.54	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	32.8	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Page 2 of 2

Client Sample ID: WNN-MW-1

Lab Sample ID: C7478-1 **Date Sampled:** 09/15/09 Matrix: **Date Received:** 09/16/09 AQ - Ground Water Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
	Dibromofluoromethane	99%		60-130%
2037-26-5	Toluene-D8	105%		60-130%
460-00-4	4-Bromofluorobenzene	104%		60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value

RL = Reporting Limit

E = Indicates value exceeds calibration range

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Page 1 of 1

Client Sample ID: WNN-MW-1

Lab Sample ID:C7478-1Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	9800	50	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	495	5.0	ug/l	1	09/18/09	09/24/09 ст	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

### of 1

# **Report of Analysis**

Page 1 of 1

Client Sample ID: WNN-MW-1

Lab Sample ID:C7478-1Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	72.6	8.0	3.6	ug/l	2	09/17/09 16:04	HU	EPA 314
					_			
Specific Conductivity	178	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Page 1 of 1

Client Sample ID: WNN-MW-1

Lab Sample ID:C7478-1FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	1040	50	ug/l	1	09/29/09	09/29/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	465	5.0	ug/l	1	09/29/09	09/29/09 ст	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637

Page 1 of 2

Client Sample ID: STSW-38A

 Lab Sample ID:
 C7478-2
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch
Run #1 W8511.D 1 09/25/09 BD n/a n/a VW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	ND	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	0.31	0.50	0.30	ug/l	J
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	36.2	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Page 2 of 2

Client Sample ID: STSW-38A

Lab Sample ID: C7478-2 **Date Sampled:** 09/15/09 Matrix: **Date Received:** 09/16/09 AQ - Ground Water Method: Percent Solids: n/a SW846 8260B **Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	101% 106%		60-130% 60-130%
460-00-4	4-Bromofluorobenzene	104%		60-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank N = Indicates presumptive evidence of a compound



Page 1 of 1

Client Sample ID: STSW-38A

Lab Sample ID:C7478-2Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

#### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	276	50	ug/l	1	09/18/09	09/24/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	5.0	5.0	ug/1	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

Page 1 of 1

Client Sample ID: STSW-38A

Lab Sample ID:C7478-2Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	1.8 U	4.0	1.8	ug/l	1	09/17/09 12:42	HU	EPA 314
Specific Conductivity	196	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

 $RL = \ Reporting \ Limit \\ U = \ Indicates \ a \ result < \ MDL$ 



Page 1 of 1

Client Sample ID: STSW-38A

Lab Sample ID:C7478-2FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 50	50	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	< 5.0	5.0	ug/l	1	09/29/09	09/29/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637

Page 1 of 2

Client Sample ID: STSW-39A-PURGE

 Lab Sample ID:
 C7478-3
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch
Run #1 W8512.D 1 09/25/09 BD n/a n/a VW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	24.2	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	63.1	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates and Indicates a

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Page 2 of 2

Client Sample ID: STSW-39A-PURGE

Lab Sample ID: C7478-3 **Date Sampled:** 09/15/09 Matrix: **Date Received:** 09/16/09 AQ - Ground Water Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
	Dibromofluoromethane	100%		60-130%
2037-26-5 460-00-4	Toluene-D8 4-Bromofluorobenzene	106% 103%		60-130% 60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value

RL = Reporting Limit

E = Indicates value exceeds calibration range



Page 1 of 1

Client Sample ID: STSW-39A-PURGE

Lab Sample ID:C7478-3Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

#### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	3930	50	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	138	5.0	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

Page 1 of 1

Client Sample ID: STSW-39A-PURGE

Lab Sample ID:C7478-3Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	3220	400	180	ug/l	100	09/18/09 11:43	HU	EPA 314
Specific Conductivity	212	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Page 1 of 1

Client Sample ID: STSW-39A-PURGE

Lab Sample ID:C7478-3FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	< 50	50	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	< 5.0	5.0	ug/l	1	09/29/09	09/29/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637

Page 1 of 2

Client Sample ID: STSW-39A-BAG

Lab Sample ID: C7478-4 **Date Sampled:** 09/15/09 Matrix: AQ - Ground Water **Date Received:** 09/16/09 Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF **Prep Date Prep Batch Analytical Batch** Analyzed By VW298 Run #1 W8513.D 1 09/25/09 BD n/a n/a

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	18.0	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	19.9	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Page 2 of 2

Client Sample ID: STSW-39A-BAG

Lab Sample ID: C7478-4 **Date Sampled:** 09/15/09 Matrix: AQ - Ground Water **Date Received:** 09/16/09 Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
	Dibromofluoromethane	100%		60-130%
2037-26-5	Toluene-D8	105%		60-130%
460-00-4	4-Bromofluorobenzene	103%		60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value

RL = Reporting Limit

E = Indicates value exceeds calibration range



### N

## **Report of Analysis**

Page 1 of 1

Client Sample ID: STSW-39A-BAG

Lab Sample ID:C7478-4Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	2990	320	150	ug/l	80	09/18/09 11:57	HU	EPA 314
Specific Conductivity	220	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Page 1 of 2

Client Sample ID: STSW-78A

 Lab Sample ID:
 C7478-5
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch Run #1 W8545.D 1.67 09/26/09 BD n/a n/a VW299

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.84	0.50	ug/l	
75-25-2	Bromoform	ND	0.84	0.84	ug/l	
108-90-7	Chlorobenzene	ND	0.84	0.50	ug/l	
75-00-3	Chloroethane	ND	0.84	0.50	ug/l	
67-66-3	Chloroform	8.2	0.84	0.50	ug/l	
56-23-5	Carbon tetrachloride	ND	0.84	0.33	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.84	0.50	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.84	0.33	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.84	0.50	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.84	0.50	ug/l	
124-48-1	Dibromochloromethane	ND	0.84	0.33	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.84	0.50	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.84	0.50	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.84	0.84	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.84	0.50	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.84	0.50	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.84	0.50	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.84	0.50	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.84	0.33	ug/l	
76-13-1	Freon 113	ND	0.84	0.84	ug/l	
74-83-9	Methyl bromide	ND	8.4	2.5	ug/l	
75-09-2	Methylene chloride	ND	17	8.4	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.84	0.33	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.84	0.33	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.84	0.33	ug/l	
127-18-4	Tetrachloroethylene	ND	0.84	0.33	ug/l	
79-01-6	Trichloroethylene	96.9	0.84	0.50	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.84	0.50	ug/l	
75-01-4	Vinyl chloride	ND	0.84	0.50	ug/l	

ND = Not detected MDL - Method Detection Limit J = Indicates Indicates

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Page 2 of 2

Client Sample ID: STSW-78A

Lab Sample ID: C7478-5 **Date Sampled:** 09/15/09 Matrix: **Date Received:** 09/16/09 AQ - Ground Water Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	101% 105%		60-130% 60-130%
460-00-4	4-Bromofluorobenzene	104%		60-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Page 1 of 1

Client Sample ID: STSW-78A

Lab Sample ID:C7478-5Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

#### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	457	50	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	40.5	5.0	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

Page 1 of 1

Client Sample ID: STSW-78A

Lab Sample ID:C7478-5Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	1420	160	73	ug/l	40	09/18/09 11:28	HU	EPA 314
Specific Conductivity	171	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Page 1 of 1

Client Sample ID: STSW-78A

Lab Sample ID:C7478-5FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	< 50	50	ug/l	1	09/29/09	09/29/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	< 5.0	5.0	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637

Client Sample ID: STSW-138A-PURGE

 Lab Sample ID:
 C7478-6
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File ID DF Analyzed By Prep Date Prep Batch Analytical Batch
Run #1 W8515.D 1 09/25/09 BD n/a n/a VW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	1.5	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	30.8	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



#### Page 2 of 2

### **Report of Analysis**

Client Sample ID: STSW-138A-PURGE

Lab Sample ID: C7478-6 **Date Sampled:** 09/15/09 Matrix: AQ - Ground Water **Date Received:** 09/16/09 Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	101% 106%		60-130% 60-130%
460-00-4	4-Bromofluorobenzene	105%		60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value

RL = Reporting Limit

E = Indicates value exceeds calibration range



Page 1 of 1

Client Sample ID: STSW-138A-PURGE

Lab Sample ID:C7478-6Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	500	50	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	8.4	5.0	ug/l	1	09/18/09	09/24/09 ст	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

1

## **Report of Analysis**

Page 1 of 1

Client Sample ID: STSW-138A-PURGE

Lab Sample ID:C7478-6Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	2250	400	180	ug/l	100	09/18/09 12:12	HU	EPA 314
				8		0,7, 10, 0,7 12,112		
Specific Conductivity	164	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Page 1 of 1

Client Sample ID: STSW-138A-PURGE

Lab Sample ID:C7478-6FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	< 50	50	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	< 5.0	5.0	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637

Page 1 of 2

Client Sample ID: STSW-138A-BAG

 Lab Sample ID:
 C7478-7
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

File IDDFAnalyzedByPrep DatePrep BatchAnalytical BatchRun #1W8516.D109/26/09BDn/an/aVW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	0.85	0.50	0.30	ug/l	
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	29.1	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Client Sample ID: STSW-138A-BAG

Lab Sample ID: C7478-7 **Date Sampled:** 09/15/09 Matrix: AQ - Ground Water **Date Received:** 09/16/09 Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
	Dibromofluoromethane	102%		60-130%
2037-26-5 460-00-4	Toluene-D8 4-Bromofluorobenzene	105% 105%		60-130% 60-130%

ND = Not detected MDL - Method Detection Limit J = Indicates an estimated value

RL = Reporting Limit

E = Indicates value exceeds calibration range



1

## **Report of Analysis**

Page 1 of 1

Client Sample ID: STSW-138A-BAG

Lab Sample ID:C7478-7Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	813	100	46	ug/l	25	09/17/09 18:00	HU	EPA 314
Specific Conductivity	224	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL

MDL = Method Detection Limit J = Indicates a result > = MDL but < RL



Client Sample ID: STSW-166

 Lab Sample ID:
 C7478-8
 Date Sampled:
 09/15/09

 Matrix:
 AQ - Ground Water
 Date Received:
 09/16/09

 Method:
 SW846 8260B
 Percent Solids:
 n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Run #1 W8517.D DF Analyzed By Prep Date Prep Batch Analytical Batch N/a VW298

Run #2

**Purge Volume** 

Run #1 10.0 ml

Run #2

#### **VOA Special List**

CAS No.	Compound	Result	RL	MDL	Units	Q
75-27-4	Bromodichloromethane	ND	0.50	0.30	ug/l	
75-25-2	Bromoform	ND	0.50	0.50	ug/l	
108-90-7	Chlorobenzene	ND	0.50	0.30	ug/l	
75-00-3	Chloroethane	ND	0.50	0.30	ug/l	
67-66-3	Chloroform	0.32	0.50	0.30	ug/l	J
56-23-5	Carbon tetrachloride	ND	0.50	0.20	ug/l	
75-34-3	1,1-Dichloroethane	ND	0.50	0.30	ug/l	
75-35-4	1,1-Dichloroethylene	ND	0.50	0.20	ug/l	
107-06-2	1,2-Dichloroethane	ND	0.50	0.30	ug/l	
78-87-5	1,2-Dichloropropane	ND	0.50	0.30	ug/l	
124-48-1	Dibromochloromethane	ND	0.50	0.20	ug/l	
75-71-8	Dichlorodifluoromethane	ND	0.50	0.30	ug/l	
156-59-2	cis-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-01-5	cis-1,3-Dichloropropene	ND	0.50	0.50	ug/l	
541-73-1	m-Dichlorobenzene	ND	0.50	0.30	ug/l	
95-50-1	o-Dichlorobenzene	ND	0.50	0.30	ug/l	
106-46-7	p-Dichlorobenzene	ND	0.50	0.30	ug/l	
156-60-5	trans-1,2-Dichloroethylene	ND	0.50	0.30	ug/l	
10061-02-6	trans-1,3-Dichloropropene	ND	0.50	0.20	ug/l	
76-13-1	Freon 113	ND	0.50	0.50	ug/l	
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l	
75-09-2	Methylene chloride	ND	10	5.0	ug/l	
71-55-6	1,1,1-Trichloroethane	ND	0.50	0.20	ug/l	
79-34-5	1,1,2,2-Tetrachloroethane	ND	0.50	0.20	ug/l	
79-00-5	1,1,2-Trichloroethane	ND	0.50	0.20	ug/l	
127-18-4	Tetrachloroethylene	ND	0.50	0.20	ug/l	
79-01-6	Trichloroethylene	5.7	0.50	0.30	ug/l	
75-69-4	Trichlorofluoromethane	ND	0.50	0.30	ug/l	
75-01-4	Vinyl chloride	ND	0.50	0.30	ug/l	

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



#### Page 2 of 2

### **Report of Analysis**

Client Sample ID: STSW-166

Lab Sample ID: C7478-8 **Date Sampled:** 09/15/09 Matrix: AQ - Ground Water **Date Received:** 09/16/09 Method: Percent Solids: n/a SW846 8260B

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **VOA Special List**

CAS No.	<b>Surrogate Recoveries</b>	Run# 1	Run# 2	Limits
1868-53-7 2037-26-5	Dibromofluoromethane Toluene-D8	101% 106%		60-130% 60-130%
460-00-4	4-Bromofluorobenzene	104%		60-130%

ND = Not detected MDL - Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value



Page 1 of 1

Client Sample ID: STSW-166

Lab Sample ID:C7478-8Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Total Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	<b>Prep Method</b>
Iron	5610	50	ug/l	1	09/18/09	09/24/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	21.2	5.0	ug/l	1	09/18/09	09/24/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA869(2) Prep QC Batch: MP1609

1

## **Report of Analysis**

Page 1 of 1

Client Sample ID: STSW-166

Lab Sample ID:C7478-8Date Sampled:09/15/09Matrix:AQ - Ground WaterDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Perchlorate by IC Perchlorate	1930	400	180	ug/l	100	09/18/09 12:26	HU	EPA 314
				C				
Specific Conductivity	163	1.0	1.0	umhos/cm	1	09/17/09	MF	SM18 2510B/EPA 120.1

RL = Reporting Limit U = Indicates a result < MDL



Page 1 of 1

Client Sample ID: STSW-166

Lab Sample ID:C7478-8FDate Sampled:09/15/09Matrix:AQ - Groundwater FilteredDate Received:09/16/09Percent Solids:n/a

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

### **Dissolved Metals Analysis**

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	612	50	ug/l	1	09/29/09	09/29/09 СТ	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>
Manganese	14.2	5.0	ug/l	1	09/29/09	09/29/09 CT	SW846 6010B <sup>1</sup>	SW3010A <sup>2</sup>

(1) Instrument QC Batch: MA875(2) Prep QC Batch: MP1637





Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody



amir		Vorther	n C	alifornia			CHA	ain		)F	CU	ST	O	DY	7											
101511111							3334 \	√ictor C	ourt, S	Santa C	lara, C	950	)54					FED-EX	Cracking	#				der Control #		
52 4		:CU					(408)	588-02	00	FAX:	(408) 58	8-020	01					Accute	st Quote #				Accutest	NC Job #; C	C74-18	
		Labo	rat	ories																						
		Reporting Info	rmation							t Inform									T	Τ,	<u> </u>		Requested Ana	alysis		Matrix Codes www.water
Company Na	me	Aerojet	ノ	Boeing			Project Na	me:	<u>VN</u>	→ IR	CTS G	roui	1dw	ater	Monii	toring	9		₩ 8	ر ا	1		Field Mea	surements	,	GW- Ground Water
Address		0074 105:14		la Danal Cuita	400		Street													뵘	劉					SW- Surface Water
City			State	k Road, Suite	Zip		City					-	State					1	Light.	21 11 11 11 11	1	o	U			SO- Soll
	o Cord	lova	CA	95	670													8			\$	2				OI-OII WP-Wipe
Project Cont	act:	Rodney F	ricke				Project#											- HVOC	Section Total	4	Dissolute Towns planting	Depth to Water, feet TOC	degrees		sown	LIQ - Non-aqueous Liquid
Phone #		916-358	5-516	1			EMAIL:	r	odne	v.fric	ce@ae	roie	t.coı	m				ist	1		12	ter,	, de		, u	AIR
Samplers's f	lame			O. D.			Client Pur			,	S3212							Short List	1	ate	ä	× ×	t t		iivit	DW- Drinking Water
ļ	انگ	Tic Moss	نزر	mill_	T-		Collection	on.			33212		ber	of pres	erved	Bottle	s	- š	1	皇	Î	t to	oera		duct	(Perchlorate Only)
Accutest							I	Ī			# of	П	$\neg T$	NO3	SNE	PHSO4	7 8	8260	กรี	Perchlorate		ept	Temperature,	표	Conductivity,	LAB USE ONLY
Sample ID	Sample	0		nt of Collection		Date	Time	Sample	ed by	Matrix	bottles	ž Š	МаОн	ž į ĝ	- 2	New New	4	+	68		-					
1	WI	NN-WP	rj_		9/	<u> 15/89</u>	1020	EM		GW	6	3	+	+	3	+	+-	K	X	X	-X	138284	20.9		190.1	
-2	575	5W-38	4		_	<u> </u>	1317	$\sqcup$	_	GW	6	3	$\dashv$	-	3		+	X	04	<u> </u> ×	<u> </u>	13%0	210	8.13	209.0	
-3	575	W-39A	1 - P.	urge		_	9337	4		GW	6	3	_	_	3		1	X	X	X	×	139.60	19.0	7.48	373.9	ļ
-4	575/	W-39A-	-Bac	١		<u></u>	0915			<sub>GW</sub> (	K4	3		$\perp$	1		1	X		<u> </u>	4	138.80	17.8	7.80	2314	
-5	573	5W-78	A	,			1151			GW	6	3			3		L	X	X	X	<u>X</u>	139.20	8.0%	7.8	6.681	
-6	575	W-138/	A . P.	sye	1		1235			GW	6	3			3			X	X	X	X	139.35	21.2	7.9	173.0	
-7	575	W-138A			Τ	Γ	1220			GW	4	3			1.			X		X		139.35	242	80	2498	
-8		5W 166		3	1_	L	081	1	-	GW	6	3		T	3	П	Т	X	K	K	X	176.00	19.9	7.8	1742	
		3-ials		La ColHCL (.		) ,			$\neg$	GW	-	П					Т	1"			Τ					
	<b>†</b>	Jan	6.614	and you	+		<b> </b>	†		GW			$\neg$	$\top$	$\top$		1	1	1							
	Tumaro	und Time ( Busin	ess days	) Isa							liverable (	nforma	tion		asa:								Comments / Res			
X	-	Business Days		App	proved E	By:/ Date	B:			rcial "A' rcial "B'									Di	<50)1	real	tron :	Marrae	nex som	ole ( are	Field Filter
	] 10 Day ] 5 Day (5	i% markup)							Commi	ercial B		=							1				11-	-> ( )		0 2 - (0 5 12 )
	3 Day																									biezeineg
	2 Day	75% markup)		_				-		Geotrac		X	EDD	Form	at .	GIS	Key	- /	1in	£=,	W.	chart	Holde	Vial 2	54(X7)	ult(1)
	Same Da							1		EDF Log				,		9			*	न्छ्या	me	Hals s	amples	Vials 3	red in La	16 to PHCZ
Emer	gency T	/A data avai	lable	VIA Lablink				<u></u>		_/_	1				-//		_		D	isso	ved	motals	: Scamples	Cheid-Fil	terod) 1	1 to pHZZ.
Relingues	ied by Samp	oler	L	Sample Custody r	Date	Time:		Receiv	ach tir ed By:	ne/sam	oles cha	nge r	osse	SSION	includ iindulsh	ding co	urier	delive	ry.		Time:	<i>r</i> .	Receive	nd By:	$\sim$	
1	<u> </u>	He			1	116/0	9)100	1_		<u> </u>		******	2	2	1/		-	_		91	161	0910	1:502/	puca	51M	no
Kelinquis	ned by:				Date	Time:		Receiv	od By:	V				Re	lindulsh	ed By:		-	,	Daltei	Time:		Though the same of	ea sy:		′
3 Relinquis	ned by:				Date	Time:		Receiv	ed By:					4  C1	stody S	gal		Аррк	opriate Bo	ttle / Pres	(Ŷ)N	Head	Ispace Y/N	On ice	(V)N	Cooler Temp.

C7478: Chain of Custody
Page 1 of 1



# GC/MS Volatiles

## QC Data Summaries

### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries



### **Method Blank Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch	
VW298-MB2	W8502.D	1	09/25/09	BD	n/a	n/a	VW298	

Limits

### The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

CAS No.	Compound	Result	RL	MDL	Units Q
75-27-4	Bromodichloromethane	ND	1.0	0.30	ug/l
75-25-2	Bromoform	ND	1.0	0.50	ug/l
108-90-7	Chlorobenzene	ND	1.0	0.30	ug/l
75-00-3	Chloroethane	ND	1.0	0.30	ug/l
67-66-3	Chloroform	ND	1.0	0.30	ug/l
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l
75-34-3	1,1-Dichloroethane	ND	1.0	0.30	ug/l
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l
107-06-2	1,2-Dichloroethane	ND	1.0	0.30	ug/l
78-87-5	1,2-Dichloropropane	ND	1.0	0.30	ug/l
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l
75-71-8	Dichlorodifluoromethane	ND	1.0	0.30	ug/l
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.50	ug/l
541-73-1	m-Dichlorobenzene	ND	1.0	0.30	ug/l
95-50-1	o-Dichlorobenzene	ND	1.0	0.30	ug/l
106-46-7	p-Dichlorobenzene	ND	1.0	0.30	ug/l
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.20	ug/l
76-13-1	Freon 113	ND	5.0	0.50	ug/l
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l
75-09-2	Methylene chloride	ND	20	5.0	ug/l
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.20	ug/l
127-18-4	Tetrachloroethylene	ND	1.0	0.20	ug/l
79-01-6	Trichloroethylene	ND	1.0	0.30	ug/l
75-69-4	Trichlorofluoromethane	ND	1.0	0.30	ug/l
75-01-4	Vinyl chloride	ND	1.0	0.30	ug/l

#### CAS No. Surrogate Recoveries

 1868-53-7
 Dibromofluoromethane
 101%
 60-130%

 2037-26-5
 Toluene-D8
 105%
 60-130%

 460-00-4
 4-Bromofluorobenzene
 105%
 60-130%



### **Method Blank Summary**

**Job Number:** C7478 **Account:** AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

SampleFile IDDFAnalyzedByPrep DatePrep BatchAnalytical IVW299-MBW8529.D109/26/09BDn/an/aVW299	atch
---	------

Limits

The QC reported here applies to the following samples:

C7478-5

CAS No.	Compound	Result	RL	MDL	Units Q
75-27-4	Bromodichloromethane	ND	1.0	0.30	ug/l
75-25-2	Bromoform	ND	1.0	0.50	ug/l
108-90-7	Chlorobenzene	ND	1.0	0.30	ug/l
75-00-3	Chloroethane	ND	1.0	0.30	ug/l
67-66-3	Chloroform	ND	1.0	0.30	ug/l
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l
75-34-3	1,1-Dichloroethane	ND	1.0	0.30	ug/l
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l
107-06-2	1,2-Dichloroethane	ND	1.0	0.30	ug/l
78-87-5	1,2-Dichloropropane	ND	1.0	0.30	ug/l
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l
75-71-8	Dichlorodifluoromethane	ND	1.0	0.30	ug/l
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.50	ug/l
541-73-1	m-Dichlorobenzene	ND	1.0	0.30	ug/l
95-50-1	o-Dichlorobenzene	ND	1.0	0.30	ug/l
106-46-7	p-Dichlorobenzene	ND	1.0	0.30	ug/l
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.20	ug/l
76-13-1	Freon 113	ND	5.0	0.50	ug/l
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l
75-09-2	Methylene chloride	ND	20	5.0	ug/l
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.20	ug/l
127-18-4	Tetrachloroethylene	ND	1.0	0.20	ug/l
79-01-6	Trichloroethylene	ND	1.0	0.30	ug/l
75-69-4	Trichlorofluoromethane	ND	1.0	0.30	ug/l
75-01-4	Vinyl chloride	ND	1.0	0.30	ug/l

### CAS No. Surrogate Recoveries

 1868-53-7
 Dibromofluoromethane
 102%
 60-130%

 2037-26-5
 Toluene-D8
 105%
 60-130%

 460-00-4
 4-Bromofluorobenzene
 106%
 60-130%



### **Method Blank Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	$\mathbf{B}\mathbf{y}$	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
VW298-MB	W8493.D	1	09/25/09	BD	n/a	n/a	VW298

Limits

The QC reported here applies to the following samples:

VW298-BS

CAS No.	Compound	Result	RL	MDL	Units Q
75-27-4	Bromodichloromethane	ND	1.0	0.30	ug/l
75-25-2	Bromoform	ND	1.0	0.50	ug/l
108-90-7	Chlorobenzene	ND	1.0	0.30	ug/l
75-00-3	Chloroethane	ND	1.0	0.30	ug/l
67-66-3	Chloroform	ND	1.0	0.30	ug/l
56-23-5	Carbon tetrachloride	ND	1.0	0.20	ug/l
75-34-3	1,1-Dichloroethane	ND	1.0	0.30	ug/l
75-35-4	1,1-Dichloroethylene	ND	1.0	0.20	ug/l
107-06-2	1,2-Dichloroethane	ND	1.0	0.30	ug/l
78-87-5	1,2-Dichloropropane	ND	1.0	0.30	ug/l
124-48-1	Dibromochloromethane	ND	1.0	0.20	ug/l
75-71-8	Dichlorodifluoromethane	ND	1.0	0.30	ug/l
156-59-2	cis-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-01-5	cis-1,3-Dichloropropene	ND	1.0	0.50	ug/l
541-73-1	m-Dichlorobenzene	ND	1.0	0.30	ug/l
95-50-1	o-Dichlorobenzene	ND	1.0	0.30	ug/l
106-46-7	p-Dichlorobenzene	ND	1.0	0.30	ug/l
156-60-5	trans-1,2-Dichloroethylene	ND	1.0	0.30	ug/l
10061-02-6	trans-1,3-Dichloropropene	ND	1.0	0.20	ug/l
76-13-1	Freon 113	ND	5.0	0.50	ug/l
74-83-9	Methyl bromide	ND	5.0	1.5	ug/l
75-09-2	Methylene chloride	ND	20	5.0	ug/l
71-55-6	1,1,1-Trichloroethane	ND	1.0	0.20	ug/l
79-34-5	1,1,2,2-Tetrachloroethane	ND	1.0	0.20	ug/l
79-00-5	1,1,2-Trichloroethane	ND	1.0	0.20	ug/l
127-18-4	Tetrachloroethylene	ND	1.0	0.20	ug/l
79-01-6	Trichloroethylene	ND	1.0	0.30	ug/l
75-69-4	Trichlorofluoromethane	ND	1.0	0.30	ug/l
75-01-4	Vinyl chloride	ND	1.0	0.30	ug/l

#### CAS No. **Surrogate Recoveries**

101% 1868-53-7 Dibromofluoromethane 60-130% 2037-26-5 Toluene-D8 105% 60-130% 460-00-4 4-Bromofluorobenzene 105% 60-130%



# **Blank Spike Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	By	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
VW298-BS	W8490.D	1	09/25/09	BD	n/a	n/a	VW298

### The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
CAD III.	Compound	ug/1	ug/1	70	Limits
75-27-4	Bromodichloromethane	20	22.7	114	60-130
75-25-2	Bromoform	20	22.6	113	60-130
108-90-7	Chlorobenzene	20	19.1	96	60-130
75-00-3	Chloroethane	20	19.1	96	60-130
67-66-3	Chloroform	20	21.3	107	60-130
56-23-5	Carbon tetrachloride	20	23.7	119	60-130
75-34-3	1,1-Dichloroethane	20	21.9	110	60-130
75-35-4	1,1-Dichloroethylene	20	18.0	90	60-130
107-06-2	1,2-Dichloroethane	20	26.4	132* a	60-130
78-87-5	1,2-Dichloropropane	20	20.0	100	60-130
124-48-1	Dibromochloromethane	20	21.2	106	60-130
75-71-8	Dichlorodifluoromethane	20	27.5	138* a	60-130
156-59-2	cis-1,2-Dichloroethylene	20	18.7	94	60-130
10061-01-5	cis-1,3-Dichloropropene	20	20.8	104	60-130
541-73-1	m-Dichlorobenzene	20	17.7	89	60-130
95-50-1	o-Dichlorobenzene	20	17.5	88	60-130
106-46-7	p-Dichlorobenzene	20	17.5	88	60-130
156-60-5	trans-1,2-Dichloroethylene	20	19.8	99	60-130
10061-02-6	trans-1,3-Dichloropropene	20	23.4	117	60-130
76-13-1	Freon 113	20	19.0	95	60-130
74-83-9	Methyl bromide	20	19.6	98	60-130
75-09-2	Methylene chloride	20	16.9	85	60-130
71-55-6	1,1,1-Trichloroethane	20	22.8	114	60-130
79-34-5	1,1,2,2-Tetrachloroethane	20	19.6	98	60-130
79-00-5	1,1,2-Trichloroethane	20	20.5	103	60-130
127-18-4	Tetrachloroethylene	20	17.8	89	60-130
79-01-6	Trichloroethylene	20	20.1	101	60-130
75-69-4	Trichlorofluoromethane	20	22.5	113	60-130
75-01-4	Vinyl chloride	20	21.9	110	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
2037-26-5	Dibromofluoromethane	106%	60-130%
	Toluene-D8	106%	60-130%
	4-Bromofluorobenzene	107%	60-130%



## **Blank Spike Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample VW298-BS	<b>File ID</b> W8490.D	<b>DF</b> 1	<b>Analyzed</b> 09/25/09	By BD	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	<b>Analytical Batch</b> VW298	

The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

(a) High percent recovery; not detected in associated samples.



# **Blank Spike Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW298-BS	W8492.D	1	09/25/09	BD	n/a	n/a	VW298

#### The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	<b>%</b>	Limits

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	60-130%
2037-26-5	Toluene-D8	106%	60-130%
460-00-4	4-Bromofluorobenzene	105%	60-130%



# Blank Spike Summary Job Number: C7478

Account: AJCAS Aerojet

SL205493018-Aerojet-Inactive Rancho Cordova Test Site **Project:** 

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW299-BS	W8526.D	1	09/26/09	BD	n/a	n/a	VW299

The QC reported here applies to the following samples:

C7478-5

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	Limits
75-27-4	Bromodichloromethane	20	22.2	111	60-130
75-25-2	Bromoform	20	21.9	110	60-130
108-90-7	Chlorobenzene	20	18.3	92	60-130
75-00-3	Chloroethane	20	19.7	99	60-130
67-66-3	Chloroform	20	21.2	106	60-130
56-23-5	Carbon tetrachloride	20	23.0	115	60-130
75-34-3	1,1-Dichloroethane	20	21.5	108	60-130
75-35-4	1,1-Dichloroethylene	20	17.5	88	60-130
107-06-2	1,2-Dichloroethane	20	26.2	131* a	60-130
78-87-5	1,2-Dichloropropane	20	19.3	97	60-130
124-48-1	Dibromochloromethane	20	20.5	103	60-130
75-71-8	Dichlorodifluoromethane	20	29.5	148* a	60-130
156-59-2	cis-1,2-Dichloroethylene	20	18.3	92	60-130
10061-01-5	cis-1,3-Dichloropropene	20	20.0	100	60-130
541-73-1	m-Dichlorobenzene	20	17.1	86	60-130
95-50-1	o-Dichlorobenzene	20	17.2	86	60-130
106-46-7	p-Dichlorobenzene	20	17.0	85	60-130
156-60-5	trans-1,2-Dichloroethylene	20	19.6	98	60-130
10061-02-6	trans-1,3-Dichloropropene	20	22.1	111	60-130
76-13-1	Freon 113	20	18.5	93	60-130
74-83-9	Methyl bromide	20	20.4	102	60-130
75-09-2	Methylene chloride	20	17.0	85	60-130
71-55-6	1,1,1-Trichloroethane	20	22.2	111	60-130
79-34-5	1,1,2,2-Tetrachloroethane	20	18.9	95	60-130
79-00-5	1,1,2-Trichloroethane	20	19.7	99	60-130
127-18-4	Tetrachloroethylene	20	16.8	84	60-130
79-01-6	Trichloroethylene	20	19.3	97	60-130
75-69-4	Trichlorofluoromethane	20	23.1	116	60-130
75-01-4	Vinyl chloride	20	22.5	113	60-130

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	108%	60-130%
2037-26-5	Toluene-D8	105%	60-130%
460-00-4	4-Bromofluorobenzene	107%	60-130%



# **Blank Spike Summary**

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample VW299-BS	<b>File ID</b> W8526.D	<b>DF</b> 1	<b>Analyzed</b> 09/26/09	By BD	<b>Prep Date</b> n/a	<b>Prep Batch</b> n/a	<b>Analytical Batch</b> VW299

The QC reported here applies to the following samples: **Method:** SW846 8260B

C7478-5

(a) High percent recovery; not detected in associated samples.



# Blank Spike Summary Job Number: C7478

Account: AJCAS Aerojet

SL205493018-Aerojet-Inactive Rancho Cordova Test Site **Project:** 

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VW299-BS	W8528.D	1	09/26/09	BD	n/a	n/a	VW299

The QC reported here applies to the following samples:

C7478-5

		Spike	BSP	BSP	
CAS No.	Compound	ug/l	ug/l	%	Limits

CAS No.	<b>Surrogate Recoveries</b>	BSP	Limits
1868-53-7	Dibromofluoromethane	99%	60-130%
2037-26-5	Toluene-D8	107%	60-130%
460-00-4	4-Bromofluorobenzene	105%	60-130%



# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
C7547-1MS	W8519.D	1	09/26/09	BD	n/a	n/a	VW298
C7547-1MSD	W8520.D	1	09/26/09	BD	n/a	n/a	VW298
C7547-1	W8503.D	1	09/25/09	BD	n/a	n/a	VW298

The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

		C7547-1		Spike	MS			MSD	MSD		Limits
CAS No.	Compound	ug/l	Q	ug/l	ug/	l	<b>%</b>	ug/l	<b>%</b>	RPD	Rec/RPD
75.07.4	D P.11 4	MD		20	21	2	1.07	22.2	110	~	60 120/25
75-27-4	Bromodichloromethane	ND		20	21.3		107	22.3	112	5	60-130/25
75-25-2	Bromoform	ND		20	21.:		108	21.8	109	1	60-130/25
108-90-7	Chlorobenzene	ND		20	17.		86	18.2	91	6	60-130/25
75-00-3	Chloroethane	ND		20	16.		81	17.5	88	8	60-130/25
67-66-3	Chloroform	ND		20	18.		94	19.8	99	6	60-130/25
56-23-5	Carbon tetrachloride	ND		20	19.3		97	20.3	102	5	60-130/25
75-34-3	1,1-Dichloroethane	ND		20	18.		94	19.8	99	6	60-130/25
75-35-4	1,1-Dichloroethylene	ND		20	14.:		73	15.2	76	5	60-130/25
107-06-2	1,2-Dichloroethane	ND		20	25.		128	26.0	130	2	60-130/25
78-87-5	1,2-Dichloropropane	ND		20	18.		93	19.5	98	5	60-130/25
124-48-1	Dibromochloromethane	ND		20	20.		101	20.8	104	3	60-130/25
75-71-8	Dichlorodifluoromethane	ND		20	23.:		118	26.2	131* a	11	60-130/25
156-59-2	cis-1,2-Dichloroethylene	ND		20	16.		81	17.2	86	7	60-130/25
10061-01-5	cis-1,3-Dichloropropene	ND		20	19.	0	95	19.7	99	4	60-130/25
541-73-1	m-Dichlorobenzene	ND		20	15.4	4	77	16.3	82	6	60-130/25
95-50-1	o-Dichlorobenzene	ND		20	15.	7	79	16.6	83	6	60-130/25
106-46-7	p-Dichlorobenzene	ND		20	15.4	4	77	16.2	81	5	60-130/25
156-60-5	trans-1,2-Dichloroethylene	ND		20	16.4	4	82	17.1	86	4	60-130/25
10061-02-6	trans-1,3-Dichloropropene	ND		20	21.0	0	105	21.9	110	4	60-130/25
76-13-1	Freon 113	ND		20	14.	8	74	15.8	79	7	60-130/25
74-83-9	Methyl bromide	ND		20	16.	6	83	18.3	92	10	60-130/25
75-09-2	Methylene chloride	ND		20	15.0	0	75	15.8	79	5	60-130/25
71-55-6	1,1,1-Trichloroethane	ND		20	18.:	5	93	19.6	98	6	60-130/25
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	18.4	4	92	18.9	95	3	60-130/25
79-00-5	1,1,2-Trichloroethane	ND		20	19.	6	98	20.2	101	3	60-130/25
127-18-4	Tetrachloroethylene	ND		20	14.	6	73	15.5	78	6	60-130/25
79-01-6	Trichloroethylene	ND		20	17.3	3	87	18.1	91	5	60-130/25
75-69-4	Trichlorofluoromethane	ND		20	18.	7	94	20.4	102	9	60-130/25
75-01-4	Vinyl chloride	ND		20	17.	6	88	19.4	97	10	60-130/25
	•										
CAS No.	<b>Surrogate Recoveries</b>	MS		MSD		C75	47-1	Limits			
1868-53-7	Dibromofluoromethane	103%		103%		1029	%	60-130%	, )		
2037-26-5	Toluene-D8	104%		104%		1069		60-130%			
460-00-4	4-Bromofluorobenzene	106%		107%		1059		60-130%			
'				0.70		,			-		



#### Page 2 of 2

**Method:** SW846 8260B

4.s.

#### •

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C7478

**Account:** AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
C7547-1MS	W8519.D	1	09/26/09	BD	n/a	n/a	VW298
C7547-1MSD	W8520.D	1	09/26/09	BD	n/a	n/a	VW298
C7547-1	W8503.D	1	09/25/09	BD	n/a	n/a	VW298

The QC reported here applies to the following samples:

C7478-1, C7478-2, C7478-3, C7478-4, C7478-6, C7478-7, C7478-8

(a) Outside of in-house control limits.



Page 1 of 2

**Method:** SW846 8260B

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	By	<b>Prep Date</b>	Prep Batch	<b>Analytical Batch</b>
C7506-2MS	W8546.D	1	09/26/09	BD	n/a	n/a	VW299
C7506-2MSD	W8547.D	1	09/26/09	BD	n/a	n/a	VW299
C7506-2	W8534.D	1	09/26/09	BD	n/a	n/a	VW299

The QC reported here applies to the following samples:

C7478-5

		C7506-2	2	Spike	MS	MS	MSD				
CAS No.	Compound	ug/l	Q	ug/l	ug/l	%	ug/l	%	RPD	Rec/RPD	
75-27-4	Bromodichloromethane	ND		20	21.1		23.7	119	12	60-130/25	
75-25-2	Bromoform	ND		20	20.6		22.9	115	11	60-130/25	
108-90-7	Chlorobenzene	ND		20	17.0		19.0	95	11	60-130/25	
75-00-3	Chloroethane	ND		20	15.6	78	18.1	91	15	60-130/25	
67-66-3	Chloroform	2.4		20	21.4		24.1	109	12	60-130/25	
56-23-5	Carbon tetrachloride	ND		20	19.1		20.8	104	9	60-130/25	
75-34-3	1,1-Dichloroethane	2.1		20	20.8		23.5	107	12	60-130/25	
75-35-4	1,1-Dichloroethylene	4.4		20	18.1	69	19.6	76	8	60-130/25	
107-06-2	1,2-Dichloroethane	ND		20	25.1	126	29.2	146* a	15	60-130/25	
78-87-5	1,2-Dichloropropane	ND		20	18.5	93	20.8	104	12	60-130/25	
124-48-1	Dibromochloromethane	ND		20	19.4	97	21.8	109	12	60-130/25	
75-71-8	Dichlorodifluoromethane	ND		20	23.6	118	26.2	131* a	10	60-130/25	
156-59-2	cis-1,2-Dichloroethylene	ND		20	16.4	82	18.8	94	14	60-130/25	
10061-01-5	cis-1,3-Dichloropropene	ND		20	18.7	94	20.9	105	11	60-130/25	
541-73-1	m-Dichlorobenzene	ND		20	15.3	77	17.3	87	12	60-130/25	
95-50-1	o-Dichlorobenzene	ND		20	15.6	78	17.5	88	11	60-130/25	
106-46-7	p-Dichlorobenzene	ND		20	15.4	. 77	17.1	86	10	60-130/25	
156-60-5	trans-1,2-Dichloroethylene	ND		20	16.4	82	18.2	91	10	60-130/25	
10061-02-6	trans-1,3-Dichloropropene	ND		20	20.2	101	22.6	113	11	60-130/25	
76-13-1	Freon 113	ND		20	14.9	75	15.8	79	6	60-130/25	
74-83-9	Methyl bromide	ND		20	16.1	81	18.8	94	15	60-130/25	
75-09-2	Methylene chloride	ND		20	14.9	75	17.4	87	15	60-130/25	
71-55-6	1,1,1-Trichloroethane	ND		20	18.5	93	20.4	102	10	60-130/25	
79-34-5	1,1,2,2-Tetrachloroethane	ND		20	18.0	90	19.8	99	10	60-130/25	
79-00-5	1,1,2-Trichloroethane	ND		20	18.9	95	21.3	107	12	60-130/25	
127-18-4	Tetrachloroethylene	ND		20	14.4	72	15.9	80	10	60-130/25	
79-01-6	Trichloroethylene	ND		20	17.2	86	19.0	95	10	60-130/25	
75-69-4	Trichlorofluoromethane	ND		20	18.3	92	20.6	103	12	60-130/25	
75-01-4	Vinyl chloride	ND		20	17.3		19.5	98	12	60-130/25	
	•										
CAS No.	Surrogate Recoveries	MS		MSD		C7506-2	Limits				
1868-53-7	Dibromofluoromethane	102%		105%		101%	60-1309	%			
2037-26-5	Toluene-D8	103%		104%		107%	60-130				
460-00-4	4-Bromofluorobenzene	105%		107%		105%	60-130				
+00-00-4	7-DI OHIOHUOI OUCHZERE	105/0		10770		103/0	00-130	/U			



# Page 2 of 2

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: C7478 Account: AJCAS Aerojet

**Project:** SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Sample	File ID	DF	Analyzed	Ву	Prep Date	Prep Batch	Analytical Batch
C7506-2MS	W8546.D	1	09/26/09	BD	n/a	n/a	VW299
C7506-2MSD	W8547.D	1	09/26/09	BD	n/a	n/a	VW299
C7506-2	W8534.D	1	09/26/09	BD	n/a	n/a	VW299

The QC reported here applies to the following samples: **Method:** SW846 8260B

C7478-5

(a) Outside of in-house control limits.





# Metals Analysis

# QC Data Summaries

## Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries



#### BLANK RESULTS SUMMARY Part 2 - Method Blanks

## Login Number: C7478

Account: AJCAS - Aerojet
Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1609 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

Prep Date:

09/18/09

				MB	
Metal	RL	IDL	MDL	raw	final
Aluminum	50	14	21		
Antimony	10	6.9	5.3		
Arsenic	10	4.4	3.1		
Barium	5.0	.6	.7		
Beryllium	5.0	.1	.2		
Boron	50	8.6	11		
Cadmium	2.0	.3	.3		
Calcium	50	29	12		
Chromium	5.0	. 4	.6		
Cobalt	5.0	. 4	. 4		
Copper	5.0	.8	1.1		
Iron	50	2.6	18	-29	* (a)
Lead	5.0	3.3	1.3		
Lithium	10	2.2	2.5		
Magnesium	50	9.6	13		
Manganese	5.0	.1	. 2	0.20	<5.0
Molybdenum	5.0	1.3	1		
Nickel	5.0	.8	.5		
Potassium	500	58	60		
Selenium	20	14	12		
Silicon	50	3.4	5.3		
Silver	5.0	.9	.7		
Sodium	100	15	13		
Strontium	10	.3	2.4		
Thallium	20	6.5	6.4		
Tin	50	2.3	2		
Titanium	2.0	.2	.2		
Vanadium	5.0	.7	.5		
Zinc	10	.9	1.1		

Associated samples MP1609: C7478-1, C7478-2, C7478-3, C7478-5, C7478-6, C7478-8

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(anr) Analyte not requested

(a) No samples for this element reported in the area bracketed by this QC.



#### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

# Login Number: C7478 Account: AJCAS - Aerojet Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1609 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/18/09 Prep Date:

Metal	C7478- Origin		Spikelot MPIR1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium	anr				
Boron					
Cadmium	anr				
Calcium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	276	748	500	94.4	80-120
Lead	anr				
Lithium					
Magnesium					
Manganese	5.0	506	500	100.2	80-120
Molybdenum					
Nickel	anr				
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc	anr				

Associated samples MP1609: C7478-1, C7478-2, C7478-3, C7478-5, C7478-6, C7478-8

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested



#### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C7478
Account: AJCAS - Aerojet
Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1609 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

Prep Date:

09/18/09

Metal	C7478-2 Original	MSD	Spikelot MPIR1	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium	anr					
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	276	772	500	99.2	3.2	20
Lead	anr					
Lithium						
Magnesium						
Manganese	5.0	520	500	103.0	2.7	20
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP1609: C7478-1, C7478-2, C7478-3, C7478-5, C7478-6, C7478-8

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested



#### SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

#### Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1609 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/18/09 09/18/09 Prep Date: BSP Spikelot BSD Spikelot BSD QC OC Metal MPIR1 Limits RPD Limit Result % Rec Result MPIR1 % Rec Aluminum Antimony Arsenic anr Barium Beryllium anr Boron Cadmium anr Calcium Chromium anr Cobalt Copper anr 100.4 101.4 Iron 502 500 80-120 507 500 1.0 Lead anr Lithium Magnesium 102.6 500 Manganese 513 500 80-120 515 103.0 0.4 Molybdenum Nickel anr Potassium Selenium anr Silicon Silver anr Sodium anr Strontium Thallium Tin Titanium Vanadium

Associated samples MP1609: C7478-1, C7478-2, C7478-3, C7478-5, C7478-6, C7478-8

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

\_\_\_\_



#### SERIAL DILUTION RESULTS SUMMARY

# Login Number: C7478 Account: AJCAS - Aerojet Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1609 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/18/09 Prep Date:

Metal	C7478-2 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium	anr			
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	276	276	0.2	0-10
Lead	anr			
Lithium				
Magnesium				
Manganese	5.00	5.50	10.0	0-10
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP1609: C7478-1, C7478-2, C7478-3, C7478-5, C7478-6, C7478-8

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested



#### BLANK RESULTS SUMMARY Part 2 - Method Blanks

Login Number: C7478
Account: AJCAS - Aerojet
Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1637 Matrix Type: AQUEOUS

Prep Date:

09/29/09

Methods: SW846 6010B

Units: ug/l

_					'	
Metal		RL	IDL	MDL	MB raw	final
Alumin	ıum	50	14	21		
Antimo	ony	10	6.9	5.3		
Arseni	.c	10	4.4	3.1		
Barium	1	5.0	.6	.7		
Beryll	ium	5.0	.1	. 2		
Boron		50	8.6	11		
Cadmiu	ım	2.0	.3	.3		
Calciu	ım	50	29	12		
Chromi	.um	5.0	. 4	.6		
Cobalt		5.0	. 4	. 4		
Copper	,	5.0	. 8	1.1		
Iron		50	2.6	18	2.8	<50
Lead		5.0	3.3	1.3		
Lithiu	ım	10	2.2	2.5		
Magnes	ium	50	9.6	13		
Mangan	iese	5.0	.1	. 2	0.10	<5.0
Molybd	lenum	5.0	1.3	1		
Nickel		5.0	.8	. 5		
Potass	ium	500	58	60		
Seleni	.um	20	14	12		
Silico	n	50	3.4	5.3		
Silver		5.0	. 9	. 7		
Sodium	1	100	15	13		
Stront	ium	10	.3	2.4		
Thalli	.um	20	6.5	6.4		
Tin		50	2.3	2		
Titani	.um	2.0	. 2	. 2		
Vanadi	.um	5.0	.7	. 5		
Zinc		10	. 9	1.1		

Associated samples MP1637: C7478-1F, C7478-2F, C7478-3F, C7478-5F, C7478-6F, C7478-8F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested



#### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

# Login Number: C7478 Account: AJCAS - Aerojet Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1637 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/29/09 Prep Date:

Metal	C7478-2 Origina		Spikelot MPIR1	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron	22.1	565	500	108.6	80-120
Lead					
Lithium					
Magnesium					
Manganese	3.8	524	500	104.0	80-120
Molybdenum					
Nickel	anr				
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Vanadium					
Zinc					

Associated samples MP1637: C7478-1F, C7478-2F, C7478-3F, C7478-5F, C7478-6F, C7478-8F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested



#### MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: C7478
Account: AJCAS - Aerojet
Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1637 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

Prep Date:

09/29/09

Metal	C7478-2		Spikelo MPIR1	t % Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron	22.1	541	500	103.8	4.3	20
Lead						
Lithium						
Magnesium						
Manganese	3.8	515	500	102.2	1.7	20
Molybdenum						
Nickel	anr					
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc						

Associated samples MP1637: C7478-1F, C7478-2F, C7478-3F, C7478-5F, C7478-6F, C7478-8F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested



#### SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

#### Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1637 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/29/09 09/29/09 Prep Date: Spikelot BSD BSP Spikelot QC BSD QC Metal MPIR1 Limits MPIR1 RPD Limit Result % Rec Result % Rec Aluminum Antimony Arsenic anr Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper 530 106.0 500 107.8 Iron 500 80-120 539 1.7 Lead Lithium Magnesium 103.0 500 Manganese 515 500 80-120 510 102.0 1.0 Molybdenum Nickel anr Potassium Selenium Silicon Silver Sodium Strontium Thallium Tin Titanium Vanadium Zinc

Associated samples MP1637: C7478-1F, C7478-2F, C7478-3F, C7478-5F, C7478-6F, C7478-8F

Results < IDL are shown as zero for calculation purposes (\*) Outside of QC limits (anr) Analyte not requested

\_\_\_\_



#### SERIAL DILUTION RESULTS SUMMARY

# Login Number: C7478

Account: AJCAS - Aerojet
Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

QC Batch ID: MP1637 Methods: SW846 6010B Matrix Type: AQUEOUS Units: ug/l

09/29/09 Prep Date:

Metal	C7478-2F Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron	22.1	25.5	15.4 (a)	0-10
Lead				
Lithium				
Magnesium				
Manganese	3.80	4.00	5.3	0-10
Molybdenum				
Nickel	anr			
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc				

Associated samples MP1637: C7478-1F, C7478-2F, C7478-3F, C7478-5F, C7478-6F, C7478-8F

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(anr) Analyte not requested

(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).





# General Chemistry

# QC Data Summaries

## Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries



#### 

#### Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Perchlorate Specific Conductivity	GP1019/GN2330 GN2318	4.0 1.0	0.0	ug/l umhos/cm	25	24.5	98.0	85-115%

Associated Samples:

Batch GN2318: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8 Batch GP1019: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8 (\*) Outside of QC limits



#### BLANK SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Analyte	Batch ID	Units	Spike Amount	BSD Result	RPD	QC Limit
Perchlorate	GP1019/GN2330	ug/l	25	23.4	4.6	

Associated Samples: Batch GP1019: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8

(\*) Outside of QC limits



#### DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Specific Conductivity	GN2318	C7478-1	umhos/cm	178	171	4.4	0-25%

Associated Samples: Batch GN2318: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8

(\*) Outside of QC limits



#### MATRIX SPIKE RESULTS SUMMARY GENERAL CHEMISTRY

#### Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Perchlorate	GP1019/GN2330	C7478-2	ug/l	1.8 U	25	27.0	108.0	80-120%

Associated Samples:

Batch GP1019: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8

- (\*) Outside of QC limits
  (N) Matrix Spike Rec. outside of QC limits



#### MATRIX SPIKE DUPLICATE RESULTS SUMMARY GENERAL CHEMISTRY

Login Number: C7478 Account: AJCAS - Aerojet

Project: SL205493018-Aerojet-Inactive Rancho Cordova Test Site

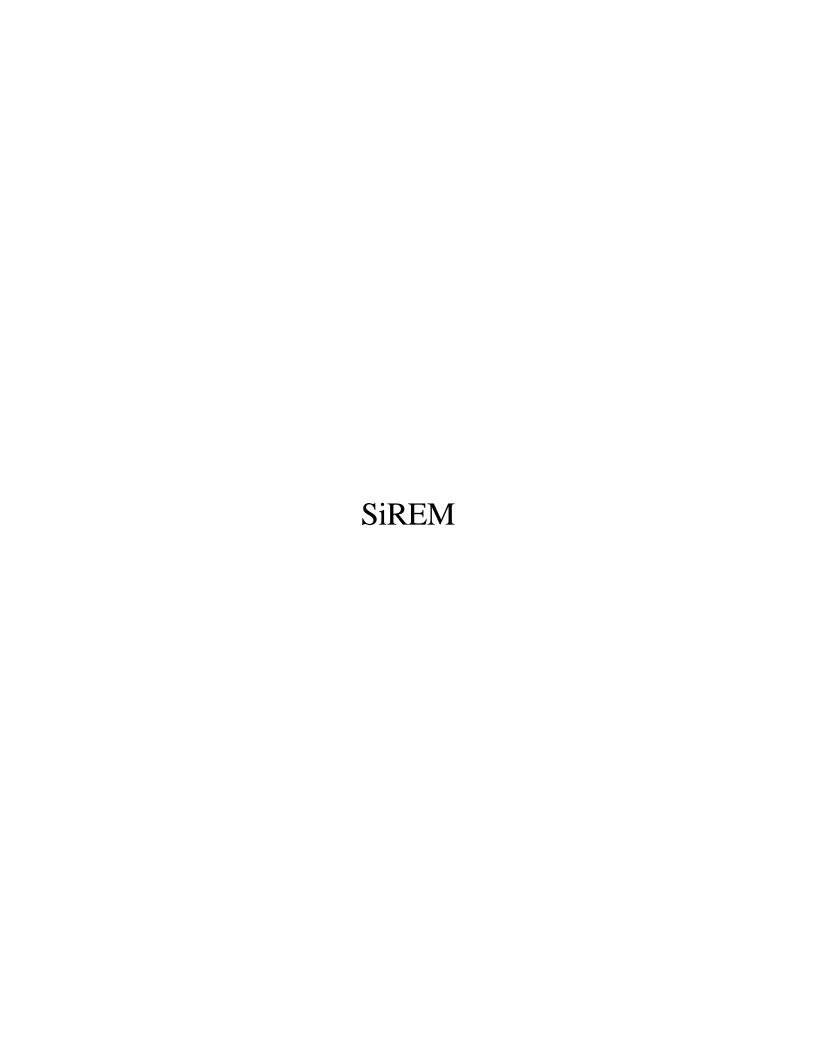
Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Perchlorate	GP1019/GN2330	C7478-2	ug/l	1.8 U	25	26.6	1.5	15%

Associated Samples:

Batch GP1019: C7478-1, C7478-2, C7478-3, C7478-4, C7478-5, C7478-6, C7478-7, C7478-8

- (\*) Outside of QC limits
  (N) Matrix Spike Rec. outside of QC limits









# Interpretation of Gene-Trac Dehalococcoides Test Results

## **Explanation of Test Certificate Results:**

Upon completion of the Gene-Trac assay, the presence of *Dehalococcoides* DNA is assessed as either "Detected" or "Not Detected" based on interpretation of an electronic image of a DNA gel. Detects (gel bands) are then quantified using densitometry software and assigned a "band intensity percentage" using the relative intensity of the strongest bands obtained to the intensity of the positive control reaction. This value is in-turn used to assign a "Test intensity score" as follows:

- 0% of positive control "-" = Not Detected
- >0-1% of positive control "+/-" = Inconclusive
- >1-33% of positive control "+" = Detected
- >33-67% of positive control "++" = Detected
- >67-100% of positive control = "+++" Detected
- >100% of positive control = "++++" Detected
- Following a positive designation, the number of primer sets that effectively amplified sequences are listed. A test may be positive with 1 of 3, 2 of 3 or 3 of 3 primer sets.

#### **Interpretation of Positive Results**

Positive Gene-Trac test results ("Dehalococcoides DNA detected") indicate that genetic material from organisms belonging to the Dehalococcoides group was detected in site materials. A positive test result indicates favorable potential for complete dechlorination of chloroethene compounds.

**Quantification:** The strength of positive results is a parameter that can be useful in certain cases, but it must be noted, that Gene-Trac is only a semi-quantitative method and results are meant to be interpreted for presence or absence of *Dehalococcoides*. Customers may wish to use the semi-quantitative information provided by the test at their discretion. In general, the presence of a very high intensity score, for example, "++++" can be interpreted to represent a sample that has a higher concentration of *Dehalococcoides* organisms than a sample with a low intensity score of "+". Interpretation of less extreme differences between "+" and "++", for example, carries more uncertainty. If sampling is consistent between events, an increase in the intensity score might be used to assess an increase in the population density of *Dehalococcoides* over time.

The greater the number of primer sets that test positive for a particular sample (of the three used) provides increasing confidence that the characteristics of the organism detected is typical of *Dehalococcoides* organisms. Therefore, a positive test result which is "+++ (3 of 3 primer sets)" would be considered more indicative of a "typical" *Dehalococcoides* organism than would a result of "+++ (1 of 3 primer sets)". In certain cases where the concentration of *Dehalococcoides* DNA is very low (usually +), only the most efficient primer set produces Polymerize Chain Reaction (PCR) product. This scenario is not usually indicative of variants of *Dehalococcoides* organisms but rather the detection threshold of the less efficient primer sets.

Rule of thumb: high intensity scores with multiple primer sets e.g. ++++ (3 of 3 primers sets) provide the most conclusive results, while low intensity scores e.g. "+ (1 of 3 primer sets)", provide somewhat less conclusive evidence for the potential of indigenous organisms able to facilitate complete dechlorination to ethene.

#### Interpretation of Negative Result

Negative Gene-Trac results indicate that *Dehalococcoides* DNA was not detected in a sample. This indicates the site has a poor potential for complete dechlorination of chloroethene components. In certain cases, a negative test result may not indicate the absence of *Dehalococcoides* DNA at a site. For example:

- 1) The concentration of *Dehalococcoides* DNA may be below the detection limit of the assay. The detection limit for the assay is approximately 200-300 gene copies per liter, therefore, a very low level of *Dehalococcoides* DNA may not be detectable.
- 2) Due to sampling bias, a particular sample might not contain *Dehalococcoides* DNA, even at sites that contain this organism at other locations. Therefore, the absence of detectable *Dehalococcoides* DNA over several site samples is suggestive (but not conclusive) that *Dehalococcoides* organisms are absent from the entire site. Confidence in negative results is increased where a larger numbers of samples are assessed and where "non- *Dehalococcoides* Bacterial DNA" is detected in these samples. This indicates that DNA was successfully extracted from the samples but that *Dehalococcoides* DNA was not detectable. It might occur, that no DNA is extractable from a sample, simply because a particular sample contains no biomass and not because *Dehalococcoides* is actually absent from the site.

Rule of thumb: negative *Dehalococcoides* test results obtained where numerous samples are taken and where "non-Dehalococcoides" Bacterial DNA is detected, are more conclusive than negative results where few samples are tested and where Bacterial DNA is not detected.



130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 Phone: (519) 822-2265 Fax: (519) 822-3151

# Test Results for Gene-Trac Dehalococcoides Assay

Customer Name: WNN Aerojet	Test Reference Number: DT-0114
Contact: Jamey Rosen	Report Issued: 22-Aug-03
Site Location: IRCTS, CA	Site Sampling: 14-Aug-03 Sample(s) Received: 16-Aug-03 DNA Extraction: 20-Aug-03
Telephone: (519) 822-2230	Gel Image Numbers: DHC-UP-0060/QIA-0013B/AG-0136A
<b>Fax:</b> (519) 822-3151	Positive Control (+ve control): Assay with Cloned Dehalococcoides 16S rRNA gene
E-mail: JRosen@GeoSyntec.com	Negative Control (-ve control): Assay with DNA extraction blank

#### **Test Results:**

Customer Sample ID	SiREM ID	Non- Dehalococcoides Bacterial DNA	Dehalococcoides Test, Intensity (% of Positive Control)	Intensity Score	Test Result: Dehalococcoides DNA
EW-1-0814-0720	DHC-0571	Detected	0%	-	Not Detected
EW-2-0814-0915	DHC-0572	Not Detected	0%	-	Not Detected
Not applicable	+ve control	Not applicable	100%	+++	Detected (3 of 3 primer sets)
Not applicable	-ve control	Not applicable	0%	-	Not Detected

The above results refer only to that portion of the sample tested with the Gene-Trac assay. The test is based on a polymerase chain reaction (PCR) test with three primer sets specific to DNA sequences in the 16S rRNA gene of Dehalococcoides organisms. A positive (+ to ++++) result indicates that genetic material (DNA) from a member of the Dehalococcoides group was detected. Dehalococcoides organisms are the only microorganisms proven to possess the necessary enzymes for the complete dechlorination of tetrachloroethene or trichloroethene to ethene. The presence of Dehalococcoides genetic material has been positively correlated to complete dechlorination of chlorinated ethenes at contaminated sites.

"Dehalococcoides Test Intensity" = quantitative assessment of electrophoresis band intensity of PCR product as a percentage of the corresponding positive control reaction. This value provides a semi-quantitative assessment of the amount of Dehalococcoides genetic material present in the sample.

While band intensity may reflect actual concentration of the target organism, Gene-Trac is a semi-quantitative method and is only recommended to determine the presence or absence of Dehalococcoides genetic material in the sample.

"Intensity Score", categorizes PCR product quantity based on the "intensity (% of positive control)":++++ = Very high band intensity (greater than 100% of positive control), +++ = high band intensity (67-100%), ++ moderate band intensity (34-66%) += low band intensity (4-33%), -/+ = inconclusive (1-3%), - = no detectable band (0%)

Analyst:

Laboratory Technologist

Reviewed by: Philip Dennis, M.A.Sc.,

\_\_ Date: Aug 29/03

Director, SiREM



#### Gene-Trac Dehalococcoides Case Narrative, Test DT-0114

#### Sample Condition:

SiREM received two -1L ground water samples collected at IRCTS, CA on 14-Aug-2003. The samples arrived in a cooler with a measured temperature of 23°C and due to the blackout on 15-Aug-03 were stored as delivered until 18-Aug-03, after which they were stored at 4°C. Each sample was vacuum filtered for the preparation of the genomic DNA.

#### Sample Description:

Client Designation	SiREM Designation	*"Debris Description"	**Volume of Groundwater Utilized
EW-1-0814-0720	DHC-0571	Light Beige	1000 mL
EW-2-0814-0915	DHC-0572	None Visible	1000 mL

#### Notes:

#### **Test Notes:**

- Genomic DNA extraction was performed on the samples on 20-Aug-03.
- A PCR reaction using a universal bacterial primer was performed on all samples on 20-Aug-03.
- The initial universal PCR was negative for all samples.
- DNA for each sample was further purified, and a second universal PCR was performed on 21-Aug-03. Sample DHC-0572 remained negative, most likely due to lack of biomass in the sample.
- Due to a weak positive in the universal primer negative control, a second universal control was repeated on 25-Aug-03 with 35 cycles to confirm previous results. The negative control exhibited no positive reaction after the second attempt.
- A Dehalococcoides specific PCR was performed on 21-Aug-03. All controls were normal.

<sup>\*&</sup>quot;Debris" refers to solid material (including biomass) remaining after vacuum filtration of groundwater through a  $0.45~\mu M$  filter.

<sup>\*\*</sup> Varying amounts of groundwater may be used up to a maximum depending on the amount of debris recovered or the capacity of the filter prior to clogging, maximum is 1L.



130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 Phone: (519) 822-2265 Fax: (519) 822-3151

# Test Results for Gene-Trac Dehalococcoides Assay

Customer Name: GeoSyntec Consultants	Test Reference Number: DT-0136
Contact: Jamey Rosen	Report Issued: 11-Dec-03
Site Location: Aerojet	Site Sampling: 25-Nov-03 Sample(s) Received: 27-Nov-03 DNA Extraction: 03-Dec-03
Telephone: (519) 822-2230 ext.226	Gel Image Numbers: DHC-UP-0072/AG-0161A
Fax: (519) 822-3151	Positive Control (+ve control): Assay with Cloned Dehalococcoides 16S rRNA gene
E-mail: jrosen@geosyntec.com	Negative Control (-ve_control): Assay with DNA extraction blank

#### **Test Results:**

Customer Sample ID	SiREM ID	Non- Dehalococcoides Bacterial DNA	Dehalococcoides Test, Intensity (% of Positive Control)	Intensity Score	Test Result: Dehalococcoides DNA
WNN-RW-1	DHC-0696	Detected	0%	-	Not Detected
WNN-MW1	DHC-0697	Detected	37%	++	Detected (2 of 3 primer sets)
Not applicable	+ve control	Not applicable	100%	+++	Detected (3 of 3 primer sets)
Not applicable	-ve control	Not applicable	0%	•	Not Detected

The above results refer only to that portion of the sample tested with the Gene-Trac assay. The test is based on a polymerase chain reaction (PCR) test with three primer sets specific to DNA sequences in the 16S rRNA gene of *Dehalococcoides* organisms. A positive (+ to ++++) result indicates that genetic material (DNA) from a member of the *Dehalococcoides* group was detected. *Dehalococcoides* organisms are the only microorganisms proven to possess the necessary enzymes for the complete dechlorination of tetrachloroethene or trichloroethene to ethene. The presence of *Dehalococcoides* genetic material has been positively correlated to complete dechlorination of chlorinated ethenes at contaminated sites.

"Dehalococcoides Test Intensity" = quantitative assessment of electrophoresis band intensity of PCR product as a percentage of the corresponding positive control reaction. This value provides a semi-quantitative assessment of the amount of *Dehalococcoides* genetic material present in the sample.

While band intensity may reflect actual concentration of the target organism, Gene-Trac is a semi-quantitative method and is only recommended to determine the presence or absence of *Dehalococcoides* genetic material in the sample.

"Intensity Score", categorizes PCR product quantity based on the "intensity (% of positive control)":++++ = Very high band intensity (greater than 100% of positive control), +++ = high band intensity (67-100%), ++ moderate band intensity (34-66%) + = low band intensity (4-33%), - /+ = inconclusive (1-3%), - = no detectable band (0%)

Analyst:

/Ximena Druar, ˈ

Laboratory Technologist

Reviewed by:

Philip Dennis, M.A.Sc.,

**Technology Manager** 



## Gene-Trac Dehalococcoides Case Narrative, Test DT-0136

#### Sample Condition:

SiREM received two -1L ground water samples collected at Aerojet on 27-Nov-2003. The samples arrived in a cooler with a measured temperature of 18.4°C and were stored at 4°C upon arrival in the laboratory. Each sample was vacuum filtered for the preparation of the genomic DNA.

#### Sample Description:

Client Designation	SiREM Designation	*"Debris Description"	**Volume of Groundwater Utilized
WNN-RW-1	DHC-0696	No visible debris	1000 mL
WNN-MW1	DHC-0697	Beige debris	1000 mL

#### Notes:

#### **Test Notes:**

- Genomic DNA extraction was performed on the samples on 03-Dec-03.
- A PCR reaction using a universal bacterial primer was performed on all samples on 05-Dec-03. Positive results were obtained for both samples, indicating PCR amplifiable DNA was extracted from the samples.
- DHC specific PCR was performed on 08-Dec-03. All controls were normal. results included herein.

<sup>\*&</sup>quot;Debris" refers to solid material (including biomass) remaining after vacuum filtration of groundwater through a 0.45 µM filter.

<sup>\*\*</sup> Varying amounts of groundwater may be used up to a maximum depending on the amount of debris recovered or the capacity of the filter prior to clogging, maximum is 1L.



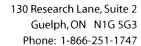
# Chain-of-Custody Form

No 2001

130 Research Lane, Suite 2 Guelph, Ontario, Canau

W1G 5G3 < Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519)822-3151 www.siremlab.com	ויסו־כמסנסמץ ו סוווו
Page of/	NO. 000 1
	19) 822-2265 or toll free 1-866-251-1747 Fax (519)822-3151 Page

Date/Time 11/26/03 16:00 Date/Time 11/26/03 Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client	e.Syntec	Name Scott Feltan Printed	withle	Relinquished By:/	Custody Seals: Yes No 🛛 No 🔯	Cooler Temperature: $/8_{ au}$	Cooler Condition: Sample Receipt					WNN - MWI	WM- RW-1	Client Sample ID Lab ID	Sampler's Lutt fulk	Phone #		Address	Company	
126/03 16:00			EX EX	Received By:		Bill To:	P.O. #					11/25/0	11/25/03	D,	Sampler's Printed Name	Fax#				
) Date/Time	Firm	Printed Name	- Annardic				Invoice					1/2863 11:01 6W	11/25/03 9:50 6W	Sampling ate Time Matrix	Scott Felt					
				Relinquished By:			Invoice Information						1	x # of Containers	You 1					
Date/Time	Firm	Printed Name	signature									ろ!	<b>火</b>		14	Sen.	/e:	\(\alpha\)	/ u/	
				Received By:													\ \ \	\ \ \		
Date/Time	Firm	Printed Name	Signature														\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \			
				Relinquished By:			For Lab Use Only											\ \ \		_
Date/Time 100/03/03	300	Printed D. K. C. C. C.	Signature	Received By:										Other Information	6. Other	4. Other	2. Other 3. Other	0. None 1. HCL	Preservative Key	





# Interpretation of Gene-Trac Dehalococcoides Test Results

# **Explanation of Test Certificate Results:**

Upon completion of the Gene-Trac assay, the presence of *Dehalococcoides* DNA is assessed as either "Detected" or "Not Detected" based on interpretation of an electronic image of a DNA gel. Detects (gel bands) are then quantified using densitometry software and assigned a "band intensity percentage" using the relative intensity of the strongest bands obtained to the intensity of the positive control reaction. This value is in-turn used to assign a "Test intensity score" as follows:

- ← 0% of positive control "-" = Not Detected
- >0-1% of positive control "+/-" = Inconclusive
- >1-33% of positive control "+" = Detected
- >33-67% of positive control "++" = Detected
- < >67-100% of positive control = "+++" Detected
- >100% of positive control = "++++" Detected
- ← Following a positive designation, the number of primer sets that
  effectively amplified sequences are listed. A test may be positive
  with 1 of 3, 2 of 3 or 3 of 3 primer sets.

#### **Interpretation of Positive Results**

Positive Gene-Trac test results ("Dehalococcoides DNA detected") indicate that genetic material from organisms belonging to the Dehalococcoides group was detected in site materials. A positive test result indicates favorable potential for complete dechlorination of chloroethene compounds.

**Quantification:** The strength of positive results is a parameter that can be useful in certain cases, but it must be noted, that Gene-Trac is only a semi-quantitative method and results are meant to be interpreted for presence or absence of *Dehalococcoides*. Customers may wish to use the semi-quantitative information provided by the test at their discretion. In general, the presence of a very high intensity score, for example, "++++" can be interpreted to represent a sample that has a higher concentration of *Dehalococcoides* organisms than a sample with a low intensity score of "+". Interpretation of less extreme differences between "+" and "++", for example, carries more uncertainty. If sampling is consistent between events, an increase in the intensity score might be used to assess an increase in the population density of *Dehalococcoides* over time.

The greater the number of primer sets that test positive for a particular sample (of the three used) provides increasing confidence that the characteristics of the organism detected is typical of *Dehalococcoides* organisms. Therefore, a positive test result which is "+++ (3 of 3 primer sets)" would be considered more indicative of a "typical" *Dehalococcoides* organism than would a result of "+++ (1 of 3 primers sets)". In certain cases where the concentration of *Dehalococcoides* DNA is very low (usually +), only the most efficient primer set produces Polymerize Chain Reaction (PCR) product. This scenario is not usually indicative of variants of *Dehalococcoides* organisms but rather the detection threshold of the less efficient primer sets.

Rule of thumb: high intensity scores with multiple primer sets e.g. ++++ (3 of 3 primers sets) provide the most conclusive results, while low intensity scores e.g. "+ (1 of 3 primer sets)", provide somewhat less conclusive evidence for the potential of indigenous organisms able to facilitate complete dechlorination to ethene.

#### **Interpretation of Negative Result**

Negative Gene-Trac results indicate that *Dehalococcoides* DNA was not detected in a sample. This indicates the site has a poor potential for complete dechlorination of chloroethene components. In certain cases, a negative test result may not indicate the absence of *Dehalococcoides* DNA at a site. For example:

- 1) The concentration of *Dehalococcoides* DNA may be below the detection limit of the assay. The detection limit for the assay is approximately 200-300 gene copies per liter, therefore, a very low level of *Dehalococcoides* DNA may not be detectable.
- 2) Due to sampling bias, a particular sample might not contain *Dehalococcoides* DNA, even at sites that contain this organism at other locations. Therefore, the absence of detectable *Dehalococcoides* DNA over several site samples is suggestive (but not conclusive) that *Dehalococcoides* organisms are absent from the entire site. Confidence in negative results is increased where a larger numbers of samples are assessed and where "non-*Dehalococcoides* Bacterial DNA" is detected in these samples. This indicates that DNA was successfully extracted from the samples but that *Dehalococcoides* DNA was not detectable. It might occur, that no DNA is extractable from a sample, simply because a particular sample contains no biomass and not because *Dehalococcoides* is actually absent from the site.

Rule of thumb: negative *Dehalococcoides* test results obtained where numerous samples are taken and where "non-*Dehalococcoides*" Bacterial DNA is detected, are more conclusive than negative results where few samples are tested and where Bacterial DNA is not detected.



130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 Phone: (519) 822-2265 Fax: (519) 822-3151

# Test Results for Gene-Trac Dehalococcoides Assay

Customer Name: GeoSyntec Consultants	Test Reference Number: DT-0143					
Contact: Jamey Rosen	Report Issued: 16-Jan-04					
	Site Sampling: 16-Dec-03					
Site Location: Aerojet	Sample(s) Received: 17-Dec-03					
,	DNA Extraction: 22-Dec-03					
Telephone: (519) 822-2230 ext.226	Gel Image Numbers: DHC-UP-0075/AG-0169A					
Fax: (519) 822-3151	Positive Control (+ve control): Assay with Cloned Dehalococcoides 16S rRNA gene					
E-mail: jrosen@geosyntec.com	Negative Control (-ve control): Assay with DNA extraction blank					

#### **Test Results:**

Customer Sample ID	SIREM ID	Non- Dehalococcoides Bacterial DNA	Dehalococcoides Test, Intensity (% of Positive Control)	Intensity Score	Test Result: Dehalococcoides DNA
WNN-RW-1	DHC-0739	Detected	0%	-	Not Detected
WNN-MW1	DHC-0740	Detected	0%	-	Not Detected
STSW-138A	DHC-0741	Detected	0%	-	Not Detected
Not applicable	+ve control	Not applicable	100%	+++	Detected (3 of 3 primer sets)
Not applicable	-ve control	Not applicable	0%	-	Not Detected

The above results refer only to that portion of the sample tested with the Gene-Trac assay. The test is based on a polymerase chain reaction (PCR) test with three primer sets specific to DNA sequences in the 16S rRNA gene of *Dehalococcoides* organisms. A positive (+ to ++++) result indicates that genetic material (DNA) from a member of the *Dehalococcoides* group was detected. *Dehalococcoides* organisms are the only microorganisms proven to possess the necessary enzymes for the complete dechlorination of tetrachloroethene or trichloroethene to ethene. The presence of *Dehalococcoides* genetic material has been positively correlated to complete dechlorination of chlorinated ethenes at contaminated sites.

"Dehalococcoides Test Intensity" = quantitative assessment of electrophoresis band intensity of PCR product as a percentage of the corresponding positive control reaction. This value provides a semi-quantitative assessment of the amount of *Dehalococcoides* genetic material present in the sample.

While band intensity may reflect actual concentration of the target organism, Gene-Trac is a semi-quantitative method and is only recommended to determine the presence or absence of *Dehalococcides* genetic material in the sample.

"Intensity Score", categorizes PCR product quantity based on the "intensity (% of positive control)":++++ = Very high band intensity (greater than 100% of positive control), +++ = high band intensity (67-100%), ++ moderate band intensity (34-66%) + = low band intensity (4-33%), -/+ = inconclusive (1-3%), - = no detectable band (0%)

Analyst:

Ximena Druar,

**Laboratory Technologist** 

Reviewed by:

Philip Dennis, M.A.Sc.,

**Technology Manager** 

Date: Jan. 29/04



#### Gene-Trac Dehalococcoides Case Narrative, Test DT-0143

#### Sample Condition:

SiREM received three-1L ground water samples collected at Aerojet on 17-Dec-2003. The samples arrived in a cooler with a measured temperature of 4.5°C and were stored at 4°C upon arrival in the laboratory. Each sample was vacuum filtered for the preparation of the genomic DNA.

#### Sample Description:

Client Designation	SiREM Designation	*"Dehrie Description"					
WNN-RW-1	DHC-0739	Orange debris	1000 mL				
WNN-MW1	DHC-0740	Brown debris	1000 mL				
STSW-138A	DHC-0741	Orange debris	1000 mL				

#### Notes:

#### **Test Notes:**

- Genomic DNA extraction was performed on the samples on 22-Dec-03.
- A PCR reaction using a universal bacterial primer was performed on all samples on 05-Jan-04. Positive results were obtained for both samples, indicating PCR amplifiable DNA was extracted from the samples.
- DHC specific PCR was performed on 08-Jan-03. Due to a slight positive signal on the negative control the DHC specific PCR was repeated on 14-Jan-04. All controls were normal on the second PCR reaction, results included herein.



<sup>\*&</sup>quot;Debris" refers to solid material (including biomass) remaining after vacuum filtration of groundwater through a 0.45 µM filter.

<sup>\*\*</sup> Varying amounts of groundwater may be used up to a maximum depending on the amount of debris recovered or the capacity of the filter prior to clogging, maximum is 1L.



## Interpretation of Gene-Trac Dehalococcoides Test Results

### **Explanation of Test Certificate Results:**

Upon completion of the Gene-Trac assay, the presence of Dehalococcoides DNA is assessed as either "Detected" or "Not Detected" based on interpretation of an electronic image of a DNA gel. Detects (gel bands) are then quantified using densitometry software and assigned a "band intensity percentage" using the relative intensity of the strongest bands obtained to the intensity of the positive control reaction. This value is in-turn used to assign a "Test intensity score" as follows:

○ 0% of positive control "-" = Not Detected

>67-100% of positive control = "+++" Detected

>0-1% of positive control "+/-" = Inconclusive

>100% of positive control = "++++" Detected

>1-33% of positive control "+" = Detected >33-67% of positive control "++" = Detected C Following a positive designation, the number of primer sets that effectively amplified sequences are listed. A test may be positive with 1 of 3, 2 of 3 or 3 of 3 primer sets.

## **Interpretation of Positive Results**

Positive Gene-Trac test results ("Dehalococcoides DNA detected") indicate that genetic material from organisms belonging to the Dehalococcoides group was detected in site materials. A positive test result indicates favorable potential for complete dechlorination of chloroethene compounds.

Quantification: The strength of positive results is a parameter that can be useful in certain cases, but it must be noted, that Gene-Trac is only a semi-quantitative method and results are meant to be interpreted for presence or absence of Dehalococcoides. Customers may wish to use the semi-quantitative information provided by the test at their discretion. In general, the presence of a very high intensity score, for example, "++++" can be interpreted to represent a sample that has a higher concentration of Dehalococcoides organisms than a sample with a low intensity score of "+". Interpretation of less extreme differences between "+" and "++", for example, carries more uncertainty. If sampling is consistent between events, an increase in the intensity score might be used to assess an increase in the population density of Dehalococcoides over time.

The greater the number of primer sets that test positive for a particular sample (of the three used) provides increasing confidence that the characteristics of the organism detected is typical of Dehalococcoides organisms. Therefore, a positive test result which is "+++ (3 of 3 primer sets)" would be considered more indicative of a "typical" Dehalococcoides organism than would a result of "+++ (1 of 3 primers sets)". In certain cases where the concentration of Dehalococcoides DNA is very low (usually +), only the most efficient primer set produces Polymerize Chain Reaction (PCR) product. This scenario is not usually indicative of variants of Dehalococcoides organisms but rather the detection threshold of the less efficient primer sets.

Rule of thumb: high intensity scores with multiple primer sets e.g. ++++ (3 of 3 primers sets) provide the most conclusive results, while low intensity scores e.g. "+ (1 of 3 primer sets)", provide somewhat less conclusive evidence for the potential of indigenous organisms able to facilitate complete dechlorination to ethene.

#### **Interpretation of Negative Result**

Negative Gene-Trac results indicate that Dehalococcoides DNA was not detected in a sample. This indicates the site has a poor potential for complete dechlorination of chloroethene components. In certain cases, a negative test result may not indicate the absence of Dehalococcoides DNA at a site. For example:

- 1) The concentration of Dehalococcoides DNA may be below the detection limit of the assay. The detection limit for the assay is approximately 200-300 gene copies per liter, therefore, a very low level of Dehalococcoides DNA may not be detectable.
- 2) Due to sampling bias, a particular sample might not contain Dehalococcoides DNA, even at sites that contain this organism at other locations. Therefore, the absence of detectable Dehalococcoides DNA over several site samples is suggestive (but not conclusive) that Dehalococcoides organisms are absent from the entire site. Confidence in negative results is increased where a larger numbers of samples are assessed and where "non- Dehalococcoides Bacterial DNA" is detected in these samples. This indicates that DNA was successfully extracted from the samples but that Dehalococcoides DNA was not detectable. It might occur, that no DNA is extractable from a sample, simply because a particular sample contains no biomass and not because Dehalococcoides is actually absent from the site.

Rule of thumb: negative Dehalococcoides test results obtained where numerous samples are taken and where "non-Dehalococcoides" Bacterial DNA is detected, are more conclusive than negative results where few samples are tested and where Bacterial DNA is not detected.



# Chain-of-Custody Form

130 Research Lane, Suite 2 · Guelph, Ontario, Canada N1G 5G3 · Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519)822-3151 www.siremlab.com

		0 N -	1	
		V	)	
(99)	)	<u></u>	<b>3</b>	
W	J			•

No. 0001

Page \_\_\_\_ of

Received By: Other Information Preservative Key 2. Other . 5. Other. 3. Other 4. Other 6. Other 1. HQ For Lab Use Only Relinquished By: Analysis Received By: Preservative # of Containers Invoice Information Relinquished By: Sampler's Printed
Name Graham Bradne Matríx Project # 七元016%172 8 2:1180/01 Sampling ate Time 4/4/08 9:55 Date Bill To: P.O. # Received By: Lab ID Ortanio Aerojet - WNN 30 Research 1 Jamég Rosen ⊠ § Sample Receipt 500 Synter Good 20,9% Grelph Yes WWW-MW-WNW-RW-575W-138A Client Sample ID Relinquished By: Cooler Temperature: Project Manager Cooler Condition: Sampler's Signature Custody Seals: Project Name Company Phone #

White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client

In the absence of an executed agreement, submission of samples to SiRBM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement with the terms and conditions of the SiREM Laboratory Services Agreement. The entity submitting samples shall be responsible for payment in full for said analyses.

Signature

Date/Time

Date/Time

Date/Time

Date/Time

Printed Name

Printed Name Firm

Printed Name

Printed Name Firm



# Interpretation of Gene-Trac Dehalococcoides Test Results

#### **Explanation of Test Certificate Results:**

Upon completion of the Gene-Trac assay, the presence of *Dehalococcoides* DNA is assessed as either "Detected" or "Not Detected" based on interpretation of an electronic image of a DNA gel. Detects (gel bands) are then quantified using densitometry software and assigned a "band intensity percentage" using the relative intensity of the strongest bands obtained to the intensity of the positive control reaction. This value is in-turn used to assign a "Test intensity score" as follows:

- 0% of positive control "-" = Not Detected
- >67-100% of positive control = "+++" Detected
- >0-1% of positive control "+/-" = Inconclusive
- >100% of positive control = "++++" Detected

with 1 of 3, 2 of 3 or 3 of 3 primer sets.

- >1-33% of positive control "+" = Detected
- Following a positive designation, the number of primer sets that effectively amplified sequences are listed. A test may be positive
- >33-67% of positive control "++" = Detected

## Interpretation of Positive Results

Positive Gene-Trac test results ("Dehalococcoides DNA detected") indicate that genetic material from organisms belonging to the Dehalococcoides group was detected in site materials. A positive test result indicates favorable potential for complete dechlorination of chloroethene compounds.

**Quantification:** The strength of positive results is a parameter that can be useful in certain cases, but it must be noted, that Gene-Trac is only a semi-quantitative method and results are meant to be interpreted for presence or absence of *Dehalococcoides*. Customers may wish to use the semi-quantitative information provided by the test at their discretion. In general, the presence of a very high intensity score, for example, "++++" can be interpreted to represent a sample that has a higher concentration of *Dehalococcoides* organisms than a sample with a low intensity score of "+". Interpretation of less extreme differences between "+" and "++", for example, carries more uncertainty. If sampling is consistent between events, an increase in the intensity score might be used to assess an increase in the population density of *Dehalococcoides* over time.

The greater the number of primer sets that test positive for a particular sample (of the three used) provides increasing confidence that the characteristics of the organism detected is typical of *Dehalococcoides* organisms. Therefore, a positive test result which is "+++ (3 of 3 primer sets)" would be considered more indicative of a "typical" *Dehalococcoides* organism than would a result of "+++ (1 of 3 primers sets)". In certain cases where the concentration of *Dehalococcoides* DNA is very low (usually +), only the most efficient primer set produces Polymerize Chain Reaction (PCR) product. This scenario is not usually indicative of variants of *Dehalococcoides* organisms but rather the detection threshold of the less efficient primer sets.

Rule of thumb: high intensity scores with multiple primer sets e.g. ++++ (3 of 3 primers sets) provide the most conclusive results, while low intensity scores e.g. "+ (1 of 3 primer sets)", provide somewhat less conclusive evidence for the potential of indigenous organisms able to facilitate complete dechlorination to ethene.

#### **Interpretation of Negative Result**

Negative Gene-Trac results indicate that *Dehalococcoides* DNA was not detected in a sample. This indicates the site has a poor potential for complete dechlorination of chloroethene components. In certain cases, a negative test result may not indicate the absence of *Dehalococcoides* DNA at a site. For example:

- 1) The concentration of *Dehalococcoides* DNA may be below the detection limit of the assay. The detection limit for the assay is approximately 200-300 gene copies per liter, therefore, a very low level of *Dehalococcoides* DNA may not be detectable.
- 2) Due to sampling bias, a particular sample might not contain *Dehalococcoides* DNA, even at sites that contain this organism at other locations. Therefore, the absence of detectable *Dehalococcoides* DNA over several site samples is suggestive (but not conclusive) that *Dehalococcoides* organisms are absent from the entire site. Confidence in negative results is increased where a larger numbers of samples are assessed and where "non- *Dehalococcoides* Bacterial DNA" is detected in these samples. This indicates that DNA was successfully extracted from the samples but that *Dehalococcoides* DNA was not detectable. It might occur, that no DNA is extractable from a sample, simply because a particular sample contains no biomass and not because *Dehalococcoides* is actually absent from the site.

Rule of thumb: negative *Dehalococcoides* test results obtained where numerous samples are taken and where "non-*Dehalococcoides*" Bacterial DNA is detected, are more conclusive than negative results where few samples are tested and where Bacterial DNA is not detected.



130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 Phone: (519) 822-2265 Fax: (519) 822-3151

## Test Results for Gene-Trac Dehalococcoides Assay

Customer Name: GeoSyntec Consultants	Test Reference Number: DT-0157 Shipment Reference Number: S-0163
Contact: Jamey Rosen	Report Issued: 27-Feb-04
Site Location: Aerojet	Site Sampling: 10-Feb-04 Sample(s) Received: 11-Feb-04 DNA Extraction: 18-Feb-04
<b>Telephone</b> : (519) 822-2230 ext.226	Gel Image Numbers: DHC-UP-0086, QIA-0031, AG-0185 C
Fax: (519) 822-3151	Positive Control (+ve control): Assay with Cloned <i>Dehalococcoides</i> 16S rRNA gene
E-mail: jrosen@geosyntec.com	Negative Control (-ve_control): Assay with DNA extraction blank

#### **Test Results:**

Customer Sample ID	SIREM ID	Non- Dehalococcoides Bacterial DNA	Dehalococcoides Test, Intensity (% of Positive Control)	Intensity Score	Test Result: Dehalococcoides DNA
STSW-166	DHC-0854	Detected	0%	-	Not Detected
Not applicable	+ve control	Not applicable	100%	+++	Detected (3 of 3 primer sets)
Not applicable	-ve control	Not applicable	0%	-	Not Detected

The above results refer only to that portion of the sample tested with the Gene-Trac assay. The test is based on a polymerase chain reaction (PCR) test with three primer sets specific to DNA sequences in the 16S rRNA gene of Dehalococcoides organisms. A positive (+ to ++++) result indicates that genetic material (DNA) from a member of the Dehalococcoides group was detected. Dehalococcoides organisms are the only microorganisms proven to possess the necessary enzymes for the complete dechlorination of tetrachloroethene or trichloroethene to ethene. The presence of Dehalococcoides genetic material has been positively correlated to complete dechlorination of chlorinated ethenes at contaminated sites.

"Dehalococcoides Test Intensity" = quantitative assessment of electrophoresis band intensity of PCR product as a percentage of the corresponding positive control reaction. This value provides a semi-quantitative assessment of the amount of Dehalococcoides genetic material present in the sample.

While band intensity may reflect actual concentration of the target organism, Gene-Trac is a semi-quantitative method and is only recommended to determine the presence or absence of Dehalococcoides genetic material in the sample.

"Intensity Score", categorizes PCR product quantity based on the "intensity (% of positive control)":++++ = Very high band intensity (greater than 100% of positive control), +++ = high band intensity (67-100%), ++ moderate band intensity (34-66%) + = low band intensity (4-33%), -/+ = inconclusive (1-3%), - = no detectable band (0%)

Analyst:

Reviewed by:

Date: Mar. 23/04

Laboratory Technologist

Philip Dennis, M.A.Sc.,

**Technology Manager** 



## Gene-Trac Dehalococcoides Case Narrative, Test DT-0157

#### **Sample Condition:**

SiREM received one -1L ground water sample from Aerojet on 11-Feb-2004. The sample arrived in a cooler with a measured temperature of 4.3°C and was stored at 4°C upon arrival in the laboratory. The sample was vacuum filtered for the preparation of the genomic DNA.

#### Sample Description:

Customer Sample ID	SiREM ID	*"Debris Description"	**Volume of Groundwater Utilized
STSW-166	DHC-0854	Rusty orange debris	1000 mL

#### Notes:

#### **Test Notes:**

- Genomic DNA extraction was performed on the samples on 18-Feb-04.
- A PCR reaction using a universal bacterial primer was performed on the sample on 18-Feb-04.
- The initial universal PCR was negative for the sample.
- DNA for the sample was further purified, and a second universal PCR was performed on 19-Febl-04. On the second attempt a positive result was obtained for the sample indicating that PCR amplifiable DNA was extracted from the sample.
- DHC specific PCR was performed on 26-Feb-04. All controls were normal, results included herein.

<sup>\*&</sup>quot;Debris" refers to solid material (including biomass) remaining after vacuum filtration of groundwater through a 0.45 µM filter.

<sup>\*\*</sup> Varying amounts of groundwater may be used up to a maximum depending on the amount of debris recovered or the capacity of the filter prior to clogging, maximum is 1L.



## Gene-Trac Dehalococcoides Case Narrative Addendum Test DT-0157

#### **Quantitative PCR Test Results:**

As part of a technology verification study the samples submitted were also tested using quantitative PCR with one primer set, these results are included below for use at the client's discretion. Note that due to detection limit and primer specificity differences, quantitative PCR results may not strictly correspond with standard Gene-Trac results.

#### **Quantitative PCR Test Results**

Customer Sample ID	SIREM ID	<i>Dehalococcoides</i> 16 S rRNA gene copies/L
STSW-166	DHC-0854	Not Detected (<7500)



# Chain-of-Cust∿dy Form

130 Research Lane, Suite 2 🧸 Guelph, Ontario, Canada N1G 5G3 😞 Phone (519) 822-2265 or toll free 1-866-251-1747 Fax (519)822-3151 www.siremlab.com

00 알

			2-0-V		
	r	_		~	-
5	ō	0			

₹

Page .

Received By: Other Information Preservative Key 3. Other. 4. Other . 6. Other. 2. Other 5. Other 0. None 1. HG Signature For Lab Use Only Relinquished By: Signature Analysis Received By: Preservative # of Containers Invoice Information Project # TR00/8/18 Relinquished By: Matrix Sampling ate Time Sampler's Printed Scoff 2/10/04 Date Bill To: P.O.# Received By: Fax# LabiD \_\_ 2 Sample Receipt 4,38 Jones Project Name Aeroje <u>₹</u> Relinquished By: Client Sample ID 575W-166 Cooler Temperature: Cooler Condition: Project Manager Custody Seals: Company Sampler's Signature Phone # Address

In the absence of an executed agreement, submission of samples to SIREM implies consent for performance of analyses specified on this Chain-of-Custody form and agreement

Date/Time

Date/Time

Date/Time

Printed Name Firm

Printed Name

Name Dunielle Rochands.

S. REM

Distribution: White - Return to Originator: Yellow - Lab Copy: Pink - Retained by Client Date/Time 3/19/04 16:00 Date/Time

Printed Name Firm

Printed Name Firm



## LETTER OF TRANSMITTAL

To: Rodne Aeroje  Via:  ☐ Messenger  ☑ Mail	***************************************		Date: From: Project & Task No.:  For:  □ Approva		
☐ Courier			☐ As Requ		
□ E-Mail			□ Review		
☐ Facsimile			□ For Con	nment	
					warmanessandenanissa
Number of Copies	Drawing Number	Date		Description	
2			SiREM laboratory	reports for WNN	***************************************
				`	
Remarks:					
MATERIAL PROPERTY AND ADDRESS OF THE PROPERTY ADDRESS					****
***************************************					
Copy to:			From:		
***************************************			(	GeoSyntec Consultants	
n/a					

130 Research Lane, Suite 2 Guelph, Ontario, CANADA N1G 5G3 Phone: (519) 822-2230 • Fax: (519) 822-3151



130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 Phone: (519) 822-2265 Fax: (519) 822-3151

## Test Results for Gene-Trac Dehalococcoides Assay

Customer Contact: Jamey Rosen SiREM Reference #: S-0224

Project: AeroJet Report Issued: 17-May-04

Date Sampled: 27-Apr-04 Gel Image Numbers: DHC-0101, QIA-0036,

AG-0212 A

Date Received: 29-Apr-04 Matrix: Groundwater

The Gene-Trac *Dehalococcoides* (DHC) test is a polymerase chain reaction (PCR) assay used to detect the 16S ribosomal ribonucleic acid (rRNA) gene of DHC organisms. A test result of "Detected" indicates that deoxyribonucleic acid (DNA) from a member of the DHC group is present in the sample. DHC organisms are the only microorganisms known to be capable of mediating complete dechlorination of chloroethenes (i.e., tetrachloroethene, trichloroethene, *cis*-dichloroethene, vinyl chloride) to ethene. The presence of DHC DNA has been correlated with complete dechlorination of chlorinated ethenes at contaminated sites.

### **Results Summary**

Customer Sample ID	SIREM ID	Date Extracted	Date Analyzed	<sup>1</sup> Test Intensity (% of Positive Control)	<sup>2</sup> Intensity Score	<sup>3</sup> Estimated <i>Dehalococcoides</i> 16S rRNA Gene Copies Per Liter	Test Result Dehalococcoides DNA
WNN-EW- 1	DHC- 0981	03-May-04	13-May-04	0%	-	<10 <sup>2</sup>	Not Detected
WNN-MW1	DHC- 0982	03-May-04	13-May-04	50%	++	10 <sup>4</sup> -10 <sup>6</sup>	Detected
WNN-EW- 2	DHC- 0983	03-May-04	13-May-04	0%	-	<10 <sup>2</sup>	Not Detected
WNN-138A	DHC- 0984	03-May-04	13-May-04	0%	-	<10 <sup>2</sup>	Not Detected

#### **Results Notes:**

<sup>&</sup>lt;sup>1</sup> "Test Intensity" = quantitative assessment of electrophoresis band intensity of PCR product as a percentage of the corresponding positive control reaction. This value provides a semi-quantitative assessment of the amount of *Dehalococcoides* genetic material present in the sample.

<sup>&</sup>lt;sup>2</sup> "Intensity Score", categorizes PCR product quantity based on the "intensity (% of positive control)":++++ = Very high band intensity (greater than 100% of positive control), +++ = high band intensity (67-100%), ++ moderate band intensity (34-66%) + = low band intensity (4-33%), -/+ = inconclusive (1-3%), - = no detectable band (0%)

<sup>&</sup>lt;sup>3</sup> "Estimated 16S rRNA gene copies per Liter", ranges based on historical comparisons of parallel samples tested with standard Gene-Trac and Quantitative Gene-Trac tests.



#### **Detailed Test Parameters**

Sample ID	Groundwater Sample Volume	<sup>1</sup> DNA Extraction/ PCR		Primer Reactio		Comments (Where
	Used (Liter)		1	2	3	Applicable)
WNN-EW-1	1.0	Positive	х	x	×	
WNN-MW1	1.0	Positive	✓ Ø		1	
WNN-EW-2	1.0	Negative	x	x	x	PCR amplifiable DNA not extractable from sample
WNN-138A	1.0	Positive	х	х	х	

Laboratory Controls	Description	2	Primer S Reactior		Comments
		1	2	3	
Positive Control	Assay with cloned DHC gene 10 <sup>5</sup> copies (Lot # 22041044574)	<b>√</b>	<b>~</b>	<b>~</b>	Normal
Positive Control	KB-1 Genomic DNA	✓	<b>✓</b>	✓	Normal
DNA extraction blank	DNA extraction sterile water (DB-0147)	x	x	х	Normal

#### Notes:

DHC - Dehalococcoides

16 S rRNA Gene - 16 S ribosomal ribonucleic acid gene

DNA - Deoxyribonucleic Acid

PCR - Polymerase Chain Reaction

µg - micrograms

na – not applicable
Assessment for presence of PCR amplifiable Bacteria DNA using universal primers.

<sup>2</sup> PCR Primers that exhibited positive or negative reactions

✓- primer set positive

x - primer set negative

☑ - primer set used for semi-quantitative test result of DHC in sample (strongest reaction)

Analyst:

Ximena Druar B.Sc. **Laboratory Technologist**  Reviewed by:

Philip Dennis, M.A.Sc. **Technology Manager** 



3249 Fitzgerald Road Rancho Cordova, CA 95742

August 13, 2003

CLS Work Order #: CMH0084 COC #: 39476

Scott Felton Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

**Project Name: Aerojet-WNN** 

Enclosed are the results of analyses for samples received by the laboratory on 08/05/03 12:30. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

08/13/03 15:26

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Scott Felton

CLS Work Order #: CMH0084

COC #: 39476

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
39B-0804-1445 (CMH0084-01) Water	Sampled: 08/04/	03 14:45	Received:	08/05/03	12:30				
Chlorate	ND	0.020	mg/L	1	CH30527	08/05/03	08/05/03	EPA 300.0	
39A-0804-1720 (CMH0084-02) Water	Sampled: 08/04/	03 17:20	Received:	08/05/03	12:30				
Chlorate	0.040	0.020	mg/L	1	CH30527	08/05/03	08/05/03	EPA 300.0	***************************************
138A-0805-0830 (CMH0084-03) Water	Sampled: 08/0	5/03 08:30	Received	l: 08/05/03	12:30				
Chlorate	ND	0.020	mg/L	1	CH30527	08/05/03	08/05/03	EPA 300.0	<del></del>
MW1-0805-0845 (CMH0084-04) Water	Sampled: 08/0	5/03 08:45	Receive	d: 08/05/03	3 12:30				
Chlorate	0.032	0.020	mg/L	1	CH30527	08/05/03	08/05/03	EPA 300.0	
38A-0805-1045 (CMH0084-05) Water	Sampled: 08/05/	03 10:45	Received:	08/05/03	12:30				
Chlorate	ND	0.020	mg/L	1	CH30527	08/05/03	08/05/03	EPA 300.0	

Fax: 916-638-4510

08/13/03 15:26

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Project: Aerojet-WNN

CLS Work Order #: CMH0084

Walnut Creek, CA 94596

Project Number: [none]
Project Manager: Scott Felton

COC #: 39476

#### **Notes and Definitions**

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

September 02, 2003

CLS Work Order #: CMH0406

**COC** #:

Scott Felton Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

**Project Name: TR0018** 

Enclosed are the results of analyses for samples received by the laboratory on 08/14/03 10:00. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

09/02/03 10:17

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596 Project: TR0018

Project Number: 18

CLS Work Order #: CMH0406

Walnut Creek, CA 94596

Project Manager: Scott Felton

COC#:

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
EW-1-0814-0720 (CMH0406-01) Water	Sampled: 08/1	4/03 07:20	Receive	ed: 08/14/0	3 10:00	<del> </del>			·
Chlorate	0.021	0.020	mg/L	1	CH31314	08/28/03	08/28/03	EPA 300.0	
EW-2-0814-0915 (CMH0406-02) Water	Sampled: 08/1	Received: 08/14/03 10:00							
Chlorate	0.020	0.020	mg/L	1	CH31314	08/28/03	08/28/03	EPA 300.0	

CA DOHS ELAP Accreditation/Registration Number 1233

916-638-7301

Fax: 916-638-4510

09/02/03 10:17

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596 Project: TR0018 Project Number: 18

CLS Work Order #: CMH0406

Project Manager: Scott Felton

COC #:

#### **Notes and Definitions**

DET

Analyte DETECTED

ND

Analyte NOT DETECTED at or above the reporting limit

NR

Not Reported

dry

Sample results reported on a dry weight basis

RPD

Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

September 11, 2003

CLS Work Order #: CMI0221 COC #: 31221

Scott Felton Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

Project Name: Aerojet-WNN

Enclosed are the results of analyses for samples received by the laboratory on 09/08/03 14:50. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

09/11/03 12:11

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

Project: Aerojet-WNN

Project Number: TR0018/18

Project Manager: Scott Felton

CLS Work Order #: CMI0221

COC #: 31221

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
138-0908-1017 (CMI0221-01) Water S	ampled: 09/08/0	03 10:17 R	eceived:	09/08/03 14	4:50		**************************************		
Chlorate	0.045	0.020	mg/L	1	CI30903	09/09/03	09/10/03	EPA 300.0	
MW-1-0908-1112 (CMI0221-02) Water	Sampled: 09/0	08/03 11:12	Receive	d: 09/08/03	3 14:50				
Chlorate	ND	0.020	mg/L	1	CI30903	09/09/03	09/10/03	EPA 300.0	
EW-1-0908-1450 (CMI0221-03) Water	Sampled: 09/0	8/03 14:50	Received	1: 09/08/03	14:50				
Chlorate	0.021	0.020	mg/L	1	CI30903	09/09/03	09/10/03	EPA 300.0	
EW-2-0908-1415 (CMI0221-04) Water	Sampled: 09/0	8/03 14:15	Received	1: 09/08/03	14:50				
Chlorate	0.020	0.020	mg/L	1	CI30903	09/09/03	09/10/03	EPA 300.0	
RW-1-0908-1332 (CMI0221-05) Water	Sampled: 09/0	8/03 13:32	Received	1: 09/08/03	14:50				
Chlorate	ND	0.020	mg/L	1	CI30903	09/09/03	09/10/03	EPA 300.0	

SUSPECTED CONSTITUENTS NAME AND ADDRESS SITE LOCATION JOB DESCRIPTION SAMPLED BY DATE SHIPPED BY RELINQUISHED BY (SIGN) 10:17 138-0908-1017 Z K 14:15 EN-2-0908- 1416 13:32 RW-1-0908- 1332 14:50 EW-1-0908- 1450 11:12 MW-1-0908- 1112 REPORT TO: FED X SAMPLE Consultants 925-943-3039 9 654b 80 80 PRINT NAME / COMPANY CHAIN OF CUSTODY UPS 5 MATRIX TR0018/18 XCLS (916) 638-7301 3249 FITZGERALD RD. RANCHO CORDOVA, CA. DESTINATION LABORATORY OTHER CLIENT JOB NUMBER Š CONTAINER TYPE 20/8/03 ロジロ OTHER DATE / TIME **PRESERVATIVES** SAMPLE RETENTION TIME Chlorate **ANALYSIS REQUESTED** CLS ID No.; CMI OFA RECEIVED BY (SIGN) CONDITIONS / COMMENTS FIELD CONDITIONS: 1 DAY COMPOSITE: TURN AROUND TIME AIR BILL # 2 DAY 5 DAY (1) HCL (2) HNO 10 DAY XXX LOG NO. 31221 PRINT NAME / COMPANY PO. # QUOTE # INVOICE TO: SPECIAL INSTRUCTIONS

3249 Fitzgerald Road Rancho Cordova, CA 95742

October 07, 2003

CLS Work Order #: CMI0976

COC #: 42266

Scott Felton Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

Project Name: Aerojet-WNN

Enclosed are the results of analyses for samples received by the laboratory on 09/29/03 13:34. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

10/07/03 15:03

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596

Project: Aerojet-WNN Project Number: [none]

CLS Work Order #: CMI0976

Project Manager: Scott Felton

COC #: 42266

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes	
RW-1-0929-0920 (CMI0976-01) Water	Sampled: 09/29	9/03 09:20	Received	1: 09/29/03	13:34				·····	
Chlorate	ND	0.020	mg/L	1	CJ30111	10/01/03	10/01/03	EPA 300.0		
138-0929-1008 (CMI0976-02) Water S	ampled: 09/29/0	3 10:08 R	eceived: (	09/29/03 13	3:34					
Chlorate	ND	0.020	mg/L	1	CJ30111	10/01/03	10/01/03	EPA 300.0		
MW-1-0929-1105 (CMI0976-03) Water	Sampled: 09/2	9/03 11:05	Received: 09/29/03 13:34							
Chlorate	ND	0.020	mg/L	1	CJ30111	10/01/03	10/01/03	EPA 300.0		
EW-1-0929-1245 (CMI0976-04) Water	Sampled: 09/29	/03 12:45	Received	l: 09/29/03	13:34					
Chlorate	ND	0.020	mg/L	1	CJ30111	10/01/03	10/01/03	EPA 300.0		
EW-2-0929-1310 (CMI0976-05) Water	Sampled: 09/29	/03 13:10	Received	1: 09/29/03	13:34					
Chlorate	ND	0.020	mg/L	1	CJ30111	10/01/03	10/01/03	EPA 300.0		

10/07/03 15:03

Geo Syntec Consultants 1500 Newell Ave., Ste. 800 Walnut Creek, CA 94596 Project: Aerojet-WNN

Project Number: [none]
Project Manager: Scott Felton

CLS Work Order #: CMI0976

COC #: 42266

#### **Notes and Definitions**

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

November 13, 2003

CLS Work Order #: CMJ1066 COC #: 43364

Jamey Rosen Geo Syntec Consultants- Canada 130 Research Lane, Ste. 2 Guelph, ONTARIO, CANADA N1G5G3

Project Name: Aerojet-WNN

Enclosed are the results of analyses for samples received by the laboratory on 10/29/03 11:55. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

11/13/03 14:33

Geo Syntec Consultants- Canada

130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Jamey Rosen

CLS Work Order #: CMJ1066

COC #: 43364

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WNN-MW1 (CMJ1066-01) GW	Sampled: 10/29/03 09:47	Receiv	ed: 10/29	9/03 11:55			·		
Chlorate	ND	0.020	mg/L	1	CK30808	11/08/03	11/11/03	EPA 300.0	
STSW-138A (CMJ1066-02) GW	Sampled: 10/29/03 10:41	Receiv	red: 10/2	9/03 11:55					
Chlorate	ND	0.020	mg/L	1	CK30808	11/08/03	11/11/03	EPA 300.0	

CA DOHS ELAP Accreditation/Registration Number 1233

3249 Fitzgerald Road Rancho Cordova, CA 95742 www.californialab.com

916-638-7301

Fax: 916-638-4510

11/13/03 14:33

Geo Syntec Consultants- Canada

130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Jamey Rosen

CLS Work Order #: CMJ1066

COC #: 43364

#### **Notes and Definitions**

DET A

Analyte DETECTED

ND

Analyte NOT DETECTED at or above the reporting limit

NR

Not Reported

dry

Sample results reported on a dry weight basis

RPD

Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

November 13, 2003

CLS Work Order #: CMK0021 COC #: 42265

Jamey Rosen Geo Syntec Consultants- Canada 130 Research Lane, Ste. 2 Guelph, ONTARIO, CANADA N1G5G3

Project Name: Aerojet-WNN

Enclosed are the results of analyses for samples received by the laboratory on 11/03/03 13:25. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

11/13/03 15:32

Geo Syntec Consultants- Canada 130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]
Project Manager: Jamey Rosen

CLS Work Order #: CMK0021

COC #: 42265

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Neces
WNN-RW-1 (CMK0021-01) Water							Anaryzed	Method	Notes
			CITCU. I	1703703 13.			· · · · · · · · · · · · · · · · · · ·		
Chlorate	ND	0.020	mg/L	1	CK30808	11/08/03	11/11/03	EPA 300.0	
WNN-EW-2 (CMK0021-02) Water	Sampled: 11/03/03	12:05 Rec	eived: 11	/03/03 13:	25				
Chlorate	ND	0.020	mg/L	1	CK30808	11/08/03	11/11/03	EPA 300.0	
WNN-EW-1 (CMK0021-03) Water	Sampled: 11/03/03	12:50 Rec	eived: 11	/03/03 13:	25				
Chlorate	ND	0.020	mg/L	1	CK30808	11/08/03	11/11/03	EPA 300.0	

Fax: 916-638-4510

11/13/03 15:32

Geo Syntec Consultants- Canada

130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Jamey Rosen

CLS Work Order #: CMK0021

COC #: 42265

#### **Notes and Definitions**

DET Analy

Analyte DETECTED

ND

Analyte NOT DETECTED at or above the reporting limit

NR

Not Reported

dry

Sample results reported on a dry weight basis

RPD

Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

January 12, 2004

CLS Work Order #: CNA0084

COC #: 42268

Jamey Rosen Geo Syntec Consultants- Canada 130 Research Lane, Ste. 2 Guelph, ONTARIO, CANADA N1G5G3

Project Name: Aerojet-WNN

Enclosed are the results of analyses for samples received by the laboratory on 01/06/04 13:45. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D.
Laboratory Director

01/12/04 15:40

Geo Syntec Consultants- Canada

Project: Aerojet-WNN

CLS Work Order #: CNA0084

130 Research Lane, Ste. 2 Guelph, ONTARIO, CANADA N1G5G3 Project Number: [none]

Project Manager: Jamey Rosen

COC #: 42268

## Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WNN-RW-1 (CNA0084-01) Water	Sampled: 01/06/04	09:50 Reco	eived: 01	/06/04 13:	45				
Chlorate	ND	0.020	mg/L	1	CN00100	01/07/04	01/07/04	EPA 300.0	
WNN-MW1 (CNA0084-02) Water	Sampled: 01/06/04	10:32 Rece	eived: 01	/06/04 13:4	15				
Chlorate	ND	0.020	mg/L	1	CN00100	01/07/04	01/07/04	EPA 300.0	
STSW-138A (CNA0084-03) Water	Sampled: 01/06/04	11:41 Rec	eived: 01	/06/04 13:	45				
Chlorate	ND	0.020	mg/L	1	CN00100	01/07/04	01/07/04	EPA 300.0	
WNN-EW-1 (CNA0084-04) Water	Sampled: 01/06/04	12:10 Rece	eived: 01	/06/04 13:4	15				
Chlorate	ND	0.020	mg/L	1	CN00100	01/07/04	01/07/04	EPA 300.0	
WNN-EW-2 (CNA0084-05) Water	Sampled: 01/06/04	12:40 Rece	eived: 01	/06/04 13:4	15				
Chlorate	ND	0.020	mg/L	1	CN00100	01/07/04	01/07/04	EPA 300.0	

Fax: 916-638-4510

01/12/04 15:40

Geo Syntec Consultants- Canada

130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Jamey Rosen

CLS Work Order #: CNA0084

COC #: 42268

#### **Notes and Definitions**

DET Analyte DETECTED

Analyte NOT DETECTED at or above the reporting limit ND

Not Reported NR

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

3249 Fitzgerald Road Rancho Cordova, CA 95742

April 14, 2004

CLS Work Order #: CNC1065

COC #: 42271

Jamey Rosen Geo Syntec Consultants- Canada 130 Research Lane, Ste. 2 Guelph, ONTARIO, CANADA N1G5G3

**Project Name: Aerojet-WNN** 

Enclosed are the results of analyses for samples received by the laboratory on 03/31/04 13:32. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,

James Liang, Ph.D. Laboratory Director

SUSPECTED CONSTITUENTS REC'D AT LAB BY: 38:10 horse SITE LOCATION JOB DESCRIPTION NAME AND ADDRESS SAMPLED BY PROJECT NAME SHIPPED BY: DATE RELINQUISHED BY (SIGN) TIME 10:45 10:35 2:12 REPORT TO: WMW-RW-1 575W-138A WWW-EW-I WMN-EW-2 WWW- MWI Rosen FED X SAMPLE IDENTIFICATION 514-811-1230 PRINT NAME / COMPANY CHAIN OF CUSTODY UPS 5 MATRIX 3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742 CLS (916) 638-7301 DESTINATION LABORATORY OTHER CLIENT JOB NUMBER CONTAINER NO. TYF TYPE 3/31/64 13:32 OTHER DATE / TIME **PRESERVATIVES** Chlorate SAMPLE RETENTION TIME 5 **ANALYSIS REQUESTED** CLS ID No.; Cnc 1045 RECEIVED BY (SIGN) PRESERVATIVES: CONDITIONS / COMMENTS: FIELD CONDITIONS: 1 DAY COMPOSITE: TURN AROUND TIME AIR BILL # 2 DAY (1) HCL (2) HNO 5 DAY 10 DAY LOG NO. 42271 PRINT NAME / COMPANY P.O. # QUOTE # INVOICE TO: SPECIAL INSTRUCTIONS (3) = COLD (4)

CLS - Labs

04/14/04 11:12

Geo Syntec Consultants- Canada

Project: Aerojet-WNN

CLS Work Order #: CNC1065

130 Research Lane, Ste. 2

Project Number: [none]

Guelph, ONTARIO, CANADA N1G5G3

Project Manager: Jamey Rosen

COC #: 42271

## Conventional Chemistry Parameters by APHA/EPA Methods

					***************************************		***************************************		
Analyte	Result	eporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
WNN-RW-1 (CNC1065-01) GW	Sampled: 03/31/04 09:55	Receiv	ed: 03/3	1/04 13:32			<del></del>		***************************************
Chlorate	ND	0.020	mg/L	1	CN02686	04/05/04	04/05/04	EPA 300.0	
WNN-EW-1 (CNC1065-02) GW	Sampled: 03/31/04 10:45	Receiv	ed: 03/31	1/04 13:32					
Chlorate	ND	0.020	mg/L	1	CN02686	04/05/04	04/05/04	EPA 300.0	
WNN-EW-2 (CNC1065-03) GW	Sampled: 03/31/04 10:35	Receiv	ed: 03/31	1/04 13:32					
Chlorate	ND	0.020	mg/L	1	CN02686	04/05/04	04/05/04	EPA 300.0	
WNN-MW1 (CNC1065-04) GW	Sampled: 03/31/04 10:30	Receiv	ed: 03/31	1/04 13:32					
Chlorate	ND	0.020	mg/L	1	CN02686	04/05/04	04/05/04	EPA 300.0	
STSW-138A (CNC1065-05) GW	Sampled: 03/31/04 11:19	Receiv	ed: 03/3	1/04 13:32					
Chlorate	ND	0.020	mg/L	1	CN02686	04/05/04	04/05/04	EPA 300.0	

CA DOHS ELAP Accreditation/Registration Number 1233

Fax: 916-638-4510

04/14/04 11:12

Geo Syntec Consultants- Canada

130 Research Lane, Ste. 2

Guelph, ONTARIO, CANADA N1G5G3

Project: Aerojet-WNN

Project Number: [none]

Project Manager: Jamey Rosen

CLS Work Order #: CNC1065

COC #: 42271

#### **Notes and Definitions**

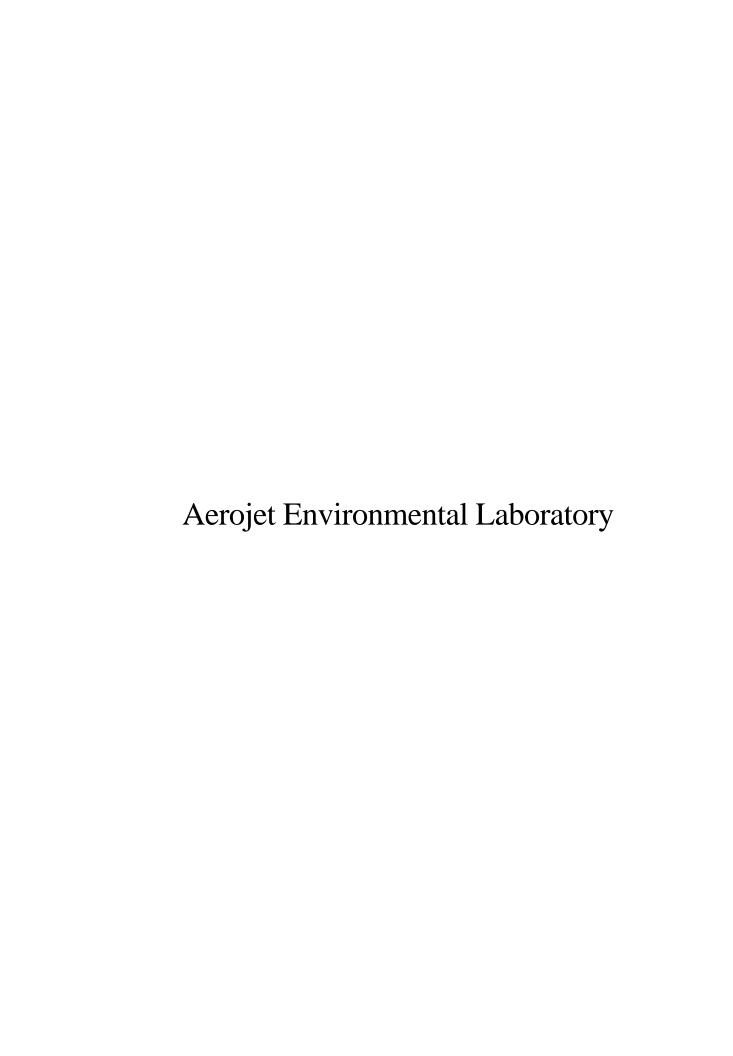
DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference



# Fricke, Rodney A

From:

Fricke, Rodney A

Sent:

Friday, November 14, 2003 11:54 AM

To:

Jamey Rosen (E-mail); Scott Felton (E-mail) John Gallinatti (E-mail); Evan Cox (E-mail)

Cc: Subject:

**WNN Data** 

MUV Z 5 Z003

I have received additional data for the project, as provided in the attached spreadsheet. Please provide field measurements and laboratory results for samples submitted to your laboratories. I'll send copies of the reports from the Aerojet laboratory.

Bromide was definitely captured by EW-2 and is being distributed again by RW-1, as shown by increasing concentrations at MW-1. I think we might have adequate hydraulic control between RW-1 and EW-2. Bromide has not yet appeared in EW-1, which suggest we may not be pumping enough at EW-1.

Iron and manganese concentrations appear to have stablized.



WDR-WQData.xls

Rodney A. Fricke

Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 916/355-5161 -6145 FAX

Reported on: 27 AUG 2003

EDL # 200113384 Primary # 39A-0804-1720 Description 39A-0804-1720

Source Type LIQUID

Sampler GB

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

**Recd Date-Time** 08/05/03 12:00 **Smpl Date-Time** 08/04/03 17:20

_F A 300.0 AITIOIT	S IN WATER BY IC	;			;	300.0
nstrument DIONEX DX-500	<u>Date</u> 08/05/03 14:24	Analyst E24959	Sampi PRIMA	e Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Chloride		7,7	mg/l	0.050	0.025	
Nitrite		< 0.050	mg/l	0.050	0.025	
Nitrate		2.1	mg/l	0.050	0.025	
Phosphate		0.10	mg/l	0.10	0.050	
Sulfate		11	mg/l	0.050	0.025	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	<u>Date</u>	Analyst	Samp	ie Analyzed	<b>Dilution Fact</b>	<u>or</u>
DIONEX DX-500-3	08/13/03 16:25	E70080	PRIMA	ARY	50	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		4300	ug/l	200	50	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
			Sample Analyzed		Dilution Factor	
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	<u>le Analyzed</u>	Dilution Fact	<u>UI</u>
Instrument TJA-61E	<u>Date</u> 08/20/03 13:05	<u>Analyst</u> E70180	Samp PRIMA		Dilution Factor	<u>.</u>
	Waranianiani					FLG
TJA-61E	Waranianiani	E70180  Result < 0.20	PRIMA	PQL 0.20	MDL 0.10	-
TJA-61E  Constituent	Waranianiani	E70180  Result < 0.20 < 0.080	Units  mg/l  mg/l	PQL 0.20 0.080	0.10 0.040	5.
TJA-61E  Constituent  Aluminum	Waranianiani	E70180  Result < 0.20	Units mg/l	PQL 0.20 0.080 0.0060	0.10 0.040 0.0030	5.
TJA-61E  Constituent  Aluminum  Arsenic	Waranianiani	E70180  Result < 0.20 < 0.080	Units  mg/l  mg/l	PQL 0.20 0.080	0.10 0.040	5.
Constituent Aluminum Arsenic Barium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024	Units  mg/l mg/l mg/l	PQL 0.20 0.080 0.0060	0.10 0.040 0.0030	5.
Constituent Aluminum Arsenic Barium Beryllium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010	Units  mg/l  mg/l  mg/l  mg/l  mg/l  mg/l	PQL 0.20 0.080 0.0060 0.0010	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium	Waranianiani	E70180  Result < 0.20 < 0.080 0.024 < 0.0010 < 0.0040	Units  mg/l  mg/l  mg/l  mg/l  mg/l  mg/l  mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	5
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	5
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0080 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	5
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.020 0.0040	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0040 0.0060	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	5
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0060 0.017	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.0050	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	5
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Waranianiani	E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.060 < 0.017	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	5.



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 2 of 2

Reported on: 27 AUG 2003

#### Data Flag Definitions

- A= Suspected aidol condensation product
  B= Analyte detected in blank
  C= Spiked sample recovery not within control limits (EPA N)
  D= Compound ran at second dilution
  E= Analyte exceeds calibration range
  E= Estimated concentration due to presence of an interference (EPA N)
- - G- Duplicate analysis not within control limits (EPA\*)
    H- Correlation coefficient for MSA less than 0.995 (EPA+)
    J- Estimated Value
    M- Duplicate injection precision not met
    N- Presumptive evidence of a compound
    S- Concentration detarmined by method of standard additions

#### **Definitions**

MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Reported on: 27 AUG 2003

EDL # 200113387
Primary # 38A-0805-1045
Description 38A-0805-1045
Source Type LIQUID
Sampler GB
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 08/05/03 12:00

 Smpl Date-Time
 08/05/03 10:45

nstrument DIONEX DX-500	<u>Date</u> 08/05/03 16:53	Analyst E24959	<u>Sampl</u> PRIMA	e Analyzed ARY	Dilution Facto	or
Constituent		Result	Units	PQL	MDL	FLG
Chloride		4.1	mg/l	0.050	0.025	***
Nitrite		< 0.050	mg/l	0.050	0.025	
Nitrate		0.71	mg/l	0.050	0.025	
Phosphate		0.11	mg/l	0.10	0.050	
Sulfate		9.5	mg/l	0.050	0.025	
EPA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument DIONEX DX-500-3	<u>Date</u> 08/13/03 17:56	Analyst E70080	Sampl PRIMA	e Analyzed ARY	Dilution Facto	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	water or or others
EPA 6010 DISSOL	VED METALS, IC	P, LIQUIDS		3010A	60	10B
<u>Instrument</u>	Date	Analyst	Sampl	e Analyzed	Dilution Facto	r
TJA-61E	08/20/03 13:20	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.047	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
		< 0.10	mg/l	0.10	0.050	
Selenium			mg/l	0.020	0.010	
		< 0.020			0.025	
Selenium		< 0.050	mg/l	0.050		
Selenium Silver Thallium Zinc		< 0.050 < 0.10	mg/l mg/l	0.10	0.050	
Selenium Silver Thallium Zinc Antimony		< 0.050 < 0.10 < 0.20	mg/l mg/l mg/l	0.10 0.20	0.050 0.10	
Selenium Silver Thallium Zinc Antimony Boron		< 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l	0.10 0.20 0.040	0.050 0.10 0.020	
Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080	0.050 0.10 0.020 0.0040	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040	0.050 0.10 0.020 0.0040 0.020	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0065	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060	0.050 0.10 0.020 0.0040 0.020 0.0030	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0065 0.019	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0065 0.019	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0065 0.019 19 5.8	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	
Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0065 0.019	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 2 of 2 Reported on: 27 AUG 2003

## Data Flag Definitions

- A- Suspected aldiol condensation product
  8- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumpsive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

MDL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Reported on: 27 AUG 2003

EDL # 200113383
Primary # 39B-0804-1445
Description 39B-0804-1445
Source Type LIQUID
Sampler GB
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 08/05/03 12:00

 Smpl Date-Time
 08/04/03 14:45

EPA 300.0 ANIONS	S IN WATER BY IC	)				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/05/03 14:45	Analyst E24959	<u>Sample Analyzed</u> PRIMARY		Dilution Factor 1	
Constituent		Result	Units	PQL	MDL	FLG
Nitrite Nitrate Phosphate Sulfate		< 0.050 5.5 < 0.10 18	mg/l mg/l mg/l mg/l	0.050 0.050 0.10 0.050	0.025 0.025 0.050 0.025	
EPA 300.0 ANION	S IN WATER BY I	<b>3</b>				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/05/03 14:56	<u>Analyst</u> E24959	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fac 25	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride		38	mg/l	1.2	0.62	ACCOMMENT OF THE PROPERTY OF
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 08/13/03 16:12	Analyst E70080	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fac 10	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		410	ug/l	40	10	

Reported on: 27 AUG 2003

EDL # 200113383 Primary # 39B-0804-1445 **Description** 39B-0804-1445 Source Type LIQUID Sampler GB Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 08/05/03 12:00 Smpl Date-Time 08/04/03 14:45

EPA 6010 DISSO	LVED METALS, IC	P, LIQUIDS		3010A	6	010B
nstrument JA-61E	<u>Date</u> 08/20/03 12:59	Analyst E70180	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.075	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.74	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.034	mg/l	0.0050	0.0025	
Calcium		31	mg/l	0.14	0.070	*
Magnesium		18	mg/l	0.050	0.025	
Sodium		17	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
	Data Flag Definition	ns			Definitions	

MDL- Method Detection Limit PCL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

A- Suspected aidol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Analysis Report Page 1 of 2

Reported on: 27 AUG 2003

EDL # 200113386

Primary # MWI-0805-0845

Description MWI-0805-0845

Source Type LIQUID

Sampler GB

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 08/05/03 12:00

 Smpl Date-Time
 08/05/03 08:45

nstrument DIONEX DX-500	<u>Date</u> 08/05/03 16:32	Analyst E24959	Samp PRIM/	le Analyzed ARY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Chloride		2.6	mg/l	0.050	0.025	
Nitrite		< 0.050	mg/l	0.050	0.025	
Nitrate		1.0	mg/l	0.050	0.025	
Phosphate		< 0.10	mg/l	0.10	0.050	
Sulfate		9.0	mg/l	0.050	0.025	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument DIONEX DX-500-3	<u>Date</u> 08/13/03 18:10	Analyst E70080	Samp PRIM	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		1400	ug/l	40	10	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	010B
nstrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Factor	<u>or</u>
「JA−61E	08/20/03 13:15	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.0061	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.66	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
		< 0.020	mg/l	0.020	0.010	
Nickel			mg/l	0.10	0.050	
Nickel Selenium		< 0.10				
Nickel Selenium Silver		< 0.020	mg/l	0.020	0.010	
Nickel Selenium Silver Thallium		< 0.020 < 0.050	mg/l mg/l	0.050	0.025	
Nickel Selenium Silver Thallium Zinc		< 0.020 < 0.050 < 0.10	mg/l mg/l mg/l	0.050 0.10	0.025 0.050	
Nickel Selenium Silver Thallium Zinc Antimony		< 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l	0.050 0.10 0.20	0.025 0.050 0.10	
Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040	0.025 0.050 0.10 0.020	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080	0.025 0.050 0.10 0.020 0.0040	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080 0.040	0.025 0.050 0.10 0.020 0.0040 0.020	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080 0.040 0.0060	0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.055	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.055	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.055	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 2 of Reported on: 27 AUG 2003

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyse detected in blank
  C- Spixed sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyse exceeds califoration range
  F- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

MDL- Method Detection Limit POL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

1 of

Page

EDL # 200113385
Primary # 138A-0805-0830
Description 138A-0805-0830
Source Type LIQUID
Sampler GB
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 08/05/03 12:00
Smpl Date-Time 08/05/03 08:30

	S IN WATER BY IC	,			•	0.00
nstrument DIONEX DX-500	<u>Date</u> 08/05/03 15:06	Analyst E24959	Sampi PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Comment Chloride	MS/MSD recoveries are	e greater than 120%.				
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite Nitrate Phosphate Sulfate		2.4 < 0.050 1.7 0.21 9.7	mg/l mg/l mg/l mg/l mg/l	0.050 0.050 0.050 0.10 0.050	0.025 0.025 0.025 0.050 0.025	С
PA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument DIONEX DX-500-3	<u>Date</u> 08/13/03 16:38	Analyst E70080	<u>Sampl</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Factor 50	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2600	ug/l	200	50	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	)10B
nstrument ГЈА-61E	<u>Date</u> 08/20/03 13:10	Analyst E70180	<u>Sampl</u> PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
		- 0.00	mg/l	0.20	0.10	
Aluminum		< 0.20				
Arsenic		< 0.080	mg/l	0.080	0.040	
Arsenic Barium		< 0.080 0.022	mg/l mg/l	0.0060	0.0030	
Arsenic Barium Beryllium		< 0.080 0.022 < 0.0010	mg/l mg/l mg/l	0.0060 0.0010	0.0030 0.00050	
Arsenic Barium Beryllium Cadmium		< 0.080 0.022 < 0.0010 < 0.0040	mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040	0.0030 0.00050 0.0020	
Arsenic Barium Beryllium Cadmium Chromium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080	mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080	0.0030 0.00050 0.0020 0.0040	
Arsenic Barium Beryllium Cadmium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060	0.0030 0.00050 0.0020 0.0040 0.0030	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30	0.0030 0.00050 0.0020 0.0040 0.0030 0.15	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.050 < 0.040 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.050 < 0.10 < 0.050 < 0.10 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.050 < 0.040 < 0.0080 < 0.0080 < 0.040 0.0064	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.040	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.022 0.0040 0.020 0.0040	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0064 0.0090	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.10 0.020 0.10 0.20 0.10 0.20 0.040 0.040 0.0080 0.040 0.0060 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.022 0.020 0.0040 0.020 0.0030 0.0025	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.040 0.0080 < 0.0090 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.0440 0.0080 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
Arsenic Barium Beryllium Cadmium Chromium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 0.0064 0.0090 12 7.1	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.0440 0.0060 0.0050 0.14	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.080 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.040 0.0080 < 0.0090 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.0440 0.0080 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report Page 2 of

Reported on: 27 AUG 2003

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  C- Compound ran at second distalson
  E- Analyte exceeds calibration range
  F- Estmated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

# Definitions

MOL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL PLG - Data Flag

Analysis Report Page 1 of

Reported on: 28 AUG 2003

EDL # 200114098 Primary # MW-2-0814-0840 Description MW-2-0814-0840 Source Type LIQUID

Sampler SF Report Distribution R. FRICKE, FILE Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/14/03 10:22 Smpl Date-Time 08/14/03 08:40

**EPA 8260 TENTATIVELY IDENTIFIED CMPDS** 

5030B

8260B

Instrument HP-2

08/14/03 21:23

**Analyst** E24985

Sample Analyzed PRIMARY

**Dilution Factor** 

**Comment** No qualifying unidentified peaks were found in this sample.

Constituent		Result	Units	PQL	MDL	FLG
EPA 8260 VOLATILI	ORGANICS BY	GC/MS		5030E	3	8260B
nstrument HP-2	<u>Date</u> 08/14/03 21:23	Analyst E24985	Samp PRIMA	le Analyzed ARY	Dilution F	Factor -
Constituent		Result	Units	PQL	MDL	FLG
Dichlorodifluoromethane		< 10	ug/l	10	5.0	
Chloromethane		< 10	ug/l	10	5.0	
Vinyl Chloride		< 10	ug/l	10	5.0	
Bromomethane		< 10	ug/l	10	5.0	
Chloroethane		< 10	ug/l	10	5.0	
Trichlorofluoromethane		< 5.0	ug/l	5.0	2.5	
Acetone		< 20	ug/l	20	10	
1.1-Dichloroethene		< 5.0	ug/l	5.0	2.5	
Freon 113		< 5.0	ug/l	5.0	2.5	
Dichloromethane		< 5.0	ug/l	5.0	2.5	
Carbon disulfide		< 5.0	ug/l	5.0	2.5	
t-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	
1.1-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Vinyl acetate		< 20	ug/l	20	10	
Methyl ethyl ketone		< 20	ug/l	20	10	
c-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	
Chloroform		< 5.0	ug/l	5.0	2.5	
1,1,1-Trichloroethane		< 5.0	ug/l	5.0	2.5	
1.2-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Carbon tetrachloride		< 5.0	ug/l	5.0	2.5	
Benzene		< 5.0	ug/l	5.0	2.5	
Trichloroethene		< 5.0	ug/l	5.0	2.5	
1,2-Dichloropropane		< 5.0	ug/l	5.0	2.5	
Bromodichloromethane		< 5.0	ug/l	5.0	2.5	
2-Chloroethyl vinyl ether		< 10	ug/l	10	5.0	J
Methyl isobutyl ketone		< 20	ug/l	20	10	•
c-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
t-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
Toluene		< 5.0	ug/l	5.0	2.5	
1,1,2-Trichloroethane		< 5.0	ug/l	5.0	2.5	
2-Hexanone		< 20	ug/l	20	10	
Dibromochloromethane		< 5.0	ug/l	5.0	2.5	
Tetrachioroethene		< 5.0	ug/l	5.0	2.5	
Chlorobenzene		< 5.0	ug/l	5.0	2.5	
Ethylbenzene		< 5.0	ug/l	5.0	2.5	
m-Xylene/p-Xylene		< 10	ug/l	10	5.0	
Styrene		< 5.0	ug/l	5.0	2.5	
o-Xylene		< 5.0	ug/l	5.0	2.5	
Bromoform		< 5.0	ug/l	5.0	2.5	
1,1,2,2-Tetrachloroethar	ne	< 5.0	ug/l	5.0	2.5	



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Analysis Report Page 2 of 2 Reported on: 28 AUG 2003

# Data Flag Definitions

- A= Suspected aldol condensation product
  8= Analyte detected in blank
  C= Spiked sample recovery not within control limits (EPA N)
  D= Compound ran at second dilution
  E= Analyte exceeds calibration range
  F= Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### Definitions

MOL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Analysis Report Page 1 of 2

Reported on: 28 AUG 2003

EDL # 200114097

Primary # MW-1-0813-1415

Description MW-1-0813-1415

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/14/03 10:22

Smpl Date-Time 08/13/03 14:15

**EPA 8260 TENTATIVELY IDENTIFIED CMPDS** 

5030B

8260B

Instrument HP-2 Date

Analyst E24985 Sample Analyzed PRIMARY

**Dilution Factor** 

mnla

Mution racto

1

**Comment** No qualifying unidentified peaks were found in this sample.

08/14/03 20:55

Constituent

Result

Units

PQL MDL

FLG

EPA 8260 VOLATILE	ORGANICS BY	GC/MS		5030E	3	8260B
Instrument HP-2	Date 08/14/03 20:55	Analyst E24985	Samp PRIM	le Analyzed ARY	Dilution Fi	actor
Constituent		Result	Units	PQL	MDL	FLO
Dichlorodifluoromethane	***************************************	< 10	ug/l	10	5.0	
Chloromethane		< 10	ug/l	10	5.0	
Vinyl Chloride		< 10	ug/l	10	5.0	
Bromomethane		< 10	ug/l	10	5.0	
Chloroethane		< 10	ug/l	10	5.0	
Trichlorofluoromethane		< 5.0	ug/l	5.0	2.5	
Acetone		< 20	ug/l	20	10	
1,1-Dichloroethene		< 5.0	∠ ug/l	5.0	2.5	
Freon 113		< 5.0	ug/l	5.0	2.5	
Dichloromethane		< 5.0	ug/l	5.0	2.5	
Carbon disulfide		< 5.0	ug/l	5.0	2.5	
t-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	5.
1.1-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Vinyl acetate		< 20	ua/l	20	10	
Methyl ethyl ketone		< 20	ug/l	20	10	
c-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	
Chloroform		< 5.0	ug/l	5.0	2.5	
1,1,1-Trichloroethane		< 5.0	ug/l	5.0	2.5	
1.2-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Carbon tetrachloride		< 5.0	ug/l	5.0	2.5	
Benzene		< 5.0 < 5.0	ug/l	5.0	2.5	
Trichloroethene		< 5.0	ug/l	5.0	2.5	
1,2-Dichloropropane		< 5.0	ug/l	5.0	2.5	
Bromodichloromethane		< 5.0	ug/l	5.0	2.5	
2-Chloroethyl vinyl ether		< 10	ug/l	10	5.0	J
Methyl isobutyl ketone		< 20	ug/l	20	10	J
c-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
t-1,3-Dichloropropene		< 5.0	ug/l	5.0 5.0	2.5 2.5	
		< 5.0	•		2.5	
Toluene 1,1,2-Trichloroethane		< 5.0 < 5.0	ug/l ug/l	5.0 5.0	2.5 2.5	
		< 20	•	5.0 20	10	
2-Hexanone		< 5.0	ug/l		2.5	
Dibromochloromethane		< 5.0 < 5.0	ug/l	5.0		
Tetrachloroethene			ug/l	5.0	2.5 2.5	
Chlorobenzene		< 5.0 < 5.0	ug/l	5.0		
Ethylbenzene			ug/l	5.0	2.5	
m-Xylene/p-Xylene		< 10	ug/l	10	5.0	
Styrene		< 5.0	ug/l	5.0	2.5	
o-Xylene		< 5.0	ug/l	5.0	2.5	
Bromoform		< 5.0	_ug/l	5.0	2.5	
1,1,2,2-Tetrachloroethane	е	< 5.0	ug/l	5.0	2.5	



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 2 of 2 Reported on: 28 AUG 2003

# **Data Flag Definitions**

- A- Suspected addiction condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second distribution
  E- Analyte exceeds calibration range
  E- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

MDL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

EDL # 200114100
Primary # EW-2-0814-0915
Description EW-2-0814-0915
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 08/14/03 10:22
Smpl Date-Time 08/14/03 09:15

EPA 300.0 ANION	S IN WATER BY I				3	300.0
instrument DIONEX DX-500	<u>Date</u> 08/14/03 17:14	Analyst E24959	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Chloride		3.4	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		0.31	mg/l	0.30	0.15	
Sulfate		9.4	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 08/20/03 16:00	<u>Analyst</u> E70080	Sampi PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2600	ug/l	40	10	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	010B
I <u>nstrument</u> TJA-61E	<u>Date</u> 08/27/03 10:23	<u>Analyst</u> E70180	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
		0.023	mg/l	0.0060	0.0030	
Barium				0.0010	0.00050	
Barium Beryllium		< 0.0010	mg/l	0.0010		
Barium		< 0.0040	mg/l	0.0040	0.0020	
Barium Beryllium Cadmium Chromium		< 0.0040 < 0.0080	mg/l mg/l	0.0040 0.0080	0.0020 0.0040	
Barium Beryllium Cadmium Chromium Copper		< 0.0040 < 0.0080 < 0.0060	mg/l mg/l mg/l	0.0040 0.0080 0.0060	0.0020 0.0040 0.0030	
Barium Beryllium Cadmium Chromium Copper Iron		< 0.0040 < 0.0080 < 0.0060 < 0.30	mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30	0.0020 0.0040 0.0030 0.15	
Barium Beryllium Cadmium Chromium Copper Iron Lead		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060	0.0020 0.0040 0.0030 0.15 0.030	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020	0.0020 0.0040 0.0030 0.15 0.030 0.010	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.20	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0062	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0062 < 0.0050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0062 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0062 < 0.0050 12 7.3	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0062 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	

Analysis Report Page 2 of 3

Reported on: 05 SEP 2003

EDL # 200114100
Primary # EW-2-0814-0915
Description EW-2-0814-0915
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 08/14/03 10:22
Smpl Date-Time 08/14/03 09:15

**EPA 8260 TENTATIVELY IDENTIFIED CMPDS** 

5030B

8260B

Instrument HP-2 <u>Date</u>

Analyst

Sample Analyzed

**Dilution Factor** 

111 -2

08/14/03 22:19

E24985

**PRIMARY** 

1

MDL

Comment

No qualifying unidentified peaks were found in this sample.

Constituent

Result

Units

PQL

FLG

EPA 8260 VOLATILE	E ORGANICS B	Y GC/MS		5030E	3	8260B
I <u>nstrument</u> HP-2	<u>Date</u> 08/14/03 22:19	Analyst E24985	<u>Samp</u> PRIM	le Analyzed ARY	Dilution F	actor
Constituent		Result	Units	PQL	MDL	FLO
Dichlorodifluoromethane		< 10	ug/l	10	5.0	- Announce white -
Chloromethane		< 10	ug/l	10	5.0	
Vinyl Chloride		< 10	ug/l	10	5.0	
Bromomethane		< 10	ug/l	10	5.0	
Chloroethane		< 10	ug/l	10	5.0	
Trichlorofluoromethane		< 5.0	ug/l	5.0	2.5	
Acetone		< 20	ug/l	20	10	
1,1-Dichloroethene		< 5.0	≥ ug/l	5.0	2.5	
Freon 113		< 5.0	ug/l	5.0	2.5	
Dichloromethane		< 5.0	ug/l	5.0	2.5	
Carbon disulfide		< 5.0	ug/l	5.0	2.5	
t-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	× .
1.1-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Vinyl acetate		< 20	ug/l	20	10	
Methyl ethyl ketone		< 20	ug/l	20	10	
c-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	
Chloroform		< 5.0	ug/l	5.0	2.5	
1,1,1-Trichloroethane		< 5.0	ug/l	5.0	2.5	
1,2-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Carbon tetrachloride		< 5.0	ug/l	5.0	2.5	
Benzene		< 5.0	ug/l	5.0	2.5	
Trichloroethene		6.7	ug/l	5.0	2.5	
1,2-Dichloropropane		< 5.0	ug/l	5.0	2.5	
Bromodichloromethane		< 5.0 < 5.0	ug/l	5.0	2.5	
2-Chloroethyl vinyl ether		< 10	ug/l	10	5.0	J
Methyl isobutyl ketone		< 20	ug/l	20	10	J
c-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
t-1,3-Dichloropropene		< 5.0	ug/l	5.0 5.0	2.5	
Toluene		< 5.0	ug/l	5.0	2.5	
1,1,2-Trichloroethane		< 5.0	ug/l	5.0 5.0	2.5	
2-Hexanone		< 20	ug/l	20	10	
Dibromochloromethane		< 5.0	ug/l	∠0 5.0	2.5	
Tetrachloroethene		< 5.0 < 5.0	ug/l	5.0 5.0	2.5 2.5	
Chlorobenzene		< 5.0	ug/l	5.0	2.5	
		< 5.0	ug/l	5.0 5.0	2.5	
Ethylbenzene		< 10	ug/l		2.5 5.0	
m-Xylene/p-Xylene		< 5.0	•	10 5.0	5.0 2.5	
Styrene		< 5.0 < 5.0	ug/l			
o-Xylene		< 5.0 < 5.0	ug/l	5.0	2.5	
Bromoform		< 5.0 < 5.0	ug/l	5.0	2.5	
1,1,2,2-Tetrachloroethan	е	< 5.0	ug/l	5.0	2.5	



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 3 of 3 Reported on: 05 SEP 2003

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within centrol limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

MDL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

EDL # 200114099
Primary # EW-1-0814-0720
Description EW-1-0814-0720
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 08/14/03 10:22
Smpl Date-Time 08/14/03 07:20

	S IN WATER BY IC	j.			3	300.0
Instrument DIONEX DX-500	<u>Date</u> 08/14/03 16:52	Analyst E24959	Samp PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Chloride		3.1	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Nitrate		1.2	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.9	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Facto	or
DIONEX DX-500-3	08/15/03 14:57	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		300	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	010B
	Data	<u> Analyst</u>	Samn	le Analyzed	Dilution Facto	or
Instrument	Date	Aliaival				
<u>Instrument</u> TJA-61E	<u>Date</u> 08/27/03 10:18	E70180	PRIMA		1	
	***************************************					FLO
TJA-61E	***************************************	E70180	PRIMA	ARY	1 MDL 0.10	FLO
TJA-61E  Constituent	***************************************	E70180  Result  < 0.20 < 0.080	Units mg/l mg/l	PQL 0.20 0.080	MDL 0.10 0.040	FLO
TJA-61E  Constituent  Aluminum	***************************************	E70180  Result < 0.20 < 0.080 0.012	Units  mg/l mg/l mg/l	PQL 0.20 0.080 0.0060	0.10 0.040 0.0030	FLC
Constituent Aluminum Arsenic	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010	Units  mg/I  mg/I  mg/I  mg/I  mg/I	PQL 0.20 0.080 0.0060 0.0010	MDL 0.10 0.040 0.0030 0.00050	FLC
Constituent Aluminum Arsenic Barium	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020	FLG
Constituent Aluminum Arsenic Barium Beryllium	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	FLC
Constituent Aluminum Arsenic Barium Beryllium Cadmium	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	FLC
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.0060 0.30	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	FLC
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel	***************************************	F70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	FLG
TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	***************************************	F70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	Market Prints  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	FLC
TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	FLC
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	FLC
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	PRIM/ Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt	***************************************	E70180  Result < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.050 0.10 0.20 0.050 0.10 0.20 0.040 0.0080	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025 0.050 0.10	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0040	PRIM/ Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.020 0.040 0.080 0.040	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025 0.050 0.110 0.020 0.0040 0.020	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.040 0.0088	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0088 < 0.0088 < 0.0088 < 0.0088	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.220 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.0050	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	FLC
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 0.0088 < 0.0050 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	FLC
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.088 < 0.0060 < 0.0080 < 0.0080 < 1.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0050 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14 0.050	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.025 0.070 0.025	FLC
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	***************************************	E70180  Result  < 0.20 < 0.080 0.012 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 0.0088 < 0.0050 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	FLG

Reported on: 05 SEP 2003

EDL # 200114099

Primary # EW-1-0814-0720

Description EW-1-0814-0720

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/14/03 10:22

Smpl Date-Time 08/14/03 07:20

OOCO	TENT	TIVE! V	IDENTIFIED	CNADDO

5030B

8260B

Instrument

**Date** 

08/14/03 21:51

<u>Analyst</u> E24985

Sample Analyzed **PRIMARY** 

**Dilution Factor** 1

HP-2 Comment

No qualifying unidentified peaks were found in this sample.

Constituent

Result

Units

PQL

MDL

FLG

EPA 8260 VOLATILI	E ORGANICS B	Y GC/MS		5030E	3	8260B
nstrument IP-2	Date 08/14/03 21:51	Analyst E24985	Samp PRIMA	le Analyzed ARY	Dilution Fa	actor
Constituent		Result	Units	PQL	MDL	FLO
Dichlorodifluoromethane		< 10	ug/l	10	5.0	
Chloromethane		< 10	ug/l	10	5.0	
Vinyl Chloride		< 10	ug/l	10	5.0	
Bromomethane		< 10	ug/l	10	5.0	
Chloroethane		< 10	ug/l	10	5.0	
Trichlorofluoromethane		< 5.0	ug/l	5.0	2.5	
Acetone		< 20	ug/l	20	10	
1.1-Dichloroethene		< 5.0	ug/l	5.0	2.5	
Freon 113		< 5.0	ug/l	5.0	2.5	
Dichloromethane		< 5.0	ug/l	5.0	2.5	
Carbon disulfide		< 5.0	ug/l	5.0	2.5	
t-1,2-Dichloroethene		< 5.0	ug/l	5.0	2.5	-
1.1-Dichloroethane		< 5.0 < 5.0	ug/l	5.0	2.5	
Vinyl acetate		< 20	ug/l	20	10	
		< 20		20	10	
Methyl ethyl ketone c-1,2-Dichloroethene		< 5.0	ug/l ug/l	20 5.0	2.5	
		< 5.0 < 5.0			2.5 2.5	
Chloroform			ug/l	5.0		
1,1,1-Trichloroethane		< 5.0	ug/l	5.0	2.5	
1,2-Dichloroethane		< 5.0	ug/l	5.0	2.5	
Carbon tetrachloride		< 5.0	ug/l	5.0	2.5	
Benzene		< 5.0	ug/l	5.0	2.5	
Trichloroethene		< 5.0	ug/l	5.0	2.5	
1,2-Dichloropropane		< 5.0	ug/l	5.0	2.5	
Bromodichloromethane		< 5.0	ug/l	5.0	2.5	
2-Chloroethyl vinyl ether	•	< 10	ug/l	10	5.0	J
Methyl isobutyl ketone		< 20	ug/l	20	10	
c-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
t-1,3-Dichloropropene		< 5.0	ug/l	5.0	2.5	
Toluene		< 5.0	ug/l	5.0	2.5	
1,1,2-Trichloroethane		< 5.0	ug/l	5.0	2.5	
2-Hexanone		< 20	ug/l	20	10	
Dibromochloromethane		< 5.0	ug/l	5.0	2.5	
Tetrachloroethene		< 5.0	ug/l	5.0	2.5	
Chlorobenzene		< 5.0	ug/l	5.0	2.5	
Ethylbenzene		< 5.0	ug/l	5.0	2.5	
m-Xylene/p-Xylene		< 10	ug/l	10	5.0	
Styrene		< 5.0	ug/l	5.0	2.5	
o-Xylene		< 5.0	ug/l	5.0	2.5	
Bromoform		< 5.0	ug/l	5.0	2.5	
1,1,2,2-Tetrachloroethar	ne.	< 5.0	ug/l	5.0	2.5	



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 3 of 3 Reported on: 05 SEP 2003

# Data Flag Definitions

- A- Suspected aldol condensation product
  8- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second delution
  E- Analyte exceeds calkbration range
  F- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

MDL - Method Detection Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

EDL # 200115161 Primary # 80A-0828-1321 **Description** 80A-0828-1321 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 08/28/03 13:47 Smpl Date-Time 08/28/03 13:21

EPA 6010 DISSO	DLVED METALS, IC	P, LIQUIDS		3010A	6	010B
nstrument ГЈА-61E	<u>Date</u> 09/16/03 11:18	Analyst E70180	Samp PRIM	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FL
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.020	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0070	mg/l	0.0060	0.0030	
Manganese		0.018	mg/l	0.0050	0.0025	
Calcium		11	mg/l	0.14	0.070	
Magnesium		6.7	mg/l	0.050	0.025	
Sodium		7.7	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
	Data Flag Definition	ns			Definitions	

MDL- Method Detection Limit POL- Practical Quantitation Limit ND - Not Detected above the MOL FLG- Data Flag

A- Suspected aldol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Analysis Report
Page 1 of 1
Reported on: 30 SEP 2003

EDL # 200117003

Primary # EW-1-0922-1215

Description EW-1-0922-1215

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/22/03 12:46

 Smpl Date-Time
 09/22/03 12:15

EPA 300.0 ANIONS	S IN WATER BY I	С			:	300.0
Instrument DIONEX DX-500	<u>Date</u> 09/23/03 14:10	Analyst E24959	Sample PRIMA	e Analyzed RY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Chloride	adelin er i sen hall andre andre kull adele e seminamundinismi den semilikali er Aller (FAF) (FAF) (FAF) (FAF) (FAF) (FAF)	2.6	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.6	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.6	mg/l	0.10	0.050	
EPA 314.0 PERCH	LORATE BY IC					314.0
<u>Instrument</u> DIONEX DX-500-3	<u>Date</u> 09/22/03 15:52	Analyst E70080	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact 10	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		280	ug/l	40	10	
	Data Flag Definit	ions			Definitions	
Suspected aidol condensation production in Analyte detected in blank:     Spiked sample recovery not within color compound ran at second dilution.     Analyte exceeds calibration range.     Estimated concentration due to present.	ontrol limits (EPA N)	G- Duplicate analysis not within co H- Correlation coefficient for MSA i J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by m	met cound	PQL- F ND - N	Method Detection Limit Practical Quantitation Limit of Detected above the MDL Data Flag	

Reported on: 30 SEP 2003

EDL # 200116220
Primary # EW-1-0911-1105
Description EW-1-0911-1105
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 11:05

EPA 300.0 ANION	S IN WATER BY I	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/11/03 17:19	Analyst E66526	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.6	ma/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.6	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	09/12/03 13:26	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		250	ug/l	40	10	
		E ODCANICS	· · · · · · · · · · · · · · · · · · ·			601
FPA 601 HALOGE	ENATED VOLATIL	E UNGANICO				
EPA 601 HALOGE			Samo	la Analyzad	Dilution Fact	tor
Instrument	<u>Date</u>	<u>Analyst</u>	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Instrument						tor
Instrument	<u>Date</u>	<u>Analyst</u>				`
Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/12/03 22:04	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/12/03 22:04	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan	<u>Date</u> 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	<u>Date</u> 09/12/03 22:04 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 09/12/03 22:04 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (chloroform	<u>Date</u> 09/12/03 22:04 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113	<u>Date</u> 09/12/03 22:04 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene	Date 09/12/03 22:04 ane see	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodiffuoromethan Dichloromethane Trichloroffuoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/12/03 22:04 ane see	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloromethane 1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloromethane Trichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane Trichloroethene	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/12/03 22:04	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane	Date 09/12/03 22:04  une de cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	`
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodiffuoromethan Dichloromethane Trichloroffuoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/12/03 22:04  une de cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLC

EDL # 200116220

Primary # EW-1-0911-1105

Description EW-1-0911-1105

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 11:05

	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument TJA-61E	<u>Date</u> 09/16/03 14:31	Analyst E70180	Sampi PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	acceptation of the second seco
Barium		0.017	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	ma/l	0.0010	0.00050	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.13	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0099	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.1	mg/l	0.050	0.025	
Sodium		9.2	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	~
Potassium	TIC VOLATILE OR		mg/l	2.0	1.0	602
Potassium  EPA 602 AROMA  nstrument	TIC VOLATILE OR <u>Date</u> 09/15/03 22:01			le Analyzed	Dilution Fact	
Potassium  PA 602 AROMA  nstrument  MPH 6890	<u>Date</u>	GANICS Analyst	Samp	le Analyzed	Dilution Fact	<u>or</u>
Potassium  PA 602 AROMA  nstrument  MPH 6890  Constituent	<u>Date</u>	GANICS  Analyst E24048  Result	<u>Samp</u> PRIMA Units	le Analyzed ARY PQL	Dilution Fact 1	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene	<u>Date</u>	GANICS  Analyst E24048  Result < 0.50	Sampi PRIMA Units	le Analyzed ARY PQL 0.50	Dilution Fact 1  MDL  0.25	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Fact 1 MDL 0.25 0.25 0.25 0.25	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	Dilution Fact 1 MDL 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Potassium  EPA 602 AROMA  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/15/03 22:01	Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOI	<u>Date</u> 09/15/03 22:01	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or FLG 7060
Potassium  EPA 602 AROMA  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 22:01 _VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Sampl PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or FLG 7060
Potassium  EPA 602 AROMA  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOI Instrument	<u>Date</u> 09/15/03 22:01 _VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or FLG 7060



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report
Page 3 of 3

Reported on: 30 SEP 2003

EDL # 200116220
Primary # EW-1-0911-1105
Description EW-1-0911-1105
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/11/03 12:42

 Smpl Date-Time
 09/11/03 11:05

EPA 7421 DISS	OLVED LEAD, GFAA	١		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 13:04	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		0.0030	mg/l	0.0020	0.00060	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 11:00	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Constituent Selenium		<b>Result</b> < 0.0020	Units mg/l	<b>PQL</b> 0.0020	<b>MDL</b> 0.00060	FLG
	<u>Data Flag Definitio</u>	< 0.0020			· · · · · · · · · · · · · · · · · · ·	FLG

Reported on: 30 SEP 2003

EDL # 200115774

Primary # EW-1-0908-1450

Description EW-1-0908-1450

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 14:50

EPA 300.0 ANION	S IN WATER BY I	j				300.0
nstrument DIONEX DX-500	<u>Date</u> 09/09/03 12:45	Analyst E66526	Sampl PRIMA	e Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.5	mg/l	0.20	0.10	C
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.3	ma/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.9	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	09/10/03 16:58	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FL
Perchlorate		410	ug/l	40	10	
			Samp	le Analyzed	Dilution Fac	601 tor
Instrument	Date 09/11/03 20:36	E ORGANICS  Analyst E24048	Samp PRIMA	le Analyzed ARY	Dilution Fac 1	
Instrument	Date	Analyst				
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride	Date	Analyst E24048 Result < 0.50	PRIMA	PQL 0.50	1 MDL 0.25	tor
Instrument HP 6890 GC Constituent	<u>Date</u> 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride	<u>Date</u> 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	Date 09/11/03 20:36 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	Date 09/11/03 20:36 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	Date 09/11/03 20:36 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroffrom Freon 113	Date 09/11/03 20:36 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane	Date 09/11/03 20:36 ine de desis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (cChloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/11/03 20:36 ine de desis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/11/03 20:36 one ne sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/11/03 20:36 one ne sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane	Date 09/11/03 20:36 one ne sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Dichloromethane 1,1-Dichloromethane 1,1-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethane	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane 1,1,1-Trichloroethane	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane Dibromochloromethane	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Dibromochloromethan	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Trochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Dibromochloromethan	Date 09/11/03 20:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

Reported on: 30 SEP 2003

EDL # 200115774

Primary # EW-1-0908-1450

Description EW-1-0908-1450

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 14:50

/	/ED METALS, ICF	P, LIQUIDS		3010A	60	010B
nstrument JA-61E	Date 09/16/03 10:24	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.016	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
		< 0.0060	mg/l	0.0060	0.0030	
Copper		< 0.30	mg/l	0.30	0.15	
Iron		< 0.020	mg/l	0.020	0.010	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020 < 0.050		0.020	0.010	
Thallium			mg/l		0.025	
Zinc		0.22	mg/l	0.10		
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0097	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		6.9	mg/l	0.050	0.025	
Sodium		8.7	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	5
PA 602 AROMAT	IC VOLATILE OR	GANICS				602
nstrument	Date	Analyst		le Analyzed	Dilution Factor	
nstrument			<u>Samp</u> PRIMA		Dilution Fact	
nstrument	Date	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	<u>or</u>
nstrument MPH 6890	Date	Analyst E24048  Result < 0.50	Units  ug/l	PQL 0.50	1 MDL 0.25	<u>or</u>
nstrument MPH 6890 Constituent	Date	Analyst E24048 Result	Units  ug/l ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	<u>or</u>
nstrument MPH 6890 Constituent Benzene Toluene	Date	Analyst E24048  Result < 0.50	Units  ug/l	PQL 0.50	0.25 0.25 0.25 0.25	<u>or</u>
nstrument MPH 6890 Constituent Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	0.25 0.25 0.25 0.25 0.25	<u>or</u>
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 12:32	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	Date 09/15/03 12:32 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLC 7060
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 12:32	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLC 7060
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	Date 09/15/03 12:32 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLC 7060



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report Page 3 of 3

Reported on: 30 SEP 2003

EDL # 200115774

Primary # EW-1-0908-1450

Description EW-1-0908-1450

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 14:50

EPA 7421 DISS	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:07	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		0.0023	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	•	7470A
<u>Instrument</u> PE 2380	<u>Date</u> 09/23/03 10:20	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed .RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 10:08	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	etor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	engandama
	Data Flag Definition	ons			Definitions	~
Suspected aldol condensation p     Analyte detected in blank     Spiked sample recovery not wit     Compound ran at second diluti     Analyte exceeds calibration ran     Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within co H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met cound	PQL- Pr	ethod Detection Limit actical Quantitation Limit Detected above the MDI ta Flag	L



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

**Analysis Report** Page 1 of

Reported on: 30 SEP 2003

EDL # 200117002

Primary # EW-2-0922-1155

Description EW-2-0922-1155

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/22/03 12:46

Smpl Date-Time 09/22/03 11:55

EPA 300.0 ANION	S IN WATER BY IC					300.0
Instrument DIONEX DX-500	<u>Date</u> 09/23/03 13:59	Analyst E24959	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite Bromide Nitrate Phosphate Sulfate		3.0 < 0.050 < 0.050 1.3 < 0.30 9.3	mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.050 0.050 0.050 0.30 0.10	0.10 0.025 0.025 0.025 0.025 0.15 0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 09/22/03 15:39	Analyst E70080	Samp PRIM	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2800	ug/l	40	10	

# Data Flag Definitions

**Definitions** 

MDL- Method Detection Limit PCL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

A- Suspected aidol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA+)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Reported on: 30 SEP 2003

Primary # EW-2-0911-1010

Description EW-2-0911-1010

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

**Recd Date-Time** 09/11/03 12:42 **Smpl Date-Time** 09/11/03 10:10

EPA 300.0 ANIONS	S IN WATER BY IC					300.0
instrument DIONEX DX-500	<u>Date</u> 09/11/03 16:58	Analyst E66526	<u>Sampl</u> PRIMA	e Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLC
Chloride		3.0	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		0.31	mg/l	0.30	0.15	
Sulfate		9.8	mg/l	0.10	0.050	
EPA 314.0 PERCH	LORATE BY IC					314.0
I <u>nstrument</u> DIONEX DX-500-3	<u>Date</u> 09/12/03 12:58	Analyst E70080	Sampl PRIMA	e Analyzed ARY	Dilution Fac 10	tor
Constituent		Result	Units	PQL	MDL	FLO
Davablevste		2700	ug/l	40	10	
Perchlorate  EPA 601 HALOGE  Instrument	NATED VOLATILI	E ORGANICS  Analyst		le Analyzed	Dilution Fac	601
EPA 601 HALOGE					Dilution Fac	
EPA 601 HALOGE	Date	<u>Analyst</u>	Samp		***************************************	tor
EPA 601 HALOGE Instrument HP 6890 GC Constituent	Date	Analyst E24048	<u>Samp</u> PRIMA	ARY	MDL 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/12/03 20:55	Analyst E24048 Result	Samp PRIMA Units	PQL	1 MDL	tor
EPA 601 HALOGE Instrument HP 6890 GC Constituent	<u>Date</u> 09/12/03 20:55	Analyst E24048 Result	Sampi PRIMA Units ug/l ug/l	PQL 0.50	MDL 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluoromethal	<u>Date</u> 09/12/03 20:55	Analyst E24048  Result < 0.50 < 0.50	Samp PRIMA Units ug/l	PQL 0.50 0.50	0.25 0.25	tor
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane	<u>Date</u> 09/12/03 20:55	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 09/12/03 20:55	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	Date 09/12/03 20:55 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene	Date 09/12/03 20:55 ne	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c	Date 09/12/03 20:55 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sample PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethene (c	Date 09/12/03 20:55 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113	Date 09/12/03 20:55 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	Date 09/12/03 20:55 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane	Date 09/12/03 20:55 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sample PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane Carbon Tetrachloride	Date 09/12/03 20:55 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Trichloromethane Trichloromethane	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethan	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,2-Trichloroethane 1,2-Dichloromethan 1,2-Dichloroethane 1,1,2-Trichloroethane Dibromochloromethan Bromoform Tetrachloroethene	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 09/12/03 20:55	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor

Analysis Report Page 2 of 3

Reported on: 30 SEP 2003

EDL # 200116218

Primary # EW-2-0911-1010

Description EW-2-0911-1010

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 10:10

	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument ΓJA–61E	<u>Date</u> 09/17/03 10:48	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0000	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0040	ma/l	0.0040	0.0040	
		< 0.0060	mg/l	0.0060	0.0040	
Copper		< 0.30	mg/l	0.30	0.0000	
Iron			•		****	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0070	mg/l	0.0060	0.0030	
Manganese		< 0.0050	ma/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.3	mg/l	0.050	0.025	
Sodium		8.0	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
EPA 602 AROMAT	IC VOLATILE OR	GANICS				602
		GANICS Analyst	Samp	le Analyzed	Dilution Fact	
nstrument	Date 09/15/03 20:46		Samp PRIMA		Dilution Fact	
nstrument	Date	<u>Analyst</u>	***************************************			or
nstrument MPH 6890 Constituent	Date	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	or
nstrument MPH 6890 Constituent Benzene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	1 MDL 0.25	or
nstrument MPH 6890 Constituent Benzene Toluene	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	or
nstrument MPH 6890 Constituent Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument WPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Benzene Toluene Ethylbenzene 1,4–Dichlorobenzene 1,3–Dichlorobenzene 1,2–Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 20:46	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/15/03 20:46	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/15/03 20:46 .VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Analysis Report
Page 3 of 3
Reported on: 30 SEP 2003

EDL # 200116218

Primary # EW-2-0911-1010

Description EW-2-0911-1010

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 10:10

<b>EPA 7421 DISS</b>	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:35	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	agender de l'acceptant de l'acceptan
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR	:	7470A	7	7470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:40	Analyst E70180	Sample PRIMA	e Analyzed .RY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	***************************************
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 10:34	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	~
- Suspected aidol condensation   - Analyte detected in blank - Spiked sample recovery not wit - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met bound	PQL- Pra	thod Detection Limit actical Quantitation Limit Detected above the MDL a Flag	

Reported on: 30 SEP 2003

EDL # 200115775

Primary # EW-2-0908-1415

Description EW-2-0908-1415

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 14:15

	S IN WATER BY IC		0		Dilution Foot	
instrument DIONEX DX-500	<u>Date</u> 09/09/03 12:56	Analyst E66526	<u>Sample Analyzed</u> PRIMARY		<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLG
Chloride		3.2	ma/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.9	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument Date		<u>Analyst</u>	Sample Analyzed		<b>Dilution Factor</b>	
DIONEX DX-500-3	09/10/03 17:12	E70080	PRIMARY		10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		3000	ug/l	40	10	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS				601
Instrument	<u>Date</u>	<u>Analyst</u>		le Analyzed	<b>Dilution Fac</b>	tor
HP 6890 GC	09/11/03 21:10	E24048	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLC
		0.50		0.50	0.25	
Vinyl Chloride		< 0.50	ug/l			
Vinyl Chloride Dichlorodifluorometha	ine	< 0.50	ug/l	0.50	0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane		< 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan		< 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50 0.50	0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene		< 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c	e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (chloroform	e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (chloroform Freon 113	e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluorometha Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroform Freon 113 1,2-Dichloroethane	e cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	e cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	cis/trans)	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	cis/trans)	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l · ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar	e cis/trans) e ne	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene	ecis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane	ecis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Trichloroethene 1,1,2-Trichloroethane Trichloroethene Trichloroethene Trichloromethane Dibromochloromethane Bromoform Tetrachloroethene	ecis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethan Bromoform	ecis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	

Analysis Report

Page 2 of 3

Reported on: 30 SEP 2003

EDL # 200115775

Primary # EW-2-0908-1415

Description EW-2-0908-1415

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/08/03 16:10 Smpl Date-Time 09/08/03 14:15

TLW OOLO DIGGOE	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument ГЈА-61E	<u>Date</u> 09/16/03 10:40	Analyst E70180	Sampi PRIM	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.023	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	ma/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
		< 0.20	•		0.030	
Antimony		< 0.20	mg/l	0.20		
Boron			mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0073	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.4	mg/l	0.050	0.025	
Sodium		7.9	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	*.
EPA 602 AROMAT	IC VOLATILE OR	GANICS				602
			Samni	le Analyzed	Dilution Fact	
nstrument	Date 09/15/03 13:10	GANICS  Analyst E24048	Sampi PRIMA	le Analyzed ARY	Dilution Fact	
nstrument	Date	Analyst	***************************************			
nstrument	Date	Analyst	***************************************			or
nstrument MPH 6890	Date	Analyst E24048	PRIMA	ARY	1	or
nstrument MPH 6890 Constituent Benzene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	or
nstrument MPH 6890 Constituent Benzene Toluene	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	MDL 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50	MDL 0.25 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 13:10	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date 09/15/03 13:10 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene EPA 7060 DISSOL	<u>Date</u> 09/15/03 13:10 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	Date 09/15/03 13:10 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report
Page 3 of 3
Reported on: 30 SEP 2003

EDL # 200115775

Primary # EW-2-0908-1415

Description EW-2-0908-1415

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 14:15

EPA 7421 DISS	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:14	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor:
Constituent		Result	Units	PQL	MDL	FLG
Lead		0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	•	7470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:25	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed .RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	Aprilippijam Aprilip
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 10:14	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed .RY	Dilution Fac 1	<u>:tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium	usaus austras es en como como assessa en especialmente e que que arrentificamente e en en el forme date dans da des	< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	*
Suspected aldol condensation p     Analyte detected in blank     Spiked sample recovery not wit     Compound ran at second dilutic     Analyte exceeds calibration ran     Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA li J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met	PQL Pra	thod Detection Limit ctical Quantitation Limit Detected above the MDI a Flag	-

EDL # 200116217
Primary # RW-1-0911-0925
Description RW-1-0911-0925
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/11/03 12:42

 Smpl Date-Time
 09/11/03 09:25

EPA 300.0 ANION	S IN WATER BY IC	,				
nstrument DIONEX DX-500	<u>Date</u> 09/11/03 16:47	Analyst E66526	Samp PRIM	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLC
Chloride		2.9	mg/l	0.20	0.10	
Nitrite		< 0.050	ma/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	ma/l	0.30	0.15	
Sulfate		9.7	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	09/12/03 12:44	E70080	PRIMA		10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2300	ug/l	40	10	
	NATED VOLATIL	E ORGANICS				601
	Date 09/12/03 20:19	E ORGANICS  Analyst E24048		le Analyzed ARY	Dilution Fac	•••
EPA 601 HALOGE Instrument HP 6890 GC	<u>Date</u>	<u> Analyst</u>	Samp			•••
EPA 601 HALOGE Instrument HP 6890 GC Constituent	<u>Date</u>	Analyst E24048 Result	<u>Samp</u> PRIM/ Units	PQL	1 MDL	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/12/03 20:19	Analyst E24048 Result < 0.50	Samp PRIM/ Units ug/l	PQL 0.50	1 MDL 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/12/03 20:19	Analyst E24048  Result < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/12/03 20:19	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan	<u>Date</u> 09/12/03 20:19	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/12/03 20:19	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	Date 09/12/03 20:19 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	Date 09/12/03 20:19 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (chloroform	Date 09/12/03 20:19 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (Chloroform Freon 113	Date 09/12/03 20:19 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,1,1-Trichloroethane 1,1,1-Trichloroethane	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane Carbon Tetrachloride	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Chloroform Freen 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethene	Date 09/12/03 20:19 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane	Date 09/12/03 20:19  ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane	Date 09/12/03 20:19  ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethene 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloropropane Trichloroethene 1,2-Dichloropropane Trichloroethene 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/12/03 20:19  ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	Date 09/12/03 20:19  ane ae cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units  Ug/I  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

Analysis Report Page 2 of 3

Reported on: 30 SEP 2003

EDL # 200116217

Primary # RW-1-0911-0925

Description RW-1-0911-0925

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/11/03 12:42

 Smpl Date-Time
 09/11/03 09:25

	VED METALS, ICI	P, LIQUIDS		3010A	60	010B
nstrument 「JA-61E	<u>Date</u> 09/17/03 10:53	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.021	ma/l	0.0060	0.0030	
Beryllium		< 0.0010	ma/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	ma/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
		< 0.30	•		0.000	
Iron			mg/l	0.30		
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0075	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	ma/l	0.14	0.070	
Magnesium		7.2	mg/l	0.050	0.025	
Sodium		8.0	ma/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
PA 602 AROMAT	IC VOLATILE OR	GANICS				602
nstrument	IC VOLATILE OR Date 09/15/03 20:08	GANICS <u>Analyst</u> E24048	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Factor	
nstrument	Date	Analyst			***************************************	or
nstrument MPH 6890 Constituent	Date	Analyst E24048 Result	PRIM/ Units	PQL	1 MDL	or
nstrument MPH 6890 Constituent Benzene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	1 MDL 0.25	or
nstrument MPH 6890  Constituent Benzene Toluene	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	MDL 0.25 0.25	or
nstrument MPH 6890 Constituent Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 20:08	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene EPA 7060 DISSOL	<u>Date</u> 09/15/03 20:08	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene EPA 7060 DISSOL Instrument	<u>Date</u> 09/15/03 20:08 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date 09/15/03 20:08 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report
Page 3 of 3
Reported on: 30 SEP 2003

EDL # 200116217
Primary # RW-1-0911-0925
Description RW-1-0911-0925
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 09:25

<b>EPA 7421 DISS</b>	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:28	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac 1	etor
Constituent		Result	Units	PQL	MDL	FLG
Lead	o por una conservamente mentra en la menuma mante en entre en el en entre el entre en el entre el entre en el e	0.0031	mg/l	0.0020	0.00060	regional and and generalize to the deposition of
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:35	Analyst E70180	<u>Şamplı</u> PRIMA	e Analyzed RY	Dilution Fac 1	<u>ctor</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740	·	7740
Instrument PE 600	<u>Date</u> 09/22/03 10:28	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac 1	ctor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	**
- Suspected aldol condensation - Analyte detected in blank - Spiked sample recovery not w - Compound ran at second dilut - Analyte exceeds calibration ra - Estimated concentration due to	ithin control limits (EPAN)	G- Duplicate analysis not within col H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met pound	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MD a Flag	

Reported on: 30 SEP 2003

EDL # 200115776

Primary # RW-1-0908-1332

Description RW-1-0908-1332

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 13:32

EPA 300.0 ANIONS	S IN WATER BY IC				;	300.0
Instrument DIONEX DX-500	<u>Date</u> 09/09/03 13:07	Analyst E66526	Sampl PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Chloride		3.0	ma/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.8	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Fact	<u>or</u>
DIONEX DX-500-3	09/10/03 17:26	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
D b l b -		2500	ua/l	40	10	
Instrument	NATED VOLATILI	Analyst		le Analyzed	Dilution Fact	601 or
EPA 601 HALOGE			<u>Samp</u> PRIMA		Dilution Fact	
EPA 601 HALOGE	<u>Date</u>	Analyst				<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/11/03 21:45	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluoromethal	<u>Date</u> 09/11/03 21:45	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113	<u>Date</u> 09/11/03 21:45 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane Freon 113 1,2-Dichloroethane	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane Carbon Tetrachloride	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan 1,2-Dichloromethan	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane Trichloroethane Trichloromethane Trichloromethane Trichloropropane Trichloroethene	<u>Date</u> 09/11/03 21:45 ne e is/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/11/03 21:45	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane Trichloroethane Trichloromethane Trichloromethane Trichloropropane Trichloroethene	Date 09/11/03 21:45	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane Dibromochloromethane	Date 09/11/03 21:45	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Dibromochloromethan	Date 09/11/03 21:45	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	PRIMA  Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>

Analysis Report
Page 2 of 3

Reported on: 30 SEP 2003

EDL # 200115776

Primary # RW-1-0908-1332

Description RW-1-0908-1332

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 13:32

	VED METALS, ICI	, LIQUIDS		3010A	O	010B
nstrument JA-61E	<u>Date</u> 09/16/03 10:46	Analyst E70180	<u>Sampi</u> PRIMA	e Analyzed ARY	Dilution Factor 1	or Or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
		< 0.020	mg/l	0.020	0.010	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	•	0.050	0.025	
Thallium			mg/l	0.030	0.050	
Zinc		< 0.10 < 0.20	mg/l mg/l	0.10	0.030	
Antimony					0.020	
Boron		< 0.040	mg/l	0.040		
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0072	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium	*	7.4	mg/l	0.050	0.025	
Sodium		8.1	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	*
	IC VOLATILE OR	GANICS				602
EPA 602 AROMAT	IC VOLATILL ON	aniioo				
			Sampl	le Analyzed	Dilution Fact	
nstrument	Date 09/15/03 13:48	Analyst E24048	Sampl PRIMA	le Analyzed ARY	<u>Dilution Fact</u> 1	
nstrument	<u>Date</u>	<u>Analyst</u>				
nstrument MPH 6890 Constituent	<u>Date</u>	<u>Analyst</u> E24048	PRIMA Units	ARY	1	<u>or</u>
nstrument MPH 6890 Constituent Benzene	<u>Date</u>	Analyst E24048 Result	PRIMA	PQL	1 MDL	<u>or</u>
nstrument MPH 6890 Constituent Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25	<u>or</u>
nstrument MPH 6890 Constituent Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4–Dichlorobenzene 1,3–Dichlorobenzene 1,2–Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>FLG</u>
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 13:48	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/15/03 13:48	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/15/03 13:48 VED ARSENIC, G	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene EPA 7060 DISSOL	<u>Date</u> 09/15/03 13:48 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report
Page 3 of 3
Reported on: 30 SEP 2003

EDL # 200115776

Primary # RW-1-0908-1332

Description RW-1-0908-1332

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 13:32

EPA 7421 DISS	OLVED LEAD, GFAA			7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:21	Analyst E70180	Sample PRIMA	e Analyzed RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:30	Analyst E70180	Sample PRIMA	e Analyzed RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 10:21	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ens			Definitions	~
- Suspected aidol condensation - Analyte detected in blank - Spiked sample recovery not wi - Compound ran at second diluti - Analyte exceeds calibration rar - Estimated concentration due to	ithin control limits (EPA N)	G- Duplicate analysis not within cot H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met	PQL- Pra	thod Detection Limit ctical Quantitation Limit Detected above the MDI a Flag	-



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 1 of Reported on: 30 SEP 2003

EDL # 200117001

Primary # MW-1-0922-1112 Description MW-1-0922-1112

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/22/03 12:46

Smpl Date-Time 09/22/03 11:12

EPA 300.0 ANION	S IN WATER BY I	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/23/03 13:48	Analyst E24959	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite		3.5 < 0.050	mg/l mg/l	0.20 0.050	0.10 0.025	
Bromide		0.36	mg/l	0.050	0.025	
Nitrate		< 0.050	mg/l	0.050	0.025 0.15	
Phosphate Sulfate		< 0.30 8.9	mg/l mg/l	0.30 0.10	0.050	
EPA 314.0 PERCH	HLORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 09/22/03 15:25	Analyst E70080	Samp PRIM	le Analyzed ARY	Dilution Fac 10	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		880	ug/l	40	10	
	Data Floa Definition	200			Definitions	

## Data Flag Definitions

- A- Suspected akiol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second diabition
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 

MDL- Method Detection Limit POL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 30 SEP 2003

EDL # 200116221 Primary # MW-1-0911-1118 Description MW-1-0911-1118 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 09/11/03 12:42 Smpl Date-Time 09/11/03 11:18

EPA 300.0 ANION	S IN WATER BY I					300.0
Instrument DIONEX DX-500	<u>Date</u> 09/12/03 16:32	Analyst E24959	Samp PRIMA	le Analyzed ARY	Dilution Fac 5	tor
Constituent		Result	Units	PQL	MDL	FLO
Bromide		24	mg/l	0.25	0.12	
EPA 300.0 ANION	S IN WATER BY I					300.0
Instrument DIONEX DX-500	<u>Date</u> 09/11/03 17:30	Analyst E66526	Samp PRIM <i>I</i>	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride Nitrite Nitrate Phosphate Sulfate		3.0 < 0.050 1.2 < 0.30 9.6	mg/l mg/l mg/l mg/l mg/l	0.20 0.050 0.050 0.30 0.10	0.10 0.025 0.025 0.15 0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 09/12/03 13:40	Analyst E70080	Samp PRIMA	le Analyzed ARY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2200	ug/l	40	10	

Primary # MW-1-0911-1118
Description MW-1-0911-1118
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 11:18

nstrument IP 6890 GC	Date 09/12/03 22:39	Analyst E24048	Sampi PRIMA	le Analyzed ARY	Dilution Factor 1	or Or
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometh	hane	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluorometha	ane	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene	(cis/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform	,	< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroetha		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachlorid		< 0.50	ug/l	0.50	0.25	
Bromodichlorometh		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropan		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.6	ug/l	0.50	0.25	
1,1,2-Trichloroetha	ne	< 0.50	ug/l	0.50	0.25	
Dibromochlorometh		< 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloro	ethane	< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	
	DLVED METALS, IC	•	Samo	3010A	_	010B
nstrument	DLVED METALS, IC <u>Date</u> 09/16/03 14:04	P, LIQUIDS <u>Analyst</u> E70180	<u>Samp</u> PRIM	le Analyzed	Dilution Factor 1	
nstrument JA-61E	Date	Analyst		le Analyzed	Dilution Factor	or
nstrument JA-61E Constituent	Date	Analyst E70180 Result	PRIMA	<u>le Analyzed</u> ARY PQL	Dilution Factor 1	
nstrument JA-61E Constituent	Date	Analyst E70180	PRIMA	<u>le Analyzed</u> ARY	Dilution Factor 1	or
nstrument JA-61E Constituent Aluminum Barium	Date	Analyst E70180 Result	Units mg/l	PQL 0.20	Dilution Factor  1  MDL  0.10	o <u>r</u>
nstrument TJA-61E Constituent Aluminum	Date	Analyst E70180  Result < 0.20 0.018	Units mg/l mg/l	PQL 0.20 0.0060	Dilution Factor 1  MDL  0.10 0.0030	o <u>r</u>
nstrument TJA-61E  Constituent  Aluminum Barium Beryllium	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010	Units  mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.0030 0.00050	or
Constituent Aluminum Barium Beryllium Cadmium Chromium	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040	Units  mg/I mg/I mg/I mg/I	PQL 0.20 0.0060 0.0010 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040	or
Constituent Aluminum Barium Beryllium Cadmium Chromium	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	or
Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	or
Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	Date	Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020	or
Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.0055	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0060 0.0055 14	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.041	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.0055 14 8.8	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0060 0.0055 14	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.041	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	or



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 3 of 3

Reported on: 30 SEP 2003

EDL # 200116221 Primary # MW-1-0911-1118 Description MW-1-0911-1118 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 09/11/03 12:42 Smpl Date-Time 09/11/03 11:18

Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED Instrument PE 600  Constituent Arsenic  EPA 7421 DISSOLVED Instrument Dai	15/03 22:39  ARSENIC, Gi te 24/03 12:15  LEAD, GFAA	Analyst E70180  Result < 0.0020	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	9QL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 7060	Dilution Facto 1 MDL 0.00030	FLG 7060
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED  Instrument PE 600  Constituent Arsenic  EPA 7421 DISSOLVED  Instrument PE 600  O9/	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst E70180  Result < 0.0020	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 <b>7060</b> Ie Analyzed  ARY  PQL  0.0020	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	7060 or FLC
Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED Instrument PE 600  Constituent Arsenic  EPA 7421 DISSOLVED Instrument PE 600  O9/	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 <b>FAA</b> Analyst E70180  Result < 0.0020	ug/l ug/l ug/l ug/l ug/l ug/l Sampl PRIMA	0.50 0.50 0.50 0.50 0.50 0.50 0.50 <b>7060</b> le Analyzed ARY	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLO
Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED  Instrument PE 600  Constituent Arsenic  EPA 7421 DISSOLVED  Instrument PE 600  O9/	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 <b>FAA</b> Analyst E70180  Result < 0.0020	ug/l ug/l ug/l ug/l ug/l ug/l Units	0.50 0.50 0.50 0.50 0.50 0.50 <b>7060</b> Ie Analyzed ARY  PQL  0.0020	0.25 0.25 0.25 0.25 0.25 0.25 0.25 Dilution Factor 1  MDL 0.00030	FLO
1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED  Instrument PE 600  Constituent  Arsenic  EPA 7421 DISSOLVED  Instrument PE 600  O9/	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 <b>FAA</b> Analyst E70180  Result < 0.0020	ug/l ug/l ug/l ug/l ug/l Samp PRIM/	0.50 0.50 0.50 0.50 0.50 <b>7060</b> le Analyzed ARY	0.25 0.25 0.25 0.25 0.25 0.25 Dilution Facto 1  MDL  0.00030	FLC
1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED  Instrument PE 600 09/  Constituent  Arsenic  EPA 7421 DISSOLVED  Instrument PE 600 09/  Onstrument	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 <b>FAA</b> Analyst E70180  Result < 0.0020	ug/l ug/l ug/l ug/l Samp PRIM/	0.50 0.50 0.50 0.50 <b>7060</b> le Analyzed ARY  PQL 0.0020	0.25 0.25 0.25 0.25 0.25 Dilution Facto 1  MDL  0.00030	FL
1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOLVED  Instrument PE 600 09/  Constituent Arsenic  EPA 7421 DISSOLVED Instrument PE 600 09/	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 < 0.50 < 0.10  FAA  Analyst E70180  Result < 0.0020	ug/l ug/l ug/l Samp PRIM/	0.50 0.50 0.50 7060 le Analyzed ARY  PQL 0.0020	0.25 0.25 0.25 0.25 Dilution Factor 1  MDL  0.00030	FL
p-Xylene/m-Xylene	te 24/03 12:15 LEAD, GFAA	< 0.50 < 0.50 FAA  Analyst E70180  Result < 0.0020	ug/l ug/l <u>Samp</u> PRIMA	0.50 0.50 7060 le Analyzed ARY PQL 0.0020	0.25 0.25 Dilution Facto 1  MDL  0.00030	FL
Constituent Arsenic  EPA 7421 DISSOLVED  Instrument PE 600  Dai  Constituent  Arsenic  EPA 7421 DISSOLVED  Instrument PE 600  Dai  O9/	te 24/03 12:15 LEAD, GFAA	< 0.50  FAA  Analyst E70180  Result < 0.0020	ug/l <u>Samp</u> PRIMA Units	7060 le Analyzed ARY PQL 0.0020	0.25  Dilution Facto 1  MDL  0.00030	FL
Dail	te 24/03 12:15 LEAD, GFAA	### Analyst E70180    Result   < 0.0020	Samp PRIM <i>i</i> Units	7060 le Analyzed ARY PQL 0.0020	Dilution Facto 1 MDL 0.00030	FLO
Da	te 24/03 12:15 LEAD, GFAA	Analyst E70180  Result < 0.0020	PRIMA	PQL 0.0020	Dilution Facto 1 MDL 0.00030	FL
Constituent Arsenic  EPA 7421 DISSOLVED Instrument PE 600 09/	24/03 12:15 LEAD, GFAA	E70180  Result < 0.0020	PRIMA	PQL 0.0020	1 MDL 0.00030	FLO
Arsenic  EPA 7421 DISSOLVED  nstrument PE 600 09/	te	< 0.0020		0.0020	0.00030	
EPA 7421 DISSOLVED Instrument Da PE 600 09/	te		. mg/l			7421
EPA 7421 DISSOLVED Instrument Da PE 600 09/	te					7421
nstrument Dar PE 600 09/	te			7 72		
PE 600 09/		Analyet	Samo	le Analyzed	Dilution Facto	
Constituent	25/03 13:33	<u>Analyst</u> E70180	PRIMA		1	<u>.</u>
		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	-
EPA 7470 DISSOLVED	MERCURY, C	COLD VAPOR		7470A	74	70A
Instrument Da PE 2380 09/	<u>te</u> 23/03 11:00	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Facto	r
Constituent		Result	Units	PQL	MDL	FL
Mercury		< 0.00020	mg/l	0.00020	0.000080	***
EPA 7740 DISSOLVED	SELENIUM, (	GFAA		7740	7	7740
nstrument Da		Analyst	Samp	le Analyzed	Dilution Facto	r
	22/03 11:26	E70180	PRIMA		1	-
Constituent		Result	Units	PQL	MDL	FLO
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition		<b>J</b> ·		Definitions	
Suspected aidol condensation product		G- Duplicate analysis not within con			hod Detection Limit	

A. Suspected aixiol condensation product
B. Analyte detected in biason
C. Spiked sample recovery not within control limits (EPA N)
D. Compound ran at second difution
E. Analyte exceeds calibration range
F. Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA')
H- Correlation coefficient for MSA lies than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

MDL- Method Detection Limit
PQL- Practical Quantitation Limit
ND - Not Detected above the MDL
FLG- Data Flag

Analysis Report Page 1 of 3

Reported on: 30 SEP 2003

EDL # 200115772

Primary # MW-1-0908-1112

Description MW-1-0908-1112

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 11:12

EPA 300.0 ANION	S IN WATER BY I	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/09/03 12:35	Analyst E66526	Samp PRIM	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite Nitrate Phosphate Sulfate		3.1 < 0.050 1.1 < 0.30 9.4	mg/l mg/l mg/l mg/l mg/l	0.20 0.050 0.050 0.30 0.10	0.10 0.025 0.025 0.15 0.050	The second secon
EPA 300.0 ANION	S IN WATER BY I	3	***************************************	***************************************		300.0
Instrument DIONEX DX-500	<u>Date</u> 09/09/03 14:10	Analyst E66526	Samp PRIMA	le Analyzed ARY	Dilution Fac 5	tor
Constituent		Result	Units	PQL	MDL	FLG
Bromide		22	mg/l	0.25	0.12	and an investment of the section of
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 09/10/03 16:44	Analyst E70080	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2300	ug/l	40	10	

Reported on: 30 SEP 2003

EDL # 200115772

Primary # MW-1-0908-1112

Description MW-1-0908-1112

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/08/03 16:10

 Smpl Date-Time
 09/08/03 11:12

nstrument IP 6890 GC	<u>Date</u> 09/11/03 20:01	Analyst E24048	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLO
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethane		< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1.1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis/t	rans)	< 0.50	ug/l	0.50	0.25	
Chloroform	(a) (a)	< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/i			
			ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.3	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane		< 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50	° ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroethan	ie	< 0.50	ug/l	0.50	0.25	
Chlorobenzene PA 6010 DISSOLVI	ED METALS, ICI	•	ug/l Sampi	0.50 <b>3010A</b> le Analyzed		010B
Chlorobenzene PA 6010 DISSOLVI nstrument JA-61E			***************************************	3010A le Analyzed		
Chlorobenzene PA 6010 DISSOLVI nstrument JA-61E	ED METALS, ICI	P, LIQUIDS  Analyst	Samp	3010A le Analyzed	6 Dilution Fact	or
Chlorobenzene  PA 6010 DISSOLVI  nstrument JA-61E  Constituent	ED METALS, ICI	P, LIQUIDS Analyst E70180	Samp PRIM <i>I</i>	3010A le Analyzed ARY	6 Dilution Fact 1	
Chlorobenzene  PA 6010 DISSOLVI  nstrument JA-61E  Constituent Aluminum	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result	Samp PRIM <i>I</i> Units	3010A le Analyzed ARY PQL	6 <u>Dilution Fact</u> 1 MDL	or
Chlorobenzene PA 6010 DISSOLVI  strument JA-61E  Constituent Aluminum Barium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20	Samp PRIMA Units mg/l	3010A le Analyzed ARY PQL 0.20	Dilution Fact 1 MDL 0.10	or
Chlorobenzene PA 6010 DISSOLVI  strument JA-61E  Constituent Aluminum Barium Beryllium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017	Samp PRIMA Units mg/I mg/I mg/I	3010A le Analyzed ARY PQL 0.20 0.0060 0.0010	0.10 0.0030 0.00050	or
Chlorobenzene PA 6010 DISSOLVI  strument JA-61E  Constituent Aluminum Barium Beryllium Cadmium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017 < 0.0010	Samp PRIMA Units mg/l mg/l mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.0060 0.0010 0.0040	0.10 0.0030 0.00050 0.0020	or
Chlorobenzene  PA 6010 DISSOLVI  nstrument  JA-61E  Constituent  Aluminum  Barium  Beryllium  Cadmium  Chromium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.0060 0.0010 0.0040 0.0080	0.10 0.0030 0.00050 0.0020 0.0040	or
Chlorobenzene  PA 6010 DISSOLVI  nstrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060	0.10 0.0030 0.00050 0.0020 0.0040 0.0030	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.30	Sampi PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	0.10 0.0030 0.00050 0.00020 0.0040 0.0030 0.15	or
Chlorobenzene  CPA 6010 DISSOLVI  nstrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0060 < 0.30 < 0.020	Sampi PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	0.10 0.0030 0.0020 0.0040 0.0030 0.15 0.010	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	0.10 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.010 0.010	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument  JA-61E  Constituent  Aluminum  Barium  Beryllium  Cadmium  Chromium  Copper  Iron  Nickel  Silver  Thallium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050	Samp PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	0.10 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	or
Chlorobenzene  PA 6010 DISSOLVI  nstrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.010	Samp PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	0.10 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	or
Chlorobenzene CPA 6010 DISSOLVI Instrument JA-61E Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.050 < 0.10 < 0.20	Samp PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10 0.20	0.10 0.0030 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	ED METALS, ICI	Result  < 0.20 0.017 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	0.10 0.0030 0.00050 0.00030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0080 < 0.020 < 0.0050 < 0.020 < 0.020 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.040 < 0.0080	Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080	0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.0040 < 0.020 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.040	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080	0.10 0.0030 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.0020	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument  JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Coballt Molybdenum Vanadium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0060	Samp PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0040 0.0080	0.10 0.0030 0.0050 0.0020 0.0040 0.010 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument  JA-61E  Constituent  Aluminum  Barium  Beryllium  Cadmium  Chromium  Copper  Iron  Nickel  Silver  Thallium  Zinc  Antimony  Boron  Cobalt  Molybdenum  Vanadium  Manganese	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.0000 < 0.0000 < 0.0000 < 0.0000	Samp PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0060 0.0080 0.0060 0.0050	0.10 0.0030 0.0050 0.0020 0.0040 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	or
Chlorobenzene  CPA 6010 DISSOLVI Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.050 < 0.10 < 0.020 < 0.010 < 0.010 < 0.0080 < 0.0010 < 0.0080 < 0.0040 < 0.0080 < 0.0080 < 0.0080 < 0.0010 14	Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.0030 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020	or
Chlorobenzene  CPA 6010 DISSOLVI  Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	ED METALS, ICI	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.010 14 8.6	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.10 0.0030 0.0030 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	or
Chlorobenzene  CPA 6010 DISSOLVI Instrument JA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	ED METALS, ICI	Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0020 < 0.0020 < 0.050 < 0.10 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.0080 < 0.10 < 0.20 < 0.010 < 0.10 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010 < 0.010	Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.0030 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020	or



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780 Analysis Report Page 3 of 3

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 30 SEP 2003

EDL # 200115772

Primary # MW-1-0908-1112

Description MW-1-0908-1112

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

A– Suspected aidol condensation product
B– Analyte detected in blank
C– Spiked sample recovery not within control limits (EPA N)
D– Compound ran at second dilution
E– Analyte exceeds calibration range
F– Estimated concentration due to presence of an interference (EPA N)

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 11:12

EPA 602 AROMATI	C VOLATILE OR	GANICS				602
Instrument MPH 6890	<u>Date</u> 09/15/03 11:55	Analyst E24048	Samp PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLO
Benzene		< 0.50	ug/l	0.50	0.25	
Toluene		< 0.50	ug/l	0.50	0.25	
Ethylbenzene		< 0.50	ug/l	0.50	0.25	
1,4-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1.3-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,2-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
p-Xylene/m-Xylene		< 0.50	ug/l	0.50	0.25	
o-Xylene		< 0.50	ug/l	0.50	0.25	
EPA 7060 DISSOL\	/ED ARSENIC, G	FAA		7060		7060
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
PE 600	09/24/03 10:44	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	And a second second second second second
			,	= 4.0.4		= 404
EPA 7421 DISSOL\	/ED LEAD, GFAA	Analyst	Samp	7421 le Analyzed	Dilution Fact	7421 or
	•		<u>Samp</u> PRIMA	le Analyzed	Dilution Fact	
Instrument	Date	<u>Analyst</u>		le Analyzed		or
Instrument PE 600	Date	<u>Analyst</u> E70180	PRIMA	le Analyzed ARY	1	
Instrument PE 600 Constituent	<u>Date</u> 09/25/03 12:00	Analyst E70180 Result < 0.0020	PRIMA Units	le Analyzed ARY	1 MDL 0.00060	or
Instrument PE 600  Constituent Lead  EPA 7470 DISSOLV	<u>Date</u> 09/25/03 12:00	Analyst E70180 Result < 0.0020	Units mg/l	PQL 0.0020 7470A	1 MDL 0.00060	or FLC 470A
Instrument PE 600 Constituent Lead	<u>Date</u> 09/25/03 12:00 /ED MERCURY, (	Analyst E70180  Result < 0.0020  COLD VAPOR Analyst	Units mg/l Samp	PQL 0.0020 7470A	1 MDL 0.00060 7 Dilution Fact	or FL0 470A or
Instrument PE 600  Constituent Lead  EPA 7470 DISSOLV Instrument PE 2380	<u>Date</u> 09/25/03 12:00 /ED MERCURY, (	Analyst E70180  Result < 0.0020  COLD VAPOR  Analyst E70180	Units mg/l Sample	PQL 0.0020 7470A le Analyzed	1 MDL 0.00060 7 Dilution Fact 1	or FLC 470A or
Instrument PE 600  Constituent Lead  EPA 7470 DISSOLV  Instrument PE 2380  Constituent	Date 09/25/03 12:00 /ED MERCURY, 0 Date 09/23/03 10:15	Analyst E70180  Result < 0.0020  COLD VAPOR Analyst E70180  Result < 0.00020	Units mg/l  Sampl PRIMA	PQL 0.0020 7470A le Analyzed ARY	1 MDL 0.00060 7 Dilution Fact 1 MDL	or FLC 470A or
Constituent Lead  EPA 7470 DISSOLV  Instrument PE 2380  Constituent Mercury  EPA 7740 DISSOLV	Date 09/25/03 12:00 /ED MERCURY, 0 Date 09/23/03 10:15	Analyst E70180  Result < 0.0020  COLD VAPOR  Analyst E70180  Result < 0.00020  GFAA	Units mg/l Sample PRIMA Units mg/l	PQL 0.0020 7470A le Analyzed ARY  PQL 0.0020 7470A 7470A 7470A	1 MDL 0.00060 7 Dilution Fact 1 MDL 0.000080	or FLC 470A or FLC 7740
Instrument PE 600  Constituent Lead  EPA 7470 DISSOLV Instrument PE 2380  Constituent Mercury	Date 09/25/03 12:00 /ED MERCURY, 0 Date 09/23/03 10:15	Analyst E70180  Result < 0.0020  COLD VAPOR Analyst E70180  Result < 0.00020	Units mg/l Sample PRIMA Units mg/l	PQL 0.0020 7470A le Analyzed ARY  PQL 0.00020 7740 le Analyzed	1 MDL 0.00060 7 Dilution Fact 1 MDL	or FLC 470A or FLC 7740
Constituent Lead  EPA 7470 DISSOLV  Instrument PE 2380  Constituent Mercury  EPA 7740 DISSOLV	Date 09/25/03 12:00 /ED MERCURY, 0 Date 09/23/03 10:15 /ED SELENIUM, 0	Analyst E70180  Result < 0.0020  COLD VAPOR  Analyst E70180  Result < 0.00020  GFAA  Analyst	Units mg/l Sampi PRIMA Units mg/l	PQL 0.0020 7470A le Analyzed ARY  PQL 0.00020 7740 le Analyzed	MDL 0.00060 7 Dilution Fact 1 MDL 0.000080	FLC 470A or FLC 7740
Constituent Lead  EPA 7470 DISSOLV Instrument PE 2380  Constituent Mercury  EPA 7740 DISSOLV Instrument	Date 09/25/03 12:00 /ED MERCURY, 0 Date 09/23/03 10:15 /ED SELENIUM, 0	Analyst E70180  Result < 0.0020  COLD VAPOR Analyst E70180  Result < 0.00020  GFAA Analyst E70180	Units mg/l  Sample PRIMA  Units mg/l  Sample PRIMA	PQL 0.0020 7470A le Analyzed ARY  PQL 0.00020  7740 le Analyzed ARY	1 MDL 0.00060 7 Dilution Fact 1 MDL 0.000080  Dilution Fact 1	or FLC 470A or FLC 7740

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

**Analysis Report** Page 1 of

Reported on: 30 SEP 2003

EDL # 200117000

Primary # 138-0922-1016

**Description** 138-0922-1016 Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/22/03 12:46 Smpl Date-Time 09/22/03 10:16

EPA 300.0 ANION	S IN WATER BY IC	2				300.0
nstrument DIONEX DX-500	<u>Date</u> 09/23/03 13:38	Analyst E24959		<u>Sample Analyzed</u> PRIMARY		tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite Bromide		3.1 < 0.050 17	mg/l mg/l mg/l	0.20 0.050 0.050	0.10 0.025 0.025	
Nitrate Phosphate Sulfate		1.0 < 0.30 9.1	mg/l mg/l mg/l	0.050 0.30 0.10	0.025 0.15 0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
instrument DIONEX DX-500-3	<u>Date</u> 09/22/03 15:11	Analyst E70080	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2400	ug/l	40	10	

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

## Definitions

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 30 SEP 2003

Primary # 138-0911-1020
Description 138-0911-1020
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 10:20

EPA 300.0 ANION	S IN WATER BY I	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/11/03 17:08	Analyst E66526	Sampi PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride		2.7	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		8.8	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.6	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Sampl	le Analyzed	<b>Dilution Fact</b>	tor
DIONEX DX-500-3	09/12/03 13:12	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate	All a virtue in the ground with the principles where the contract of the contr	2100	ug/l	40	10	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS	21			601
<u>Instrument</u>	<u>Date</u>	<u>Analyst</u>	Sampl	le Analyzed	<b>Dilution Fact</b>	tor
HP 6890 GC	09/12/03 21:29	E24048	PRIMA	ARY	1	*
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	european en
Dichlorodifluorometha	.ne	< 0.50	ug/l	0.50	0.25	
				0.50	0.05	
Dichloromethane		< 0.50	ug/I		0.25	
Trichlorofluoromethan	е	< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan 1,1-Dichloroethene	е	< 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane		< 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50 0.50	0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c		< 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform		< 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113		< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	cis/trans)	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene	eis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	eis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethene 1,1,2-Trichloroethene Bromoform Tetrachloroethene	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	

Primary # 138-0911-1020
Description 138-0911-1020
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 10:20

VED METALS, ICI	P, LIQUIDS		3010A	6	010B
<u>Date</u> 09/17/03 11:09	Analyst E70180			Dilution Factor 1	<u>or</u>
	Result	Units	PQL	MDL	FLG
	< 0.20	mg/l	0.20	0.10	
	0.021		0.0060	0.0030	
	< 0.0010		0.0010	0.00050	
		•			
		•			
		mg/l	0.0060		
		, mg/l	0.0050		
	12	mg/l	0.14	0.070	
	7.5	mg/l	0.050	0.025	
	7.9	mg/l	0.80	0.40	
	< 2.0	mg/l	2.0	1.0	*1
TIC VOLATILE OR	GANICS				602
		Samp	le Analyzed	Dilution Fact	
Date 09/15/03 21:24	GANICS Analyst E24048	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fact	
Date	<u>Analyst</u>			***************************************	or
Date	Analyst E24048	PRIMA Units	PQL	1	
Date	Analyst E24048 Result	Units  ug/l	PQL 0.50	1 MDL	or
Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	or
Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25	or
Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
<u>Date</u> 09/15/03 21:24	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
<u>Date</u> 09/15/03 21:24	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Date 09/15/03 21:24 LVED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Date 09/15/03 21:24 -VED ARSENIC, G	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
	Date	Date 09/17/03 11:09         Analyst E70180           Result           < 0.20 0.021 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0074 < 0.0050 12 7.5 7.9	Date 09/17/03 11:09         Analyst E70180         Sample PRIMA           Result         Units           < 0.20	Date 09/17/03 11:09         Analyst E70180         Sample Analyzed PRIMARY           Result         Units         PQL           < 0.20	Date 09/17/03 11:09         Analyst E70180         Sample Analyzed PRIMARY         Dilution Factor PRIMARY



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Page 3 of 3
Reported on: 30 SEP 2003

Primary # 138-0911-1020
Description 138-0911-1020
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/11/03 12:42
Smpl Date-Time 09/11/03 10:20

EPA 7421 DISS	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 12:43	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7.	470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:45	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed .RY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 10:41	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	5
- Suspected aldol condensation   - Analyte detected in blank - Spiked sample recovery not will - Compound ran at second dilution - Analyte exceeds calibration ran - Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met sound	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

Reported on: 30 SEP 2003

EDL # 200115770
Primary # 138-0908-1017
Description 138-0908-1017
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 10:17

EPA 300.0 ANION:	S IN WATER BY I	3				300.0
nstrument DIONEX DX-500	<u>Date</u> 09/09/03 12:24	Analyst E66526	Sampl PRIMA	le Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride		2.6	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		5.3	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.6	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	09/10/03 16:30	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2200	ug/l	40	10	
						601
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS				
EPA 601 HALOGE	NATED VOLATIL  Date	E ORGANICS  Analyst	Samp	le Analyzed	Dilution Fac	tor
			Samp PRIM		Dilution Fac 1	tor
Instrument	<u>Date</u>	<u>Analyst</u>			***************************************	tor FLC
Instrument HP 6890 GC Constituent	<u>Date</u>	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	~
Instrument HP 6890 GC	<u>Date</u> 09/11/03 19:26	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	0.25 0.25	~
Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/11/03 19:26	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethene Freon 113	<u>Date</u> 09/11/03 19:26 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (cChloroform Freon 113 1,2-Dichloroethane	<u>Date</u> 09/11/03 19:26 ne ee sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	<u>Date</u> 09/11/03 19:26 ne ee sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (cChloroform Freon 113 1,2-Dichloroethane	<u>Date</u> 09/11/03 19:26 ne ee sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/11/03 19:26 ne ne sis/trans)	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride	Date 09/11/03 19:26 ne ne sis/trans)	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/11/03 19:26 ne ne sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.74	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropane	Date 09/11/03 19:26 ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Tichloropropane	Date 09/11/03 19:26	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane	Date 09/11/03 19:26	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	PRIM/ Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Trichloroethane Dibromochloromethane Dibromochloromethane Trichloroethane Dibromochloromethane Dibromochloromethane Trichloroethane	Date 09/11/03 19:26  ne e cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/11/03 19:26  ne e cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	PRIM/ Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	~

Primary # 138-0908-1017
Description 138-0908-1017
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/08/03 16:10
Smpl Date-Time 09/08/03 10:17

	VED METALS, ICI	, =. 40.20		3010A	,	6010B
nstrument 「JA-61E	Date 09/16/03 10:13	Analyst E70180	Sampi PRIMA	le Analyzed ARY	Dilution Fac 1	<u>tor</u>
Constituent		Result	Units	PQL	MDL.	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.020	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	ma/l	0.30	0.15	
Nickel		< 0.020	ma/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
		< 0.20	mg/l	0.20	0.10	
Antimony		< 0.040	mg/l	0.040	0.020	
Boron		< 0.0080		0.0080	0.0040	
Cobalt			mg/l		0.020	
Molybdenum		< 0.040	mg/l	0.040	0.0030	
Vanadium		0.0062	mg/l	0.0060		
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.1	mg/l	0.050	0.025	
Sodium		7.8	mg/l	0.80	0.40	
Occident						
Potassium		< 2.0	mg/l	2.0	1.0	~
Potassium	IC VOLATILE OR	< 2.0			1.0	602
Potassium EPA 602 AROMAT nstrument	TIC VOLATILE OR  Date 09/15/03 11:17	< 2.0	mg/l	2.0  le Analyzed		
Potassium EPA 602 AROMAT nstrument	Date	< 2.0  GANICS  Analyst	mg/l Samp	2.0  le Analyzed	1.0  Dilution Fac	tor
Potassium  EPA 602 AROMAT  nstrument MPH 6890  Constituent	Date	< 2.0  GANICS  Analyst E24048  Result	mg/l <u>Samp</u> PRIM/ Units	2.0 le Analyzed ARY PQL	1.0  Dilution Fac 1  MDL	tor
Potassium  EPA 602 AROMAT  nstrument MPH 6890  Constituent  Benzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50	Samp PRIMA Units	2.0 le Analyzed ARY PQL 0.50	Dilution Fac 1 MDL 0.25	tor
Potassium  EPA 602 AROMAT  nstrument MPH 6890  Constituent  Benzene Toluene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50	Samp PRIM/ Units ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50	1.0  Dilution Fac  1  MDL  0.25 0.25	tor
Potassium  EPA 602 AROMAT  Instrument IMPH 6890  Constituent  Benzene Toluene Ethylbenzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50	1.0  Dilution Fac 1  MDL  0.25 0.25 0.25 0.25	tor
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50	1.0  Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25	tor
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25	tor
Potassium  EPA 602 AROMAT  nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Potassium  EPA 602 AROMAT  nstrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	< 2.0  GANICS  Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Potassium  EPA 602 AROMAT Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/15/03 11:17	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL  Instrument	Date 09/15/03 11:17 VED ARSENIC, G	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/15/03 11:17 VED ARSENIC, G	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	mg/l  Samp PRIM/ Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG 7060
Potassium  EPA 602 AROMAT  Instrument MPH 6890  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL  Instrument	Date 09/15/03 11:17 VED ARSENIC, G	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG 7060



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report Page 3 of 3

Reported on: 30 SEP 2003

EDL # 200115770 Primary # 138-0908-1017

Description 138-0908-1017

Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

A- Suspected aidol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/08/03 16:10

Smpl Date-Time 09/08/03 10:17

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

EPA 7421 DISS	OLVED LEAD, GFAA			7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 11:52	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Fact 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead	- mayora ana ana ana ana ana ana ana ana ana a	< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 09/23/03 10:10	Analyst E70180	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 09:54	Analyst E70180	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fact	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ins			Definitions	

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA+)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Reported on: 02 OCT 2003

EDL # 200116584
Primary # 138-0916-1042
Description 138-0916-1042
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05
Smpl Date-Time 09/16/03 10:42

EPA 300.0 ANION:	S IN WATER BY I					300.0
nstrument DIONEX DX-500	<u>Date</u> 09/16/03 15:28	Analyst E66526	Sampi PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLC
Chloride Nitrite Nitrate Phosphate Sulfate		2.9 < 0.050 1.3 < 0.30 9.3	mg/l mg/l mg/l mg/l mg/l	0.20 0.050 0.050 0.30 0.10	0.10 0.025 0.025 0.15 0.050	and an article of the second
EDA 200 O ANIONI	S IN WATER BY I	•				300.0
EPA 300.0 ANION	O III WALLILDI N	•				
nstrument	Date 09/16/03 16:30	<u>Analyst</u> E66526	Samp PRIMA	le Analyzed ARY	Dilution Fac 5	tor
nstrument	Date	Analyst			***************************************	
nstrument DIONEX DX-500	Date	Analyst E66526	PRIMA	ARY	5	
nstrument DIONEX DX-500 Constituent Bromide	<u>Date</u> 09/16/03 16:30	Analyst E66526 Result	PRIM/ Units	PQL	5 MDL	-
nstrument DIONEX DX-500  Constituent Bromide  EPA 314.0 PERCH	<u>Date</u> 09/16/03 16:30	Analyst E66526 Result	Units mg/l	PQL 0.25	5 MDL	FL0
Instrument DIONEX DX-500 Constituent	Date 09/16/03 16:30 ILORATE BY IC Date	Analyst E66526  Result  16  Analyst	Units mg/l Samp	PQL 0.25	MDL 0.12  Dilution Fac	FLC 314.0

Reported on: 02 OCT 2003

EDL # 200116584
Primary # 138-0916-1042
Description 138-0916-1042
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 10:42

nstrument IP 6890 GC	<u>Date</u> 09/17/03 15:09	Analyst E24048	Samp PRIMA	le Analyzed ARY	Dilution Fact 1	or
Constituent		Result	Units	PQL	MDL	FLC
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethane		< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis/t	rans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane Trichloroethene		2.1	ug/l	0.50	0.25	
		< 0.50	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane					0.25	
Bromoform	46	< 0.50	ug/l	0.50		
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroethan	10	< 0.50	ug/l	0.50	0.25	
		0.50				
Chlorobenzene PA 6010 DISSOLV	ED METALS, ICI	< 0.50 P, LIQUIDS Analyst	ug/l Samp	0.50 3010A le Analyzed	0.25 6 Dilution Fact	010B
Chlorobenzene EPA 6010 DISSOLV	_	P, LIQUIDS	***************************************	3010A	6	
Chlorobenzene EPA 6010 DISSOLVI nstrument UA-61E	Date	P, LIQUIDS Analyst	Samp	3010A	6 Dilution Fact	tor
Chlorobenzene EPA 6010 DISSOLVI nstrument JA-61E Constituent	Date	P, LIQUIDS  Analyst E70180  Result	<u>Samp</u> PRIM <i>i</i> Units	3010A le Analyzed ARY PQL	6 <u>Dilution Fact</u> 1 MDL	tor
Chlorobenzene EPA 6010 DISSOLVI  nstrument TJA-61E  Constituent Aluminum	Date	P, LIQUIDS Analyst E70180	Samp PRIM/ Units mg/l	3010A le Analyzed ARY	6 Dilution Fact 1	tor
Chlorobenzene EPA 6010 DISSOLVI  nstrument TJA-61E  Constituent Aluminum Barium	Date	P, LIQUIDS <u>Analyst</u> E70180  Result < 0.20 0.022	Samp PRIM/ Units mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.0060	Dilution Fact 1  MDL  0.10	tor
Chlorobenzene EPA 6010 DISSOLVI nstrument TJA-61E Constituent Aluminum Barium Beryllium	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010	Samp PRIM/ Units mg/l mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.0060 0.0010	0.10 0.0030 0.00050	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument TJA-61E Constituent Aluminum Barium Beryllium Cadmium	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040	Samp PRIM/ Units mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040	6 Dilution Fact 1 MDL 0.10 0.0030 0.00050 0.0020	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument JA-61E Constituent Aluminum Barium Beryllium Cadmium Chromium	Date	Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080	0.10 0.0030 0.00050 0.0020 0.0040	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument JA-61E Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	Date	Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060	0.10 0.0030 0.00050 0.0020 0.0040 0.0030	tor
Chlorobenzene EPA 6010 DISSOLVI  nstrument TJA-61E  Constituent Aluminum Barium Beryillium Cadmium Chromium Copper Iron	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0040 0.0080 0.0060 0.30	0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	tor
Chlorobenzene EPA 6010 DISSOLVI  nstrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	Date	Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.030 < 0.020	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	0.10 0.0030 0.0020 0.0030 0.0020 0.0040 0.0030 0.15 0.010	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020	Samp PRIM/ Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	0.10 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.010	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050	0.10 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.010 0.010	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument IJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	0.10 0.0030 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	tor
Chlorobenzene EPA 6010 DISSOLVI Instrument FJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	Date	Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.050 < 0.10 < 0.20	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10 0.20	0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	tor
Chlorobenzene EPA 6010 DISSOLVI nstrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	tor
Chlorobenzene EPA 6010 DISSOLVI nstrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.050 < 0.10 < 0.0060 < 0.30 < 0.050 < 0.10 < 0.050 < 0.050 < 0.050 < 0.040 < 0.0080	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.020 0.020 0.020 0.020 0.040 0.0080	0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.010 0.025 0.050 0.10	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument  rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	P, LIQUIDS  Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.0040 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0040	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10 0.20 0.020 0.040 0.0080 0.0080 0.0040	0.10 0.0030 0.0020 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.0020	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0066	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080	0.10 0.0030 0.0050 0.0020 0.0040 0.0015 0.010 0.015 0.010 0.025 0.050 0.10 0.025 0.050 0.020 0.0040 0.020	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument  TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0066 < 0.0050	Samp PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0040 0.0080 0.0060 0.0050	0.10 0.0030 0.0020 0.0040 0.015 0.010 0.0050 0.0050 0.0050 0.015 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument  TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.0030 0.0020 0.0030 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.022 0.0040 0.022 0.0030 0.0025 0.0030	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0060 < 0.30  8.1	Samp PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.050 0.14 0.0050	0.10 0.0030 0.0030 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	tor
Chlorobenzene  EPA 6010 DISSOLVI  nstrument  TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	P, LIQUIDS  Analyst E70180  Result  < 0.20	Samp PRIM/ Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.0030 0.0020 0.0030 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.022 0.0040 0.022 0.0030 0.0025 0.0030	



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 3 of

Reported on: 02 OCT 2003

EDL # 200116584

Primary # 138-0916-1042 **Description** 138-0916-1042

Source Type LIQUID Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/16/03 13:05 Smpl Date-Time 09/16/03 10:42

EPA 602 AROMATI	C VOLATILE OR	GANICS				602
nstrument	Date	Analyst		le Analyzed	Dilution Facto	or
HP 6890 GC	09/17/03 15:09	E24048	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Benzene		< 0.50	ug/l	0.50	0.25	
Toluene		< 0.50	ug/l	0.50	0.25	
Ethylbenzene		< 0.50	ug/l	0.50	0.25	
1,4-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,3-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,2-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
p-Xylene/m-Xylene		< 0.50	ug/l	0.50	0.25	
o-Xylene		< 0.50	ug/l	0.50	0.25	
EPA 7060 DISSOL	VED ARSENIC, G	FAA		7060		7060
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Factor	<u>or</u>
PE 600	09/24/03 12:37	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOL	VED LEAD, GFAA	\		7421		7421
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fact	<u>or</u>
PE 600	09/25/03 13:47	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOL	VED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
PE 2380	09/23/03 11:10	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	***************************************
EPA 7740 DISSOL	VED SELENIUM,	GFAA		7740		7740
Instrument	<u>Date</u>	Analyst	Samp	le Analyzed	Dilution Fact	or
PE 600	09/22/03 11:39	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
		0.0000		0.0000	0.00060	
Selenium		< 0.0020	mg/l	0.0020	0.00000	

- A– Suspected aidol condensation product
  B– Analyte detected in blank
  C– Spiked sample recovery not within control limits (EPA N)
  D– Compound ran at second dilution
  E– Analyte exceeds calibration range
  F– Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Reported on: 02 OCT 2003

EDL # 200116587

Primary # MW-1-0916-1152

Description MW-1-0916-1152

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05
Smpl Date-Time 09/16/03 11:52

EPA 300.0 ANION	S IN WATER BY I					300.0
I <u>nstrument</u> DIONEX DX-500	<u>Date</u> 09/16/03 16:00	Analyst E66526	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride Nitrite Nitrate		4.1 < 0.050 0.22	mg/l mg/l mg/l	0.20 0.050 0.050	0.10 0.025 0.025	**************************************
Phosphate Sulfate		< 0.30 9.8	mg/l mg/l	0.30 0.10	0.15 0.050	
EPA 300.0 ANION	S IN WATER BY I	2				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/16/03 16:41	Analyst E66526	<u>Samp</u> PRIM <i>I</i>	le Analyzed ARY	Dilution Fac 5	tor
Constituent		Result	Units	PQL	MDL	FLO
Bromide		11	mg/l	0.25	0.12	
EPA 314.0 PERCH	ILORATE BY IC					314.0
	Date	<u>Analyst</u>	***************************************	le Analyzed	Dilution Fac	tor
	09/16/03 16:22	E70080	PRIMA	AHT	10	
Instrument DIONEX DX-500-3 Constituent	09/16/03 16:22	E70080 Result	Units	PQL	MDL	FLO

EDL # 200116587

Primary # MW-1-0916-1152

Description MW-1-0916-1152

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/16/03 13:05

 Smpl Date-Time
 09/16/03 11:52

PA 601 HALOGE	WILD AOLVIIL					
nstrument IP 6890 GC	<u>Date</u> 09/17/03 14:31	<u>Analyst</u> E24048	Sampi PRIMA	e Analyzed ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethan	e	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane	•	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis	s/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform	,	< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane	)	< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane	•	< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.9	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane	2	< 0.50	ug/l	0.50	0.25	
Bromoform	7	< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
					0.25	
4 4 0 0 Tatesahlarash	ana					
1,1,2,2-Tetrachloroeth	ane	< 0.50	ug/l	0.50		
Chlorobenzene  PA 6010 DISSOL	VED METALS, IC	< 0.50 P, LIQUIDS	ug/l	0.50 <b>3010A</b>	0.25 <b>6</b>	010B
Chlorobenzene EPA 6010 DISSOL' nstrument		< 0.50	ug/l	0.50 3010A le Analyzed	0.25	
Chlorobenzene EPA 6010 DISSOL  nstrument TJA-61E	VED METALS, IC	< 0.50 P, LIQUIDS  Analyst	ug/l Samp	0.50 3010A le Analyzed	0.25  6  Dilution Fact	
Chlorobenzene  EPA 6010 DISSOL  nstrument  JA-61E  Constituent	VED METALS, IC	< 0.50 P, LIQUIDS  Analyst E70180  Result	ug/l <u>Samp</u> PRIMA Units	0.50 3010A le Analyzed ARY PQL	0.25 6 Dilution Fact 1 MDL	<u>or</u>
Chlorobenzene EPA 6010 DISSOL  nstrument rJA-61E  Constituent Aluminum	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20	ug/l Sampi PRIMA Units mg/l	0.50  3010A  le Analyzed  ARY  PQL  0.20	0.25  6  Dilution Fact 1  MDL  0.10	<u>or</u>
Chlorobenzene EPA 6010 DISSOL  nstrument TJA-61E  Constituent Aluminum Barium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018	Samp PRIMA Units mg/I mg/I	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060	0.25  6  Dilution Fact 1  MDL  0.10 0.0030	<u>or</u>
Chlorobenzene EPA 6010 DISSOL  nstrument rJA-61E  Constituent  Aluminum Barium Beryllium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010	Units mg/l mg/l mg/l	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010	0.25  6  Dilution Fact 1  MDL  0.10 0.0030 0.00050	<u>or</u>
Chlorobenzene EPA 6010 DISSOL  nstrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040	0.25  6  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.00050 0.00020	<u>or</u>
Chlorobenzene EPA 6010 DISSOL  Instrument IJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0040 < 0.0080	ug/l  Samp PRIM/ PRIM/  Units  mg/l mg/l mg/l mg/l mg/l mg/l	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080	0.25  6  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.00020 0.0040	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument  TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0040 < 0.0080 < 0.0060	ug/l  Samp PRIM/ PRIM/  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060	0.25  6  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0040 < 0.0080 < 0.0060 < 0.30	ug/l Sampi PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  nstrument  TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	ug/l Sampi PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  nstrument  TJA-61E  Constituent  Aluminum  Barium  Beryllium  Cadmium  Chromium  Copper  Iron  Nickel Silver	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument IJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.030 < 0.020 < 0.020 < 0.050 < 0.10	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.010 0.025 0.050	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.0020 < 0.020 < 0.050 < 0.10 < 0.20	ug/l  Samp PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10 0.20	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument IJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.020 0.050 0.10 0.20 0.040	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  nstrument  TJA-61E  Constituent  Aluminum  Barium  Cadmium  Chromium  Copper  Iron  Nickel  Silver  Thallium  Zinc  Antimony  Boron  Cobalt	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.080	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.040	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0040	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.040 0.0060	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.099	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.040 0.0080 0.0050	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0099 14	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument IJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result  < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.099 14 8.9	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed  ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	<u>or</u>
Chlorobenzene  EPA 6010 DISSOL  Instrument ITJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	VED METALS, IC	< 0.50  P, LIQUIDS  Analyst E70180  Result < 0.20 0.018 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0099 14	ug/l  Sampi PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	0.50  3010A  le Analyzed ARY  PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.25  Dilution Fact 1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Analysis Report Page 3 of 3

Reported on: 02 OCT 2003

EDL # 200116587

Primary # MW-1-0916-1152

Description MW-1-0916-1152

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/16/03 13:05 Smpl Date-Time 09/16/03 11:52

EPA 602 AROMATI	C VOLATILE ON	GANICS				602
nstrument HP 6890 GC	<u>Date</u> 09/17/03 14:31	Analyst E24048	Sampi PRIMA	le Analyzed ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Benzene		< 0.50	ug/l	0.50	0.25	
Toluene		< 0.50	ug/l	0.50	0.25	
Ethylbenzene		< 0.50	ug/l	0.50	0.25	
1,4-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,3-Dichlorobenzene		< 0.50 < 0.50	ug/l	0.50	0.25 0.25	
1,2-Dichlorobenzene		< 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25	
p–Xylene/m–Xylene o–Xylene		< 0.50	ug/l	0.50	0.25	
EPA 7060 DISSOL	VED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 09/24/03 12:57	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOL	VED LEAD. GFAA	<b>\</b>		7421		7421
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
PE 600	09/25/03 14:08	E70180	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOL	VED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 09/23/03 11:35	Analyst E70180	<u>Samp</u> PRIM <i>i</i>	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSOL	VED SELENIUM,	GFAA		7740		7740
Instrument	<u>Date</u>	Analyst	***************************************	le Analyzed	Dilution Fact	or
PE 600	09/22/03 11:58	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Selenium	may process	< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons	-		Definitions	
- Suspected aidol condensation produc - Analyte detected in blank - Spiked sample recovery not within co		G- Duplicate analysis not within cor H- Correlation coefficient for MSA I J- Estimated Value		PQL- Pr ND - No	ethod Detection Limit actical Quantitation Limit t Detected above the MDL	
- Compound ran at second dilution		M- Duplicate injection precision not	met	FLG- Da	ıta Flag	

Reported on: 02 OCT 2003

EDL # 200116583

Primary # RW-1-0916-0935

Description RW-1-0916-0935

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/16/03 13:05

 Smpl Date-Time
 09/16/03 09:35

	S IN WATER BY IC					300.0
Instrument DIONEX DX-500	<u>Date</u> 09/16/03 15:18	Analyst E66526	Sampi PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.9	mg/l	0.20	0.10	
Nitrite		< 0.050	ma/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.5	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	09/16/03 15:26	E70080	PRIMA		10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2200	ug/l	40	10	
EPA 601 HAI OGE	NATED VOLATIL	E ORGANICS		<u>, , , , , , , , , , , , , , , , , , , </u>		601
			Samn	le Analyzed	Dilution Fac	tor
Instrument HP 6890 GC	<u>Date</u> 09/17/03 12:36	Analyst E24048	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fac	tor
Instrument HP 6890 GC	Date	Analyst E24048	PRIMA	ARY	1	
Instrument HP 6890 GC Constituent	Date	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	
Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/17/03 12:36	Analyst E24048 Result	Units ug/l	PQL 0.50	1 MDL 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/17/03 12:36	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/17/03 12:36	Analyst E24048  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan	<u>Date</u> 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	<u>Date</u> 09/17/03 12:36 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 09/17/03 12:36 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethene 1,2-Dichloroethene (chloroform	<u>Date</u> 09/17/03 12:36 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113	<u>Date</u> 09/17/03 12:36 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Freon 113 1,2-Dichloroethane	<u>Date</u> 09/17/03 12:36 ane sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	<u>Date</u> 09/17/03 12:36 ane sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/17/03 12:36 one ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/17/03 12:36 one ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloromethane Carbon Tetrachloride	Date 09/17/03 12:36 one ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Trichloromethane 1,2-Dichloropropane Trichloroethane	Date 09/17/03 12:36 one de cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethan 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane Dibromochloromethane	Date 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Trichloroethene 1,1,2-Trichloroethane Trichloroethene 1,1,2-Trichloroethane Trichloroethene Trichloroethane Tithloroethane Titrachloroethene	Date 09/17/03 12:36  ane section/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/17/03 12:36  ane section/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLC

EDL # 200116583

Primary # RW-1-0916-0935

Description RW-1-0916-0935

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date—Time 09/16/03 09:35
Smpl Date—Time 09/16/03 09:35

PA 6010 DISSOL	VED METALS, ICF	P, LIQUIDS		3010A	6	010B
nstrument JA-61E	<u>Date</u> 09/30/03 11:02	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Factor 1	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/I	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	ma/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
		< 0.10	mg/l	0.10	0.050	
Zinc		< 0.20	mg/l	0.20	0.10	
Antimony		< 0.20		0.040	0.020	
Boron			mg/l		0.020	
Cobalt		< 0.0080	mg/l	0.0080		
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0073	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.5	mg/l	0.050	0.025	
Sodium		8.3	mg/l	0.80	0.40	
		< 2.0	mg/l	2.0	1.0	_
Potassium		< 2.0	111971			
	IC VOLATILE OR		mg.			602
EPA 602 AROMAT		GANICS			Dilution Fact	
EPA 602 AROMAT	TIC VOLATILE OR  Date 09/17/03 12:36			le Analyzed	Dilution Fact	
EPA 602 AROMAT nstrument HP 6890 GC	Date	GANICS Analyst	Samp	le Analyzed		or
EPA 602 AROMAT nstrument HP 6890 GC Constituent	Date	GANICS  Analyst E24048  Result	<u>Şamp</u> PRIM <i>I</i> Units	le Analyzed ARY PQL	1 MDL	or
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent Benzene	Date	GANICS  Analyst E24048  Result < 0.50	Samp PRIM/ Units ug/l	le Analyzed ARY PQL 0.50	1 MDL 0.25	or
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene	Date	Analyst E24048  Result < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l	PQL 0.50 0.50	1 MDL	<u>or</u>
EPA 602 AROMAT  nstrument  IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/17/03 12:36	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/17/03 12:36 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/17/03 12:36 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst  FAA  Analyst	Samp PRIM/ Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/17/03 12:36 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060
EPA 602 AROMAT  Instrument  HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/17/03 12:36 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst  FAA  Analyst	Samp PRIM/ Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

Analysis Report
Page 3 of 3
Reported on: 02 OCT 2003

EDL # 200116583

Primary # RW-1-0916-0935

Description RW-1-0916-0935

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05
Smpl Date-Time 09/16/03 09:35

EPA 7421 DISS	OLVED LEAD, GFA	4		7421		7421
I <u>nstrument</u> PE 600	<u>Date</u> 09/25/03 13:40	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR	· · · · · · · · · · · · · · · · · · ·	7470A	7	470A
Instrument PE 2380	<u>Date</u> 09/23/03 11:05	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 11:32	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	*
A- Suspected aldol condensation ( I- Analyte detected in blank ( I- Spiked sample recovery not with ( I- Compound ran at second dilution ran ( I- Analyte exceeds calibration ran ( I- Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within colling Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comps- Concentration determined by many control of the c	met	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

EDL # 200116585
Primary # EW-2-0916-1115
Description EW-2-0916-1115
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/16/03 13:05 Smpl Date-Time 09/16/03 11:15

EPA 300.0 ANIONS	S IN WATER BY IC					300.0
nstrument DIONEX DX-500	<u>Date</u> 09/16/03 15:39	Analyst E66526	Sampl PRIMA	e Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLC
Chloride		3.1	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		0.31	mg/l	0.30	0.15	
Sulfate		9.6	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
instrument DIONEX DX-500-3	<u>Date</u> 09/16/03 15:54	Analyst E70080	Sampl PRIMA	e Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2700	ug/l	40	10	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS Analyst		le Analyzed	Dilution Fac	601
	NATED VOLATIL Date 09/17/03 13:14			e Analyzed	Dilution Fac	
EPA 601 HALOGE	Date	<u>Analyst</u>	Samp	e Analyzed		<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC Constituent	Date	Analyst E24048	Samp PRIMA Units	le Analyzed ARY	1	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/17/03 13:14	Analyst E24048 Result	Samp PRIMA Units ug/l	le Analyzed ARY PQL	1 MDL	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluoromethal	<u>Date</u> 09/17/03 13:14	Analyst E24048 Result < 0.50	Samp PRIMA Units	PQL 0.50	1 MDL 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluoromethan Dichloromethane	<u>Date</u> 09/17/03 13:14	Analyst E24048  Result < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l	PQL 0.50 0.50	0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane	<u>Date</u> 09/17/03 13:14	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 09/17/03 13:14	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	<u>Date</u> 09/17/03 13:14 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 09/17/03 13:14 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform	<u>Date</u> 09/17/03 13:14 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichlorofm Freon 113	<u>Date</u> 09/17/03 13:14 ne	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	<u>Date</u> 09/17/03 13:14 ne e	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichlorofm Freon 113	<u>Date</u> 09/17/03 13:14 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/17/03 13:14 ne e	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	Date 09/17/03 13:14 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane	Date 09/17/03 13:14 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloromethane Trichloroethane	Date 09/17/03 13:14	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane	Date 09/17/03 13:14	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Dichloromethan 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/17/03 13:14	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	Date 09/17/03 13:14	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
EPA 601 HALOGE Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 09/17/03 13:14 ne e iis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>

Reported on: 02 OCT 2003

EDL # 200116585

Primary # EW-2-0916-1115

Description EW-2-0916-1115

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05
Smpl Date-Time 09/16/03 11:15

EPA OUTU DISSUL	/ED METALS, ICF	P, LIQUIDS		3010A	6	010B
nstrument FJA-61E	<u>Date</u> 09/30/03 11:13	Analyst E70180	Sampl PRIMA	e Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.023	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
		< 0.0080	mg/l	0.0040	0.0040	
Chromium					0.0030	
Copper		< 0.0060	mg/l	0.0060		
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
		< 0.040	mg/l	0.040	0.020	
Molybdenum		0.0061			0.020	
Vanadium			mg/l	0.0060		
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium		7.7	mg/l	0.050	0.025	
Sodium		8.2	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	4.
EDA 602 AROMAT	IC VOLATILE OR	GANICS				602
			Samn	le Analyzed	Dilution Fact	
nstrument	IC VOLATILE OR <u>Date</u> 09/17/03 13:14	GANICS <u>Analyst</u> E24048	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Factor	
nstrument	<u>Date</u>	<u>Analyst</u>				
nstrument HP 6890 GC Constituent	<u>Date</u>	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	or
nstrument HP 6890 GC Constituent Benzene	<u>Date</u>	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/17/03 13:14	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/17/03 13:14 VED ARSENIC, G	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/17/03 13:14	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL Instrument	<u>Date</u> 09/17/03 13:14 VED ARSENIC, G	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Environmental Laboratory Bldg. 02030, P.O. Box 15847 Sacramento, CA 95852-1847 (916)355-4780

**Analysis Report** Page 3 of Reported on: 02 OCT 2003

EDL # 200116585

Primary # EW-2-0916-1115

Description EW-2-0916-1115

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/16/03 13:05 Smpl Date-Time 09/16/03 11:15

**EPA 7421 DISSOLVED LEAD, GFAA** 

7421

7421

Instrument PE 600

09/25/03 13:54

**Analyst** E70180

Sample Analyzed

**Dilution Factor** 

PRIMARY

Constituent

Result

Units

PQL

MDL

**FLG** 

Lead

7470A

< 0.0020

mg/l

0.0020

0.00060

**EPA 7470 DISSOLVED MERCURY, COLD VAPOR** Instrument

Sample Analyzed

**PRIMARY** 

**Dilution Factor** 

1

PE 2380

09/23/03 11:15

E70180

7470A

Constituent Mercury

Result < 0.00020

Units mg/l

PQL 0.00020 MDL 0.000080 FLG

**EPA 7740 DISSOLVED SELENIUM, GFAA** 

A- Suspected aidol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estmated concentration due to presence of an interference (EPA N)

7740

7740

<u>Instrument</u> PE 600

Date

09/22/03 11:45

**Analyst** E70180

Sample Analyzed **PRIMARY** 

**Dilution Factor** 

1

Constituent

Result < 0.0020

Units mg/l

PQL

**FLG** 

MDL 0.00060

Selenium

Data Flag Definitions

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

0.0020

Definitions MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 02 OCT 2003

EDL # 200116586

Primary # EW-1-0916-1150

Description EW-1-0916-1150

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 09/16/03 13:05

Smpl Date-Time 09/16/03 11:50

PA 300.0 ANION	S IN WATER BY IC	3				300.0
nstrument DIONEX DX-500	<u>Date</u> 09/16/03 15:50	Analyst E66526	Sampl PRIMA	e Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.5	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.6	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.9	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	<u>Date</u>	<u>Analyst</u>		le Analyzed	<b>Dilution Fac</b>	tor
DIONEX DX-500-3	09/16/03 16:08	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		270	ug/l	40	10	
Instrument	NATED VOLATIL	Analyst	Samp	le Analyzed	Dilution Fac	tor
HP 6890 GC	09/17/03 13:53	E24048	PRIMA	ARY	1	`
Constituent		Result	Units	PQL	MDL	FLO
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ine	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan	16	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25 0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (d	cis/trans)	< 0.50	ug/l	0.50 0.50	0.25	
Chloroform		< 0.50	ug/l		0.25	
Freon 113		< 0.50	ug/l	0.50 0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l		0.25	
1,1,1-Trichloroethane	•	< 0.50	ug/l	0.50 0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethar	10	< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		< 0.50	ug/l ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50 < 0.50	-	0.50	0.25	
Dibromochloromethar	ne ne	< 0.50 < 0.50	ug/l	0.50	0.25	
Bromoform			ug/l		0.25	
			•			
1,1,2,2-Tetrachloroet	nane	< 0.50	ug/l	0.50	0.25	
Tetrachloroethene 1,1,2,2-Tetrachloroet	hane	< 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25	

EDL # 200116586
Primary # EW-1-0916-1150
Description EW-1-0916-1150
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05

Smpl Date-Time 09/16/03 11:50

	LVED METALS, ICF	P, LIQUIDS		3010A	60	010B
nstrument JA-61E	<u>Date</u> 09/30/03 11:18	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	ma/l	0.20	0.10	
Barium		0.016	mg/l	0.0060	0.0030	
		< 0.0010	mg/l	0.0010	0.00050	
Beryllium		< 0.0040	mg/l	0.0040	0.0020	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium			•	0.0060	0.0030	
Copper		< 0.0060	mg/l		0.0030	
Iron		< 0.30	mg/l	0.30		
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0096	mg/l	0.0060	0.0030	
Manganese		< 0.0050	ma/l	0.0050	0.0025	
Calcium		11	mg/l	0.14	0.070	
Magnesium		7.0	mg/l	0.050	0.025	
Sodium		8.7	ma/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
		·				
	TIC VOLATILE OR	GANICS				602
EPA 602 AROMA	TIC VOLATILE OR  Date 09/17/03 13:53	GANICS Analyst E24048	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Factor	
EPA 602 AROMA	<u>Date</u>	<u>Analyst</u>				<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent	<u>Date</u>	Analyst E24048 Result	PRIM/ Units	PQL	1 MDL	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene	<u>Date</u>	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
EPA 602 AROMA  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMA  Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSO	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060
EPA 602 AROMA Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 7060	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060
EPA 602 AROMA  Instrument INF 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSO	<u>Date</u> 09/17/03 13:53	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 7060	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG 7060



Environmental Laboratory Bidg. 02030, P.O. Box 15847 Sacramento, CA 95852–1847 (916)355–4780

Analysis Report
Page 3 of 3
Reported on: 02 OCT 2003

EDL # 200116586

Primary # EW-1-0916-1150

Description EW-1-0916-1150

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/16/03 13:05
Smpl Date-Time 09/16/03 11:50

EPA 7421 DISS	OLVED LEAD, GFAA	4		7421		7421
Instrument PE 600	<u>Date</u> 09/25/03 14:01	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		0.0021	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	470A
Instrument PE 2380	<u>Date</u> 09/23/03 11:20	Analyst E70180	Sample PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 09/22/03 11:52	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor 1	or Or
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	-
A- Suspected aldol condensation 3- Analyte detected in blank C- Spiked sample recovery not wi D- Compound ran at second dilute - Analyte exceeds calibration ran Estimated concentration due to	ithin control limits (EPA N)	G- Duplicate analysis not within co H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met cound	PQL- Pro	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

Reported on: 08 OCT 2003

EDL # 200116999

Primary # RW-1-0922-0925

Description RW-1-0922-0925

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/22/03 12:46

Smpl Date-Time 09/22/03 09:25

EPA 300.0 ANION	S IN WATER BY I	C			3	300.0
Instrument DIONEX DX-500	<u>Date</u> 09/23/03 13:27	Analyst E24959	Samp PRIM	le Analyzed ARY	Dilution Factor 1	<u> 2r</u>
Constituent		Result	Units	PQL	MDL	FLG
Chloride		3.0	ma/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.2	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC			······································		314.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
DIONEX DX-500-3	09/22/03 14:57	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		2400	ug/l	40	10	
EPA 6010 DISSOL	VED METALS, IC	P. LIQUIDS	.*	3010A	6	010B
Instrument	Date	Analyst	Samn	le Analyzed	Dilution Fact	or
TJA-61E	09/30/03 11:56	E70180	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.021	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
		< 0.20	mg/l	0.20	0.10	
Antimony		- O.E.O		0 0 40	0.020	
		< 0.040	mg/l	0.040		
Antimony Boron Cobalt		< 0.040 < 0.0080	mg/l	0.0080	0.0040	
Antimony Boron Cobalt		< 0.040 < 0.0080 < 0.040		0.0080 0.040	0.0040 0.020	
Antimony Boron		< 0.040 < 0.0080	mg/l	0.0080	0.0040 0.020 0.0030	
Antimony Boron Cobalt Molybdenum		< 0.040 < 0.0080 < 0.040	mg/l mg/l	0.0080 0.040	0.0040 0.020 0.0030 0.0025	
Antimony Boron Cobalt Molybdenum Vanadium		< 0.040 < 0.0080 < 0.040 0.0080	mg/l mg/l mg/l mg/l mg/l	0.0080 0.040 0.0060	0.0040 0.020 0.0030 0.0025 0.070	
Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.040 < 0.0080 < 0.040 0.0080 < 0.0050 12 7.4	mg/l mg/l mg/l mg/l	0.0080 0.040 0.0060 0.0050 0.14 0.050	0.0040 0.020 0.0030 0.0025 0.070 0.025	
Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.040 < 0.0080 < 0.040 0.0080 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l	0.0080 0.040 0.0060 0.0050 0.14	0.0040 0.020 0.0030 0.0025 0.070	



**Analysis Report** Page 2 of 2

Reported on: 08 OCT 2003

EDL # 200116999 Primary # RW-1-0922-0925 Description RW-1-0922-0925 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 09/22/03 12:46 Smpl Date-Time 09/22/03 09:25

EPA 7060 DISSOL	_VED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 10/02/03 13:24	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOI	LVED LEAD, GFAA			7421		7421
<u>Instrument</u> PE 600	<u>Date</u> 10/02/03 09:23	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOI	LVED MERCURY,	COLD VAPOR		7470A		7470A
<u>instrument</u> PE 2380	<u>Date</u> 09/23/03 11:40	Analyst E70180	<u>Sampl</u> PRIMA	ie Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	American Processing
EPA 7740 DISSOI	LVED SELENIUM,	GFAA		7740	J.,	7740
Instrument PE 600	<u>Date</u> 10/03/03 09:30	Analyst E70180	<u>Sampl</u> PRIMA	le Analyzed ARY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ins			Definitions	
<ul> <li>Suspected aidol condensation prod</li> <li>Analyte detected in blank</li> </ul>	luct	G- Duplicate analysis not within con H- Correlation coefficient for MSA le	trol limits (EPA*)		thod Detection Limit clical Quantitation Limit	

- B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- H- Correlation coefficient for MSA less train 0.999 (EFA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions
- PQL- Practical Quantitation Limit ND Not Detected above the MDL FLG- Data Flag

Analysis Report
Page 1 of 3

Reported on: 21 OCT 2003

EDL # 200117625
Primary # RW-1-0929-0920
Description RW-1-0929-0920
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

**Recd Date–Time** 09/29/03 14:32 **Smpl Date–Time** 09/29/03 09:20

EPA 300.0 ANIO	NS IN WATER BY IC					300.0
nstrument DIONEX DX-500	<u>Date</u> 09/30/03 12:42	Analyst E24959	Sampl PRIMA	e Analyzed ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Chloride		2.9	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	ma/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.0	mg/l	0.10	0.050	
EPA 314.0 PERC	HLORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Sampi	le Analyzed	Dilution Fact	<u>or</u>
DIONEX DX-500-3	10/01/03 12:39	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2200	ug/l	40	10	
	ENATED VOLATIL	E ORGANICS  Analyst		le Analyzed	Dilution Fact	601 or
EPA 601 HALOG	-				Dilution Fact	•••
EPA 601 HALOG	Date	Analyst	Samp			
EPA 601 HALOG Instrument HP 6890 GC	Date	Analyst E24048	<u>Samp</u> PRIMA	ARY	1 MDL 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC Constituent	<u>Date</u> 09/29/03 19:29	Analyst E24048 Result	<u>Samp</u> PRIM/ Units	PQL 0.50 0.50	0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC Constituent Vinyl Chloride	<u>Date</u> 09/29/03 19:29	Analyst E24048 Result < 0.50	Samp PRIMA Units ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluorometh	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluorometh Dichloromethane	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometh Dichloromethane Trichlorofluorometha	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometh Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG  Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometh Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichlorofm Freon 113	<u>Date</u> 09/29/03 19:29 nane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	Date 09/29/03 19:29 nane nne (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/29/03 19:29 nane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometh Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachlorid	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometh Dichloromethane Trichlorofluorometha 1,1-Dichloroethane 1,2-Dichloroethene Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropane	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha 1,1-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloropropand Trichloroethene	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloropropane 1,1,2-Trichloroethane	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloropropane 1,2-Dichloropropane 1,2-Dichloropropane 1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropant Carbon Tetrachlorid Bromodichlorometha 1,2-Dichloropropant Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane Bromoform	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Tichloromochloromethane Tichloromochloromethane Trichloroethene	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 601 HALOG Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropant Carbon Tetrachlorid Bromodichlorometha 1,2-Dichloropropant Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane Bromoform	Date 09/29/03 19:29  mane (cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIM/ Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>

EDL # 200117625

Primary # RW-1-0929-0920

Description RW-1-0929-0920

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 09:20

	LVED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument IJA-61E	<u>Date</u> 10/03/03 10:06	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Factor	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	ma/l	0.20	0.10	uman montholian
Barium		0.022	ma/l	0.0060	0.0030	
Beryllium		< 0.0010	ma/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.0000	
		< 0.020				
Nickel		< 0.020	mg/l	0.020	0.010	
Silver			mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0088	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium	,	7.2	mg/l	0.050	0.025	
		8.1	mg/l	0.80	0.40	
Sodium		0.1				
Sodium Potassium		< 2.0	mg/l	2.0	1.0	~
Potassium	TIC VOLATILE OR	< 2.0				602
Potassium  EPA 602 AROMA		< 2.0  GANICS	mg/l	2.0	1.0	
Potassium EPA 602 AROMA Instrument	TIC VOLATILE OR  Date 09/30/03 12:57	< 2.0	mg/l	2.0 le Analyzed		
Potassium EPA 602 AROMA nstrument HP 6890 GC	Date	< 2.0  GANICS  Analyst	mg/l Samp	2.0 le Analyzed	1.0  Dilution Factor	or
Potassium EPA 602 AROMA  nstrument IP 6890 GC  Constituent	Date	< 2.0  GANICS  Analyst E24048  Result	mg/l Samp PRIMA	2.0 le Analyzed ARY PQL	1.0  Dilution Factor 1  MDL	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50	Sampi PRIMA Units	2.0 le Analyzed ARY PQL 0.50	Dilution Factor  MDL  0.25	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene	Date	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50	Sampi PRIMA Units ug/l	2.0 le Analyzed ARY PQL 0.50 0.50	Dilution Factor  MDL  0.25 0.25	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l	2.0 le Analyzed ARY  PQL 0.50 0.50 0.50	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50  0.50  0.50  0.50  0.50	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50  0.50  0.50  0.50  0.50  0.50  0.50	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed  ARY  PQL  0.50  0.50  0.50  0.50  0.50  0.50  0.50	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSO	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 12:57	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Potassium  EPA 602 AROMA  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSO	Date 09/30/03 12:57 LVED ARSENIC, G	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	2.0  le Analyzed ARY  PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1.0  Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG



Analysis Report
Page 3 of 3

Reported on: 21 OCT 2003

EDL # 200117625
Primary # RW-1-0929-0920
Description RW-1-0929-0920
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 09:20

EPA 7421 DISS	OLVED LEAD, GFA	A		7421		7421
Instrument PE 600	<u>Date</u> 10/02/03 09:52	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 10/07/03 11:10	Analyst E70180	Sampl PRIMA	e Analyzed .RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	amount work makes
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 10/03/03 09:56	Analyst E70180	<u>Şampl</u> PRIMA	e Analyzed .RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	•
Suspected aldol condensation       Analyte detected in blank     Spiked sample recovery not wit     Compound ran at second dilutie     Analyte exceeds calibration ran     Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met	PQL- Pr	athod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

EDL # 200117632
Primary # EW-2-0929-1310
Description EW-2-0929-1310
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/29/03 14:32

 Smpl Date-Time
 09/29/03 13:10

	S IN WATER BY IC	j				300.0
nstrument DIONEX DX-500	<u>Date</u> 09/30/03 12:03	Analyst E24959	Sampi PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		3.0	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.3	ma/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.1	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	Date	Analyst	Sampl	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	10/01/03 13:48	E70080	PRIMA		10	-
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2600	ug/l	40	10	
	NATED VOLATIL		,			601
EPA 601 HALOGE nstrument HP 6890 GC	ENATED VOLATILI <u>Date</u> 09/29/03 22:23	E ORGANICS Analyst E24048		le Analyzed ARY	Dilution Fac	
nstrument	Date	<u>Analyst</u>	Samp			
nstrument HP 6890 GC  Constituent  Vinyl Chloride	<u>Date</u> 09/29/03 22:23	Analyst E24048 Result < 0.50	Sampi PRIMA Units ug/l	PQL 0.50	MDL 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/29/03 22:23	Analyst E24048 Result < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l	PQL 0.50 0.50	0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan	<u>Date</u> 09/29/03 22:23	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	Date 09/29/03 22:23 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	Date 09/29/03 22:23 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (chloroform	Date 09/29/03 22:23 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sample PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (controloroform) Freon 113	Date 09/29/03 22:23 une	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sample PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene	Date 09/29/03 22:23 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/29/03 22:23 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/29/03 22:23 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	Date 09/29/03 22:23 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan	Date 09/29/03 22:23 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Dichloromethane 1,1,1-Dichloromethane 1,1,1-Dichloromethane 1,1-Dichloromethane Trichloropropane Trichloroethane	Date 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloroethane T,2-Dichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,1,2-Dichloromethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar Bromoform	Date 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
nstrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,1,2-Dichloromethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 09/29/03 22:23	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

EDL # 200117632
Primary # EW-2-0929-1310
Description EW-2-0929-1310
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/29/03 14:32

Smpl Date-Time 09/29/03 13:10

	VED METALS, ICF	P, LIQUIDS		3010A	60	010B
nstrument JA-61E	<u>Date</u> 10/03/03 11:00	Analyst E70180	<u>Şampl</u> PRIMA	e Analyzed ARY	Dilution Factor	or Or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.025	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	ma/l	0.0010	0.00050	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
		< 0.020	mg/l	0.020	0.010	
Silver		< 0.050	mg/l	0.050	0.025	
Thallium		< 0.10	mg/l	0.10	0.050	
Zinc		< 0.10	mg/l	0.20	0.10	
Antimony				0.040	0.020	
Boron		< 0.040	mg/l			
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0086	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		13	mg/l	0.14	0.070	
Magnesium		7.4	mg/l	0.050	0.025	
		8.2	mg/l	0.80	0.40	
Sodium		U				
Sodium Potassium		< 2.0	mg/l	2.0	1.0	~
Potassium	IC VOLATILE OR	< 2.0		2.0	1.0	602
Potassium  EPA 602 AROMAT		< 2.0  GANICS	mg/l			
Potassium  EPA 602 AROMAT  nstrument	TIC VOLATILE OR <u>Date</u> 09/30/03 09:47	< 2.0	mg/l	le Analyzed	1.0  Dilution Factor 1	
Potassium EPA 602 AROMAT  nstrument	<u>Date</u>	< 2.0  GANICS  Analyst	mg/l Samp	le Analyzed	Dilution Fact	or
Potassium  EPA 602 AROMAT  nstrument  HP 6890 GC  Constituent	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result	mg/l Samp PRIM/	le Analyzed ARY PQL	Dilution Factor	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50	mg/l Sampi PRIMA Units ug/l	le Analyzed ARY PQL 0.50	Dilution Factor 1	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Factor  MDL  0.25 0.25	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMAT  Instrument  HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampi PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	Dilution Factor  MDL  0.25 0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l Sampi PRIM/ Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l Samp PRIM/ Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or
Potassium  EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l Samp PRIM/ Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or FLG
Potassium  EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u>	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l Sampi PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	or
Potassium  EPA 602 AROMAT Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 09:47	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l  Samp PRIM/ Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Potassium  EPA 602 AROMAT Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 09:47	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	mg/l  Sampi PRIMA  Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
Potassium  EPA 602 AROMAT Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 09:47 .VED ARSENIC, G	< 2.0  GANICS  Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	mg/l  Samp PRIM/ Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG



Analysis Report
Page 3 of 3

Reported on: 21 OCT 2003

EDL # 200117632
Primary # EW-2-0929-1310
Description EW-2-0929-1310
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32

Smpl Date-Time 09/29/03 13:10

EPA 7421 DISS	OLVED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 10/02/03 10:35	Analyst E70180	Sample PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	470A
Instrument PE 2380	<u>Date</u> 10/07/03 11:40	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 10/03/03 10:42	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL.	FLG
Selenium		< 0.0020	mg/I	0.0020	0.00060	
	Data Flag Definition	ons			<u>Definitions</u>	**
- Suspected aldol condensation - Analyte detected in blank - Spiked sample recovery not wi - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	ithin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met oound	PQL- Pri	athod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

EDL # 200117630
Primary # 80A-0929-1216
Description 80A-0929-1216
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/29/03 14:32

 Smpl Date-Time
 09/29/03 12:16

EPA 300.0 ANION	IS IN WATER BY I	)				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/30/03 12:13	Analyst E24959	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride		2.4	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		0.56	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.3	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	Analyst	Sampl	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	10/01/03 13:20	E70080	PRIMA		10	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		890	ug/l	40	10	
HP 6890 GC	09/29/03 21:13	E24048	PRIMA	ARY	1	-
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ine	< 0.50	ug/l	0.50	0.25	
				0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50		
Dichloromethane Trichlorofluoromethan	ı <b>e</b>	< 0.50	ug/l	0.50	0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	ne	< 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25 0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane		< 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50 0.50	0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c		< 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform		< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113		< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (chloroform Freon 113 1,2-Dichloroethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	cis/trans)	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 1.50 < 1.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Bromodichloromethane 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethar 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethar	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Dibromochloromethane	cis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Bromoform Tetrachloroethene	cis/trans) e ne e e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Bromoform	cis/trans) e ne e e	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	

Reported on: 21 OCT 2003

EDL # 200117630
Primary # 80A-0929-1216
Description 80A-0929-1216
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 12:16

	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument JA-61E	<u>Date</u> 10/03/03 10:49	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.019	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
		< 0.020	mg/l	0.020	0.010	
Silver		< 0.050	mg/l	0.050	0.025	
Thallium		< 0.10	mg/l	0.10	0.050	
Zinc		< 0.10		0.10	0.030	
Antimony			mg/l	0.20	0.020	
Boron		< 0.040	mg/l		0.020	
Cobalt		< 0.0080	mg/l	0.0080		
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0081	mg/l	0.0060	0.0030	
Manganese		0.011	mg/l	0.0050	0.0025	
Calcium		11	mg/l	0.14	0.070	
Magnesium		6.7	mg/l	0.050	0.025	
Sodium		7.7	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
EPA 602 AROMAT	<u>Date</u>	GANICS Analyst	Samp	le Analyzed	Dilution Fact	602
EPA 602 AROMAT nstrument HP 6890 GC		GANICS  Analyst E24048	Samp PRIM <i>I</i>	le Analyzed ARY	Dilution Fact	tor
EPA 602 AROMAT	<u>Date</u>	GANICS  Analyst E24048  Result	Samp PRIM <i>I</i> Units	le Analyzed ARY PQL	Dilution Fact 1	tor
EPA 602 AROMAT nstrument HP 6890 GC	<u>Date</u>	GANICS  Analyst E24048  Result < 0.50	Samp PRIMA Units ug/l	le Analyzed ARY PQL 0.50	Dilution Fact 1  MDL  0.25	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent	<u>Date</u>	### Control of Control	Samp PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Fact  MDL  0.25 0.25	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent Benzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	### Control of Control	Samp PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Fact  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 11:03	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 11:03 VED ARSENIC, G	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 11:03	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
EPA 602 AROMAT  Instrument INFO 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 11:03 .VED ARSENIC, G	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG



Analysis Report
Page 3 of 3
Reported on: 21 OCT 2003

EDL # 200117630
Primary # 80A-0929-1216
Description 80A-0929-1216
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 12:16

EPA 7421 DISS	OLVED LEAD, GFAA	4		7421	7	7421
I <u>nstrument</u> PE 600	<u>Date</u> 10/02/03 10:07	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Facto 1	r
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	70A
Instrument PE 2380	<u>Date</u> 10/07/03 11:30	Analyst E70180	<u>Sampi</u> PRIMA	e Analyzed .RY	Dilution Facto 1	r
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 10/03/03 10:16	Analyst E70180	<u>Sampi</u> PRIMA	e Analyzed .RY	Dilution Facto	r
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	
- Suspected aldol condensation - Analyte detected in blank - Spiked sample recovery not wi - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	ithin control limits (EPA N)	G- Duplicate analysis not within colling to Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by my	met cound	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

Reported on: 21 OCT 2003

EDL # 200117631 Primary # EW-1-0929-1245 Description EW-1-0929-1245 Source Type LIQUID

Sampler SF Report Distribution R. FRICKE, FILE Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/29/03 14:32

Smpl Date-Time 09/29/03 12:45

EPA 300.0 ANIONS	S IN WATER BY IC					300.0
nstrument DIONEX DX-500	<u>Date</u> 09/30/03 13:11	Analyst E24959	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.6	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.7	mg/l	0.050	0.025	
Phosphate		< 0.30	ma/l	0.30	0.15	
Sulfate		8.4	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				·······	314.0
Instrument	Date	Analyst	Samp	le Analyzed	<b>Dilution Fac</b>	tor
DIONEX DX-500-3	10/01/03 13:34	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		270	ug/l	40	10	amount of the second of the se
EPA 601 HALOGE Instrument	NATED VOLATIL	Analyst	Samp	le Analyzed	Dilution Fac	601 tor
HP 6890 GC	09/29/03 21:48	E24048	PRIM/		1	
Constituent		Result	Units	PQL	MDL	FLO
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan	e	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (c	cis/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25 0.25	
1,1,1-Trichloroethane	•	< 0.50	ug/l	0.50		
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25 0.25	
Bromodichloromethan	i <del>e</del>	< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50 0.50	0.25	
Trichloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethan	ie	< 0.50 < 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50 < 0.50	ug/l	0.50	0.25	
Tetrachloroethene	hana	< 0.50 < 0.50	ug/l ug/l	0.50	0.25	
1,1,2,2-Tetrachloroet	nane	< 0.50	ug/l	0.50	0.25	

Reported on: 21 OCT 2003

EDL # 200117631
Primary # EW-1-0929-1245
Description EW-1-0929-1245
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/29/03 14:32

Smpl Date-Time 09/29/03 12:45

PA 6010 DISSOL	/ED METALS, ICF	P, LIQUIDS		3010A	6	010B
nstrument TJA-61E	Date 10/03/03 10:54	Analyst E70180	<u>Sampl</u> PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.018	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium		< 0.0080	ma/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
		< 0.020	ma/l	0.020	0.010	
Silver		< 0.020	mg/l	0.050	0.025	
Thallium		0.11	mg/l	0.00	0.050	
Zinc		< 0.20	ma/l	0.10	0.10	
Antimony			•		0.10	
Boron		< 0.040	mg/l	0.040		
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.011	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium	•	7.1	mg/l	0.050	0.025	
Sodium		9.2	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
	C VOLATILE OR	CANICC				602
nstrument	Date	Analyst		le Analyzed	Dilution Fact	
nstrument			<u>Samp</u> PRIM <i>I</i>		Dilution Fact 1	
nstrument	Date	Analyst				or
nstrument HP 6890 GC Constituent	Date	Analyst E24048	PRIMA	ARY	1	or
nstrument HP 6890 GC  Constituent  Benzene	Date	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	or
nstrument HP 6890 GC  Constituent  Benzene Toluene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l	PQL 0.50 0.50 0.50	1 MDL 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 10:25	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 09/30/03 10:25	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 10:25	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 09/30/03 10:25 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 09/30/03 10:25 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060



Analysis Report
Page 3 of 3
Reported on: 21 OCT 2003

EDL # 200117631

Primary # EW-1-0929-1245

Description EW-1-0929-1245

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 12:45

EPA 7421 DISS	OLVED LEAD, GFA	4		7421	•	7421
Instrument PE 600	<u>Date</u> 10/02/03 10:14	Analyst E70180	<u>Şample</u> PRIMA	Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	170A
Instrument PE 2380	<u>Date</u> 10/07/03 11:35	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 10/03/03 10:35	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor 1	or Or
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definiti	ons			Definitions	*
- Suspected aidol condensation - Analyte detected in blank - Spiked sample recovery not wi - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	ithin control limits (EPA N) ion	G- Duplicate analysis not within collin- H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met	PQL- Pro	thod Detection Limit actical Quantitation Limit Detected above the MDL a Flag	

Reported on: 21 OCT 2003

EDL # 200117629
Primary # MW-1-0929-1105
Description MW-1-0929-1105
Source Type LIQUID
Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

**Recd Date-Time** 09/29/03 14:32 **Smpl Date-Time** 09/29/03 11:05

EPA 300.0 ANION	IS IN WATER BY IC	2				300.0
Instrument DIONEX DX-500	<u>Date</u> 09/30/03 12:32	Analyst E24959	<u>Sample Analyzed</u> PRIMARY		Dilution Factor 1	
Constituent		Result	Units	PQL	MDL	FLG
Chloride		3.9	mg/l	0.20	0.10	entered desired
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.084	mg/l	0.050	0.025	
Nitrate		< 0.050	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.8	mg/l	0.10	0.050	
EPA 314.0 PERCH	HLORATE BY IC					314.0
Instrument	Date	<u>Analyst</u>	Samp	e Analyzed	Dilution Fac	tor
DIONEX DX-500-3	10/01/03 15:29	E70080	PRIMA	NRY	. 1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		9.8	ug/l	4.0	1.0	
	ENATED VOLATIL		·	le Analyzed	Dilution Foo	601
EPA 601 HALOGE Instrument HP 6890 GC	ENATED VOLATIL <u>Date</u> 09/29/03 20:38	E ORGANICS Analyst E24048	<u>Samp</u> PRIMA	ie Analyzed ARY	Dilution Fac	
Instrument	Date	Analyst			***************************************	
Instrument HP 6890 GC Constituent	Date	Analyst E24048	PRIMA	ARY	1	tor
Instrument HP 6890 GC	<u>Date</u> 09/29/03 20:38	Analyst E24048 Result	PRIMA Units	PQL	0.25 0.25	tor
Instrument HP 6890 GC  Constituent Vinyl Chloride	<u>Date</u> 09/29/03 20:38	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units ug/l	PQL 0.50	0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 09/29/03 20:38	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 09/29/03 20:38	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	<u>Date</u> 09/29/03 20:38 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c	<u>Date</u> 09/29/03 20:38 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform	<u>Date</u> 09/29/03 20:38 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113	<u>Date</u> 09/29/03 20:38 ane	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Freon 113 1,2-Dichloroethane	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I  ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane (Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethan 1,2-Dichloromethan	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene	Date 09/29/03 20:38 ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane	Date 09/29/03 20:38	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane	Date 09/29/03 20:38	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 09/29/03 20:38	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane	Date 09/29/03 20:38  ane ne cis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

EDL # 200117629

Primary # MW-1-0929-1105

Description MW-1-0929-1105

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 09/29/03 14:32

 Smpl Date-Time
 09/29/03 11:05

VED METALS, ICF	P, LIQUIDS		3010A	6	010B
<u>Date</u> 10/03/03 10:44	Analyst E70180			Dilution Fact 1	<u>or</u>
	Result	Units	PQL	MDL	FLG
	< 0.20	mg/l	0.20	0.10	
	0.022	mg/l	0.0060	0.0030	
	< 0.0010	ma/l	0.0010	0.00050	
				0.0020	
		•			
		•			
			****		
	0.14	mg/l	0.0050		
	14	mg/l	0.14	0.070	
•	9.0	ma/l	0.050	0.025	
			0.80	0.40	
				1.0	4,
IC VOLATILE OR	GANICS				602
		0	1 - 4 1	Dilates Foot	
Date 09/30/03 11:41	<u>Analyst</u> E24048	<u>Samp</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Fact 1	<u>or</u>
<u>Date</u>	<u>Analyst</u>				<u>or</u> FLG
<u>Date</u>	<u>Analyst</u> E24048	PRIMA Units	ARY	1	
<u>Date</u>	Analyst E24048 Result	Units  ug/l	PQL 0.50	1 MDL	
<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
<u>Date</u> 09/30/03 11:41	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
<u>Date</u> 09/30/03 11:41	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
<u>Date</u> 09/30/03 11:41	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
<u>Date</u> 09/30/03 11:41 .VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
	<u>Date</u> 10/03/03 10:44	Date         Analyst           10/03/03 10:44         E70180           Result           < 0.20	Date 10/03/03 10:44         Analyst E70180         Samp PRIM/           Result         Units           < 0.20	Date 10/03/03 10:44         Analyst E70180         Sample Analyzed PRIMARY           Result         Units         PQL           < 0.20	Date 10/03/03 10:44         Analyst E70180         Sample Analyzed PRIMARY         Dilution Fact Description           Result         Units         PQL         MDL           < 0.20



Analysis Report
Page 3 of 3

Reported on: 21 OCT 2003

EDL # 200117629

Primary # MW-1-0929-1105

Data Flag Definitions

Description MW-1-0929-1105

Source Type LIQUID

Sampler SF

A– Suspected aidol condensation product
B– Analyte detected in blank
C– Spiked sample recovery not within control limits (EPA N)
D– Compound ran at second dilution
E– Analyte exceeds calibration range
F– Estimated concentration due to presence of an interference (EPA N)

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 09/29/03 14:32

Smpl Date-Time 09/29/03 11:05

**Definitions** 

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

EPA 7421 DISS	OLVED LEAD, GFAA	1		7421		7421	
Instrument PE 600				Sample Analyzed PRIMARY		<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLG	
Lead		< 0.0020	mg/l	0.0020	0.00060		
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7	7470A	
Instrument PE 2380	<u>Date</u> 10/07/03 11:20	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor	
Constituent		Result	Units	PQL	MDL	FLG	
Mercury		< 0.00020	mg/l	0.00020	0.000080		
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740	
Instrument PE 600	<u>Date</u> 10/03/03 10:09	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac	tor	
Constituent		Result	Units	PQL	MDL	FLG	
Selenium		< 0.0020	mg/l	0.0020	0.00060	manuscolo embositoride	

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA+)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Analysis Report
Page 1 of 3
Reported on: 21 OCT 2003

Primary # 138-0929-1008
Description 138-0929-1008
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/29/03 14:32
Smpl Date-Time 09/29/03 10:08

EPA 300.0 ANION	S IN WATER BY I					300.0
<u>Date</u> DIONEX DX-500 09/30/03 12:22		<u>Analyst</u> E24959	<u>Sample Analyzed</u> PRIMARY		<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLG
Chloride Nitrite Nitrate Phosphate Sulfate		3.1 < 0.050 0.58 < 0.30 9.0	mg/l mg/l mg/l mg/l mg/l	0.20 0.050 0.050 0.30 0.10	0.10 0.025 0.025 0.15 0.050	
EPA 300.0 ANION	S IN WATER BY I	0				300.0
Instrument DIONEX DX-500	<u>Date</u> 10/02/03 08:26	<u>Analyst</u> E24959	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fac 2	tor
Constituent		Result	Units	PQL	MDL	FLG
Bromide		12	mg/l	0.10	0.050	management makes delicated
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 10/01/03 12:53	Analyst E70080	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL.	FLG
Perchlorate		1900	ug/l	40	10	

EDL # 200117627

Primary # 138-0929-1008

Description 138-0929-1008

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

**Recd Date-Time** 09/29/03 14:32 **Smpl Date-Time** 09/29/03 10:08

EPA 601 HALOGENATED VOLATILE ORGANICS 601

Instrument         Date           HP 6890 GC         09/29/03 20:03		Analyst E24048		<u>Sample Analyzed</u> PRIMARY		etor
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethar	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane	€	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (ci	is/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform	,	< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethan	e	< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.2	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethan	e	< 0.50	, ug/l	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroeth	nane	< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	

EPA 6010 DISSOLVED METALS, ICP, LIQUIDS	3010A	6010B

Instrument TJA-61E	<u>Date</u> 10/03/03 10:17			Sample Analyzed PRIMARY		<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0080	mg/l	0.0060	0.0030	
Manganese		0.019	mg/l	0.0050	0.0025	
Calcium		17	mg/l	0.14	0.070	
Magnesium		8.6	mg/l	0.050	0.025	
Sodium		8.9	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	



**Analysis Report** Page 3 of

Reported on: 21 OCT 2003

EDL # 200117627 Primary # 138-0929-1008 **Description** 138-0929-1008 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 09/29/03 14:32 Smpl Date-Time 09/29/03 10:08

EPA 602 AROMATI	C VOLATILE OR	GANICS				602
Instrument HP 6890 GC	<u>Date</u> 09/30/03 12:19	Analyst E24048	Sampl PRIMA	e Analyzed ARY	<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLO
Benzene		< 0.50	ug/l	0.50	0.25	
Toluene		< 0.50	ug/l	0.50	0.25	
Ethylbenzene		< 0.50	ug/l	0.50	0.25	
1,4-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,3-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
1,2-Dichlorobenzene		< 0.50	ug/l	0.50	0.25	
p-Xylene/m-Xylene		< 0.50	ug/l	0.50	0.25	
o-Xylene		< 0.50	ug/l	0.50	0.25	
EPA 7060 DISSOLV	ED ARSENIC, G	FAA		7060	•	7060
I <u>nstrument</u> PE 600	<u>Date</u> 10/02/03 14:00	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Facto	<u>ır</u>
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	∕ mg/l	0.0020	0.00030	and the second
Instrument PE 600	<u>Date</u> 10/06/03 11:49	<u>Analyst</u> E70180	Samp PRIM/	le Analyzed ARY	Dilution Factor	Ľ
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOL\	/ED MERCURY,	COLD VAPOR		7470A	74	70A
I <u>nstrument</u> PE 2380	<u>Date</u> 10/07/03 11:15	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Facto	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSOL\	/ED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 10/03/03 10:03	Analyst E70180	Samp PRIMA	i <u>e Analyzed</u> ARY	Dilution Facto	<u>er</u>
Constituent		Result	Units	PQL	MDL	FLO
Selenium		< 0.0020	mg/l	0.0020	0.00060 Definitions	Manager and American
	Data Flag Definition	ns G- Duplicate analysis not within con			hod Detection Limit	

- A- Suspected aidol condensation product
  B- Analyte detected in blank
  C- Spixed sample recovery not within control limits (EPA N)
  Dompound fan at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

POL - Practical Quantitation Limit POL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag



**Analysis Report** Page 1 of 1

Reported on: 22 OCT 2003

EDL # 200118299 Primary # WNN-EW-1 Description WNN-EW-1 Source Type LIQUID

Sampler SF Report Distribution R. FRICKE, FILE Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/07/03 12:05 Smpl Date-Time 10/07/03 10:45

FΡΔ	300	O AN	IONS	IN W.	ATER	BY IC

300.0

Instrument DIONEX DX-500	Date 10/07/03 13:34	Analyst E24959	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Factor 1	
Constituent		Result	Units	PQL	MDL	FLG
Chloride		2.5	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.7	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.5	mg/l	0.10	0.050	

## **EPA 314.0 PERCHLORATE BY IC**

314.0

Instrument DIONEX DX-500-3	<u>Date</u> 10/08/03 14:26	Analyst E70080	Sample An PRIMARY	alyzed	Dilution Factor 10	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		280	ug/l	40	10	

# Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Definitions MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag



**Analysis Report** Page 1 of 1 Reported on: 22 OCT 2003

EDL # 200118300 Primary # WNN-EW-2 Description WNN-EW-2 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 10/07/03 12:05 Smpl Date-Time 10/07/03 11:05

S IN WATER BY IC	0			3	300.0
<u>Date</u> 10/07/03 13:44	Analyst E24959			Dilution Factor	<u>or</u>
	Result	Units	PQL	MDL	FLG
	3.0 < 0.050	mg/l mg/l	0.20 0.050	0.10 0.025	
	1.4	mg/l	0.050	0.025	
	9.3	mg/l	0.10	0.050	
LORATE BY IC					314.0
<u>Date</u> 10/08/03 14:40	Analyst E70080			Dilution Factor	<u>or</u>
	Result	Units	PQL	MDL.	FLG
-	2600	ug/l	40	10	
Data Flag Definitio	ns			Definitions	
	Date 10/07/03 13:44 LORATE BY IC Date 10/08/03 14:40	Date   Analyst   E24959	Date   10/07/03 13:44   E24959   PRIM/	Date   10/07/03 13:44   E24959   PRIMARY	Date   10/07/03 13:44   E24959   PRIMARY   1

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concen
- MDL- Method Detection Limit PQL- Practical Quantitation Limit ND Not Detected above the MDL FLG- Data Flag



**Analysis Report** Page 1 of 1

Reported on: 22 OCT 2003

EDL # 200118298 Primary # WNN-MW1 Description WNN-MW1 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/07/03 12:05 Smpl Date-Time 10/07/03 10:18

EPA 300.0 ANION	S IN WATER BY I	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 10/07/03 12:46	Analyst E24959	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Chloride		3.9	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.066	mg/l	0.050	0.025	
Nitrate		0.12	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	<b>Dilution Fac</b>	tor
DIONEX DX-500-3	10/08/03 13:45	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
					Definitions	

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  E- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions
- Definitions
- MDL Method Detection Limit PCL Practical Quantitation Limit ND Not Detected above the MDL FLG Data Flag



**Analysis Report** Page 1 of

Reported on: 22 OCT 2003

EDL # 200118295 Primary # STSW-138A Description STSW-138A Source Type LIQUID Sampler SF

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/07/03 12:05 Smpl Date-Time 10/07/03 08:55

EPA 300.0 ANION	IS IN WATER BY I	C				300.0
Instrument DIONEX DX-500	<u>Date</u> 10/07/03 13:05	Analyst E24959	Samp PRIM	le Analyzed ARY	Dilution Fac 1	ctor
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		< 0.030	mg/l	0.030	0.015	
Chloride		3.4	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		3.0	mg/l	0.050	0.025	
Nitrate		0.076	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.1	mg/l	0.10	0.050	
EPA 314.0 PERC	HLORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 10/08/03 13:31	Analyst E70080	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fac	ctor

#### Data Flag Definitions

Constituent

Perchlorate

Result

940

Units

ug/l

Definitions MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

MDL

10

FLG

PQL

40

A- Suspected aldol condensation product
B- Analyte detected in blank
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA +)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions



**Analysis Report** Page 1 of 1 Reported on: 05 NOV 2003

EDL # 200119795 Primary # WNN-EW-2 Description WNN-EW-2 Source Type LIQUID

Sampler SF Report Distribution R. FRICKE, FILE Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/21/03 12:42 Smpl Date-Time 10/21/03 12:20

EPA 300.0 ANION	IS IN WATER BY IC			300
Instrument	<u>Date</u> 10/21/03 16:31	Analyst E66526	Sample Analyzed PRIMARY	Dilution Factor

DIOIALY DY-200	10/21/00 10:01	200020			•	
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.096	mg/l	0.030	0.015	
Chloride		2.9	mg/l	0.20	0.10	
Bromide		0.34	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.3	mg/l	0.10	0.050	

### **EPA 314.0 PERCHLORATE BY IC**

314.0

300.0

Instrument DIONEX DX-500-3	<u>Date</u> 10/22/03 13:49	Analyst E70080	Sample A PRIMAR		Dilution Fact 10	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2500	ug/l	40	10	

## Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Definitions MDL- Method Detection Limit PCL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag



**Analysis Report** Page 1 of 1

Reported on: 05 NOV 2003

EDL # 200119794 Primary # WNN-EW-1 Description WNN-EW-1 Source Type LIQUID Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/21/03 12:42 Smpl Date-Time 10/21/03 11:45

EPA 300.0 ANION	S IN WATER BY I					300.0
nstrument DIONEX DX-500	<u>Date</u> 10/21/03 16:20	Analyst E66526	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.13	mg/l	0.030	0.015	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Chloride		2.4	mg/l	0.20	0.10	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.6	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.4	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				·····	314.0
Instrument DIONEX DX-500-3	<u>Date</u> 10/22/03 13:35	Analyst E70080	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		300	ug/l	4.0	1.0	
	Data Flag Definition	ns			Definitions	

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)

- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

EDL # 200119352 Primary # WNN-EW-1 Description WNN-EW-1 Source Type LIQUID Sampler SF Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 10/15/03 13:07 Smpl Date-Time 10/15/03 12:00

_, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	IN WATER BY IC					300.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500	10/15/03 18:14	E66526	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.14	mg/l	0.030	0.015	
Chloride		2.4	mg/l	0.20	0.10	
Bromide		< 0.050	mg/l	0.050	0.025	
Nitrate		1.6	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.1	mg/l	0.10	0.050	
EPA 314.0 PERCHI	LORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>		<u>le Analyzed</u>	Dilution Fac	tor
DIONEX DX-500-3	10/15/03 16:50	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		270	ug/l	40	10	
	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Fac	tor
Instrument	<u>Date</u> 10/16/03 11:35	<u>Analyst</u> E24948	Samp PRIM		Dilution Fac	tor
Instrument			*****************			
Instrument PE 8500		E24948	PRIMA	ARY	1	
Instrument PE 8500 Constituent	10/16/03 11:35	E24948 Result	PRIM/ Units	PQL	0.25 0.25	
Instrument PE 8500  Constituent Vinyl Chloride	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50	PRIMA Units ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (cis	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLC
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (circhloroform	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroform Freon 113	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (cist) Chloroform Freon 113 1,2-Dichloroethane	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane	10/16/03 11:35 ne	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane Carbon Tetrachloride	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	`
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethene	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropane Trichloroethane 1,2-Dichloropropane Trichloroethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Sommodichloromethane 1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Bromoform	10/16/03 11:35	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethane 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	10/16/03 11:35  ne s/trans)	E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	

Analysis Report Page 2 of 3

Reported on: 11 NOV 2003

EDL # 200119352
Primary # WNN-EW-1
Description WNN-EW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES

Released By E23393
Recd Date-Time 10/15/03 13:07

Smpl Date-Time 10/15/03 12:00

TI M OO TO DICOOL	/ED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument IJA-61E	<u>Date</u> 10/30/03 13:32	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.018	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0040	0.0020	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0093	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0030	
Calcium		12	mg/l	0.14	0.070	
Magnesium		6.9	mg/l	0.050	0.025	
Sodium		9.0	mg/l	0.80	0.40	
		-20			1 (1	
Potassium		< 2.0	mg/l	2.0	1.0	600
EPA 602 AROMAT	IC VOLATILE OR  Date 10/21/03 12:34			le Analyzed	Dilution Fact	602 or
EPA 602 AROMAT	Date	GANICS Analyst	Sampl	le Analyzed	Dilution Fact	<u>or</u>
EPA 602 AROMAT nstrument HP 6890 GC Constituent	Date	GANICS  Analyst E24048  Result	<u>Sampl</u> PRIM <i>A</i> Units	le Analyzed ARY PQL	Dilution Factor	
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent Benzene	Date	GANICS  Analyst E24048  Result < 0.50	Sampl PRIMA Units	le Analyzed ARY PQL 0.50	Dilution Factor  1  MDL  0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene	Date	### Color	Sampl PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Factor  MDL  0.25 0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	Date	### Control of Control	Sampl PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Factor 1  MDL  0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	Dilution Factor 1  MDL  0.25 0.25 0.25 0.25 0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Fact 1  MDL  0.25  0.25  0.25  0.25  0.25  0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25  0.25  0.25  0.25  0.25  0.25  0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25  0.25  0.25  0.25  0.25  0.25  0.25	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 12:34	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>or</u>
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 12:34 VED ARSENIC, G	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
EPA 602 AROMAT  Instrument IP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL Instrument	<u>Date</u> 10/21/03 12:34	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Factor  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG
EPA 602 AROMAT  nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 10/21/03 12:34 VED ARSENIC, G	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Sampl PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fact  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG



**Analysis Report** Page 3 of 3 Reported on: 11 NOV 2003

EDL # 200119352 Primary # WNN-EW-1 Description WNN-EW-1 Source Type LIQUID Sampler SF

Report Distribution R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 10/15/03 13:07 Smpl Date-Time 10/15/03 12:00

EPA 7421 DISS	OLVED LEAD, GFA	A		7421		7421
<u>Instrument</u> PE 600	<u>Date</u> 11/04/03 11:37	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:15	Analyst E70180	Sample PRIMA	e Analyzed .RY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 11:18	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed .RY	Dilution Fact	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	-
- Suspected aidol condensation - Analyte detected in blank - Spiked sample recovery not wi - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	ithin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA I J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met cound	PQL- Pro	ethod Detection Limit loctical Quantitation Limit Detected above the MDL la Flag	

Reported on: 11 NOV 2003

EDL # 200119353
Primary # WNN-EW-2
Description WNN-EW-2
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/15/03 13:07

Smpl Date-Time 10/15/03 12:25

EPA 300.0 ANION	S IN WATER BY IC	;				300.0
nstrument DIONEX DX-500	<u>Date</u> 10/15/03 18:35	Analyst E66526	<u>Sampl</u> PRIMA	e Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.10	mg/l	0.030	0.015	
Chloride		2.9	mg/l	0.20	0.10	
Bromide		0.25	mg/l	0.050	0.025	
Nitrate		1.2	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.9	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>		e Analyzed	<b>Dilution Fact</b>	tor
DIONEX DX-500-3	10/15/03 17:04	E70080	PRIMA	<b>NRY</b>	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2500	ug/l	40	10	
Instrument	Date	Analyst		e Analyzed	Dilution Fac	601 tor
Instrument			<u>Sampi</u> PRIMA		Dilution Fact	• • • • • • • • • • • • • • • • • • • •
Instrument	Date	Analyst				tor
Instrument PE 8500  Constituent  Vinyl Chloride	<u>Date</u> 10/16/03 12:09	Analyst E24948 Result	Units ug/l	PQL 0.50	MDL 0.25	tor
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 10/16/03 12:09	Analyst E24948  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 10/16/03 12:09	Analyst E24948  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l	PQL 0.50 0.50 0.50	MDL 0.25 0.25 0.25	tor
Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan	<u>Date</u> 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	<u>Date</u> 10/16/03 12:09 ane	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 10/16/03 12:09 ane	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichloroffluoromethane Trichloroffluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (chloroform	<u>Date</u> 10/16/03 12:09 ane	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (chloroform Freon 113	<u>Date</u> 10/16/03 12:09 ane	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Freon 113 1,2-Dichloroethane	<u>Date</u> 10/16/03 12:09 ane sis/trans)	Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,1,1-Trichloroethane	<u>Date</u> 10/16/03 12:09 ane sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichloroffluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane Trichloroethane 1,2-Dichloropropane Trichloroethane	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 1.50 < 0.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50 < 1.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethan 1,1–Dichloroethene 1,2–Dichloroethene 1,2–Dichloroethane 1,2–Dichloroethane 1,1,1–Trichloroethane 1,1,1–Trichloroethane 1,1,2–Dichloromethane 1,1,2–Dichloromethane 1,2–Dichloromethane 1,2–Dichloromethane 1,2–Dichloromethane 1,2–Trichloroethane 1,1,2–Trichloroethane	Date 10/16/03 12:09	Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 10/16/03 12:09	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Bromoform Tetrachloroethene	Date 10/16/03 12:09  Ine Dis/trans) Date Dis/trans	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 10/16/03 12:09  Ine Dis/trans) Date Dis/trans	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	•••

Reported on: 11 NOV 2003

EDL # 200119353
Primary # WNN-EW-2
Description WNN-EW-2
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393

**Recd Date-Time** 10/15/03 13:07 **Smpl Date-Time** 10/15/03 12:25

-1 W 0010 D1000F	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument IJA-61E	<u>Date</u> 10/30/03 13:37	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.023	mg/l	0.0060	0.0030	
Bervllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0040	mg/l		0.0020	
				0.0080		
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0079	mg/l	0.0060	0.0030	
Manganese		< 0.0075	mg/l	0.0050	0.0025	
		12			0.0023	
Calcium			mg/l	0.14		
Magnesium	*	7.5	mg/l	0.050	0.025	
Sodium		8.4	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
EPA 602 AROMAT	IC VOLATILE OR	GANICS				602
		GANICS Analyst	Samp	le Analyzed	Dilution Fact	
Instrument	Date 10/21/03 13:13		Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fact	
EPA 602 AROMAT  Instrument HP 6890 GC  Constituent	Date	Analyst				
Instrument HP 6890 GC Constituent	Date	Analyst E24048 Result	PRIMA	PQL	1 MDL	<u>or</u>
Instrument HP 6890 GC Constituent Benzene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	1 MDL 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 13:13	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>or</u>
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 13:13 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL Instrument	<u>Date</u> 10/21/03 13:13	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Instrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	Date 10/21/03 13:13 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Analysis Report
Page 3 of 3
Reported on: 11 NOV 2003

EDL # 200119353
Primary # WNN-EW-2
Description WNN-EW-2
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/15/03 13:07

 Smpl Date-Time
 10/15/03 12:25

EPA 7421 DISS	OLVED LEAD, GFA	4		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 11:44	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	number voncomment
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:20	Analyst E70180	<u>Şampl</u> PRIMA	e Analyzed .RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740	······································	7740
Instrument PE 600	<u>Date</u> 11/05/03 11:24	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	
Suspected aldol condensation p     Analyte detected in blank     Spiked sample recovery not wit     Compound ran at second dilution     Analyte exceeds calibration ran     Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within con H- Correlation coefficient for MSA! J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

Analysis Report Page 1 of 2

Reported on: 11 NOV 2003

EDL # 200119791
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/21/03 12:42

 Smpl Date-Time
 10/21/03 09:35

EPA 300.0 ANION	S IN WATER BY I	C			3	300.0
instrument DIONEX DX-500	<u>Date</u> 10/21/03 16:09	Analyst E66526	Sampl PRIMA	e Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.10	mg/l	0.030	0.015	
Chloride		2.8	ma/l	0.20	0.10	
Bromide		0.28	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.1	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Sampl	e Analyzed	Dilution Facto	or .
DIONEX DX-500-3	10/22/03 12:54	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
		2100	ug/l	40	10	and the second
Perchlorate						
	VED METALS, IC	P, LIQUIDS	-	3010A	6	010B
EPA 6010 DISSOL	<u>Date</u>	Analyst	***************************************	le Analyzed	Dilution Facto	
EPA 6010 DISSOL			Samp PRIMA	le Analyzed		
EPA 6010 DISSOL	<u>Date</u>	Analyst	***************************************	le Analyzed	Dilution Facto	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E	<u>Date</u>	Analyst E70180	PRIMA	le Analyzed ARY	Dilution Factor  1  MDL  0.10	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E Constituent	<u>Date</u>	Analyst E70180 Result	PRIMA Units	le Analyzed ARY PQL	Dilution Factor 1	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium	<u>Date</u>	Analyst E70180 Result	Units mg/l	ARY  PQL  0.20	Dilution Factor  1  MDL  0.10	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum	<u>Date</u>	Analyst E70180  Result < 0.20 0.022	Units  mg/l mg/l	PQL 0.20 0.0060	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium	<u>Date</u>	Analyst E70180  Result < 0.20 0.022 < 0.0010	Units  mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.020 0.020 0.020 0.020 0.020 0.030	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	Dilution Facts  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.040 < 0.0080 < 0.040 0.0086	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0040 0.0080	Dilution Facts  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0086 < 0.0050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060 0.0060 0.0050	Dilution Facts  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0086 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.011	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.040 < 0.0086 < 0.0050 12 7.6	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14 0.050	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	<u>or</u>
EPA 6010 DISSOL Instrument TJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0086 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.011	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	



Analysis Report
Page 2 of 2
Reported on: 11 NOV 2003

EDL # 200119791
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/21/03 12:42
Smpl Date-Time 10/21/03 09:35

EPA 7060 DISSO	LVED ARSENIC, G	FAA		7060		7060
nstrument PE 600	<u>Date</u> 11/03/03 11:49	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSO	LVED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 11:52	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSO	LVED MERCURY,	COLD VAPOR		7470A	7	7470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:35	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSO	LVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 11:31	Analyst E70180	Sample PRIMA	e Analyzed .RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	
Suspected aldol condensation pre- Analyte detected in blank     Spiked sample recovery not with     Compound ran at second dilution     Analyte exceeds calibration range     Estimated concentration due to p	in control limits (EPA N)	G- Duplicate analysis not within cot H- Correlation coefficient for MSA i J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met	PQL- Pr	ethod Detection Limit actical Quantitation Limit I Detected above the MDL ta Flag	

EDL # 200119349
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/15/03 13:07
Smpl Date-Time 10/15/03 09:40

	S IN WATER BY IC	_				300.0
nstrument DIONEX DX-500	<u>Date</u> 10/15/03 18:24	Analyst E66526	Samp PRIM	le Analyzed ARY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLO
Fluoride	ун с основани везанадва ангалия и се ве компиция веннулно во не подо не поводе до не одного иншидандной задвава на	0.11	mg/l	0.030	0.015	
Chloride		2.9	mg/l	0.20	0.10	
Bromide		0.21	mg/l	0.050	0.025	
Nitrate		1.3	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.8	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	Date	<u>Analyst</u>	Samp	le Analyzed	<b>Dilution Fac</b>	tor
DIONEX DX-500-3	10/15/03 16:10	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2100	ug/l	40	10	
EPA 601 HALOGE			Comp	la Analyzad	Dilution Foo	601
EPA 601 HALOGE Instrument PE 8500	Date 10/16/03 09:50	Analyst E24948	Samp PRIMA	le Analyzed ARY	Dilution Fac 1	
Instrument	Date	Analyst				<u>tor</u>
Instrument PE 8500  Constituent  Vinyl Chloride	<u>Date</u> 10/16/03 09:50	Analyst E24948 Result < 0.50	Units ug/l	PQL 0.50	MDL 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 10/16/03 09:50	Analyst E24948  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethan	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,1-Dichloroethane	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c Chloroform Freon 113	<u>Date</u> 10/16/03 09:50 ne	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Freon 113 1,2-Dichloroethane	<u>Date</u> 10/16/03 09:50 ne e sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane	<u>Date</u> 10/16/03 09:50 ne e sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	Date 10/16/03 09:50 ne e cis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluorometha Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	Date 10/16/03 09:50 ne e cis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	
Constituent Vinyl Chloride Dichlorodifluoromethan Dichloroffluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane	Date 10/16/03 09:50 ne e cis/trans)	Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Chloroethane 1,1,1-Chloroethane 1,1,1-Chloroethane 1,1,1-Chloroethane 1,1,1-Chloroethane 1,1-Dichloromethane 1,2-Dichloromethane 1,2-Dichloropropane Trichloroethene	Date 10/16/03 09:50 ne e cis/trans)	Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,2-Dichloromethan 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 10/16/03 09:50 ne e sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 10/16/03 09:50 ne e sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 10/16/03 09:50 ne e sis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorodifluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Trichloroethane 1,1,2-Trichloroethane	Date 10/16/03 09:50  ne e cis/trans)	Analyst E24948  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  Ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	<u>tor</u>

Analysis Report

Page 2 of 3

Reported on: 11 NOV 2003

EDL # 200119349
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/15/03 13:07

Smpl Date-Time 10/15/03 09:40

		P, LIQUIDS		3010A	0	010B
nstrument FJA-61E	<u>Date</u> 10/30/03 12:49	Analyst E70180	Sampl PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
		< 0.10	•			
Zinc			mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0076	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		12	mg/l	0.14	0.070	
Magnesium	*	7.4	ma/l	0.050	0.025	
Sodium		8.4	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
	IC VOLATILE OR	GANICS				602
PA 602 AROMA I						
nstrument	Date 10/21/03 10:40	Analyst E24048	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
nstrument HP 6890 GC	<u>Date</u>	Analyst				
nstrument HP 6890 GC	<u>Date</u>	Analyst E24048	PRIMA Units	PQL	1 MDL	
nstrument HP 6890 GC  Constituent  Benzene	<u>Date</u>	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	MDL 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or FLG
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 10:40	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene EPA 7060 DISSOL	<u>Date</u> 10/21/03 10:40 .VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 10:40 .VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	FLG 7060



Analysis Report
Page 3 of 3
Reported on: 11 NOV 2003

EDL # 200119349
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/15/03 13:07
Smpl Date-Time 10/15/03 09:40

EPA 7421 DISS	OLVED LEAD, GFAA	4		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 11:01	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:25	Analyst E70180	Sample PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 10:45	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed RY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	5
A- Suspected aldol condensation   - Analyte detected in blank - Spiked sample recovery not wit - Compound ran at second diluti - Analyte exceeds calibration ran - Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met	PQL- Pra	thod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

# Analysis Report Page 1 of 2

Reported on: 11 NOV 2003

EDL # 200118294
Primary # WNN-RW-1
Description WNN-RW-1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/07/03 12:05

 Smpl Date-Time
 10/07/03 09:45

1 A 300.0 AINON	S IN WATER BY I	<del>-</del>			3	
nstrument DIONEX DX-500	<u>Date</u> 10/07/03 12:55	Analyst E24959	Sampi PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.9	mg/l	0.20	0.10	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.083	mg/l	0.050	0.025	
Nitrate		1.4	mg/l	0.050	0.025	
Phosphate		0.32	mg/l	0.30	0.15	
Sulfate		9.2	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Facto	<u>or</u>
DIONEX DX-500-3	10/08/03 13:18	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		2200	ug/l	40	10	
PA 6010 DISSOL	VED METALS, IC	P, LIQUIDS	**	3010A	60	)10B
	VED METALS, IC		Samp	3010A le Analyzed	60 Dilution Factor	
EPA 6010 DISSOL nstrument rJA-61E	VED METALS, IC Date 10/14/03 11:20	P, LIQUIDS <u>Analyst</u> E70180	Samp PRIMA	le Analyzed		
nstrument	<u>Date</u>	<u>Analyst</u>		le Analyzed	Dilution Facto	
nstrument ГЈА-61E	<u>Date</u>	Analyst E70180  Result < 0.20	PRIMA	le Analyzed ARY	Dilution Factor  1  MDL  0.10	or
nstrument FJA-61E Constituent	<u>Date</u>	Analyst E70180 Result	PRIMA	le Analyzed ARY PQL	Dilution Factor  1  MDL  0.10 0.0030	or
nstrument FJA-61E Constituent Aluminum	<u>Date</u>	Analyst E70180  Result < 0.20 0.022 < 0.0010	Units  mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.0030 0.00050	or
nstrument FJA-61E Constituent Aluminum Barium	<u>Date</u>	Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040	Units mg/l mg/l	PQL 0.20 0.0060	MDL  0.10 0.0030 0.00050 0.0020	or
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium	<u>Date</u>	Analyst E70180  Result < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080	MDL 0.10 0.0030 0.00050 0.0020 0.0040	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium Cadmium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040	MDL 0.10 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050	PRIMA  Units  mg/l  mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	MDL 0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	MDL 0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.020 0.050 0.10 0.20 0.040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.050 0.10 0.20 0.020 0.040 0.0080 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 0.0084	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.050 0.10 0.20 0.020 0.020 0.040 0.0080 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.040 < 0.0084 < 0.0050 12 7.2	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0060 0.0080 0.0060 0.0050	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0010 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	or
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	<u>Date</u>	Analyst E70180  Result  < 0.20 0.022 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0040  0.0084 < 0.0050 12	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.0030 0.0025 0.0070	<u>or</u>



Analysis Report
Page 2 of 2
Reported on: 11 NOV 2003

EDL # 200118294

Primary # WNN-RW-1

Description WNN-RW-1

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/07/03 12:05

 Smpl Date-Time
 10/07/03 09:45

EPA 7060 DISSO	LVED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 11/03/03 10:04	<u>Analyst</u> E70180	<u>Sample</u> PRIMA	Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSO	LVED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 10:18	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSO	LVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 10/23/03 11:50	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSO	LVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 10:06	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			<u>Definitions</u>	
Suspected aidol condensation pro- Analyte detected in blank     Spiked sample recovery not within     Compound ran at second dilution     Analyte exceeds calibration range     Estimated concentration due to pro-	n control limits (EPA N)	G- Duplicate analysis not within con H- Correlation coefficient for MSA in J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a com S- Concentration determined by me	met	PQL- Pr	ethod Detection Limit actical Quantitation Limit I Detected above the MDL Ita Flag	

Reported on: 11 NOV 2003

EDL # 200119793
Primary # WNN-MW1
Description WNN-MW1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/21/03 12:42
Smpl Date-Time 10/21/03 11:20

EPA 300.0 ANION	S IN WATER BY I					300.0
instrument DIONEX DX-500	<u>Date</u> 10/21/03 16:41	Analyst E66526	Sampl PRIMA	<u>e Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.9	mg/l	0.20	0.10	
Bromide		0.24	mg/l	0.050	0.025	
Nitrate		< 0.050	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		9.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	Analyst	Samp	e Analyzed	Dilution Fac	tor
DIONEX DX-500-3	10/22/03 13:22	E70080	PRIMA	•	1	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		< 4.0	ug/l	4.0	1.0	
	NATED VOLATIL		Samni	a Analyzed	Dilution Fac	601
EPA 601 HALOGE Instrument HP 6890 GC	Date 10/22/03 19:15	E ORGANICS Analyst E24048	Samp PRIMA	le Analyzed ARY	Dilution Fac	
Instrument	<u>Date</u>	<u>Analyst</u>				
Instrument HP 6890 GC Constituent	<u>Date</u>	Analyst E24048	PRIMA Units	ARY	1	tor
Instrument HP 6890 GC	<u>Date</u> 10/22/03 19:15	Analyst E24048 Result	PRIMA	PQL	1 MDL	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride	<u>Date</u> 10/22/03 19:15	Analyst E24048 Result < 0.50	Units ug/l	PQL 0.50	MDL 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha	<u>Date</u> 10/22/03 19:15 ne	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane	<u>Date</u> 10/22/03 19:15 ne	Analyst E24048 Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	MDL 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluorometha Dichloromethane Trichlorofluoromethan	<u>Date</u> 10/22/03 19:15 ne	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene	Date 10/22/03 19:15 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,1-Dichloroethane	Date 10/22/03 19:15 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	Date 10/22/03 19:15 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (Chloroform Freon 113	Date 10/22/03 19:15 ne	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluorometha Dichlorofluoromethane Trichlorofluoromethan 1,1-Dichloroethene 1,2-Dichloroethene (c	Date 10/22/03 19:15 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene Freon 113 1,2-Dichloroethane	Date 10/22/03 19:15 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	Date 10/22/03 19:15 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	Date 10/22/03 19:15 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloromethane 1,2-Dichloromethan	Date 10/22/03 19:15 ne e	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Constituent Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethan 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 1,1-Dichloromethane 1,1-Dichloromethane 1,1-Dichloromethane Trichloropropane Trichloroethene	Date 10/22/03 19:15 ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  Ug/I  ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane	Date 10/22/03 19:15 ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	Date 10/22/03 19:15 ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	Date 10/22/03 19:15 ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
Instrument HP 6890 GC  Constituent  Vinyl Chloride Dichlorodifluoromethan Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane 1,1,2-Trichloroethane Dibromochloromethane	Date 10/22/03 19:15  ne e sis/trans)	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

Analysis Report Page 2 of 3

Reported on: 11 NOV 2003

EDL # 200119793
Primary # WNN-MW1
Description WNN-MW1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/21/03 12:42

Smpl Date-Time 10/21/03 11:20

EPA OUTU DISSULT	VED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument ГЈА-61E	<u>Date</u> 10/30/03 15:20	Analyst E70180	Sampi PRIM	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0040	0.0020	
Copper		0.0064	mg/l	0.0060	0.0030	
Iron		0.67	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080		0.0080	0.020	
			mg/l			
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.089	mg/l	0.0050	0.0025	
Calcium		15	mg/l	0.14	0.070	
Magnesium		9.0	mg/l	0.050	0.025	
Sodium		9.5	mg/l	0.80	0.40	
Potassium		2.2	mg/l	2.0	1.0	
		0.11100				
"DA COO A DOBAT"						602
					<b></b>	602
nstrument	Date 10/21/03 18:20	Analyst E24048	Sampl PRIMA	le Analyzed ARY	Dilution Fact	
nstrument	<u>Date</u>	Analyst				or
nstrument HP 6890 GC Constituent	<u>Date</u>	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	or
nstrument HP 6890 GC Constituent Benzene	<u>Date</u>	Analyst E24048 Result	Units ug/l	PQL 0.50	MDL 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25	or
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 18:20	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 18:20 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 18:20	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 18:20 VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 1.50 < 1.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG



Analysis Report
Page 3 of 3
Reported on: 11 NOV 2003

EDL # 200119793
Primary # WNN-MW1
Description WNN-MW1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/21/03 12:42

 Smpl Date-Time
 10/21/03 11:20

EPA 7421 DISS	OLVED LEAD, GFAA	4		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 12:06	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:45	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	oddisside in inchisional and i
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 11:44	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	~
Suspected aldol condensation p     Analyte detected in blank     Spiked sample recovery not wit     Compound ran at second dilutic     Analyte exceeds calibration ran     Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met	PQL- Pr	ethod Detection Limit actical Quantitation Limit I Detected above the MDL ita Flag	

Reported on: 11 NOV 2003

EDL # 200119351

Primary # WNN-MW1

Description WNN-MW1

Source Type LIQUID

Sampler SF

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/15/03 13:07

 Smpl Date-Time
 10/15/03 11:36

Report Distribution R. FRICKE, FILE

EPA 300.0 ANION	S IN WATER BY I					300.0
Instrument DIONEX DX-500	<u>Date</u> 10/15/03 18:03	Analyst E66526	Sampi PRIMA	le Analyzed ARY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.9	mg/l	0.20	0.10	
Bromide		0.11	mg/l	0.050	0.025	
Nitrate		< 0.050	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.7	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC			***************************************		314.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	10/15/03 16:37	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS	·			601
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	<b>Dilution Fac</b>	tor
PE 8500	10/16/03 11:00	E24948	PRIMA	ARY	1	5
Constituent		Result	Units	PQL	MDL	FLO
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan	e	< 0.50	ug/l	0.50	0.25	
HICHIOTORIUOTORIBUTAN					0.05	
1,1-Dichloroethene	-	< 0.50	ug/l	0.50	0.25	
		< 0.50 < 0.50		0.50 0.50	0.25 0.25	
1,1-Dichloroethene		< 0.50 < 0.50	ug/l ug/l ug/l		0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane		< 0.50 < 0.50 < 0.50	ug/l ug/l	0.50	0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113		< 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l	0.50 0.50	0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene	sis/trans)	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 3.2	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c) Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane	sis/trans) ue	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan	sis/trans) ue	< 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	sis/trans) ue	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform Tetrachloroethene	sis/trans) ne ne	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethene (c Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	sis/trans) ne ne	< 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	

Reported on: 11 NOV 2003

EDL # 200119351
Primary # WNN-MW1
Description WNN-MW1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/15/03 13:07

Smpl Date-Time 10/15/03 11:36

PA OUTU DISSUL	/ED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument FJA-61E	<u>Date</u> 10/30/03 13:16	Analyst E70180	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.022	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	ma/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0040	0.0040	
		< 0.0060				
Copper			mg/l	0.0060	0.0030	
Iron		0.64	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
		< 0.040				
Molybdenum			mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.096	mg/l	0.0050	0.0025	
Calcium		14	mg/l	0.14	0.070	
Magnesium		8.9	mg/l	0.050	0.025	
Sodium		9.1	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	4
DA 602 AROMAT	IC VOLATILE OR	GANICS				602
PA 002 ANOMAT						
	Date Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fact	<u>or</u>
nstrument		Analyst E24048	<u>Samp</u> PRIMA		Dilution Fact	<u>or</u>
nstrument	<u>Date</u>					<u>or</u> FLG
nstrument IP 6890 GC Constituent	<u>Date</u>	E24048 Result	PRIMA Units	PQL	1 MDL	
nstrument HP 6890 GC  Constituent  Benzene	<u>Date</u>	<b>E24048 Result</b> < 0.50	Units ug/l	PQL 0.50	MDL 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene	<u>Date</u>	<b>Result</b> < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene	<u>Date</u>	E24048  Result < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene	<u>Date</u>	E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene	<u>Date</u>	E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u>	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	<u>Date</u>	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
Constituent Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene	<u>Date</u> 10/21/03 11:56	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 11:56 VED ARSENIC, G	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene	<u>Date</u> 10/21/03 11:56	E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
nstrument HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene p-Xylene/m-Xylene o-Xylene  EPA 7060 DISSOL	<u>Date</u> 10/21/03 11:56 VED ARSENIC, G	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060



Analysis Report
Page 3 of 3
Reported on: 11 NOV 2003

EDL # 200119351
Primary # WNN-MW1
Description WNN-MW1
Source Type LIQUID
Sampler SF
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 10/15/03 13:07
Smpl Date-Time 10/15/03 11:36

EPA 7421 DISS	OLVED LEAD, GFA	A		7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 11:30	Analyst E70180	<u>Sample</u> PRIMA	e Analyzed RY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL.	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 10/23/03 12:10	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed .RY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 11:11	Analyst E70180	<u>Sampl</u> PRIMA	e Analyzed .RY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition	ons			Definitions	~
Suspected aidol condensation in Analyte detected in blank     Spiked sample recovery not with Compound ran at second dilutive Analyte exceeds calibration ran    Estimated concentration due to	thin control limits (EPA N)	G- Duplicate analysis not within cor H- Correlation coefficient for MSA is J- Estimated Value M- Duplicate injection precision not N- Presumptive evidence of a comp S- Concentration determined by me	met	PQL- Pra	ethod Detection Limit actical Quantitation Limit Detected above the MDL ta Flag	

EDL # 200119350 Primary # STSW-138A Description STSW-138A Source Type LIQUID Sampler SF

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/15/03 13:07 Smpl Date-Time 10/15/03 10:24

EPA 300.0 ANIONS	IN WATER BY IC	3				300.0
Instrument DIONEX DX-500	<u>Date</u> 10/15/03 18:46	Analyst E66526	Sampl PRIMA	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.11	mg/l	0.030	0.015	
Chloride		3.7	ma/l	0.20	0.10	
Bromide		0.66	mg/l	0.050	0.025	
Nitrate		< 0.050	mg/l	0.050	0.025	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.6	mg/l	0.10	0.050	
EPA 314.0 PERCHL	ORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>		le Analyzed	<b>Dilution Fac</b>	<u>tor</u>
DIONEX DX-500-3	10/15/03 16:23	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLC
D l. L k -		170	ug/l	40	10	
Perchlorate EPA 601 HALOGEN		E ORGANICS				601
	IATED VOLATILI <u>Date</u> 10/16/03 10:25			le Analyzed	Dilution Fac	
EPA 601 HALOGEN	<u>Date</u>	E ORGANICS  Analyst	Samp	le Analyzed	Dilution Fac	
EPA 601 HALOGEN Instrument PE 8500  Constituent	<u>Date</u>	E ORGANICS  Analyst E24948  Result	Samp PRIM <i>I</i> Units	le Analyzed ARY PQL	Dilution Fac 1	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent Vinyl Chloride	<u>Date</u> 10/16/03 10:25	E ORGANICS Analyst E24948	Samp PRIMA Units ug/l	le Analyzed ARY	Dilution Fac	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent	<u>Date</u> 10/16/03 10:25	E ORGANICS  Analyst E24948  Result < 0.50	Samp PRIM <i>I</i> Units	le Analyzed ARY  PQL  0.50	Dilution Fac 1 MDL 0.25	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent Vinyl Chloride Dichlorodifluoromethane	<u>Date</u> 10/16/03 10:25	E ORGANICS <u>Analyst</u> E24948  Result < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l	PQL 0.50 0.50	Dilution Fac 1 MDL 0.25 0.25	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent Vinyl Chloride Dichlorodifluoromethane Dichloromethane	<u>Date</u> 10/16/03 10:25	E ORGANICS  Analyst E24948  Result < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l	PQL 0.50 0.50 0.50	Dilution Fac 1 MDL 0.25 0.25 0.25	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	Dilution Fac 1 MDL 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane Trichlorofluoromethane 1,1-Dichloroethene	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	Dilution Fac 1 MDL 0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane (cis. Chloroform	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (cis. Chloroform Freon 113	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane Trichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene 1,2-Dichloroethene (cis. Chloroform Freon 113 1,2-Dichloroethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethene 1,1-Dichloroethene 1,2-Dichloroethene (cis. Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane 2,1,1-Trichloroethane Carbon Tetrachloride	<u>Date</u> 10/16/03 10:25	Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane	<u>Date</u> 10/16/03 10:25	Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane 1,1-Dichloroethene 1,2-Dichloroethene (cis. Chloroform Freon 113 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloromethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fac 1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloromethane 1,2-Dichloromethane 1,1,1-Trichloroethane Trichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichlorofluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Carbon Tetrachloride Bromodichloromethane 1,2-Dichloropropane Trichloroethene 1,2-Dichloroethane	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,1,2-Trichloroethane Dibromochloromethane	<u>Date</u> 10/16/03 10:25	Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloropropane Trichloroethene 1,2-Dichloropropane Trichloroethene 1,2-Trichloroethane Dibromochloromethane Dibromochloromethane Dibromochloromethane Bromoform	<u>Date</u> 10/16/03 10:25	Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units  Ug/I  ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor
EPA 601 HALOGEN Instrument PE 8500  Constituent  Vinyl Chloride Dichlorodifluoromethane Dichloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,1,1-Trichloromethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,2-Dichloromethane 1,2-Dichloromethane 1,2-Dichloromethane 1,1,2-Trichloroethane Dibromochloromethane	Date 10/16/03 10:25	Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Samp PRIMA Units ug/I ug/I ug/I ug/I ug/I ug/I ug/I ug/I	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	Dilution Fac  1  MDL  0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.2	tor

Reported on: 11 NOV 2003

EDL # 200119350

Primary # STSW-138A

Description STSW-138A

Source Type LIQUID

Sampler SF

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 10/15/03 13:07

Smpl Date-Time 10/15/03 10:24

	VED METALS, ICI	, LIQUIDS		3010A	6	010B
nstrument JA-61E	<u>Date</u> 10/30/03 13:10	Analyst E70180	<u>Sampl</u> PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.026	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.30	mg/l	0.30	0.15	
Nickel		< 0.020	ma/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.10	0.10	
Boron		< 0.20	mg/l	0.040	0.020	
			~			
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0066	mg/l	0.0060	0.0030	
Manganese		0.024	mg/l	0.0050	0.0025	
Calcium		15	mg/l	0.14	0.070	
Magnesium		8.5	mg/l	0.050	0.025	
Sodium		8.9	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	~
i otassiairi						
	TIC VOLATILE OR	GANICS				602
EPA 602 AROMA			Sampl	le Analyzed	Dilution Fact	
EPA 602 AROMA	Date 10/21/03 11:18	GANICS Analyst E24048	Sampl PRIMA	le Analyzed ARY	Dilution Fact	
EPA 602 AROMA	Date	<u>Analyst</u>				
EPA 602 AROMAT nstrument HP 6890 GC Constituent	Date	Analyst E24048 Result	PRIMA Units	PQL	1 MDL	or
EPA 602 AROMA nstrument HP 6890 GC Constituent Benzene	Date	Analyst E24048 Result	Units ug/l	PQL 0.50	1 MDL 0.25	or
EPA 602 AROMATION IN THE PROPERTY OF THE PROPE	Date	Analyst E24048  Result < 0.50 < 0.50	Units  ug/l  ug/l	PQL 0.50 0.50	1 MDL 0.25 0.25	or
EPA 602 AROMATION IN THE PROPERTY OF THE PROPE	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50	0.25 0.25 0.25	or
EPA 602 AROMATION INSTRUMENT IN 18 18 18 18 18 18 18 18 18 18 18 18 18	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50	MDL 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMATINE TO THE PROPERTY OF THE PROPE	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMATION INSTRUMENT HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMATION INSTRUMENT HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4–Dichlorobenzene 1,3–Dichlorobenzene 1,2–Dichlorobenzene p-Xylene/m-Xylene	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMATION INSTRUMENT HP 6890 GC  Constituent  Benzene Toluene Ethylbenzene 1,4-Dichlorobenzene 1,3-Dichlorobenzene 1,2-Dichlorobenzene	Date	Analyst E24048  Result < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l	PQL 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG
EPA 602 AROMATION INSTRUMENT AND AROMATION IN THE PROPERTY OF	Date	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	or
EPA 602 AROMATINE INTERPRETATION IN THE PROPERTY OF THE PROPER	<u>Date</u> 10/21/03 11:18	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
EPA 602 AROMATION IN THE PROPERTY OF THE PROPE	<u>Date</u> 10/21/03 11:18 -VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060
EPA 602 AROMATINE INTERPRETATION IN THE INTERPRETATION INTERPRETATION IN THE INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRETATION INTERPRE	<u>Date</u> 10/21/03 11:18 -VED ARSENIC, G	Analyst E24048  Result  < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50  FAA  Analyst	Units  ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/	PQL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	FLG 7060



Page 3 of 3
Reported on: 11 NOV 2003

EDL # 200119350
Primary # STSW-138A
Description STSW-138A
Source Type LIQUID
Sampler SF
Report Distribution R, FRICKE, EOPS, FILE

A– Suspected aidol condensation product
B– Analyte detected in blank
C– Spiked sample recovery not within control limits (EPA N)
D– Compound ran at second difution
E– Analyte exceeds calibration range
F– Estimated concentration due to presence of an interference (EPA N)

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 10/15/03 13:07

 Smpl Date-Time
 10/15/03 10:24

MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

EPA 7421 DISS	OLVED LEAD, GFAA			7421		7421
Instrument PE 600	<u>Date</u> 11/04/03 11:09	Analyst E70180	<u>Samp</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR	<u>,,</u>	7470A	7	7470A
<u>Instrument</u> PE 2380	<u>Date</u> 10/23/03 12:30	Analyst E70180	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 11/05/03 10:52	Analyst E70180	<u>Samp</u> PRIM <i>i</i>	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definitio	<u>ns</u>			<u>Definitions</u>	**

G- Duplicate analysis not within control limits (EPA\*)
H- Correlation coefficient for MSA less than 0.995 (EPA+)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Reported on: 16 AUG 2004

EDL # 200138922
Primary # MW1-0701-1153
Description MW1-0701-1153
Source Type LIQUID
Sampler GB
Report Distribution R.FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 07/01/04 13:25
Smpl Date-Time 07/01/04 11:53

Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Facto	or
DIONEX DX-500	07/01/04 15:00	E66526	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.20	mg/l	0.030	0.015	
Chloride		3.5	mg/l	0.10	0.050	
Bromide		0.29	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		3.8	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
nstrument	<u>Date</u>	<u>Analyst</u>	<u>Samp</u>	le Analyzed	Dilution Facto	<u>or</u>
DIONEX DX-500-3	07/07/04 14:07	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	010B
Instrument	Date	<u>Analyst</u>	Sampl	e Analyzed	Dilution Facto	or
TJA-61E	07/09/04 12:23	E70180	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLG
Aluminum	,	< 0.20	mg/i	0.20	0.10	
		0.025	mg/l	0.0060	0.0030	
Barium					0.00050	
Beryllium		< 0.0010	mg/l	0.0010		
Beryllium Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Beryllium Cadmium Chromium		< 0.0040 < 0.0080	mg/l mg/l	0.0040 0.0080	0.0020 0.0040	
Beryllium Cadmium Chromium Copper		< 0.0040 < 0.0080 < 0.0060	mg/l mg/l mg/l	0.0040 0.0080 0.0060	0.0020 0.0040 0.0030	
Beryllium Cadmium Chromium Copper Iron		< 0.0040 < 0.0080 < 0.0060 0.47	mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30	0.0020 0.0040 0.0030 0.15	
Beryllium Cadmium Chromium Copper Iron Nickel		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020	mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020	0.0020 0.0040 0.0030 0.15 0.010	
Beryllium Cadmium Chromium Copper Iron Nickel Silver		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020	0.0020 0.0040 0.0030 0.15 0.010 0.010	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.39	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.010 0.025 0.050 0.10 0.022 0.0040 0.020 0.0020 0.0030 0.0025 0.0030	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.39 16	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0035	
Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0040 < 0.0080 < 0.0060 0.47 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.39	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0020 0.0040 0.0030 0.15 0.010 0.025 0.050 0.10 0.022 0.0040 0.020 0.0020 0.0030 0.0025 0.0030	



**Analysis Report** Page 2 of 2

Reported on: 16 AUG 2004

EDL # 200138922 Primary # MW1-0701-1153 Description MW1-0701-1153 Source Type LIQUID Sampler GB Report Distribution R.FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 07/01/04 13:25 Smpl Date-Time 07/01/04 11:53

EPA 7060 DISS	OLVED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 08/03/04 09:27	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISS	OLVED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 08/04/04 09:56	Analyst E70180	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	7	7470A
Instrument PE 2380	<u>Date</u> 07/07/04 11:00	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 08/05/04 10:48	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac	<u>tor</u>
		Result	Units	PQL	MDL	FLG
Constituent		1100 411				
Selenium Selenium		< 0.0020	mg/l	0.0020	0.00060	:

- A- Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 14 OCT 2004

EDL # 200145630
Primary # WNN MW-1
Backup #
Description WNN MW-1
Source Type WATER
AGC Site # WNN MW-1
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/20/04 14:35
Sampler DH

Smpl Date-Time 09/20/04 12:49

		C			•	300.0
Instrument DIONEX DX-500	<u>Date</u> 09/22/04 09:49	Analyst E66526	Samp PRIMA	le Analyzed ARY	<u>Dilution Fact</u> 1	or
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.16	mg/l	0.030	0.015	
Chloride		3.7	mg/l	0.10	0.050	
Bromide		0.31	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		16	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
instrument	Date	<u>Analyst</u>	Sampl	le Analyzed	<b>Dilution Fact</b>	or
DIONEX DX-500-3	10/13/04 16:12	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
FPA 6010 DISSOL	VED METALS, ICI	PLIQUIDS		3010A	60	010B
			C		Dilution Fact	
						or .
	Date	<u>Analyst</u>		e Analyzed		
	<u>Date</u> 09/23/04 12:08	<u>Analyst</u> E70180	PRIMA		1	
TJA-61E  Constituent  Aluminum		E70180  Result < 0.20	Units mg/l	PQL 0.20	MDL 0.10	
Constituent Aluminum Arsenic		E70180  Result < 0.20 < 0.080	Units mg/l mg/l	PQL 0.20 0.080	MDL 0.10 0.040	
Constituent Aluminum Arsenic Barium		E70180  Result  < 0.20 < 0.080 0.029	Units  mg/l mg/l mg/l	PQL 0.20 0.080 0.0060	0.10 0.040 0.0030	
Constituent Aluminum Arsenic Barium Beryllium		E70180  Result < 0.20 < 0.080 0.029 < 0.0010	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010	0.10 0.040 0.0030 0.00050	
Constituent Aluminum Arsenic Barium Beryllium Cadmium		E70180  Result < 0.20 < 0.080 0.029 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	0.10 0.040 0.0030 0.00050 0.0020	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	1 MDL 0.10 0.040 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.030	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020	Market Ma	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020	Monts  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		F70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1 MDL 0.10 0.040 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		F70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1 MDL 0.10 0.040 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0060	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.0020 0.0040 0.0020 0.0040 0.0020 0.0030 0.0025	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.044	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.38 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.10 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	FLG



**Analysis Report** Page 2 of 2

Reported on: 14 OCT 2004

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

### **Definitions**

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Analysis Report Page 1 of 2

Reported on: 21 DEC 2004

EDL # 200151285
Primary # WNN-MN-1
Backup #
Description WNN-MN-1
Source Type WATER
AGC Site # WNN-MN-1
Report Distribution R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 11/29/04 16:30
Sampler DF

Smpl Date-Time 11/29/04 15:34

	S IN WATER BY I				•	300.0
Instrument DIONEX DX-500	<u>Date</u> 11/30/04 13:26	Analyst E25619	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.14	mg/l	0.030	0.015	
Chloride		3.4	mg/l	0.10	0.050	
Bromide		0.26	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate Sulfate		< 0.30 19	mg/l mg/l	0.30 0.10	0.15 0.050	
		19		0.10		
EPA 314.0 PERCH						14.0
<u>Instrument</u>	<u>Date</u>	<u>Analyst</u>		<u>le Analyzed</u>	Dilution Fact	<u>or</u>
DIONEX DX-500-3	12/02/04 17:17	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P. LIQUIDS		3010A	60	10B
	Date	Analyst	Sampl	le Analyzed	Dilution Facto	or
I <u>nstrument</u> TJA-61E	<u>Date</u> 12/06/04 13:53	Analyst E70180	Sampl PRIMA	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
instrument		-				
<u>Instrument</u> TJA-61E		E70180	PRIMA	ARY	1	
Instrument TJA-61E Constituent		E70180  Result < 0.20 < 0.080	PRIMA Units	PQL	1 MDL	
Instrument TJA-61E  Constituent Aluminum		E70180  Result  < 0.20 < 0.080 0.034	Units mg/l	PQL 0.20	MDL 0.10	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010	Units  mg/I mg/I mg/I mg/I mg/I	PQL 0.20 0.080 0.0060 0.0010	0.10 0.040 0.0030 0.00050	
Instrument TJA-61E  Constituent Aluminum Arsenic Barium Beryllium Cadmium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium		E70180  Result < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0080 0.34	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 0.34 < 0.060 < 0.010	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	Market Primark  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1 MDL 0.10 0.040 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0080 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.050 < 0.10 < 0.080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.20 0.050 0.110 0.20 0.040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.020 0.0040	FLG
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.0060 0.040 < 0.0060 0.50	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0060 0.0050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.34	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.034 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.0060 0.040 < 0.0060 0.50	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0060 0.0050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	



**Analysis Report** 2 of 2 Page Reported on: 21 DEC 2004

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceed calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

### **Definitions**

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 10 MAR 2005

EDL # 200157019
Primary # WNN-MW-1
Backup #
Description WNN-MW-1
Source Type WATER
AGC Site # WNN-MW-1
Report Distribution EOPS, FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 02/07/05 14:00
Sampler RLH
Smpl Date-Time 02/07/05 11:45

EPA 300.0 ANION	S IN WATER BY I	3			3	300.0
Instrument DIONEX DX-500	<u>Date</u> 02/07/05 17:10	Analyst E25619	Sampl PRIMA	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.15	mg/l	0.030	0.015	
Chloride		3.6	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.28	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate Sulfate		< 0.30 20	mg/l mg/l	0.30 0.10	0.15 0.050	
			mg/i			1110
EPA 314.0 PERCH						314.0
Instrument DIONEX DX-500-3	<u>Date</u> 02/25/05 16:23	<u>Analyst</u> E70080	<u>Sampl</u> PRIM <i>A</i>	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 METAL	S BY ICP, LIQUID			3010A	60	010B
Instrument	Date	<u>Analyst</u>	Sampl	e Analyzed	Dilution Facto	or
TJA-61E	02/15/05 11:46	E70180	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/I	0.080	0.040	
Barium		0.035	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper						
		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.0060 0.32	mg/l mg/l	0.0060 0.30	0.0030 0.15	
Iron Lead		< 0.0060 0.32 < 0.060	mg/l mg/l mg/l	0.0060 0.30 0.060	0.0030 0.15 0.030	
Iron Lead Nickel		< 0.0060 0.32 < 0.060 < 0.020	mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020	0.0030 0.15 0.030 0.010	
Iron Lead Nickel Selenium		< 0.0060 0.32 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10	0.0030 0.15 0.030 0.010 0.050	
Iron Lead Nickel Selenium Silver		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020	0.0030 0.15 0.030 0.010 0.050 0.010	
Iron Lead Nickel Selenium Silver Thallium		< 0.0060 0.32 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.0030 0.15 0.030 0.010 0.050	
Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50 20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	
Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0060 0.32 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50 20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	



**Analysis Report** Page 2 of 2

Reported on: 10 MAR 2005

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- - G- Duplicate analysis not within control limits
    H- Correlation coefficient for MSA less than 0.995
    J- Estimated concentration
    M- Duplicate precision not met
    N- Presumptive evidence of a compound
    S- Concentration determined by method of standard additions

### <u>Definitions</u>

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Analysis Report Page 1 of 3

Reported on: 13 APR 2005

EDL # 200158559

Primary # WNN-MW-1

Backup # WNN-MW-1

Description WNN-MW-1

Source Type WATER

AGC Site # WNN-MW-1

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 12:15

S IN WATER BY I	C				300.0
<u>Date</u> 02/22/05 13:50	Analyst E25619			Dilution Fac	<u>tor</u>
	Result	Units	PQL	MDL	FLC
	0.14	ma/l	0.030	0.015	
	3.6		0.10		
	0.30		0.10		
	< 0.10		0.10	0.050	
	< 0.30	mg/l	0.30	0.15	
	19	mg/l	0.10	0.050	
ILORATE BY IC					314.0
Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
03/11/05 15:20	E70080			1	
	Result	Units	PQL	MDL	FLO
	< 4.0	ug/l	4.0	1.0	
NATED VOLATIL	E ORGANICS				601
Date	Δnalvst	Samn	le Analyzed	Dilution Fac	tor
02/23/05 15:22	E70533			1	
	Result	Units	PQL	MDL	FLG
	< 0.50	ug/l	0.50	0.25	
ne			0.50		
			0.50		
e					
	< 0.50	ug/l	0.50	0.25	
		٠,			
is/trans)	1.1	ug/l	0.50	0.25	
is/trans)	1.1 < 0.50	ug/l	0.50	0.25	
is/trans)	1.1 < 0.50 < 0.50	ug/l ug/l	0.50 0.50	0.25 0.25	
·	1.1 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50 0.50	0.25 0.25 0.25	
is/trans)	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25	
ŕ	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25	
·	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25	
ŕ	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25	
e	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 3.2	ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
e	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
e	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
e	1.1 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
e	1.1 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	0.25 0.25 0.25 0.25 0.25 0.25 0.25 0.25	
	Date 02/22/05 13:50 ILORATE BY IC Date 03/11/05 15:20	Date   O2/22/05 13:50   E25619	Date   O2/22/05 13:50   E25619   PRIM/	Date   Analyst   E25619   PRIMARY	Date   Analyst   E25619   PRIMARY   Dilution Face

Reported on: 13 APR 2005

EDL # 200158559
Primary # WNN-MW-1
Backup # WNN-MW-1

Description WNN-MW-1 Source Type WATER

AGC Site # WNN-MW-1
Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 12:15

EPA 6010 DISS	OLVED METALS, IC	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 03/14/05 11:24	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.034	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.010	
Zinc		< 0.10				
Antimony		< 0.10	mg/l	0.10	0.050	
Boron		< 0.20 < 0.040	mg/l	0.20	0.10	
Cobalt			mg/l	0.040	0.020	
		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.49	mg/l	0.0050	0.0025	
Calcium		20	mg/l	0.14	0.070	
		12	mg/l	0.050	0.025	
Magnesium				0.050		
Magnesium Sodium		9.8	mg/l	0.80	0.40	
Sodium Potassium	DLVED ARSENIC, G	9.8 < 2.0				7060
Sodium Potassium EPA 7060 DISSO	DLVED ARSENIC, G	9.8 < 2.0	mg/l mg/l	0.80 2.0 <b>7060</b>	0.40	
Sodium Potassium EPA 7060 DISSO Instrument	,	9.8 < 2.0	mg/l mg/l	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0	
Sodium Potassium EPA 7060 DISSO Instrument	Date	9.8 < 2.0 FAA <u>Analyst</u>	mg/l mg/l Sampl	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0 <u>Dilution Fact</u>	
Sodium Potassium EPA 7060 DISSO Instrument PE 600	Date	9.8 < 2.0 FAA Analyst E70180	mg/l mg/l Sampl PRIMA	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0 Dilution Fact	or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic	Date	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l <u>Sampl</u> PRIMA	0.80 2.0 7060 le Analyzed ARY	0.40 1.0 Dilution Fact 1	or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO	<u>Date</u> 03/07/05 11:53 DLVED LEAD, GFAA	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units	0.80 2.0 7060 le Analyzed ARY PQL 0.0020 7421	0.40 1.0 Dilution Fact 1	FLG 7421
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO	<u>Date</u> 03/07/05 11:53	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units	0.80 2.0 7060 le Analyzed ARY  PQL  0.0020  7421  le Analyzed	0.40 1.0 Dilution Fact 1  MDL  0.00030	FLG 7421
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument	Date 03/07/05 11:53 DLVED LEAD, GFAA	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA  Units mg/l	0.80 2.0 7060 le Analyzed ARY  PQL  0.0020  7421  le Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030	FLG 7421
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600	Date 03/07/05 11:53 DLVED LEAD, GFAA	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180	mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY PQL 0.0020 7421 le Analyzed	0.40 1.0  Dilution Fact  MDL 0.00030  Dilution Fact 1	FLG 7421 or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	Date 03/07/05 11:53 DLVED LEAD, GFAA	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA  Units mg/l  Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY  PQL  0.0020  7421  le Analyzed  ARY  PQL	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	FLG 7421 or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO	Date 03/07/05 11:53 DLVED LEAD, GFAA Date 03/08/05 14:06	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR	Mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY PQL 0.0020 7421 le Analyzed ARY PQL 0.0020 7470A	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG 470A
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO Instrument	Date 03/07/05 11:53 DLVED LEAD, GFAA Date 03/08/05 14:06	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	Mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0  7060    e Analyzed   ARY    PQL     0.0020    7421   e Analyzed   ARY    PQL     0.0020    7470A     e Analyzed     e Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG 470A
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	Date 03/07/05 11:53 DLVED LEAD, GFAA Date 03/08/05 14:06 DLVED MERCURY, (O	9.8 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR Analyst	Mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA Units mg/l	0.80 2.0  7060    e Analyzed   ARY    PQL     0.0020    7421   e Analyzed   ARY    PQL     0.0020    7470A     e Analyzed     e Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060  7  Dilution Fact	7421 or FLG 470A



**Analysis Report** Page 3 of

Reported on: 13 APR 2005

EDL # 200158559

Primary # WNN-MW-1

Backup # WNN-MW-1

Description WNN-MW-1

Source Type WATER

AGC Site # WNN-MW-1

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 12:15

**EPA 7740 DISSOLVED SELENIUM, GFAA** 

7740

7740

**FLG** 

Instrument PE 600

**Date** 03/04/05 13:37 <u>Analyst</u> E70180

Sample Analyzed

**Dilution Factor** 

PRIMARY

1

Constituent

Result

Units

PQL

MDL

Selenium

< 0.0020

mg/i

0.0020

0.00060

Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyle found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyle from secondary dilution analysis
  E- Analyle exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Definitions

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 31 MAY 2005

EDL # 200163079
Primary # WNN-MW-1
Backup # WNN-MW-1
Description WNN-MW-1
Source Type WATER
AGC Site # WNN-MW-1
Report Distribution EOPS, R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 04/13/05 14:00

Sampler BH Smpl Date-Time 04/13/05 09:55

EPA 300.0 ANION	S IN WATER BY I	•			•	300.0
Instrument DIONEX DX-500	<u>Date</u> 04/14/05 14:36	Analyst E25619	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.14	mg/l	0.030	0.015	
Chloride		3.5	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.32	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		20	mg/l	0.10	0.050	
PA 314.0 PERCH	ILORATE BY IC				3	314.0
nstrument	<u>Date</u>	<u>Analyst</u>	Sampl	e Analyzed	<b>Dilution Fact</b>	<u>or</u>
DIONEX DX-500-3	05/02/05 20:37	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 METAL	S BY ICP, LIQUID			3010A	60	010B
nstrument	Date	<u>Analyst</u>	Sampl	e Analyzed	Dilution Fact	or
JA-61E	04/25/05 11:21	E70180	PRIMA		1	-
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.033	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080 < 0.0060	mg/l	0.0080	0.0040	
Copper Iron		< 0.30	mg/l mg/l	0.0060 0.30	0.0030 0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Colomain		< 0.020	mg/l	0.020	0.010	
Silver					0.025	
Silver Thallium			mg/l	0.050		
Silver Thallium Zinc		< 0.050 < 0.10	mg/l mg/l	0.050 0.10	0.050	
Thallium Zinc		< 0.050	mg/l			
Thallium		< 0.050 < 0.10		0.10	0.050	
Thallium Zinc Antimony		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l	0.10 0.20	0.050 0.10 0.020 0.0040	
Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040	0.050 0.10 0.020 0.0040 0.020	
Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060	0.050 0.10 0.020 0.0040 0.020 0.0030	
Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	
Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50 20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	
Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.50	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	



**Analysis Report** Page 2 of 2

Reported on: 31 MAY 2005

EDL # 200163079

Primary # WNN-MW-1

Backup # WNN-MW-1

Description WNN-MW-1

Source Type WATER

AGC Site # WNN-MW-1

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/13/05 14:00

Sampler BH

Smpl Date-Time 04/13/05 09:55

EPA 8021 HALOG	ENATED VOLATI	LE ORGANICS			8021B		
nstrument MPH 6890	<u>Date</u> 04/19/05 12:59	<u>Analyst</u> E25639	<u>Samp</u> PRIM <i>i</i>	<u>le Analyzed</u> ARY	Dilution Fa	ctor	
Constituent		Result	Units	PQL	MDL	FLG	
Vinyl Chloride		< 0.50	ug/i	0.50	0.25		
Dichlorodifluorometha	ne	< 0.50	ug/l	0.50	0.25		
Dichloromethane		< 0.50	ug/l	0.50	0.25		
Trichlorofluoromethan	е	< 0.50	ug/l	0.50	0.25		
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25		
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25		
1,2-Dichloroethene (d	cis/trans)	0.84	ug/l	0.50	0.25		
Chloroform		< 0.50	ug/l	0.50	0.25		
Freon 113		< 0.50	ug/l	0.50	0.25		
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25		
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25		
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25		
Bromodichloromethan	е	< 0.50	ug/i	0.50	0.25		
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25		
Trichloroethene		3.3	ug/l	0.50	0.25		
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25		
Dibromochloromethan	10	< 0.50	ug/l	0.50	0.25		
Bromoform		< 0.50	ug/l	0.50	0.25		
Tetrachloroethene		< 0.50	ug/l	0.50	0.25		
1,1,2,2-Tetrachloroeth	nane	< 0.50	ug/i	0.50	0.25		
Chlorobenzene		< 0.50	ug/l	0.50	0.25		

# Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from ascondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag



**Analysis Report** Page 1 of 1

Reported on: 06 SEP 2005

EDL # 200172552 Primary # WNN MW-1 Backup # Description WNN MW-1 Source Type WATER AGC Site # WNN MW-1 Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 08/15/05 14:35 Sampler DH

Smpl Date-Time 08/15/05 11:39

EPA 300.0 ANIONS	IN WATER BY I				•	300.0
Instrument DIONEX DX-500	<u>Date</u> 08/15/05 22:51	Analyst E25619	<u>Sampl</u> PRIMA	e Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Chloride Nitrate Sulfate		3.5 < 0.10 20	mg/l mg/l mg/l	0.10 0.10 0.10	0.050 0.050 0.050	
EPA 314.0 PERCHI	ORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 08/25/05 13:35	Analyst E70080	<u>Sampl</u> PRIMA	e Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 DISSOL	/ED METALS, IC	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 08/22/05 13:32	<u>Analyst</u> E70180	<u>Sampi</u> PRIMA	le Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.032	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020 0.0030	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.51	mg/l	0.0050	0.0025	
Calcium		19	mg/l	0.14	0.070	
Magnesium		12	mg/l	0.050	0.025	
Sodium		9.3 < 2.0	mg/l mg/l	0.80 2.0	1.0	
Potassium		< 2.0	nig/i	_		
- Suspected aldol condensation product	Data Flag Definitions	lysis not within control limits	myr	2	Definitions d Detection Limit	

A- Suspected aldol condensation product
B- Analyte found in associated blank
C- Spiked sample recovery not within control limits
D- Analyte from secondary dilution analysis
E- Analyte exceeds calibration range
F- Estimated concentration due to an interference

G- Duplicate analysis not within control limits
H- Correlation coefficient for MSA less than 0.995
J- Estimated concentration
M- Duplicate precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 16 FEB 2006

EDL # 200182731
Primary # WNN-MW1
Backup #
Description WNN-MW1
Source Type WATER
AGC Site # WNN-MW1
Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date—Time 12/14/05 13:00

Sampler KB Smpl Date-Time 12/14/05 11:08

EPA 300.0 ANION	S IN WATER BY	C			;	300.0
Instrument DIONEX DX-500	<u>Date</u> 12/14/05 16:56	Analyst E25619	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.14	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.24	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		0.40	mg/l	0.30	0.15	
Sulfate		16	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				;	314.0
Instrument	<u>Date</u>	Analyst	Samp	le Analyzed	Dilution Fact	or
DIONEX DX-600-B	01/05/06 20:42	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, IC	P, LIQUIDS		3010A	60	010B
Instrument	Date	Analyst	Sampl	le Analyzed	Dilution Fact	or
TJA-61E	01/17/06 12:29	E70180	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.030	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.37	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
		< 0.0060	mg/l	0.0060	0.0030	
Vanadium		0.48	mg/l	0.0050	0.0025	
Vanadium Manganese						
Vanadium Manganese Calcium		17	mg/l	0.14	0.070	
Vanadium Manganese Calcium Magnesium		17 11	mg/l mg/l	0.050	0.025	
Vanadium Manganese Calcium		17	mg/l			



**Analysis Report** Page 2 of 2

Reported on: 16 FEB 2006

## Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
  G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

### **Definitions**

MDL- Method Detection Limit POL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Analysis Report Page 1 of 2

Reported on: 07 APR 2006

EDL # 200187481
Primary # WNN-MW1
Backup #
Description WNN-MW1
Source Type WATER
AGC Site # WNN-MW1
Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 02/13/06 13:10
Sampler BH

Smpl Date-Time 02/13/06 11:30

EPA 300.0 ANION	S IN WATER BY I	3			;	300.0
I <u>nstrument</u> DIONEX DX-500	<u>Date</u> 02/14/06 17:13	Analyst E25619	<u>Samp</u> PRIM <i>I</i>	l <u>e Analyzed</u> ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.2	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.18	mg/l	0.10	0.050	
Nitrate Phosphate		< 0.10 0.52	mg/l mg/l	0.10	0.050 0.15	
Sulfate		16	mg/l	0.30 0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument DIONEX DX-600-B	<u>Date</u> 02/27/06 16:31	<u>Analyst</u> E70080	Samp PRIM	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
	VED METALS IC			3010A		010B
	VED METALS, ICI					
<u>nstrument</u> ГЈА-61E	<u>Date</u> 02/22/06 11:15	<u>Analyst</u> E70180	<u>Samp</u> PRIMA	le Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.029	mg/l	0.0060	0.0030	
Beryllium Cadmium		< 0.0010 < 0.0040	mg/l	0.0010	0.00050	
Chromium		< 0.0040	mg/l mg/l	0.0040 0.0080	0.0020 0.0040	
		< 0.0000	1119/1	0.0000		
		< 0.0060	ma/l		0.0030	
Copper		< 0.0060 0.34	mg/l mg/l	0.0060	0.0030 0.15	
Copper Iron		0.34	mg/l	0.0060 0.30	0.15	
Copper				0.0060		
Copper Iron Lead		0.34 < 0.060	mg/l mg/l	0.0060 0.30 0.060	0.15 0.030	
Copper Iron Lead Nickel Selenium Silver		0.34 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020	0.15 0.030 0.010 0.050 0.010	
Copper Iron Lead Nickel Selenium Silver Thallium		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.15 0.030 0.010 0.050 0.010 0.025	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		0.34 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.40 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.040 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		0.34 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		0.34 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.45	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		0.34 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.040 < 0.045	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		0.34 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.45	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	



**Analysis Report** Page 2 of 2

Reported on: 07 APR 2006

EDL # 200187481 Primary # WNN-MW1 Backup # Description WNN-MW1 Source Type WATER AGC Site # WNN-MW1 Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 02/13/06 13:10 Sampler BH Smpl Date-Time 02/13/06 11:30

<b>EPA 7060 DISSOLV</b>	ED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 03/13/06 11:15	Analyst E70180	<u>Samp</u> PRIM <i>i</i>	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOLV	ED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 03/22/06 10:43	Analyst E70180	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fac 1	tor
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOLV	ED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 02/17/06 11:20	Analyst E70180	Samp PRIMA	le Analyzed ARY	<u>Dilution Fac</u> 1	<u>tor</u>
Constituent		Result	Units	PQL	MÐL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSOLV	ED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 03/21/06 11:37	Analyst E70180	<u>Sampi</u> PRIM <i>I</i>	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definitions			-	efinitions	
- Suspected aidol condensation product	G- Duplicate anal	ysis not within control limits		MDL - Method		

- A- Suspected addol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits

   Correlation coefficient for MSA less than 0.995

  J- Estimated concentration

   Duplicate precision not met

  N- Presumplive evidence of a compound

  S- Concentration determined by method of standard additions

MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Reported on: 22 MAY 2006

EDL # 200193255
Primary # WNN-MW-1
Backup #
Description WNN-MW-1
Source Type WATER
AGC Site # WNN-MW-1

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 05/01/06 14:25

Sampler BH

Smpl Date-Time 05/01/06 13:15

EPA 300.0 ANION	IS IN WATER BY I				•	300.0
I <u>nstrument</u> DIONEX DX-500	<u>Date</u> 05/03/06 12:52	Analyst E25619	Samp PRIM	le Analyzed ARY	Dilution Fact	<u>or</u>
Comment Nitrate, exceed	Nitrite and Phosphate ed hold times.					
Constituent		Result	Units	PQL	MDL	FLG
Fluoride Chloride Nitrite Nitrate Phosphate		0.13 3.2 < 0.050 < 0.10 < 0.30	mg/l mg/l mg/l mg/l mg/l	0.030 0.10 0.050 0.10 0.30	0.015 0.050 0.025 0.050 0.15	J J J
EPA 300.0 ANION	IS IN WATER BY IC	<del></del>				300.0
Instrument DIONEX DX-500	<u>Date</u> 05/03/06 16:53	Analyst E25619	<u>Sample Analyzed</u> PRIMARY		<u>Dilution Factor</u> 2	
Constituent		Result	Units	PQL	MDL	FLG
Sulfate		16	mg/l	0.20	0.10	
EPA 6010 DISSO	LVED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument	Date	Analyst	Sample Analyzed		Dilution Factor	
TJA-61E	05/11/06 13:05	E70180	PRIMARY		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.35	mg/l	0.30	0.15	
		< 0.060	mg/l	0.060	0.030	
Lead			mg/l	0.020	0.010	
Nickel		< 0.020				
Nickel Selenium		< 0.10	mg/l	0.10	0.050	
Nickel Selenium Silver		< 0.10 < 0.020	mg/l mg/l		0.010	
Nickel Selenium		< 0.10	mg/l	0.10		
Nickel Selenium Silver		< 0.10 < 0.020	mg/l mg/l	0.10 0.020	0.010	
Nickel Selenium Silver Thallium		< 0.10 < 0.020 < 0.050	mg/l mg/l mg/l	0.10 0.020 0.050	0.010 0.025	
Nickel Selenium Silver Thallium Zinc		< 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10	0.010 0.025 0.050	
Nickel Selenium Silver Thallium Zinc Antimony		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20	0.010 0.025 0.050 0.10	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080	0.010 0.025 0.050 0.10 0.020 0.0040	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060	0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.43	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.43	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.43 16 9.8	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	
Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0060 0.43	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	



**Analysis Report** Page 2 of 2

Reported on: 22 MAY 2006

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0,995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

### **Definitions**

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag

Reported on: 03 OCT 2006

EDL # 200202096

Primary # WNN-MW-1

Backup #

Description WNN-MW-1

Source Type WATER

AGC Site # WNN-MW-1

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 08/25/06 13:25
Sampler BB/FIP
Smpl Date-Time 08/25/06 10:50

EPA 300.0 ANIOI	NS IN WATER BY I	C			;	300.0
Instrument DIONEX DX-500	<u>Date</u> 08/25/06 14:39	Analyst E24959	Sample Analyzed PRIMARY		<u>Dilution Factor</u> 5	
Constituent		Result	Units	PQL	MDL	FLC
Sulfate		13	mg/l	0.50	0.25	
EPA 300.0 ANION	NS IN WATER BY	<u> </u>				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/25/06 16:25	Analyst E24959	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.13	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Bromide		< 0.10	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
EPA 6010 DISSO	LVED METALS, IC	P, LIQUIDS		3010A	6	010B
Instrument	Date	Analyst Sample Analyzed		le Analyzed	<b>Dilution Factor</b>	
TJA-61E	09/15/06 11:09	E70180	PRIMARY		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.020	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0010	0.00030	
Chromium		< 0.0040	mg/l	0.0040	0.0020	
Copper		< 0.0060	mg/l	0.0060	0.0040	
Iron		0.32	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.45	mg/l	0.0050	0.0025	
Calcium		16	mg/l	0.14	0.070	
Magnesium		9.7	mg/l	0.050	0.025	
Sodium		8.8	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
rulassium		~ Z.U	riig/i	2.0	1.0	



**Analysis Report** Page 2 of 2 Reported on: 03 OCT 2006

# Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N-Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

### **Definitions**

MDL- Method Detection Limit PQL- Practical Quantitation Limit ND - Not Detected above the MDL FLG- Data Flag



**Analysis Report** Page 1 of 1

Reported on: 19 SEP 2006

EDL # 200202292

Primary # WNN-MW-1

Backup # WNN-MW-1

Description WNN-MW-1

Source Type WATER

AGC Site # WNN-MW-1

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/29/06 10:30

Sampler DH

Smpl Date-Time 08/25/06 10:50

EPA 314.0 PERCH	LORATE BY IC					314.0
Instrument DIONEX DX-600-B	<u>Date</u> 09/07/06 00:33	Analyst E70080			<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		4.2	ug/l	4.0	1.0	
EPA 8021 HALOG	ENATED VOLATII	E ORGANICS				8021B
<u>Instrument</u> MPH 6890	<u>Date</u> 08/30/06 14:23	<u>Analyst</u> E24948	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fac 1	ctor
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethar	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis/trans)		< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.7	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethan	e	< 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroeth	ane	< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

MDL - Method Detection Limit PQL - Practical Quantitation Limit ND - Not Detected above the MDL FLG - Data Flag

Analysis Report Page 1 of 2

Reported on: 08 FEB 2007

EDL # 200210788
Primary # WNN-MW1
Backup #
Description WNN-MW1
Source Type WATER
AGC Site # WNN-MW1

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 12/14/06 14:35

Sampler KB

Smpl Date-Time 12/14/06 10:45

EPA 300.0 ANION	NS IN WATER BY I					300.0
Instrument DIONEX DX-500	<u>Date</u> 12/14/06 17:15	Analyst E25619	<u>Samp</u> PRIM	<u>Dilution Factor</u> 1		
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		< 0.10	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
EPA 300.0 ANION	S IN WATER BY					300.0
Instrument	<u>Date</u> <u>Analyst</u> <u>Sample Analyzed</u>		le Analyzed	Dilution Factor		
DIONEX DX-500	12/14/06 17:46	E25619	PRIMA	ARY	20	
Constituent		Result	Units	PQL	MDL	FLO
Chloride		3.0	mg/l	2.0	1.0	
Sulfate		11	mg/i	2.0	1.0	
EPA 6010 DISSO	LVED METALS, IC	P, LIQUIDS		3010A	6	010B
Instrument	Date	Analyst	Sample Analyzed		<b>Dilution Factor</b>	
TJA-61E	01/17/07 12:08	E70180	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.027	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.51	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010 0.050	
Selenium		< 0.10 < 0.020	mg/l	0.10	0.050	
Silver Thallium		< 0.020 < 0.050	mg/l mg/l	0.020 0.050	0.010	
Zinc		< 0.10	mg/l	0.030	0.050	
Boron		< 0.040	mg/l	0.040	0.030	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.43	mg/l	0.0050	0.0025	
Calcium		15	mg/l	0.14	0.0023	
Magnesium		9.3	mg/l	0.050	0.025	
		8.8	mg/l	0.80	0.40	
Sodium						



**Analysis Report** Page 2 of 2 Reported on: 08 FEB 2007

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interterence

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0,995
  IS J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  e S- Concentration determined by method of standard additions

## **Definitions**

Reported on: 16 AUG 2004

EDL # 200138923
Primary # 138A-0701-1240
Description 138A-0701-1240
Source Type LIQUID
Sampler GB
Report Distribution R.FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 07/01/04 13:25
Smpl Date-Time 07/01/04 12:40

IS IN WATER BY I				;	300.0
<u>Date</u> 07/01/04 15:18	Analyst E66526			Dilution Factor	<u>or</u>
	Result	Units	PQL	MDL	FLO
	0.10	ma/l	0.030	0.015	
	3.5				
	0.32				
	< 0.10				
	< 0.30				
	0.32	mg/l	0.10	0.050	
LORATE BY IC					314.0
Date	Analyst	Samp	le Analyzed	Dilution Facto	or
07/07/04 14:50	E70080	PRIMA	ARY	1	
	Result	Units	PQL	MDL	FLC
	< 4.0	ug/l	4.0	1.0	
VED METALS, ICI	P, LIQUIDS		3010A	60	10B
<u>Date</u>	<u>Analyst</u>	Sampl	le Analyzed	Dilution Facto	or
07/09/04 12:29	E70180	PRIMA	ARY	1	
	Result	Units	PQL	MDL	FLO
	Result	••			
	< 0.20	mg/l	0.20	0.10	
	< 0.20 0.028		0.20 0.0060	0.10 0.0030	
	< 0.20 0.028 < 0.0010	mg/l			
	< 0.20 0.028 < 0.0010 < 0.0040	mg/l mg/l	0.0060	0.0030	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080	mg/l mg/l mg/l	0.0060 0.0010	0.0030 0.00050	
	< 0.20 0.028 < 0.0010 < 0.0040	mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040	0.0030 0.00050 0.0020	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73	mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080	0.0030 0.00050 0.0020 0.0040	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060	0.0030 0.00050 0.0020 0.0040 0.0030	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73	mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30	0.0030 0.00050 0.0020 0.0040 0.0030 0.15	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0066 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0060 0.040 15	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
	< 0.20 0.028 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.73 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	
	Date 07/01/04 15:18 ILORATE BY IC Date 07/07/04 14:50	Date   O7/01/04 15:18   E66526	Date   O7/01/04 15:18   E66526   PRIMA	Date   O7/01/04 15:18   E66526   PRIMARY	Date   O7/01/04 15:18   E66526   PRIMARY   Dilution Factor



**Analysis Report** Page 2 of 2

Reported on: 16 AUG 2004

EDL # 200138923 Primary # 138A-0701-1240 Description 138A-0701-1240 Source Type LIQUID Sampler GB

Report Distribution R.FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 07/01/04 13:25 Smpl Date-Time 07/01/04 12:40

EPA 7060 DISSO	DLVED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 08/03/04 09:57	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac	ctor
Constituent		Result	Units	PQL	MDL.	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSO	LVED LEAD, GFAA	1		7421		7421
Instrument PE 600	<u>Date</u> 08/04/04 10:27	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac 1	<u>ctor</u>
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSO	LVED MERCURY,	COLD VAPOR		7470A		7470A
Instrument PE 2380	<u>Date</u> 07/07/04 11:05	Analyst E70180	<u>Şamp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fac	ctor
Constituent		Result	Units	PQL	MDL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSO	LVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 08/05/04 11:17	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fac	<u>ctor</u>
Constituent		Result	Units	PQL	MDL	FLC
Selenium		< 0.0020	mg/l	0.0020	0.00060	
			-			

- A– Suspected aldol condensation product
  B- Analyte detected in blank
  C- Spiked sample recovery not within control limits (EPA N)
  D- Compound ran at second dilution
  E- Analyte exceeds calibration range
  F- Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA+)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 14 OCT 2004

EDL # 200145631
Primary # STSW 138A
Backup #
Description STSW 138A
Source Type WATER
AGC Site # STSW 138A
Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/20/04 14:35
Sampler DH
Smpl Date-Time 09/20/04 13:30

EPA 300.0 ANION	S IN WATER BY I	2			3	300.0
Instrument DIONEX DX-500	<u>Date</u> 09/22/04 10:06	<u>Analyst</u> E66526	Samp PRIMA	<u>le Analyzed</u> ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.11	mg/l	0.030	0.015	
Chloride		3.9	mg/l	0.10	0.050	
Bromide		0.34	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		0.83	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
Instrument	Date	Analyst	Sampl	le Analyzed	Dilution Fact	or
DIONEX DX-500-3	10/13/04 16:32	E70080	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		< 4.0	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P. LIQUIDS		3010A	6(	010B
nstrument	Date	Analyst	Sampl	e Analyzed	Dilution Facto	
TJA-61E	09/23/04 12:13	E70180	PRIMA		1	<u> </u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.026	mg/I	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		~ 0.0040	mg/l	0.0040	0.0020	
		< 0.0040				
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Chromium Copper		< 0.0080 < 0.0060	mg/l mg/l	0.0080 0.0060	0.0040 0.0030	
Chromium Copper Iron		< 0.0080 < 0.0060 0. <b>7</b> 2	mg/l mg/l mg/i	0.0080 0.0060 0.30	0.0040 0.0030 0.15	
Chromium Copper Iron Lead		< 0.0080 < 0.0060 0. <b>7</b> 2 < 0.060	mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060	0.0040 0.0030 0.15 0.030	
Chromium Copper Iron Lead Nickel		< 0.0080 < 0.0060 0. <b>7</b> 2 < 0.060 < 0.020	mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020	0.0040 0.0030 0.15 0.030 0.010	
Chromium Copper Iron Lead Nickel Selenium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10	0.0040 0.0030 0.15 0.030 0.010 0.050	
Chromium Copper Iron Lead Nickel Selenium Silver		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.040	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.040 < 0.034 15 9.0	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0080 < 0.0060 0.72 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0060 0.034	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0080 0.0060 0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	



**Analysis Report** Page 2 of 2

Reported on: 14 OCT 2004

## Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- - G- Duplicate analysis not within control limits
    H- Correlation coefficient for MSA less than 0.995
    J- Estimated concentration
    M- Duplicate precision not met
    N- Presumptive evidence of a compound
    S- Concentration determined by method of standard additions

## **Definitions**

Reported on: 21 DEC 2004

EDL # 200151284
Primary # STSW 138A
Backup #
Description STSW 138A
Source Type WATER
AGC Site # STSW 138A
Report Distribution R. FRICKE, EOPS, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 11/29/04 16:30

Sampler DF

Smpl Date-Time 11/29/04 14:33

EPA 300.0 ANION	S IN WATER BY I				;	300.0
nstrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Fact	<u>or</u>
DIONEX DX-500	11/30/04 13:07	E25619	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.11	mg/l	0.030	0.015	
Chloride		3.5	mg/l	0.10	0.050	
Bromide		0.35	mg/i	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		1.4	mg/l	0.10	0.050	
PA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	<u>Date</u>	<u>Analyst</u>		le Analyzed	<b>Dilution Fact</b>	<u>or</u>
DIONEX DX-500-3	12/02/04 17:03	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		11	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P. LIQUIDS		3010A	60	010B
nstrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
TJA-61E	12/06/04 13:35	E70180	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080 < 0.0060	mg/l	0.0080	0.0040 0.0030	
Copper		< 0.0060 0.66	mg/l mg/l	0.0060 0.30	0.0030	
Iron Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.027	mg/l	0.0050	0.0025	
Calcium		15	mg/l	0.14	0.070	
Magnesium		9.0	mg/l	0.050	0.025	
		9.1	mg/l	0.80	0.40	
Sodium Potassium		< 2.0	mg/l	2.0	1.0	



**Analysis Report** Page 2 of 2

Reported on: 21 DEC 2004

## Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

## **Definitions**

Reported on: 10 MAR 2005

EDL # 200157020
Primary # WNN-138A
Backup #
Description WNN-138A
Source Type WATER
AGC Site # WNN-138A
Report Distribution EOPS, FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 02/07/05 14:00
Sampler RLH
Smpl Date-Time 02/07/05 13:05

	S IN WATER BY I	<b>O</b>			•	300.0
Instrument DIONEX DX-500	<u>Date</u> 02/07/05 17:28	Analyst E25619	Samp PRIM/	<u>le Analyzed</u> ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.13	mg/l	0.030	0.015	
Chloride		3.7	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.80	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		0.35	mg/l	0.30	0.15	
Sulfate		4.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
nstrument	<u>Date</u>	Analyst	Samp	le Analyzed	<b>Dilution Fact</b>	<u>or</u>
DIONEX DX-500-3	02/25/05 16:38	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		200	ug/l	4.0	1.0	
EPA 6010 METAL	S BY ICP, LIQUID			3010A		010B
nstrument	Date	Analyst	Sampl	le Analyzed	Dilution Fact	or
	Date			C Allaly LCU	Dilation I dot	<u> </u>
	02/15/05 11:52	E70180	PRIMA		1	
	02/15/05 11:52				1 MDL	FLO
Constituent Aluminum	02/15/05 11:52	E70180  Result < 0.20	Units mg/l	PQL 0.20	MDL 0.10	FLO
Constituent Aluminum Arsenic	02/15/05 11:52	E70180  Result < 0.20 < 0.080	Units mg/l mg/l	PQL 0.20 0.080	MDL 0.10 0.040	FLO
Constituent Aluminum Arsenic Barium	02/15/05 11:52	E70180  Result < 0.20 < 0.080 0.027	Units  mg/l mg/l mg/l	PQL 0.20 0.080 0.0060	MDL 0.10 0.040 0.0030	FLO
Constituent Aluminum Arsenic Barium Beryllium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010	Units  mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010	MDL 0.10 0.040 0.0030 0.00050	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	MDL 0.10 0.040 0.0030 0.00050 0.0020	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.0060 0.30	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020	Market Prints  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020	Market Ma	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	Market Primark  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.20	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.055 0.010 0.025 0.050 0.10	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0040	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.10 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0040 < 0.0060	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.022 0.0040 0.020 0.0040 0.020 0.0030	FLG
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0040 < 0.0080 < 0.0060 0.024	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060 0.0050	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.022 0.0040 0.020 0.0040 0.020 0.0030 0.0025	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.024 14	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0050 0.14	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.044 < 0.0080 < 0.0044 < 0.0080 < 0.0044 < 0.0080 < 0.0044 < 0.0080 < 0.0044 < 0.0080 < 0.0044 < 0.0060 0.0024 14 8.6	Months  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.10 0.050 0.11 0.020 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	FLG
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	02/15/05 11:52	E70180  Result  < 0.20 < 0.080 0.027 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.66 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.024 14	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.0040 0.0080 0.0050 0.14	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	FLG



**Analysis Report** 2 of 2 Page Reported on: 10 MAR 2005

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- Data Flag Definitions

  - G- Duplicate analysis not within control limits
    H- Correlation coefficient for MSA less than 0.995
    J- Estimated concentration
    M- Duplicate precision not met
    N- Presumptive evidence of a compound
    S- Concentration determined by method of standard additions

## **Definitions**



Analysis Report Page 1 of 1

Reported on: 06 SEP 2005

EDL # 200172553

Primary # STSW 138A

Backup #

Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/15/05 14:35

Sampler DH

Smpl Date-Time 08/15/05 12:37

EPA 300.0 ANION	S IN WATER BY I	C				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/15/05 23:09	Analyst E25619	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Chloride Nitrate Sulfate		3.0 1.4 7.9	mg/l mg/l mg/l	0.10 0.10 0.10	0.050 0.050 0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 08/25/05 15:55	Analyst E70080	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		1500	ug/l	100	25	
EPA 6010 DISSOL	VED METALS, IC	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 08/22/05 13:37	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	<u>Dilution Fact</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLC
Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.012 0.012 0.010	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0070	
Magnesium Sodium Potassium	<u>Data Flao Definitions</u>	7.8 8.3 < 2.0	mg/l mg/l mg/l	0.050 0.80 2.0	0.070 0.025 0.40 1.0 efinitions	
- Suspected aidol condensation produc - Analyte found in associated blank - Spiked sample recovery not within co - Analyte from secondary dilution analy - Analyte seceeds calibration range - Estimated concentration due to an int	ontrol limits H– Correlation con J– Estimated con ysis M– Duplicate prec N– Presumptive e	efficient for MSA less than 0.995 centration	ons	PQL- Practice	al Quantitation Limit ected above the MDL	

Analysis Report Page 1 of 3

Reported on: 13 APR 2005

**EDL** # 200158552

Primary # STSW 138A

Backup # STSW-138A

Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 10:50

EPA 300.0 ANION	S IN WATER BY I	C				300.0
Instrument DIONEX DX-500	<u>Date</u> 02/22/05 14:08	Analyst E25619	Samp PRIM	<u>le Analyzed</u> ARY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.13	mg/l	0.030	0.015	
Chloride		3.6	mg/l	0.10	0.050	
Bromide		0.90	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Phosphate		0.30	mg/l	0.30	0.15	
Sulfate		4.5	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500-3	03/11/05 15:05	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		280	ug/l	4.0	1.0	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS				601
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
HP 6890 GC	02/23/05 13:36	E70533	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan	e	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (c	is/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane	•	< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride	-	< 0.50	ug/l	0.50	0.25	
Bromodichloromethan	е	< 0.50	ug/l	0.50	0.25 0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25 0.25	
Trichloroethene		4.8	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50		
Dibromochloromethan	ie	< 0.50	ug/l	0.50	0.25 0.25	
Bromoform		< 0.50	ug/l	0.50		
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroeth	name	< 0.50 < 0.50	ug/l	0.50 0.50	0.25 0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.23	

Reported on: 13 APR 2005

EDL # 200158552
Primary # STSW 138A
Backup # STSW-138A
Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 10:50

EPA 6010 DISSC	DLVED METALS, ICI	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 03/14/05 11:18	Analyst E70180	<u>Samp</u> PRIMA	e Analyzed ARY	Dilution Fact 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.65			0.15	
Nickel		< 0.020	mg/l	0.30		
			mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0065	mg/l	0.0060	0.0030	
Manganese		0.024	mg/l	0.0050	0.0025	
Calcium		15	mg/l	0.14	0.070	
		9.0	mg/l	0.050	0.025	
Magnaellim			HIQ/I	0.050	0.023	
Magnesium				0.90		
Magnesium Sodium Potassium		9.1 < 2.0	mg/l mg/l	0.80 2.0	0.40 1.0	
Sodium Potassium		9.1 < 2.0	mg/l	2.0	0.40 1.0	7000
Sodium Potassium	DLVED ARSENIC, G	9.1 < 2.0	mg/l		0.40 1.0	7060
Sodium Potassium EPA 7060 DISSO Instrument	DLVED ARSENIC, G  Date 03/07/05 11:46	9.1 < 2.0	mg/l mg/l	2.0 <b>7060</b> e Analyzed	0.40 1.0	
Sodium Potassium EPA 7060 DISSO nstrument	Date	9.1 < 2.0 FAA Analyst	mg/l mg/l Sampl	2.0 <b>7060</b> e Analyzed	0.40 1.0 Dilution Fact	or
Sodium Potassium EPA 7060 DISSO Instrument PE 600	Date	9.1 < 2.0 FAA  Analyst E70180	mg/l mg/l Sampl PRIMA	7060 e Analyzed	0.40 1.0 Dilution Fact	
Sodium Potassium  EPA 7060 DISSO  nstrument PE 600  Constituent  Arsenic	Date	9.1 < 2.0 FAA  Analyst E70180  Result < 0.0020	mg/l mg/l <u>Sampl</u> PRIMA	2.0 7060 e Analyzed NRY PQL	0.40 1.0 Dilution Factor 1  MDL  0.00030	or
Sodium Potassium  EPA 7060 DISSO  Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO	<u>Date</u> 03/07/05 11:46 DLVED LEAD, GFAA	9.1 < 2.0 FAA  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA  Units mg/l	2.0 7060 e Analyzed IRY PQL 0.0020 7421	0.40 1.0 Dilution Factor 1  MDL 0.00030	or FLG 7421
Sodium Potassium  EPA 7060 DISSO  Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO  Instrument	<u>Date</u> 03/07/05 11:46	9.1 < 2.0 FAA  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA  Units mg/l	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed	0.40 1.0 Dilution Factor 1  MDL  0.00030	or FLG 7421
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument	<u>Date</u> 03/07/05 11:46 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA Units mg/l	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030	or FLG 7421
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600	<u>Date</u> 03/07/05 11:46 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180	Sample PRIMA	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed ARY	0.40 1.0  Dilution Fact  1  MDL 0.00030  Dilution Fact	FLG 7421 or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	<u>Date</u> 03/07/05 11:46 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	mg/l mg/l  Sampl PRIMA  Units mg/l  Sampl PRIMA	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed ARY  PQL	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	FLG 7421 or
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	<u>Date</u> 03/07/05 11:46 DLVED LEAD, GFAA <u>Date</u> 03/08/05 13:59	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	Sample PRIMA  Units mg/l  Sample PRIMA  Units mg/l	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed ARY  PQL 0.0020	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO Instrument	Date 03/07/05 11:46 DLVED LEAD, GFAA Date 03/08/05 13:59	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR	Sample PRIMA  Units mg/l  Sample PRIMA  Units mg/l	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed ARY  PQL 0.0020 7470A e Analyzed	0.40 1.0  Dilution Factor 1  MDL 0.00030  Dilution Factor 1  MDL 0.00060	7421 or FLG
Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO	Date 03/07/05 11:46 DLVED LEAD, GFAA Date 03/08/05 13:59 DLVED MERCURY, (O	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR Analyst	Sample PRIMA Units mg/l  Sample PRIMA Units mg/l  Sample PRIMA Units mg/l	2.0 7060 e Analyzed ARY  PQL 0.0020 7421 e Analyzed ARY  PQL 0.0020 7470A e Analyzed	0.40 1.0  Dilution Factor  1  MDL 0.00030  Dilution Factor  1  MDL 0.00060	7421 or FLG



**Analysis Report** Page 3 of

Reported on: 13 APR 2005

EDL # 200158552

Primary # STSW 138A

Backup # STSW-138A

**Description STSW 138A** 

Source Type WATER

AGC Site # STSW 138A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/22/05 13:18

Sampler ML

Smpl Date-Time 02/22/05 10:50

**EPA 7740 DISSOLVED SELENIUM, GFAA** 

7740

7740

FLG

Instrument PE 600

**Date** 03/04/05 13:31

<u>Analyst</u> E70180

Sample Analyzed

**Dilution Factor** 

PRIMARY

Constituent

Result

Units

PQL

MDL

Selenium

< 0.0020

mg/l

0.0020

0.00060

Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 



**Analysis Report** Page 1 of

Reported on: 04 MAY 2005

EDL # 200161642

Primary # STSW 138A

Backup #

Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 03/29/05 15:35

Sampler BH

Smpl Date-Time 03/29/05 12:10

**EPA 314.0 PERCHLORATE BY IC** 

314.0

Instrument DIONEX DX-500-3 **Date** 04/13/05 19:19 **Analyst** E70080

Sample Analyzed **PRIMARY** 

**Dilution Factor** 

Constituent

Result

Units

PQL

5

460

MDL

FLG

Perchlorate

ug/l

20

5.0

Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 

Reported on: 31 MAY 2005

EDL # 200163081

Primary # STSW 138A

Backup # STSW 138A

Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 04/13/05 14:00

Sampler BH

Smpl Date-Time 04/13/05 10:55

EPA 300.0 ANION	IS IN WATER BY I	C			;	300.0
Instrument	Date	<u>Analyst</u>	Samp	le Analyzed	Dilution Fact	tor
DIONEX DX-500	04/14/05 14:55	E25619	PRIMA		1	
	spike recoveries for Phos matrix interferences.	sphate >115%				
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.4	mg/l	0.10	0.050	
Nitrite		0.0 <b>74</b>	mg/l	0.050	0.025	
Bromide		0.91	mg/l	0.10	0.050	
Nitrate		0.46	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	С
Sulfate		6.6	mg/l	0.10	0.050	
EPA 314.0 PERCI	HLORATE BY IC					314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	<b>Dilution Fact</b>	or
DIONEX DX-500-3	05/03/05 17:44	E70080	PRIMA	ARY	5	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		590	ug/l	20	5.0	
		000	991	20	0.0	
FPA 6010 METAL	S BY ICP LIQUID					010B
	S BY ICP, LIQUID			3010A	6	010B
EPA 6010 METAL Instrument TJA-61E	S BY ICP, LIQUID  Date 04/25/05 11:27	Analyst E70180		3010A le Analyzed		
Instrument	Date	<u>Analyst</u>	Samp	3010A le Analyzed	60 Dilution Fact	or
Instrument TJA-61E  Constituent Aluminum	Date	Analyst E70180 Result < 0.20	Samp PRIMA Units mg/l	3010A le Analyzed ARY PQL 0.20	Dilution Fact 1  MDL 0.10	or
Instrument TJA-61E  Constituent Aluminum Arsenic	Date	Analyst E70180 Result < 0.20 < 0.080	Sampi PRIMA Units mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.080	MDL 0.10 0.040	or
Instrument ITJA-61E  Constituent Aluminum Arsenic Barium	Date	Analyst E70180 Result < 0.20 < 0.080 0.026	Sampi PRIMA Units mg/l mg/l mg/l	3010A le Analyzed ARY PQL 0.20 0.080 0.0060	60 Dilution Fact 1 MDL 0.10 0.040 0.0030	or
Instrument TJA-61E  Constituent Aluminum Arsenic Barium Beryllium	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010	Samp PRIMA Units mg/l mg/l mg/l	3010A de Analyzed ARY PQL 0.20 0.080 0.0060 0.0010	0.10 0.040 0.0030 0.0050	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0040	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040	0.10 0.040 0.0030 0.00050 0.0020	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper	Date	Analyst E70180  Result < 0.20 < 0.080	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0080 0.0080	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 0.050	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0080 0.0080 0.0080 0.0080	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.50 < 0.060	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.0040 0.0030 0.15 0.030	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020	Samp PRIMA Units mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	0.10 0.040 0.0030 0.0020 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.020 < 0.050	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.110	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 < 0.0060 < 0.0060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.20	0.10 0.040 0.0030 0.00050 0.0020 0.0030 0.0030 0.015 0.030 0.010 0.050 0.010 0.025 0.050 0.10	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 < 0.0060 < 0.0020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.10 0.040 0.0030 0.0020 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.040 < 0.0080	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.050 0.10 0.20 0.050 0.10 0.20 0.040 0.0080	0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0040 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.040 < 0.040 < 0.0080 < 0.040	Sampi PRIMA Units mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/I	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.020 0.040 0.0080 0.0080 0.0040	0.10 0.040 0.0030 0.0020 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Date	Analyst E70180  Result < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.050 < 0.050 < 0.050 < 0.040 < 0.020 < 0.050 < 0.050 < 0.050 < 0.050 < 0.050 < 0.050 < 0.040 < 0.0080 < 0.0080 < 0.0040 < 0.0060	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060	MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.0020 0.0030	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.010 < 0.020 < 0.040 < 0.020 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0060 0.024	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.020 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050	0.10 0.040 0.0030 0.0030 0.0030 0.0030 0.0030 0.015 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.0040 0.0020 0.0040 0.0020	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.040 < 0.020 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.041	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.040 0.0030 0.0020 0.0030 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.0040 0.022 0.0040 0.0020	or
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 < 0.0060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0060 0.020 < 1.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 1.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.024 14 8.4	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.020 0.10 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.10 0.040 0.0030 0.0020 0.0030 0.0020 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.026 < 0.0010 < 0.0080 < 0.0060 0.50 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.040 < 0.020 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.041	Sampi PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	3010A le Analyzed ARY  PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.040 0.0030 0.0020 0.0030 0.0030 0.0050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.0040 0.022 0.0040 0.0020	or



**Analysis Report** Page 2 of 2

Reported on: 31 MAY 2005

EDL # 200163081

Primary # STSW 138A

Backup # STSW 138A

**Description STSW 138A** 

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/13/05 14:00

Sampler BH

Smpl Date-Time 04/13/05 10:55

EPA 8021 HALOGE	NATED VOLATI	LE ORGANICS				8021B
I <u>nstrument</u> MPH 6890	<u>Date</u> 04/19/05 15:17	Analyst E25639	<u>Samp</u> PRIM <i>i</i>	<u>le Analyzed</u> ARY	Dilution Fac 1	ctor
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethan	е	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis	s/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		4.0	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane	•	< 0.50	ug/i	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroetha	ane	< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	

Data Flag Definitions

Definitions

A- Suspected aldol condensation product
B- Analyte found in associated blank
C- Spiked sample recovery not within control limits
D- Analyte from secondary dilution snalysis
E- Analyte exceeds calibration range
F- Estimated concentration due to an interference

G- Duplicate analysis not within control limits
H- Correlation coefficient for MSA less than 0.995
J- Estimated concentration
M- Duplicate precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Analysis Report Page 1 of 2

Reported on: 16 FEB 2006

EDL # 200182730
Primary # STSW 138A
Backup #
Description STSW 138A
Source Type WATER
AGC Site # STSW 138A
Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 12/14/05 13:00
Sampler KB

Smpl Date-Time 12/14/05 12:01

EPA 300.0 ANION	S IN WATER BY I				3	300.0
<u>Instrument</u> DIONEX DX-500	<u>Date</u> 12/14/05 17:12	Analyst E25619	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		2.9	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.30	mg/l	0.10	0.050	
Nitrate		1.6	mg/l	0.10	0.050	
Phosphate		0.50	mg/l	0.30	0.15	
Sulfate		8.6	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
Instrument	<u>Date</u>	<u>Analyst</u>	Samp	e Analyzed	Dilution Fact	<u>or</u>
DIONEX DX-600-B	01/09/06 19:26	E70080	PRIMA	ARY	20	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2100	ug/l	80	20	
EPA 6010 DISSOL	VED METALS. IC	P. LIQUIDS		3010A	60	010B
Instrument	Date	Analyst	Samp	e Analyzed	Dilution Facto	or
TJA-61E	01/17/06 12:24	E70180	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.024	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/i	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		0.028 < 0.050	mg/l	0.020 0.050	0.010 0.025	
Thallium			mg/l		0.050	
Zinc		< 0.10	mg/l	0.10 0.20	0.050	
Antimony		< 0.20	mg/l		0.020	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080 < 0.040	mg/l	0.0080 0.040	0.020	
Molybdenum		< 0.040 0.0099	mg/l	0.0060	0.020	
Vanadium			mg/l		0.0030	
Manganese		0.012 13	mg/l mg/l	0.0050 0.14	0.0025	
Calcium		7.8	mg/l	0.050	0.025	
Magnagium				0.80	0.40	
Magnesium		85				
Magnesium Sodium Potassium		8.5 < 2.0	mg/l mg/l	2.0	1.0	



**Analysis Report** Page 2 of 2

Reported on: 16 FEB 2006

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary diflution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  rence
  S- Concentration determined by method of standard additions

#### **Definitions**

Reported on: 07 APR 2006

EDL # 200187480

Primary # STSW 138A

Backup #

Description STSW 138A

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/13/06 13:10

Sampler BH

Smpl Date-Time 02/13/06 09:50

	S IN WATER BY I	j			•	300.0
nstrument DIONEX DX-500	<u>Date</u> 02/14/06 16:56	Analyst E25619	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		2.8	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.24	mg/l	0.10	0.050	
Nitrate		1.7	mg/l	0.10	0.050	
Phosphate Sulfate		0.62 9.8	mg/l mg/l	0.30	0.15 0.050	
Sullate		<del></del>		0.10		
EPA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument DIONEX DX-600-B	<u>Date</u> 02/24/06 19:57	Analyst E70080	<u>Sampl</u> PRIMA	e Analyzed	Dilution Factor	<u>or</u>
DIONEX DX-000-B	02/24/00 13:37	270000	. Tump		20	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2200	ug/l	80	20	
EPA 6010 DISSOL	VED METALS, ICI	P, LIQUIDS		3010A	60	10B
<u>nstrument</u> ΓJA-61E	<u>Date</u> 02/22/06 10:53	<u>Analyst</u> E70180	Sampl PRIM <i>E</i>	e Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Constituent Aluminum		Result < 0.20	Units mg/l	PQL	0.10	FLG
		< 0.20 < 0.080	mg/l mg/l	0.20 0.080	0.10 0.040	FLG
Aluminum		< 0.20 < 0.080 0.023	mg/l mg/l mg/l	0.20 0.080 0.0060	0.10 0.040 0.0030	FLG
Aluminum Arsenic Barium Beryllium		< 0.20 < 0.080 0.023 < 0.0010	mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010	0.10 0.040 0.0030 0.00050	FLG
Aluminum Arsenic Barium Beryllium Cadmium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040	mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040	0.10 0.040 0.0030 0.00050 0.0020	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080	0.10 0.040 0.0030 0.00050 0.0020 0.0040	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060	mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0080 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.0080	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.020 0.0040	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0090	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080 0.040	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.040 < 0.0080 < 0.0090 0.0054	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.040 < 0.040 < 0.0080 < 0.040 0.0090 0.0054 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0050 0.14	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0020 0.0030 0.0025 0.0030	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 1.0080 < 1.0080 < 1.0090 < 1.0054	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	FLG
Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.20 < 0.080 0.023 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.040 < 0.040 < 0.0080 < 0.040 0.0090 0.0054 13	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0050 0.14	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0020 0.0030 0.0025 0.0030	FLG



**Analysis Report** Page 2 of 2

Reported on: 07 APR 2006

EDL # 200187480 Primary # STSW 138A Backup # **Description STSW 138A** Source Type WATER AGC Site # STSW 138A Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 02/13/06 13:10

Sampler BH Smpl Date-Time 02/13/06 09:50

<b>EPA 7060 DISS</b>	OLVED ARSENIC, G	FAA		7060		7060
<u>Instrument</u> PE 600	<u>Date</u> 03/13/06 10:46	Analyst E70180	<u>Samp</u> PRIM <i>A</i>	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISS	OLVED LEAD, GFAA			7421		7421
Instrument PE 600	<u>Date</u> 03/22/06 10:13	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Factor	or
Constituent		Result	Units	PQL	MDL	FLC
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISS	OLVED MERCURY,	COLD VAPOR		7470A	74	170A
Instrument PE 2380	<u>Date</u> 02/17/06 11:15	Analyst E70180	<u>Şamp</u> PRIM <i>I</i>	le Analyzed ARY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISS	OLVED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 03/21/06 11:10	<u>Analyst</u> E70180	Sampl PRIMA	le Analyzed ARY	<u>Dilution Factor</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definitions			-	finitions	
<ul> <li>Suspected aldol condensation p</li> <li>Analyte found in associated blaid</li> <li>Spiked sample recovery not with analyte from secondary dilution</li> <li>Analyte exceeds calibration ran</li> </ul>	nk H- Correlation coe hin control limits J- Estimated cond analysis M- Duplicate prec	ysis not within control limits officient for MSA less than 0.995 entration ision not met yidence of a compound			Quantitation Limit ted above the MDL	

- B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions



**Analysis Report** Page 1 of 1

Reported on: 22 MAY 2006

EDL # 200193254

Primary # STSW 138A

Backup #

**Description STSW 138A** 

Source Type WATER

AGC Site # STSW 138A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 05/01/06 14:25

Sampler BH

Smpl Date-Time 05/01/06 12:28

EPA 300.0 A	NIONS IN WATER BY I	C				300.0
nstrument DIONEX DX-50	<u>Date</u> 0 05/03/06 13:09	Analyst E25619	Samp PRIM/	<u>le Analyzed</u> ARY	Dilution Fact	tor
	Nitrate, Nitrite and Phosphate exceeded hold times.					
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.0	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	J
Nitrate		1.5	mg/l	0.10	0.050	J
Phosphate		< 0.30	mg/l	0.30	0.15	J
Sulfate		8.7	mg/l	0.10	0.050	
EPA 6010 DI	SSOLVED METALS, IC	P, LIQUIDS		3010A	6	010B
nstrument ГЈА-61E	<u>Date</u> 05/11/06 13:00	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.023	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0092	mg/l	0.0060	0.0030	
Manganese		0.0054	mg/l	0.0050	0.0025	
Calcium		13	mg/l	0.14	0.070	
Magnesium		7.7	mg/l	0.050	0.025	
		8.5	mg/l	0.80	0.40	
Sodium						
Sodium Potassium		< 2.0	mg/l	2.0	1.0	

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 03 OCT 2006

EDL # 200202095 Primary # STSW 138A

Backup #
Description STSW 138A

Source Type WATER
AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/25/06 13:25

Sampler BB/FIP

Smpl Date-Time 08/25/06 12:26

EFA 300.0 ANIOI	NS IN WATER BY I	C			;	300.0
Instrument DIONEX DX-500	<u>Date</u> 08/25/06 15:14	Analyst E24959	<u>Samp</u> PRIM	le Analyzed ARY	Dilution Fact 5	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Sulfate		9.2	mg/l	0.50	0.25	
EPA 300.0 ANION	S IN WATER BY IC	2				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/25/06 17:36	Analyst E24959	<u>Samp</u> PRIMA	le Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		2.9	mg/l	0.10	0.050	
Bromide		< 0.10	mg/l	0.10	0.050	
Nitrate		1.8	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
EPA 6010 DISSO	LVED METALS, ICI	P, LIQUIDS		3010A	6	010B
nstrument	<u>Date</u>	<u>Analyst</u>	Samp	e Analyzed	Dilution Fact	<u>or</u>
nstrument TJA-61E	<u>Date</u> 09/15/06 11:04	<u>Analyst</u> E70180	<u>Sampl</u> PRIMA		Dilution Factor	<u>or</u>
						<u>or</u> FLG
TJA-61E  Constituent  Aluminum		E70180  Result < 0.20	Units mg/l	PQL 0.20	MDL 0.10	_
Constituent Aluminum Arsenic		E70180  Result < 0.20 < 0.080	Units mg/l mg/l	PQL 0.20 0.080	MDL 0.10 0.040	_
Constituent Aluminum Arsenic Barium		E70180  Result < 0.20 < 0.080 0.024	Units  mg/l mg/l mg/l	PQL 0.20	0.10 0.040 0.0030	_
Constituent Aluminum Arsenic Barium Beryllium		E70180  Result < 0.20 < 0.080 0.024 < 0.0010	Units  mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010	0.10 0.040 0.0030 0.00050	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium		E70180  Result < 0.20 < 0.080 0.024 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	Model of the second of the sec	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.30 0.060 0.10	0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.20 0.040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.080 < 0.080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.30 0.050 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.030 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.000 < 0.0000 < 0.0000	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.10 0.020 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10 0.20 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.020 0.0040 0.020	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.0080 < 0.0080 < 0.0080 < 0.0085	PRIMA Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0085 0.0085 0.0058	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.020 0.040 0.0080 0.040 0.0060 0.0050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.010 < 0.020 < 0.010 < 0.020 < 0.040 < 0.040 < 0.040 < 0.0085 0.0058 14	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.024 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0085 0.0085 0.0058	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.020 0.040 0.0080 0.040 0.0060 0.0050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0020	_



**Analysis Report** Page 2 of 2

Reported on: 03 OCT 2006

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

## **Definitions**



**Analysis Report** Page 1 of 1

Reported on: 19 SEP 2006

EDL # 200202291

Primary # STSW 138A

Backup # STSW 138A

**Description STSW 138A** 

Source Type WATER

AGC Site # STSW 138A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/29/06 10:30

Sampler DH

Smpl Date-Time 08/25/06 12:26

EPA 314.0 PERCH	LORATE BY IC					314.0
Instrument DIONEX DX-600-B	<u>Date</u> 09/07/06 00:52	Analyst E70080	<u>Samp</u> PRIM <i>i</i>	le Analyzed ARY	Dilution Fac 20	<u>ctor</u>
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		2500	ug/l	80	20	
EPA 8021 HALOGI	ENATED VOLATI	E ORGANICS				8021B
Instrument MPH 6890	<u>Date</u> 08/30/06 13:49	Analyst E24948	Samp PRIMA	le Analyzed ARY	Dilution Fac 1	etor
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethan	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane	•	< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (ci	s/trans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane	•	< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.8	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane Bromoform	#	< 0.50 < 0.50	ug/l	0.50	0.25 0.25	
Tetrachloroethene		< 0.50 < 0.50	ug/l	0.50 0.50	0.25 0.25	
1,1,2,2-Tetrachloroeth	200	< 0.50	ug/l	0.50	0.25 0.25	
Chlorobenzene	ane	< 0.50	ug/l ug/l	0.50	0.25	
31113130001120110	Data Flag Definitions	- 0.00	49/1		Definitions	

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G Duplicate analysis not within control limits
  H- Correlation coefficient for MSA leas than 0,995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 16 AUG 2004

EDL # 200138920
Primary # 166-0701-1001
Description 166-0701-1001
Source Type LIQUID
Sampler GB
Report Distribution R.FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 07/01/04 13:25

 Smpl Date-Time
 07/01/04 10:01

EPA 300.0 ANION	S IN WATER BY I	•			3	0.00
nstrument DIONEX DX-500	<u>Date</u> 07/01/04 14:25	Analyst E66526	<u>Samp</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Bromide		1.0	mg/l	0.10	0.050	
Nitrate		0.34	mg/l	0.10	0.050	
Phosphate		0.30	mg/l	0.30	0.15	
Sulfate		7.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument	<u>Date</u>	<u>Analyst</u>	Samp	le Analyzed	Dilution Facto	r
DIONEX DX-500-3	07/07/04 13:39	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		450	ug/l	40	10	
						1100
ERA 6010 DISSOL	VED METALS IC	PLIQUIDS		3010A	60	שטונ
	VED METALS, IC		Ca	3010A		)10B
nstrument	<u>Date</u>	Analyst		le Analyzed	Dilution Facto	
nstrument	,		<u>Samp</u> PRIM <i>A</i>	le Analyzed		
	<u>Date</u>	Analyst		le Analyzed	Dilution Facto	<u>or</u>
nstrument FJA-61E  Constituent Aluminum	<u>Date</u>	Analyst E70180 Result < 0.20	Units mg/l	PQL 0.20	Dilution Factor  1  MDL  0.10	<u>or</u>
nstrument ГЈА-61E Constituent	<u>Date</u>	Analyst E70180  Result < 0.20 0.025	Units mg/l mg/l	PQL 0.20 0.0060	Dilution Factor 1  MDL 0.10 0.0030	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium	<u>Date</u>	Analyst E70180  Result < 0.20 0.025 < 0.0010	Units  mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.0030 0.00050	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium	<u>Date</u>	Analyst E70180  Result < 0.20 0.025 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.00020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	<u>Date</u>	Analyst E70180  Result  < 0.20	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10	Model Prints  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.010 < 0.20 < 0.050 < 0.10 < 0.20 < 0.040	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.040 0.0071	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.0040 < 0.0080 < 0.0071 < 0.0050	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.020 0.020 0.020 0.040 0.040 0.0080 0.0080 0.0080 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0071 < 0.0050 13	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0060 0.0080 0.0060 0.0050 0.114	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.0030 0.0025 0.0070	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040  0.0071 < 0.0050 13 8.1	PRIM/ Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14 0.050	MDL 0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	<u>Date</u>	Analyst E70180  Result  < 0.20 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0071 < 0.0050 13	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0060 0.0080 0.0060 0.0050 0.114	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.0030 0.0025 0.0070	



**Analysis Report** Page 2 of 2

Reported on: 16 AUG 2004

EDL # 200138920 Primary # 166-0701-1001 Description 166-0701-1001 Source Type LIQUID Sampler GB Report Distribution R.FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 07/01/04 13:25 Smpl Date-Time 07/01/04 10:01

LVED ARSENIC, G	FAA		7060		7060
<u>Date</u> 08/03/04 09:12	Analyst E70180			Dilution Fac	tor
	Result	Units	PQL	MDL	FLG
	< 0.0020	mg/l	0.0020	0.00030	
VED LEAD, GFAA			7421		7421
<u>Date</u> 08/04/04 09:41	Analyst E70180			Dilution Fac 1	tor
	Result	Units	PQL	MDL	FLG
	< 0.0020	mg/l	0.0020	0.00060	
VED MERCURY,	COLD VAPOR		7470A		7470A
<u>Date</u> 07/07/04 10:50	Analyst E70180			Dilution Fac	<u>tor</u>
	Result	Units	PQL	MDL	FLG
	< 0.00020	mg/l	0.00020	0.000080	
LVED SELENIUM,	GFAA		7740		7740
<u>Date</u> 08/05/04 10:34	Analyst E70180			Dilution Fac 1	tor
	Result	Units	PQL	MDL	FLG
	< 0.0020	mg/l	0.0020	0.00060	
Data Flag Definitio	ns			<u>Definitions</u>	
	08/03/04 09:12  LVED LEAD, GFAA  Date 08/04/04 09:41  LVED MERCURY, 0  Date 07/07/04 10:50  LVED SELENIUM, 0  Date 08/05/04 10:34	Result   < 0.0020	Result   Units	Result	Result   Units   PQL   MDL

- A– Suspected aidol condensation product
  B– Analyte detected in blank
  C– Spiked sample recovery not within control limits (EPA N)
  D– Compound ran at second dilution
  E– Analyte exceeds calibration range
  F– Estimated concentration due to presence of an interference (EPA N)
- G- Duplicate analysis not within control limits (EPA\*)
  H- Correlation coefficient for MSA less than 0.995 (EPA +)
  J- Estimated Value
  M- Duplicate injection precision not met
  N- Tresumptive evidence of a compound
  S- Concentration determined by method of standard additions

EDL # 200145629
Primary # STSW 166
Backup #
Description STSW 166
Source Type WATER
AGC Site # STSW 166
Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 09/20/04 14:35
Sampler DH
Smpl Date-Time 09/20/04 11:42

EPA 300.0 ANION	S IN WATER BY IC	•			•	300.0
I <u>nstrument</u> DIONEX DX-500	<u>Date</u> 09/22/04 09:31	Analyst E66526	Samp PRIMA	le Analyzed ARY	Dilution Fact	or
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.7	mg/l	0.10	0.050	
Bromide		0.85	mg/l	0.10	0.050	
Nitrate		0.23	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		5.0	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	314.0
Instrument	Date	<u>Analyst</u>	Samp	e Analyzed	<b>Dilution Fact</b>	<u>or</u>
DIONEX DX-500-3	10/13/04 15:57	E70080	PRIMA	ARY	1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		280	ug/l	4.0	1.0	
				3010A		010B
EPA 6010 DISSOL	.VED METALS, ICI	P, LIQUIDS		3010A	O	
EPA 6010 DISSOL			Sampl	e Analyzed	Dilution Fact	
nstrument	Date 09/23/04 12:02	P, LIQUIDS <u>Analyst</u> E70180	<u>Samp</u> PRIMA	e Analyzed		
EPA 6010 DISSOL Instrument TJA-61E Constituent	Date	Analyst		e Analyzed	Dilution Factor	<u>or</u>
Instrument TJA-61E	Date	Analyst E70180	PRIMA	le Analyzed ARY	Dilution Factor  1  MDL  0.10	<u>or</u>
Instrument TJA-61E Constituent	Date	Analyst E70180 Result < 0.20 < 0.080	Units mg/l mg/l	PQL 0.20 0.080	Dilution Factor 1  MDL  0.10 0.040	<u>or</u>
Instrument TJA-61E  Constituent Aluminum Arsenic Barium	Date	Analyst E70180 Result < 0.20 < 0.080 0.025	Units  mg/l mg/l mg/l	PQL 0.20 0.080 0.0060	Dilution Factor  1  MDL  0.10 0.040 0.0030	<u>or</u>
Instrument TJA-61E  Constituent Aluminum Arsenic Barium Beryllium	Date	Analyst E70180  Result < 0.20 < 0.080 0.025 < 0.0010	Units  mg/I  mg/I  mg/I  mg/I	PQL 0.20 0.080 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium	Date	Analyst E70180  Result < 0.20 < 0.080 0.025 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium	Date	Analyst E70180  Result  < 0.20  < 0.080  0.025  < 0.0010  < 0.0040  < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0010 0.0040 0.0080	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper	Date	Analyst E70180  Result < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0080	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0080 0.0060	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.0060 0.0060 0.0060	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead	Date	Analyst E70180  Result < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	<u>or</u>
Instrument TJA-61E  Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	PRIMA  Units  mg/I  mg/I	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.30 0.060 0.10	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	Monts  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020	Dilution Factor  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium	Date	Analyst E70180  Result < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	Monts  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.055	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.055 0.050	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.20	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.055 0.010 0.025 0.050 0.10 0.020	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025 0.050 0.10 0.020 0.0040 0.020	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.0080 < 0.0080	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080	Dilution Factor  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.110 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060 0.0050	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080 < 1.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040 0.0080 0.0050 0.114	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese	Date	Analyst E70180  Result  < 0.20 < 0.080 0.025 < 0.0010 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0050	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060 0.0050	Dilution Factor  1  MDL  0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>



**Analysis Report** Page 2 of 2

Reported on: 14 OCT 2004

#### Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

Reported on: 12 JAN 2005

EDL # 200152565 Primary # WNN 166 Backup # **Description WNN 166** Source Type WATER AGC Site # WNN 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 12/13/04 14:50

Sampler SR

Smpl Date-Time 12/13/04 13:22

EPA 6010 DISSO	OLVED METALS, IC	P, LIQUIDS		3010A	•	6010B
I <u>nstrument</u> TJA-61E	<u>Date</u> 01/06/05 13:05	Analyst E70180	<u>Samp</u> PRIM	le Analyzed ARY	<u>Dilution Fac</u> 1	ctor
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0082	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
Calcium		14	mg/l	0.14	0.070	
Magnesium		8.6	mg/l	0.050	0.025	
Sodium		9.0	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- Government of the control timits

  Govern



**Analysis Report** Page 1 of 1

Reported on: 10 JAN 2005

EDL # 200152560 Primary # WNN 166 Backup # **Description** WNN 166 Source Type WATER AGC Site # WNN 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 12/13/04 14:50

Sampler SR

Smpl Date-Time 12/13/04 13:22

## **EPA 300.0 ANIONS IN WATER BY IC**

300.0

Instrument DIONEX DX-500	<u>Date</u> 12/13/04 15:51	<u>Analyst</u> E25619	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.65	mg/l	0.10	0.050	
Nitrate		0.14	mg/l	0.10	0.050	
Phosphate		0.32	mg/l	0.30	0.15	
Sulfate		4.7	mg/l	0.10	0.050	

## Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte bound in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 



**Analysis Report** Page 1 of 1

Reported on: 01 FEB 2005

EDL # 200152559

Primary # WNN 166

Backup #

**Description WNN 166** 

Source Type WATER

AGC Site # WNN 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 12/13/04 14:50

Sampler SR

Smpl Date-Time 12/13/04 13:22

## **EPA 314.0 PERCHLORATE BY IC**

314.0

<u>Instrument</u> DIONEX DX-500-3 <u>Date</u> 12/21/04 14:39 <u>Analyst</u> E70080

Sample Analyzed PRIMARY

**Dilution Factor** 1

Constituent

Result

Units

**PQL** 

FLG

Perchlorate

190

ug/l

4.0

MDL

1.0 Definitions

Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 13 APR 2005

EDL # 200158691
Primary # STSW 166
Backup # STSW 166
Description STSW 166
Source Type WATER
AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/23/05 16:30 Sampler ML

Smpl Date-Time 02/23/05 08:15

EPA 300.0 ANION	S IN WATER BY I	2				300.0
Instrument	Date	Analyst	Samp	le Analyzed	Dilution Fac	tor
DIONEX DX-500	02/24/05 15:18	E25619	PRIMA		1	_
Constituent		Result	Units	PQL	MDL	FLO
Chloride Nitrate Sulfate		3.3 0.12 6.1	mg/l mg/l mg/l	0.10 0.10 0.10	0.050 0.050 0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
Instrument DIONEX DX-500-3	<u>Date</u> 03/14/05 14:29	Analyst E70080	<u>Samp</u> PRIMA	le Analyzed NRY	<u>Dilution Fac</u> 1	tor
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		190	ug/l	4.0	1.0	
EPA 601 HALOGE	NATED VOLATIL	E ORGANICS				601
Instrument MPH 6890	<u>Date</u> 03/03/05 14:20	Analyst E24948	Sampl PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLC
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluorometha	ne	< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethan	e	< 0.50	ug/l	0.50	0.25	
1.1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (c	is/trans)	0.61	ug/l	0.50	0.25	
Chloroform	10/11/10/	< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
		< 0.50	ua/l	0.50	0.25	
Liarnon Letrachionne	۵	< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethan			ug/l	0.50	0.25	
Bromodichloromethan 1,2-Dichloropropane		29		0.00		
Bromodichloromethan 1,2-Dichloropropane Trichloroethene		2.9 < 0.50		0.50	0.25	
Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane	۵	< 0.50	ug/l	0.50	0.25 0.25	
Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan	e	< 0.50 < 0.50	ug/l ug/l	0.50	0.25	
Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform	е	< 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50	0.25 0.25	
Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform Tetrachloroethene		< 0.50 < 0.50 < 0.50 < 0.50	ug/l ug/l ug/l ug/l	0.50 0.50 0.50	0.25 0.25 0.25	
Bromodichloromethan 1,2-Dichloropropane Trichloroethene 1,1,2-Trichloroethane Dibromochloromethan Bromoform		< 0.50 < 0.50 < 0.50	ug/l ug/l ug/l	0.50 0.50	0.25 0.25	

Analysis Report Page 2 of 3

Reported on: 13 APR 2005

EDL # 200158691
Primary # STSW 166
Backup # STSW 166
Description STSW 166
Source Type WATER
AGC Site # STSW 166
Report Distribution EOPS, R. FRICKE, FILE

 Submitter
 0330

 Charge Number
 SAELNE2X11

 Chain of Custody
 YES

 Released By
 E23393

 Recd Date-Time
 02/23/05 16:30

Sampler ML

Smpl Date-Time 02/23/05 08:15

EPA 6010 DISS	OLVED METALS, IC	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 03/14/05 11:46	Analyst E70180	<u>Samp</u> PRIM/	<u>le Analyzed</u> ARY	Dilution Fac	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0077	mg/l	0.0060	0.0030	
Manganese		< 0.0050	mg/l	0.0050	0.0025	
		14	mg/l	0.14	0.070	
Calcium			TTIQ/T	0.14	0.070	
Calcium Magnesium		8 <b>7</b>		0.050	0.025	
Magnesium		8. <b>7</b> 9.1	mg/l	0.050	0.025	
Magnesium Sodium Potassium	OLVED ARSENIC, G	9.1 < 2.0	mg/l mg/l mg/l	0.80 2.0 <b>7060</b>	0.40 1.0	7060
Magnesium Sodium Potassium EPA 7060 DISSO	Date	9.1 < 2.0 FAA <u>Analyst</u>	mg/l mg/l mg/l Sampl	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0 Dilution Fact	
Magnesium Sodium Potassium EPA 7060 DISSO	,	9.1 < 2.0	mg/l mg/l mg/l	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0	
Magnesium Sodium Potassium EPA 7060 DISSO	Date	9.1 < 2.0 FAA <u>Analyst</u>	mg/l mg/l mg/l Sampl	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0 Dilution Fact	
Magnesium Sodium Potassium EPA 7060 DISSO Instrument PE 600	Date	9.1 < 2.0 FAA  Analyst E70180	mg/l mg/l mg/l Sampl PRIMA	0.80 2.0 <b>7060</b> le Analyzed	0.40 1.0 Dilution Fact	or
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic	Date	9.1 < 2.0 FAA  Analyst E70180  Result < 0.0020	mg/l mg/l mg/l Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY	0.40 1.0 Dilution Fact 1  MDL  0.00030	or
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument	Date 03/07/05 12:01 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units mg/l	0.80 2.0 7060 Re Analyzed ARY  PQL 0.0020  7421	0.40 1.0 Dilution Fact 1  MDL  0.00030	or FLG 7421
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument	<u>Date</u> 03/07/05 12:01 DLVED LEAD, GFAA	9.1 < 2.0 FAA  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units	0.80 2.0 7060 Re Analyzed ARY  PQL 0.0020  7421	0.40 1.0 Dilution Fact 1  MDL  0.00030	or FLG 7421
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument	Date 03/07/05 12:01 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units mg/l	0.80 2.0 7060 Re Analyzed ARY  PQL 0.0020  7421	0.40 1.0  Dilution Fact 1  MDL 0.00030	or FLG 7421
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600	Date 03/07/05 12:01 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180	mg/l mg/l Sampl PRIMA Units mg/l	0.80 2.0 7060 le Analyzed ARY  PQL  0.0020  7421  le Analyzed  ARY	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1	FLG 7421 or
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	Date 03/07/05 12:01 DLVED LEAD, GFAA	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY  PQL 0.0020  7421 le Analyzed ARY  PQL	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	FLG 7421 or
Magnesium Sodium Potassium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO	Date 03/07/05 12:01 DLVED LEAD, GFAA Date 03/08/05 14:14	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020	mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0 7060 le Analyzed ARY PQL 0.0020 7421 le Analyzed ARY PQL 0.0020	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead  EPA 7470 DISSO Instrument	Date 03/07/05 12:01 DLVED LEAD, GFAA Date 03/08/05 14:14 DLVED MERCURY, 0	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR	mg/l mg/l Sampl PRIMA Units mg/l Sampl PRIMA	0.80 2.0  7060    e Analyzed   ARY    PQL     0.0020    7421   e Analyzed   ARY    PQL     0.0020    7470A     e Analyzed     e Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG
Magnesium Sodium Potassium  EPA 7060 DISSO Instrument PE 600  Constituent Arsenic  EPA 7421 DISSO Instrument PE 600  Constituent Lead	Date 03/07/05 12:01 DLVED LEAD, GFAA Date 03/08/05 14:14 DLVED MERCURY, O	9.1 < 2.0  FAA  Analyst E70180  Result < 0.0020  Analyst E70180  Result < 0.0020  COLD VAPOR Analyst	mg/l mg/l sampl PRIMA Units mg/l Sampl PRIMA Units mg/l	0.80 2.0  7060    e Analyzed   ARY    PQL     0.0020    7421   e Analyzed   ARY    PQL     0.0020    7470A     e Analyzed     e Analyzed	0.40 1.0  Dilution Fact 1  MDL 0.00030  Dilution Fact 1  MDL 0.00060	7421 or FLG



**Analysis Report** Page 3 of

Reported on: 13 APR 2005

EDL # 200158691

Primary # STSW 166

Backup # STSW 166

**Description STSW 166** 

Source Type WATER

AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/23/05 16:30

Sampler ML

Smpl Date-Time 02/23/05 08:15

# **EPA 7740 DISSOLVED SELENIUM, GFAA**

7740

7740

FLG

<u>Instrument</u> PE 600

<u>Date</u>

03/04/05 13:44

<u>Analyst</u> E70180

Sample Analyzed

**PRIMARY** 

**Dilution Factor** 

Constituent

Result

Units

**PQL** 

Selenium

MDL

mg/l

0.0020

0.00060

< 0.0020

Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 

Reported on: 31 MAY 2005

EDL # 200163138
Primary # STSW 166
Backup # STSW 166
Description STSW 166
Source Type WATER
AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/14/05 13:30

Sampler BH

Smpl Date-Time 04/14/05 07:36

EPA 300.0 ANION	S IN WATER BY I	5			3	0.00
Instrument DIONEX DX-500	<u>Date</u> 04/14/05 16:10	Analyst E25619	Sampl PRIMA	le Analyzed ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.13	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.46	mg/l	0.10	0.050	
Nitrate		0.11	mg/l	0.10	0.050	
Phosphate		0.37	mg/l	0.30	0.15	
Sulfate		7.3	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC				3	14.0
nstrument DIONEX DX-500-3	<u>Date</u> 05/05/05 14:34	Analyst E70080	Samp PRIM	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		190	ug/l	4.0	1.0	
EDA 6010 METAL	S BY ICP, LIQUID			3010A	6	10B
	_	Analyst	Samo	le Analyzed	Dilution Fact	or
nstrument TJA-61E	<u>Date</u> 04/25/05 12:00	<u>Analyst</u> E70180	PRIM/		1	<del>21.</del>
Constituent		Result	Units	PQL	MDL	FLO
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
		< 0.050	mg/l	0.050	0.025	
Thallium		0.40		0.10	0.050	
Zinc		< 0.10	mg/l			
Zinc Antimony		< 0.20	mg/l	0.20	0.10	
Zinc Antimony Boron		< 0.20 < 0.040	mg/l mg/l	0.040	0.020	
Zinc Antimony Boron Cobalt		< 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l	0.040 0.0080	0.020 0.0040	
Zinc Antimony Boron Cobalt Molybdenum		< 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l	0.040 0.0080 0.040	0.020 0.0040 0.020	
Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.20 < 0.040 < 0.0080 < 0.040 0.0070	mg/l mg/l mg/l mg/l mg/l	0.040 0.0080 0.040 0.0060	0.020 0.0040 0.020 0.0030	
Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.20 < 0.040 < 0.0080 < 0.040 0.0070 0.0061	mg/l mg/l mg/l mg/l mg/l	0.040 0.0080 0.040 0.0060 0.0050	0.020 0.0040 0.020 0.0030 0.0025	
Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.20 < 0.040 < 0.0080 < 0.040 0.0070 0.0061 14	mg/l mg/l mg/l mg/l mg/l mg/l	0.040 0.0080 0.040 0.0060 0.0050 0.14	0.020 0.0040 0.020 0.0030 0.0025 0.070	
Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.20 < 0.040 < 0.0080 < 0.040 0.0070 0.0061 14 8.8	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	
Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.20 < 0.040 < 0.0080 < 0.040 0.0070 0.0061 14	mg/l mg/l mg/l mg/l mg/l mg/l	0.040 0.0080 0.040 0.0060 0.0050 0.14	0.020 0.0040 0.020 0.0030 0.0025 0.070	



**Analysis Report** Page 2 of 2

Reported on: 31 MAY 2005

EDL # 200163138

Primary # STSW 166

Backup # STSW 166

**Description STSW 166** 

Source Type WATER

AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/14/05 13:30

Sampler BH

Smpl Date-Time 04/14/05 07:36

EDA	2021	HALO	CENATE	D VOLATI	I = OI	RGANICS
EFA	OUZI	HALU	GENAIE	D VULAII	ᇆᄓ	CUINADA

8021B

Instrument MPH 6890	<u>Date</u> 04/19/05 16:27	Analyst E25639	<u>Sample Analyzed</u> PRIMARY		<u>Dilution Factor</u> 1	
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethane		< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis/trans)		< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/l	0.50	0.25	
Freon 113		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		2.7	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane		< 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroethane		< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	

#### Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte bound in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumplive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**



Analysis Report
Page 1 of 1

Reported on: 06 SEP 2005

Primary # STSW 166
Backup #
Description STSW 166
Source Type WATER

AGC Site # STSW 166
Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/15/05 14:35

Sampler DH

Smpl Date-Time 08/15/05 10:18

EPA 300.0 ANION	S IN WATEF	BY IC				300.0
Instrument DIONEX DX-500	<u>Date</u> 08/15/05 22	Analyst ::33 E25619		<u>ple Analyzed</u> IARY	Dilution Fac 1	ctor
Constituent		Result	Units	PQL	MDL	FLO
Chloride		3.3	mg/l	0.10	0.050	
Nitrate		< 0.10	mg/l	0.10	0.050	
Sulfate		9.2	mg/l	0.10	0.050	
EPA 314.0 PERCH	LORATE BY	/ IC				314.0
Instrument			Sam	ole Analyzed	Dilution Fac	ctor
DIONEX DX-500-3	08/25/05 13	:20 E70080	PRIM	IARY	1	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		100	ug/l	4.0	1.0	
EPA 6010 DISSOL		3010A		6010B		
Instrument	Date	Analyst	Sami	ole Analyzed	Dilution Fac	ctor
TJA-61E	08/22/05 13		PRIM		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		< 0.30	mg/l	0.30	0.15	
Nickel		< 0.020	mg/l	0.020	0.010	
Silver		< 0.020	mg/l	0.020	0.010	
<u>T</u> hallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt Molybdenum		< 0.0080 < 0.040	mg/l	0.0080	0.0040 0.020	
Vanadium		0.040	mg/l mg/l	0.040 0.0060	0.020	
		0.0073		0.0050	0.0030	
Manganese Calcium		14	mg/l mg/l	0.0050	0.0025	
Magnesium		8.9	mg/l	0.050	0.070	
Sodium		9.0	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
i olassiaiii	Data Flag De		my.		efinitions	
Suspected aldol condensation production.     Analyte found in associated blank.     Spiked sample recovery not within oc-     Analyte from secondary dilution analy.     Analyte exceeds calibration range.     Estimated concentration due to an interest.	et G- Du H- Co entrol limits J- Est vais M- Du	plicate analysis not within control limits rrelation coefficient for MSA less than 0.995 mated concentration plicate precision not met sumptive evidence of a compound ncentration determined by method of standard additi		_	Detection Limit if Quantitation Limit ected above the MDL	

Analysis Report Page 1 of 2

Reported on: 16 FEB 2006

Primary # STSW 166
Backup #
Description STSW 166
Source Type WATER
AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 12/14/05 13:00

Sampler KB

Smpl Date-Time 12/14/05 10:15

	S IN WATER BY I	3			;	300.0
nstrument DIONEX DX-500	<u>Date</u> 12/14/05 16:40	Analyst E25619	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.4	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.34	mg/l	0.10	0.050	
Nitrate		0.13	mg/l	0.10	0.050	
Phosphate		0.52	mg/l	0.30	0.15	
Sulfate		9.4	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	Date	Analyst	Samp	le Analyzed	Dilution Fact	or
DIONEX DX-600-B	01/05/06 20:06	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLC
Perchlorate		<b>7</b> 5	ug/l	4.0	1.0	
EPA 6010 DISSOL	VED METALS, ICI	P. LIQUIDS		3010A	6	010B
	Date	Analyst	Samal	le Analyzed	Dilution Fact	
						01
<u>nstrument</u> ГЈА-61E	01/17/06 12:18	E70180	PRIMA		1	_
						FLG
TJA-61E		E70180	PRIMA	ARY	1	_
TJA-61E  Constituent		E70180 Result	PRIMA Units	PQL	1 MDL	_
Constituent Aluminum		E70180  Result < 0.20	Units mg/l	PQL 0.20	MDL 0.10	_
Constituent Aluminum Arsenic		E70180  Result < 0.20 < 0.080 0.029 < 0.0010	Units mg/l mg/l	PQL 0.20 0.080	0.10 0.040	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium		E70180  Result < 0.20 < 0.080 0.029 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080	Units  mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	_
Constituent Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.0060 0.30	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.20	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.020 0.0040	_
Constituent  Aluminum Arsenic Barium Beryllium Consium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.20 0.10 0.20 0.040	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.10 < 0.20 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.150 0.10 0.20 0.040 0.0080	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.020 0.0040	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.10 0.020 0.10 0.020 0.10 0.20 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.020 < 0.040 < 0.0080 < 0.0080 < 0.0080	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.0080 < 0.0080 < 0.0080 < 0.0085	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.0060 0.0050	1 MDL 0.10 0.040 0.0030 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	_
Constituent  Aluminum Arsenic Barium Beryllium Cadmium Chromium Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		E70180  Result  < 0.20 < 0.080 0.029 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.10 < 0.020 < 0.040 < 0.020 < 0.040 < 0.080 < 0.040 < 0.0085 15	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL  0.20 0.080 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.060 0.020 0.10 0.020 0.10 0.020 0.10 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0050 0.14	1 MDL 0.10 0.040 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	_



**Analysis Report** Page 2 of 2

Reported on: 16 FEB 2006

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

#### Data Flag Definitions

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### **Definitions**

Reported on: 07 APR 2006

EDL # 200187511

Primary # STSW 166

Backup #

Description STSW 166

Source Type WATER

AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/14/06 12:30

Sampler BH

Smpl Date-Time 02/14/06 10:18

EPA 300.0 ANION	S IN WATER BY I	,			•	300.0
nstrument DIONEX DX-500	<u>Date</u> 02/14/06 17:31	Analyst E25619	<u>Sample Analyzed</u> PRIMARY		Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.35	mg/l	0.10	0.050	
Nitrate		0.13	mg/l	0.10	0.050	
Phosphate		0.66	mg/l	0.30	0.15	
Sulfate		9.2	mg/l	0.10	0.050	
EPA 314.0 PERCH	LORATE BY IC				3	314.0
nstrument	Date	<u>Analyst</u>	Sampl	e Analyzed	<b>Dilution Fact</b>	or
DIONEX DX-600-B	02/27/06 16:50	E70080	PRIMA		1	
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate		110	ug/l	4.0	1.0	
DA CO10 DICCOL	VED METALS ICI	LIOUIDS		3010A	61	010B
	VED METALS, ICI					
<u>nstrument</u> ГЈА-61E	<u>Date</u> 02/22/06 11:26	<u>Analyst</u> E70180	<u>Sampl</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Factor	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.030	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
					0.0030	
Copper		< 0.0060	mg/l	0.0060		
Copper Iron		< 0.30	mg/l	0.30	0.15	
Copper Iron Lead		< 0.30 < 0.060	mg/l mg/l	0.30 0.060	0.15 0.030	
Copper Iron Lead Nickel		< 0.30 < 0.060 < 0.020	mg/l mg/l mg/l	0.30 0.060 0.020	0.15 0.030 0.010	
Copper Iron Lead Nickel Selenium		< 0.30 < 0.060 < 0.020 < 0.10	mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10	0.15 0.030 0.010 0.050	
Copper Iron Lead Nickel Selenium Silver		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020	mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020	0.15 0.030 0.010 0.050 0.010	
Copper Iron Lead Nickel Selenium Silver Thallium		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050	mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050	0.15 0.030 0.010 0.050 0.010 0.025	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10	0.15 0.030 0.010 0.050 0.010 0.025 0.050	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0061	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.0440 0.0061 0.0069	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0035	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0061 0.0069	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.30 < 0.060 < 0.020 < 0.10 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0061 0.0069 15 9.6	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.070	
Copper Iron Lead Nickel Selenium Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.30 < 0.060 < 0.020 < 0.10 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 0.0061 0.0069	mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/l	0.30 0.060 0.020 0.10 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0060 0.0050 0.14	0.15 0.030 0.010 0.050 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0030 0.0025 0.0030	



**Analysis Report** Page 2 of

Reported on: 07 APR 2006

EDL # 200187511 Primary # STSW 166 Backup # **Description STSW 166** Source Type WATER AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 02/14/06 12:30

Sampler BH

Smpl Date-Time 02/14/06 10:18

EPA 7060 DISSOLV	'ED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 03/13/06 12:01	Analyst E70180	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOLV	ED LEAD, GFAA			7421		7421
Instrument PE 600	<u>Date</u> 03/22/06 11:28	Analyst E70180	<u>Samp</u> PRIM <i>i</i>	<u>le Analyzed</u> ARY	<u>Dilution Fac</u> 1	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLO
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOLV	ED MERCURY,	COLD VAPOR		7470A	7	470A
Instrument PE 2380	<u>Date</u> 02/17/06 11:25	Analyst E70180	<u>Samp</u> PRIM <i>I</i>	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLO
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSOLV	ED SELENIUM, (	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 03/21/06 12:17	Analyst E70180	<u>Samp</u> PRIM <i>I</i>	le Analyzed ARY	Dilution Fact	<u>tor</u>
Constituent		Result	Units	PQL	MDL	FLO
Selenium	Data Flag Definitions	< 0.0020	mg/l	0.0020	0.00060	
- Suspected aldol condensation product - Analyte found in associated blank	G- Duplicate analy	rsis not within control limits fficient for MSA less than 0.995		MDL - Method I		

- D- Analyte found in associated plank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- A- Correlation Coefficient in MSA less than 0.999
  J Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

ND - Not Detected above the MDL FLG- Data Flag



Analysis Report Page 1 of 1

Reported on: 22 MAY 2006

EDL # 200193253
Primary # STSW 166
Backup #
Description STSW 166
Source Type WATER
AGC Site # STSW 166

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 05/01/06 14:25

Sampler BH

Smpl Date-Time 05/01/06 10:30

EPA 300.0 ANI	ONS IN WATER BY I	С			;	300.0
Instrument DIONEX DX-500	<u>Date</u> 05/03/06 13:09	Analyst E25619	<u>Samp</u> PRIM	ole Analyzed ARY	<u>Dilution Fact</u> 1	or
	ate, Nitrite and Phosphate eded hold times.					
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.38	mg/l	0.030	0.015	
Chloride		3.3	mg/l	0.10	0.050	
Nitrite		< 0.050	mg/l	0.050	0.025	J
Nitrate		< 0.10	mg/l	0.10	0.050	J
Phosphate		0.33	mg/l	0.30	0.15	Ĵ
Sulfate	•	9.1	mg/l	0.10	0.050	ŭ
EPA 6010 DISS	SOLVED METALS, IC	P, LIQUIDS		3010A	6	010B
Instrument	Date	Analyst	Samo	le Analyzed	Dilution Fact	or
TJA-61E	05/11/06 12:54	E70180	PRIM		1	
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.030	mg/l	0.0060	0.0030	
Bervilium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0010	0.0020	
		< 0.0040		0.0040	0.0040	
Chromium		< 0.0080	mg/l	0.0080	0.0030	
Copper			mg/l			
lron .		< 0.30	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		< 0.0060	mg/l	0.0060	0.0030	
Manganese		0.016	mg/l	0.0050	0.0025	
Calcium		17	mg/l	0.14	0.070	
Magnesium		10	mg/l	0.050	0.025	
Sodium		10	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	
	Data Flag Definitions				efinitions	
Suspected aldol condensation Analyte found in associated bits Spiked sample recovery not we Analyte from secondary dilution Analyte exceeds calibration re Estimated concentration due to	product lank H- Correlation or inthin control limits on analysis n analysis on an interference  G- Duplicate ana H- Correlation or M- Duplicate pre N- Presumptive S- Concentration	lysis not within control limits befficient for MSA less than 0.995 centration cision not met evidence of a compound t determined by method of standard addit	ions	PQL Practica	Detection Limit Il Quantitation Limit acted above the MDL ag	



**Analysis Report** Page 1 of 1

Reported on: 03 OCT 2006

EDL # 200202094

Primary # STSW 166

Backup #

**Description STSW 166** 

Source Type WATER

AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/25/06 13:25

Sampler BB/FIP

Smpl Date-Time 08/25/06 10:55

EPA 300.0 ANIONS I	N WATER BY K	3			;	300.0
Instrument DIONEX DX-500	<u>Date</u> 08/25/06 17:18	Analyst E24959	<u>Sample Analyzed</u> PRIMARY		Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FL
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		3.0	mg/l	0.10	0.050	
Bromide		0.22	mg/l	0.10	0.050	
Nitrate		0.68	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.0	mg/l	0.10	0.050	
PA 6010 DISSOLVED METALS, ICP, LIQUIDS				3010A	6	010B
I <u>nstrument</u> TJA-61E	<u>Date</u> 09/15/06 10:58	<u>Analyst</u> E70180	<u>Sampi</u> PRIMA	e Analyzed ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FL
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.028	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		1.1	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
Zinc		< 0.10	mg/l	0.10	0.050	
Antimony		< 0.20	mg/l	0.20	0.10	
Boron		< 0.040	mg/l	0.040	0.020	
Cobalt		< 0.0080	mg/l	0.0080	0.0040	
Molybdenum		< 0.040	mg/l	0.040	0.020	
Vanadium		0.0062	mg/l	0.0060	0.0030	
Manganese		0.0002	mg/l	0.0050	0.0025	
Calcium		14	mg/l	0.14	0.070	
Magnesium		8.6	mg/l	0.050	0.025	
Sodium		9.3	mg/l	0.80	0.40	
Potassium		< 2.0	mg/l	2.0	1.0	

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions



**Analysis Report** Page 1 of 1

Reported on: 19 SEP 2006

EDL # 200202290

Primary # STSW 166

Backup # STSW 166

**Description STSW 166** 

Source Type WATER

AGC Site # STSW 166

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 08/29/06 10:30

Sampler DH

Smpl Date-Time 08/25/06 10:55

EPA 314.0 PERCHL	ORATE BY IC					314.0
Instrument DIONEX DX-600-B	Date Analys 3 09/07/06 00:15 E70080		Samp PRIM	<u>le Analyzed</u> ARY	Dilution Fac	etor
Constituent		Result	Units	PQL	MDL	FLG
Perchlorate	350 ug/l 4.0		1.0			
EPA 8021 HALOGE	NATED VOLATIL	E ORGANICS				8021B
Instrument	<u>Date</u>	Analyst	Sample Analyzed PRIMARY		Dilution Fac	etor
MPH 6890	08/30/06 13:15	E24948	PRIMA	AHY	1	
Constituent		Result	Units	PQL	MDL	FLG
Vinyl Chloride		< 0.50	ug/l	0.50	0.25	
Dichlorodifluoromethane		< 0.50	ug/l	0.50	0.25	
Dichloromethane		< 0.50	ug/l	0.50	0.25	
Trichlorofluoromethane		< 0.50	ug/l	0.50	0.25	
1,1-Dichloroethene		< 0.50	ug/i	0.50	0.25	
1,1-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloroethene (cis/	trans)	< 0.50	ug/l	0.50	0.25	
Chloroform		< 0.50	ug/i	0.50	0.25	
Freon 113		< 0.50	ug/i	0.50	0.25	
1,2-Dichloroethane		< 0.50	ug/l	0.50	0.25	
1,1,1-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Carbon Tetrachloride		< 0.50	ug/l	0.50	0.25	
Bromodichloromethane		< 0.50	ug/l	0.50	0.25	
1,2-Dichloropropane		< 0.50	ug/l	0.50	0.25	
Trichloroethene		3.4	ug/l	0.50	0.25	
1,1,2-Trichloroethane		< 0.50	ug/l	0.50	0.25	
Dibromochloromethane		< 0.50	ug/l	0.50	0.25	
Bromoform		< 0.50	ug/l	0.50	0.25	
Tetrachloroethene		< 0.50	ug/l	0.50	0.25	
1,1,2,2-Tetrachloroethar	ne	< 0.50	ug/l	0.50	0.25	
Chlorobenzene		< 0.50	ug/l	0.50	0.25	

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimate concentration
  M- Duplicate precision not met
  N- Presumplive evidence of a compound
  S- Concentration determined by method of standard additions

Reported on: 12 FEB 2007

Primary # STSW 166
Backup #
Description STSW 166
Source Type WATER
AGC Site # STSW 166

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 12/14/06 14:35
Sampler KB

Smpl Date-Time 12/14/06 09:45

Report Distribution EOPS, R. FRICKE, FILE

EPA 300.0 ANIOI	NS IN WATER BY I	C			,	300.0
Instrument DIONEX DX-500	<u>Date</u> 12/14/06 17:30	Analyst E25619	<u>Samp</u> PRIM	<u>le Analyzed</u> ARY	Dilution Fact	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLC
Fluoride		0.12	mg/l	0.030	0.015	
Nitrite		< 0.050	mg/l	0.050	0.025	
Bromide		0.22	mg/l	0.10	0.050	
Nitrate		0.15	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
EPA 300.0 ANION	NS IN WATER BY I	C			;	300.0
<u>Instrument</u> DIONEX DX-500	<u>Date</u> 12/14/06 18:31	Analyst E25619	Samp PRIM/	<u>le Analyzed</u> ARY	Dilution Fact 20	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Chloride		2.5	mg/l	2.0	1.0	
Sulfate		7.6	mg/l	2.0	1.0	
EPA 6010 DISSO	LVED METALS, IC	P, LIQUIDS		3010A	6	010B
<u>Instrument</u> TJA-61E	<u>Date</u> 01/17/07 12:13	Analyst E70180	<u>Samp</u> PRIM	le Analyzed ARY	<u>Dilution Fact</u> 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLG
Aluminum		< 0.20	mg/l	0.20	0.10	
Arsenic		< 0.080	mg/l	0.080	0.040	
Barium		0.027	mg/l	0.0060	0.0030	
Beryllium		< 0.0010	mg/l	0.0010	0.00050	
Cadmium		< 0.0040	mg/l	0.0040	0.0020	
Chromium		< 0.0080	mg/l	0.0080	0.0040	
Copper		< 0.0060	mg/l	0.0060	0.0030	
Iron		0.80	mg/l	0.30	0.15	
Lead		< 0.060	mg/l	0.060	0.030	
Nickel		< 0.020	mg/l	0.020	0.010	
Selenium		< 0.10	mg/l	0.10	0.050	
Silver		< 0.020	mg/l	0.020	0.010	
Thallium		< 0.050	mg/l	0.050	0.025	
		< 0.10	mg/l	0.10	0.050	
Zinc			mg/l	0.040 0.0080	0.020	
Boron		< 0.040	A	() ()()W()	0.0040	
Boron Cobalt		< 0.0080	mg/l			
Boron Cobalt Molybdenum		< 0.0080 < 0.040	mg/l	0.040	0.020	
Boron Cobalt Molybdenum Vanadium		< 0.0080 < 0.040 0.0073	mg/l mg/l	0.040 0.0060	0.020 0.0030	
Boron Cobalt Molybdenum Vanadium Manganese		< 0.0080 < 0.040 0.0073 0.0086	mg/l mg/l mg/l	0.040 0.0060 0.0050	0.020 0.0030 0.0025	
Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0080 < 0.040 0.0073 0.0086 14	mg/l mg/l mg/l mg/l	0.040 0.0060 0.0050 0.14	0.020 0.0030 0.0025 0.070	
Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium		< 0.0080 < 0.040 0.0073 0.0086 14 8.9	mg/l mg/l mg/l mg/l mg/l	0.040 0.0060 0.0050 0.14 0.050	0.020 0.0030 0.0025 0.070 0.025	
Boron Cobalt Molybdenum Vanadium Manganese Calcium		< 0.0080 < 0.040 0.0073 0.0086 14	mg/l mg/l mg/l mg/l	0.040 0.0060 0.0050 0.14	0.020 0.0030 0.0025 0.070	



**Analysis Report** Page 2 of 2

Reported on: 12 FEB 2007

#### Data Flag Definitions

- A- Suspected aldol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

#### <u>Definitions</u>



**Analysis Report** Page 1 of

Reported on: 09 DEC 2004

EDL # 200149708 Primary # STSW 38A Backup # **Description STSW 38A** Source Type WATER AGC Site # STSW 38A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393

Recd Date-Time 11/09/04 16:55 Sampler ML

Smpl Date-Time 11/09/04 13:25

## **EPA 314.0 PERCHLORATE BY IC**

314.0

Instrument DIONEX DX-500-3 <u>Date</u> 11/17/04 19:27 <u>Analyst</u> E70080

Sample Analyzed **PRIMARY** 

**Dilution Factor** 

Constituent

1

Result

Units

PQL

MDL

FLG

Perchlorate

1.0

< 4.0

ug/l

4.0

**Definitions** 

A- Suspected aldol condensation product
B- Analyte found in associated blank
C- Spiked sample recovery not within control limits
D- Analyte from secondary dilution analysis
E- Analyte exceeds calibration range
F- Estimated concentration due to an interference

**Data Flag Definitions** 

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  H- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions



**Analysis Report** Page 1 of

Reported on: 12 MAY 2005

EDL # 200162537

Primary # STSW 38A

Backup #

**Description STSW 38A** 

Source Type WATER

AGC Site # STSW 38A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/06/05 14:45

Sampler BH

Smpl Date-Time 04/06/05 11:30

# **EPA 314.0 PERCHLORATE BY IC**

314.0

FLG

<u>Instrument</u>

DIONEX DX-500-3

04/28/05 10:46

<u>Analyst</u> E70080

Sample Analyzed

**Dilution Factor** 

**PRIMARY** 

1

Constituent

Result

Units

**PQL** 

MDL

Perchlorate

< 4.0

ug/l

4.0

1.0

**Definitions** 

# Data Flag Definitions A- Suspected aidol condensation product B- Analyte found in associated blank C- Spiked sample recovery not within control limits D- Analyte from secondary dilution analysis E- Analyte exceeds calibration range F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions



**Analysis Report** Page 1 of

Reported on: 15 DEC 2004

EDL # 200149680 Primary # STSW 39A Backup # **Description STSW 39A** Source Type WATER AGC Site # STSW 39A

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 11/09/04 15:00

Sampler RH

Smpl Date-Time 11/09/04 12:55

**EPA 314.0 PERCHLORATE BY IC** 

314.0

<u>Instrument</u>

<u>Date</u> 11/18/04 11:07

<u>Analyst</u> E70080

Sample Analyzed PRIMARY

**Dilution Factor** 

Constituent

50

Result

Units

PQL

MDL

FLG

Perchlorate

4000

ug/l

200

50

A- Suspected adol condensation product
B- Analyte found in associated blank
C- Spiked sample recovery not within control limits
D- Analyte from secondary dilution analysis
E- Analyte exceeds calibration range
F- Estimated concentration due to an interference

DIONEX DX-500-3

**Data Flag Definitions** 

G- Duplicate analysis not within control limits
H- Correlation coefficient for MSA less than 0.995
J- Estimated concentration
M- Duplicate precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

**Definitions** 



**Analysis Report** Page 1 of

Reported on: 13 MAY 2005

EDL # 200162751

Primary # STSW 39A

Backup #

**Description STSW 39A** 

Source Type WATER

AGC Site # STSW 39A

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 04/08/05 12:20

Sampler BH

Smpl Date-Time 04/08/05 09:12

**EPA 314.0 PERCHLORATE BY IC** 

314.0

FLG

Instrument DIONEX DX-500-3 Date 05/03/05 15:00

**Analyst** E70080

Sample Analyzed PRIMARY

Dilution Factor 50

Constituent

Result

Perchlorate

4100

Units ug/l

**PQL** 200 MDL

50

Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference

- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

**Definitions** 



**Analysis Report** Page 1 of

Reported on: 15 DEC 2004

EDL # 200149679

Primary # STSW 39B

Backup #

**Description STSW 39B** 

Source Type WATER

AGC Site # STSW 39B

Report Distribution R. FRICKE, EOPS, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES

Released By E23393

Recd Date-Time 11/09/04 15:00

Sampler RH

Smpl Date-Time 11/09/04 11:30

## **EPA 314.0 PERCHLORATE BY IC**

314.0

Instrument DIONEX DX-500-3 **Date** 11/18/04 10:53 <u>Anaiyst</u> E70080

Sample Analyzed

**Dilution Factor** 

**PRIMARY** 

10

Constituent

Result

Units

PQL

MDL

10

780

Perchlorate

ug/l

40

FLG

Data Flag Definitions

- A- Suspected aidol condensation product
  B- Analyte found in associated blank
  C- Spiked sample recovery not within control limits
  D- Analyte from secondary dilution analysis
  E- Analyte exceeds calibration range
  F- Estimated concentration due to an interference
- G- Duplicate analysis not within control limits
  H- Correlation coefficient for MSA less than 0.995
  J- Estimated concentration
  M- Duplicate precision not met
  N- Presumptive evidence of a compound
  S- Concentration determined by method of standard additions

Definitions



**Analysis Report** Page 1 of

Reported on: 12 MAY 2005

EDL # 200162538 Primary # STSW 39B Backup # **Description STSW 39B** Source Type WATER AGC Site # STSW 39B

Report Distribution EOPS, R. FRICKE, FILE

Submitter 0330

Charge Number SAELNE2X11

Chain of Custody YES Released By E23393

Recd Date-Time 04/06/05 14:45

Sampler BH

Smpl Date-Time 04/06/05 13:39

### **EPA 314.0 PERCHLORATE BY IC**

314.0

Instrument DIONEX DX-500-3

A- Suspected addol condensation product
B- Analyte found in associated blank
C- Spiked sample recovery not within control limits
D- Analyte from secondary dilution analysis
E- Analyte exceeds calibration range
F- Estimated concentration due to an interference

<u>Date</u> 04/28/05 14:29 <u>Analyst</u>

**PRIMARY** 

Sample Analyzed

**Dilution Factor** 20

Constituent

E70080

Units

PQL

MDL

Result

**FLG** 

980

ug/l

80

20

Perchlorate

Data Flag Definitions

G- Duplicate analysis not within control limits
H- Correlation coefficient for MSA less than 0.995
J- Estimated concentration
M- Duplicate precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions

Definitions

Reported on: 16 AUG 2004

EDL # 200138921
Primary # 80A-0701-1050
Description 80A-0701-1050
Source Type LIQUID
Sampler GB
Report Distribution R.FRICKE, FILE

Submitter 0330
Charge Number SAELNE2X11
Chain of Custody YES
Released By E23393
Recd Date-Time 07/01/04 10:50
Smpl Date-Time 07/01/04 10:50

LPA 300.0 ANION	S IN WATER BY I	C			ţ	300.0
nstrument DIONEX DX-500	<u>Date</u> 07/01/04 14:43	Analyst E66526	Samp PRIM/	<u>le Analyzed</u> ARY	Dilution Factor 1	<u>or</u>
Constituent		Result	Units	PQL	MDL	FLO
Fluoride		0.12	mg/l	0.030	0.015	
Chloride		2.3	mg/l	0.10	0.050	
Bromide		< 0.10	mg/l	0.10	0.050	
Nitrate		0.63	mg/l	0.10	0.050	
Phosphate		< 0.30	mg/l	0.30	0.15	
Sulfate		8.2	mg/l	0.10	0.050	
EPA 314.0 PERCH	ILORATE BY IC					314.0
nstrument	Date	<u>Analyst</u>	Samp	le Analyzed	<b>Dilution Fact</b>	or
DIONEX DX-500-3	07/07/04 13:53	E70080	PRIMA	ARY	10	
Constituent		Result	Units	PQL	MDL	FLO
Perchlorate		1300	ug/l	40	10	
						010B
EDA 6010 DISSOL	VED METALS IC	PLIQUIDS		3010A	D	JIVB
	VED METALS, IC		0	3010A		
nstrument	Date	Analyst		le Analyzed	Dilution Factor	
	•		Samp PRIM/	le Analyzed		
nstrument	Date	Analyst		le Analyzed	Dilution Factor	
nstrument FJA-61E Constituent Aluminum	Date	Analyst E70180 Result	Units mg/l	PQL 0.20	Dilution Factor  1  MDL  0.10	<u>or</u>
nstrument rJA-61E  Constituent  Aluminum Barium	Date	Analyst E70180  Result < 0.20 0.017	Units mg/l mg/l	PQL 0.20 0.0060	Dilution Factor 1  MDL  0.10 0.0030	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium	Date	Analyst E70180  Result < 0.20 0.017 < 0.0010	Units mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010	Dilution Factor  1  MDL  0.10 0.0030 0.00050	<u>or</u>
nstrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium	Date	Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040	Units  mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020	<u>or</u>
rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium	Date	Analyst E70180  Result < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080	Units  mg/l  mg/l  mg/l  mg/l  mg/l  mg/l  mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15	<u>or</u>
ristrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010	<u>or</u>
ristrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020	Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010	<u>or</u>
ristrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025	<u>or</u>
rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10	PRIMA  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.015 0.050	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20	PRIMA  Units  mg/i mg/i mg/i mg/i mg/i mg/i mg/i mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040	Marks  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020	<u>or</u>
ristrument rJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.080	Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.040	PRIMA  Units  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0040	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.0020	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.0080 0.0080 0.0080	Dilution Factor  1  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.040 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.012	PRIMA  mg/I mg/I mg/I mg/I mg/I mg/I mg/I mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.0060 0.0050	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.012 9.9	PRIMA  Units  mg/I  mg/I	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.041	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>
Constituent Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium Magnesium	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.012 9.9 6.3	PRIMA  Units  mg/l mg/l mg/l mg/l mg/l mg/l mg/l mg/	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0060 0.30 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0060 0.0050 0.14 0.050	Dilution Factor  MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070 0.025	<u>or</u>
nstrument FJA-61E  Constituent  Aluminum Barium Beryllium Cadmium Chromium Copper Iron Nickel Silver Thallium Zinc Antimony Boron Cobalt Molybdenum Vanadium Manganese Calcium	Date	Analyst E70180  Result  < 0.20 0.017 < 0.0010 < 0.0040 < 0.0080 < 0.0060 < 0.30 < 0.020 < 0.020 < 0.050 < 0.10 < 0.20 < 0.040 < 0.080 < 0.040 < 0.0080 < 0.040 < 0.0080 < 0.040 < 0.0060 0.012 9.9	PRIMA  Units  mg/I  mg/I	PQL 0.20 0.0060 0.0010 0.0040 0.0080 0.0020 0.020 0.020 0.050 0.10 0.20 0.040 0.0080 0.040 0.0080 0.040 0.0080 0.041	MDL  0.10 0.0030 0.00050 0.0020 0.0040 0.0030 0.15 0.010 0.010 0.025 0.050 0.10 0.020 0.0040 0.020 0.0040 0.020 0.0030 0.0025 0.070	<u>or</u>



**Analysis Report** Page 2 of 2

Reported on: 16 AUG 2004

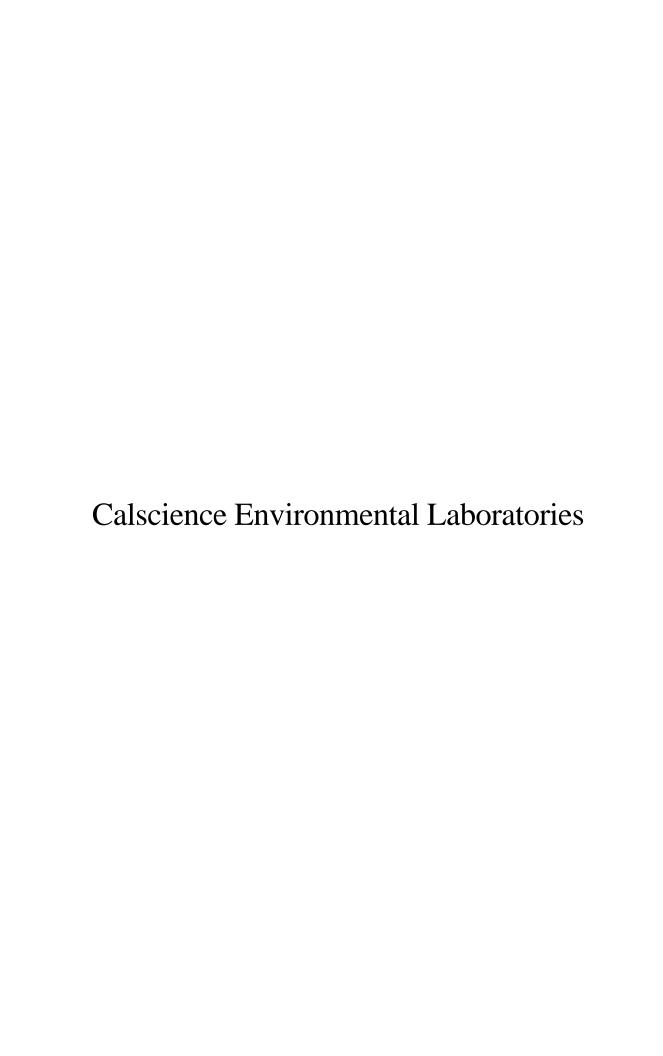
EDL # 200138921 Primary # 80A-0701-1050 **Description** 80A-0701-1050 Source Type LIQUID Sampler GB Report Distribution R.FRICKE, FILE

Submitter 0330 Charge Number SAELNE2X11 Chain of Custody YES Released By E23393 Recd Date-Time 07/01/04 13:25 Smpl Date-Time 07/01/04 10:50

EPA 7060 DISSOLV	/ED ARSENIC, G	FAA		7060		7060
Instrument PE 600	<u>Date</u> 08/03/04 09:19	Analyst E70180	<u>Samp</u> PRIMA	<u>le Analyzed</u> ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Arsenic		< 0.0020	mg/l	0.0020	0.00030	
EPA 7421 DISSOL\	/ED LEAD, GFA	1		7421		7421
Instrument PE 600	<u>Date</u> 08/04/04 09:49	<u>Analyst</u> E70180	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Lead		< 0.0020	mg/l	0.0020	0.00060	
EPA 7470 DISSOL\	/ED MERCURY,	COLD VAPOR		7470A	7	7470A
Instrument PE 2380	<u>Date</u> 07/07/04 10:55	Analyst E70180	<u>Samp</u> PRIMA	le Analyzed ARY	Dilution Fact	tor
Constituent		Result	Units	PQL	MDL	FLG
Mercury		< 0.00020	mg/l	0.00020	0.000080	
EPA 7740 DISSOLV	/ED SELENIUM,	GFAA		7740		7740
Instrument PE 600	<u>Date</u> 08/05/04 10:41	Analyst E70180	Samp PRIMA	le Analyzed ARY	Dilution Fac	tor
Constituent		Result	Units	PQL	MDL	FLG
Selenium		< 0.0020	mg/l	0.0020	0.00060	
	Data Flag Definition				<u>Definitions</u>	
Suspected aidol condensation product		G- Duplicate analysis not within con	trol limits (EPA*)	MDL - Me	thod Detection Limit	

A- Suspected aidol condensation product
B- Analyte detected in bland
C- Spiked sample recovery not within control limits (EPA N)
D- Compound ran at second dilution
E- Analyte exceeds calibration range
F- Estimated concentration due to presence of an interference (EPA N)

G- Duplicate analysis not within control limits (EPA')
H- Correlation coefficient for MSA less than 0.995 (EPA+)
J- Estimated Value
M- Duplicate injection precision not met
N- Presumptive evidence of a compound
S- Concentration determined by method of standard additions



4/5-AU6-03



August 13, 2003

Scott Felton GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Subject: Calscience Work Order No.: 03-08-0220

Client Reference: Aerojet -WNN / TR0018/18

# Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 8/6/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely

Calscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

08/06/03 03-08-0220 N/A

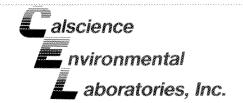
EPA 410.4

Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number			Sample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
39B-0804-1445		03-0	8-0220-1	08/04/03	Aqueous	N/A	08/07/03	30807ODB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
39A-0804-1720		03-0	8-0220-2	08/04/03	Aqueous	N/A	08/07/03	30807ODB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
138A-0805-0830		03-0	8-0220-3	08/05/03	Aqueous	N/A	08/07/03	30807ODB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
MW1-0805-0845		03-0	8-0220-4	08/05/03	Aqueous	N/A	08/07/03	30807ODB1
Parameter Parame	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
38A-0805-1045		03-0	8-0220-5	08/05/03	Aqueous	N/A	08/07/03	30807ODB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
Method Blank		099-	05-062-1,529	N/A	Aqueous	N/A	08/07/03	30807ODB1
Parameter Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			

RL - Repoi



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

08/06/03 03-08-0220 N/A

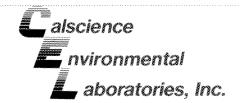
EPA 376.2

Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
39B-0804-1445		03-0	8-0220-1	08/04/03	Aqueous	N/A	08/07/03	30807SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
39A-0804-1720		03-0	8-0220-2	08/04/03	Aqueous	N/A	08/07/03	30807SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
138A-0805-0830		03-0	8-0220-3	08/05/03	Aqueous	N/A	08/07/03	30807SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
MW1-0805-0845		03-0	3-0220-4	08/05/03	Aqueous	N/A	08/07/03	30807SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
38A-0805-1045		03-0	3-0220-5	08/05/03	Aqueous	N/A	08/07/03	30807SB1
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
Method Blank		099-0	)5-089-1,402	N/A	Aqueous	N/A	08/07/03	30807SB1
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			

RL - Repo



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

08/06/03 03-08-0220 N/A EPA 405.1

Method:

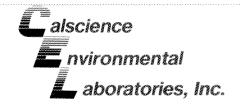
Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number			b Sample Number	Date Collected	Matrix	Date Started	Date Ended	QC Batch ID
39B-0804-1445		0:	3-08-0220-1	08/04/03	Aqueous	08/06/03	08/11/03	30806BODB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
39A-0804-1720		0	3-08-0220-2	08/04/03	Aqueous	08/06/03	08/11/03	30806BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
138A-0805-0830		0:	3-08-0220-3	08/05/03	Aqueous	08/06/03	08/11/03	30806BODB1
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
MW1-0805-0845		0:	3-08-0220-4	08/05/03	Aqueous	08/06/03	08/11/03	30806BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
38A-0805-1045		03	3-08-0220-5	08/05/03	Aqueous	08/06/03	08/11/03	30806BODB1
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
Method Blank		09	99-05-054-1,31	4 N/A	Aqueous	08/06/03	08/11/03	30806BODB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			

RL - Repo

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



# **Quality Control - Duplicate**

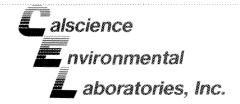
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/06/03 03-08-0220 N/A EPA 410.4

Project:

Aerojet -WNN / TR0018/18

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-08-0112-2	Aqueous	UV 3	N/A	08/07/03	30807ODD1
<u>Parameter</u>	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Chemical Oxygen Demand	790	800	1	0-25	





# **Quality Control - Duplicate**

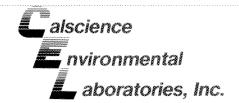
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/06/03 03-08-0220 N/A EPA 376.2

Project:

Aerojet -WNN / TR0018/18

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-08-0193-6	Aqueous	N/A	N/A	08/07/03	30807SD1
Parameter	Sample Conc	DUP Conc	<u>RPD</u>	RPD CL	Qualifiers
Sulfide	9.0	9.0	0	0-25	





# **Quality Control - Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/06/03 03-08-0220 N/A EPA 405.1

Project: Aerojet -WNN / TR0018/18

Quality Control Sample ID	Matrix	Instrument	Date Started:	Date Ended:	Duplicate Batch Number
03-08-0193-8	Aqueous	BOD 1	08/06/03	08/11/03	30806BODD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	<u>Qualifiers</u>
Biochemical Oxygen Demand	13	13	0	0-25	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS nvironmental aboratories, Inc.

Work Order Number: 03-08-0220

Qualifier Definition

ND Not detected at indicated reporting limit.





WORK ORDER #:

03-08-0220

Cooler \_\_\_\_\_ of \_\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: CLETIS of TEMPKINS	DATE: 560
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	C Temperature blank.  C Temperature blank.  C R thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:  Chain-Of-Custody document(s) received with samples	
COMMENTS:	

14-AUG-03



August 25, 2003

Scott Felton GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Subject: Calscience Work Order No.: 0

Client Reference:

03-08-0849

Aerojet -WNN / TR0018/18

# Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 8/15/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

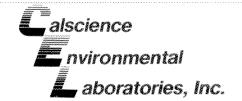
Sincerely,

Calscience Environmental

/ Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

**Quality Assurance Manager** 



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

08/15/03 03-08-0849 N/A

Method:

**RSK-175M** 

Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
EW-1-0814-0720			03-	08-084	9-1	08/14/03	Aqueous	N/A	08/18/03	030818	IL01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
EW-2-0814-0915			03-	08-084	9-2	08/14/03	Aqueous	N/A	08/18/03	030818	L01
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	Units ug/L ug/L	Parameter Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
MW-1-0813-1415			03-	08-084	9-3	08/13/03	Aqueous	N/A	08/18/03	030818	L01
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
MW-2-0814-0840			03-(	08-084	9-4	08/14/03	Aqueous	N/A	08/18/03	030818	L01
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	<u>DF</u> Qual 1	<u>Units</u> ug/L
Method Blank			099	-12-01	0-391	N/A	Aqueous	N/A	08/18/03	030818	L01
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	<u>DF</u> <u>Qual</u> 1	<u>Units</u> ug/L

AL - Reporti

RL - Reporting Limit ,

DF - Dilution Factor ,



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

Method:

08/15/03 03-08-0849 N/A

EPA 410.4

Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number EW-1-0814-0720			Sample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
		03-0	8-0849-1	08/14/03	Aqueous	N/A	08/18/03	30818ODB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
EW-2-0814-0915		03-0	8-0849-2	08/14/03	Aqueous	N/A	08/18/03	30818ODB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	Units			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
Method Blank		099-	05-062-1,535	N/A	Aqueous	N/A	08/18/03	30818ODB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			

RL - Reporti

Reporting Limit , DF - Dilution Factor



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

08/15/03 03-08-0849 N/A

Method:

EPA 376.2

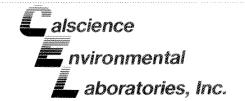
Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
EW-1-0814-0720		03-08	3-0849-1	08/14/03	Aqueous	N/A	08/19/03	30819SB2
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
EW-2-0814-0915		03-08	3-0849-2	08/14/03	Aqueous	N/A	08/19/03	30819SB2
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
Method Blank		099-0	5-089-1,411	N/A	Aqueous	N/A	08/19/03	30819SB2
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			

RL - Reporting Limit

Reporting Limit , DF - Dilution Factor



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

08/15/03 03-08-0849 N/A

EPA 405.1

Project: Aerojet -WNN / TR0018/18

Page 1 of 1

Client Sample Number  EW-1-0814-0720			ample nber	Date Collected	Matrix	Date Started	Date Ended	QC Batch ID
		03-08	3-0849-1	08/14/03	Aqueous	08/15/03	08/20/03	30815BODB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
EW-2-0814-0915		03-08	3-0849-2	08/14/03	Aqueous	08/15/03	08/20/03	30815BODB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
Method Blank		099-0	)5-054-1,324	N/A	Aqueous	08/15/03	08/20/03	30815BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			

RL - Report

# Calscience Invironmental Laboratories, Inc.

# **ANALYTICAL REPORT**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

08/15/03 03-08-0849 N/A

EPA 8015B

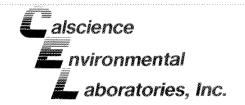
Project: Aerojet -WNN / TR0018/18

Page 1 of 1

VNN / TR0018/1	10						Page 1 of 1
		•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
	03-08-0	0849-1	08/14/03	Aqueous	N/A	08/15/03	030815L01
Result	<u>RL</u>	<u>DF</u>	Qual	Units			
ND REC (%)	0.10 Control	1	Qual	mg/L			
83	63-147						
	03-08-0	849-2	08/14/03	Aqueous	N/A	08/15/03	030815L01
Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
ND	0.10	1		mg/L			
<u>REC (%)</u>			<u>Qual</u>				
89	63-147						
	03-08-0	)849-3	08/13/03	Aqueous	N/A	08/15/03	030815L01
Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
ND REC (%)	0.10 Control Limits	1	Qual	mg/L			
91	63-147						
	03-08-0	1849-4	08/14/03	Aqueous	N/A	08/15/03	030815L01
Result	<u>RL</u>	DF	Qual	<u>Units</u>			
ND <u>REC (%)</u> 95	0.10 <u>Control</u> <u>Limits</u> 63-147	1	<u>Qual</u>	mg/L			
	099-12-	-006-800	N/A	Aqueous	N/A	08/15/03	030815L01
Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
ND	0.10	1		mg/L			
				-			
	Result ND REC (%) 83  Result ND REC (%) 89  Result ND REC (%) 91  Result ND REC (%) 91  Result ND REC (%) 95	Result   RL	Lab Sample   Number	Lab Sample   Number   Collected	Lab Sample Number         Date Collected Collected         Matrix           Result         RL         DF         Qual         Units           ND         0.10         1         mg/L           REC (%)         Control Limits 83         63-147         Qual         Units           Result         RL         DF         Qual         Units           ND         0.10         1         mg/L           REC (%)         Control Limits 89         63-147         Qual         Units           ND         0.10         1         mg/L         mg/L           Result         RL         DF         Qual         Units           ND         0.10         1         mg/L         mg/L           ND         0.10         1         mg/L         mg/L           REC (%)         Control Limits 91         Qual         Units         mg/L           ND         0.10         1         Qual         Units           ND         0.3-08-0849-4         08/14/03         Aqueous           Result         R         DF         Qual         Units           ND         0.10         1         mg/L         mg/L           ND<	Lab Sample Number	Lab Sample Number         Date Collected Collected         Matrix         Prepared Prepared Analyzed Analyzed           03-08-0849-1         08/14/03         Aqueous         N/A         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           ND         0.10         1         mg/L         mg/L         mg/L         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           Result         RL         DE         Qual         Units         mg/L         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           Result         RL         DE         Qual         Units         mg/L         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           Result         RL         DE         Qual         Units         N/A         08/15/03           Result         RL         DE         Qual         Units         N/A <t< td=""></t<>

RL - Reporting Limit ,

DF - Dilution Factor



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A

HPLC/UV

Project: Aerojet -WNN / TR0018/18

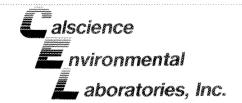
Page 1 of 2

Client Sample Number				Sampl Imber	le	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
EW-1-0814-0720			03-	08-084	19-1	08/14/03	Aqueous	N/A	08/20/03	030819	L12
Danasatas	Denill	D.	D.F	Overt	1.1:4	Dannata		D	DI	DE 01	11-2
<u>Parameter</u>	Result	RL 0.50	DF	Qual	NATURE DESCRIPTION OF THE PERSON OF THE PERS	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid Acetic Acid	ND 1.8	0.50 1.0	1		mg/L mg/L	Propionic Acid Butyric Acid		ND ND	1.0 1.0	1 1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Butyne Acid		ND	1.0	1	mg/L
Surrogates:	REC (%)	Control		Qual	_						
<u>ourrogator.</u>	1,20 1,701	Limits		<u> </u>							
Dibromopropionic Acid	100	80-120									
EW-2-0814-0915			03-	08-084	19-2	08/14/03	Aqueous	N/A	08/20/03	030819	L12
Parameter	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	01	mg/L						
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	97	80-120									
MW-1-0813-1415			03-0	08-084	9-3	08/13/03	Aqueous	N/A	08/20/03	030819	L12
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	3.7	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	97	<u>Limits</u> 80-120									
MW-2-0814-0840			03-0	08-084	9-4	08/14/03	Aqueous	N/A	08/20/03	030819	L12
<u> </u>	····						<u> </u>				<del> </del>
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.9	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•				•	J
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	97	<u>Limits</u> 80-120									

RL - Report

, DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A

HPLC/UV

Project: Aerojet -WNN / TR0018/18

Page 2 of 2

Client Sample Number			Lab Sa Numl	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bat	ch ID
Method Blank			099-12	2-016-8	N/A	Aqueous	N/A	08/19/03	030819	)L12
<u>Parameter</u>	Result	RL	DF Q	ual <u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control Limits	Ω	<u>Nual</u>						
Dibromopropionic Acid	94	80-120								

RL - Reporti

leporting Limit , DF - Dilution Factor , Qual - Qualifiers



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A EPA 405.1

Quality Control Sample ID	Matrix	Instrument	Date Started:	Date Ended:	Duplicate Batch Number
03-08-0842-6	Aqueous	BOD 1	08/15/03	08/20/03	30815BODD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Biochemical Oxygen Demand	ND	ND	NA	0-25	





GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A EPA 410.4

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-08-0826-1	Aqueous	UV 3	N/A	08/18/03	30818ODD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Chemical Oxygen Demand	300	310	2	0-25	





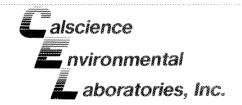
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A EPA 376.2

Project:

Aerojet -WNN / TR0018/18

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-08-0950-4	Aqueous	N/A	N/A	08/19/03	30819SD2
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide	ND	ND	NA	0-25	





# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800

Walnut Creek, CA 94596-5181

Date Received: Work Order No: Preparation:

08/15/03 03-08-0849

N/A

Method:

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
03-08-0844-1	Aqueous	GC12	N/A	08/15/03	030815\$01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL RF	D RPD CL	Qualifiers
Methanol	88	97	64-118 10	0-20	
Ethanol	87	92	73-109 6	0-23	



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 08/15/03 03-08-0849 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bat Number	ch
099-12-006-800	Aqueous	GC12	N/A	08/15/03	030815L01	
Parameter	LCS %RE	C LCSD %F	REC %RE	C CL RF	D RPD CL	Qualifiers
Methanol	91	103	69-	117 12	0-22	
Ethanol	103	94	76-	112 9	0-19	





# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800

Walnut Creek, CA 94596-5181

Date Received:

08/15/03

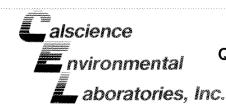
Work Order No:

03-08-0849

Preparation: Method:

N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	j	Date Analyzed	MS/MSD Batch Number
EW-1-0814-0720	Aqueous	HPLC 6	N/A		08/19/03	030819S12
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	107	107	70-130	0	0-30	
Acetic Acid	100	101	70-130	1	0-30	
Lactic Acid	103	102	70-130	1	0-30	
Propionic Acid	114	108	70-130	5	0-30	
Butyric Acid	110	103	70-130	7	0-30	



## **Quality Control - Laboratory Control Sample**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

08/15/03 03-08-0849 N/A HPLC/UV

Quality Control Sample ID	Matrix Ins	trument Date Analyz	ed Lab File	ID L	CS Batch Number
099-12-016-8	Aqueous H	PLC 6 08/19/0	3 0308192	2	030819L12
Parameter	Conc Added	Conc Recovered	%Rec	%Rec CL	Qualifiers
Pyruvic Acid	20	23	113	80-120	
Acetic Acid	20	21	106	80-120	
Lactic Acid	20	23	114	80-120	
Propionic Acid	20	22	112	80-120	
Butyric Acid	20	20	99	80-120	





GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: 08/15/03 03-08-0849 N/A

Method:

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyz∉	ed	LCS/LCSD Batcl Number	<b>1</b>
099-12-010-391	Aqueous	GC 33	N/A	08/18/0	3	030818L01	
<u>Parameter</u>	LCS %	REC LCSD	<u>%REC %</u>	REC CL	RPD	RPD CL	Qualifiers
Methane Ethane	100 99	103 102		79-109 80-120	3 3	0-20 0-20	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS Invironmental Laboratories, Inc.

Work Order Number: 03-08-0849

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.





WORK ORDER #:

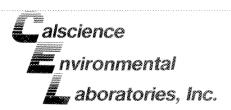
03-09-0849

Cooler \_\_\_\_\_ of \_\_\_

# SAMPLE RECEIPT FORM

CLIENT: CREOSYNIEC	DATE: 8/15/03					
TEMPERATURE - SAMPLES RECEIVED BY:						
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer. Ambient temperature.					
CUSTODY SEAL INTACT:						
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):					
SAMPLE CONDITION:						
Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers  Sample container(s) intact and good condition  Correct containers for analyses requested  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation						
COMMENTS:  X For Sample #1 (EW-1-0814-072	O) MISSING VIALS FOR ETHANOL					

& JELO



September 22, 2003

Scott Felton GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Subject: Calscience Work Order No.: 03-09-0502

Client Reference: Aerojet / TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/10/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

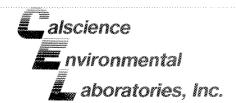
Sincerely,

alscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A

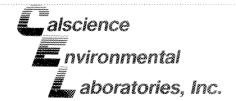
EPA 376.2

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
138-0908-1017		03-0	9-0502-1	09/08/03	Aqueous	N/A	09/12/03	30912SB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
MW-1-0908-1112		03-0	9-0502-2	09/08/03	Aqueous	N/A	09/12/03	30912SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
EW-1-0908-1450		03-09	9-0502-3	09/08/03	Aqueous	N/A	09/12/03	30912SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
EW-2-0908-1415		03-09	9-0502-4	09/08/03	Aqueous	N/A	09/12/03	30912SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
RW-1-0908-1332		03-09	9-0502-5	09/08/03	Aqueous	N/A	09/12/03	30912SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			
Method Blank		099-0	05-089-1,426	N/A	Aqueous	N/A	09/12/03	30912SB1
Parameter	<u>Result</u>	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide	ND	0.050	1		mg/L			

RL - Repoi



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Date Received: Work Order No: Preparation: Method:

09/10/03 03-09-0502 N/A

RSK-175M

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	th ID
138-0908-1017			03-	09-050	)2-1	09/08/03	Aqueous	N/A	09/10/03	030910	L01
<u>Parameter</u>	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	and the second s		Carrier Course of Carrier and Carrier			
MW-1-0908-1112			03-	09-050	12-2	09/08/03	Aqueous	N/A	09/10/03	030910	L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane EW-1-0908-1450	ND	1.00	1 02	09-050	ug/L	09/08/03			00/40/00		
EW-1-0908-1430			03-	09-050	12-3	09/08/03	Aqueous	N/A	09/10/03	030910	E01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane EW-2-0908-1415	ND	1.00	1	09-050	ug/L	09/08/03		N/A	00/40/02	000040	. 64
EW-2-0908-1419			- 03-	09-030	2-4	.09/00/03	Aqueous	NA	09/10/03	030910	EU1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Methane	ND ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane RW-1-0908-1332	שא	1.00	1 03-	09-050	ug/L <b>2-5</b>	09/08/03	Aqueous	N/A	09/10/03	030910	L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Fig. 1. State of the state of t	NU	1.00	1	4004	ug/L					2112.11	2.
Method Blank		tana dalah katana da	099	-12-01	U-4U8	N/A	Aqueous	N/A	09/10/03	030910	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1	***********	ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						

RL - Repo

Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

# Calscience Invironmental Laboratories, Inc.

#### **ANALYTICAL REPORT**

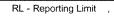
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 2

Client Sample Number		Lab S Nun		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
138-0908-1017		03-09	-0502-1	09/08/03	Aqueous	N/A	09/11/03	030911L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	94	63-147						
MW-1-0908-1112		03-09	-0502-2	09/08/03	Aqueous	N/A	09/11/03	030911L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	93	<u>Limits</u> 63-147						
EW-1-0908-1450		03-09	-0502-3	09/08/03	Aqueous	N/A	09/11/03	030911L01
Parameter	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual	_			
Hexafluoro-2-propanol	92	<u>Limits</u> 63-147						
EW-2-0908-1415		03-09	-0502-4	09/08/03	Aqueous	N/A	09/11/03	030911L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual	_			
Hexafluoro-2-propanol	93	<u>Limits</u> 63-147						
RW-1-0908-1332		03-09	-0502-5	09/08/03	Aqueous	N/A	09/12/03	030911L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	260	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual	Ü			
Hexafluoro-2-propanol	82	<u>Limits</u> 63-147						





GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A

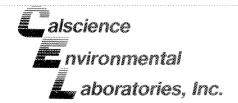
EPA 8015B

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number		Lab Sa Num		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank		099-1	2-006-825	N/A	Aqueous	N/A	09/11/03	030911L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						

RL - Repor



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A

HPLC/UV

Project: Aerojet / TR0018 / 18

Page 1 of 2

Client Sample Number			Lab Sa Numb	,	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
138-0908-1017			03-09-	0502-1	09/08/03	Aqueous	N/A	09/18/03	030918	IL04
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid	Result ND 1.6 ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120	1 1 1	ual <u>Units</u> mg/L mg/L mg/L	<u>Parameter</u> Propionic Acid Butyric Acid		Result ND ND	<u>RL</u> 1.0 1.0	<u>DF</u> <u>Qual</u> 1 1	<u>Units</u> mg/L mg/L
MW-1-0908-1112	90	00-120	03-09-	0502-2	09/08/03	Aqueous	N/A	09/18/03	030918	1.04
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid EW-1-0908-1450	Result ND 1.5 ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120	1 1 1 <u>C</u>	ual Units mg/L mg/L mg/L tual	Parameter Propionic Acid Butyric Acid	Aqueous	Result ND ND	RL 1.0 1.0	DF Qual 1 1	Units mg/L mg/L
LW-1-0300-1430			05-05-	OUDE-3	03/00/03	Aqueous		09/10/03	030910	LU4
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid	Result ND 1.5 ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120	1 1 1	ual <u>Units</u> mg/L mg/L mg/L ual	<u>Parameter</u> Propionic Acid Butyric Acid		<u>Result</u> ND ND	<u>RL</u> 1.0 1.0	<u>DF</u> <u>Qual</u> 1 1	Units mg/L mg/L
EW-2-0908-1415			03-09-	0502-4	09/08/03	Aqueous	N/A	09/18/03	030918	L04
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates:	Result ND 1.5 ND REC (%)	RL 0.50 1.0 1.0 Control Limits	1 1 1	ual <u>Units</u> mg/L mg/L mg/L ual	<u>Parameter</u> Propionic Acid Butyric Acid		<u>Result</u> ND ND	<u>RL</u> 1.0 1.0	DF Qual 1 1	<u>Units</u> mg/L mg/L
Dibromopropionic Acid	90	<u>Limits</u> 80-120								

RL - Repo

nit , DF - Dilution Factor , Qua

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants

1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received:

09/10/03

Work Order No: Preparation:

03-09-0502 N/A

Method:

HPLC/UV

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number			Lab Samp Number		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
RW-1-0908-1332			03-09-05	02-5	09/08/03	Aqueous	N/A	09/18/03	030918	3L04
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u> Qua	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.7	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						Ü
Surrogates:	REC (%)	Control Limits	Qua	1						
Dibromopropionic Acid	89	80-120								
Method Blank			099-12-0	16-12	N/A	Aqueous	N/A	09/18/03	030918	L04
<u>Parameter</u>	Result	RL	DF Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						-
Surrogates:	REC (%)	Control Limits	Qua	Ī						
Dibromopropionic Acid	92	80-120								



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A

EPA 376.2

Project:

Aerojet / TR0018 / 18

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-09-0531-1	Aqueous	N/A	N/A	09/12/03	30912SD1
Parameter	Sample Conc	DUP Conc	<u>RPD</u>	RPD CL	Qualifiers
Sulfide	ND	ND	NA	0-25	





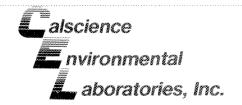
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/10/03 03-09-0502 N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze	d	LCS/LCSD Bate Number	ch
099-12-010-408	Aqueous	GC 33	N/A	09/10/03		030910L01	
<u>Parameter</u>	LCS %RE	C LCSD 9	<u>6REC %F</u>	REC CL	<u>RPD</u>	RPD CL	Qualifiers
Methane	101	102	ī	79-109	1	0-20	
Ethane	100	101	8	30-120	1	0-20	





### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

Method:

09/10/03 03-09-0502

N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
138-0908-1017	Aqueous	GC12	N/A	09/11/03	030911501
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD RPD C	Qualifiers
Methanol Ethanol	100 105	100 92	64-118 73-109	0 0-20 13 0-23	





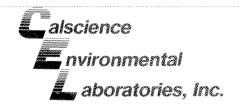
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/10/03 03-09-0502 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batcl Number	1
099-12-006-825	Aqueous	GC12	N/A	09/11/03	030911L01	
<u>Parameter</u>	LCS %RE	C LCSD %RE	<u> %RE</u>	CCL RPD	RPD CL	Qualifiers
Methanol	92	96	69-	117 4	0-22	
Ethanol	87	101	76-	112 15	0-19	





### **Quality Control - Spike/Spike Duplicate**

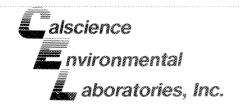
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

Method:

09/10/03 03-09-0502

N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
138-0908-1017	Aqueous	HPLC 6	N/A		09/19/03	030918\$04
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	116	70-130	0	0-30	
Acetic Acid	106	106	70-130	0	0-30	
Lactic Acid	99	99	70-130	0	0-30	
Propionic Acid	100	100	70-130	0	0-30	
Butyric Acid	104	112	70-130	7	0-30	



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/10/03 03-09-0502 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Da Anal	ite yzed	LCS/LCSD Bat Number	ch
099-12-016-12	Aqueous	HPLC 6	N/A	09/1	8/03	030918L04	
<u>Parameter</u>	LCS %REG	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	118	;	80-120	2	0-20	
Acetic Acid	108	109	;	80-120	1	0-20	
Lactic Acid	106	107	;	80-120	1	0-20	
Propionic Acid	99	98	ŧ	80-120	1	0-20	
Butyric Acid	106	111	ł	80-120	5	0-20	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS Invironmental Laboratories, Inc.

Work Order Number: 03-09-0502

<u>Qualifier</u> <u>Definition</u>

ND Not detected at indicated reporting limit.





WORK ORDER #:

03-09-0502

Cooler \_\_\_\_ of \_\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: Geosyntec	DATE: 9-10-03
TEMPERATURE – SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier):  ° C Temperature blank.  ° C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	): Not Applicable (N/A): Initial:
SAMPLE CONDITION:  Chain-Of-Custody document(s) received with samples	
Tedlar bag(s) free of condensation	Initial: At
COMMENTS:	

11-50°03,



September 22, 2003

Scott Felton GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Subject: Calscience Work Order No.: 03-09-0706

Client Reference: Aerojet / TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/12/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

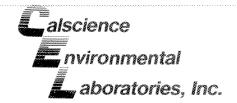
Sincerely

alscience Environmental

∥Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A

**RSK-175M** 

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
RW-1-0911-0925			03-	09-070	6-1	09/11/03	Aqueous	N/A	09/15/03	030915	L02
<u>Parameter</u>	<u>Result</u>	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
EW-2-0911-1010			03-	09-070	Salar Salar Salar	09/11/03	Aqueous	N/A	09/15/03	030915	L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
138-0911-1020			03-	09-070		09/11/03	Aqueous	N/A	09/15/03	030915	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
EW-1-0911-1105			03-	09-070	6-4	09/11/03	Aqueous	N/A	09/15/03	030915	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
MW-1-0911-1118			03-	09-070	346 10.3347 3	09/11/03	Aqueous	N/A	09/15/03	030915	L02
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
Method Blank			099	-12-01	73 7 94	N/A	Aqueous	N/A	09/15/03	0309151	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L

DF - Dilution Factor ,

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 2

Floject. Aerojet/ IN	(0010710							raye 1012
Client Sample Number		Lab S Nun	ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
RW-1-0911-0925		03-09	)-0706-1	09/11/03	Aqueous	N/A	09/16/03	030915L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol Surrogates:	260 REC (%)	10 <u>Control</u> Limits	100	Qual	mg/L			
Hexafluoro-2-propanol	90	63-147						
EW-2-0911-1010		03-09	-0706-2	09/11/03	Aqueous	N/A	09/16/03	030915L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol Surrogates:	ND <u>REC (%)</u>	0.10 Control	1	Qual	mg/L			
Hexafluoro-2-propanol	85	<u>Limits</u> 63-147		Quai				
138-0911-1020			-0706-3	09/11/03	Aqueous	N/A	09/15/03	030915L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol <u>Surrogates:</u>	ND REC (%)	0.10 Control	1	Qual	mg/L			
Hexafluoro-2-propanol	96	<u>Limits</u> 63-147						
EW-1-0911-1105		03-09	-0706-4	09/11/03	Aqueous	N/A	09/15/03	030915L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol <u>Surrogates:</u> Hexafluoro-2-propanol	ND <u>REC (%)</u> 94	0.10 <u>Control</u> <u>Limits</u> 63-147	1	Qual	mg/L			
MW-1-0911-1118		a a state of the contract of	-0706-5	09/11/03	Aqueous	N/A	09/15/03	030915L01
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>	denne — — — — — — — — — — — — — — — — — —	interiorista et la comunicación de	elisedemonde atémétetatik kelekatantan terdi ada mis hili mengula
Ethanol Surrogates:	ND REC (%)	0.10 Control Limits	1	Qual	mg/L			
Hexafluoro-2-propanol	93	63-147						

DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants

1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Date Received:

Work Order No:

09/12/03 03-09-0706

Preparation:

Method:

EPA 8015B

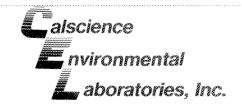
N/A

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number		Lab Sample Number		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank		099-1	2-006-829	N/A	Aqueous	N/A	09/15/03	030915L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	84	<u>Limits</u> 63-147						

RL - Report



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A

HPLC/UV

Project: Aerojet / TR0018 / 18

Page 1 of 2

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
RW-1-0911-0925			03-	09-070	16-1	09/11/03	Aqueous	N/A	09/19/03	030918	3L04
Daromotor	Result	DI	DE	Oual	Unito	Doromotor		المحالة	Di	DE O	
Parameter Pyruvic Acid	ND	<u>RL</u> 0.50	<u>DF</u> 1	Qual	<u>Units</u> ma/L	Parameter Propionic Acid		<u>Result</u> ND	<u>RL</u>	DF Qual	
Acetic Acid	1.5	1.0	1		mg/L	Butyric Acid		ND ND	1.0 1.0	1 1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Butyfic Acid		ND	1.0	'	mg/L
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	91	Limits 80-120									
EW-2-0911-1010			03-	09-070	6-2	09/11/03	Aqueous	N/A	09/19/03	030918	L04
National Property and Control of											
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.5	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	88	80-120									
138-0911-1020			03-	09-070	6-3	09/11/03	Aqueous	N/A	09/19/03	030918	L04
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.5	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid Surrogates:	ND REC (%)	1.0 Control	1	Qual	mg/L						
Surrogates.	KEC (%)	Limits		Qual							
Dibromopropionic Acid	90	80-120									
EW-1-0911-1105			03-	09-070	6-4	09/11/03	Aqueous	N/A	09/19/03	030918	L04
<u>Parameter</u>	Result	RL	DF	<u>Qual</u>	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.5	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	90	<u>Limits</u> 80-120									



DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A HPLC/UV

Project: Aerojet / TR0018 / 18

Page 2 of 2

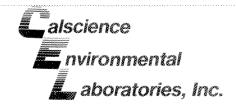
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
MW-1-0911-1118			03-09-0706-5	09/11/03	Aqueous	N/A	09/19/03	030918	IL04
<u>Parameter</u>	Result	RL	DF Qual Unit	<u>s Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1 mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.2	1.0	1 mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1 mg/L						
Surrogates:	REC (%)	Control	<ul> <li>Qual</li> </ul>						
Dibromopropionic Acid	88	<u>Limits</u> 80-120							
Method Blank			099-12-016-12	N/A	Aqueous	N/A	09/18/03	030918	L04
<u>Parameter</u>	Result	<u>RL</u>	DF Qual Unit	s <u>Parameter</u>		<u>Result</u>	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1 mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1 mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1 mg/L						Ü
Surrogates:	<b>REC (%)</b>	Control	<u>Qual</u>						
Dibromopropionic Acid	92	<u>Limits</u> 80-120							

RL - Repo

. - Reporting Limit , DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

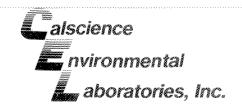


GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	t	LCS/LCSD Bate Number	ch
099-12-010-412	Aqueous	GC 33	N/A	09/15/03		030915L02	
Parameter	LCS %RE	C LCSD	%REC %R	EC CL	RPD	RPD CL	Qualifiers
Methane	98	103	7:	9-109	5	0-20	
Ethane	97	102	8	0-120	5	0-20	





# Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

09/12/03 03-09-0706

Method:

N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
03-09-0634-1	Aqueous	GC12	N/A	09/15/03	030915\$01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD RP	D CL Qualifiers
Methanol	87	92	64-118	6 0	-20
Ethanol	100	104	73-109	4 0	-23



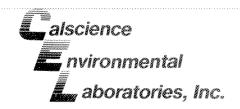


GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed		LCS/LCSD Bate Number	ch
099-12-006-829	Aqueous	GC12	N/A	09/15/03		030915L01	
Parameter	LCS %RE	C LCSD %	REC %RI	EC CL	<u>RPD</u>	RPD CL	Qualifiers
Methanol	84	86	69	9-117	3	0-22	
Ethanol	95	97	76	5-112	2	0-19	





# **Quality Control - Spike/Spike Duplicate**

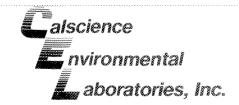
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

Method:

09/12/03 03-09-0706

N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
03-09-0502-1	Aqueous	HPLC 6	N/A		09/19/03	030918504
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	116	70-130	0	0-30	
Acetic Acid	106	106	70-130	0	0-30	
Lactic Acid	99	99	70-130	0	0-30	
Propionic Acid	100	100	70-130	0	0-30	
Butyric Acid	104	112	70-130	7	0-30	



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/12/03 03-09-0706 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ate yzed	LCS/LCSD Bate Number	h
099-12-016-12	Aqueous	HPLC 6	N/A	09/1	8/03	030918L04	
Parameter	LCS %RE	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	118		80-120	2	0-20	
Acetic Acid	108	109		80-120	1	0-20	
Lactic Acid	106	107		80-120	1	0-20	
Propionic Acid	99	98		80-120	1	0-20	
Butyric Acid	106	111		80-120	5	0-20	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS Invironmental Laboratories, Inc.

Work Order Number: 03-09-0706

Qualifier Definition

ND Not detected at indicated reporting limit.



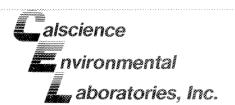


WORK ORDER #: 03 - 09 - 0706

Cooler \_\_\_\_ of \_\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: (JOBYNICC CONSU)	tants DATE: 9-12 03
TEMPERATURE – SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier):  °C Temperature blank.  °C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers  Sample container(s) intact and good condition  Correct containers for analyses requested  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace  Tedlar bag(s) free of condensation	
COMMENTS:	





September 23, 2003

Scott Felton GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181

Subject: Calscience Work Order No.: 03-09-0956

Client Reference: Aerojet / TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 9/17/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincenely,

alscielice Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/17/03 03-09-0956 N/A

RSK-175M

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
RW-1-0916-0935			03-	09-095	i6-1	09/16/03	Aqueous	N/A	09/17/03	030917	'L01
Parameter	Result	RL	<u>DF</u>	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1	-	ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	•					
138-0916-1042			03-	09-095	6-2	09/16/03	Aqueous	N/A	09/17/03	030917	'L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
EW-2-0916-1115			1735	09-095	7.40. T	09/16/03	Aqueous	N/A	09/17/03	030917	'L01
<u>Parameter</u>	Result	RL	DF	<u>Qual</u>	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L	Ethylene		ND	1.00	1	ug/L
EW-1-0916-1150		1.00	1, 1, 1, 1, 1, 1	09-095	ug/L 6-4	09/16/03	Aqueous	N/A	09/17/03	030917	L01
			<u>:</u>						<u> </u>		
Parameter	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
MW-1-0916-1152			03-	09-095	6-5	09/16/03	Aqueous	N/A	09/17/03	030917	L01
Parameter	Result	<u>RL</u>	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
<u>r arameter</u> Methane	ND	1.00	1	Quai	ug/L	Ethylene		ND	1.00	1 Quai	
Ethane	ND	1.00	1		ug/L ug/L	Laryierie		NU	1.00	ŧ	ug/L
Method Blank			099	-12-01	0-413	N/A	Aqueous	N/A	09/17/03	030917	L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	•				•	

RL - Repo

Limit , DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/17/03 03-09-0956 N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 2

ate Da ected Matrix Prepa 16/03 <b>Aqueous N</b> /A Qual <u>Units</u> mg/L	ared Analyzed	QC Batch ID 030919L01
Qual <u>Units</u>	A 09/19/03	030919L01
ma/l		
6/03 Aqueous N/A	A 09/19/03	030919L01
Qual Units		
mg/L		
<u>Qual</u>		
6/03 Aqueous N/A	09/19/03	030919L01
<u>Units</u>		
mg/L		
Qual		
6/03 Aqueous N/A	N 09/19/03	030919L01
ual <u>Units</u>		
mg/L		
<del>-</del>		
6/03 Aqueous N/A	09/19/03	030919L01
ual <u>Units</u>		
ma/L		
	Qual         Qual         Units           Qual         Units         Mg/L           Qual         Units         N/A           Qual         Units         Mg/L           Qual         Mg/L         Mg/L	Qual       N/A       09/19/03         Qual       Units       Mg/L         Qual       M/A       09/19/03         Qual       Units       M/A       09/19/03

RL - Reporting Limit ,

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method: 09/17/03 03-09-0956 N/A

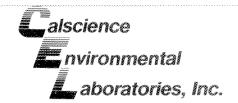
EPA 8015B

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number		Lab Sa Num	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
Method Blank		099-1	2-006-833	N/A	Aqueous	N/A	09/19/03	030919L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	109	<u>Limits</u> 63-147						

RL - Repor



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/17/03 03-09-0956 N/A HPLC/UV

Project: Aerojet / TR0018 / 18

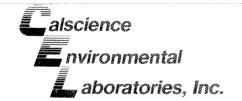
Page 1 of 2

Client Sample Number				Sampl umber	le	Date Collected	Matrix	Date Prepared	Date Analyzed	QC	Batch ID
RW-1-0916-0935			03-	09-095	56-1	09/16/03	Aqueous	N/A	09/19/03	030	918L04
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Q	ual Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.6	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						•
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	91	80-120									
138-0916-1042			03-	09-095	6-2	09/16/03	Aqueous	N/A	09/19/03	030	918L04
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Q	ual Units
Pyruvic Acid	ND	0.50	1	Quai	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.1	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Datylic Acid		ND	1.0	1	my/L
Surrogates:	REC (%)	Control Limits	·	Qual							
Dibromopropionic Acid	87	80-120									
EW-2-0916-1115			03-	09-095	i6-3	09/16/03	Aqueous	N/A	09/19/03	030	918L04
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Q	<u>ual Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.0	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	89	80-120			.,						
EW-1-0916-1150			03-	09-095	6-4	09/16/03	Aqueous	N/A	09/19/03	030	918L04
<u>Parameter</u>	Result	RL	<u>DF</u>	<u>Qual</u>	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Q	ual Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.5	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	89	<u>Limits</u> 80-120									

RL - Reporting Limit

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: 09/17/03 03-09-0956 N/A

Method:

HPLC/UV

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number			Lab Samp Number	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
MW-1-0916-1152			03-09-095	6-5	09/16/03	Aqueous	N/A	09/19/03	030918	IL04
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	DF Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.1	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						_
Surrogates:	REC (%)	Control	Qual							
Dibromopropionic Acid	90	<u>Limits</u> 80-120								
Method Blank			099-12-01	6-12	N/A	Aqueous	N/A	09/18/03	030918	L04
<u>Parameter</u>	Result	RL	DF Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control	Qual							
Dibromopropionic Acid	92	<u>Limits</u> 80-120								

RL - Repoi

nit , DF - Dilution Factor ,

Qual - Qualifiers



# **Quality Control - LCS/LCS Duplicate**

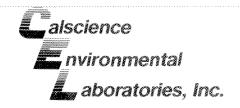
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/17/03 03-09-0956 N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	h
099-12-010-413	Aqueous	GC 33	N/A	09/17/03	030917L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %RE	EC CL RF	<u>PD RPD CL</u>	Qualifiers
Methane	100	103	79	-109 3	0-20	
Ethane	99	102	80	-120 3	0-20	





# Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800

Walnut Creek, CA 94596-5181

Date Received:

09/17/03

Work Order No:

03-09-0956

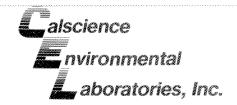
**EPA 8015B** 

Preparation: Method:

N/A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
03-09-0912-1	Aqueous	GC12	N/A	09/19/03	030919801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD RPD (	<u>Qualifiers</u>
Methanol	94	103	64-118	9 0-20	)
Ethanol	99	108	73-109	8 0-23	





# **Quality Control - LCS/LCS Duplicate**

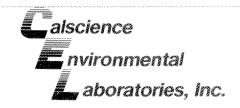
GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/17/03 03-09-0956 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	ch
099-12-006-833	Aqueous	GC12	N/A	09/19/03	030919L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %RI	EC CL RPD	RPD CL	<u>Qualifiers</u>
Methanol	100	91	69	9-117 9	0-22	
Ethanol	94	83	76	5-112 12	0-19	





# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation:

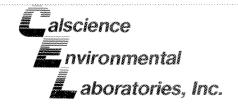
09/17/03 03-09-0956

N/A

Method:

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepare	d	Date Analyzed	MS/MSD Batch Number
03-09-0502-1	Aqueous	HPLC 6	N/A		09/19/03	030918504
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	116	70-130	0	0-30	
Acetic Acid	106	106	70-130	0	0-30	
Lactic Acid	99	99	70-130	0	0-30	
Propionic Acid	100	100	70-130	0	0-30	
Butyric Acid	104	112	70-130	7	0-30	



# **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 1500 Newell Avenue, Ste. 800 Walnut Creek, CA 94596-5181 Date Received: Work Order No: Preparation: Method:

09/17/03 03-09-0956 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ite yzed	LCS/LCSD Bato Number	h
099-12-016-12	Aqueous	HPLC 6	N/A	09/1	3/03	030918L04	
<u>Parameter</u>	LCS %REG	C LCSD 9	%REC %F	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	116	118	8	80-120	2	0-20	
Acetic Acid	108	109	8	80-120	1	0-20	
Lactic Acid	106	107	8	0-120	1	0-20	
Propionic Acid	99	98	8	0-120	1	0-20	
Butyric Acid	106	111	8	0-120	5	0-20	

# Calscience GLOSSARY OF TERMS AND QUALIFIERS Invironmental Laboratories, Inc.

Work Order Number: 03-09-0956

**Qualifier** Definition

ND Not detected at indicated reporting limit.





**WORK ORDER #:** 

03-09-0956

Cooler \_\_\_\_ of \_\_\_

# SAMPLE RECEIPT FORM

CLIENT: GEOSYNTEC	DATE: 9-17-03					
TEMPERATURE - SAMPLES RECEIVED BY:						
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier) °C Temperature blank. °C IR thermometer. Ambient temperature.					
CUSTODY SEAL INTACT:						
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):					
SAMPLE CONDITION:						
Chain-Of-Custody document(s) received with samples.  Sample container label(s) consistent with custody papers.  Sample container(s) intact and good condition.  Correct containers for analyses requested.  Proper preservation noted on sample label(s).  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation.						
COMMENTS:						





October 14, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario ,Canada 0

Subject: Calscience Work Order No.: 03-10-0008

Client Reference: Aerojet / TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/1/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

ilscience Environmental

Project Manager

Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario ,Canada 0

Date Received: Work Order No:

Preparation: Method:

10/01/03

03-10-0008 N/A

RSK-175M

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number			Lab Sa Num	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
RW-1-0929-0920			03-10	-0008-1	09/29/03	Aqueous	N/A	10/01/03	031001	L01
Parameter	Result	RL	DF Q	tual Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1	ug/L ug/L	Ethylene		ND	1.00	1	ug/L
138-0929-1008			03-10	-0008-2	09/29/03	Aqueous	N/A	10/01/03	031001	L01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> Q 1	ual <u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual	<u>Units</u> ug/L
MW-1-0929-1105			03-10	-0008-3	09/29/03	Aqueous	N/A	10/01/03	031001	L01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> Q 1	ual <u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
EW-1-0929-1245			03-10	-0008-5	09/29/03	Aqueous	N/A	10/01/03	031001	L01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	DF Q 1 1	ual <u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
EW-2-0929-1310			03-10-	-0008-6	09/29/03	Aqueous	N/A	10/01/03	031001	L01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> Q 1 1	ual <u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Method Blank			099-12	2-010-424	N/A	Aqueous	N/A	10/01/03	031001	L01
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> Q 1 1	ual <u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	<u>DF</u> <u>Qual</u> 1	<u>Units</u> ug/L

RL - Repor

Reporting Limit , DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec ConsultantsDate Received:10/01/03130 Research Lane, Suite 2Work Order No:03-10-0008N1G 5G3Preparation:N/AGuelph, Ontario ,Canada 0Method:EPA 376.2

Project: Aerojet / TR0018 / 18 Page 1 of 1

Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
RW-1-0929-0920		03-1	)-0008-1	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
138-0929-1008		03-1	0-0008-2	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
MW-1-0929-1105		03-1	0-0008-3	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
80A-0929-1216		03-1	0-0008-4	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
EW-1-0929-1245		03-10	)-0008-5	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
EW-2-0929-1310		03-10	0-0008-6	09/29/03	Aqueous	N/A	10/01/03	31001SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank		099-0	05-089-1,439	N/A	Aqueous	N/A	10/01/03	31001SB1
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
,					5			

RL - Repo

Reporting Limit , DF - Dilution Factor , Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No: Preparation:

10/01/03 03-10-0008

N/A

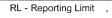
Method:

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 2

Troject: 7terejet7 11tee							***************************************	
Client Sample Number		Lab Sa Nun	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
RW-1-0929-0920		03-10	-0008-1	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol Surrogates:	260 REC (%)	10 Control	100	Qual	mg/L			
Hexafluoro-2-propanol	116	<u>Limits</u> 63-147						
138-0929-1008		03-10	-0008-2	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		<u>Qual</u>	_			
Hexafluoro-2-propanol	117	<u>Limits</u> 63-147						
MW-1-0929-1105		03-10	-0008-3	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		<u>Qual</u>				
Hexafluoro-2-propanol	109	<u>Limits</u> 63-147						
80A-0929-1216		03-10	-0008-4	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual	· ·			
Hexafluoro-2-propanol	110	<u>Limits</u> 63-147						
EW-1-0929-1245		03-10	-0008-5	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual	~			
Hexafluoro-2-propanol	113	<u>Limits</u> 63-147						



DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

Method:

03-10-0008 N/A

10/01/03

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number		Lab Sa Num	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
EW-2-0929-1310		03-10	-0008-6	09/29/03	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	<u>REC (%)</u>	Control Limits		Qual				
Hexafluoro-2-propanol	114	63-147						
Method Blank		099-1	2-006-840	N/A	Aqueous	N/A	10/02/03	031002L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		<u>Qual</u>				
Hexafluoro-2-propanol	112	<u>Limits</u> 63-147						

RL - Repor



GeoSyntec ConsultantsDate Received:10/01/03130 Research Lane, Suite 2Work Order No:03-10-0008N1G 5G3Preparation:N/AGuelph, Ontario ,Canada 0Method:HPLC/UV

Project: Aerojet / TR0018 / 18 Page 1 of 2

Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
RW-1-0929-0920			03-	10-000	18-1	09/29/03	Aqueous	N/A	10/10/03	031010	L03
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND:	1.0	1	mg/L
Acetic Acid	1.8	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1		mg/L	·					
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	104	80-120					***************************************				
138-0929-1008			03-	10-000	8-2	09/29/03	Aqueous	N/A	10/10/03	031010	L03
Parameter	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.4	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1		mg/L						-
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	102	<u>Limits</u> 80-120									
MW-1-0929-1105			03-	10-000	8-3	09/29/03	Aqueous	N/A	10/10/03	031010	L03
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.6	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1		mg/L						=
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	100	<u>Limits</u> 80-120									
EW-1-0929-1245			03-	10-000	8-5	09/29/03	Aqueous	N/A	10/10/03	031010	L03
Parameter Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.1	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1		mg/L	*					-
Surrogates:	REC (%)	Control		Qual							
		<u>Limits</u>									
Dibromopropionic Acid	104	80-120									

NL - Nepotiii

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario ,Canada 0

Date Received: Work Order No: Preparation:

10/01/03 03-10-0008 N/A

Method: HPLC/UV

Project: Aerojet / TR0018 / 18

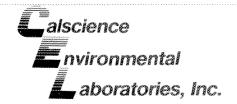
Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
EW-2-0929-1310			03-10-0008-6	09/29/03	Aqueous	N/A	10/10/03	031010L03
Parameter Pyruvic Acid Acetic Acid Lactic Acid	Result ND 1.3 ND	<u>RL</u> 0.50 1.0 1.0	DF         Qual         Units           1         mg/L           1         mg/L           1         mg/L	Parameter Propionic Acid Butyric Acid		Result ND ND	<u>RL</u> 1.0 1.0	DF Qual Units 1 mg/L 1 mg/L
Surrogates:  Dibromopropionic Acid	REC (%)	Control Limits 80-120	Qual					
Method Blank			099-12-016-13	N/A	Aqueous	N/A	10/10/03	031010L03
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid	Result ND ND ND ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120	DF Qual Units 1 mg/L 1 mg/L 1 mg/L Qual	<u>Parameter</u> Propionic Acid Butyric Acid		<u>Result</u> ND ND	<u>RL</u> 1.0 1.0	DF Qual Units 1 mg/L 1 mg/L

RL - Report

eporting Limit , DF - Dilution Factor , Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



#### **Quality Control - Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario ,Canada 0

Project:

Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation: Method:

10/01/03 03-10-0008

N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-09-1703-1	Aqueous	N/A	N/A	10/01/03	31001SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	<u>Qualifiers</u>
Sulfide, Total	140	130	4	0-25	





# **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario ,Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

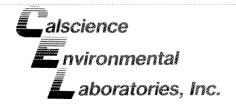
10/01/03 03-10-0008

N/A

RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Dat Analy		LCS/LCSD Bate Number	ch
099-12-010-424	Aqueous	GC 33	N/A	10/01	/03	031001L01	
Parameter	LCS %	REC LCSD	%REC %I	REC CL	RPD	RPD CL	Qualifiers
Methane	94	103	,	79-109	9	0-20	
Ethane	93	102	;	80-120	9	0-20	





# Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario ,Canada 0

Project: Aerojet / TR0018 / 18

Date Received:

Work Order No:

Preparation:

Method:

10/01/03

03-10-0008

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date I alyzed	MS/MSD Batch Number
03-09-1710-1	Aqueous	GC12	N/A	10/	02/03	031002801
Parameter	MS %REC	MSD %REC	%REC CL	<u>RPD</u>	RPD CL	Qualifiers
Methanol Ethanol	51 97	51 100	64-118 73-109	1 3	0-20 0-23	3



# **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario ,Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

10/01/03

03-10-0008 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ite yzed	LCS/LCSD Bate Number	ch
099-12-006-840	Aqueous	GC12	N/A	10/0:	2/03	031002L01	
<u>Parameter</u>	LCS %	REC LCSD	%REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	90 106	76 106	;	69-117 76-112	16 0	0-22 0-19	





# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario ,Canada 0

Project: Aerojet / TR0018 / 18

Date Received:

Work Order No: Preparation:

Method:

10/01/03

03-10-0008

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
RW-1-0929-0920	Aqueous	HPLC 6	N/A		10/10/03	031010\$03
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	114	112	70-130	2	0-30	
Acetic Acid	111	108	70-130	2	0-30	
Lactic Acid	109	107	70-130	2	0-30	
Propionic Acid	116	113	70-130	2	0-30	
Butyric Acid	100	95	70-130	6	0-30	



#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario ,Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

10/01/03 03-10-0008

N/A HPLC/UV

Quality Control Sample ID	Matrix Ir	nstrument	Date Prepare		ate yzed	LCS/LCSD Bate Number	rh
099-12-016-13	Aqueous I	HPLC 6	N/A	10/1	0/03	031010L03	
Parameter	LCS %REC	LCSD %	%REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	111	111		80-120	0	0-20	
Acetic Acid	110	111		80-120	0	0-20	
Lactic Acid	109	110		80-120	1	0-20	
Propionic Acid	108	112		80-120	3	0-20	
Butyric Acid	93	98		80-120	5	0-20	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS

nvironmental Laboratories, Inc.

Work Order Number: 03-10-0008

Qualifier	Definition
3	Spike or Spike Duplicate compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
ND	Not detected at indicated reporting limit.





**WORK ORDER #:** 

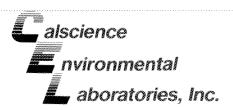
03-10-000

Cooler \_\_/\_ of \_\_/\_

# **SAMPLE RECEIPT FORM**

CLIENT: Geosyntee	DATE: 10 (1/03					
TEMPERATURE – SAMPLES RECEIVED BY:						
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courie ° C Temperature blank. ° C IR thermometer. Ambient temperature.  Initial:Ta					
CUSTODY SEAL INTACT:						
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A): Initial:					
SAMPLE CONDITION:						
Chain-Of-Custody document(s) received with samples						
COMMENTS:						





October 23, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.: 03-10-0964

Client Reference: TR0018/18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/16/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

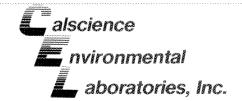
Sincerely.

elsdience Environmental

✓ Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

Method:

10/16/03 03-10-0964 N/A

RSK-175M

Project: TR0018/18

Page 1 of 1

Froject. TRooto/10											
Client Sample Number				Sample umber	9	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	th ID
WNN-RW-1			03-	10-096	4-1	10/15/03	Aqueous	N/A	10/20/03	031020	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
STSW-138A			03-	10-096	4-2	10/15/03	Aqueous	N/A	10/20/03	031020	L02
Parameter Parame	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Methane	1.10	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
WNN-MW1			03-	10-096	4-3	10/15/03	Aqueous	N/A	10/20/03	031020	L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
WNN-EW-1			03-	10-096	4-4	10/15/03	Aqueous	N/A	10/20/03	031020	L02
Davamatav		ומ	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Parameter	Result	RL	101					***********	<u></u>		
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Methane	***************************************				ug/L ug/L						ug/L
Methane	ND	1.00	1	10-096	ug/L		Aqueous				3-625-1
Methane Ethane WNN-EW-2	ND	1.00	1	10-096 Qual	ug/L	Ethylene	Aqueous	ND	1.00 10/20/03	1	3-625-1
Methane Ethane  WNN-EW-2  Parameter  Methane	ND ND Result	1.00 1.00 RL 1.00	1 1 03-		ug/L <b>4-5</b>	10/15/03	Aqueous	ND N/A	1.00	031020	<b>.</b> 02
Vethane Ethane WNN-EW-2 Parameter Vethane	ND ND	1.00 1.00 <u>RL</u>	1 1 03-		ug/L 4-5 Units	10/15/03  Parameter	Aqueous	N/A Result	1.00 <b>10/20/03</b> <u>RL</u>	1 031020 DF Qual	L02 Units
Parameter Methane Ethane  WNN-EW-2  Parameter Methane Ethane  Method Blank	ND ND Result	1.00 1.00 RL 1.00	1 1 03- DF 1		ug/L  4-5  Units  ug/L  ug/L	10/15/03  Parameter	Aqueous  Aqueous	N/A Result	1.00 <b>10/20/03</b> <u>RL</u>	1 031020 DF Qual	L <b>02</b> Units ug/L
Methane Ethane  WNN-EW-2  Parameter  Methane Ethane	ND ND Result	1.00 1.00 1.00	1 1 03- DF 1	Qual	ug/L  4-5  Units  ug/L  ug/L	10/15/03  Parameter Ethylene		N/A Result ND N/A	1.00 10/20/03 RL 1.00	0310200 DF Qual 1	L02 Units ug/L
Methane Ethane  WNN-EW-2  Parameter  Methane Ethane  Method Blank	ND ND Result ND ND	1.00 1.00 RL 1.00	1 1 03- DF 1 1	Qual -12-01	ug/L  4-5  Units ug/L ug/L	10/15/03 Parameter Ethylene N/A		N/A  Result ND	1.00 10/20/03 RL 1.00	1 031020 DF Qual 1	L <b>02</b> Units ug/L

RL - Reporting Lir

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

Preparation: Method:

10/16/03

03-10-0964 N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 2

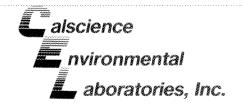
Floject. Aerojet / TRC	010/10							rage 1 01 2
Client Sample Number		Lab S Nun		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1		03-10	)-0964-1	10/15/03	Aqueous	N/A	10/22/03	031022L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	280	10	100		mg/L			
Surrogates:	REC (%)	Control		<u>Qual</u>				
Hexafluoro-2-propanol	107	<u>Limits</u> 63-147						
STSW-138A		03-10	)-0964-2	10/15/03	Aqueous	N/A	10/22/03	031022L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147						
WNN-MW1		03-10	-0964-3	10/15/03	Aqueous	N/A	10/22/03	031022L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	109	<u>Limits</u> 63-147						
WNN-EW-1		03-10	-0964-4	10/15/03	Aqueous	N/A	10/22/03	031022L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	110	<u>Limits</u> 63-147						



DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

VVOIR Older IN

Preparation: Method:

10/16/03

03-10-0964

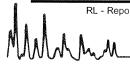
N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 2 of 2

Client Sample Number		Lab Sa Num	,	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID	
WNN-EW-2		03-10	-0964-5	10/15/03	Aqueous	N/A	10/22/03	031022L01	
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>				
Ethanol	ND	0.10	1		mg/L				
Surrogates:	REC (%)	Control		Qual					
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147							
Method Blank		099-1	2-006-858	N/A	Aqueous	N/A	10/22/03	031022L01	
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>				
Ethanol	ND	0.10	1		mg/L				
Surrogates:	REC (%)	Control		<u>Qual</u>					
Hexafluoro-2-propanol	102	<u>Limits</u> 63-147							



# alscience nvironmental aboratories, Inc.

#### **ANALYTICAL REPORT**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

10/16/03 03-10-0964 N/A

HPLC/UV

Project: TR0018/18

Page 1 of 2

			Lab Sami	alo.	Date		Date	Date		***************************************
Client Sample Number			Numbe		Collected	Matrix	Prepared	Analyzed	QC Bato	h ID
WNN-RW-1			03-10-09	64-1	10/15/03	Aqueous	N/A	10/20/03	031020	L01
<u>Parameter</u>	Result	RL	DF Qua	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
yruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.6	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control	Qua	<u>al</u>						
Vibramanraniania Asid	98	<u>Limits</u>								
Dibromopropionic Acid	90	80-120								
STSW-138A			03-10-09	64-2	10/15/03	Aqueous	N/A	10/20/03	031020	L01
Parameter Parameter	Result	<u>RL</u>	DF Qua	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
cetic Acid	1.3	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L						
urrogates:	REC (%)	Control	Qua	<u>ıl</u>						
Dibromopropionic Acid	95	<u>Limits</u> 80-120								
WNN-MW1			03-10-09	64-3	10/15/03	Aqueous	N/A	10/20/03	031020	L01
Davamatav										
Parameter	Result	RL	DF Qua	Units	Parameter		Result	RL	DF Qual	Units
	<u>Result</u> ND	<u>RL</u> 0.50	DF Qua		***************************************				DF Qual	<u>Units</u> ma/L
yruvic Acid				Units mg/L mg/L	Parameter Propionic Acid Butyric Acid		<u>Result</u> ND ND	<u>RL</u> 1.0 1.0	DF Qual 1	mg/L
Pyruvic Acid Acetic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	
Pyruvic Acid Acetic Acid Lactic Acid	ND 1.1	0.50 1.0 1.0	1	mg/L mg/L mg/L	Propionic Acid		ND	1.0	1	mg/L
Parameter Pyruvic Acid Acetic Acid Lactic Acid Lactic Acid Surrogates: Dibromopropionic Acid	ND 1.1 ND	0.50 1.0 1.0	1 1 1	mg/L mg/L mg/L	Propionic Acid		ND	1.0	1	mg/L
Pyruvic Acid Acetic Acid .actic Acid <u>Surrogates:</u>	ND 1.1 ND REC (%)	0.50 1.0 1.0 Control Limits	1 1 1	mg/L mg/L mg/L	Propionic Acid	Aqueous	ND	1.0	1	mg/L mg/L
Pyruvic Acid Acetic Acid Acetic Acid Acetic Acid Burrogates: Dibromopropionic Acid	ND 1.1 ND REC (%)	0.50 1.0 1.0 Control Limits 80-120	1 1 1 Qua	mg/L mg/L mg/L	Propionic Acid Butyric Acid	Aqueous	ND ND	1.0 1.0 1.0	031020	mg/L mg/L
yruvic Acid cetic Acid actic Acid urrogates: ibromopropionic Acid WNN-EW-1	ND 1.1 ND REC (%) 99	0.50 1.0 1.0 Control Limits 80-120	1 1 1 Qua	mg/L mg/L mg/L	Propionic Acid Butyric Acid 10/15/03	Aqueous	ND ND N/A	1.0 1.0 10/20/03	031020	mg/L mg/L
yruvic Acid cetic Acid actic Acid currogates: bibromopropionic Acid	ND 1.1 ND REC (%)	0.50 1.0 1.0 Control Limits 80-120	1 1 1 Qua	mg/L mg/L mg/L dd-4	Propionic Acid Butyric Acid  10/15/03  Parameter Propionic Acid	Aqueous	N/A  Result ND	1.0 1.0 10/20/03 RL 1.0	031020 DF Qual	mg/L mg/L  L01  Units mg/L
ryruvic Acid cetic Acid actic Acid actic Acid actic Acid actic Acid wurrogates: bibromopropionic Acid www.ew-1 arameter yruvic Acid cetic Acid	ND 1.1 ND REC (%) 99	0.50 1.0 1.0 Control Limits 80-120	03-10-09  DF Qua	mg/L mg/L mg/L	Propionic Acid Butyric Acid 10/15/03	Aqueous	ND ND N/A	1.0 1.0 10/20/03	031020	mg/L mg/L
ryruvic Acid cetic Acid actic Acid currogates: bibromopropionic Acid WNN-EW-1 carameter yruvic Acid	ND 1.1 ND REC (%) 99 Result ND 1.2	0.50 1.0 1.0 Control Limits 80-120 RL 0.50 1.0	1 1 1 Qua 03-10-09 DF Qua 1	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	Propionic Acid Butyric Acid  10/15/03  Parameter Propionic Acid	Aqueous	N/A  Result ND	1.0 1.0 10/20/03 RL 1.0	031020 DF Qual	mg/L mg/L  L01  Units mg/L
yruvic Acid cetic Acid actic Acid actic Acid urrogates: ibromopropionic Acid  WNN-EW-1 arameter yruvic Acid actic Acid actic Acid	REC (%) 99  Result ND 1.2 ND	0.50 1.0 1.0 Control Limits 80-120  RL 0.50 1.0 1.0	03-10-09  DF Qua  1  1  1	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L	Propionic Acid Butyric Acid  10/15/03  Parameter Propionic Acid	Aqueous	N/A  Result ND	1.0 1.0 10/20/03 RL 1.0	031020 DF Qual	mg/L mg/L  L01  Units mg/L

RL - Reportin

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

Preparation:

Method:

10/16/03

03-10-0964

N/A HPLC/UV

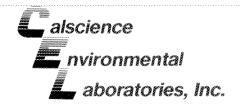
Page 2 of 2

Project:	TR0018/18
----------	-----------

Client Sample Number			Lab Samp Number		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID	
WNN-EW-2			03-10-09	64-5	10/15/03	Aqueous	N/A	10/20/03	031020L0	)1
Parameter	Result	RL	DF Qua	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual L	Jnits .
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1 n	ng/L
Acetic Acid	1.2	1.0	1	mg/L	Butyric Acid		ND	1.0		ng/L
Lactic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control Limits	Qua	<u>al</u>						
Dibromopropionic Acid	86	80-120								
Method Blank			099-12-0	16-14	N/A	Aqueous	N/A	10/20/03	031020L0	M

Method Blank			099	-12-01	6-14	N/A Aqueous	N/A	10/20/0	3 031020	)L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>	Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid	ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid	ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•				· ·
Surrogates:	REC (%)	Control		<u>Qual</u>						
Dibromopropionic Acid	104	<u>Limits</u> 80-120								

DF - Dilution Factor , Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018/18

Date Received: Work Order No: Preparation:

Method:

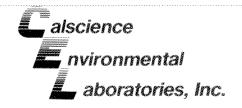
10/16/03 03-10-0964

N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzec		LCS/LCSD Batch Number	1
099-12-010-442	Aqueous	GC 33	N/A	10/20/03		031020L02	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Methane	106	103	-	79-109	3	0-20	
Ethane	105	102	8	80-120	3	0-20	





## **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018/18

Date Received:

Work Order No:

Preparation:

Method:

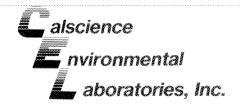
10/16/03

03-10-0964

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A	V	10/20/03	031020801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	111	111	70-130	0	0-30	
Acetic Acid	103	103	70-130	1	0-30	
Lactic Acid	93	89	70-130	5	0-30	
Propionic Acid	104	104	70-130	0	0-30	
Butyric Acid	103	102	70-130	1	0-30	



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018/18

Date Received: Work Order No: Preparation:

Method:

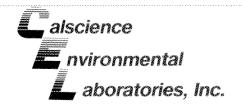
10/16/03 03-10-0964

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ate yzed	LCS/LCSD Bate Number	:h
099-12-016-14	Aqueous	HPLC 6	N/A	10/2	0/03	031020L01	
Parameter	LCS %RE	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	114	114		80-120	0	0-20	
Acetic Acid	105	100		80-120	5	0-20	
Lactic Acid	115	101		80-120	12	0-20	
Propionic Acid	94	105		80-120	11	0-20	
Butyric Acid	101	106		80-120	5	0-20	





## **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

TR0018/18 Project:

Date Received:

10/16/03 Work Order No: 03-10-0964

Preparation:

Method:

**EPA 8015B** 

N/A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
03-10-1187-1	Aqueous	GC12	N/A	10/22/03	031022801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD RPD	CL Qualifiers
Methanol	100	100	64-118	0 0-2	20
Ethanol	105	101	73-109	4 0-2	23





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018/18

Date Received: Work Order No: Preparation:

Method:

10/16/03 03-10-0964

10-0964 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bat Number	ch
099-12-006-858	Aqueous	GC12	N/A	10/22/03	031022L01	
Parameter	LCS %RI	EC LCSD	%REC %RE	EC CL RP	D RPD CL	Qualifiers
Methanol	97	96	69	-117 1	0-22	
Ethanol	99	105	76	-112 6	0-19	



# Calscience GLOSSARY OF TERMS AND QUALIFIERS nvironmental aboratories, Inc.

Work Order Number: 03-10-0964

<u>Qualifier</u> <u>Definition</u>

ND Not detected at indicated reporting limit.





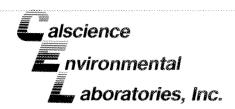
WORK ORDER #:

03-10-0964

Cooler 1 of 1

# **SAMPLE RECEIPT FORM**

CLIENT: Geosyntee	DATE:	10/16/03					
TEMPERATURE - SAMPLES RECEIVED BY:							
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier  C Temperature blank.  C IR thermometer.  Ambient temperature.						
CUSTODY SEAL INTACT:							
Sample(s): Cooler: No (Not Intact)	:Not Applicable	(N/A):					
SAMPLE CONDITION:							
Chain-Of-Custody document(s) received with samples		Initial: NC					
COMMENTS: WNN-EW-I -DHGS both	le broken.						



November 10, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

**Calscience Work Order No.:** 

03-11-0097

Client Reference:

Aerojet / TR0018 / 18

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/4/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sinceraly

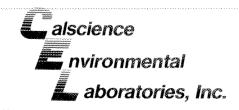
Palscience Environmental

Laboratories, Inc.Stephen Nowak

Project Manager

Michael J. Crisos

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 11/04/03 03-11-0097

N/A RSK-175M

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number				Sampl mber	e	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-1	11-009	7-1	11/03/03	Aqueous	N/A	11/05/03	031105	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-2			03-1	11-009	7-2	11/03/03	Aqueous	N/A	11/05/03	031105	L02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-1			03-1	1-009	7-3	11/03/03	Aqueous	N/A	11/05/03	031105	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	<u>Qual</u>	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Method Blank			099	-12-01	0-457	N/A	Aqueous	N/A	11/05/03	031105	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L

RL - Repo



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

03-11-0097 Preparation: N/A Method: EPA 376.2

Project: Aerojet / TR0018 / 18

Page 1 of 1

11/04/03

Client Sample Number		Lab S Nun	ample iber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1		03-13	I-0097- <b>1</b>	11/03/03	Aqueous	N/A	11/07/03	31107SB1
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2		03-11	-0097-2	11/03/03	Aqueous	N/A	11/07/03	31107SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1		03-11	-0097-3	11/03/03	Aqueous	N/A	11/07/03	31107SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank		099-0	5-089-1,461	N/A	Aqueous	N/A	11/07/03	31107SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

11/04/03 03-11-0097 N/A

EPA 8015B

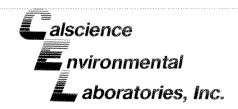
Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number		Lab S Nun		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1		03-11	I-0097-1	11/03/03	Aqueous	N/A	11/05/03	031105L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	0.54	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	97	<u>Limits</u> 63-147						
WNN-EW-2		03-11	-0097-2	11/03/03	Aqueous	N/A	11/05/03	031105L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147						
WNN-EW-1		03-11	-0097-3	11/03/03	Aqueous	N/A	11/05/03	031105L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	102	<u>Limits</u> 63-147						
Method Blank		099-1	2-006-873	N/A	Aqueous	N/A	11/05/03	031105L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			-
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	97	<u>Limits</u> 63-147						

RL - Report

Reporting Limit , DF - Dilution Factor ,



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

HPLC/UV

11/04/03

N/A

03-11-0097

Project: Aerojet / TR	20018 / 18	3								Pag	ge 1 of 1
Client Sample Number				Sampl umber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bat	ch ID
WNN-RW-1			03-	11-009	17-1	11/03/03	Aqueous	N/A	11/07/03	03110	7L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•					9. =
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	103	80-120									
WNN-EW-2			03-	11-009	7-2	11/03/03	Aqueous	N/A	11/07/03	031107	'L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	Quai	mg/L	Propionic Acid		ND			
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
			·								
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	101	<u>Limits</u> 80-120									
WNN-EW-1			03-	11-009	7-3	11/03/03	Aqueous	N/A	11/07/03	031107	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	<u>RL</u>	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Baryno / tola		ND	1.0	1	HIG/L
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	92	80-120									
Method Blank			099	-12-01	6-15	N/A	Aqueous	N/A	11/07/03	031107	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Datylio Adia		140	1.0	ı	mg/L
Surrogates:	REC (%)	Control		Qual	-						

RL - Reporting Limit ,

Dibromopropionic Acid

DF - Dilution Factor

105

<u>Limits</u> 80-120



## **Quality Control - Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

11/04/03

03-11-0097 N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-11-0149-1	Aqueous	N/A	N/A	11/07/03	31107SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	



# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Aerojet / TR0018 / 18 Project:

Date Received:

11/04/03 03-11-0097

Work Order No:

N/A

Method:

Preparation:

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed		MS/MSD Batch Number
WNN-EW-1	Aqueous	GC12	N/A	11/05/03	<b>3</b>	031105S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD R	RPD CL	Qualifiers
Methanol Ethanol	99 99	99 101	64-118 73-109	0 2	0-20 0-23	



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No:

Preparation: Method:

11/04/03

03-11-0097

N/A

**EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyz		LCS/LCSD Bate Number	h
099-12-006-873	Aqueous	GC12	N/A	11/05/0	03	031105L01	
<u>Parameter</u>	LCS %RI	EC LCSD	%REC %	REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	96 100	95 98		69-117 76-112	1 2	0-22 0-19	



# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18 Date Received:

11/04/03

Work Order No:

03-11-0097 N/A

Method:

Preparation:

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		11/07/03	031107501
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	111	115	70-130	3	0-30	
Acetic Acid	110	118	70-130	8	0-30	
Lactic Acid	107	115	70-130	7	0-30	
Propionic Acid	113	117	70-130	3	0-30	
Butyric Acid	107	111	70-130	4	0-30	



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

11/04/03 03-11-0097

> N/A HPLC/UV

Quality Control Sample ID	Matrix	Matrix Instrument		Date Date Prepared Analyzed			
099-12-016-15	Aqueous	HPLC 6	N/A	11/0	7/03	031107L01	
Parameter	LCS %RE	C LCSD 9	%REC 9	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	111	109		80-120	1	0-20	
Acetic Acid	106	102		80-120	4	0-20	
Lactic Acid	106	105		80-120	1	0-20	
Propionic Acid	112	111		80-120	1	0-20	
Butyric Acid	113	101		80-120	11	0-20	





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received:

Work Order No:

Preparation:

Method:

11/04/03

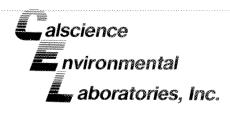
03-11-0097

N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed		LCS/LCSD Batc Number	h
099-12-010-457	Aqueous	GC 33	N/A	11/05/03		031105L02	
<u>Parameter</u>	LCS %	REC LCSE	%REC %I	REC CL	RPD	RPD CL	Qualifiers
Methane	103	10	4	79-109	1	0-20	
Ethane	102	10	3 8	80-120	1	0-20	





# **Glossary of Terms and Qualifiers**

Work Order Number: 03-11-0097

<u>Qualifier</u>

**Definition** 

ND

Not detected at indicated reporting limit.



WORK ORDER #:

03-11-0097

Cooler \_\_\_\_\_ of \_\_\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: 620 94 & C	DATE: 11/04/03
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier):  C Temperature blank.  C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A): Initial:
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples.  Sample container label(s) consistent with custody papers.  Sample container(s) intact and good condition.  Correct containers for analyses requested.  Proper preservation noted on sample label(s).  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation.	
COMMENTS:	



November 11, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

03-10-1758

Client Reference:

Aerojet / TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 10/30/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

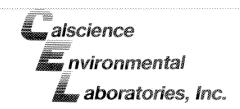
Sincerely.

Alscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael V. Crisostomo

**Quality Assurance Manager** 



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

03-10-1758

N/A RSK-175M

10/30/03

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number		······································		Sampl mber	e	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-MW1			03-1	10-175	8-1	10/29/03	Aqueous	N/A	10/30/03	031030	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	1.10	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	-					
STSW-138A			03-1	10-175	8-2	10/29/03	Aqueous	N/A	10/30/03	031030	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	·					J
Method Blank			099	-12-01	0-451	N/A	Aqueous	N/A	10/30/03	031030	L02
Parameter	Result	<u>RL</u>	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	,					3



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

10/30/03 03-10-1758 N/A

Method:

EPA 376.2

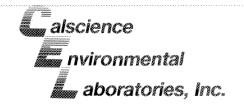
Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-MW1		03-10	0-1758-1	10/29/03	Aqueous	N/A	11/04/03	31104SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-138A		03-10	)-1758-2	10/29/03	Aqueous	N/A	11/04/03	31104SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-80A		03-10	)-1758-3	10/29/03	Aqueous	N/A	11/04/03	31104SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank		099-0	)5-089-1,460	N/A	Aqueous	N/A	11/04/03	31104SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

RL - Reporting Limit

DF - Dilution Factor



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

10/30/03

Work Order No:

03-10-1758

Preparation:

N/A

Method:

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number		Lab S Nun		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-MW1		03-10	0-1758-1	10/29/03	Aqueous	N/A	11/03/03	031103L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	112	63-147						
STSW-138A		03-10	)-1758-2	10/29/03	Aqueous	N/A	11/03/03	031103L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	104	63-147						
STSW-80A		03-10	)-1758-3	10/29/03	Aqueous	N/A	11/03/03	031103L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	96	<u>Limits</u> 63-147						
Method Blank		099-1	2-006-871	N/A	Aqueous	N/A	11/03/03	031103L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor ,

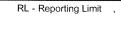


GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 10/30/03 03-10-1758 N/A HPLC/UV

Project: Aerojet / TR0018 / 18

Page 1 of 1

Client Sample Number			Lab Samp Number		Date Collected	Matrix	Date Prepared	Date	QC Bate	ch ID
WNN-MW1			03-10-17	grant of	10/29/03	Aqueous	N/A	Analyzed 11/07/03	031107	50,71,715
Parameter Parameter	Result	RL	DF Qua	<u>Units</u>	Parameter		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control Limits	Qua	<u>ıl</u>						
Dibromopropionic Acid	100	80-120								
STSW-138A			03-10-17	58-2	10/29/03	Aqueous	N/A	11/07/03	031107	L01
Parameter	Result	RL	DF Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	201711071010		715	1.0	•	mg/L
Surrogates:	REC (%)	Control	Qua	<u>I</u>						
Dibromopropionic Acid	101	<u>Limits</u> 80-120								
Method Blank			099-12-0	16-15	N/A	Aqueous	N/A	11/07/03	031107	L01
Parameter	Result	RL	DF Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L	,				•	9, =
Surrogates:	REC (%)	Control	Qua	<u>Į</u>						
Dibromopropionic Acid	105	<u>Limits</u> 80-120								



DF - Dilution Factor ,



## **Quality Control - Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

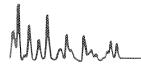
Project: Aerojet / TR0018 / 18

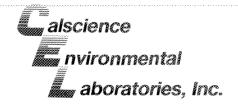
Date Received: Work Order No: Preparation: Method:

10/30/03 03-10-1758 N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-10-1729-1	Aqueous	N/A	N/A	11/04/03	31104SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	





# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet / TR0018 / 18

Date Received:

Work Order No:

Preparation: Method:

10/30/03

03-10-1758

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
03-10-1865-1	Aqueous	GC12	N/A	11/03/03	031103S02
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD RPD	CL Qualifiers
Methanol	100	93	64-118	8 0-2	20
Ethanol	100	95	73-109	6 0-2	23



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

10/30/03 03-10-1758

3-10-1756 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	ch
099-12-006-871	Aqueous	GC12	N/A	11/03/03	031103L02	
Parameter	LCS %F	REC LCSD	%REC %F	REC CL RP	D RPD CL	Qualifiers
Methanol	106	106	6	9-117 0	0-22	
Ethanol	111	109	7	6-112 2	0-19	





## **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3 Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received:

Work Order No: Preparation:

Method:

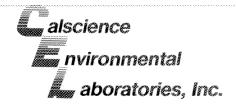
10/30/03

03-10-1758

N/A

HPLC/UV

Quality Control Sample ID	ity Control Sample ID Matrix		Date Prepared		Date Analyzed	MS/MSD Batch Number	
03-11-0097-1	Aqueous	HPLC 6	N/A		11/07/03	031107501	
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers	
Pyruvic Acid	111	115	70-130	3	0-30		
Acetic Acid	110	118	70-130	8	0-30		
Lactic Acid	107	115	70-130	7	0-30		
Propionic Acid	113	117	70-130	3	0-30		
Butyric Acid	107	111	70-130	4	0-30		



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

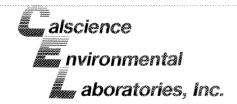
Date Received: Work Order No: Preparation: Method:

10/30/03 03-10-1758 N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ate lyzed	LCS/LCSD Batch Number	
099-12-016-15	Aqueous	HPLC 6	N/A	11/0	7/03	031107L01	
Parameter	LCS %RE	C LCSD %	<u>%REC %</u>	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	111	109		80-120	1	0-20	
Acetic Acid	106	102		80-120	4	0-20	
Lactic Acid	106	105		80-120	1	0-20	
Propionic Acid	112	111		80-120	1	0-20	
Butyric Acid	113	101		80-120	11	0-20	





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

Date Received: Work Order No: Preparation:

Method:

10/30/03

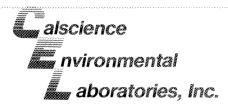
03-10-1758

RSK-175M

N/A

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Da Analy		LCS/LCSD Bato Number	h
099-12-010-451	Aqueous	GC 33	N/A	10/30	/03	031030L02	
<u>Parameter</u>	LCS %RI	EC LCSD %	REC %	6REC CL	RPD	RPD CL	Qualifiers
Methane	103	103		79-109	0	0-20	
Ethane	101	103		80-120	2	0-20	





## **Glossary of Terms and Qualifiers**

Work Order Number: 03-10-1758

Qualifier Definition

ND Not detected at indicated reporting limit.



**WORK ORDER #:** 

03-10-1758

Cooler \_\_\_\_ of \_\_\_

# SAMPLE RECEIPT FORM

CLIENT: Geosyntec	DATE: 10/30/03
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier):  C Temperature blank.  C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A): Initial: C
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	

# Stephen Nowak

From:

SFelton@GeoSyntec.com

Sent:

Friday, November 14, 2003 9:57 AM

To:

snowak@calscience.com

Subject:

RE: Aerojet job

You should have received some samples on Wed. that only had ethanol requested for analysis. The COC should VFAs and DHGs as well.

----Original Message----

From: Steve Nowak [mailto:snowak@calscience.com]

Sent: Friday, November 07, 2003 3:19 PM

To: Scott Felton

Subject: RE: Aerojet job

Scott,

Bottles are on their way.....

----Original Message-----

From: SFelton@GeoSyntec.com [mailto:SFelton@GeoSyntec.com]

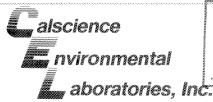
Sent: Friday, November 07, 2003 10:50 AM

To: snowak@calscience.com

Subject: Aerojet job

Steve,

I need more bottles for VFAs, DHGs, and Sulfide about 40 each. Is it possible to get these on Monday?





Date:

11/14/2003

Invoice Number:

1048378

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Report Sent To:

Jamey Rosen

Calscience Work Order No: 03-11-0379

Project Name/No:

Aerojet / TR0018 / 18

Terms:

Net 30

**Total Amount Due:** 

\$ 180.00

Matrix Test Water EPA 8015B Ethanol

<u>TAT</u> Qty 5 2

**Unit Cost** \$90.00

Subtotal \$180.00

Surcharge \$0.00

Rush

<u>Total</u> \$180.00

**Total Amount Due:** 

\$180.00

Amounts not paid within terms are subject to a 1.5% per month service charge. Please include invoice number with your remittance.

PLEASE REMIT TO:

19433 E. WALNUT DRIVE SOUTH

**CITY OF INDUSTRY, CA 91748-2316** 



, aboratories, Inc.

Date:

11/14/2003

Invoice Number:

1048378

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Report Sent To:

Jamey Rosen

Calscience Work Order No: 03-11-0379

Project Name/No:

Aerojet / TR0018 / 18

Terms:

Net 30

**Total Amount Due:** 

\$ 180.00

Matrix <u>Test</u>

Water

EPA 8015B Ethanol

**TAT** 

Qty

**Unit Cost** \$90.00

Subtotal \$180.00 Rush

Surcharge \$0.00

Total \$180.00

**Total Amount Due:** 

\$180.00

Amounts not paid within terms are subject to a 1.5% per month service charge. Please include invoice number with your remittance.

**PLEASE REMIT TO:** 

19433 E. WALNUT DRIVE SOUTH **CITY OF INDUSTRY, CA 91748-2316** 

Calselence
Tryironmental
Suborefories, Inc.

**GARDEN GROVE, CA 92841-1432** 7440 LINCOLN WAY

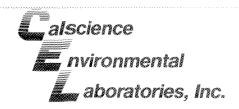
TEL: (714) 895-5494 . FAX: (714) 894-7501

RECORD	
CUSTODY	
CHAIN OF	DATE:

P

PAGE:

LABORA	JORY CLIENT:	LABORATORY CLIENT	,			CLIENT PROJECT NAME / NUMBER	NAME / NUMBE			ON O.A.	ON		r
ADOCA	12029A	tec Lonsulta	175			TR0011/10	/10/			!	1		
ADONE .	130 Resear	Research Lane, 5 te	7			PROJECT CONTACT.	0			Ö	OI IOTE NO		
CITY	1 / 2/	1 - TO [1 - ] W		1,1,1		James R	y Rosen	2			2		
٠,	) reigh	intaria, can		N109 65	6 8	SAMPLER(S): (SIG	MATURE	1		LAB	LAB USE ONLY		<del></del>
7	519-822-230	FAX:		-MAIL		Bark	4	K			0-11	0 3 76	
TURNAR	TURNAROUND TIME												_
Ss Ss	SAME DAY 24 HR 7 48HR	48HR   72 HR	5 DAYS		TATO DAYS			REG	REQUESTED ANALYSIS	NALYSIS			
SPECIAL	REQUIREMENTS (ADDITIONAL CO							L					_
	WACB REPORTING [	ARCHIVE SAMPLES LINTIL	L	,	,								
SPECIAL	SPECIAL INSTRUCTIONS												
		4						***************************************					
						mon VoV							
USE	SAMPLEID	LOCATION	SAMPLING		*	al Ch							
ONLY		DESCRIPTION	DATE	TIME	jont atrix	ioï					*****		
_	WMN-TANK		11/6/03 4	9:45	6 15	7							
2	WWW- RW-1		1/5/03 1	0.00	6W	, , ,							
			1_										
<del> </del>											-		
-							-						,-
+													
													<del></del>
-													<del></del>
				-									
Relinqui	Relinquished D: (Signature)	TX.		α	Received by: (Signature)	Signature)	1 1/5			Date: 1/6/	03	Time: /6:00	
Relinquis	Relinquished by: (Signature)			lac.	Received by: (Signature)	Signature)	2					Time:	
Relinquis	Relinquished by: (Signature)			-   ~	ereived by: (	innatude) /				Oafe: 7		W	<del></del>
						) relative	ل			ク/c/ign	\chi_{\chi_{\chi}}	(1830)	-



November 14, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.: 03-11-0379

Client Reference: Aerojet / TR0018 / 18

#### **Dear Client:**

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/7/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely

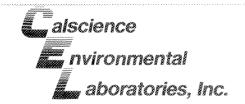
Iscience Environmental Laboratories, Inc.

Stephen Nowak

Project Manager

Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

Method:

11/07/03 03-11-0379 N/A

EPA 8015B

Project: Aerojet / TR0018 / 18

Page 1 of 1

Project: Aerojet / TR	0018 / 18							Page 1 of 1
Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-TANK		03-11	1-0379-1	11/05/03	Aqueous	N/A	11/13/03	031112L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	96	5	50		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
WNN-RW-1		03-11	I-0379-2	11/05/03	Aqueous	N/A	11/13/03	031112L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	29	2	20		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	97	<u>Limits</u> 63-147						
Method Blank		099-1	2-006-882	N/A	Aqueous	N/A	11/12/03	031112L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						

RL - Repor



#### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet / TR0018 / 18

Date Received:

Work Order No:

Preparation:

Method:

11/07/03

03-11-0379

N/A

**EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
03-11-0575-1	Aqueous	GC12	N/A		11/12/03	031112801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol	97	103	64-118	7	0-20	
Ethanol	97	99	73-109	2	0-23	





#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet / TR0018 / 18

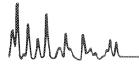
Date Received: Work Order No: Preparation:

Method:

11/07/03 03-11-0379 N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	ch
099-12-006-882	Aqueous	GC12	N/A	11/12/03	031112L01	
<u>Parameter</u>	LCS %RE	C LCSD %F	REC %REG	CCL RPD	RPD CL	Qualifiers
Methanol	96	91	69-	117 5	0-22	
Ethanol	101	97	76-	112 4	0-19	





## **Glossary of Terms and Qualifiers**

Work Order Number: 03-11-0379

<u>Qualifier</u>

**Definition** 

ND

Not detected at indicated reporting limit.



WORK ORDER #:

03-11-5379

Cooler				
INANA	¥ .	~ -	- 1	
	1			
~~~!~!	\ ,	~		

# **SAMPLE RECEIPT FORM**

CLIENT: Geosynte	DATE: 11/7/3
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier): ° C Temperature blank. ° C IR thermometer. Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	



November 20, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.: 03-11-0594

Client Reference: TR0018 / 18

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/12/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

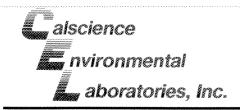
If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Science Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael U. Crisostomo Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

11/12/03 03-11-0594

N/A **RSK-175M** 

Project: TR0018 / 18

Page 1 of 1

Client Sample Numbe	er			Sampl ımber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-	11-059	4-2	11/11/03	Aqueous	N/A	11/14/03	031114	L02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-1			03-	11-059	4-3	11/11/03	Aqueous	N/A	11/14/03	031114	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	Units ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-2			03-	11-059	4-4	11/11/03	Aqueous	N/A	11/14/03	031114	L02
Parameter Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
STSW-138A		. Terkiri. Mengaraja	03-	11-059	4-5	11/11/03	Aqueous	N/A	11/14/03	031114	L02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-MW1			03-	11-059	4-6	11/11/03	Aqueous	N/A	11/14/03	031114	L02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Method Blank			099	-12-01	0-468	N/A	Aqueous	N/A	11/14/03	031114	L02
Parameter Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

11/12/03

Preparation:

03-11-0594 N/A

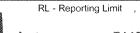
Method:

EPA 8015B

Project: TR0018 / 18

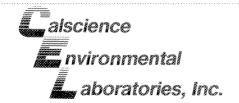
Page 1 of 2

Project. TROUTS	0 / 10							rage 1012
Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN TANK		03-1	1-0594-1	11/10/03	Aqueous	N/A	11/17/03	031114L02
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	160	5	50		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						
WNN-RW-1		03-1	1-0594-2	11/11/03	Aqueous	N/A	11/17/03	031114L02
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	230	10	100		mg/L			
Surrogates:	<u>REC (%)</u>	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
WNN-EW-1		03-11	1-0594-3	11/11/03	Aqueous	N/A	11/15/03	031114L02
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	<u>REC (%)</u>	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
WNN-EW-2		03-11	1-0594-4	11/11/03	Aqueous	N/A	11/15/03	031114L02
Parameter Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
≣thanol	ND	0.10	1		mg/L			
Surrogates:	<u>REC (%)</u>	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						



DF - Dilution Factor

Qual - Qualifiers



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

03-11-0594

Method:

N/A EPA 8015B

11/12/03

Project: TR0018 / 18

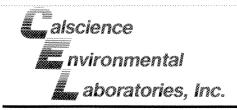
Page 2 of 2

riojooti rittooro ro								
Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
STSW-138A		03-1	1-0594-5	11/11/03	Aqueous	N/A	11/15/03	031114L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	91	<u>Limits</u> 63-147						
WNN-MW1		03-11	1-0594-6	11/11/03	Aqueous	N/A	11/15/03	031114L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
Method Blank		099-1	12-006-887	N/A	Aqueous	N/A	11/15/03	031114L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	92	<u>Limits</u> 63-147						

RL - Report

RL - Reporting Limit , DF - Dilution Factor

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method: 11/12/03 03-11-0594

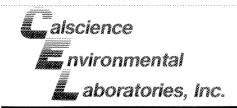
N/A HPLC/UV

Project: TR0018 / 18

Page 1 of 2

Client Sample Number			Lab S Nun	ample nber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-1	1-059	4-2	11/11/03	Aqueous	N/A	11/14/03	031114	L01
<u>Parameter</u>	Result	RL	DF 0	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	,					3
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	100	<u>Limits</u> 80-120									
WNN-EW-1			03-1	1-059	4-3	11/11/03	Aqueous	N/A	11/14/03	031114	L01
Parameter	Result	RL	DF (	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	,				•	9/2
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	98	80-120									
WNN-EW-2			03-11	1-059	4-4	11/11/03	Aqueous	N/A	11/14/03	031114	L01
Parameter	Result	RL	DF (	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pvruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	,				·	9, =
Surrogates:	REC (%)	Control Limits		<u>Qual</u>							
Dibromopropionic Acid	94	80-120									
STSW-138A			03-11	1-0594	4-5	11/11/03	Aqueous	N/A	11/14/03	031114	L01
Parameter	Result	RL	DF (	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	200000000000000000000000000000000000000
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND ND	1.0	1	mg/L
_actic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	ı	mg/L
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	97	<u>Limits</u> 80-120									





Method:

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

11/12/03 03-11-0594

N/A

HPLC/UV

Project: TR0018 / 18

Dibromopropionic Acid

Page 2 of 2

Project. TRoute / 16	)									гау	JE Z UI Z
Client Sample Number				Sampl umber	e	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-MW1			03-	11-059	4-6	11/11/03	Aqueous	N/A	11/14/03	031114	IL01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	95	<u>Limits</u> 80-120									
Method Blank			099	9-12-01	6-16	N/A	Aqueous	N/A	11/14/03	031114	L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	-					-
Surrogates:	REC (%)	Control		Qual							

Limits

80-120

88



#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

TR0018 / 18

Date Received: Work Order No:

Preparation: Method:

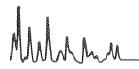
11/12/03

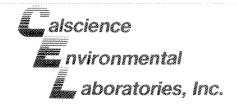
03-11-0594

N/A

**RSK-175M** 

Quality Control Sample ID	Matrix Instrument		Date Prepared	Da Anal	ite yzed	LCS/LCSD Bate Number	ch
099-12-010-468	Aqueous	GC 33	N/A	11/1	4/03	031114L02	
<u>Parameter</u>	LCS %RE	C LCSD	%REC %	6REC CL	RPD	RPD CL	Qualifiers
Methane	104	104		79-109	0	0-20	
Ethane	104	103		80-120	1	0-20	





#### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018 / 18

Date Received:

Work Order No:

Preparation:

Method:

11/12/03

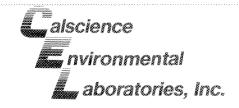
03-11-0594

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
03-11-0591-1	Aqueous	HPLC 6	N/A	-	11/14/03	031114\$01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	103	106	70-130	3	0-30	
Acetic Acid	108	107	70-130	1	0-30	
Lactic Acid	96	96	70-130	0	0-30	
Propionic Acid	102	115	70-130	11	0-30	
Butyric Acid	85	97	70-130	13	0-30	





#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

TR0018 / 18 Project:

Date Received:

Work Order No: Preparation:

Method:

11/12/03

03-11-0594

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Da Matrix Instrument Prep			Date alyzed	LCS/LCSD Batch Number		
099-12-016-16	Aqueous	HPLC 6	N/A	11/	14/03	031114L01		
Parameter	LCS %RE	C LCSD	<u>%REC</u> %	REC CL	RPD	RPD CL	Qualifiers	
Pyruvic Acid	110	109		80-120	1	0-20		
Acetic Acid	111	110		80-120	1	0-20		
Lactic Acid	117	115		80-120	1	0-20		
Propionic Acid	113	112		80-120	1	0-20		
Butyric Acid	99	118		80-120	18	0-20		





#### Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: TR0018 / 18 Date Received:

Work Order No:

Preparation:

Method:

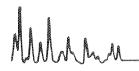
03-11-0594

EPA 8015B

11/12/03

N/A

Quality Control Sample	e ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
03-11-0725-1		Aqueous	GC12	N/A		11/15/03	031114S02
Parameter		MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol		101 102	102 98	64-118 73-109	1 4	0-20 0-23	





#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0 TR0018 / 18

Project:

Date Received: Work Order No: Preparation:

Method:

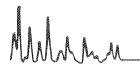
11/12/03

03-11-0594

N/A

EPA 8015B

Quality Control Sample ID		Matrix Instrument		Date Prepared	Dat Analy	-	LCS/LCSD Bate Number	ch
099-12-006-887		Aqueous	GC12	N/A	11/14/	03	031114L02	
<u>Parameter</u>		LCS %RE	C LCSD 9	<u> «REC %R</u>	EC CL	<u>RPD</u>	RPD CL	Qualifiers
Methanol Ethanol		98 104	107 101	-	9-117 6-112	9 3	0-22 0-19	





#### **Glossary of Terms and Qualifiers**

Work Order Number: 03-11-0594

Qualifier Definition

ND Not detected at indicated reporting limit.



WORK ORDER #:

03-11-0594

			1
Cooler	1 0	of	1

# SAMPLE RECEIPT FORM

CLIENT: (TEOSYMID	DATE: 11/12/03
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier):  ° C Temperature blank.  ° C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:  Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers.  Sample container(s) intact and good condition  Correct containers for analyses requested  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation	
Comments:  Client later requested VFAs & DttGs  paly requested on received bottles for 8015	to samples. WNN-Tank Sample Betwanol.



#### INVOICE



11/21/2003

Invoice Number:

1048670

Jamey Rosen

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Report Sent To:

Jamey Rosen

Calscience Work Order No: 03-11-0594

Project Name/No:

TR0018 / 18

Terms:

Net 30

**Total Amount Due:** 

\$ 1,390.00

						Rush	
<u>Matrix</u>	Test	TAT	<u>Qty</u>	<b>Unit Cost</b>	Subtotal	Surcharge	Total
Water	EPA 8015B Ethanol	5	6	\$90.00	\$540.00	\$0.00	\$540.00
Water	Organic Acids by HPLC	10	5	\$90.00	\$450.00	\$0.00	\$450.00
Water	RSK-175M (Methane, Ethane, Ethylene)	5	5	\$80.00	\$400.00	\$0.00	\$400.00

**Total Amount Due:** 

\$1,390.00

Amounts not paid within terms are subject to a 1.5% per month service charge. Please include invoice number with your remittance.

PLEASE REMIT TO:

19433 E. WALNUT DRIVE SOUTH

**CITY OF INDUSTRY, CA 91748-2316** 

#### Stephen Nowak

From:

SFelton@GeoSyntec.com

Sent:

Friday, November 14, 2003 9:57 AM

To:

snowak@calscience.com

Subject:

RE: Aerojet job

You should have received some samples on Wed. that only had ethanol requested for analysis. The COC should VFAs and DHGs as well.

----Original Message----

From: Steve Nowak [mailto:snowak@calscience.com]

Sent: Friday, November 07, 2003 3:19 PM

To: Scott Felton

Subject: RE: Aerojet job

Scott,

Bottles are on their way.....

----Original Message-----

From: SFelton@GeoSyntec.com [mailto:SFelton@GeoSyntec.com]

Sent: Friday, November 07, 2003 10:50 AM

To: snowak@calscience.com

Subject: Aerojet job

Steve,

I need more bottles for VFAs, DHGs, and Sulfide about 40 each. Is it possible to get these on Monday?



December 10, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

**Calscience Work Order No.:** 

03-11-1551

Client Reference:

**Aerojet** 

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 11/26/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

11/26/03 03-11-1551 N/A RSK-175M

Project: Aerojet

Page 1 of 1

Client Sample Number				Sampl umber	e	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-	11-155	4-1	11/25/03	Aqueous	N/A	12/01/03	031201	L02
Parameter Parameter	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
STSW-138A			03-	11-155	1-2	11/25/03	Aqueous	N/A	12/01/03	031201	L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	2.41	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						J
WNN-MW-1			03-	11-155	1-3	11/25/03	Aqueous	N/A	12/01/03	031201	L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						0
WNN-EW-1			03-	11-155	1-4	11/25/03	Aqueous	N/A	12/01/03	031201	L02
	Result	<u>RL</u>	<b>03-</b>	11-155 <u>Qual</u>	<b>1-4</b> <u>Units</u>	<b>11/25/03</b> Parameter	Aqueous	N/A Result		<b>031201</b> DF Qual	L02 Units
Parameter			100	12000	4 5, 54 20 20 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		Aqueous		12/01/03 RL 1.00	4 - 5	<u>Units</u>
Parameter Methane	Result	RL	DF	12000	<u>Units</u>	Parameter	Aqueous	Result	<u>RL</u>	DF Qual	110 M 14 T A . 1 Mars
Parameter Methane	Result ND	<u>RL</u> 1.00	<u>DF</u> 1 1	12000	Units ug/L ug/L	Parameter	Aqueous	Result	<u>RL</u>	DF Qual	<u>Units</u> ug/L
Parameter Methane Ethane	Result ND	<u>RL</u> 1.00	<u>DF</u> 1 1	Qual	Units ug/L ug/L	Parameter Ethylene	32 10 10 10 10 10 10 10 10 10 10 10 10 10	Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Parameter Methane Ethane WNN-EW-2 Parameter	Result ND ND	<u>RL</u> 1.00 1.00	DF 1 1	<u>Qual</u> 11-155	Units ug/L ug/L	Parameter Ethylene 11/25/03	32 10 10 10 10 10 10 10 10 10 10 10 10 10	Result ND	RL 1.00	DF Qual 1	Units ug/L
Parameter Methane Ethane  WNN-EW-2 Parameter Methane	Result ND ND	RL 1.00 1.00	DF 1 1 03-	<u>Qual</u> 11-155	Units ug/L ug/L ug/L	Parameter Ethylene  11/25/03  Parameter	32 10 10 10 10 10 10 10 10 10 10 10 10 10	Result ND N/A	RL 1.00 12/01/03	DF Qual 1 031201 DF Qual	Units ug/L L02
Parameter Methane Ethane WNN-EW-2	Result ND ND Result ND	RL 1.00 1.00	DF 1 03- DF 1	<u>Qual</u> 11-155	Units ug/L ug/L  1-5  Units ug/L ug/L	Parameter Ethylene  11/25/03  Parameter	32 10 10 10 10 10 10 10 10 10 10 10 10 10	Result ND N/A	RL 1.00 12/01/03	DF Qual 1 031201 DF Qual	Units ug/L L <b>02</b> Units ug/L
Parameter Methane Ethane  WNN-EW-2  Parameter Methane Ethane	Result ND ND Result ND	RL 1.00 1.00	DF 1 03- DF 1	<u>Qual</u> 11-155 <u>Qual</u>	Units ug/L ug/L  1-5  Units ug/L ug/L	Parameter Ethylene  11/25/03  Parameter Ethylene	Aqueous	Result ND  N/A  Result ND	RL 1.00 12/01/03 RL 1.00	DF Qual 1 031201 DF Qual 1	Units ug/L  Units ug/L
Parameter Methane Ethane  WNN-EW-2  Parameter Methane Ethane  Method Blank	Result ND ND ND Result ND ND	RL 1.00 1.00 1.00	DF 1 03- DF 1 1	Qual 11-155 Qual -12-01	Units ug/L ug/L  1-5  Units ug/L ug/L ug/L	Parameter Ethylene  11/25/03  Parameter Ethylene  N/A	Aqueous	Result ND  N/A  Result ND	RL 1.00 12/01/03 RL 1.00	DF Qual 031201 DF Qual 1	Units ug/L L02 Units ug/L

RL - Reporting Limit ,

DF - Dilution Factor

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation: Method:

11/26/03

03-11-1551 N/A

EPA 8015B

Page 1 of 2

Project: Aerojet								Page 1 of 2
Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1		03-1	1-1551-1	11/25/03	Aqueous	N/A	12/01/03	031201L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	280	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	100	<u>Limits</u> 63-147						
STSW-138A		03-1	1-1551-2	11/25/03	Aqueous	N/A	12/01/03	031201L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	112	<u>Limits</u> 63-147						
WNN-MW-1		03-1	1-1551-3	11/25/03	Aqueous	N/A	12/01/03	031201L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	93	<u>Limits</u> 63-147						
WNN-EW-1		03-11	-1551-4	11/25/03	Aqueous	N/A	12/01/03	031201L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147						

DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

11/26/03

03-11-1551

N/A

EPA 8015B

Project: Aerojet

Page 2 of 2

Project: Aerojet								Page 2 of 2
Client Sample Number			ample nber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-EW-2		03-1	1-1551-5	11/25/03	Aqueous	N/A	12/01/03	031201L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	108	<u>Limits</u> 63-147						
STSW-80A		03-1	1-1551-6	11/25/03	Aqueous	N/A	12/01/03	031201L01
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	111	<u>Limits</u> 63-147						
Method Blank		099-1	12-006-901	N/A	Aqueous	N/A	12/01/03	031201L01
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	105	<u>Limits</u> 63-147						

RL - Reporting Limit

DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 • TEL: (714) 895-5494 • FAX: (714) 894-7501

# alscience nvironmental , aboratories, Inc.

#### **Analytical Report**

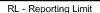
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

11/26/03 03-11-1551 N/A

EPA 376.2

Nun 03-1	ample nber 1-1551-1	Date Collected	Matrix	Date Prepared	Date	00 0-4-1-15
	1-1551-1	** C * 69*(6666 %) Tokay 1096		1 repared	Analyzed	QC Batch ID
<b>5</b> .		11/25/03	Aqueous	N/A	12/02/03	31202SB3
RL	DF	Qual	<u>Units</u>			
0.050	1		mg/L			
03-1	I-1551-2	11/25/03	Aqueous	N/A	12/02/03	31202SB3
<u>RL</u>	DF	Qual	<u>Units</u>			
0.050	1		mg/L			
03-1	I-1551-3	11/25/03	Aqueous	N/A	12/02/03	31202SB3
RL	DF	Qual	<u>Units</u>			
0.050	1		mg/L			
03-11	-1551-4	11/25/03	Aqueous	N/A	12/02/03	31202SB3
RL	<u>DF</u>	Qual	<u>Units</u>			
0.050	1		mg/L			
03-11	-1551-5	11/25/03	Aqueous	N/A	12/02/03	31202SB3
RL	<u>DF</u>	Qual	<u>Units</u>			
0.050	1		mg/L			
03-11	-1551-6	11/25/03	Aqueous	N/A	12/02/03	31202SB3
RL	<u>DF</u>	Qual	<u>Units</u>			
0.050	1		mg/L			
099-0	5-089-1,494	N/A	Aqueous	N/A	12/02/03	31202SB3
RL	<u>DF</u>	Qual	<u>Units</u>			
0.050	1		mg/L			
	03-11  RL 0.050  03-11  RL 0.050	03-11-1551-2  RL DF 0.050 1  03-11-1551-3  RL DF 0.050 1  03-11-1551-4  RL DF 0.050 1  03-11-1551-5  RL DF 0.050 1  03-11-1551-6  RL DF 0.050 1  03-11-1551-6  RL DF 0.050 1	RL       DF       Qual         0.050       1         03-11-1551-3       11/25/03         RL       DF       Qual         0.050       1         03-11-1551-4       11/25/03         RL       DF       Qual         0.050       1         03-11-1551-5       11/25/03         RL       DF       Qual         0.050       1         RL       DF       Qual         0.050       1         O99-05-089-1,494       N/A         RL       DF       Qual         0.04       N/A	03-11-1551-2         11/25/03         Aqueous           RL         DF         Qual         Units           0.050         1         mg/L           0.050         1         mg/L           0.050         1         M/A         Aqueous	N/A   RL   DF   Qual   Units   mg/L	DF   Qual   Units   mg/L



DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

03-11-1551

Preparation:

N/A

11/26/03

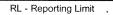
Method:

HPLC/UV

Project: Aerojet

Page 1 of 2

Client Sample Number			Lab Sam Numbe		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-11-1	51-1	11/25/03	Aqueous	N/A	12/08/03	031208	BL01
Parameter Pyruvic Acid	Result ND	<u>RL</u> 0.50	DF Qua	<u>Units</u> mg/L	Parameter Propionic Acid		Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	-					
Surrogates:	REC (%)	Control Limits	Qu	<u>al</u>						
Dibromopropionic Acid	105	80-120								
STSW-138A			03-11-1	51-2	11/25/03	Aqueous	N/A	12/08/03	031208	L01
Parameter	Result	RL	DF Qua	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						g/ =
Surrogates:	REC (%)	Control Limits	Qu	<u>al</u>						
Dibromopropionic Acid	99	80-120								
WNN-MW-1			03-11-15	51-3	11/25/03	Aqueous	N/A	12/08/03	031208	L01
<u>Parameter</u>	Result	RL	DF Qua	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.2	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L					,	9/ =
Surrogates:	REC (%)	Control Limits	Qua	<u>al</u>						
Dibromopropionic Acid	98	80-120								
WNN-EW-1			03-11-15	51-4	11/25/03	Aqueous	N/A	12/08/03	031208	L01
Parameter	Result	RL	DF Qua	l Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0		
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	Dutyno Acid		INL	1.0	1	mg/L
Surrogates:	REC (%)	Control	Qua	<u>ıl</u>						
Dibromopropionic Acid	99	<u>Limits</u> 80-120								



DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

11/26/03

03-11-1551

-11-1331

N/A

HPLC/UV

Project: Aerojet

Page 2 of 2

Toject. Acrojet									ιαţ	JE Z 01 Z
Client Sample Number			Lab Sam Numbe	•	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bat	ch ID
WNN-EW-2			03-11-1	551-5	11/25/03	Aqueous	N/A	12/08/03	03120	BL01
Parameter	Result	RL	DF Qu	al <u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						J
Surrogates:	REC (%)	Control Limits	Qu	<u>al</u>						
Dibromopropionic Acid	98	80-120								
Method Blank			099-12-	016-17	N/A	Aqueous	N/A	12/08/03	031208	3L01
<u>Parameter</u>	Result	RL	DF Qu	al Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	·					
Surrogates:	REC (%)	Control Limits	Qu	<u>al</u>						
Dibromopropionic Acid	108	80-120								

RL - Repo

RL - Reporting Limit , DF - Dilution Factor ,

Qual - Qualifiers

7440 Lincoln Way, Garden Grove, CA 92841-1432 

TEL: (714) 895-5494 

FAX: (714) 894-7501



#### **Quality Control - Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet

Date Received: Work Order No: Preparation:

Method:

11/26/03

03-11-1551 N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
03-11-1523-5	Aqueous	N/A	N/A	12/02/03	31202SD3
Parameter	Sample Conc	DUP Conc	<u>RPD</u>	RPD CL	Qualifiers
Sulfide, Total	12	11	9	0-25	





#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No:

Preparation: Method:

11/26/03

03-11-1551

N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Matrix Instrument		Date Analyze	LCS/LCSD Batch d Number		h
099-12-010-485	Aqueous	GC 33	N/A	12/01/03		031201L02	
<u>Parameter</u>	LCS %R	EC LCSD %I	REC %RI	EC CL	RPD	RPD CL	Qualifiers
Methane	83	81	79	9-109	3	0-20	
Ethane	82	80	80	)-120	3	0-20	



#### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet Date Received:

Work Order No:

Preparation:

Method:

03-11-1551

N/A

11/26/03

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
03-11-1573-1	Aqueous	GC12	N/A		12/01/03	031201S01
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol	93	89	64-118	4	0-20	
Ethanol	93	92	73-109	2	0-23	



#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No: Preparation:

Method:

11/26/03

03-11-1551

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	rh
099-12-006-901	Aqueous	GC12	N/A	12/01/03	031201L01	
<u>Parameter</u>	LCS %RE	EC LCSD %	REC %RE	C CL RPD	RPD CL	Qualifiers
Methanol	96	95	69-	117 1	0-22	
Ethanol	100	104	76-	112 4	0-19	



#### Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No:

Preparation:

Method:

11/26/03

03-11-1551

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	l	Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		12/08/03	031208S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	112	107	70-130	4	0-30	
Acetic Acid	119	114	70-130	4	0-30	
Lactic Acid	112	110	70-130	2	0-30	
Propionic Acid	102	99	70-130	3	0-30	
Butyric Acid	111	100	70-130	11	0-30	



#### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No: Preparation:

Method:

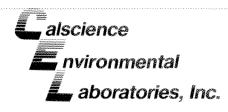
11/26/03

03-11-1551

N/A

HPLC/UV

Quality Control Sample ID	Matrix I	nstrument			ite yzed	LCS/LCSD Bate Number	ch
099-12-016-17	Aqueous	HPLC 6	N/A	12/08	3/03	031208L01	
<u>Parameter</u>	LCS %REC	LCSD %	REC %F	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	107	107	8	80-120	0	0-20	
Acetic Acid	110	112	8	80-120	2	0-20	
Lactic Acid	114	112	8	80-120	1	0-20	
Propionic Acid	99	100	8	80-120	1	0-20	
Butyric Acid	105	103	8	80-120	1	0-20	



### **Glossary of Terms and Qualifiers**

Work Order Number: 03-11-1551

<u>Qualifier</u>

**Definition** 

ND

Not detected at indicated reporting limit.



WORK ORDER #:

03-111-1551

Cooler	l of	

## **SAMPLE RECEIPT FORM**

CLIENT: GREOSYN PC	DATE: 11/26/03
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier):  °C Temperature blank °C IR thermometer Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	
Sample - 4 one	VOA arrived brotten







December 23, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.: 03-12-0607

Client Reference: WNN Aerojet

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/10/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental

Laboratories, Ing

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager

# Lalscience Invironmental Laboratories, Inc.

### **Analytical Report**

GeoSyntec Consultants
130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

EPA 8015B

Page 1 of 2

Project:	WNN	Aerojet
----------	-----	---------

Troject. VIIIV/terojet	•							rage rorz
Client Sample Number			ample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1		03-1	2-0607-1	12/09/03	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	93	<u>Limits</u> 63-147						
WNN-MW1		03-1	2-0607-2	12/09/03	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	105	<u>Limits</u> 63-147						
STSW-138A		03-1	2-0607-3	12/09/03	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	100	<u>Limits</u> 63-147						
WNN-EW-1		03-12	2-0607-4	12/09/03	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	107	<u>Limits</u> 63-147						



DF - Dilution Factor

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Surrogates:

Hexafluoro-2-propanol

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

**EPA 8015B** 

Page 2 of 2

Project: WNN Aeroje	et							Page 2 of 2
Client Sample Number			Sample mber	Date Collected	Matrix	Date Prepared		QC Batch ID
WNN-EW-2		03-1	2-0607-5	12/09/03	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						
Method Blank		099	-12-006-913	N/A	Aqueous	N/A	12/13/03	031212L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			

Qual

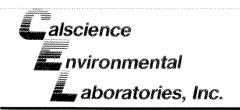
RL - Reporting Limit ,

REC (%)

Control

<u>Limits</u>

63-147



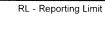
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

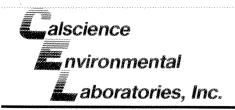
12/10/03 03-12-0607 N/A HPLC/UV

Project: WNN Aerojet

Page 1 of 2

Client Sample Number				Samp ımber	le	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-	12-060	)7-1	12/09/03	Aqueous	N/A	12/19/03	031219	)L01
Parameter	Result	RL	<u>DF</u>	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						J
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	103	<u>Limits</u> 80-120									
WNN-MW1			03-	12-060	)7-2	12/09/03	Aqueous	N/A	12/19/03	031219	)L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Daty. 10 1 10 lu		,,,,	1.0	•	mg/L
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	98	80-120									
STSW-138A			03-	12-060	7-3	12/09/03	Aqueous	N/A	12/19/03	031219	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		ma/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	,					
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	99	80-120									
WNN-EW-1			03-1	12-060	7-4	12/09/03	Aqueous	N/A	12/19/03	031219	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	_aryno / rord		110	1.0		1119/L
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	103	<u>Limits</u> 80-120									





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

Preparation: Method:

12/10/03

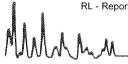
03-12-0607

N/A HPLC/UV

Project: WNN Aerojet

Page 2 of 2

	·			***************************************					, us	JC Z OI .
Client Sample Number			Lab Sampl Number	e	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-EW-2			03-12-060	7-5	12/09/03	Aqueous	N/A	12/19/03	031219	)L01
Parameter	Result	RL	DF Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L						J
Surrogates:	REC (%)	Control Limits	Qual							
Dibromopropionic Acid	94	80-120								
Method Blank			099-12-01	6-18	N/A	Aqueous	N/A	12/19/03	031219	L01
Parameter	Result	RL	DF Qual	<u>Units</u>	Parameter		Result	<u>RL</u>	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
cetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	•					g. =
Surrogates:	REC (%)	Control	Qual							
Dibromopropionic Acid	99	<u>Limits</u> 80-120								





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A RSK-175M

Project: WNN Aerojet

Page 1 of 1

Client Sample Number				Sampl ımber	е	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			03-	12-060	7-1	12/09/03	Aqueous	N/A	12/10/03	031210	L02
Parameter	Result	RL	<u>DF</u>	Qual	Units	Parameter		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
WNN-MW1			03-	12-060	7-2	12/09/03	Aqueous	N/A	12/10/03	031210	L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	6.40	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						-
STSW-138A			03-	12-060	7-3	12/09/03	Aqueous	N/A	12/10/03	031210	L02
Parameter	<u>Result</u>	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	3.68	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						
WNN-EW-1			03-	12-060	7-4	12/09/03	Aqueous	N/A	12/10/03	031210	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						-
WNN-EW-2			03-	12-060	7-5	12/09/03	Aqueous	N/A	12/10/03	031210	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L						-
Method Blank			099	-12-01	0-492	N/A	Aqueous	N/A	12/10/03	031210	L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane	ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ug/L	•					-

RL - Repor



#### **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

EPA 8015B

Project: WNN Aerojet						
Quality Control Sample ID	Matrix	Instrument	Date Prepared	,	Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	GC12	N/A		12/13/03	031212802
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	<u>RPD</u>	RPD CL	Qualifiers
Methanol Ethanol	96 107	98 106	64-118 73-109	2 1	0-20 0-23	





### **Quality Control - LCS/LCS Duplicate**

aboratories, Inc.

GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0 WNN Aerojet Project:

Date Received: Work Order No:

Preparation: Method:

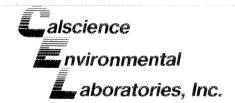
12/10/03

03-12-0607

N/A

**EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number	1
099-12-006-913	Aqueous	GC12	N/A	12/13/03	031212L02	
<u>Parameter</u>	LCS %R	EC LCSD %I	REC %RE	C CL RPD	RPD CL	Qualifiers
Methanol Ethanol	97 103	102 98		.117 4 .112 5	0-22 0-19	



### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: WNN Aerojet Date Received:

12/10/03

Work Order No:

03-12-0607

Preparation:

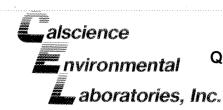
N/A

Method:

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		12/19/03	031219501
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	109	106	70-130	3	0-30	
Acetic Acid	102	100	70-130	2	0-30	
Lactic Acid	109	105	70-130	3	0-30	
Propionic Acid	100	98	70-130	2	0-30	
Butyric Acid	106	101	70-130	4	0-30	





### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: WNN Aerojet

Date Received:

Work Order No: Preparation:

Method:

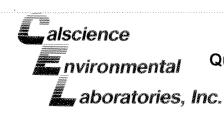
12/10/03

03-12-0607

N/A

HPLC/UV

Quality Control Sample ID	Matrix In	strument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	ch
099-12-016-18	Aqueous I	HPLC 6	N/A	12/19/03	031219L01	
Parameter	LCS %REC	LCSD %RI	<u>EC %REC</u>	CCL RPD	RPD CL	Qualifiers
Pyruvic Acid	108	112	80-	120 3	0-20	
Acetic Acid	110	101	80-1	120 9	0-20	
Lactic Acid	113	106	80-1	120 7	0-20	
Propionic Acid	99	103	80-1	120 4	0-20	
Butyric Acid	109	107	80-1	120 2	0-20	



### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: WNN Aerojet

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

**RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bat Number	ch
099-12-010-492	Aqueous	GC 33	N/A	12/10/03	031210L02	
<u>Parameter</u>	LCS %R	EC LCSD	%REC %R	EC CL R	PD RPD CL	Qualifiers
Methane	103	103	7:	9-109 (	0-20	
Ethane	100	100	8	0-120	0-20	







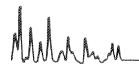
Work Order Number: 03-12-0607

<u>Qualifier</u>

**Definition** 

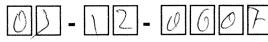
ND

Not detected at indicated reporting limit.





WORK ORDER #:



Cooler \_\_\_\_ of \_\_\_\_

### **SAMPLE RECEIPT FORM**

CLIENT: Geosyntec	DATE: 12-10-03
TEMPERATURE - SAMPLES RECEIVED BY:	er e
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	C Temperature blank.  °C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	





December 23, 2003

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

Client Reference:

03-12-0607

WNN Aerojet

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 12/10/2003 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario,Canada 0

Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A EPA 8015B

Project: WNN Aerojet

Client Sample Number		Lat N	Sample lumber	Date Collected	Matrix	Date	Date	Page 1 of
WNN-RW-1			-12-0607-1	12/09/03	Aqueous	Prepared N/A	Analyzed	
Parameter	Result	RL	DF	Qual	<u>Units</u>		12/13/03	031212L02
Ethanol	ND	0.10	1		mg/L		*	
Surrogates:	REQ (%)	Control		Qual	_		4	
łexafluoro-2-propanol	93	<u>Limits</u> 63-147		4401				
WNN-MW1	10000	03-	12-0607-2	12/09/03	<b>A</b>		n (s	
arameter	D+!			1200/03	Адиеоцъ	N/A	12/13/03	031212L02
thanol	Result	RL	DF	Qual	<u>Units</u>		:	
ırrogates:	ND	0.10	1		mg/L		4	
	<u>REC (%)</u>	Control Limits		Qual			, , , , , , , , , , , , , , , , , , ,	
exafluoro-2-propanol	105	63-147						
ABET-WET		03-1	2-0607-3	12/09/03			- 10	
rameter				12/09/03	Aqueous	N/A	12/13/03	031212L02
anoi	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
rogates:	ND	0.10	1		mg/L			
	<u>REC (%)</u>	Control Limits		Qual			•	
cafluoro-2-propanol	100	63 <b>-</b> 147						
NN-EW-1		03-12	0607-4					
ameter		03-12-	·0007-4	12/09/03	Aqueous	N/A	12/13/03 0	31212L02
mol	Result	RL	<u>DF</u>	Qual	<u>Units</u>		,	
	ND	0.10	1		mg/L		1	
ogates:	REC (%)	Control		Qual			T e	
fluoro-2-propanoi	107	Limits 63-147						

RL - Reporting Limit

DF - Dilution Factor

Qual - Qualifiers





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario,Canada 0

Date Received: Work Order No: Preparation; Method:

12/10/03 03-12-0607 N/A

EPA 8015B

Project: WNN Aerojet

Address and the second		N	Sample umber	Date Collected	Matrix	Date Date Prepared Analyzed	
WNN-EW-2	1 27 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	. ( , , )03-	12-0607-5	12/09/03	Aqueous	Prepared Analyzed	QC Batch ID
arameter	Result	RL	DF	Qual			031212L02
thanol	ND	0.10	1	Quai	<u>Units</u>	:	
urrogates:	REC (%)	Control		Ougl	mg/L	1	
exafluoro-2-propanol	103	<u>Limits</u> 63-147		Qual		2	•
Method Blank		099-	12-006-913	N/A	ецовирА		e i
rameter	Result	RL	DE	01		1,2/13/03	031212L02
nanol	ND	0.10	1	Qual	<u>Units</u> mg/L		
rrogates;	REC (%)	Control		Qual	,g/ <b>L</b>	:	
xafluoro-2-propanol	87	<u>Limitş</u> 63-147					





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario,Canada 0

Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A HPLC/UV

Project: WNN Aerojet

Client Sample Number WNN-RW-1	34		L	ab Sar Numb	npie er	Date Collected	Matrix	Date Prepared	Date		Page 1 o
	. ,	- ''		03-12-0	0607-1	12/09/03	Aqueous		1 Analyz 12/19/	y fall against	C Batch ID
Parameter	Result	RL	п	E Qu	منسلا اه			,,	, , , , , , , , , , , , , , , , , , ,	up to	31219L01
Pyruvic Acid	ND	0.50	-	1				Result	RL		•
Acetic Acid	ND	1,0			mg/L		id	ND	1.0	5	Qual Units
Lactic Acid	ND	1.0		1	mg/L mg/L	Butyric Acid		ND	1.0	1	mg/L
Şurrogates:	REC (%	) <u>Control</u>		Qu	•					•	mg/L
Dibromopropionic Acid	103	<u>Limits</u> 80-12		<u> </u>						1	
WNN-MW1		, ,	· · · ·	3-12-06	207.0						
Parameter				3-12-00	307-2	12/09/03	Aqueous	N/A	12/19/0	<b>3</b> 03	1219L01
Pyruvic Acid	Result	RL	DF	Qua	<u>Units</u>	<u>Parameter</u>			1	al Mich	
Acetic Acid	ND	0.50		1	mg/L			Result	RL	DF C	Qual Units
	ND	1.0		i		Propionia Acid	3	ND	1.0	1	
actic Acid	ND	1.0		, 1	mg/L mg/L	Butyric Acid		ND	1.0	1	mg/L mg/L
urrogates:	<u>REC (%)</u>	Control		Qua	•						mg/L
ibromopropionic Acid	98	<u>Limits</u> 80-120	•		ŭ						
STSW-138A			0.0	45.44						,	
arameter			.03.	12-060	07-3	12/09/03	Aqueous	N/A	12/19/03	11.10.24	219L01
/ruvic Acid	Result	RL	DF	Quai	Units	_			7 13 71 3	11 11 001	CISCO1
	ND	0.50	1	ZHUCH		<u>Parameter</u>		Result	RL	Dr o	
etic Acid	ND	1.0	1		mg/L	Propionic Acid		ND		DF QU	lal Units
ctic Acld	ND	1.0			mg/L	Butyric Acid		ND	1.0	. 1	mg/L
****		٠,٠	1		mg/L			ND	1.0	1	mg/L
rrodates:	REC (%)	Control		Qual						i	
oromonania di A. M.		Limits		GORI						2	
promopropionic Acid	99	80-120									
/NN-EW-1		-								k)	
			03-1	2-0607	'-4	12/09/03	Aqueous	N/A	12/19/03	0242	io.
ameter	Result	RL	DE .	Qual	<u>Units</u>	Data				03121	901
uvic Acid	ND	0.50	1			<u>Parameter</u>		Result	RL	DE 0	
tic Acid	ND	1.0	1		ng/L	Propionic Acid		ND		DF Qua	
tic Acld	ND	1.0	1		ng/L ng/L	Butyric Acid		ND	1.0 1.0	1 1	mg/L
<u>'ogates:</u>	DEC (9)		-		.A.r					,	mg/L
	<b>REC (%)</b>	Control		Qual							
omopropionic Acid		Limits		27. W Cal							

RL - Reporting Limit

DF - Dilution Factor

Qual - Qualifiers





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Dibromopropionic Acid

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A

HPLC/UV

Project: WNN Aerojet

Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
		16 ',,	03-12-0607-5	12/09/03	Aqueous	N/A	12/19/03	(1 / 1 ) · · · · · · · · · · · · · · · · · ·
Parameter Pyruvic Acid Acetic Acid actic Acid actic Acid	Result ND ND ND	<u>RL</u> 0.50 1.0 1.0	DF Qual Units 1 mg/L 1 mg/L 1 mg/L	Parameter Propionic Acid Butyric Acid		Result ND ND		DF Qual Units 1 mg/L 1 mg/L
Dibromopropionic Acid	<u>REC (%)</u> 94	<u>Control</u> <u>Limits</u> 80-120	<u>Qual</u>				1	
Method Blank			099-12-016-18	N/A	Aqueous	N/A	12/19/03	031219L01
<u>arameter</u> yruvíc Acid cetic Acid actic Acid	Result ND ND ND	<u>RL</u> 0.50 1.0 1.0	DF Qual Units 1 mg/L 1 mg/L 1 mg/L	Parameter Propionic Acid Butyric Acid		Result ND ND	1	DF Qual Units 1 mg/L 1 mg/L
rrogates:	REC (%)	Control	Qual				G.	-

Limits

80-120

99





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario,Canada 0

Date Received: Work Order No: Preparation; Method:

12/10/03 03-12-0607 N/A

RSK-175M

Project: WNN Aerojet

Client Sample Number			Lat N	Sample lumber	Date Collected	Matrix	Date Prepared	Date	00 8444
WNN-RW-1		1 7	03	-12-0607-1	12/09/03	Aqueous	N/A	Analyze	aliebrate
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual Units ug/L ug/L	Parameter Ethylene	Adacodo	Result ND	12/10/0 <u>RL</u> 1.00	031210L02  DF Qual Units 1 ug/L
WŃN-MW1			03-	12-0607-2	12/09/03	Aqueous	N/A	1190112 JES 18	18.862
<u>Parameter</u> Methane Ethane	Result 6.40 ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual Units ug/L ug/L	<u>Parameter</u> Ethylene	Adabotts	Result ND	12/10/0 <u>RL</u> 1.00	DF Qual Units 1 ug/L
STSW-138A		4.	03-1	12-0607-3	12/09/03	Aqueous	N/A	12/10/03	
arameter lethane thane	Result 3.68 ND	<u>RL</u> 1.00 1.00	DF 1 1	Qual Units ug/L ug/L	Parameter Ethylene		Result ND	RL 1.00	031210L02 DF Qual Units 1 ug/L
WNN-EW-1	,		03-1	2-0607-4	12/09/03	Aqueous	N/A	الترام المتعالق ا	Holand S.
arameter ethane hane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual Units ug/L ug/L	<u>Parameter</u> Ethylene	- Advanca	Result ND	12/10/03 RL 1.00	DF Quar Units ug/L
VNN-EW-2		,	03-12	2-0607-5	12/09/03	Aqueous	N/A	ا المحالة المعالمة الم	\$1\$ I I
irameter ethane hane	Result ND ND	<u>RL</u> 1.00 1.00	DF 9	Qual <u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	i	DF Qual Units 1 ug/L
lethod Blank	,		099-1	2-010-492	N/A	Aqueous	N/A	ANGERO ST	St. L.
<u>rameter</u> thane ane	<u>Result</u> ND ND	RL 1.00 1.00	<u>DF</u> Q	ual Units ug/L ug/L	<u>Parameter</u> Ethylene	7	Result ND		031210L02  2F Qual Units 1 ug/L

RL - Reporting Limit .

DF - Dilution Factor

Qual - Qualifiers



# Quality Control - Spike/Spike Duplicate



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

WNN Aerojet

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

**EPA 8015B** 

Quality Control Sample ID WNN-RW-1	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	GC12	N/A	ĵ.	12/13/03	031212502
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualiflers
Methanol Ethanol	96 107	98 106	64-118 73-109	2	0-20 0-23	



# Quality Control - LCS/LCS Duplicate



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario,Canada 0

Project:

WNN Aerojet

Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A EPA 8015B

Quality Control Sample ID 099-12-006-913	Matrix	Instrument	Date Prepare		ate Nyzed	LCS/LCSD Bat Number	ch
	Aqueous	GC12	N/A	12/1	3/03	031212102	
<u>Parameter</u> Methano! Ethano!	<u>LCS %</u> 97 103	REC <u>LCSD</u> 102 98	%REC	%REC CL 69-117 <b>76</b> -112	<u>RPD</u> 4 5	<u>RPD CI.</u> 0-22 0-19	Qualifie



# Quality Control - Spike/Spike Duplicate



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

12/10/03

03-12-0607

N/A

Project: WNN Aerojet		· · · · · · · · · · · · · · · · · · ·	HPLC/UV			
Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A	1.5	12/19/03	031219S01
Parameter  Pyruvic Acid  Acetle Acid	MS %REC	MSD %REC	%REC CL 70-130	RPD 3	<u>RPD CL</u> 0-30	Qualifiers
Lactic Acid Propionic Acid Butyric Acid	102 109 100 106	100 105 98 101	70-130 70-130 70-130 70-130	2 3 2 4	0-30 0-30 0-30 0-30	

DEC-24-2003 14:41



# Quality Control - LCS/LCS Duplicate



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario,Canada 0 Project: WNN Aerojet Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A HPLC/UV

Quality Control Sample ID 099-12-016-18	Matrix	Instrument	Date Prepare		ate lyzed	LCS/LCSD Ba	tch
	Aqueous	HPLC 6	N/A	12/19/03 🖟		031219101	
Parameter Pyruvic Acid Acetic Acid Lactic Acid Propionic Acid Butyric Acid	LCS %RI 108 110 113 99 109	112 101 106 103 107	<u>6REQ</u>	%REC CL 80-120 80-120 80-120 50-120 80-120	RPD 3 9 7 4 2	RPD CL 0-20 0-20 0-20 0-20 0-20	Qualifier



# Quality Control - LCS/LCS Duplicate



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario,Canada 0 Project: WNN Aerojet Date Received: Work Order No: Preparation: Method:

12/10/03 03-12-0607 N/A RSK-175M

Quality Control Sample ID 099-12-010-492	Matrix	Instrument	Date Prepare		ate Ilyzed	LCS/LCSD Ba Number	tch
	Aqueous	GC 33	N/A	. 12/1	0/03	0312101.02	
<u>Parameter</u> Methane Ethane	<u>LCS %</u> 103 100	REC LCSD 103 100		%REC CL 79-109 80-120	<u>RPD</u> 0 0	RPD CL 0-20 0-20	Qualifiers



### Glossary of Terms and Qualifiers



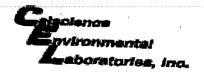
Work Order Number: 03-12-0607

Qualifier

<u>Definition</u>

ND

Not detected at indicated reporting limit.

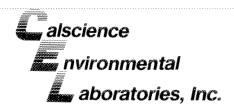


WORK ORDER #: 00-12-0607

Cooler \_\_\_ of \_\_

# SAMPLE RECEIPT FORM

CLIENT: Geosyntec	
TEMPERATURE - SAMPLES RECEIVED BY:	DATE: 12-10-03
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.	LABORATORY (Other than Calscience Courier):  °C Temperature blank.  °C IR thermometer.  Ambient temperature.
°C Temperature blank.	Initial:
CUSTODY SEAL INTACT:	
Sample(a):	Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples.  Sample container label(s) consistent with custody papers.  Sample container(s) intact and good condition.  Correct containers for analyses requested.  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation	
	Initial:
COMMENTS:	



January 21, 2004

Jamey Rosen
GeoSyntec Consultants
130 Research Lane, Suite 2
N1G 5G3
Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

04-01-0177

Client Reference:

**Aerojet** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 1/7/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

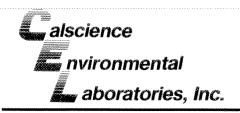
Zalscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager

,



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

01/07/04 04-01-0177 N/A RSK-175M

Project: Aerojet

Page 1 of 1

Project: Aerojet										Pag	e 1 of 1
Client Sample Number					Sample imber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-RW-1				04-01	-0177-1	01/06/04	Aqueous	N/A	01/07/04	040107	L02
<u>Parameter</u> Methane	Result ND	<u>RL</u> 1.00	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Ethane	ND	1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-MW-1				04-01	-0177-2	01/06/04	Aqueous	N/A	01/07/04	040107	L02
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
STSW-138A				04-01	0177-3	01/06/04	Aqueous	N/A	01/07/04	040107	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	2.60 ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-1				04-01	0177-4	01/06/04	Aqueous	N/A	01/07/04	040107	L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-2				04-01-	0177-5	01/06/04	Aqueous	N/A	01/07/04	040107	L02
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
Method Blank				099-12	2-010-51	1 N/A	Aqueous	N/A	01/07/04	040107	_02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L

RL - Repor

# alscience nvironmental aboratories, Inc.

### **Analytical Report**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

01/07/04 04-01-0177 N/A

EPA 376.2

Project: Aerojet

Project: Aerojet								Page 1 of 1
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-01-0177-1	01/06/04	Aqueous	N/A	01/08/04	40108SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-MW-1			04-01-0177-2	01/06/04	Aqueous	N/A	01/08/04	40108SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-138A			04-01-0177-3	01/06/04	Aqueous	N/A	01/08/04	40108SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1			04-01-0177-4	01/06/04	Aqueous	N/A	01/08/04	40108SB1
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2			04-01-0177-5	01/06/04	Aqueous	N/A	01/08/04	40108SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank	:		099-05-089-1,516	6 N/A	Aqueous	N/A	01/08/04	40108SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

DF - Dilution Factor ,

Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation: Method:

01/07/04

04-01-0177

N/A

EPA 8015B

Project: Aerojet								Page 1 of 2
Client Sample Number		·	Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-01-0177-1	01/06/04	Aqueous	N/A	01/08/04	040108L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	290	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	116	<u>Limits</u> 63-147						
WNN-MW-1			04-01-0177-2	01/06/04	Aqueous	N/A	01/08/04	040108L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	102	<u>Limits</u> 63-147						
STSW-138A			04-01-0177-3	01/06/04	Aqueous	N/A	01/08/04	040108L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	92	<u>Limits</u> 63-147						
WNN-EW-1			04-01-0177-4	01/06/04	Aqueous	N/A	01/08/04	040108L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						

RL - Reporting Limit , DF - Dilution Factor Qual - Qualifiers



GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation: Method:

**EPA 8015B** 

Project: Aerojet

Page 2 of 2

01/07/04

N/A

04-01-0177

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-EW-2			04-01-0177-5	01/06/04	Aqueous	N/A	01/08/04	040108L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	85	<u>Limits</u> 63-147						

Method Blank			099-12-006-928	N/A	Aqueous	N/A	01/08/04	040108L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	<u>Control</u>		Qual				
Hexafluoro-2-propanol	106	<u>Limits</u> 63-147						



Date Received: 01/07/04
Work Order No: 04-01-0177
Preparation: N/A
Method: HPLC/UV

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Project: Aerojet

Page 1 of 2

Client Sample Number				Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			ı	04-01-0177-1	01/06/04	Aqueous	N/A	01/19/04	040119	L01
Parameter Pyruvic Acid Acetic Acid Lactic Acid	Result ND ND ND	<u>RL</u> 0.50 1.0 1.0	<u>DF</u> 1 1	Qual Units mg/L mg/L mg/L	Parameter Propionic Acid Butyric Acid		Result ND ND	<u>RL</u> 1.0 1.0	DF Qual 1	<u>Units</u> mg/L mg/L
Surrogates: Dibromopropionic Acid	REC (%)	Control Limits 80-120		Qual						
WNN-MW-1			(	04-01-0177-2	01/06/04	Aqueous	N/A	01/19/04	040119	L01
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid  STSW-138A  Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates:	Result ND ND ND REC (%) 103  Result ND ND ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120 RL 0.50 1.0 1.0 Control Limits	1 1 1	Qual Units mg/L Qual	Parameter Propionic Acid Butyric Acid  01/06/04  Parameter Propionic Acid Butyric Acid	Aqueous	Result ND ND N/A Result ND ND	RL 1.0 1.0 01/19/04 RL 1.0 1.0	040119 DF Qual 1 1 1	Units mg/L mg/L L01 Units mg/L mg/L
Dibromopropionic Acid  WNN-EW-1	96	80-120	· · · · ·	04-01-0177-4	01/06/04	Aqueous	N/A	01/19/04	040119	L <b>01</b>
Parameter Pyruvic Acid Acetic Acid Lactic Acid Surrogates: Dibromopropionic Acid	Result ND ND ND ND REC (%)	RL 0.50 1.0 1.0 Control Limits 80-120	1 1 1	Qual Units mg/L mg/L mg/L	Parameter Propionic Acid Butyric Acid		Result ND ND	<u>RL</u> 1.0 1.0	DF Qual 1 1	<u>Units</u> mg/L mg/L





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

01/07/04 04-01-0177 N/A HPLC/UV

Project: Aerojet

Page 2 of 2

Client Sample Number				o Sample lumber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	h ID
WNN-EW-2			04-0	1-0177-5	01/06/04	Aqueous	N/A	01/19/04	040119	L01
<u>Parameter</u>	Result	RL	DF Qua	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.2	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L						Ü
Surrogates:	REC (%)	Control Limits	Qu	<u>al</u>						
Dibromopropionic Acid	99	80-120								

Method Blank			(	099-12-016-19	N/A	Aqueous N/A	01/19/04	040119	)L01
<u>Parameter</u>	Result	RL	DF :	Qual Units	<u>Parameter</u>	Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid	ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid	ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L					Ü
Surrogates:	REC (%)	Control Limits		Qual					
Dibromopropionic Acid	95	80-120							

RL - Repor



### **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-01-0177 N/A RSK-175M

Quality Control Sample ID	Matrix I	nstrument	Date Prepared	Date Analyze	<u> </u>	LCS/LCSD Bato Number	h
099-12-010-511	Aqueous	GC 33	N/A	01/07/04		040107L02	
<u>Parameter</u>	LCS %REC	LCSD %F	REC %RE	C CL	RPD	RPD CL	Qualifiers
Methane	103	105	79	-109	2	0-20	
Ethane	100	103	80	-120	3	0-20	



#### **Quality Control - Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project:

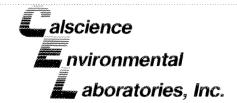
Aerojet

Date Received: Work Order No: Preparation: Method: 01/07/04 04-01-0177 N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
04-01-0175-1	- Aqueous	N/A	N/A	01/08/04	40108SD1
Parameter	Sample Conc	DUP Conc	<u>RPD</u>	RPD CL	Qualifiers
Sulfide, Total	100	110	10	0-25	





# Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Date Neceiveu.

01/07/04 04-01-0177

Work Order No:

N/A

Preparation: Method:

**EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
04-01-0180-1	Aqueous	GC12	N/A		01/08/04	040108S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	104 98	106 99	64-118 73-109	2 1	0-20 0-23	



# **Quality Control - LCS/LCS Duplicate**

0-19

GeoSyntec Consultants

130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project:

Ethanol

Aerojet

Date Received: Work Order No: Preparation: Method:

76-112

0

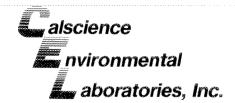
04-01-0177 N/A EPA 8015B

N/A

Quality Control Sample ID	Matrix	Instrument	Date rument Prepared		d	LCS/LCSD Batc Number	h
099-12-006-928	Aqueous	GC12	N/A	01/08/04	•	040108L01	
Parameter	LCS %R	EC LCSD	%REC %F	EC CL	RPD	RPD CL	Qualifiers
Methanol	99	99	6	9-117	0	0-22	

102

102



# **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet Date Received:

Work Order No:

Preparation:

Method:

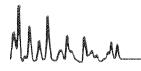
01/07/04

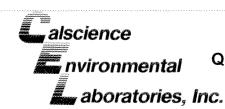
04-01-0177

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepare		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		01/19/04	040119801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	. Qualifiers
Pyruvic Acid	108	112	70-130	4	0-30	
Acetic Acid	120	120	70-130	0	0-30	
Lactic Acid	117	117	70-130	0	0-30	
Propionic Acid	97	98	70-130	1	0-30	
Butyric Acid	99	96	70-130	3	0-30	



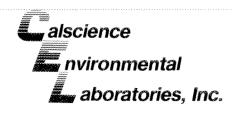


# **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario Canada 0

Guelph, Ontario, Canada 0 Project: Aerojet Date Received: Work Order No: Preparation: Method: N/A 04-01-0177 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		ate yzed	LCS/LCSD Bate Number	h
099-12-016-19	Aqueous	HPLC 6	N/A	01/1	9/04	040119L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %	6REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	100	94		80-120	6	0-20	
Acetic Acid	111	106		80-120	4	0-20	
Lactic Acid	120	115		80-120	4	0-20	
Propionic Acid	96	84		80-120	13	0-20	
Butyric Acid	112	99		80-120	12	0-20	



# Glossary of Terms and Qualifiers

Work Order Number: 04-01-0177

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.



WORK ORDER #:

04-01-0177

Cooler \_ \ \_ of \_ \

# SAMPLE RECEIPT FORM

CLIENT: GEOSYNTEC	DATE: 1-7-03					
TEMPERATURE - SAMPLES RECEIVED BY:						
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier)  C Temperature blank.  C IR thermometer.  Ambient temperature.					
CUSTODY SEAL INTACT:						
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A):					
SAMPLE CONDITION:						
Chain-Of-Custody document(s) received with samples						
COMMENTS:						

waboretories, inc. movironmental 

7440 LINCOLN WAY

CHAIN OF CUSTODY RECORD

P

PAGE: DATE:

TEL: (714) 895-5494 . FAX: (714) 894-7501 GARDEN GROVE, CA 92841-1432

Time: 19:00 Time: LAB USE ONLY QUOTE NO. Date: 104 REQUESTED ANALYSIS Losen SAMPER(S): (SIGNATURE Herojet PROJECT CONTACT. Received by: (Signature) Received by: (Signature) **Total Chromium** \*Cont S DAYS AND DAYS S O  $\geq$ 17:40 9:50 10:32 7:10 11:41 TIME 116563 SAMPLING 1/9/04 DATE ARCHIVE SAMPLES UNTIL Goosyntes Consultants 72 HR ano LOCATION/ DESCRIPTION SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY) ] SAME DAY | 24 HR | 48HR Ontario Research RWQCB REPORTING 519-822-2230 W/W- EW-2 WWW RW-MMM- EW-I STSW. 138A WNN. MWI SAMPLE ID Relinquished by: (Signature) Relinquished by: (Signature) y: (Signature SPECIAL INSTRUCTIONS 130 **TURNAROUND TIME** ES 38



January 26, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

**Calscience Work Order No.:** 

04-01-0984

Client Reference:

**Aerojet** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 1/21/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

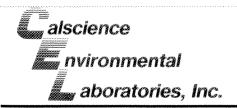
Sincerely

alscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. **Cr**isostomo

Quality Assurance Manager



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Work Order No: Preparation: Method:

01/21/04 04-01-0984 N/A

Date Received:

**RSK-175M** 

Project: Aerojet

Page 1 of 1

Client Sample Number					Sample ımber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1				04-01	-0984-1	01/20/04	Aqueous	N/A	01/22/04	040122	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual	Units ug/L ug/L	Parameter Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-MW-1				04-01	-0984-2	01/20/04	Aqueous	N/A	01/22/04	040122	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual	Units ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
STSW-138A				04-01	-0984-3	01/20/04	Aqueous	N/A	01/22/04	040122	L02
<u>Parameter</u> Methane Ethane	Result 2.73 ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	<u>Qual</u>	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-1				04-01	-0984-4	01/20/04	Aqueous	N/A	01/22/04	040122	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	<u>Qual</u>	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-2				04-01	0984-5	01/20/04	Aqueous	N/A	01/22/04	040122	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Method Blank				099-1	2-010-52	7 N/A	Aqueous	N/A	01/22/04	040122	L02
Parameter Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene	-	<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L

RL - Reporting Limit ,

DF - Dilution Factor

# alscience nvironmental aboratories, Inc.

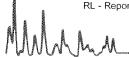
# **Analytical Report**

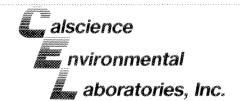
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 01/21/04 04-01-0984 N/A EPA 8015B

_				
1.222	110	~+·	/\ ^r	MIMT
Pro	11		~=:	ojet

Page 1 of 2

Project: Aerojet								Page 1 of 2
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-01-0984-1	01/20/04	Aqueous	N/A	01/22/04	040122L01
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	260	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
WNN-MW-1			04-01-0984-2	01/20/04	Aqueous	N/A	01/22/04	040122L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
STSW-138A			04-01-0984-3	01/20/04	Aqueous	N/A	01/22/04	040122L01
Parameter	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						
WNN-EW-1			04-01-0984-4	01/20/04	Aqueous	N/A	01/22/04	040122L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
dexafluoro-2-propanol	106	<u>Limits</u> 63-147						





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation: Method:

01/21/04

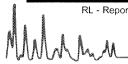
04-01-0984

N/A

EPA 8015B

Project: Aerojet Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-EW-2			04-01-0984-5	01/20/04	Aqueous	N/A	01/22/04	040122L01
<sup>2</sup> arameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	110	<u>Limits</u> 63-147						
Method Blank			099-12-006-947	N/A	Aqueous	N/A	01/22/04	040122L01
Parameter Parameter	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147						





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

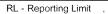
Date Received: Work Order No: Preparation: Method:

01/21/04 04-01-0984 N/A HPLC/UV

Project: Aerojet

Page 1 of 2

Project. Aerojet									1 49	JC 1 01 Z
Client Sample Number				Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1				04-01-0984-1	01/20/04	Aqueous	N/A	01/23/04	040123	IL01
Parameter	Result	RL	DF	Qual Units	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	,					J
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	92	<u>Limits</u> 80-120								
WNN-MW-1				04-01-0984-2	01/20/04	Aqueous	N/A	01/23/04	040123	IL01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual Units	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	,					J
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	97	80-120								
STSW-138A				04-01-0984-3	01/20/04	Aqueous	N/A	01/23/04	040123	L01
Parameter	Result	RL	DF	Qual Units	Parameter		Result	RL	DF Qual	Units
Pvruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	,				·	
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	96	80-120								
WNN-EW-1	***************************************		***************************************	04-01-0984-4	01/20/04	Aqueous	N/A	01/23/04	040123	L01
Parameter	Result	RL	DF	Qual Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	Datyno Mola		140	1.0	•	my/L
Surrogates:	REC (%)	Control		Qual						
and the second s		Limits								
Dibromopropionic Acid	98	80-120								





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 01/21/04 04-01-0984 N/A

HPLC/UV

Project: Aerojet

Dibromopropionic Acid

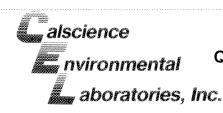
Page 2 of 2

Client Sample Number				Lab Sa Num	1	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-EW-2				04-01-09	984-5	01/20/04	Aqueous	N/A	01/23/04	040123	IL01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual L	<u>Jnits</u>	Parameter		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	m	ng/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	m	ng/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	m	ng/L	•					-
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	95	80-120	i								
Method Blank				099-12-0	016-20	N/A	Aqueous	N/A	01/23/04	040123	L01
Parameter Parameter	Result	RL	DF	Qual L	Jnits	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	m	ng/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	m	ng/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1		ng/L	-					J
Surrogates:	REC (%)	Control		Qual							

RL - Repor

<u>Limits</u> 80-120

91



# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-01-0984 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCS Num	
099-12-010-527	Aqueous	GC 33	N/A	01/22/04	04012	2L02
Parameter	LCS %RI	EC LCSD	%REC %F	REC CL F	RPD RPD	CL Qualifiers
Methane	109	103	7	'9-109	6 0-2	20
Ethane	106	101	8	30-120	5 0-2	20





# **Quality Control - Spike/Spike Duplicate**

Date Received:

01/21/04

Work Order No:

04-01-0984

Preparation:

N/A

Method:

EPA 8015B

Project: Aerojet

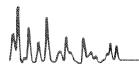
N1G 5G3

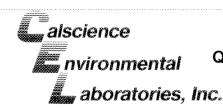
GeoSyntec Consultants

130 Research Lane, Suite 2

Guelph, Ontario, Canada 0

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-MW-1	Aqueous	GC12	N/A		01/22/04	040122S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	100 100	100 102	64-118 73-109	0 3	0-20 0-23	





# **Quality Control - LCS/LCS Duplicate**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet Date Received: Work Order No: Preparation: Method:

N/A 04-01-0984 N/A **EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	h
099-12-006-947	Aqueous	GC12	N/A	01/22/04	040122L01	
Parameter	LCS %F	REC LCSD %	REC %RE	EC CL RPD	RPD CL	Qualifiers
Methanol	97	94	69	-117 3	0-22	
Ethanol	99	99	76	-112 0	0-19	



# **Quality Control - Spike/Spike Duplicate**

Date Received:

01/21/04

Work Order No:

04-01-0984

Preparation:

N/A

Method:

HPLC/UV

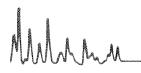
Guelph, Ontario, Canada 0
Project: Aerojet

N1G 5G3

GeoSyntec Consultants

130 Research Lane, Suite 2

Quality Control Sample ID	Matrix	Instrument	Date Prepared	A	Date Analyzed	MS/MSD Batch Number	
WNN-RW-1	Aqueous	HPLC 6	N/A		01/23/04	040123501	
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers	
Pyruvic Acid	98	99	70-130	1	0-30		
Acetic Acid	107	105	70-130	2	0-30		
Lactic Acid	113	109	70-130	4	0-30		
Propionic Acid	81	82	70-130	1	0-30		
Butyric Acid	112	109	70-130	3	0-30		



# Calscience

# **Quality Control - Laboratory Control Sample**

aboratories, Inc.

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method:

N/A 04-01-0984 N/A HPLC/UV

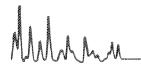
Quality Control Sample ID	Matrix	Instrume	nt Date Analyzed	Lab Fil	e ID L	LCS Batch Number		
099-12-016-20	Aqueous	HPLC (	6 01/23/04	040123	04	040123L01		
Parameter		Conc Added	Conc Recovered	%Rec	%Rec CL	Qualifiers		
Pyruvic Acid		20	20	100	80-120			
Acetic Acid		20	23	113	80-120			
Lactic Acid		20	23	117	80-120			
Propionic Acid		20	16	80	80-120			
Butyric Acid		20	23	113	80-120			



# Glossary of Terms and Qualifiers

Work Order Number: 04-01-0984

Qualifier	<u>Definition</u>
ND	Not detected at indicated reporting limit.
X	% Recovery and/or RPD out-of-range.





WORK ORDER #:

04-01-0984

Cooler \_\_\ of \_\

# **SAMPLE RECEIPT FORM**

CLIENT: GEOSYNTEC	DATE: 1-21-04
TEMPERATURE – SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer. Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A):
CAMPLE COMPITION.	
SAMPLE CONDITION:  Chain-Of-Custody document(s) received with samples	
COMMENTS:	

Lascianca

Trivonmental

Laboratories, inc.

GARDEN GROVE, CA 92841-1432 7440 LINCOLN WAY

TEL: (714) 895-5494 . FAX: (714) 894-7501

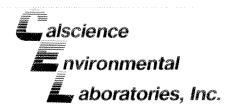
CHAIN OF CUSTODY RECORD

DATE:

PAGE:

P

P.O. NO.:	QUOTE NO.:	SE ONLY		INALYSIS												Date Time: 00	Date: Time:	Date: Date: 00
CLIENT PROJECT NAME/NUMBER:	PROJECT CONTACT:	SAMPLER(S): (SIGNATURE)	May more	REQUESTED ANALYSIS		muimo	Total Chi	X X	X X X	ダダオ	オイン	X X X				gnature)	g/au/fe)	ghature)
tec	th love, Ste #2	Ontario, Conorla		48HR 72 HR 5 DAYS 70 DAYS	ARCHIVE SAMPLES UNTIL / /		LOCATION SAMPLING 4 A A A A A A A A A A A A A A A A A A		1 75:01	11:46	12:20	V 12:50 V				Received by: (Signature)	Received by: (Signature)	Received by: (Sighature)
LABORATORY CLIENT: (20054ntec		phy	ン/4・8イイ・インの TURNAROUND TIME	SAME DAY 24 HR	SPECIAL NEGOINEMENTS (AUDITIONAL COSTS MAY APPLY)  SPECIAL INSTRUCTIONS		LAB USE SAMPLE ID ONLY		2 WWN-MWI	2 575W-138A	Y WWW-EW-	5 WWW-EW-2			Poliofischod by (Cinnet C.)	Committee of Communication of the Communication of	Nominduisired by. (Signature)	Relinquished by: (Signature)



February 11, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

04-02-0187

Client Reference:

**Aerojet** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/4/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

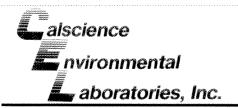
Sincerely,

íl**scíe∕ncé∕Erí**vironmental Laboratories, Inc.

Stephen Nowak

Project Manager

Michael J. Chisostomo Quality Assurance Manager



Date Received: Work Order No:

Preparation:

02/04/04 04-02-0187

N/A

N1G 5G3 Guelph, Ontario, Canada 0

130 Research Lane, Suite 2

GeoSyntec Consultants

Method:

**RSK-175M** 

Project: Aerojet

Page 1 of 1

1 10,000. 1010,00										, 49	,0 , 0,
Client Sample Number		-		Lab Sa Num		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-RW-1	A A CANADA A A A A A A A A A A A A A A A A A			04-02-0	187-1	02/03/04	Aqueous	N/A	02/05/04	040205	L01
<u>Parameter</u>	Result	RL	DF	Qual 1	<u> Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane	ND	1.00	1	U	ıg/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1	U	ıg/L						
WNN-MW1				04-02-0	187-2	02/03/04	Aqueous	N/A	02/05/04	040205	L01
<u>Parameter</u>	Result	RL	DF	Qual U	Jnits	Parameter		Result	RL	DF Qual	Units
Methane	2.15	1.00	1	U	ıg/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1		ıg/L	•					Ü
STSW-138A				04-02-0	187-3	02/03/04	Aqueous	N/A	02/05/04	040205	L01
Parameter	Result	RL	DF	Qual U	<u>Jnits</u>	Parameter		Result	RL	DF Qual	Units
Methane	6.34	1.00	1	u	ıg/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1	u	ıg/L	•					3
WNN-EW-1				04-02-0	187-4	02/03/04	Aqueous	N/A	02/05/04	040205	L01
<u>Parameter</u>	Result	RL	DF	Qual U	Jnits	Parameter		Result	<u>RL</u>	DF Qual	Units
Methane	ND	1.00	1	u	ıq/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1	u	g/L	•					3
WNN-EW-2				04-02-0	187-5	02/03/04	Aqueous	N/A	02/05/04	040205	L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual L	<u>Jnits</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	Units
Methane	ND	1.00	1	u	g/L	Ethylene		ND	1.00	1	ug/L
Ethane	ND	1.00	1	u	g/L	-					•
Method Blank				099-12-0	010-539	N/A	Aqueous	N/A	02/05/04	040205	L01
Parameter	Result	RL	DF	Qual U	Jnits	Parameter		Result	RL	DF Qual	Units
Parameter Methane	<u>Result</u> ND	<u>RL</u> 1.00	<u>DF</u> 1	-	<u>Jnits</u> g/L	Parameter Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual	Units ug/L

RL - Reporting Limit ,

DF - Dilution Factor

# Calscience Environmental Laboratories, Inc.

# **Analytical Report**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 02/04/04 04-02-0187 N/A EPA 376.2

oject:	Aer	

Page 1 of 1

Project: Aerojet								Page 1 of 1
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-02-0187-1	02/03/04	Aqueous	N/A	02/09/04	40209SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-MW1			04-02-0187-2	02/03/04	Aqueous	N/A	02/09/04	40209SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-138A			04-02-0187-3	02/03/04	Aqueous	N/A:	02/09/04	40209SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1			04-02-0187-4	02/03/04	Aqueous	N/A	02/09/04	40209SB1
<u>Parameter</u>	Result	RL	DF	<u>Qual</u>	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2			04-02-0187-5	02/03/04	Aqueous	N/A	02/09/04	40209SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-80A			04-02-0187-6	02/03/04	Aqueous	N/A	02/09/04	40209SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank			099-05-089-1,5	31 N/A	Aqueous	N/A	02/09/04	40209SB1
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

RL - Reporting Limit

DF - Dilution Factor ,

# Calscience Environmental Laboratories, Inc.

# **Analytical Report**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

Preparation:

Method:

02/04/04

04-02-0187 N/A

EPA 8015B

Project: Aerojet

Page 1 of 2

1 10,001. 71010,01								1 490 1 01 2
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-02-0187-1	02/03/04	Aqueous	N/A	02/09/04	040209L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	250	10°	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	100	<u>Limits</u> 63-147						
WNN-MW1			04-02-0187-2	02/03/04	Aqueous	N/A	02/09/04	040209L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						
STSW-138A			04-02-0187-3	02/03/04	Aqueous	N/A	02/09/04	040209L01
<u>Parameter</u>	Result	RL	<u>DE</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	100	<u>Limits</u> 63-147						
WNN-EW-1			04-02-0187-4	02/03/04	Aqueous	N/A	02/09/04	040209L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						

RL - Reporting Limit

DF - Dilution Factor ,



Date Received:

02/04/04 04-02-0187

GeoSyntec Consultants 130 Research Lane, Suite 2

Work Order No:

N1G 5G3

Preparation: N/A **EPA 8015B** 

Guelph, Ontario, Canada 0

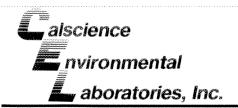
Method:

Project: Aerojet

Page 2 of 2

Troject. Aerojet						***************************************		raye z ui z
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-EW-2	-		04-02-0187-5	02/03/04	Aqueous	N/A	02/09/04	040209L01
Parameter	Result	RL	DF	Qual	Units			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	93	<u>Limits</u> 63-147						
STSW-80A			04-02-0187-6	02/03/04	Aqueous	N/A	02/09/04	040209L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	92	<u>Limits</u> 63-147						
Method Blank			099-12-006-970	N/A	Aqueous	N/A	02/09/04	040209L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

02/04/04 04-02-0187 N/A HPLC/UV

Project: Aerojet

Page 1 of 2

r roject. Acrojet										
Client Sample Number				Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1				04-02-0187-1	02/03/04	Aqueous	N/A	02/07/04	040206	L01
<u>Parameter</u>	Result	RL	DF	Qual Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.7	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L						J
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	99	<u>Limits</u> 80-120								
WNN-MW1				04-02-0187-2	02/03/04	Aqueous	N/A	02/07/04	040206	L01
Parameter Parameter	Result	RL	DF	Qual Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	0.72	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L	•					<b>J</b>
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	100	80-120								
STSW-138A				04-02-0187-3	02/03/04	Aqueous	N/A	02/07/04	040206	L01
Parameter	Result	RL	<u>DF</u>	Qual Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	-					Ŭ
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	97	80-120								
Sibiornopropionic Acid	٠.									
WNN-EW-1		-		04-02-0187-4	02/03/04	Aqueous	N/A	02/07/04	040206	L01
WNN-EW-1		RL	DF		<u></u>	Aqueous		·		
WNN-EW-1 Parameter	Result	<u>RL</u> 0.50	<u>DF</u>	Qual Units	Parameter	Aqueous	Result	RL	DF Qual	<u>Units</u>
WNN-EW-1  Parameter  Pyruvic Acid	Result ND	0.50	1	Qual Units mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L
WNN-EW-1  Parameter  Pyruvic Acid Acetic Acid	Result			Qual Units	Parameter	Aqueous	Result	RL	DF Qual	<u>Units</u>
WNN-EW-1	Result ND ND ND	0.50 1.0	1	Qual Units mg/L mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L
WNN-EW-1  Parameter  Pyruvic Acid Acetic Acid actic Acid	Result ND ND	0.50 1.0 1.0	1	Qual Units mg/L mg/L mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	Units mg/L

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

04-02-0187 N/A HPLC/UV

02/04/04

Project: Aerojet

Page 2 of 2

									. 0.8	,0 = 0. =
Client Sample Number				Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-EW-2				04-02-0187-5	02/03/04	Aqueous	N/A	02/07/04	040206	SL01
<u>Parameter</u>	Result	RL	DF	Qual Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	•					J
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	98	<u>Limits</u> 80-120								
Method Blank			. (	099-12-016-21	N/A	Aqueous	N/A	02/07/04	040206	L01
<u>Parameter</u>	Result	RL	DF	Qual Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	-					J
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	96	80-120								

RL - Reporting Limit

DF - Dilution Factor ,



# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0187 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze	đ	LCS/LCSD Bate Number	ch
099-12-010-539	Aqueous	GC 33	N/A	02/05/04		040205L01	
<u>Parameter</u>	LCS %RI	EC LCSD	%REC %R	EC CL	RPD	RPD CL	Qualifiers
Methane	101	95	7	9-109	6	0-20	
Ethane	101	97	8	0-120	4	0-20	





# **Quality Control - Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet

Date Received: Work Order No: Preparation: Method: 02/04/04 04-02-0187 N/A

EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
04-02-0212-1	Aqueous	N/A	N/A	02/09/04	40209SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	





# **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No:

Preparation:

Method:

02/04/04

04-02-0187

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
04-02-0157-1	Aqueous	GC12	N/A		02/09/04	040209801
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	91 103	94 105	64-118 73-109	3 2	0-20 0-23	



# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0187 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bato Number	h
099-12-006-970	Aqueous	GC12	N/A	02/09/04	040209L01	
Parameter	LCS %REG	C LCSD %	REC %RE	EC CL RPI	D RPD CL	Qualifiers
Methanol	94	98	69	-117 3	0-22	
Ethanol	103	107	76	-112 4	0-19	





# **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No:

- On Oraci ite

Preparation:

Method:

02/04/04

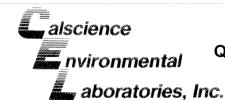
04-02-0187

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		02/07/04	040206\$01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	103	105	70-130	2	0-30	
Acetic Acid	114	116	70-130	2	0-30	
Lactic Acid	127	129	70-130	2	0-30	
Propionic Acid	97	97	70-130	0	0-30	
Butyric Acid	110	114	70-130	3	0-30	





# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

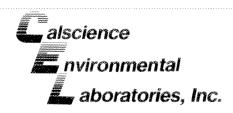
Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0187 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bato Number	h
099-12-016-21	Aqueous	HPLC 6	N/A	02/07/04	040206L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %RE	C CL RPD	RPD CL	Qualifiers
Pyruvic Acid	105	104	80-	120 0	0-20	
Acetic Acid	110	106	80-	120 3	0-20	
Lactic Acid	116	119	80-	120 2	0-20	
Propionic Acid	95	95	80-	120 0	0-20	
Butyric Acid	100	97	80-	120 2	0-20	





# **Glossary of Terms and Qualifiers**



Work Order Number: 04-02-0187

**Qualifier** 

**Definition** 

ND

Not detected at indicated reporting limit.





WORK ORDER #:

04-02-0187

Cooler \_\_\_\_\_ of \_\_(\_\_\_

# SAMPLE RECEIPT FORM

CLIENT: Geo Syntec	DATE: 02/04/2004
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.  C Temperature blank.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer. Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	

alecience nvironmental Asboratories, inc.

7440 LINCOLN WAY GARDEN GROVE, CA 92841-1432

**CHAIN OF CUSTODY RECORD** 

P

PAGE: DATE:

TEL: (714) 895-5494 . FAX: (714) 894-7501

IAROF	I ABOBATORY OF ICENT.																	
Geos	GeoSyntec Consultants						CLIENT	PROJEC	I NAME /	CLIENT PROJECT NAME / NUMBER:					P.O. NO.:			Г
ADDRESS:	ADDRESS:					T	Aerojet-WNN	jet-W	Z									
S I	research Laire, Suite Z						PROJEC	T CONT	CT						QUOTE NO.	0.:		Т
Guel	Guelph, Ontario N1G 5G3						SAMPLE	ey RC	Jamey Rosen									
7EL 519-8	1	FAX:		E-MAIL						ì							<u>M</u>	
	SAME DAY 24 HR	48HR 🔲 72 HR		5 DAYS X	10 DAYS	YS					8	QUE	REQUESTED ANALYSIS	ANAL	YSIS			T
SPECI,	SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)  RWQCB REPORTING ARCHIVE	STS MAY APPLY) ARCHIVE SAMPLES UNTIL	SUNTIL		_		อระย					<u> </u>						
SPECI	AL INSTRUCTIONS							ty Acids					5					
LAB		LOCATION	SAME	SAMPLING					əp			<del></del>						***********
S S	SAMPLE ID	DESCRIPTION	DATE	TIME	Aatrit .	Cont	etha  Diss		iłluS	<del></del>								.,,,,.,.
	WNN-RW-1		02/03/04	9.55		70	┼─	╂	×			╂						T
	WNN-MW1		02/03/04	11:30	GW	7	×	×	×			-						T
6)	STSW-138A		02/03/04	04:01	GW	72	×	×	×			├-						Ť
5	9 WNN-EW-1		02/03/04	84:21	GW	5	×	×	×	-		+						T
Ŋ	S wnn-ew-2		02/03/04	11:55	GW	7	×	×	×			4		-				·········
2	STSW-80A		02/03/04	12:30	GW	2	×	<u> </u>	×	<u> </u>		<del> </del>						T
												<u> </u>						T
																		<u></u>
																		T
	AL - 1 (C)																	T
2	Charam ruches				Received by: (Signature)	by: (Sig	nature)								Date:	Time.	1 5	T
Kelindu	Kelinquished by: (Signature)				Received by: (Signature)	by: (Sig	nature)								·   ·	Time	<b>\</b>	F
Relinqu	Relinquished by: (Signature)				Received by: (Signature)	by: (Sig	nature)							1	Date:	Times		T
							X	7:11	,						0 / 1 C / C / C		6	





February 20, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

04-02-0589

Client Reference:

**Aerojet WNN** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/11/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

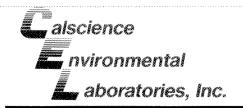
Sincereka.

Callscievice Environmental

/ Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

**Quality Assurance Manager** 



ND

1.00

# **Analytical Report**

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

02/11/04 04-02-0589 N/A

N/A RSK-175M

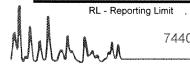
Project: Aerojet WNN

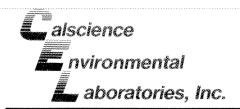
Ethane

Page 1 of 1

				,	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	h ID
			04-02	-0589-1	02/10/04	Aqueous	N/A	02/11/04	040211	L02
Result	RL	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
ND	1.00	1		ug/L						
			099-1	2-010-545	N/A	Aqueous	N/A	02/11/04	040211	L02
Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	<u>RL</u>	DF Qual	Units
ND	1.00	1		ug/L	Ethylene		ND	1.00	1	ug/L
	ND ND	ND 1.00 ND 1.00	ND 1.00 1 ND 1.00 1  Result RL DF	Nu   O4-02	ND 1.00 1 ug/L ND 1.00 1 ug/L  099-12-010-545  Result RL DF Qual Units	Number   Collected	Number   Collected   Matrix	Number         Collected         Matrix         Prepared           04-02-0589-1         02/10/04         Aqueous         N/A           Result         RL         DF         Qual         Units         Parameter         Result           ND         1.00         1         ug/L         Ethylene         ND           ND         1.00         1         ug/L         N/A           O99-12-010-545         N/A         Aqueous         N/A           Result         RL         DF         Qual         Units         Parameter         Result	Result ND         RL         DF Number         Qual Units ug/L         Parameter Ethylene         Result ND         N/A         02/11/04           Result ND         1.00         1         ug/L         Ethylene         ND         1.00           ND         1.00         1         ug/L         ND         1.00           ND         1.00         1         ug/L         ND         1.00           ND         1.00         1         ug/L         Result RL         N/A         02/11/04	Number   Collected   Matrix   Prepared   Analyzed   QC Batco

ug/L





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

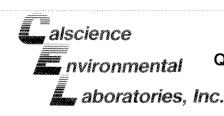
02/11/04 04-02-0589 N/A HPLC/UV

Project: Aerojet WN	IN									Pag	e 1 of 1
Client Sample Number		-			Sample umber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
STSW-166				04-02	-0589-1	02/10/04	Aqueous	N/A	02/18/04	040218	L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND .	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	100	80-120									
Method Blank				099-1	2-016-22	N/A	Aqueous	N/A	02/18/04	040218	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
						-					<u> </u>

Lactic Acid ND 1.0 mg/L Surrogates: **REC (%)** Control Qual <u>Limits</u> Dibromopropionic Acid 97 80-120

RL - Reporting Limit ,

DF - Dilution Factor , Qual - Qualifiers



# **Quality Control - LCS/LCS Duplicate**



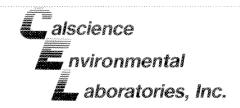
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Aerojet WNN

Project:

Date Received: Work Order No: Preparation: Method:

N/A 04-02-0589 N/A **RSK-175M** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	<u>t</u>	LCS/LCSD Bate Number	sh
099-12-010-545	Aqueous	GC 33	N/A	02/11/04		040211L02	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Methane	100	101		79-109	1	0-20	
Ethane	100	101		80-120	1	0-20	



# **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet WNN

Date Received:

Work Order No:

Preparation:

Method:

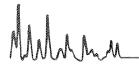
02/11/04

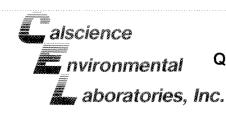
04-02-0589

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
04-02-0978-1	Aqueous	HPLC 6	N/A		02/18/04	040218501
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	109	113	70-130	4	0-30	
Acetic Acid	115	118	70-130	3	0-30	
Lactic Acid	105	110	70-130	5	0-30	
Propionic Acid	82	93	70-130	12	0-30	
Butyric Acid	93	98	70-130	6	0-30	



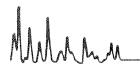


#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet WNN Date Received: Work Order No: Preparation: Method: N/A 04-02-0589 N/A HPLC/UV

Quality Control Sample	D	Matrix	Instrument	Date Prepared	Da Analy		LCS/LCSD Batc Number	h 
099-12-016-22		Aqueous	HPLC 6	N/A	02/18	/04	040218L01	
<u>Parameter</u>		LCS %RE	C LCSD %F	REC %F	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid		109	111	8	0-120	2	0-20	
Acetic Acid		116	113	8	0-120	3	0-20	
Lactic Acid		108	110	8	0-120	2	0-20	
Propionic Acid		81	82	8	0-120	2	0-20	
Butyric Acid		93	95	8	0-120	2	0-20	





# Glossary of Terms and Qualifiers



Work Order Number: 04-02-0589

<u>Qualifier</u> <u>Definition</u>

ND Not detected at indicated reporting limit.





**WORK ORDER #:** 

04-02-0589

Cool	er	( 01	F 1
	<b>~</b> .	· •	1

# **SAMPLE RECEIPT FORM**

CLIENT: CARONTEC	DATE: 2/11/04
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.	LABORATORY (Other than Calscience Courier): ° C Temperature blank. ° C IR thermometer. Ambient temperature.
°C Temperature blank.	Initial:
CUSTODY SEAL INTACT:	
	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	
·	

alscience nvironmental aboratories, inc.

7440 LINCOLN WAY GARDEN GROVE, CA 92841-1432

CHAIN OF CUSTODY RECORD DATE:

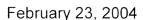
Ą

PAGE:

TEL: (714) 895-5494 . FAX: (714) 894-7501

YB.	LABORATORY CLIENT:						CLIENT	PROJEC	I NAME /	CLIENT PROJECT NAME / NUMBER:						NA OG				I
ge	GeoSyntec Consultants															5	2			
AP C	ADDRESS:						Aero	<b>Aerojet-WNN</b>	Z Z											
2 S	ISO RESEARCH LANE, SUITE 2						PROJECT CONTACT	TCONT	ACT							ano	QUOTE NO.:			
9	Guelph Ontario NAC 503						Jam	Jamey Rosen	Sen											
	FAX:			E-MAIL			SAMPLE	K(S): (S	SAMPLER(S): (SIGNATURE)	Ω						<u>8</u>	LAB USE ONLY		<u>_</u>	
519 ™	519-822-2230 TIBNAROLIND TIME															0	이 이		00	d
	SAME DAY 24 HR 48HR	72 HR		5 DAYS X	10 DAYS	WS.					IE.	EQU	REQUESTED ANALYSIS	D A	MALY	SIS				
SPE	TS (ADDITIONAL COST	,	]			2	F	L		ŀ	L	L	$\vdash$	F	ŀ	ŀ	ŀ	ŀ	-	
L	RWQCB REPORTING   ARCHIVI	ARCHIVE SAMPI ES LINTII	ILLNI I SE	`	_		Se£								***************************************		delet ekkening.			
SPE	]			,	,		) uo								***************************************					
							carp						***************************************		····					
							Hydro	atty Ac			······································						***************************************	***************************************	<del></del>	
LAB		/NOIL	SAM	SAMPLING		ļ			әр				***************************************				<del></del>			
ONLY ONLY	SAMPLE ID	PTION	DATE	TIME	Natrit	Cont	sdĵ∃  seiC		iłluć				***************************************		····		****			
	STSW-166		02/10/04			7	+				_		-		T				-	
								+		-	_		+			1	+	1	-	
							-	_					+		$\dagger$	1				
							-	_					-							
							-	_		-			-		$\dagger$		-		-	
							-	_	1	-			+	1	$\dagger$	1			-	
							1	_		1										3
													-							
								_		-			-				+			7, 1
							-	_					+							
Relin	Relinquished by: (Signature)				Received by:	d by: (Si	(Signature)	16	/, [ // [	1	]	1	-	1	ا م م	Date:	17.	Time:		
Relin	Relinquished by: (Signature)				Receive	Received by: (Signature)	mature)	4	K						10	1/0/0/ Date:	7	Time:	100	
Relin	Relinquished by: (Signature)				Receive	Received by: Æionature)	Mathere)								- 1					
	K-EX-B-7				*										<u> </u>	Date:	,	Time:		





Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

04-02-0978

Client Reference:

**Aerojet** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/18/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

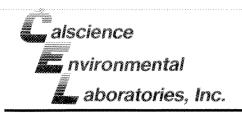
Sincerely.

Calscled Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager



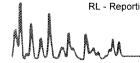
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

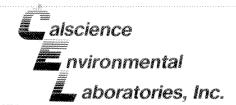
02/18/04 04-02-0978 N/A RSK-175M

Project: Aerojet

Page 1 of 1

7 70,000. 7 10,0,00										- 3	
Client Sample Number					Sample ımber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	h ID
WNN-RW-1				04-02	-0978-1	02/17/04	Aqueous	N/A	02/18/04	040218	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1		Units ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-1				04-02	-0978-2	02/17/04	Aqueous	N/A	02/18/04	040218	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1		Units ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-EW-2				04-02	-0978-3	02/17/04	Aqueous	N/A	02/18/04	040218	L02
<u>Parameter</u> Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1		Units ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-MW1			i in	04-02	-0978-4	02/17/04	Aqueous	N/A	02/18/04	040218	L02
<u>Parameter</u> Methane Ethane	Result 2.09 ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1		<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
WNN-138A				04-02	-0978-5	02/17/04	Aqueous	N/A	02/18/04	040218	L02
<u>Parameter</u> Methane Ethane	Result 10.3 ND	<u>RL</u> 1.0 1.00	<u>DF</u> 1		<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		Result ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L
Method Blank				099-1	2-010-55	1 N/A	Aqueous	N/A	02/18/04	040218	L02
Parameter Methane Ethane	Result ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L







GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

02/18/04

04-02-0978

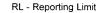
N/A

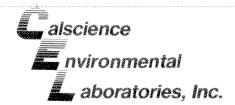
EPA 8015B

Project: Aerojet

Page 1 of 2

								, ago . o. <u>_</u>
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-02-0978-1	02/17/04	Aqueous	N/A	02/20/04	040219L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	250	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	107	<u>Limits</u> 63-147						
WNN-EW-1			04-02-0978-2	02/17/04	Aqueous	N/A	02/19/04	040219L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	104	<u>Limits</u> 63-147						
WNN-EW-2			04-02-0978-3	02/17/04	Aqueous	N/A	02/19/04	040219L02
Parameter	Result	RL	DF	<u>Qual</u>	<u>Units</u>			
≣thanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						
WNN-MW1			04-02-0978-4	02/17/04	Aqueous	N/A	02/20/04	040219L02
Parameter Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	116	<u>Limits</u> 63-147						







GeoSyntec Consultants 130 Research Lane, Suite 2

NAC ECO

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

02/18/04

04-02-0978

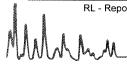
N/A

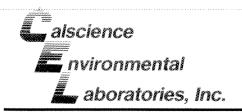
EPA 8015B

Project: Aerojet

Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-138A			04-02-0978-5	02/17/04	Aqueous	N/A	02/20/04	040219L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	89	<u>Limits</u> 63-147						
Method Blank			099-12-006-986	N/A	Aqueous	N/A	02/19/04	040219L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						







GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

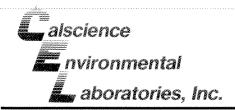
02/18/04 04-02-0978 N/A HPLC/UV

Project: Aerojet

Page 1 of 2

									***************************************		
Client Sample Number					Sample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-RW-1				04-02-	0978-1	02/17/04	Aqueous	N/A	02/18/04	040218	L01
<u>Parameter</u>	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	,					9. =
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	99	80-120									
WNN-EW-1				04-02-	0978-2	02/17/04	Aqueous	N/A	02/18/04	040218	L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•					
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	101	80-120									
WNN-EW-2				04-02-	0978-3	02/17/04	Aqueous	N/A	02/18/04	040218	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	i 1	mg/L
Lactic Acid	ND	1.0	1		mg/L						9. =
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	100	<u>Limits</u> 80-120									
WNN-MW1				04-02-0	0978-4	02/17/04	Aqueous	N/A	02/18/04	040218	L01
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	***************************************	mg/L	Propionic Acid		ND ND	1.0	1	mg/L
Acetic Acid	1.2	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	Satyrio Aoid		110	1.0	ı	iiig/L
Surrogates:	REC (%)	Control		Qual							
	married Line	Limits									
Dibromopropionic Acid	102	80-120									







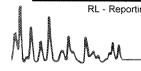
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

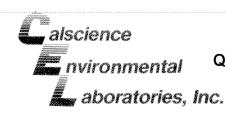
02/18/04 04-02-0978 N/A HPLC/UV

Project: Aerojet

Page 2 of 2

r roject: Acrojet									. 48	0 2 01 2
Client Sample Number				Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-138A				04-02-0978-5	02/17/04	Aqueous	N/A	02/18/04	040218	L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						•
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	102	<u>Limits</u> 80-120								
Method Blank				099-12-016-22	N/A	Aqueous	N/A	02/18/04	040218	L01
<u>Parameter</u>	Result	RL	DF	Qual Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	·					J
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	97	80-120								





#### **Quality Control - LCS/LCS Duplicate**



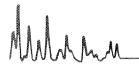
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

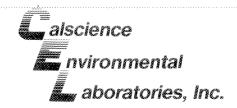
Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0978 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrum	ent	Date Prepared	Date Analyzed		LCS/LCSD Batc Number	h
099-12-010-551	Aqueous	GC 33		N/A	02/18/04		040218L02	
<u>Parameter</u>	LCS %	REC	LCSD %RE	EC %REC	CL I	RPD	RPD CL	Qualifiers
Methane	101		100	79-1	09	1	0-20	
Ethane	101		100	80-1	20	1	0-20	





# Quality Control - Spike/Spike Duplicate



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet

Date Received:

Work Order No:

Preparation:

Method:

02/18/04

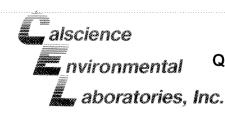
04-02-0978

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
04-02-1001-1	Aqueous	GC12	N/A		02/19/04	040219802
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	101 104	98 101	64-118 73-109	3 3	0-20 0-23	





#### **Quality Control - LCS/LCS Duplicate**



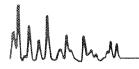
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

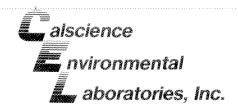
Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0978 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze	ed	LCS/LCSD Batc Number	h
099-12-006-986	Aqueous	GC12	N/A	02/19/0	4	040219L02	
Parameter	LCS %I	REC LCSD	%REC %F	REC CL	RPD	RPD CL	Qualifiers
Methanol	101	99	6	9-117	2	0-22	
Ethanol	104	103	7	6-112	0	0-19	





# Quality Control - Spike/Spike Duplicate

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet Date Received:

Work Order No:

Preparation:

Method:

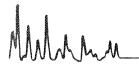
02/18/04

04-02-0978

N/A

HPLC/UV

Quality Control Sample I	D	Matrix	Instrument	Date Prepare		Date Analyzed	MS/MSD Batch Number
WNN-RW-1		Aqueous	HPLC 6	N/A		02/18/04	040218S01
<u>Parameter</u>		MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid		109	113	70-130	4	0-30	
Acetic Acid		115	118	70-130	3	0-30	
Lactic Acid		105	110	70-130	5	0-30	
Propionic Acid		82	93	70-130	12	0-30	
Butyric Acid		93	98	70-130	6	0-30	





# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

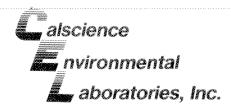
Guelph, Ontario, Canada 0

Project: Aerojet

Date Received: Work Order No: Preparation: Method: N/A 04-02-0978 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batc Number	h
099-12-016-22	Aqueous	HPLC 6	N/A	02/18/04	040218L01	
Parameter	LCS %RE	C LCSD %	REC %REC	CL RPD	RPD CL	Qualifiers
Pyruvic Acid	109	111	80-1	20 2	0-20	
Acetic Acid	116	113	80-1	20 3	0-20	
Lactic Acid	108	110	80-1	20 2	0-20	
Propionic Acid	81	82	80-1	20 2	0-20	
Butyric Acid	93	95	80-1	20 2	0-20	





# **Glossary of Terms and Qualifiers**



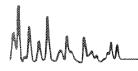
Work Order Number: 04-02-0978

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.





WORK ORDER #:

04-02-0978

Cooler \_\_(\_\_ of \_\_(\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: Geo Syn tec	DATE: $02/18/2004$
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.	LABORATORY (Other than Calscience Courier):  ° C Temperature blank.  ° C IR thermometer.  Ambient temperature.
°C Temperature blank.	Initial:
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A): Initial:
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers  Sample container(s) intact and good condition  Correct containers for analyses requested  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace  Tedlar bag(s) free of condensation	
COMMENTS:	

aboratories, Inc. nvironmental

7440 LINCOLN WAY

**CHAIN OF CUSTODY RECORD** 

Р

PAGE: DATE:

TEL: (714) 895-5494 . FAX: (714) 894-7501

**GARDEN GROVE, CA 92841-1432** 

0 0 1001 02-09 Time: Time LAB USE ONL QUOTE NO. Date: 04/0/4 REQUESTED ANALYSIS SAMPLER(S): (SIGNATURE Jamey Rosen Aerojet-WNN PROJECT CONTACT: Sulfide Received by: (Signature) Volatile Fatty Acids × × × Dissolved Hydrocarbon Gase: × × × × Received by: (Signature) Received by: (Signature × × Ethanol × × × \*Cont 10 DAYS Matrix \_გ გ Ø Ø Ø × 10:41 11:50 14:15 13:50 14:30 TIME E-MAIL ☐ 5 DAYS SAMPLING 02/17/04 02/17/04 02/17/04 02/17/04 02/17/04 DATE ARCHIVE SAMPLES UNTIL 72 HR LOCATION/ DESCRIPTION SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY) 48HR 130 Research Lane, Suite 2 Guelph, Ontario N1G 5G3 24 HR ] RWQCB REPORTING **GeoSyntec Consultants** Relinquished by: (Signature) SAMPLE ID Relinquished by: (Signature) Relinguished by: (Signatur WNN-RW-1 WNN-EW-1 WNN-EW-2 SPECIAL INSTRUCTIONS WNN-MW1 5 WNN-138A SAME DAY 519-822-2230 TURNAROUND TIME LAB USE ONLY 4



March 11, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

Client Reference:

04-03-0264

**Aerojet WNN** 

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/4/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the quidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

alscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J\ Crisostomo

**Quality Assurance Manager** 



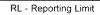
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

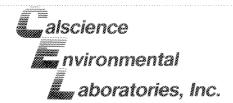
03/04/04 04-03-0264 N/A RSK-175M

Project: Aerojet WNN

Page 1 of 1

Client Sample Number	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	.,,,,			Sample imber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-RW-1			04	-03-02	64-1	03/02/04	Aqueous	N/A	03/08/04	040308	L02
Parameter	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-1			04	-03-02	64-2	03/02/04	Aqueous	N/A	03/08/04	040308	L02
Parameter	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-2			04	-03-02	64-3	03/02/04	Aqueous	N/A	03/08/04	040308	L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-MW1			04	-03-02	64-4	03/02/04	Aqueous	N/A	03/08/04	040308	L02
Parameter	Result	RL	DF	<u>Qual</u>	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-138A			04	-03-02	64-5	03/02/04	Aqueous	N/A	03/08/04	040308	L <b>02</b>
Parameter	Result	RL	DF	Qual	Units	Parameter		Result	RL	DF Qual	Units
Methane Ethane	1.33 ND	1.00 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
Method Blank			09	9-12-0	10-569	N/A	Aqueous	N/A	03/08/04	040308	L02
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
					-						





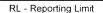
Date Received:

GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

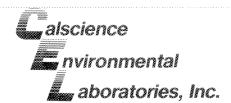
Work Order No: Preparation: Method:

03/04/04 04-03-0264 N/A EPA 376.2

Project: Aerojet WN	<u> </u>			····				Page 1 of
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-03-0264-1	03/02/04	Aqueous	N/A	03/05/04	40305SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1			04-03-0264-2	03/02/04	Aqueous	N/A	03/05/04	40305SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2			04-03-0264-3	03/02/04	Aqueous	N/A	03/05/04	40305SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-MW1			04-03-0264-4	03/02/04	Aqueous	N/A	03/05/04	40305SB1
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-138A			04-03-0264-5	03/02/04	Aqueous	N/A	03/05/04	40305SB1
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-80A			04-03-0264-7	03/02/04	Aqueous	N/A	03/05/04	40305SB1
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank			099-05-089-1,54	15 N/A	Aqueous	N/A	03/05/04	40305SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			



DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

03/04/04 04-03-0264 N/A

EPA 8015B

Project: Aerojet WNN

Page 1 of 2

Project: Aerojet vvinin								Page 1 of 2
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-03-0264-1	03/02/04	Aqueous	N/A	03/08/04	040305L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	10	0.20	2		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	108	<u>Limits</u> 63-147						
WNN-EW-1			04-03-0264-2	03/02/04	Aqueous	N/A	03/05/04	040305L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	107	<u>Limits</u> 63-147						
WNN-EW-2			04-03-0264-3	03/02/04	Aqueous	N/A	03/05/04	040305L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	103	<u>Limits</u> 63-147						
WNN-MW1			04-03-0264-4	03/02/04	Aqueous	N/A	03/05/04	040305L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						

RL - Reporting Limit

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

Method:

03/04/04 04-03-0264 N/A EPA 8015B

LINCOTOD

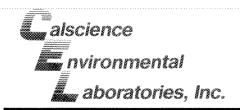
Project: Aerojet WNN

Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-138A			04-03-0264-5	03/02/04	Aqueous	N/A	03/05/04	040305L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	96	<u>Limits</u> 63-147						
STSW-166			04-03-0264-6	03/02/04	Aqueous	N/A	03/05/04	040305L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
STSW-80A			04-03-0264-7	03/02/04	Aqueous	N/A	03/05/04	040305L01
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
Method Blank			099-12-006-1,002	2 N/A	Aqueous	N/A	03/05/04	040305L01
Parameter	Result	<u>RL</u>	DF	Qual	Units			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	101	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor ,



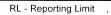
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method: 03/04/04 04-03-0264 N/A HPLC/UV

Project: Aerojet WNN

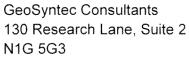
Page 1 of 2

Client Sample Number			L	ab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	h ID
WNN-RW-1			04-03	-0264-1	03/02/04	Aqueous	N/A	03/08/04	040308	L01
<u>Parameter</u>	Result	RL	DF Q	ual <u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	1.9	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1	mg/L						
Surrogates:	REC (%)	Control	Q	<u>ual</u>						
Oibramanraniania Aaid	100	<u>Limits</u>								
Dibromopropionic Acid	100	80-120								
WNN-EW-1			04-03	-0264-2	03/02/04	Aqueous	N/A	03/08/04	040308	L01
Parameter	Result	RL	DF Qu	ual <u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.0	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	·					Ū
Surrogates:	REC (%)	Control	Q	<u>ual</u>						
Dibromopropionic Acid	97	<u>Limits</u> 80-120								
WNN-EW-2			04-03	-0264-3	03/02/04	Aqueous	N/A	03/08/04	040308	L01
Parameter	Result	RL	DF Qu	ıal Units	Parameter		Result	RL	DF Qual	Units
Pvruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.5	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
actic Acid	ND	1.0	1	mg/L	- ··· <b>,</b> ····					···g·-
Surrogates:	REC (%)	Control	Q	ual						
Surrogates: Dibromopropionic Acid	REC (%) 99	Control Limits 80-120	Q	ual						
		Limits		ual -0264-4	03/02/04	Aqueous	N/A	03/08/04	040308	_01
Dibromopropionic Acid		<u>Limits</u> 80-120	04-03	-0264-4		Aqueous	<u>. i.a i.a </u>	·		
Dibromopropionic Acid  WNN-MW1  Parameter	99 Result	<u>Limits</u> 80-120	<b>04-03</b> DF Qu	-0264-4 nal <u>Units</u>	Parameter	Aqueous	Result	RL	DF Qual	<u>Units</u>
Dibromopropionic Acid WNN-MW1	99	<u>Limits</u> 80-120	04-03	-0264-4 ral <u>Units</u> mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L
Dibromopropionic Acid  WNN-MW1  Parameter  Pyruvic Acid Acetic Acid	99  Result ND	<u>Limits</u> 80-120 <u>RL</u> 0.50	<b>04-03</b> <u>DF</u> Qu	-0264-4 nal <u>Units</u>	Parameter	Aqueous	Result	RL	DF Qual	<u>Units</u>
Dibromopropionic Acid  WNN-MW1  Parameter  Pyruvic Acid	Result ND 1.7	<u>RL</u> 0.50 1.0	04-03 DF Qu 1 1 1	-0264-4 ral <u>Units</u> mg/L mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L
WNN-MW1  Parameter Pyruvic Acid Acetic Acid actic Acid	Result ND 1.7 ND	RL 0.50 1.0	04-03 DF Qu 1 1 1	-0264-4  ral Units mg/L mg/L mg/L	Parameter Propionic Acid	Aqueous	Result ND	<u>RL</u> 1.0	DF Qual	<u>Units</u> mg/L



DF - Dilution Factor ,





Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

03/04/04 04-03-0264 N/A

HPLC/UV

Project: Aerojet WNN  Client Sample Number		Lab Sample Date Number Collected		Matrix	Date Prepared	Date Analyzed	Page 2 of 2				
WNN-138A	N-138A		04	04-03-0264-5		03/02/04	Aqueous	N/A	03/08/04	040308L01	
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	2.1	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
_actic Acid	ND	1.0	1		mg/L						Ü
Surrogates:	REC (%)	Control Limits		Qual	Į.						
Dibromopropionic Acid	100	80-120									
Method Blank			09	9-12-0	16-23	N/A	Aqueous	N/A	03/08/04	040308	L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•					

Surrogates:

Dibromopropionic Acid

**REC (%)** 

98

Control

Limits

80-120

Qual



#### **Quality Control - Duplicate**

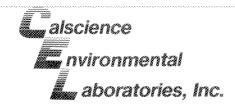


GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario,Canada 0 Project: Aerojet WNN Date Received: Work Order No: Preparation: Method: 03/04/04 04-03-0264 N/A EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
04-03-0284-1	Aqueous	N/A	N/A	03/05/04	40305SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	





# **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet WNN

Date Received:

Work Order No:

Preparation:

Method:

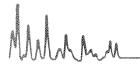
03/04/04

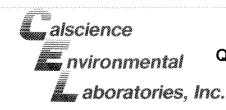
04-03-0264

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
04-03-0002-1	Aqueous	GC12	N/A		03/05/04	040305S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	111 94	108 78	64-118 73-109	2 18	0-20 0-23	





# **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet WNN Date Received: Work Order No: Preparation: Method: N/A 04-03-0264 N/A EPA 8015B

Quality Control Sample ID	Matrix Instrument		Date Prepared	Date Analyzed	LCS/LCSD Bate Number	ch
099-12-006-1,002	Aqueous	GC12	N/A	03/05/04	040305L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC %REC	CL RPD	RPD CL	Qualifiers
Methanol	107	108	69-1	17 1	0-22	
Ethanol	103	110	76-1	12 7	0-19	





# **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project:

Aerojet WNN

Date Received:

Work Order No:

Preparation:

Method:

03/04/04

04-03-0264

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		03/08/04	040308S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	107	107	70-130	0	0-30	
Acetic Acid	103	102	70-130	1	0-30	
Lactic Acid	102	106	70-130	3	0-30	
Propionic Acid	97	100	70-130	3	0-30	
Butyric Acid	94	91	70-130	4	0-30	





#### **Quality Control - LCS/LCS Duplicate**

Date Received:



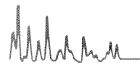
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

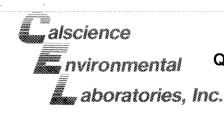
Project:

arch Lane, Suite 2 Work Order No:
Preparation:
Ontario,Canada 0 Method:
Aerojet WNN

N/A 04-03-0264 N/A HPLC/UV

Quality Control Sample ID	Matrix Ins	strument	Date Prepared	Da Anal		LCS/LCSD Bat Number	ch
099-12-016-23	Aqueous H	PLC 6	N/A	03/08	3/04	040308L01	
Parameter	LCS %REC	LCSD %R	EC %RE	EC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	110	111	80	-120	1	0-20	
Acetic Acid	107	108	80	-120	1	0-20	
Lactic Acid	110	115	80	-120	5	0-20	
Propionic Acid	101	104	80	-120	3	0-20	
Butyric Acid	97	98	80	-120	2	0-20	



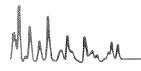


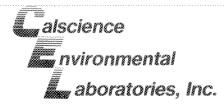
#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet WNN Date Received: Work Order No: Preparation: Method: N/A 04-03-0264 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze	ed	LCS/LCSD Bate Number	ch
099-12-010-569	Aqueous	GC 33	N/A	03/08/04	4	040308L02	
Parameter	LCS %RI	EC LCSD 9	<u> «REC %F</u>	REC CL	RPD	RPD CL	Qualifiers
Methane	99	101	7	79-109	3	0-20	
Ethane	98	101	8	30-120	3	0-20	





### Glossary of Terms and Qualifiers



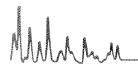
Work Order Number: 04-03-0264

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.





WORK ORDER #:

04-03-0264

Cooler \_\_\_\_\_ of \_\_\_/

## **SAMPLE RECEIPT FORM**

CLIENT: GIESVATTER	DATE:
TEMPERATURE – SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier):  ° C Temperature blank.  ° C IR thermometer.  Ambient temperature.
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers  Sample container(s) intact and good condition  Correct containers for analyses requested  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation	
COMMENTS:	

7	G
•	
	101
	ner
ğ	ē
3	Ž
- 22	

440 LINCOLN WAY SARDEN GROVE, CA 92841-1432

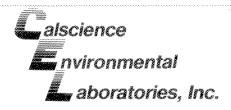
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

τ
ü
AGE
⋖

P

Od V	I ABOBATOBY OF ICAT.					ŀ						l								I
Geo.	GeoSyntec Consultants							Jacob Jacob	NAM!	I NOMB	Y.					2	.: 2			2342
ADDRESS:	RESS;						Aero	Aerojet-WNN	Z											- 3, 3, 4, 4, 3, 3
130	130 Research Lane, Suite 2	. 2					PROJECT CONTACT	T CONT	4CT:							ono	QUOTE NO.:			
: d	1. Out - 1.						Jam	Jamey Rosen	sen		1	*								
ם פר	Gueiph, Ontario N 16 563						SAMPKER(S): (SIGNATURE)	¥(S): (S)	GNATU	IRE)		,				폴 [	LAB USE ONLY	\ \> [		
519-	519-822-2230	rw.		E-MAIL			Þ	K.	D	T		K	\ /			9	7	3	268	
TURN	TURNAROUND TIME					T						ŗ		1						Т
	SAME DAY 24 HR	☐ 48HR ☐ 72 HR		5 DAYS X	10 DAYS	S						7 11	Z D D	<u> </u>	ANA	REQUESTED ANALYSIS				
SPEC	SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)	COSTS MAY APPLY)					əs	_				L		lacksquare	L		_		L	Г
	RWQCB REPORTING	☐ ARCHIVE SAMPLES UNTIL	S UNTIL	/	/		<b>6</b> 9								***************************************		***************************************			defect have
SPEC	SPECIAL INSTRUCTIONS					Γ	uoc										-			olis, bis, bis,
																	<del></del>			
								Fatty A												
LAB	SAMPLEID	LOCATION/	SAMPLING	LING			anol solve		əpij											
∑ No		DESCRIPTION	DATE	TIME	atrit	ont			InS		*********				***********					
	WNN-RW-1		03/02/04	10:00	GW		×	×	×			ļ		_	-					
4	WNN-EW-1		03/02/04	13:30	GW		×	×	×		ļ				-					T
~	WNN-EW-2		03/02/04	14:00	GW		×	×	×			<u> </u>			<u> </u>					T
٠,	WNN-MW1		03/02/04	9:37	GW		×	×	×		<u> </u>	<u> </u>			<u> </u>					T
b	WNN-138A		03/02/04	10:43	QW		×	×	×					<u> </u>	-					T
<b>.</b> %	STSW-166		03/02/04	12:06	GW		×								-					T
λ	STSW-80A		03/05/04	13:04	GW		×		×											T
														<del>                                     </del>	ļ					T
		•					-	_			<u> </u>				-					Т
Relinc	Relinquished by: (Signature)				Received by: (Signature)		nature)	14				-			-	Date:	70	Time 2	Time:	<u> </u>
Reling	Relinquished by: (Signature)	12			Received by: (Signature)	Sig.	) affure)	7	K							) left	>	9	3	Ť
							()									o de la companya de l		<u> </u>		
Relinc	Relinquished by: (Signature)				Received by: (Signature)	y: (Sig	pature)	200	~	1/4/11	F	3				Date:	4 2 4	Time:	Time:	T
							100	3		1	-						`	<u>ک</u> 	>	





March 23, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.:

04-03-1028

Client Reference:

**Aerojet - WNN** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/17/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely

Alscience Environmental

Laboratories, Inc.

Stephen Nowak **Project Manager** 

Quality Assurance Manager

# \_ alscience nvironmental aboratories, Inc.

#### **Analytical Report**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

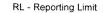
03/17/04 04-03-1028 N/A

**EPA 8015B** 

Project: Aerojet - WNN

Page 1 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-03-1028-1	03/16/04	Aqueous	N/A	03/18/04	040318L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	270	10	100		mg/L			
<u>Surrogates:</u> Hexafluoro-2-propanol	REC (%) 120	Control Limits 63-147		Qual				
WNN-EW-1			04-03-1028-2	03/16/04	Aqueous	N/A	03/18/04	040318L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	102	<u>Limits</u> 63-147						
WNN-EW-2			04-03-1028-3	03/16/04	Aqueous	N/A	03/18/04	040318L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	118	<u>Limits</u> 63-147						
WNN-MW1			04-03-1028-4	03/16/04	Aqueous	N/A	03/18/04	040318L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	121	<u>Limits</u> 63-147						







GeoSyntec Consultants
130 Research Lane, Suite 2

N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 03/17/04 04-03-1028

N/A EPA 8015B

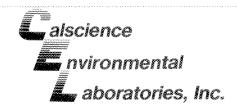
Project: Aerojet - WNN

Page 2 of 2

Project: Aerojet - WN	1 1							Page 2 of 2
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-138A			04-03-1028-5	03/16/04	Aqueous	N/A	03/18/04	040318L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	117	<u>Limits</u> 63-147						
STSW-166			04-03-1028-6	03/16/04	Aqueous	N/A	03/18/04	040318L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	112	63-147						
Method Blank			099-12-006-1,01	3 N/A	Aqueous	N/A	03/18/04	040318L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	124	<u>Limits</u> 63-147						

RL - Reporting Limit

DF - Dilution Factor ,



#### **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Aerojet - WNN Project:

Date Received:

Work Order No:

Method:

Preparation:

EPA 8015B

03/17/04

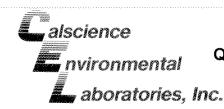
N/A

04-03-1028

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
WNN-EW-1	Aqueous	GC12	N/A	03/18/04	040318S01

<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol	108	103	64-118	4	0-20	
Ethanol	105	91	73-109	15	0-23	





#### **Quality Control - LCS/LCS Duplicate**



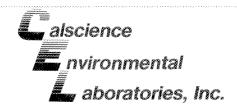
GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Aerojet - WNN

Project:

Date Received: Work Order No: Preparation: Method: N/A 04-03-1028 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze		LCS/LCSD Bate Number	ch
099-12-006-1,013	Aqueous	GC12	N/A	03/18/0	4	040318L01	
Parameter	LCS %RE	EC LCSD	%REC %F	REC CL	RPD	RPD CL	<u>Qualifiers</u>
Methanol	105	101	6	69-117	5	0-22	
Ethanol	100	104	7	76-112	4	0-19	







Work Order Number: 04-03-1028

<u>Qualifier</u> <u>Definition</u>

ND Not detected at indicated reporting limit.

Iscience nvironmental aboratories, Inc.
-----------------------------------------------

INCOLN WAY EN GROVE, CA 92841-1432

TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD DATE:

P

PAGE:

IAB	I ARORATORY OF IENT:																		
g g	GeoSyntec Consultants					-	CLENT	ROJEC	NAME /	CLIENT PROJECT NAME / NUMBER:					DN.O.4	<b>4</b> 0.:			Г
ADE	ADDRESS:						Aero	Aerojet-WNN	z										
130	130 Research Lane, Suite 2	2				<u></u>	PROJECT CONTACT:	T CONT	CT:						ONO	QUOTE NO.:			T
5	;;						Jam	Jamey Rosen	sen										
ב פ	Guelph, Ontario N1G 5G3						SAMPLER(S): (SIGNATURE)	R(S): (S)	SNATURE	(;					LAB	LAB USE ONLY	<b>X</b>		
519	519-822-2230	FAX:		E-MAIL											0		0		N.
≛ L	I UKNAROUND TIME	_	L	1		0,7					<u>~</u>	EOUE	STE	ANA	REQUESTED ANALYSIS				Π
SPE	SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAX APPLY)	HOUNT 1/2 HK		5 DAYS IX	10 DAYS	2	f	l	l	ŀ					)				
Ш	RWQCB REPORTING	ARCHIVE SAMPLES UNTIL	IILNO S	_	_		 əse9	·····	***************************************										
SPE	SPECIAL INSTRUCTIONS				,		arbon (			<del></del>		***************************************				***************************************			**********
							ed Hydroc	Fatty Acid						***************************************					
LAB USE	SAMPLE ID	LOCATION/	SAMPLING	LING		*	lons		əpij	······································				***********					ararakan ke
Š		DESCRIPTION	DATE	TIME	krit+	,Ont			Ins			<del></del>							
	WNN-RW-1		03/16/04	9:55	GW	7	×					-	<u> </u>	-					Т
	WNN-EW-1		03/16/04	10:35	GW	7	×						_	-					T
	WNN-EW-2		03/16/04	13:00	GW	7	×					+		-				1	T
	WNN-MW1		03/16/04	11:56	GW	4	×		T	-		1							T
	WNN-138A		03/16/04	12:23	GW	2	×									-			Ť
	STSW-166		03/16/04	13:39	GW	7	×					-		-					T
												<u> </u>		-		-			T
												-		-					Т
																			T
										_		-		-					T
	Relinquished by: (Signature)	4			Received by: (Signature)	by: (Sig	nature)	] `		- (		1	1	-	Date:	17	Time:	10	T
Relir	Relinquished by: (Signature)				Received by: (Signature)	by: (Sig	nature)			1					2/6/ Date:	120		7	T
Peli	Relinquished by (Geometrics)																2		
				<del> </del>	Received by: (Signature)	by: (Sig	mature)	/411	Ŀ						246/17/2	1	Time:	Sel	Τ
	,							14/							11100	1	`	0	



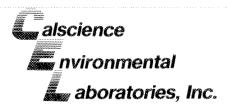
**WORK ORDER #:** 

04-03-1028

Cooler (	of	(
----------	----	---

## **SAMPLE RECEIPT FORM**

CLIENT: Georgntec	DATE: 03/17/2004
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer. Ambient temperature.
CUSTODY SEAL INTACT:	.•
Sample(s): Cooler: No (Not Intact)	Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	



April 06, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.:

04-04-0006

**Client Reference:** 

**Aerojet - WNN** 

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/1/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

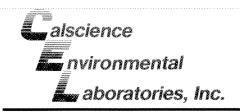
Sincerely.

alscience Environmental

Laboratories, Inc.

Stephen Nowak Project Manager Michael J. Chisostomo

**Quality Assurance Manager** 



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

04/01/04 04-04-0006 N/A

RSK-175M

Project: Aerojet - WNN

Page 1 of 1

Toject. Aerojet - VV	1414									. 49	C 1 O1 1
Client Sample Number					Sample imber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	h ID
WNN-RW-1			04	-04-00	06-1	03/31/04	Aqueous	N/A	04/01/04	040401	L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-1			04	1-04-00	06-2	03/31/04	Aqueous	N/A	04/01/04	040401	L02
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-EW-2			04	1-04-00	06-3	03/31/04	Aqueous	N/A	04/01/04	040401	L02
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	ND ND	1.00 1.00	1 1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-MW-1			04	I-04-00	06-4	03/31/04	Aqueous	N/A	04/01/04	040401	L02
Parameter	Result	RL	DF	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Methane Ethane	12.1 ND	1.0 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
WNN-138A			04	-04-00	06-5	03/31/04	Aqueous	N/A	04/01/04	040401	L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>	Parameter		Result	RL	DF Qual	<u>Units</u>
Methane Ethane	7.70 ND	1.00 1.00	1		ug/L ug/L	Ethylene		ND	1.00	1	ug/L
Method Blank			09	9-12-0	10-586	N/A	Aqueous	N/A	04/01/04	040401	L02
<u>Parameter</u> Methane Ethane	<u>Result</u> ND ND	<u>RL</u> 1.00 1.00	<u>DF</u> 1 1	Qual	<u>Units</u> ug/L ug/L	<u>Parameter</u> Ethylene		<u>Result</u> ND	<u>RL</u> 1.00	DF Qual 1	<u>Units</u> ug/L

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

 Date Received:
 04/01/04

 Work Order No:
 04-04-0006

 Preparation:
 N/A

 Method:
 EPA 376.2

Project: Aerojet - WNN

GeoSyntec Consultants

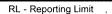
N1G 5G3

130 Research Lane, Suite 2

Guelph, Ontario, Canada 0

Page 1 of 1

Project: Aerojet - W	NN							Page 1 of 1
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-04-0006-1	03/31/04	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1			04-04-0006-2	03/31/04	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2			04-04-0006-3	03/31/04	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-MW-1			04-04-0006-4	03/31/04	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-138A			04-04-0006-5	03/31/04	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-80A			04-04-0006-7	03/31/04	Aqueous	N/A	04/05/04	40405SB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank			099-05-089-1,56	4 N/A	Aqueous	N/A	04/05/04	40405SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			



DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**

Date Received: 04/01/04
Work Order No: 04-04-0006
Preparation: N/A

Method:

Project: Aerojet - WNN

Guelph, Ontario, Canada 0

GeoSyntec Consultants

N1G 5G3

130 Research Lane, Suite 2

Page 1 of 2

**EPA 8015B** 

Project: Aerojet - WNN	ł							Page 1012
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-04-0006-1	03/31/04	Aqueous	N/A	04/02/04	040402L01
Parameter Parame	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	300	10	100		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
WNN-EW-1			04-04-0006-2	03/31/04	Aqueous	N/A	04/02/04	040402L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
WNN-EW-2			04-04-0006-3	03/31/04	Aqueous	N/A	04/02/04	040402L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	86	<u>Limits</u> 63-147						
WNN-MW-1			04-04-0006-4	03/31/04	Aqueous	N/A	04/02/04	040402L01
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	104	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor ,

# alscience nvironmental aboratories, Inc.

#### **Analytical Report**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

04/01/04 04-04-0006 N/A EPA 8015B

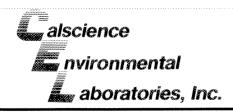
Project: Aerojet - WNN

Page 2 of 2

Project. Aerojet - Wi	ININ							1 age 2 01 2
Client Sample Number			Lab Sample <b>N</b> umber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-138A			04-04-0006-5	03/31/04	Aqueous	N/A	04/02/04	040402L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	86	<u>Limits</u> 63-147						
STSW-166			04-04-0006-6	03/31/04	Aqueous	N/A	04/02/04	040402L01
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	85	<u>Limits</u> 63-147						
STSW-80A			04-04-0006-7	03/31/04	Aqueous	N/A	04/02/04	040402L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	94	<u>Limits</u> 63-147						
Method Blank			099-12-006-1,02	1 N/A	Aqueous	N/A	04/02/04	040402L01
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	96	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 04/01/04 04-04-0006 N/A HPLC/UV

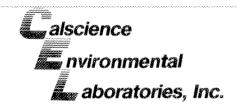
Project: Aerojet - WNN

Page 1 of 2

Client Sample Number					Sample mber	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bate	ch ID
WNN-RW-1			04	-04-00	06-1	03/31/04	Aqueous	N/A	04/01/04	040401	L01
Parameter	Result	RL	DF	Qual	Units	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	·					Ü
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	100	80-120									
WNN-EW-1			04	-04-00	06-2	03/31/04	Aqueous	N/A	04/01/04	040401	L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	•					J
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	100	80-120									
WNN-EW-2			04	-04-00	06-3	03/31/04	Aqueous	N/A	04/01/04	040401	L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L						
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	101	80-120									
WNN-MW-1			04	-04-00	06-4	03/31/04	Aqueous	N/A	04/01/04	040401	L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	<u>Parameter</u>		Result	<u>RL</u>	DF Qual	<u>Units</u>
Pyruvic Acid	ND	0.50	1		mg/L	Propionic Acid		4.2	1.0	1	mg/L
Acetic Acid	13	1	1		mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1		mg/L	-					-
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	101	<u>Limits</u> 80-120									
Dibromopropionic Acid	101	00-120									

RL - Reporting Limit ,

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

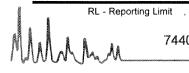
04/01/04 04-04-0006 N/A HPLC/UV

Project: Aerojet - WNN

Dibromopropionic Acid

Page 2 of 2

Toject. Aerojet - V	VIVIV								1 45	JC 2 01
Client Sample Number				b Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Bato	ch ID
WNN-138A			04-04-	0006-5	03/31/04	Aqueous	N/A	04/01/04	040401	L01
Parameter	Result	RL	DF Qu	al <u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L						-
Surrogates:	REC (%)	Control	Qu	al						
Dibromopropionic Acid	101	<u>Limits</u> 80-120								
Method Blank			099-12	-016-25	N/A	Aqueous	N/A	04/01/04	040401	L01
<u>Parameter</u>	Result	RL	DF Qu	al <u>Units</u>	Parameter		Result	RL	DF Qual	Units
Pyruvic Acid	ND	0.50	1	mg/L	Propionic Acid		ND	1.0	1	mg/L
Acetic Acid	ND	1.0	1	mg/L	Butyric Acid		ND	1.0	1	mg/L
Lactic Acid	ND	1.0	1	mg/L	-					3
Surrogates:	REC (%)	Control	Qu	al						



<u>Limits</u>

80-120

102



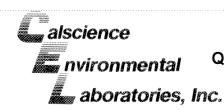
#### **Quality Control - Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0 Project: Aerojet - WNN Date Received: Work Order No: Preparation: Method: 04/01/04 04-04-0006 N/A EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
04-04-0121-1	Aqueous	N/A	N/A	04/05/04	40405SD1
Parameter	Sample Conc	DUP Conc	<u>RPD</u>	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	



#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method: N/A 04-04-0006 N/A RSK-175M

Quality Control Sample ID	Matrix	Matrix Instrument		Date Analyzed	LCS/LCSD Bate Number	ch
099-12-010-582	Aqueous	GC 33	N/A	04/01/04	040401L01	
Parameter	LCS %	REC LCSD	%REC %R	EC CL RPI	RPD CL	Qualifiers
Methane	101	101	7	9-109 0	0-20	





#### **Quality Control - Spike/Spike Duplicate**

GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Methanol

Ethanol

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

ate Received.

64-118

73-109

20

0-20

0-23

04-04-0006

Work Order No: Preparation:

N/A

04/01/04

Method:

**EPA 8015B** 

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Α	Date nalyzed	MS/MSD Batch Number
WNN-EW-1	Aqueous	GC12	N/A	0	4/02/04	040402S01
Parameter	MS %REC	MSD %REC	%REC CL	<u>RPD</u>	RPD CL	Qualifiers

99

81

97





#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0 Project: Aerojet - WNN Date Received: Work Order No: Preparation: Method:

N/A 04-04-0006 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyz		LCS/LCSD Bate Number	ch
099-12-006-1,021	Aqueous	GC12	N/A	04/02/	04	040402L01	
Parameter	LCS %RE	C LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Methanol	93	94		69-117	1	0-22	
Ethanol	98	95		76-112	3	0-19	



#### **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

04/01/04

Work Order No:

04-04-0006

Preparation:

N/A

Method:

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	MS/MSD Batch Number
04-03-1855-1	Aqueous	HPLC 6	N/A	04/02/04	040401S01

<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	93	94	70-130	1	0-30	
Acetic Acid	98	106	70-130	8	0-30	
Lactic Acid	93	93	70-130	0	0-30	
Propionic Acid	74	91	70-130	20	0-30	
Butyric Acid	97	97	70-130	0	0-30	





#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Aerojet - WNN

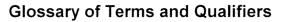
Project:

Date Received: Work Order No: Preparation: Method:

N/A 04-04-0006 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Da Anal		LCS/LCSD Bate Number	ch
099-12-016-25	Aqueous	HPLC 6	N/A	04/0	1/04	040401L01	
Parameter	LCS %RE	EC LCSD %	REC %	REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	110	111		80-120	0	0-20	
Acetic Acid	109	110		80-120	1	0-20	
Lactic Acid	114	114		80-120	0	0-20	
Propionic Acid	91	91		80-120	0	0-20	
Butyric Acid	96	96		80-120	0	0-20	







Work Order Number: 04-04-0006

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.





**WORK ORDER #:** 

04-04-0006

Cooler \_\_/\_ of <u>/</u>\_\_\_

## SAMPLE RECEIPT FORM

CLIENT: Geosyntec	DATE: 4-1-04
TEMPERATURE – SAMPLES RECEIVED BY:  CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer.  Ambient temperature.
° C Temperature blank.	Initial:
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples.  Sample container label(s) consistent with custody papers.  Sample container(s) intact and good condition.  Correct containers for analyses requested.  Proper preservation noted on sample label(s).  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation.	
	Initial: Hu
COMMENTS:	

ì	44	ВĄ	ļ
			Inc.
	Maria Cience	*nvironmental	aboratories

40 LINCOLN WAY ARDEN GROVE, CA 92841-1432

CHAIN OF CUSTODY RECORD DATE:

P

PAGE:

TEL: (714) 895-5494 . FAX: (714) 894-7501

LABORATORY CLIENT:					F	CLIENT PROJECT NAME / NUMBER:	(OJECT)	AME / NC	JMBER:				.O.4	P.O. NO.:		
ADDRESS:	Si					Aeroj	et-WN	Z								
130 Research Lane, Suite 2	lite 2				<u> </u>	PROJECT CONTACT:	CONTAC	I.					ñø	QUOTE NO.:	annococcini de la companione de la compa	
CITY:		The state of the s				Jamey Rosen	y Ros	eu								
Guelph, Ontario N1G 5G3	- 1				, 	AMPLER	S): (SIGN	(ATURE)	8	-			LAE		,	
1EL: 519-822-2230	FAX:		E-MAIL		-	K	D	4	XI				0	<u>5</u>	000	9
TURNAROUND TIME  SAME DAY 7 24 HR	R   48HR   72 HR		5 DAYS X	10 DAYS	Ś				)	REGI	JESTE	REQUESTED ANALYSIS	TASIS			
TS (	,		1	1		əs					-	_		L		
RWQCB REPORTING	G 📋 ARCHIVE SAMPLES UNTIL	ES UNTIL	_	_		<b>6</b> 9										
SPECIAL INSTRUCTIONS						Hydrocarbon	ebioA ytti						A			
LAB INSE	LOCATION/	SAMP	SAMPLING			solved		əpij								***************************************
	DESCRIPTION	DATE	TIME	atrit	ont.			ilus								
WNN-RW-1		03/31/04	9:55	ΒM	<u> </u>	×	×	×								
2 WNN-EW-1		03/31/04	10:45	QW B		×	×	×								
シ WNN-EW-2		03/31/04	11:35	GW.		×	×	×								
d wnn-mw1		03/31/04	10:30	ВW		×	×	×								
S WNN-138A		03/31/04	11:19	ВW		×	×	×								
<sup>6</sup> STSW-166		03/31/04	12:18	GW	Ĥ	×										
フ STSW-80A		03/31/04	13:09	GW		×		×								
Relinquished by (Signature)	B			Received by: (Signature)	by: (Sign	nature)	2.	-	1			1	Date:	ho	Time:	I
Relinquished by. (Signature)				Received by: (Signature)	by: (Sign	nature)							Date:	1	Time:	T
Relinquished by: (Signature)				Received by: (Signature)	by: (Sigr	iature)/	10000			Do			- 1	11.4	Time:	
						t	7	7	۲	アナン	25		4	とこと	-	





April 20, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject: Calscience Work Order No.: 04-04-0707

Client Reference: Aerojet - WNN

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/14/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Alscience Environmental Laboratories. Inc.

Stephen Nowak Project Manager Michael J. Crisostomo

Quality Assurance Manager





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method: Unit:

04-04-0707 N/A **RSK-175M** ug/L

04/14/04

Project: Aerojet - WNN

Page 1 of 1

Client Sample Number			L	ab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC B	atch ID
WNN-RW-1			04-04-0	707-1	04/13/04	Aqueous	N/A	04/15/04	04041	5L02
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Resu	ılt <u>RL</u>	<u>DF</u>	Qual
Methane Ethane	ND ND	1.00 1.00	1 1		Ethylene		ND	1.00	1	
WNN-EW-1			04-04-0	707-2	04/13/04	Aqueous	N/A	04/15/04	04041	5L02
Parameter	Result	RL	<u>DF</u>	Qual	<u>Parameter</u>		Resu	lt RL	DF	Qual
Methane Ethane	ND ND	1.00 1.00	1 1		Ethylene		ND	1.00	1	
WNN-EW-2			04-04-0	707-3	04/13/04	Aqueous	N/A	04/15/04	04041	5L02
Parameter	Result	RL	<u>DF</u>	Qual	Parameter		Resu	lt RL	DF	Qual
Methane Ethane	ND ND	1.00 1.00	1 1		Ethylene		ND	1.00	1	
WNN-MW1			04-04-0	707-4	04/13/04	Aqueous	N/A	04/15/04	04041	5L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Parameter</u>		Resu	<u>lt RL</u>	DF	Qual
Methane Ethane	23.2 ND	1.0 1.00	1 1		Ethylene		ND	1.00	1	
WNN-138A			04-04-0	707-5	04/13/04	Aqueous	N/A	04/15/04	04041	5L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	Parameter		Resu		<u>DF</u>	Qual
Methane Ethane	7.17 <b>N</b> D	1.00 1.00	1 1		Ethylene		ND	1.00	1	
Method Blank			099-12-	010-597	N/A	Aqueous	N/A	04/15/04	040415	5L02
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Resu	t RL	DF	Qual
Methane Ethane	ND ND	1.00 1.00	1 1		Ethylene		ND	1.00	1	

DF - Dilution Factor RL - Reporting Limit





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No:

Preparation: Method:

N/A EPA 8015B

04/14/04

04-04-0707

Project: Aerojet - WNN

Page 1 of 2

								- 3
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-04-0707-1	04/13/04	Aqueous	N/A	04/15/04	040415L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	Units			
Ethanol	290	10	100		mg/L			
<u>Surrogates:</u> Hexafluoro-2-propanol	REC (%) 109	Control Limits 63-147		Qual				
WNN-EW-1			04-04-0707-2	04/13/04	Aqueous	N/A	04/15/04	040415L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	Units			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	109	63-147						
WNN-EW-2			04-04-0707-3	04/13/04	Aqueous	N/A	04/15/04	040415L01
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	99	<u>Limits</u> 63-147						
WNN-MW1			04-04-0707-4	04/13/04	Aqueous	N/A	04/15/04	040415L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
lexafluoro-2-propanol	94	63-147						

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

04/14/04

04-04-0707

N/A

**EPA 8015B** 

Page 2 of 2

Project:	Aerojet -	WNN
----------	-----------	-----

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-138A			04-04-0707-5	04/13/04	Aqueous	N/A	04/15/04	040415L01
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	100	63-147						
Method Blank			099-12-006-1,0	35 N/A	Aqueous	N/A	04/15/04	040415L01

Method Blank			099-12-006-1,0	35 N/A	Aqueous N/A	04/15/04	040415L01
Parameter	Result	RL	DF	Qual	<u>Units</u>		
Ethanol	ND	0.10	1		mg/L		
Surrogates:	REC (%)	Control		Qual			
Hexafluoro-2-propanol	116	<u>Limits</u> 63-147					

RL - Reporting Limit ,

DF - Dilution Factor



Unit:



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method:

04/14/04 04-04-0707 N/A HPLC/UV mg/L

Project: Aerojet - WNN

Page 1 of 2

Client Sample Number			L	.ab Sample Number	Date Collected	Matrix	Date Prepared	A	Date \nalyzed	QC B	atch ID
WNN-RW-1			04-04-0	0707-1	04/13/04	Aqueous	N/A		04/15/04	04041	5L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Parameter</u>		R	<u>esult</u>	<u>RL</u>	<u>DF</u>	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		N	D	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		N	D	1.0	1	
Lactic Acid	ND	1.0	1								
Surrogates:	REC (%)	Control		Qual							
Dibromopropionic Acid	98	<u>Limits</u> 80-120									
WNN-EW-1			04-04-0	707-2	04/13/04	Aqueous	N/A		04/15/04	04041	5L01
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Re	<u>esult</u>	RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		N	D	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		Ni	D	1.0	1	
Lactic Acid	ND	1.0	1								
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	96	80-120									
WNN-EW-2			04-04-0	707-3	04/13/04	Aqueous	N/A		04/15/04	04041	5L01
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Re	esult	RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		NI	D	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		N	D	1.0	1	
Lactic Acid	ND	1.0	1								
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	97	80-120									
WNN-MW1			04-04-0	707-4	04/13/04	Aqueous	N/A		04/15/04	040415	5L01
Parameter	Result	RL	DF	Qual	Parameter		Re	esult	RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		-	5.3	1.0	1	www.distriction
Acetic Acid	13	1	1		Butyric Acid		NE		1.0	1	
Lactic Acid	ND	1.0	1		-					•	
Surrogates:	REC (%)	Control Limits		Qual							
Dibromopropionic Acid	97	80-120									

RL - Reporting Limit

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

Work Order No:

Preparation: Method:

Unit:

04/14/04

04-04-0707 N/A

> HPLC/UV mg/L

Page 2 of 2

Client Sample Number		Lab Sample Number		Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID		
WNN-138A			04-04-0	707-5	04/13/04	Aqueous	N/A	04/15/04	04041	5L01
Parameter	Result	RL	<u>DF</u>	Qual	<u>Parameter</u>		Resu	ılt RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		ND	1.0	1	
Lactic Acid	ND	1.0	1					,,,	·	
Surrogates:	<u>REC (%)</u>	Control Limits		Qual						
Dibromopropionic Acid	97	80-120								
Method Blank			099-12-	016-26	N/A	Aqueous	N/A	04/15/04	04041	5L01
Parameter Parame	Result	RL	<u>DF</u>	Qual	Parameter		Resu	ılt RL	<u>DF</u>	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		ND	1.0	1	
_actic Acid	ND	1.0	1		•				•	
Surrogates:	REC (%)	Control Limits		Qual						
Dibromopropionic Acid	97	80-120								



#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method: N/A 04-04-0707 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared			LCS/LCSD Bate Number	h
099-12-010-597	Aqueous	GC 33	N/A	04/15/0	4	040415L02	
<u>Parameter</u>	LCS %R	EC LCSD	<u>%REC %I</u>	REC CL	RPD	RPD CL	Qualifiers
Methane	93	100		79-109	8	0-20	
Ethane	93	100	ł	80-120	8	0-20	



### **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

Work Order No:

Preparation:

Method:

04/14/04

04-04-0707

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number	
WNN-EW-1	Aqueous	GC12	N/A		04/15/04	040415S01	
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers	
Methanol Ethanol	89 100	96 101	64-118 73-109	7 1	0-20 0-23		



## **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method: N/A 04-04-0707 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyze	d	LCS/LCSD Bate Number	ch
099-12-006-1,035	Aqueous	GC12	N/A	04/15/04		040415L01	
Parameter	LCS %	REC LCSD	%REC %F	REC CL	RPD	RPD CL	Qualifiers
Methanol	91	87	6	69-117	4	0-22	
Ethanol	98	85	7	76-112	14	0-19	



## **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

Work Order No:

Preparation:

Method:

04/14/04

04-04-0707

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueou	ıs HPLC 6	N/A		04/15/04	040415S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	118	117	70-130	0	0-30	
Acetic Acid	112	111	70-130	2	0-30	
Lactic Acid	125	124	70-130	0	0-30	
Propionic Acid	101	99	70-130	2	0-30	
Butyric Acid	96	97	70-130	0	0-30	



## **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method:

N/A 04-04-0707 N/A HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepare		ite yzed	LCS/LCSD Bate Number	ch
099-12-016-26	Aqueous	HPLC 6	N/A	04/1	5/04	040415L01	
<u>Parameter</u>	LCS %RE	C LCSD %	REC	%REC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	119	119		80-120	1	0-20	
Acetic Acid	110	110		80-120	0	0-20	
Lactic Acid	119	119		80-120	0	0-20	
Propionic Acid	102	115		80-120	12	0-20	
Butyric Acid	99	100		80-120	1	0-20	



# Glossary of Terms and Qualifiers



Work Order Number: 04-04-0707

Qualifier

**Definition** 

ND

Not detected at indicated reporting limit.



WORK ORDER #:

04-04-0707

Cooler \_\_\_\_ of \_\_\_

# SAMPLE RECEIPT FORM

CLIENT: GOOSYNTEC	DATE: 4-14-04
TEMPERATURE – SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided.  Chilled, cooler without temperature blank.  Chilled and placed in cooler with wet ice.  Ambient and placed in cooler with wet ice.  Ambient temperature.  ° C Temperature blank.	LABORATORY (Other than Calscience Courier):  ° C Temperature blank.  ° C IR thermometer Ambient temperature.  Initial: W
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:	
Chain-Of-Custody document(s) received with samples	
COMMENTS:	

LINCOLN WAY DEN GROVE, CA 92841-1432

TEL: (714) 895-5494 . FAX: (714) 894-7501

**CHAIN OF CUSTODY RECORD** 

DATE: PAGE:

P

LABC	LABORATORY CLIENT:					ľ	CI III	SHI CH	NAME	CHENT PROJECT NAME / NIMBER.								
Geo	GeoSyntec Consultants														5.0.7	:		
ADD	ADDRESS:					Ī	Aero	Aerojet-WNN	Z									
130	130 Research Lane, Suite 2						PROJECT CONTACT:	CONTA	E						ON RTOLIO	· CN		
Ę						T	mel.	Jamev Rosen	Con									
Gue	Guelph, Ontario N1G 5G3						SAMPLER(S): (SIGNATURE)	(S): (SI	NATUR	()					LABU	LAB USE ONLY		
7EL 519		FAX:		E-MAIL												귤	団〇	
	SAME DAY 24 HR	48HR		5 DAYS X	10 DAYS	S)					R	COUE	STED	REQUESTED ANALYSIS	YSIS			
SPE	SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY)  RWQCB REPORTING ARCHIVE	STS MAY APPLY) ARCHIVE SAMPLES UNTIL	ES UNTIL	_			esse	<u> </u>				<u> </u>						
SPE	SPECIAL INSTRUCTIONS						ed Hydrocarbon	Fatty Acids								district in the second		
LAB	SAMPLEID	LOCATION/	SAME	SAMPLING			anol solve		əpij								***************************************	
ONLY		DESCRIPTION	DATE	TIME	atrit	ont			Ins			<del></del>					a Minima de Paris de La Antina	
	WNN-RW-1		04/13/04	9:40	GW		×	×				-						
	WNN-EW-1		04/13/04	11:00	GW		×	×				-						
	WNN-EW-2		04/13/04	11:55	GW		×	×				<del> </del>	<u> </u>					
	WNN-MW1		04/13/04	10:41	ВW		×	×										
	WNN-138A		04/13/04	11:36	GW		×	×		-								
									<u> </u>	<u> </u>		-						
									-			$\vdash$	1					
												<u> </u>	_					
									-	<u> </u>		-						
		0				<del>                                     </del>			T	-		-						
Relin	Relinquished by: (Signature)				Received by: (Signature)	£ 1.25 €	mature)	M	1	10					Date: / 4 / 13/	100	Time	00
Refi	Relinquished by. (Signature)				Received by: (Signature)	by: (Sig	nature)								Date:		Time:	<b>S</b>
Relin	Religouished by: (Signature)				Received by (Signature)	eigy/	nature)								Pate: K. P. K.	3	Tipe	\
	んしょく				<b>人</b> ン	3	\ \ \ \ \	Z							イセイセ	_	<u></u>	





May 06, 2004

Jamey Rosen GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Subject:

Calscience Work Order No.:

04-04-1499

Client Reference:

**Aerojet - WNN** 

#### Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 4/28/2004 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the quidelines established in our Quality Assurance Program Manual, applicable standard operating procedures, and other related documentation. The original report of any subcontracted analysis is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

als¢ience Environmental

Laboratories, Inc. Stephen Nowak

Project Manager

Michael J. Crisostomo

**Quality Assurance Manager** 





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation: Method: Units:

04/28/04 04-04-1499 N/A RSK-175M ug/L

Project: Aerojet - WNN

Page 1 of 1

Client Sample Number				ab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC B	atch ID
WNN-RW-1			04-04-1	499-1	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	Parameter		Resu	<u>lt RL</u>	DF	Qual
Methane	ND	1.00	1		Ethylene		ND	1.00	1	
Ethane	ND	1.00	1							
WNN-EW-1			04-04-1	499-2	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	Parameter		Resu	lt RL	DF	Qual
Methane	ND	1.00	1		Ethylene		ND	1.00	1	
Ethane	ND	1.00	1							
WNN-EW-2			04-04-1	499-3	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
<u>Parameter</u>	Result	RL	DF	Qual	Parameter		Resu	lt RL	DF	Qual
Methane	ND	1.00	1		Ethylene		ND	1.00	1	
Ethane	ND	1.00	1		·				•	
WNN-MW-1			04-04-1	499-4	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Parameter</u>		Resu	lt RL	DF	Qual
Methane	48.6	1.0	1		Ethylene		ND	1.00	1	
Ethane	ND	1.00	1							
STSW-138A			04-04-1	499-5	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
Parameter	Result	RL	DF	Qual	Parameter		Resu	lt RL	DF	Qual
Methane	20.4	1.0	1		Ethylene		ND.	1.00	1	***************************************
Ethane	ND	1.00	1		Š				·	
STSW-166			04-04-1	499-6	04/27/04	Aqueous	N/A	05/01/04	04050	1L02
Parameter	Result	RL	DF	Qual	Parameter		Resu	t RL	DF	Qual
Methane	ND	1.00	1	-	Ethylene		ND.	1.00	1	
Ethane	ND	1.00	1		,		.40	1.00	'	
Method Blank			099-12-	010-614	N/A	Aqueous	N/A	05/01/04	04050	1L02
Parameter	Result	RL	DF	Qual	Parameter		Resu	t RL	DF	Qual
	ND	1.00	1		Ethylene		ND	_		34441
Methane	NI)		- 1		Einviene		NI I	1.00	1	

RL - Reporting Limit ,

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 04/28/04 04-04-1499 N/A EPA 410.4

Project: Aerojet - WNN

Page 1 of 2

		Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
		04-04-1499-1	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	RL	<u>DF</u>	Qual	<u>Units</u>			
5.1	5.0	1		mg/L			
		04-04-1499-2	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	RL	<u>DF</u>	Qual	<u>Units</u>			
10	5	1		mg/L			
		04-04-1499-3	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
5.1	5.0	1		mg/L			
		04-04-1499-4	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	RL	DF	Qual	<u>Units</u>			
26	5	1		mg/L			
		04-04-1499-5	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	RL	<u>DF</u>	Qual	<u>Units</u>			
10	5	1		mg/L			
		04-04-1499-6	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
Result	RL	<u>DF</u>	Qual	<u>Units</u>			
7.7	5.0	1		ma/l			
	Result 10  Result 5.1  Result 26  Result 10	Result         RL           10         5           Result         RL           5.1         5.0           Result         RL           26         5           Result         RL           10         5	Result         RL         DF           5.1         5.0         1           Q4-04-1499-2           Result         RL         DF           10         5         1           Q4-04-1499-3           Result         RL         DF           5.1         5.0         1           Q4-04-1499-4           Result         RL         DF           26         5         1           Result         RL         DF           10         5         1           Result         RL         DF           10         5         1           Column 1         04-04-1499-5           Result         RL         DF           10         5         1           Column 2         04-04-1499-6	Number         Collected           04-04-1499-1         04/27/04           Result         RL         DF         Qual           5.1         5.0         1         04-04-1499-2         04/27/04           Result         RL         DF         Qual           10         5         1         04-04-1499-3         04/27/04           Result         RL         DF         Qual           5.1         5.0         1         04-04-1499-4         04/27/04           Result         RL         DF         Qual           26         5         1         04-04-1499-5         04/27/04           Result         RL         DF         Qual           10         5         1         04-04-1499-6         04/27/04           Result         RL         DF         Qual           10         5         1         04-04-1499-6         04/27/04	Result         RL         DF         Qual         Units           5.1         5.0         1         mg/L           Result         RL         DF         Qual         Units           5.1         5.0         1         mg/L           Result         RL         DF         Qual         Units           10         5         1         mg/L           Result         RL         DF         Qual         Units           5.1         5.0         1         mg/L           5.1         5.0         1         mg/L           Result         RL         DF         Qual         Units           7.1         5.0         1         mg/L         Qual         Units           8.esult         RL         DF         Qual         Units         mg/L           Result         RL         DF         Qual         Units         mg/L           10         5         1         mg/L         Aqueous           Result         RL         DF         Qual         Units           10         5         1         mg/L         Aqueous           10         5         1	Number   Collected   Matrix   Prepared	Number   Number   Collected   Matrix   Prepared   Analyzed

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 04/28/04 04-04-1499 N/A EPA 410.4

Project: Aerojet - WNN

Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
STSW-38A			04-04-1499-8	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	Units			
Chemical Oxygen Demand	ND	5.0	1		mg/L			
STSW-39A			04-04-1499-9	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Chemical Oxygen Demand	15	5	1		mg/L			
STSW-39B			04-04-1499-10	04/27/04	Aqueous	N/A	04/30/04	40430ODB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Chemical Oxygen Demand	13	5	1		mg/L			
Method Blank			099-05-062-1,778	3 N/A	Aqueous	N/A	04/30/04	40430ODB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Chemical Oxygen Demand	ND	5.0	1		mg/L			

RL - Reporting Limit ,

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method: 04/28/04 04-04-1499 N/A EPA 376.2

Project: Aerojet - WNN

Page 1 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-04-1499-1	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-1			04-04-1499-2	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-EW-2			04-04-1499-3	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
WNN-MW-1			04-04-1499-4	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-166			04-04-1499-6	04/27/04	Aqueous	N/A	04/29/04	40429SB1
Parameter	<u>Result</u>	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-80A			04-04-1499-7	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3 Guelph, Ontario, Canada 0 Date Received:

Work Order No: Preparation:

Method:

04/28/04

04-04-1499

N/A

EPA 376.2

Project: Aerojet - WNN

Page 2 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
STSW-38A			04-04-1499-8	04/27/04	Aqueous	N/A	04/29/04	40429SB1
Parameter	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-39A			04-04-1499-9	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
STSW-39B			04-04-1499-10	04/27/04	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			
Method Blank			099-05-089-1,582	2 N/A	Aqueous	N/A	04/29/04	40429SB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Sulfide, Total	ND	0.050	1		mg/L			

RL - Reporting Limi

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Date Received: Work Order No: Preparation: Method:

04/28/04 04-04-1499 N/A EPA 405.1

Project: Aerojet - WNN

Page 1 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Started	Date Ended	QC Batch ID
WNN-RW-1			04-04-1499-1	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
WNN-EW-1			04-04-1499-2	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
WNN-EW-2			04-04-1499-3	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
WNN-MW-1			04-04-1499-4	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	14	1	1		mg/L			
STSW-166			04-04-1499-6	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
STSW-38A			04-04-1499-8	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			

RL - Reporting Limit

DF - Dilution Factor ,





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

04/28/04

04-04-1499

N/A

EPA 405.1

Project: Aerojet - WNN	1							Page 2 of 2
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Started	Date Ended	QC Batch ID
STSW-39A			04-04-1499-9	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
STSW-39B			04-04-1499-10	04/27/04	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			
Method Blank			099-05-054-1,48	35 N/A	Aqueous	04/28/04	05/03/04	40428BODB1
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Biochemical Oxygen Demand	ND	1.0	1		mg/L			

RL - Reporting Limit ,

DF - Dilution Factor ,





GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

04/28/04

04-04-1499

N/A

EPA 8015B

Project: Aerojet - WNN

Page 1 of 2

Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-RW-1			04-04-1499-1	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control Limits		Qual				
Hexafluoro-2-propanol	91	63-147						
WNN-EW-1			04-04-1499-2	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
WNN-EW-2			04-04-1499-3	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	90	<u>Limits</u> 63-147						
WNN-MW-1			04-04-1499-4	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	89	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

04/28/04

04-04-1499

N/A

**EPA 8015B** 

Project: Aerojet - WNN

Page 2 of 2

								-
Client Sample Number			Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
STSW-138A			04-04-1499-5	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	RL	<u>DF</u>	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates: Hexafluoro-2-propanol	<u>REC (%)</u> 85	Control Limits 63-147		Qual				
STSW-166			04-04-1499-6	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	86	<u>Limits</u> 63-147						
STSW-80A			04-04-1499-7	04/27/04	Aqueous	N/A	04/30/04	040429L02
<u>Parameter</u>	Result	RL	DF	Qual	<u>Units</u>			
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	88	<u>Limits</u> 63-147						
Method Blank			099-12-006-1,049	9 N/A	Aqueous	N/A	04/29/04	040429L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			-
Ethanol	ND	0.10	1		mg/L			
Surrogates:	REC (%)	Control		Qual				
Hexafluoro-2-propanol	92	<u>Limits</u> 63-147						

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Date Received: Work Order No: Preparation:

Method: Units:

04/28/04 04-04-1499

N/A HPLC/UV mg/L

Project: Aerojet -	WNN								Pa	ge 1 of 2
Client Sample Number				ab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC E	Batch ID
WNN-RW-1			04-04-1	499-1	04/27/04	Aqueous	N/A	05/05/04	04050	05L01
Parameter	Result	RL	DF	Qual	<u>Parameter</u>		Res	ult RL	<u>DF</u>	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND	1.0	1	
Acetic Acid	ND	1.0	1		Butyric Acid		ND	1.0	1	
Lactic Acid	ND	1.0	1							
Surrogates:	<u>REC (%)</u>	Control Limits		Qual						
Dibromopropionic Acid	89	80-120								
WNN-EW-1			04-04-1	499-2	04/27/04	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	DF	Qual	Parameter		Res	ult RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND.	1.0	1	<u>Quui</u>
Acetic Acid	ND	1.0	1		Butyric Acid		ND	1.0	1	
Lactic Acid	ND	1.0	1		Daty 110 7 tola		ND	1.0	•	
Surrogates:	<u>REC (%)</u>	Control Limits	•	Qual						
Dibromopropionic Acid	92	80-120								
WNN-EW-2			04-04-1	499-3	04/27/04	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	DF	Qual	Parameter		Res	ult RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND.	1.0	1	<u>Quui</u>
Acetic Acid	ND	1.0	1		Butyric Acid		ND.	1.0	1	
Lactic Acid	ND	1.0	1				140	1.0	,	
Surrogates:	REC (%)	Control	•	Qual						
		Limits		- California						
Dibromopropionic Acid	94	80-120								
WNN-MW-1			04-04-14	499-4	04/27/04	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	DF	Qual	Parameter		Res	ult RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		5.9		1	<b>SCHO</b> 1
Acetic Acid	ND	1.0	1		Butyric Acid		ND	1.0	1	
Lactic Acid	15	1.0	1		= 11,110 / 1010		ND	1.0	,	
Surrogates:	REC (%)	Control	•	Qual						
Dibromopropionic Acid	94	<u>Limits</u> 80-120								

RL - Reporting Limit ,

DF - Dilution Factor





GeoSyntec Consultants 130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Date Received:

Work Order No:

Preparation:

Method:

Units:

04/28/04

04-04-1499

N/A

HPLC/UV mg/L

Project: Aerojet - WN	IN								Pa	ge 2 of 2
Client Sample Number				ab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC B	atch ID
STSW-138A			04-04-1	499-5	04/27/04	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	<u>DF</u>	Qual	Parameter		Re	sult RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		NC.		1	Marine State Control
Acetic Acid	ND	1.0	1		Butyric Acid		NE		1	
Lactic Acid	ND	1.0	1		·				•	
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	94	<u>Limits</u> 80-120								
STSW-166			04-04-1	499-6	04/27/04	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	DF	Qual	Parameter		Res	sult RL	DF	Qual
Pyruvic Acid	ND	0.50	1		Propionic Acid		ND		1	
Acetic Acid	ND	1.0	1		Butyric Acid		ND		1	
Lactic Acid	ND	1.0	1		•				•	
Surrogates:	REC (%)	Control		Qual						
		<u>Limits</u>								
Dibromopropionic Acid	93	80-120						*		
Method Blank			099-12-	016-27	N/A	Aqueous	N/A	05/05/04	04050	5L01
Parameter	Result	RL	<u>DF</u>	Qual	Parameter		Res	sult RL	DF	Qual
Pyruvic Acid	ND	0.50	1	***************************************	Propionic Acid		ND		1	<u> </u>
Acetic Acid	ND	1.0	1		Butyric Acid		ND		1	
Lactic Acid	ND	1.0	1		•		.,,,		•	
Surrogates:	REC (%)	Control		Qual						
Dibromopropionic Acid	94	<u>Limits</u> 80-120								

RL - Reporting Limit , DF - Dilution Factor ,



#### **Quality Control - Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project:

Aerojet - WNN

Date Received: Work Order No: Preparation: Method:

04/28/04 04-04-1499 N/A EPA 405.1

Quality Control Sample ID	Matrix	Instrument	Date Started:	Date Ended:	Duplicate Batch Number
04-04-1536-1	Aqueous	BOD 1	04/28/04	05/03/04	40428BODD1
<u>Parameter</u>	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Biochemical Oxygen Demand	800	780	3	0-25	



#### **Quality Control - Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method: 04/28/04 04-04-1499 N/A EPA 410.4

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
04-04-1596-1	Aqueous	UV 3	N/A	04/30/04	40430ODD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Chemical Oxygen Demand	400	400	1	0-25	



#### **Quality Control - Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0

Guelph, Ontario, Canada 0 Project: Aerojet - WNN Date Received: Work Order No: Preparation: Method:

04/28/04 04-04-1499 N/A EPA 376.2

Quality Control Sample ID	Matrix	Instrument	Date Prepared:	Date Analyzed:	Duplicate Batch Number
STSW-39B	Aqueous	N/A	N/A	04/29/04	40429SD1
Parameter	Sample Conc	DUP Conc	RPD	RPD CL	Qualifiers
Sulfide, Total	ND	ND	NA	0-25	



#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN

Date Received: Work Order No: Preparation: Method:

N/A 04-04-1499 N/A RSK-175M

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Bate Number	h
099-12-010-614	Aqueous	GC 33	N/A	05/01/04	040501L02	
Parameter	LCS %RE	C LCSD	%REC %R	EC CL RF	PD RPD CL	Qualifiers
Methane	100	95	79	9-109 5	0-20	
Ethane	102	98	80	0-120 4	0-20	



## **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Project:

Guelph, Ontario, Canada 0

Aerojet - WNN

Date Received:

Work Order No:

Preparation:

Method:

04/28/04

04-04-1499

N/A

EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
STSW-80A	Aqueous	GC12	N/A		04/30/04	040429S02
Parameter	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	Qualifiers
Methanol Ethanol	95 96	96 96	64-118 73-109	2	0-20 0-23	



#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN Date Received: Work Order No: Preparation: Method:

N/A 04-04-1499 N/A EPA 8015B

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	l	LCS/LCSD Batc Number	h
099-12-006-1,049	Aqueous	GC12	N/A	04/29/04		040429L02	
<u>Parameter</u>	LCS %RE	C LCSD	<u>%REC</u> <u>%RE</u>	C CL	RPD	RPD CL	Qualifiers
Methanol	102	95	69-	117	7	0-22	
Ethanol	81	87	76-	112	7	0-19	



## **Quality Control - Spike/Spike Duplicate**



GeoSyntec Consultants

130 Research Lane, Suite 2

N1G 5G3

Guelph, Ontario, Canada 0

Project: Aerojet - WNN

Date Received:

Work Order No:

Preparation:

Method:

04/28/04

04-04-1499

N/A

HPLC/UV

Quality Control Sample ID	Matrix	Instrument	Date Prepared		Date Analyzed	MS/MSD Batch Number
WNN-RW-1	Aqueous	HPLC 6	N/A		05/05/04	040505S01
<u>Parameter</u>	MS %REC	MSD %REC	%REC CL	RPD	RPD CL	. Qualifiers
Pyruvic Acid	105	104	70-130	1	0-30	
Acetic Acid	116	114	70-130	2	0-30	
Lactic Acid	106	110	70-130	4	0-30	
Propionic Acid	101	100	70-130	1	0-30	
Butyric Acid	100	98	70-130	1	0-30	



#### **Quality Control - LCS/LCS Duplicate**



GeoSyntec Consultants 130 Research Lane, Suite 2 N1G 5G3 Guelph, Ontario, Canada 0 Project: Aerojet - WNN Date Received: Work Order No: Preparation: Method:

N/A 04-04-1499 N/A HPLC/UV

Quality Control Sample ID	Matrix I	ix Instrument		Dat Analy		LCS/LCSD Bate Number	h
099-12-016-27	Aqueous	HPLC 6	N/A	05/05	/04	040505L01	
Parameter	LCS %REC	LCSD %	REC %R	EC CL	RPD	RPD CL	Qualifiers
Pyruvic Acid	104	105	8	0-120	1	0-20	
Acetic Acid	114	114	8	0-120	0	0-20	
Lactic Acid	101	100	8	0-120	1	0-20	
Propionic Acid	98	98	8	0-120	1	0-20	
Butyric Acid	99	98	8	0-120	1	0-20	



# Glossary of Terms and Qualifiers



Work Order Number: 04-04-1499

<u>Qualifier</u>

**Definition** 

ND

Not detected at indicated reporting limit.



**WORK ORDER #:** 

04-06-1699

Cooler \_\_\_\_\_\_ of \_\_\_\_\_

# **SAMPLE RECEIPT FORM**

CLIENT: Creosyntec	DATE: 4/28/04
TEMPERATURE - SAMPLES RECEIVED BY:	
CALSCIENCE COURIER:  Chilled, cooler with temperature blank provided. Chilled, cooler without temperature blank. Chilled and placed in cooler with wet ice. Ambient and placed in cooler with wet ice. Ambient temperature.	LABORATORY (Other than Calscience Courier): °C Temperature blank. °C IR thermometer.  Ambient temperature.
°C Temperature blank.	Initial:
CUSTODY SEAL INTACT:	
Sample(s): Cooler: No (Not Intact)	: Not Applicable (N/A):
SAMPLE CONDITION:  Chain-Of-Custody document(s) received with samples  Sample container label(s) consistent with custody papers  Sample container(s) intact and good condition  Correct containers for analyses requested.  Proper preservation noted on sample label(s)  VOA vial(s) free of headspace.  Tedlar bag(s) free of condensation	
Sample STSW-80A: Di BOD and COJ	d not récelle riceve

alscience nvironmental aborstories, Inc.

**GARDEN GROVE, CA 92841-1432** 7440 LINCOLN WAY

TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD DATE:

•	Ψ
	ú
	F
	⋖
	n

OF

#### Stephen Nowak

From:

SFelton@GeoSyntec.com

Sent:

Wednesday, April 28, 2004 1:05 PM

To:

Stephen Nowak

Subject:

RE: Aerojet WNN samples

That was my mistake. There should ethanol but no BOD or COD.

D. Scott Felton, E.I.T. Engineer GeoSyntec Consultants 475 14th Street, Suite 450 Oakland, California 94612 Phone: 510-836-3034 Fax: 510-836-3036

----Original Message----

From: Stephen Nowak [mailto:SNowak@calscience.com]

Sent: Wednesday, April 28, 2004 12:39 PM

To: Scott Felton

Subject: Aerojet WNN samples

Hi Scott,

We rec'd your samples today and had one discrepancy with the COC.

For sample STSW-80A the COC lists analysis for Sulfide, BOD, and COD. We did not receive any bottles for the BOD and COD. However, we did receive bottles for ethanol analysis for this sample.

Let me know if anything needs to be changed to the COC for this sample.

Thanks-Steve

Stephen J. Nowak Jr.
Project Manager
Calscience Environmental
Laboratories, Inc.
7440 Lincoln Way
Garden Grove, CA 92841-1427
Tel.: 714-895-5494

Fax: 714-894-7501 snowak@calscience.com

#### PRIVACY NOTICE:

This email (and/or the documents attached to it) is intended only for the use of the individual or entity to which it is addressed and may contain information that is privileged, confidential, or exempt from disclosure under applicable Federal or State law. If the reader of this message is not the intended recipient or the employee or agent responsible for delivering the message to the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by telephone or else to arrange for the return of the documents.



Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation:

Method:

12/22/06 06-12-1442 N/A EPA 314.0

Project: IRCTS/42060 QT4

Page 1 of 1

Client Sample Number		Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-MW1		06-12-1442-1	12/14/06	Aqueous	N/A	01/02/07	070102L03
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>		
Perchlorate	6.8	4.0	1		ug/L		
STSW 166		06-12-1442-2	12/14/06	Aqueous	N/A	01/02/07	070102L03
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>		
Perchlorate	420	40	10		ug/L		
Method Blank		099-05-203-528	N/A	Aqueous	N/A	01/03/07	070102L03
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>		
Perchlorate	ND	4.0	1		ug/L		



Aerojet Environmental Remediation PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Project: IRCTS/42060 QT4

Date Received:

Work Order No: Preparation:

Method:

EPA 5030B EPA 8260B ug/L

06-12-1442

12/22/06

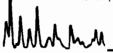
Units:

Page 1 of 2

Client Sample Number				o Sample lumber	Date Collected	Matrix	Date Prepared		ate lyzed	QC Ba	atch ID
WNN-MW1			06-12-1	442-1	12/14/06	Aqueous	12/22/06	12/	22/06	06122	2L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	Parameter		Re	sult	RL	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloroe	ethene	N	)	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloroe	thene	N		0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropro	opane	N	)	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	propene	N[	)	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichlorop	ropene	N	)	0.50	1	
Chloroethane	ND	0.50	1		Methylene Chlo	oride	N[	)	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrach	nloroethane	NI	)	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrach	nloroethane	N[	)	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroethe	ene	N	)	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichloro	ethane	N	)	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloro	-1,2,2-Trifluoroe	thane NI	)	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloro	ethane	N	)	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroethene	Э	6.0	)	0.5	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoro	methane	N	)	0.50	1	
1,2-Dichloroethane	ND	0.50	1		Vinyl Chloride		N	)	0.50	1	
1,1-Dichloroethene	ND	0.50	1								
Surrogates:	<u>REC (%)</u>	Control Limits		<u>Qual</u>	Surrogates:		REC	C (%)	Control		Qual
1,2-Dichloroethane-d4	115	77-137			Dibromofluoror	mothono	11	1	<u>Limits</u> 75-141		
Toluene-d8	104	87-111			1.4-Bromofluor		85		71-107		
STSW 166		07 111	06-12-1	442-2	12/14/06	Aqueous	12/22/06		22/06	06122	2L01
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Parameter</u>			<u>sult</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro		N!		0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloroe		N		0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropro		N		0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichlorop	•	NE		0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichlorop		N		0.50	1	
Chloroethane	ND	0.50	1		Methylene Chlo		NE		0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrach		N		0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrach		NI		0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroethe		NI NI		0.50 0.50	1	
1,2-Dichlorobenzene	ND ND	0.50	1		1,1,1-Trichloro		NI thane NI			•	
1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND	0.50 0.50	1 1		1,1,2-Trichloro	-1,2,2-Trifluoroe	unane Nu Ni		0.50 0.50	1 1	
Dichlorodifluoromethane	ND ND	0.50	1		Trichloroethen		1NL 4.4		0.50	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoro		4.4 N[		0.50	1	
1,1-Dichloroethane	ND	0.50	1		Vinyl Chloride	not lane	N[		0.50	1	
1,2-Dichloroethene	ND	0.50	1		viriyi Chiloride		INL	,	0.50	'	
•	REC (%)		1	Qual	Surrogatos:		DE(	(0/.)	Control		Qual
Surrogates:	NEC (76)	Control Limits		<u>Qual</u>	Surrogates:		VE.	C (%)	Limits		<u>Quai</u>
									LITTIES		
1.2-Dichloroethana.d4	115				Dibromofluoror	methane	11	1	75-1/1		
1,2-Dichloroethane-d4 Toluene-d8	115 103	77-137 87-111			Dibromofluoror		11 87		75-141 71-107		



DF - Dilution Factor





Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation: 06/20/07 07-06-1505 N/A

Method:

EPA 314.0

Project: IRCTS / 42060 QT2

Page 1 of 1

Client Sample Number		Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
STSW 103C		07-06-1505-1	06/18/07	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	DF	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 166		07-06-1505-2	06/18/07	Aqueous	IC 6	N/A	06/23/07	070622L01
Parameter	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	730	40	10		ug/L			
STSW 126C		07-06-1505-3	06/18/07	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
Method Blank		099-05-203-613	N/A	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	DF	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			



Aerojet Environmental Remediation

PO Box 13222, MS-5519

Date Received: Work Order No:

06/20/07 07-06-1505

Sacramento, CA 95813-6000

Preparation: Method: Units:

**EPA 5030B EPA 8260B** ug/L

Project: IRCTS / 42060 QT2

Page 1 of 3

Client Sample Number				b Sample Number	Date Collected	Matrix	Instrument	Date t Prepared	Date Analyz		QC Batch ID
STSW 103C			07-06-	1505-1	06/18/07	Aqueous	GC/MS L	06/22/07	06/23/	07	070622L02
Parameter Parame	Result	<u>RL</u>	DF	Qual	<u>Parameter</u>			Result	<u>RL</u>	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro	ethene		ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro			ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichlorop			ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	•		ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro			ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch			ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac			ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac			ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroeth			ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlor			ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor		oroethane	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor			ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether			ND	0.50	1	
1.1-Dichloroethane	ND	0.50	1		Trichlorofluor			ND	0.50	1	
1.2-Dichloroethane	ND	0.50	1		Vinyl Chloride			ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		·,. · ·				0.00		
Surrogates:	REC (%)	Control		Qual	Surrogates:			REC (%)	Control		Qual
<u> </u>		Limits		es ar car	<del>ourregatour</del>				Limits		
1,2-Dichloroethane-d4	106	73-157			Dibromofluoro	methane		110	82-142		
Toluene-d8	100	82-112			1,4-Bromofluo			87	75-105		
STSW 166			07-06-	1505-2	06/18/07	Aqueous	GC/MS L	06/25/07	06/25/	07	070625L01
Parameter	Result	RL	DF	Qual	Parameter			Result	RL	DF	Qual
				Quai	c-1,2-Dichloro	othono		ND	0.50	1	<u>Quui</u>
Bromodichloromethane	ND ND	0.50	1		t-1,2-Dichloro			ND	0.50	1	
Bromoform		0.50	1		,			ND			
Bromomethane	ND	0.50	1		1,2-Dichlorop			ND	0.50 0.50	1 1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro			ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro			ND	0.50	1	
Chloroethane Chloroform	ND ND	0.50	1		Methylene Ch 1,1,1,2-Tetrad			ND	0.50	1	
• • • • • • • • • • • • • • • • • • • •	ND	0.50 0.50	1 1		1,1,2,2-Tetrac			ND	0.50	1	
Dibromochloromethane	ND	0.50	1		Tetrachloroetl			ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		1,1,1-Trichlor			ND	0.50	1	
1,2-Dichlorobenzene 1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor		oroothano	ND	0.50	1	
	שמו		1		1,1,2-Trichlor		oroetriane	ND	0.50	1	
, -								5.3	0.50	1	
1,4-Dichlorobenzene	ND	0.50			Trioblorootho			.11	0.50	1	
1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND	0.50	1		Trichloroether					4	
1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND	0.50 0.50	1		Trichlorofluor	omethane		ND	0.50	1	
,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane	ND ND ND ND	0.50 0.50 0.50	1 1 1			omethane				1 1	
1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene	ND ND ND ND ND	0.50 0.50 0.50 0.50	1		Trichlorofluore Vinyl Chloride	omethane		ND ND	0.50 0.50		Ourst
,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene	ND ND ND ND	0.50 0.50 0.50	1 1 1	Qual	Trichlorofluor	omethane		ND ND REC (%)	0.50 0.50 Control Limits		Qual
,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane	ND ND ND ND ND	0.50 0.50 0.50 0.50 <u>Control</u>	1 1 1	Qual	Trichlorofluore Vinyl Chloride	omethane e		ND ND	0.50 0.50 Control		<u>Qual</u>







Aerojet Environmental Remediation

PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received:

Work Order No: Preparation:

Method: Units: 11/09/06

06-11-0570 EPA 5030B

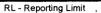
EPA 8260B

ug/L

Project: IRCTS/42060 QT4

Page 1 of 2

Client Sample Number				b Sample Number	Date Collected	Matrix F	Date Prepared A	Date nalyzed	QC B	atch ID
STSW 138B	1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 1986 - 19		06-11-0	)570-1	11/06/06	Aqueous 1	11/10/06	11/10/06	061110	DL01
Parameter	Result	<u>RL</u>	DF	Qual	Parameter		Result	RL	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro	ethene	ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro		ND	0.50	1	
3romomethane	ND	0.50	1		1,2-Dichloropr	opane	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	propene	ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichlorop		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Chl	•	ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac	hloroethane	ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac		ND	0.50	1	
,2-Dibromoethane	ND	0.50	1		Tetrachloroeth		ND	0.50	1	
,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlord		ND	0.50	1	
,3-Dichlorobenzene	ND	0.50	1			p-1,2,2-Trifluoroetha		0.50	1	
,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlord	, ,	ND	0.50	1	
ichlorodifluoromethane	ND	0.50	1		Trichloroethen		ND	0.50	1	
,1-Dichloroethane	ND	0.50	1		Trichlorofluoro	-	ND	0.50	1	
,2-Dichloroethane	ND	0.50	1		Vinyl Chloride	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ND	0.50	1	
.1-Dichloroethene	ND	0.50	1		Viriyi Ornonac		110	0.50	'	
Surrogates:	REC (%)	Control	'	Qual	Surrogates:		REC (%)	Control		Qual
diregutes.	INEO (70)	Limits		Quai	ourrogates.		INEO (76)	Limits		Quai
.2-Dichloroethane-d4	109	77-137			Dibromofluoro	methane	108	75-141		
,		11 101				motitano	.00	10-141		
oluene-d8	89	87-111			1,4-Bromofluo	robenzene	94	71-107		
oluene-d8 STSW 138A	89	87-111	06-11-0	570-2	1,4-Bromofluo 11/06/06	victora el actorio dalla	- 1.64	71-107 1 <b>1/10/06</b>	061110	)L01
W. C	89 Result	87-111 <u>RL</u>	<b>06-11-0</b>	570-2 <u>Qual</u>	CHEKSHALL TO	victora el actorio dalla	- 1.64	MARS 11 685	<b>061110</b>	OL01
STSW 138A	A POST OF THE PROPERTY OF THE			1000 - TUINE	11/06/06	Aqueous 1	1/10/06	11/10/06	2 : 300 (2000)	2,755 - 1, B15 - 2
STSW 138A	Result	<u>RL</u>	<u>DF</u>	1000 - TUINE	11/06/06  Parameter	Aqueous 1	1/10/06 Result	11/10/06 <u>RL</u>	<u>DF</u>	2,755 - 1, 935 - 2
STSW 138A	Result ND	<u>RL</u> 0.50	<u>DF</u> 1	1000 - TUINE	11/06/06  Parameter c-1,2-Dichloro	Aqueous 1 ethene ethene	1/10/06  Result ND	11/10/06 <u>RL</u> 0.50	<u>DF</u> 1	2,755 - 1, B15 - 2
stsw 138A	Result ND ND	RL 0.50 0.50	DF 1 1	1000 - TUINE	11/06/06  Parameter c-1,2-Dichloroe t-1,2-Dichloroe	Aqueous 1 ethene ethene opane	1/10/06  Result ND ND	11/10/06 RL 0.50 0.50	DF 1 1	2,755 - 1, B15 - 2
stsw 138A  rarameter romodichloromethane romoform romomethane arbon Tetrachloride	Result ND ND ND ND	RL 0.50 0.50 0.50	DF 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichloropre	Aqueous 1 ethene ethene opane propene	1/10/06  Result ND ND ND ND	11/10/06 RL 0.50 0.50 0.50	<u>DF</u> 1 1	2,755 - 1, B15 - 2
stsw 138A  rarameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene	Result ND ND ND ND ND ND	RL 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichloropr c-1,3-Dichloropr	Aqueous 1 ethene ethene opane propene propene	1/10/06  Result ND ND ND ND ND ND	11/10/06 RL 0.50 0.50 0.50 0.50 0.50	DF 1 1 1	2,755 - 1, 935 - 2
strsw 138A  Parameter  romodichloromethane  romoform  romomethane  arbon Tetrachloride  hlorobenzene  hloroethane	Result ND ND ND ND ND ND ND	RL 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichloropr c-1,3-Dichlorop t-1,3-Dichlorop	Aqueous 1 ethene ethene opane propene propene oride	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1	2,755 - 1, B15 - 2
Parameter Paromodichloromethane Paromoform Paromomethane P	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichloropr c-1,3-Dichlorop t-1,3-Dichlorop Methylene Chl	Aqueous 1 ethene ethene opane propene oriopene oride hloroethane	Result ND	11/10/06 RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1	2,755 - 1, B15 - 2
earameter romodichloromethane romoform romomethane rarbon Tetrachloride rhlorobenzene rhloroethane rhloroform ribromochloromethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe c-1,3-Dichlorope c-1,3-Dichlorope Methylene Chl 1,1,1,2-Tetracl	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane	Result ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1	2,755 - 1, B15 - 2
earameter romodichloromethane romoform romomethane rarbon Tetrachloride rhlorobenzene rhlorothane rhloroform ribromochloromethane 2-Dibromoethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloro t-1,2-Dichlorop c-1,3-Dichlorop c-1,3-Dichlorop Methylene Chl 1,1,1,2-Tetracl 1,1,2,2-Tetracl	Aqueous 1 ethene ethene opane propene oride hloroethane hloroethane ene	Result ND	11/10/06 RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1 1 1	2,755 - 1, B15 - 2
srsw 138A  arameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hloroethane hloroform ibromochloromethane 2-Dibromoethane 2-Dichlorobenzene	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloro t-1,2-Dichlorop c-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,1,1,2-Tetracl 1,1,2,2-Tetracl Tetrachloroeth 1,1,1-Trichloro	Aqueous 1 ethene ethene opane propene oride hloroethane hloroethane ene	Result ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1	2,715
carameter cromodichloromethane cromoform cromomethane carbon Tetrachloride chlorobenzene chlorobenzene chloroform dibromochloromethane carbon Tetrachloride chloroform dibromochloromethane carbon Tetrachloride chlorobenzene chlorobenzene chlorobenzene carbon Tetrachloride chlorobenzene chlorobenzene carbon Tetrachloride chlorobenzene carbon Tetrachloride chlorobenzene carbon Tetrachloride chlorobenzene carbon Tetrachloride carbon Tetrachloride chlorobenzene carbon Tetrachloride chlorobenzene	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloro t-1,2-Dichlorop c-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,3-Dichlorop t-1,1,1,2-Tetracl 1,1,2,2-Tetracl Tetrachloroeth 1,1,1-Trichloro	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane eene eethane -1,2,2-Trifluoroetha	Result ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1	2,755 - 1, B15 - 2
stsw 138A  arameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hlorobenzene hloroform ibromochloromethane 2-Dibromoethane 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloror t-1,2-Dichloror 1,2-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,1,2-Tetracl 1,1,2,2-Tetracl 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene eethane -1,2,2-Trifluoroetha eethane	Result ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1	2,755 - 1, 935 - 2
stsw 138A  arameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hlorobenzene hloroform ibromochloromethane 2-Dibromoethane 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene ichlorodifluoromethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloror t-1,2-Dichloror 1,2-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,3-Dichloror t-1,2-Tetracl 1,1,2-Tetracl 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene exthane -1,2,2-Trifluoroetha ethane ethane	Result ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1	2,755 - 1, B15 - 2
strsw 138A  farameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hlorobenzene hloroform ibromochloromethane 2-Dibromoethane 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene ichlorodifluoromethane 1-Dichloroethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichlorope c-1,3-Dichlorop t-1,3-Dichlorop Methylene Chl 1,1,1,2-Tetracl 1,1,2,2-Tetracl 1,1,1-Trichloroe 1,1,1-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene exthane -1,2,2-Trifluoroetha ethane ethane	## Result   ND   ND   ND   ND   ND   ND   ND   ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2,755 - 1, 935 - 2
srsw 138A  rarameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hloroethane hloroform ibromochloromethane 2-Dibromoethane 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene ichlorodifluoromethane 1-Dichloroethane 2-Dichloroethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichlorope c-1,3-Dichlorop t-1,3-Dichlorop Methylene Chl 1,1,1,2-Tetracl 1,1,2,2-Tetracl 1,1,2-Trichloroe 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene exthane -1,2,2-Trifluoroetha ethane ethane	## Result   ND   ND   ND   ND   ND   ND   ND   ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2,755 - 1, 935 - 2
strsw 138A  rarameter romodichloromethane romoform romomethane arbon Tetrachloride hlorobenzene hloroethane hloroform ibromochloromethane 2-Dichlorobenzene 3-Dichlorobenzene 4-Dichlorobenzene ichlorodifluoromethane 1-Dichloroethane 2-Dichloroethane	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1	1000 - TUINE	Parameter c-1,2-Dichloroe t-1,2-Dichloroe 1,2-Dichlorope c-1,3-Dichlorop t-1,3-Dichlorop Methylene Chl 1,1,1,2-Tetracl 1,1,2,2-Tetracl 1,1,2-Trichloroe 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe 1,1,2-Trichloroe	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene exthane -1,2,2-Trifluoroetha ethane ethane	## Result   ND   ND   ND   ND   ND   ND   ND   ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	2,755 - 1, B15 - 2
STSW 138A	Result ND	RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	Parameter c-1,2-Dichloro t-1,2-Dichloro t-2-Dichloro t-3-Dichloro t-1,3-Dichloro t-1,3-Dichloro Methylene Chl 1,1,1,2-Tetracl 1,1,2,2-Tetracl 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro trichloroethen Trichloroethen Trichlorofluoro Vinyl Chloride	Aqueous 1  ethene ethene opane propene oride hloroethane hloroethane ene exthane b-1,2,2-Trifluoroetha ethane emethane emethane emethane	### Result   ND	11/10/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual



DF - Dilution Factor ,





Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received:

11/09/06

Work Order No:

06-11-0570

Project: IRCTS/42060 QT4

Page 1 of 1

Client Sample Number		Lab 3	Sample Nun	nber Da	ate ected	Matrix		
STSW 138B		06-	11-0570-1	11/0	Wife 1			
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Date Prepared	Date Analyzed	Method
Perchlorate	55	4	1		ug/L	N/A	11/11/06	EPA 314.0
STSW138A		06-	11-0570-2	11/0	6/06 A	queous		
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>	Date Prepared	Date Analyzed	<u>Method</u>
Perchlorate	2600	200	50		ug/L	N/A	11/11/06	EPA 314.0
STSW38C	Apply 1998 Control Mills	06-	11-0570-3	11/0	6/06 A	queous		TOTAL
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>	Date Prepared	Date Analyzed	<u>Method</u>
Perchlorate	14	4	1		ug/L	N/A	11/11/06	EPA 314.0
Method Blank		Control of the contro	200000 Sec. 100 Sec.	, N	/A A	queous	Section 1997	
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>	Date Prepared	Date Analyzed	<u>Method</u>
Perchlorate	ND	4.0	1		ug/L	N/A	11/11/06	EPA 314.0

RL - Reporting Limit ,

DF - Dilution Factor ,



Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation:

Method:

06/20/07 07-06-1503

N/A EPA 314.0

Project: IRCTS / 42060 QT2

Client Sample Number		Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
STSW 138C		07-06-1503-1	06/15/07	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 138B		07-06-1503-2	06/15/07	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Perchlorate	48	4.0	1		ug/L			
STSW 138A		07-06-1503-3	06/15/07	Aqueous	IC 6	N/A	06/23/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	2700	200	50		ug/L			
Method Blank		099-05-203-613	N/A	Aqueous	IC 6	N/A	06/22/07	070622L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			



Aerojet Environmental Remediation

PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Date Received:

Work Order No: Preparation:

Method: Units:

06/20/07

07-06-1503 **EPA 5030B** 

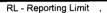
**EPA 8260B** 

ug/L

Project: IR	CTS / 42060	QT2
-------------	-------------	-----

Page 2 of 2

Client Sample Number				o Sample lumber	Date Collected	Matrix	nstrument	Date Prepared	Date Analyze		QC Batch ID
STSW 138A			07-06-1		06/15/07	Aqueous	GC/MS L	06/21/07	06/22/0	07	070621L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Parameter</u>			Result	<u>RL</u>	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro	ethene		ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropr	ropane		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	propene		ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro	propene		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch	loride		ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac	chloroethane		ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac	chloroethane		ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroeth	nene		ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlore	oethane		ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlore	o-1,2,2-Trifluoi	oethane	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlord	oethane		ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether	ne		8.3	0.50	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoro	omethane		ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		Vinyl Chloride	•		ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1		-						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:			REC (%)	Control Limits		<u>Qual</u>
1,2-Dichloroethane-d4	111	73-157			Dibromofluoro	methane		112	82-142		
Toluene-d8	100	82-112			1,4-Bromofluc			88	75-105		
Method Blank			099-10-	-025-337	N/A	Aqueous	GC/MS L	06/21/07	06/22/0	07	070621L02
Parameter	Result	RI	DE	Oual	Parameter			Result	RI	DE	Qual
Parameter Promodichleromethene	Result	<u>RL</u>	DF 1	<u>Qual</u>	Parameter	oothono		Result	<u>RL</u>	DF 1	<u>Qual</u>
Bromodichloromethane	ND	0.50	1	Qual	c-1,2-Dichloro		·	ND	0.50	1	Qual
Bromodichloromethane Bromoform	ND ND	0.50 0.50	1 1	Qual	c-1,2-Dichloro	ethene	·	ND ND	0.50 0.50	1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane	ND ND ND	0.50 0.50 0.50	1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloropi	ethene ropane		ND ND ND	0.50 0.50 0.50	1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride	ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloropi c-1,3-Dichloro	ethene ropane opropene		ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene	ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro	ethene ropane opropene propene		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane	ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch	ethene ropane opropene propene loride		ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform	ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac	ethene ropane opropene propene lloride chloroethane		ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane	ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac	ethene ropane opropene propene loride chloroethane chloroethane		ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	<u>Qual</u>	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett	ethene ropane opropene propene doride chloroethane chloroethane		ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro	ethene ropane propene propene doride chloroethane chene oethane	roethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,3-Dichlorobenzene	ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro 1,1,2-Trichloro	ethene ropane propene propene doride chloroethane chene oethane oethane	roethane	ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro	ethene ropane propene propene doride chloroethane hene oethane o-1,2,2-Trifluor oethane	roethane	ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichloro 1,1,2-Trichloro	ethene ropane propene propene chloroethane chene oethane o-1,2,2-Trifluor oethane	roethane	ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor trichloroether	ethene ropane propene propene chloroethane chene oethane o-1,2,2-Trifluor oethane ne omethane	roethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichloro 1,1,2-Trichloro	ethene ropane propene propene chloroethane chene oethane o-1,2,2-Trifluor oethane ne omethane	roethane	ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor trichloroether	ethene ropane propene propene chloroethane chene oethane o-1,2,2-Trifluor oethane ne omethane	roethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	<u>Qual</u>
Parameter Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethene Surrogates: 1,2-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichloro trichloroether Trichlorofluoro Vinyl Chloride	ethene ropane propene propene ploride chloroethane chloroethane nene o-1,2,2-Triffuor oethane ne oethane	roethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	







Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation: Method: 12/22/06 06-12-1442 N/A EPA 314.0

Project: IRCTS/42060 QT4

Client Sample Number		Lab Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Batch ID
WNN-MW1		06-12-1442-1	12/14/06	Aqueous	N/A	01/02/07	070102L03
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>		
Perchlorate	6.8	4.0	1		ug/L		
STSW166		06-12-1442-2	12/14/06	Aqueous	N/A	01/02/07	070102L03
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>		
Perchlorate	420	40	10		ug/L		
Method Blank		099-05-203-528	N/A	Aqueous	N/A	01/03/07	070102L03
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>		
Perchlorate	ND	4.0	1		ug/L		





Aerojet Environmental Remediation

PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received:

Work Order No: Preparation:

Method: Units: 12/22/06 06-12-1442

EPA 5030B

EPA 8260B ug/L

Project: IRCTS/42060 QT4

Page 1 of 2

Client Sample Number				ib Sample Number	Date Collected	Matrix	Date Prepared	Date Analyzed	QC Ba	atch ID
WNN-MW1			06-12-	1442-1	12/14/06	Aqueous	12/22/06	12/22/06	061222	2L <b>01</b>
Parameter	Result	RL	<u>DF</u>	Qual	<u>Parameter</u>		Result	RL	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloroe	ethene	ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloroe		ND	0.50	1	
3romomethane	ND	0.50	1		1,2-Dichloropro	pane	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1.3-Dichloron	•	ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichlorop	ropene	ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Chlo	oride	ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrach	loroethane	ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrach		ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroethe	ene	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichloro	ethane	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloro	1,2,2-Trifluoroeth	ane ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloro	ethane	ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroethene	•	6.0	0.5	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoror	nethane	ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		Vinyl Chloride		ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1						•	
Surrogates:	REC (%)	Control	·	Qual	Surrogates:		<u>REC (%</u>	Control Limits		Qual
		Limits								
1,2-Dichloroethane-d4	115	77-137			Dibromofluoron	nethane	114	75-141		
1,2-Dichloroethane-d4 Foluene-d8	115 104				Dibromofluoron 1,4-Bromofluor		114 85	75-141 71-107		
•		77-137	06-12-1	442-2		obenzene			061222	L01
Toluene-d8		77-137	<b>06-12-</b> 1 <u>DF</u>	<b>442-2</b> Qual	1,4-Bromofluor	obenzene	85	71-107	<b>061222</b> <u>DF</u>	L01
Toluene-d8 STSW 156	104	77-137 87-111 RL	131 H31 2 1		1,4-Bromofluor 12/14/06	Aqueous	85 <b>12/22/06</b>	71-107 <b>12/22/06</b>	DF	IN .
Toluene-d8 STSW 166 Parameter Bromodichloromethane	104  Result	77-137 87-111 <u>RL</u> 0.50	<u>DF</u> 1		1,4-Bromofluor 12/14/06 Parameter	Aqueous thene	85 <b>12/22/06</b> <u>Result</u>	71-107 12/22/06 RL 0.50	CONSTRUCTION AND	IN .
Toluene-d8 STSW 166 Parameter Bromodichloromethane Bromoform	104  Result ND	77-137 87-111 RL	<u>DF</u>		1,4-Bromofluor 12/14/06 Parameter c-1,2-Dichloroe	Aqueous Aqueous thene	85 <b>12/22/06</b> <u>Result</u> ND	71-107 <b>12/22/06</b> <u>RL</u>	<u>DF</u> 1	IN .
STSW 166 Parameter Bromodichloromethane Bromoform Bromomethane	104  Result  ND  ND	77-137 87-111 <u>RL</u> 0.50 0.50	<u>DF</u> 1 1		1,4-Bromofluoro 12/14/06  Parameter c-1,2-Dichloroet t-1,2-Dichloroet	Aqueous  thene thene pane	85 <b>12/22/06</b> <u>Result</u> ND ND	71-107 12/22/06 RL 0.50 0.50	DF 1 1	N.
STSW 166 Parameter Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride	Result ND ND ND	77-137 87-111 <u>RL</u> 0.50 0.50 0.50	<u>DF</u> 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet t-1,2-Dichloropro 1,2-Dichloropro	Aqueous  thene thene pane propene	85 12/22/06 Result ND ND ND ND	71-107 12/22/06  RL 0.50 0.50 0.50	DF 1 1 1	N.
STSW 166 Parameter Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene	Result ND ND ND ND ND	77-137 87-111 RL 0.50 0.50 0.50 0.50 0.50	<u>DF</u> 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro	Aqueous  thene thene pane propene propene	85 12/22/06 Result ND ND ND ND ND	71-107 12/22/06  RL 0.50 0.50 0.50 0.50 0.50	DF 1 1 1	N.
STSW 166  Parameter Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane	Result ND	77-137 87-111 RL 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropro	thene hene pane ropene ropene rode	85 12/22/06 Result ND ND ND ND ND ND	71-107 12/22/06 RL 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1	N.
STSW.166  Parameter Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform	Result ND	77-137 87-111 RL 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropro Methylene Chlo	thene topene topene tride loroethane	85 12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1	N.
STSW.166  Parameter Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorothane Chloroform Dibromochloromethane	Result ND	77-137 87-111 RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1 1		1,4-Bromofluoro 12/14/06  Parameter c-1,2-Dichloroet t-2,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropp Methylene Chlo 1,1,1,2-Tetrach	thene thene tropene tride loroethane loroethane	85 12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50	DF 1 1 1 1 1 1	N.
STSW 166  Parameter Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorothane Chloroform Dibromochloromethane ,2-Dibromoethane	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet t-2,-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropp Methylene Chlo 1,1,1,2-Tetrach 1,1,2,2-Tetrach	thene thene pane ropene ride loroethane loroethane ene	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1	N.
Parameter Bromodichloromethane Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform Dibromochloromethane ,2-Dibromoethane ,2-Dichlorobenzene	Result ND	77-137 87-111 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropro Methylene Chlo 1,1,1,2-Tetrach 1,1,2,2-Tetrach Tetrachloroethe 1,1,1-Trichloroethe	thene thene pane ropene ride loroethane loroethane ene	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1	N.
Parameter Bromodichloromethane Bromomethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform Dibromochloromethane ,2-Dibromoethane ,3-Dichlorobenzene	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropro Methylene Chlo 1,1,1,2-Tetrach 1,1,2,2-Tetrach Tetrachloroethe 1,1,1-Trichloroethe	thene thene pane ropene ropene loroethane loroethane ene ethane 1,2,2-Trifluoroeth	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IN.
STSW 166  Parameter Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform Dibromochloromethane ,2-Dibromoethane ,2-Dichlorobenzene ,3-Dichlorobenzene ,4-Dichlorobenzene	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloroper c-1,3-Dichloroper t-1,3-Dichloroper Methylene Chlo 1,1,1,2-Tetrach 1,1,2,2-Tetrach Tetrachloroethe 1,1,1-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroe	thene thene pane ropene ropene rote loroethane loroethane ethane 1,2,2-Trifluoroeth ethane	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1	IN.
STSW 166  Parameter Bromodichloromethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Chloroform Dibromochloromethane Chloroform Dibromochloromethane Chlorobenzene Chlorobenzene Chlorobenzene Chlorodifluoromethane	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropr c-1,3-Dichloropr hethylene Chlo 1,1,2-Tetrach 1,1,2-Tetrach 1,1,1-Trichloroet 1,1,1-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet 1,1,2-Trichloroet	thene thene thene topene ropene ropene rote lloroethane lloroethane ethane 1,2,2-Trifluoroeth ethane	85  12/22/06  Result ND	71-107  12/22/06  RL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IN.
Parameter Bromodichloromethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,1-Dichloroethane	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropro t-1,3-Dichloropro t-1,3-Dichloropro Methylene Chlo 1,1,1,2-Tetrach 1,1,2-Tetrach 1,1,1-Trichloroet 1,1,1-Trichloroet 1,1,2-Trichloroe	thene thene thene topene ropene ropene rote lloroethane lloroethane ethane 1,2,2-Trifluoroeth ethane	85  12/22/06  Result ND	71-107  12/22/06  RL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	N.
Toluene-d8 STSW 156 Parameter	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropt t-1,3-Dichloropt t-1,3-Dichloropt Methylene Chlo 1,1,1,2-Tetrach 1,1,2-Tetrach 1,1,1-Trichloroet 1,1,2-Trichloroet 1,1,2-Tri	thene thene thene topene ropene ropene rote lloroethane lloroethane ethane 1,2,2-Trifluoroeth ethane	85  12/22/06  Result ND	71-107  12/22/06  RL  0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IN .
Parameter Bromodichloromethane Bromodichloromethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Chlorobenzene Chloroform Dibromochloromethane C-Dichlorobenzene C-Dichlorobenzene C-Dichlorobenzene C-Dichlorodifluoromethane C-Dichlorodifluoromethane C-Dichlorodifluoromethane C-Dichlorodifluoromethane C-Dichloroethane C-Dichloroethane C-Dichloroethane	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropt t-1,3-Dichloropt t-1,3-Dichloropt Methylene Chlo 1,1,1,2-Tetrach 1,1,2-Tetrach 1,1,1-Trichloroet 1,1,2-Trichloroet 1,1,2-Tri	thene thene thene topene ropene ropene rote lloroethane lloroethane ethane 1,2,2-Trifluoroeth ethane	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	IN .
STSW 166  Parameter Bromodichloromethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Bromomethane Chlorobenzene Chloroform Dibromochloromethane CP-Dibromoethane CP-Dibromoethane CP-Dichlorobenzene CP-Dichlorobenzene CP-Dichlorobenzene CP-Dichlorodifluoromethane CP-Dichlorodifluoromethane CP-Dichloroethane CP-Dichloroethane CP-Dichloroethane CP-Dichloroethane CP-Dichloroethane CP-Dichloroethane	Result ND	77-137 87-111 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	1,4-Bromofluor  12/14/06  Parameter c-1,2-Dichloroet 1,2-Dichloropro c-1,3-Dichloropt t-1,3-Dichloropt t-1,3-Dichloropt t-1,1,2-Tetrach 1,1,2-Tetrach 1,1,2-Trichloroet 1,2-Trichloroet 1,2-Tric	thene thene thene thene topene tropene tropene trode tloroethane tloroethane tene thane 1,2,2-Trifluoroeth tethane thane	85  12/22/06  Result ND	71-107  12/22/06  RL 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.5	DF 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual

RL - Reporting Limit ,

DF - Dilution Factor ,



Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation: Method: 06/15/07 07-06-1143 N/A

EPA 314.0

Project: IRCTS / 42060 QT2

Project. IRC13 / 42060 Q12							F	age 1 of 1
Client Sample Number		Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
STSW 100C		07-06-1143-1	06/14/07	Aqueous	IC 6	N/A	06/15/07	070615L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 100B		07-06-1143-2	06/14/07	Aqueous	IC 6	N/A	06/15/07	070615L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	14	4.0	1		ug/L			
STSW 100A		07-06-1143-3	06/14/07	Aqueous	IC 6	N/A	06/15/07	070615L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	41	4.0	1		ug/L			
WNN-MW-1		07-06-1143-4	06/14/07	Aqueous	IC 6	N/A	06/15/07	070615L02
Parameter Parame	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	40	4.0	1		ug/L			
Method Blank		099-05-203-604	N/A	Aqueous	IC 6	N/A	06/15/07	070615L02
Parameter	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			



Aerojet Environmental Remediation

PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Date Received:

Work Order No: Preparation:

Method: Units:

06/15/07

07-06-1143 **EPA 5030B** 

**EPA 8260B** 

ug/L

Page 2 of 4

Client Sample Number				b Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzo	ed (	QC Batch ID
STSW 100A			07-06-1	143-3	06/14/07	Aqueous	GC/MS L	06/20/0	7 06/20/0	7 (	070620L02
Parameter Parameter	Result	<u>RL</u>	DF	Qual	Parameter			Result	<u>RL</u>	<u>DF</u>	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichlord	ethene		0.73	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichlorop	ropane		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichlord	propene		ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro	propene		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch	loride		ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac	chloroethane		ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac	chloroethane		ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroet	nene		ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlor	oethane		ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor	o-1,2,2-Triflu	oroethane	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor	oethane		ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether	ne		35	0.50	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluor	omethane		ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		Vinyl Chloride	•		ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1								
Surrogates:	REC (%)	<u>Control</u>		<u>Qual</u>	Surrogates:			REC (%)	<u>Control</u>		<u>Qual</u>
		<u>Limits</u>							<u>Limits</u>		
1,2-Dichloroethane-d4	113	73-157			Dibromofluoro	methane		111	82-142		
Toluene-d8	101	82-112			1,4-Bromofluo	probenzene		92	75-105		

WNN-MW-1			07-06-	1143-4	06/14/07 Aqueous GC/MS C	06/20/0	7 06/21	07 07	0620L02
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	<u>Parameter</u>	Result	<u>RL</u>	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloroethene	ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloroethene	ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropropane	ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloropropene	ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloropropene	ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Chloride	ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrachloroethane	ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrachloroethane	ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroethene	ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichloroethane	ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichloroethane	ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroethene	8.7	0.50	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoromethane	ND	0.50	1	
1.2-Dichloroethane	ND	0.50	1		Vinyl Chloride	ND	0.50	1	
1.1-Dichloroethene	ND	0.50	1						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		<u>Qual</u>
1,2-Dichloroethane-d4	103	73-157			Dibromofluoromethane	101	82-142		
Toluene-d8	100	82-112			1,4-Bromofluorobenzene	96	75-105		

RL - Reporting Limit ,

DF - Dilution Factor



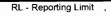
Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation: Method: 06/20/07 07-06-1502 N/A

EPA 314.0

Project: IRCTS / 42060 QT2

Page 1 of 1

Project: IRCTS / 42060 QT2							Р	age 1 of 1
Client Sample Number		Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
STSW 126B		07-06-1502-1	06/19/07	Aqueous	IC 6	N/A	06/21/07	070621L02
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 126A	- · · · · ·	07-06-1502-2	06/19/07	Aqueous	IC 6	N/A	06/21/07	070621L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 38C		07-06-1502-3	06/19/07	Aqueous	IC 6	N/A	06/21/07	070621L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	18	4.0	1		ug/L			
STSW 38B		07-06-1502-4	06/19/07	Aqueous	IC 6	N/A	06/21/07	070621L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 38A		07-06-1502-5	06/19/07	Aqueous	IC 6	N/A	06/21/07	070621L02
Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
Method Blank		099-05-203-611	N/A	Aqueous	IC 6	N/A	06/21/07	070621L02
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			



DF - Dilution Factor ,



Aerojet Environmental Remediation

PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Date Received:

Work Order No:

Preparation: Method:

Units:

06/20/07

07-06-1502 EPA 5030B

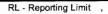
EPA 8260B

ug/L

Project: IRCTS / 42060 QT2

Page 3 of 4

Client Sample Number				Sample lumber	Date Collected	Matrix	Instrumen	Date t Prepared	Date Analyzed	ı Q	C Batch IC
STSW 38A			07-06-1	502-5	06/19/07	Aqueous	GC/MS L	06/21/07	06/22/07	07	70621L02
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	Parameter			Result	<u>RL</u>	<u>DF</u>	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro	ethene		ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropr	ropane		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	propene		ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro	propene		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch	loride		ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac	chloroethane		ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac	chloroethane		ND	0.50	1	
.2-Dibromoethane	ND	0.50	1		Tetrachloroeth	nene		ND	0.50	1	
,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlore	oethane		ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlore	o-1,2,2-Trifluo	oroethane	ND	0.50	1	
,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlore	oethane		ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether	ne		45	1.0	2	
.1-Dichloroethane	ND	0.50	1		Trichlorofluoro	omethane		ND	0.50	1	
,2-Dichloroethane	ND	0.50	1		Vinyl Chloride	:		ND	0.50	1	
,1-Dichloroethene	ND	0.50	1		,						
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:			REC (%)	Control Limits		Qual
1,2-Dichloroethane-d4	112	73-157			Dibromofluoro	methane		110	82-142		
Foluene-d8	102	82-112			1,4-Bromofluc	orobenzene		89	75-105		
Method Blank			099-10-	025-337	N/A	Aqueous	GC/MS L	06/21/07	06/22/07	07	70621L02
Parameter	Result	RL	DF	Qual	Parameter			Result	RL	DF	Qual
	Result ND	<u>RL</u>	<u>DF</u>	Qual	Parameter	pethene					<u>Qual</u>
Bromodichloromethane	ND	0.50	1	Qual	c-1,2-Dichlord			ND	0.50	1	Qual
Bromodichloromethane Bromoform	ND ND	0.50 0.50	1 1	Qual	c-1,2-Dichloro	ethene		ND ND	0.50 0.50	1	Qual
Bromodichloromethane Bromoform Bromomethane	ND ND ND	0.50 0.50 0.50	1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloropi	ethene ropane		ND ND ND	0.50 0.50 0.50	1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride	ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro	ethene ropane opropene		ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene	ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro	ethene ropane opropene propene		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane	ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch	ethene ropane propene propene loride		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform	ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloropi c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac	ethene ropane propene propene loride chloroethane		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane	ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac	ethene ropane propene propene doride chloroethane chloroethane		ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett	ethene ropane propene propene doride chloroethane chloroethane		ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac	ethene ropane propene propene doride chloroethane hene oethane	proethane	ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,3-Dichlorobenzene	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichlorop t-1,3-Dichlorop c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichloro	ethene ropane propene propene doride chloroethane hene oethane o-1,2,2-Triflue	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichloro 1,1,2-Trichloro	ethene ropane propene propene doride chloroethane hene oethane o-1,2,2-Trifluc oethane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorodifluoromethane	ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroetf 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro	ethene ropane propene propene doride chloroethane hene oethane o-1,2,2-Trifluc oethane	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,1-Dichloroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor	ethene ropane propene doride chloroethane hene octhane o-1,2,2-Trifluc octhane ne	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	Qual
Parameter Bromodichloromethane Bromodorm Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor Trichloroether	ethene ropane propene doride chloroethane hene octhane o-1,2,2-Trifluc octhane ne	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	Qual
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor 1,1,2-Trichlor Trichloroether	ethene ropane propene doride chloroethane hene octhane o-1,2,2-Trifluc octhane ne	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	<u>Qual</u>
Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,1-Dichloroethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		c-1,2-Dichloro t-1,2-Dichloro 1,2-Dichloro c-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroett 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro Trichloroether Trichlorofluoro Vinyl Chloride	ethene ropane propene propene doride chloroethane chloroethane oethane oethane oethane ne oethane	proethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	



DF - Dilution Factor ,



Aerojet Environmental Remediation PO Box 13222, MS-5519 Sacramento, CA 95813-6000 Date Received: Work Order No: Preparation: Method: 06/08/07 07-06-0617 N/A

EPA 314.0

Project: IRCTS / 42060 QT2

Project. IRC13/42060 Q12								age 1 01 4
Client Sample Number		Lab Sample Number	Date Collected	Matrix	Instrument	Date Prepared	Date Analyzed	QC Batch ID
STSW 39C		07-06-0617-1	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	740	40	10		ug/L			
STSW 39B		07-06-0617-2	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
Parameter Parameter	Result	<u>RL</u>	DF	Qual	<u>Units</u>			
Perchlorate	890	80	20		ug/L			
STSW 39A		07-06-0617-3	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	3700	800	200		ug/L			
STSW 123C		07-06-0617-4	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
Parameter	Result	<u>RL</u>	<u>DF</u>	Qual	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 123A		07-06-0617-5	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
Perchlorate	ND	4.0	1		ug/L			
STSW 123B		07-06-0617-6	06/06/07	Aqueous	IC 6	N/A	06/11/07	070611L01
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Units</u>			
	ND	4.0	1		ug/L			



Aerojet Environmental Remediation

PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Date Received:

Work Order No:

Preparation: Method:

Units:

06/08/07

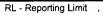
07-06-0617 **EPA 5030B** 

**EPA 8260B** 

ug/L

Project: IRCTS / 42060 QT2

Client Sample Number				ib Sample Number	Date Collected	Matrix	Instrumen	Date t Prepared	Date Analyze		QC Batch ID
STSW 39C			07-06-	0617-1	06/06/07	Aqueous	GC/MS L	06/13/07	06/13/0	7 (	070613L01
<u>Parameter</u>	Result	<u>RL</u>	DF	Qual	Parameter			Result	RL	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro	ethene		ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichloropi	ropane		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichloro	propene		ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro	propene		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch	loride		ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac	hloroethane		ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac	hloroethane		ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroeth	nene		ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlore	oethane		ND	0.50	1	
1,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlore	o-1,2,2-Trifluo	oroethane	ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlore	oethane		ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether	ne		ND	0.50	1	
1,1-Dichloroethane	ND	0.50	1		Trichlorofluoro	omethane		ND	0.50	1	
1,2-Dichloroethane	ND	0.50	1		Vinyl Chloride			ND	0.50	1	
1,1-Dichloroethene	ND	0.50	1								
Surrogates:	<u>REC (%)</u>	Control Limits		<u>Qual</u>	Surrogates:			REC (%)	Control Limits		<u>Qual</u>
1,2-Dichloroethane-d4	105	73-157			Dibromofluoro	methane		106	82-142		
Toluene-d8	101	82-112			1,4-Bromofluo	robenzene		91	75-105		
STSW 39B			07-06-0	0617-2	06/06/07	Aqueous	GC/MS L	06/13/07	06/13/0	7 (	70613L01
Parameter	Result	RL	DF	Qual	Parameter			Result	RL	DF	Qual
		<u> </u>							<u> </u>		
Bromodichloromethane		0.50	1		c-1.2-Dichloro	ethene		ND	0.50		
Bromodichloromethane Bromoform	ND	0.50	1		c-1,2-Dichloro			ND ND	0.50	1	
Bromoform	ND ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromoform Bromomethane	ND ND ND	0.50 0.50	1 1		t-1,2-Dichloro 1,2-Dichloropi	ethene ropane		ND ND	0.50 0.50	1 1 1	
Bromoform Bromomethane Carbon Tetrachloride	ND ND ND ND	0.50 0.50 0.50	1 1 1		t-1,2-Dichloro 1,2-Dichloropi c-1,3-Dichloro	ethene ropane opropene		ND ND ND	0.50 0.50 0.50	1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene	ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1 1		t-1,2-Dichloro 1,2-Dichloropi c-1,3-Dichloro t-1,3-Dichloro	ethene ropane opropene propene		ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane	ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1		t-1,2-Dichloro 1,2-Dichloropi c-1,3-Dichloro t-1,3-Dichloro Methylene Ch	ethene ropane propene propene loride		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform	ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1		t-1,2-Dichloror 1,2-Dichloropi c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac	ethene ropane opropene propene loride chloroethane		ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane	ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichloror c-1,3-Dichloror t-1,3-Dichloror Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac	ethene ropane opropene propene loride chloroethane chloroethane		ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloror Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroeth	ethene ropane opropene propene loride chloroethane chloroethane nene		ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene	ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroeth 1,1,1-Trichloro	ethene ropane propene propene loride chloroethane chloroethane nene pethane	proethane	ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene	ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloror Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroeth	ethene ropane propene propene loride chloroethane chene pethane pethane p-1,2,2-Trifluc	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene	ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloror Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroeth 1,1,1-Trichloro 1,1,2-Trichloro	ethene ropane propene propene loride chloroethane nene pethane pothane o-1,2,2-Trifluc pethane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND ND ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichlorop t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro	ethene ropane propene propene loride chloroethane nene pethane pothane o-1,2,2-Trifluc pethane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichlorop t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro Trichloroether Trichlorofluoro	ethene ropane propene propene chloroethane chene pethane pothane pothane pothane pothane pothane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroeth 1,1,1-Trichloro 1,1,2-Trichloro Trichloroether	ethene ropane propene propene chloroethane chene pethane pothane pothane pothane pothane pothane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	t-1,2-Dichloror 1,2-Dichlorop c-1,3-Dichlorop t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2,2-Tetrac Tetrachloroet 1,1,1-Trichloro 1,1,2-Trichloro 1,1,2-Trichloro Trichloroether	ethene ropane propene propene chloroethane chene pethane pothane pothane pothane pothane pothane	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual
Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform Dibromochloromethane 1,2-Dibromoethane 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethane	ND ND ND ND ND ND ND ND ND ND ND ND ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Qual	t-1,2-Dichloro 1,2-Dichlorop c-1,3-Dichloro t-1,3-Dichloro Methylene Ch 1,1,1,2-Tetrac 1,1,2-Tetrac Tetrachloroett 1,1,1-Trichloro 1,1,2-Trichloro Trichloroether Trichlorofluoro Vinyl Chloride	ethene ropane propene propene loride chloroethane nene po-1,2,2-Trifluctionethane ne poethane ne	oroethane	ND N	0.50 0.50 0.50 0.50 0.50 0.50 0.50 0.50	1 1 1 1 1 1 1 1 1 1 1	Qual





Aerojet Environmental Remediation

PO Box 13222, MS-5519

Sacramento, CA 95813-6000

Date Received:

Work Order No:

Preparation:

Method: Units: EPA 5030B

EPA 8260B ug/L

07-06-0617

06/08/07

Project: IRCTS / 42060 QT2

Page 2 of 4

Client Sample Number				Sample ımber	Date Collected	Matrix	Instrumen	Date t Prepared	Date I Analyzo		QC Batch ID
STSW 39A			07-06-06	17-3	06/06/07	Aqueous	GC/MS L	06/13/07	06/13/0	7 (	70613L01
<u>Parameter</u>	Result	<u>RL</u>	<u>DF</u>	Qual	Parameter			Result	RL	DF	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichlord	ethene		ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichlorop	ropane		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichlord			ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro	propene		ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch	loride		ND	0.50	1	
Chloroform	23	0.50	1		1,1,1,2-Tetrac	hloroethane		ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac	hloroethane		ND	0.50	1	
,2-Dibromoethane	ND	0.50	1		Tetrachloroeth	nene		ND	0.50	1	
I,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlor	bethane		ND	0.50	1	
,3-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor	o-1,2,2-Triflu	oroethane	ND	0.50	1	
,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor	oethane		ND	0.50	1	
Dichlorodifluoromethane	ND	0.50	1		Trichloroether	ne		30	0.50	1	
,1-Dichloroethane	ND	0.50	1		Trichlorofluore	omethane		ND	0.50	1	
,2-Dichloroethane	ND	0.50	1		Vinyl Chloride			ND	0.50	1	
,1-Dichloroethene	ND	0.50	1		•						
Surrogates:	REC (%)	Control	9	Qual	Surrogates:			REC (%)	Control		Qual
0.00	440	<u>Limits</u>			Dibasasaflusas			106	<u>Limits</u>		
,2-Dichloroethane-d4	112 102	73-157			Dibromofluoro			94	82-142 75-105		
oluene-d8 STSW 123C	102	82-112	07-06-06	17-4	06/06/07	Aqueous	GC/MS L			7 (	070613L01
313W 123C			07-00-00	17-4	00/00/07	Aqueous	GC/M3 L	00/13/01	00/13/0	,, ,	770013201
<u>Parameter</u>	<u>Result</u>	<u>RL</u>	<u>DF</u>	<u>Qual</u>	<u>Parameter</u>			<u>Result</u>	<u>RL</u>	<u>DF</u>	Qual
Bromodichloromethane	ND	0.50	1		c-1,2-Dichloro			ND	0.50	1	
Bromoform	ND	0.50	1		t-1,2-Dichloro	ethene		ND	0.50	1	
Bromomethane	ND	0.50	1		1,2-Dichlorop	•		ND	0.50	1	
Carbon Tetrachloride	ND	0.50	1		c-1,3-Dichlord			ND	0.50	1	
Chlorobenzene	ND	0.50	1		t-1,3-Dichloro			ND	0.50	1	
Chloroethane	ND	0.50	1		Methylene Ch			ND	0.50	1	
Chloroform	ND	0.50	1		1,1,1,2-Tetrac			ND	0.50	1	
Dibromochloromethane	ND	0.50	1		1,1,2,2-Tetrac			ND	0.50	1	
1,2-Dibromoethane	ND	0.50	1		Tetrachloroetl			ND	0.50	1	
1,2-Dichlorobenzene	ND	0.50	1		1,1,1-Trichlor			ND	0.50	1	
•	ND	0.50	1		1,1,2-Trichlor		oroethane	ND	0.50	1	
,3-Dichlorobenzene						oothana		ND	0.50	1	
1,4-Dichlorobenzene	ND	0.50	1		1,1,2-Trichlor						
1,4-Dichlorobenzene Dichlorodifluoromethane	ND ND	0.50 0.50	1		Trichloroether	ne		1.2	0.50	1	
1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND	0.50 0.50 0.50	1		Trichloroether Trichlorofluor	ne omethane		ND	0.50	1	
1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane	ND ND ND ND	0.50 0.50 0.50 0.50	1 1 1		Trichloroether	ne omethane					
1,3-Dichlorobenzene 1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene	ND ND ND	0.50 0.50 0.50	1		Trichloroether Trichlorofluor	ne omethane		ND ND	0.50 0.50	1	
,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene	ND ND ND ND	0.50 0.50 0.50 0.50 0.50 0.50 Control	1 1 1 1	<u>Qual</u>	Trichloroether Trichlorofluor	ne omethane		ND	0.50 0.50 <u>Control</u>	1	Qual
1,4-Dichlorobenzene Dichlorodifluoromethane 1,1-Dichloroethane 1,2-Dichloroethane	ND ND ND ND ND	0.50 0.50 0.50 0.50 0.50	1 1 1 1	Qual	Trichloroether Trichlorofluoro Vinyl Chloride	ne omethane		ND ND	0.50 0.50	1	<u>Qual</u>





## APPENDIX D STATISTICAL ANALYSIS OF ORP AND PERCHLORATE DATA

# APPENDIX D STATISTICAL ANALYSIS OF ORP AND PERCHLOTATE DATA

#### 1. INTRODUCTION

This appendix presents the results of statistical analysis of key monitoring parameters (ORP and perchlorate concentrations) to assess the changes in these parameters resulting from the addition of electron donor to the subsurface. Analysis of ORP data is presented in Section 2 and analysis of perchlorate data is presented in Section 3.

#### 2. EVALUATION OF ORP DATA

A statistical evaluation of ORP data collected from two key monitoring wells along the alignment of the biobarrier was conducted: (1) MW-1; and (2) STSW-138A. These wells are located along the alignment of the biobarrier and were selected to represent areas that have been impacted by the amendment of electron donor.

Data from two different time periods were evaluated for the statistical analysis to represent before and during injection of electron donor. The specific periods of time for both MW-1 and STSW-138A were: (1) day -34 to day -6 (before electron donor addition); and (2) day 56 to day 232 (during electron donor addition). The specific data used in the analysis are show in Tables D-1 and D-2.

The mean and standard deviation of the ORP values from each monitoring well in each of the two time periods were calculated and are presented in Tables D-1 and D-2. In addition, a one-tailed Student's t-test was conducted at a 5% level of significance and assuming equal sample variances. The null hypothesis of the t-test is that the mean ORP value for the time period following the amendment with electron donor was greater than or equal to the mean ORP value for the time period preceding the amendment, or the mean baseline ORP. Tables D-1 and D-2 show the p-values from the t-tests for ORP data from MW-1 and STDW-138A, respectively. The p-value is the probability of obtaining a test statistic at least as extreme as the one observed. If the p-value is less than the specified alpha level, i.e., 0.05, then there is sufficient evidence to reject the null hypothesis.

The p-values for the comparison of means from the period of time before amendment and after amendment for MW-1 and STSW-138A are 1.56 x 10<sup>-10</sup> and 6.5 x 10<sup>-6</sup>, respectively. As these values are significantly lower than 0.05, the null hypothesis is rejected and we can conclude that the mean ORP after amendment is statistically lower than that at the baseline. Therefore, the results of the t-test confirm that ORP concentrations did indeed decrease after amendment.



The statistical analysis of ORP data shows a high level of confidence that the injection of electron donor in the biobarrier resulted in significant reductions in mean ORP values for MW-1 and STSW-138A that are indicative of enhanced biological activity.

#### 3. EVALUATION OF PERCHLORATE DATA

A statistical evaluation of perchlorate data collected from two key monitoring wells along the alignment of the biobarrier was conducted: (1) MW-1; and (2) STSW-138A. These wells are located along the alignment of the biobarrier and were selected to represent areas that have been impacted by the amendment of electron donor.

Data from different time periods were evaluated for the statistical analysis to represent before and during operation of the demonstration test. The tracer test demonstrated that the travel time from the injection well to MW-1 was in the order of 9 days, so data from the period up to 8 days after the initiation of the addition of electron donor was used to represent un-impacted or baseline groundwater. Stable post amendment concentrations were achieved by approximately Day 29. The specific periods of time for MW-1 were: (1) Day -34 to Day 8 (before electron donor addition); and (2) Day 29 to Day 232 (during electron donor addition).

The tracer test demonstrated that the travel time from the injection well to STSW-138A was in the order of 28 days, so data from up to 21 days after the initiation of the addition of electron donor was used to represent un-impacted or baseline groundwater. The specific periods of time for MW-1 were: (1) Day -34 to Day 21 (before electron donor addition); and (2) Day 85 to Day 232 (during electron donor addition). An analysis of the later portion of the post amendment period of Day 127 to Day 232 (a period of 105 days after the system shut down between Day 104 and Day 120) was also evaluated.

In this analysis, a value of one half the detection limit  $(2.0 \,\mu\text{g/L})$  substituted for samples reported by the lab as non-detect with a detection limit of  $4.0 \,\mu\text{g/L}$ . Also, since the non-detect frequency for samples collected post-amendment was extremely high (86%-100%), the t-test could not be conducted on these data. Instead, the means and percentiles of perchlorate results for the preand post-amendment time periods were calculated and compared empirically.

The mean, standard deviation and 95<sup>th</sup> percentile of the perchlorate concentrations from each of the time periods for each of the monitoring wells were calculated and are presented in Tables D-3, D-4 and D-5. The average concentrations and 95<sup>th</sup> percentile for perchlorate concentrations are as follows:

	MW-1 from Day 29 to 232	STSW-138A from Day 85 to 232	STSW-138A from Day 127 to 232
Average Concentration of Perchlorate (µg/L)	2.6	2.9	2.0
95 <sup>th</sup> Percentile Concentration of Perchlorate (µg/L)	3.6	5.9	2.0

The average perchlorate concentrations measured in: (1) MW-1 from day 29 to the end of amendment injection period (2.6  $\mu$ g/L); and (2) STSW-138A from day 85 to the end of amendment injection period (2.9  $\mu$ g/L) were all less than 4.0  $\mu$ g/L.

The groundwater recirculation and electron donor amendment system was shut off from day 104 to day 120. During this period of time, the concentration of perchlorate in monitoring well STSW-138A increased up to 14  $\mu$ g/L at day 116 but dropped back down to less than 4.0  $\mu$ g/L on day 127 and remained less than 4.0  $\mu$ g/L to the end of amendment injection period at day 232. It is likely that when the recirculation system was shut off at day 104, un-amended groundwater from upgradient of STSW-138A began to flow into the monitoring well and resulted in the short-term increase in perchlorate concentrations in this monitoring well. After this period of time, the concentration of perchlorate in the monitoring well remained non-detect.

The 95<sup>th</sup> percentile perchlorate concentrations measured in: (1) MW-1 from day 29 to the end of amendment injection period (3.6  $\mu$ g/L); and (2) STSW-138A from day 127 to the end of amendment injection period (2.0  $\mu$ g/L) were all less than 4.0  $\mu$ g/L.

TABLE D-1: Statistical Analysis of ORP Data from Monitoring Well MW-1 Active Perchlorate Bioremediation Demonstration

Time Period	Monitoring Well	Day	ORP	Mean	Standard Deviation	p-value from t-test
	MW-1	-34	-48		Deviation	t test
Before	MW-1	-26	-33			
	MW-1	-20	-20			
	MW-1	-18	20			
Amendment	MW-1	-13	-7			
	MW-1	-11	-29			
	MW-1	-6	-26	-20.43	21.7	
	MW-1	56	-109			
	MW-1	64	-124			
	MW-1	71	-114			
	MW-1	78	-100			
	MW-1	85	-98			
	MW-1	92	-88			
	MW-1	99	-140			
	MW-1	120	-132			
	MW-1	127	-155			
	MW-1	141	-166			
	MW-1	148	-162			
After Amendment	MW-1	155	-173			
	MW-1	162	-174			
	MW-1	169	-177			
	MW-1	177	-167			
	MW-1	183	-180			
	MW-1	190	-153			
	MW-1	197	-228			
	MW-1	205	-205			
	MW-1	211	-167			
	MW-1	218	-156			
	MW-1	225	-150			
	MW-1	232	-275	-156	43.0	1.56E-10

Notes: ORP - Oxidation / Reduction Potential

Active Bio Stats Tables 2012-07-16

July 2012

TABLE D-2: Statistical Analysis of ORP Data from Monitoring Well STSW-138A Active Perchlorate Bioremediation Demonstration

Time Period	Monitoring Well	Day	ORP	Mean	Standard Deviation	p-value from t-test
	STSW-138A	-34	38			
	STSW-138A	-25	37			
Before	STSW-138A	-20	44			
Amendment	STSW-138A	-18	153			
Amenament	STSW-138A	-13	85			
	STSW-138A	-11	19			
	STSW-138A	138A       -25       37         138A       -20       44         138A       -18       153         138A       -13       85         138A       -11       19         138A       -6       105       68.71       47.8         138A       -6       105       68.71       47.8         138A       56       -79       47.8       47.8         138A       64       -103       47.8       47.8         138A       71       -94       47.8       47.8       47.8         138A       78       -58       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8       47.8				
	STSW-138A	56	-79			
	STSW-138A	64	-103			
	STSW-138A	71	-94			
	STSW-138A	78	-58			
	STSW-138A	85	-94			
	STSW-138A	92	-72			
	STSW-138A	99	-105			
	STSW-138A	120	-108			
	STSW-138A	127	-118			
	STSW-138A	141	-121			
	STSW-138A	148	-122			
After Amendment	STSW-138A	155	-137			
	STSW-138A	162	-126			
	STSW-138A	169	-135			
	STSW-138A	177	-135			
	STSW-138A	183	-146			
	STSW-138A	190	-166			
	STSW-138A	197	-114			
	STSW-138A	205	-111			
	STSW-138A	211	-92			
	STSW-138A	218	-93			
	STSW-138A	225	-98			
	STSW-138A	232	-225	-115	34.4	6.47E-06

Notes: ORP - Oxidation / Reduction Potential

Active Bio Stats Tables 2012-07-16

July 2012

TABLE D-3: Statistical Analysis of Perchlorate Data from Monitoring Well MW-1 Active Perchlorate Bioremediation Demonstration

Time Period	Monitoring	Day	Perchlorate	Perchlorate <sup>1</sup>	Mean	95th	Standard
1	Well		(ug/L)	(ug/L)		Percentile	Deviation
	MW-1	-254	1,600	1,600			
Before	MW-1	-34	1,400	1,400			
Amendment	MW-1	0	2,300	2,300			
1 milendinent	MW-1	3	2,200	2,200			
	MW-1	8	2,100	2,100	1,920	2,280	396
	MW-1	29	<4.0	2.0			
	MW-1	37	<4.0	2.0			
	MW-1	43	<4.0	2.0			
	MW-1	51	<4.0	2.0			
	MW-1	56	<4.0	2.0			
	MW-1	64	<4.0	2.0			
	MW-1	71	<4.0	2.0			
	MW-1	78	<4.0	2.0			
	MW-1	85	16.0	16.0			
	MW-1	92	<4.0	2.0			
	MW-1	99	<4.0	2.0			
	MW-1	116	<4.0	2.0			
	MW-1	120	<4.0	2.0			
After	MW-1	127	<4.0	2.0			
Amendment	MW-1	134	<4.0	2.0			
Amenament	MW-1	141	<4.0	2.0			
	MW-1	148	<4.0	2.0			
	MW-1	155	<4.0	2.0			
	MW-1	162	<4.0	2.0			
	MW-1	169	<4.0	2.0			
	MW-1	176	4.7	4.7			
	MW-1	183	<4.0	2.0			
	MW-1	190	<4.0	2.0			
	MW-1	197	<4.0	2.0			
	MW-1	205	<4.0	2.0			
	MW-1	211	<4.0	2.0			
	MW-1	218	<4.0	2.0			
	MW-1	225	<4.0	2.0			
	MW-1	232	<4.0	2.0	2.6	3.6	2.6

Notes: using a value of 2.0 ug/L for values reported as non-detect (<4.0)

TABLE D-4: Statistical Analysis of Perchlorate Data from Monitoring Well STSW-138A Active Perchlorate Bioremediation Demonstration

Time Period	Monitoring Well	Day	Perchlorate (ug/L)	Perchlorate <sup>1</sup> (ug/L)	Mean	95th Percentile	Standard Deviation
	STSW-138A	-262	2,100	2,100			
	STSW-138A	-110	2,200	2,200			
	STSW-138A	-34	2,600	2,600			
Before	STSW-138A	0	2,200	2,200			
Amendment	STSW-138A	3	2,100	2,100			
	STSW-138A	8	2,200	2,200			
	STSW-138A	14	2,400	2,400			
	STSW-138A	21	1,900	1,900	2,213	2,530	210
	STSW-138A	85	<4.0	2.0			
	STSW-138A	92	<4.0	2.0			
	STSW-138A	99	5.9	5.9			
	STSW-138A	116	14.0	14.0			
	STSW-138A	120	5.8	5.8			
	STSW-138A	127	<4.0	2.0			
	STSW-138A	134	<4.0	2.0			
	STSW-138A	141	<4.0	2.0			
	STSW-138A	148	<4.0	2.0			
A 6	STSW-138A	155	<4.0	2.0			
After	STSW-138A	162	<4.0	2.0			
Amendment	STSW-138A	169	<4.0	2.0			
	STSW-138A	176	<4.0	2.0			
	STSW-138A	183	<4.0	2.0			
	STSW-138A	190	<4.0	2.0			
	STSW-138A	197	<4.0	2.0			
	STSW-138A	205	<4.0	2.0			
	STSW-138A	211	<4.0	2.0			
	STSW-138A	218	<4.0	2.0			
	STSW-138A	225	<4.0	2.0			
	STSW-138A	232	<4.0	2.0	2.9	5.9	2.8

Notes: <sup>1</sup> using a value of 2.0 ug/L for values reported as non-detect (<4.0)

TABLE D-5: Statistical Analysis of Perchlorate Data from Monitoring Well STSW-138A Active Perchlorate Bioremediation Demonstration

Time Period	Monitoring Well	Day	Perchlorate (ug/L)	Perchlorate <sup>1</sup> (ug/L)	Mean	95th Percentile	Standard Deviation
	STSW-138A	-262	2,100	2,100			
	STSW-138A	-110	2,200	2,200			
	STSW-138A	-34	2,600	2,600			
Before	STSW-138A	0	2,200	2,200			
Amendment	STSW-138A	3	2,100	2,100			
	STSW-138A	8	2,200	2,200			
	STSW-138A	14	2,400	2,400			
	STSW-138A	21	1,900	1,900	2,213	2,530	210
	STSW-138A	127	<4.0	2.0			
	STSW-138A	134	<4.0	2.0			
	STSW-138A	141	<4.0	2.0			
	STSW-138A	148	<4.0	2.0			
	STSW-138A	155	<4.0	2.0			
	STSW-138A	162	<4.0	2.0			
	STSW-138A	169	<4.0	2.0			
After	STSW-138A	176	<4.0	2.0			
Amendment	STSW-138A	183	<4.0	2.0			
	STSW-138A	190	<4.0	2.0			
	STSW-138A	197	<4.0	2.0			
	STSW-138A	205	<4.0	2.0			
	STSW-138A	211	<4.0	2.0			
	STSW-138A	218	<4.0	2.0			
	STSW-138A	225	<4.0	2.0			
	STSW-138A	232	<4.0	2.0	2.0	2.0	0.0

Notes: <sup>1</sup> using a value of 2.0 ug/L for values reported as non-detect (<4.0)