Association of State and Territorial ASTSWMO Solid Waste Management Officials

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NALGEP

Long Term Stewardship Roundtable and Training

April 4th and 5th, 2007

Morning sessions for
Wednesday, April 4

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Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title: **Plenary Session – "LTS – Whose Responsibility is It?**
Date and Time: Wednesday, April 4, 2007, 8:30 a.m.
Speakers: Dorothy Rice, CA SWRCB
Gary King, IL EPA
Paul Connor, NALGEP
Jim Woolford, EPA OSRTI

Introduction by Dorothy Rice

- Purpose of panel is to think about challenges of site cleanup so that sites remain productive over time, without compromising standards.
- Who will maintain and monitor data over time and who will pay for it?
- Present are representatives from federal, state and local government perspectives.

Questions to the Panel from Dorothy Rice

- **What in your mind is EPA's role in ensuring that LTS remains in effect?**
  - (Jim Woolford) EPA's role for Superfund sites during maintenance and operation is to ensure that states and local governments know what is expected of them. EPA can clarify this through agreements with local governments. Five-Year Reviews are only part of it. Much of the responsibility does fall on state and local governments and EPA needs to ensure that it carries out that responsibility.
  - (Gary King) Under the principles of federalism each state has its own role. ASTSWMO is seeking to research and gather information on what is happening in states and what cleanup programs are being used. Some of the information sought includes: Which states use ICs? Who is responsible for monitoring ICs? What methods do states use to track ICs? EPA needs to understand the O&M costs of Superfund. Costs of O&M versus remedial choices are often a point of compromise.
  - (Paul Connor) Often local governments have no role, but their level of involvement varies. Usually they are responsible for land use and land use planning, but this depends on their authorities and regulations. Local governments have the responsibility to protect citizens from adverse environmental impact. Tools used can include: building permits, construction permits, zoning, and land use regulations. Local governments have the ability to serve as the contactor for remedies and ICs. The limitation on this ability is a lack of resources. Local governments would be happy to do LTS if provided monies to perform those duties.
  - (Jim Woolford) Of the 1,560 NPL sites, two-thirds have remedies in place and 90

percent of de-listed sites still require long-term care and monitoring. This does create a burden for states and local governments. Superfund relies on the local and state governments for LTS. We need to think about sites seven generations from now. Will there be local and state governments? Will EPA be around?

- **What are some of the greatest challenges for state and local governments with regards to ICs?**
  - (Gary King) Some of the major issues include:
    - Effective cleanups. ICs cannot replace a well-done cleanup. ICs are only supplemental.
    - Having an effective legal structure that allows the common law issues to be bypassed.
    - Effective monitoring. How are we going to monitor for the long term?
    - Recognizing differences in environmental programs. How a site is handled within the program affects how the site is managed for the long term.
  - (Paul Connor) The three major challenges and concerns are:
    - Communication and coordination with local governments. Local governments are often not informed about sites, options for remedies and responsible parties. Communication would go a long way in addressing local governments concerns.
    - Resources. Environmental professionals who make up NALGEP do not have large budgets. Often they are not budgeting for long-term responsibilities. Many times they are not even aware of the need to plan for responsibilities and budgets. Resources include money, technical expertise and institutional structures.
    - Broad concern that local governments will be saddled with the responsibility in perpetuity. This leads to resistance to assume the responsibility.
  - (Gary King) Illinois has had to step back from the notion that it would have local governments do anything because of unsuccessful experiences.
- **Are local governments checking for LTS responsibilities before approving activities that may be impacted by these sites? Are there sufficient resources and information available to make this possible?**
  - (Jim Woolford) Information about sites that are under review could be accessed through the Internet. All Superfund documents could be made available. EPA needs to make the information more available. One problem, however, is that much of the information is stored in forms not readily displayed on the Internet. There are not enough communications made to local governments. EPA needs to be clearer about its expectations of local governments prior to developing remedies. EPA can help to get funding to local governments when they have PRPs.
  - (Paul Connor) We need to create systems for flagging information. Is there a logical place for a good information system? Is it available at more than one level? The challenge is that we are at the beginning stages of creating such a system. I would like to see a more focused discussion on roles and responsibilities rather than have regional listening sessions to improve communication, a national policy forum, or information about individual pieces of property. EPA is selecting remedies, but not committing to providing the resources. How can local governments realistically budget for these long-term commitments?

- (Jim Woolford) From the EPA side, there are constraints from governmental regulations and the scope of authority. Consideration should be given to state perspectives. We need to make information universal and provide more uniformity in the system for each Superfund site. Requiring different information systems is a resource burden on states and local governments, but how do we make uniformity with a large number of diverse sites?

- **Are there liability concerns or other broad concerns when states and local governments take on long-term stewardship, particularly when they were not part of designing the remedy?**
  - (Paul Connor) Yes, operator liability. Under UECA, enforcement falls to the states. Not all of their concerns are necessarily legal; they have more to do with incurring perpetual costs and how to pay for enforcement.
  - (Gary King) Is it a truly abandoned site or not? If we can get the property back into the stream of commerce, then it can generate revenue, and the value is clearly defined. Abandoned sites are not the same. How do you get them there and who will pay? Property owners could take more responsibility with built-in incentives to doing long-term stewardship.
  - (Jim Woolford) I have a concern about Superfund sites: that they may go back on the NPL in 10-50 years, due to lack of states funding to monitor. If there is a loss of institutional memory, development pressure makes it hard for local governments to resist pressure to allow inappropriate development. How do we prevent environmental problems from resurfacing? There is a resource gap with reliance on states and local governments for monitoring and long-term stewardship. How do we address that resource gap?
  - (Gary King) Individual sites may come back up. This raises the question: Was cleanup done effectively in the first place? These sites are affected by political decisions at a local level. Hopefully the level of risk to humans is minimized.
- **Are there LTS responsibilities that might be more effectively performed by other than governmental entities?**
  - (Gary King) The private sector's role could be larger. Land that is cleaned up and returned to commerce has built-in incentives for the private sector to maintain them, if for no other reason than to avoid the liability.
  - (Jim Woolford) I agree. But I also think about the transfer of properties for recreational use to non-governmental organizations.
  - (Paul Connor) LTS requires a future perspective. What will happen? The uncertainty is that under the current system there may be no long-term organizations and institutions in place to maintain long-term stewardship. These properties could be parceled out and segregated: EPA could take the first 10 years and then responsibility could be transferred to the private sector or passed to local governments. Our challenge is to identify who the people and institutions are that will take on responsibility for the long-term. Once we have this information, we can be more assured that the responsibility will be fulfilled. The key is to identify roles and responsibilities and improve communication. Passivity is not part of transaction. There are lot of brownfield developers and liability assumption companies taking on the responsibility for monitoring and enforcing ICs.
  - (Gary King) Location determines the viability of working with the site due to

financial motivations of private parties. All levels of government need to work together to resolve issues with sites.

- **Is there adequate communication and sharing with state and local governments about sites with LTS obligations? What are the weak points? What can be done about them?**
  - o (Paul Connor) When someone applies for a construction permit in one city with which NALGEP works, sites flagged within the city's system are identified and sent to the environmental program. This information system is an exception, however, most city and county governments do not have environmental program staff. Sometimes state or federal government sources can help with this type of information, but we are far from having a broad-based system in place.
  - o (Gary King) Communities do not always have environmental professionals. This is related to budget. The best sources of information are the county recorders' offices where documents on the chain of title are located.

Group Questions and Comments

- Mr. King, can you clarify what you meant when you referenced the challenge of legal structure that bypasses common law?
  - o (Gary King) Under the Uniform Environmental Covenants Act, some states have adopted the statutory provision that mandates that anyone who gets a completion letter about sites must maintain ICs and LTS in perpetuity.
- How much does it cost to watch a site forever? Do costing guides exist to determine when you reach the breaking point?
  - o (Jim Woolford) Costs are usually larger than anticipated.
- Have local governments considered raising revenue through the permitting process to defray the costs of ICs? Does NALGEP have any specific experiences with this?
  - o (Paul Connor) It can be difficult to increase fees to raise money. The fear is that raising fees can hinder development, which is already at full cost.
  - o (Gary King) One thing that needs to be accounted for is the long-term environmental liability in your community. Unfounded liability can affect how much you can bond or borrow.
- How can you estimate costs? These cleanup and monitoring issues are long term and the solutions have not been derived. How do you coordinate among the three levels of government? It is essential, but not yet happening.
  - o (Paul Connor) A more formal role and protocol for communication with states and local governments are necessary. I would advocate for coordination and concurrence on both parts. EPA is saying others will have to take up costs of LTS.
  - o (Gary King) EPA issues are a narrow band of issues compared to what local governments have to coordinate. Current communication is one way, instructional from EPA to the local governments. It is important to identify with whom you are communicating.
  - o (Jim Woolford) Part of the problem is with communication across the local level. EPA may be talking to the environmental professionals, but are those people communicating across to the board to zoning, to land planning, and to public works?

- How can you improve communication within local levels of government (including the military)? The planning authority is often unclear. How can you identify who is really in charge?
  - (Paul Connor) It is important for local governments to be informed prior to remedies being put into place. Small communities may not have a designated environmental planner. Who to send letters to within the local governments needs to be identified. NALGEP will have to assist with identifying who is responsible at local levels. Local officials, not knowing what to do, may just not respond. NALGEP would like to work with state and local governments to improve communication and coordination.
  - (Jim Woolford) For the NPL sites, there are certain things that remain EPA responsibility, such as Five-Year Reviews, to determine if remedies are still protective. Eventually the O&M will fall to states and local governments. EPA remains responsible for deleted sites or NPL sites.
- What are your personal opinions about the viability of ICs over the long term?
  - (Jim Woolford) If you look at the guideline of seven generations, that is much longer than 30 years. I share the concern about ICs that run in perpetuity. Should we stop looking at 30 years? The remedy may need to be in place for 1,000 years. We need some mechanism for estimating cost. What needs to be studied is the comparison of the costs of long-term O&M of ICs to the cost of cleaning to unrestricted use at the beginning.
  - (Gary King) It depends on the designated end use. Much rests on assumptions about the financial viability of the entity that assumes the site. How long will they be around to monitor the IC?
  - (Jim Woolford) EPA is currently reviewing costing guides for ICs and providing financial assurance. One solution may be to create trust funds. What we do know is that costs continue over time.
- Do local governments look at ICs before issuing permits?
  - (Paul Connor) The short answer is "No." But then, do they look at wetlands? Floodplains? Storm water controls? Why not ICs? Because frameworks are more likely to exist for looking at wetlands, floodplains and storm water controls (e.g., legal, administrative, funding flow, clear roles and communications framworks). We need to review these models and relate the same frameworks to ICs and ECs. What is needed are established programs with statutes in place. This is sometimes difficult to implement. Local governments are establishing local protocols for some of these. Many local governments do not have environmental programs.

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**Empowering Local Environmental Protection: The Convergence of IC Data, Geospatial Technology, and the Internet**
Date and Time:	Wednesday, April 4, 2007, 11:00 a.m., Session A
Speakers:	Larry Zaragoza, EPA OSRTI Darryl Moses, Computer Sciences Corporation Bob Wenzlau, Terradex, Inc.

Presentations

Larry Zaragoza Presentation
Facilitating Access to Superfund Information

Mr. Zaragoza presented an overview of the site data distribution and standardization efforts underway at EPA's Office of Superfund Remediation and Technological Innovation (OSRTI) and Office of Environmental Information (OEI). He discussed ongoing efforts in the following areas:

- Baseline site data distribution including site name, latitude/longitude, link to Agency URL with additional site info (e.g., CERCLIS), and site ID number.
- Data collection on construction complete Superfund sites to compile a large quantity of information on ICs.
- Document review effort to quantify IC requirements at Superfund sites.
- The development and implementation of the Institutional Controls Data Standard.

Questions and comments related to the presentation were as follows:

- Are data standards developed for all types of sites (e.g., Superfund and Brownfields sites)?
  - Data standards must be applicable to different types of sites.

- The majority of session participants are representatives of state governments. Federal government representatives, local government staff and private sector contractors were also in attendance, but in far fewer numbers.

Darryl Moses Presentation
IC Data Standard

Mr. Moses presented an overview of the ongoing development of the Institutional Controls Data Standard. His presentation highlighted data collection efforts, data quality issues, data responsibility, data standard modules and potential revisions to the standard.

Questions and comments related to the presentation were as follows:

- Does the IC Data Standard incorporate considerations for changes in parcel boundaries as sites are re-platted and redeveloped?
  - Parcel changes would likely be tracked and documented at the local level. Information from local land use authorities could then be layered on top of other IC data. An IC Data Standard implementation is guidance under development that demonstrates how sites can be treated as single entities or broken down into separate components. For example, separate parcels within an area can be captured in the data standard as a site/location and treated as an area of IC interest. This approach allows for incorporating flexibility across sites.

- National cadastral efforts currently underway will create a frequently updated GIS dataset.

Bob Wenzlau Presentation

Google Earth as a Working Institutional Control Exchange Model

Terradex has developed a range of commercial services to integrate electronic data exchange and information sharing on IC implementation and tracking issues. The firm also has developed an approach to mapping ICs using online mapping applications. Mr. Wenzlau has been working with Google Earth to present environmental information to a broad range of users. Mr. Wenzlau's presentation highlighted Terradex's efforts in aggregating Superfund site data and developing a display module for the Google Earth application. A major focus of this effort has been to identify the public need for accessible site information that can be easily understood by the majority of homeowners and public data users.

Data aggregation efforts have led to the collection, organization, geocoding, updating and interpretation of data from 22,000 sites. Terradex has gone forward working independently to develop a system of mapping ICs based on the best available data. Information communicated through this system includes a subset of data on site cleanup status. For each site, a determination is made about the status of use restrictions. Four simple categories are established and displayed: in progress, complete with restrictions, complete with no restrictions, unknown (red light, yellow light, green light and no light, respectively).

In addition to these data aggregation efforts, Terradex has also been working to build partnerships with other potential data users such as LoopNet, a nationwide network of real estate brokers.

Questions and comments on the presentation were as follows:

- Terradex has demonstrated a way to communicate complex information in a straightforward way. Information needs to be summarized so that environmental site information can be shared with the public. The next steps would be extending information in summary format to states, local governments, and the public through public mapping tools.

- There may be downsides of data standardization, in that too much specificity for the public may or may not be important. Is it possible to just tell the public that contamination exists at a site, and then state clearly "here's what that means for developers, planners, and nearby residents"?

- Some level of standardization is necessary for users to organize all of the information and to ensure that the accuracy of information can be maintained through multiple exchange mechanisms.

- How can the issue of perceived versus real contamination be addressed through the communication of accurate site information?
  - The perception of contamination at sites is very important. Many brownfields have no contamination, but sites carry stigma that can be addressed. Using common words that communicate key information to the public is one way to ensure the exchange of critical site information.

Group Discussion

<u>Specific Input on Data Standard Development</u>

- Terradex has developed a proposal for how to summarize IC data and environmental site information for presentation to the public in general. EPA OSRTI would like to get input on what type of information needs to appear in a site summary.

- Does the red, yellow, green paradigm make sense?
  - Green light should include sites that have been remediated, are construction complete, and have been closed out and deleted from the NPL.
  - All the homeowner or developer needs are the yellow and green lights. The green light should be assumed.
  - Can the private sector decide in what format the information should be provided? It is challenging for the Agency to provide information in a variety of formats for different users.
  - There is a need for multiple layers of information based on the needs of different users including a homeowner layer, a technical information layer for developers and planners, and a layer for environmental site assessors.
  - The private sector can take good data provided by EPA and make compelling presentations to serve different parties (e.g., real estate, banks, developers, contractor and utility contractors).

Users and Uses of IC Data and Geospatial Technology

- Users:
  - Environmental Phase 1 site investigators.
  - City construction workers who are digging for a utility extension.
  - Local governments who function in the world of parcels. With identifying and linking to parcels, the land use connection to local governments could be achieved. From a planning perspective, the user of parcel-based site information could be either a homeowner or potential developers.

Other Discussion Topics

- Land revitalization efforts at EPA Headquarters are garnering specific interest in the amount of site acreage that has been remediated and prepared for anticipated future land uses. The IC data standard collection effort is tracking information that can be used to determine remediated acreages on a site-by-site basis. EPA OEI has been coordinating with the Superfund Redevelopment Initiative to integrate findings of the IC Data Standard collection effort with Cross-Program Revitalization Measures.

- Have any site information management systems been developed to help track changes in areas of contamination?
  - Terradex has a one-call system to help manage ground water contamination location in real time.
  - Mississippi has been working with the well drillers association to develop awareness of well water use restrictions. Ground water contamination issues need to be communicated to the public.

Empowering Local Environmental Protection: The Convergence of IC Data, Geospatial Technology, and the Internet

Data Collection, Data Quality, Data Responsibility, and Data Standards

April 2007

Challenges

Tackling Issues Centering Around:

- Data Collection
- Data Quality
- Data Responsibility
- Data Standards

Data Collection

- Data collected using Institutional Control (IC) Data Collection Booklet (Booklet) - *Interim*
- Booklet data will be loaded into the Institutional Control Tracking System (ICTS) Tier 2 application.
- Subsets of data from ICTS will be provided to different sources for publication (e.g., Cleanups in My Community, public geospatial services)

Data Collection

- Current Efforts
  - Priority 1: Ready for Re-use NPL Sites
  - Priority 2: Deleted NPL Sites
  - Priority 3: Construction Complete NPL Sites
- Subsequent Efforts
  - Universe of NPL Sites
  - Non-NPL Sites

Data Collection

- Regional visits and teleconferences
- Review site documentation with RPMs, State project managers, and Attorneys to get an accurate depiction of each site

Data Collection Process

- Identify the Site
- Determine whether the site required, requires, or will require ICs
  - Is there contamination remaining onsite that would not allow for unrestricted use and unlimited exposure?

Data Collection Process

- If ICs Are Not Required
  - provide the appropriate documentation that documents that the site allows for unrestricted use and unlimited exposure

Data Collection Process

- If ICs Are Required
  - determine whether ICs address or will address the site as a whole or on an area-by-area basis
  - identify any site sub-areas and affected properties
  - any areas not requiring ICs need document text included to support that claim

Data Collection Process

- Identify Individuals/Organizations
  - RPMs/State Project Managers and their agencies
  - Attorneys
  - Contacts
  - Property Owners/PRPs
  - Recorders Offices
  - etc.

Data Collection Process

- Identify the IC Objectives
  - identify the contaminated media, the risks associated with them, and the objectives of the ICs in mitigating these risks based on professional judgment or decision documents
  - identify the decision document(s) that cite the objectives (if applicable) and provide the appropriate dates and the parties associated with the document issuance
  - identify the area at which the objective is applicable.
  - provide text extracts from the decision document to support the selection of the objective (if applicable)

Data Collection Process

- Identify the Use Restrictions
  - identify the restricted media and type of restriction based on the decision, enforcement, and instrument documents
  - identify the enforcement, instrument, and monitoring documents and provide the appropriate dates and the parties associated with the document issuance
  - identify the area at which the use restriction is applicable

Data Collection Process

- Identify any Engineering Controls
  - identify the engineering controls that are protected or require protection by ICs
  - link the engineering controls to the IC objectives that call for the protection of the engineering control

Data Collection Process

- Sites are reviewed for completeness
- Follow-up activities

Data Quality

- Accuracy
  - ensuring that what is entered is reflective of actual conditions
- Consistency
  - ensuring that data is entered the same way whenever possible
- Integrity
  - ensuring that data is reliable, provided and approved by the appropriate parties, not tampered with, and current

Data Quality

How can data quality be ensured?

Tools for Ensuring Data Quality

- Data Standards/Guidance
- Technology
- Firm QA/QC Processes

Data Standards/Guidance and Data Quality

- Accuracy
  - introduce subject matter
  - instruct people on the correct way to collect the correct data from the correct sources
  - get everyone “speaking the same language”
  - serve as a reference for data providers and reviewers

Data Standards/Guidance and Data Quality

- Consistency
  - provide code sets and sample lists
  - provide a consistent way to collect certain types of data so all sources provide the same information in the same manner
  - serve as a reference for data providers and reviewers

Data Standards/Guidance and Data Quality

- Integrity
  - define roles and responsibilities

Data Standards/Guidance and Data Quality

- Challenges
  - demanding compliance
  - guaranteeing compliance by external sources

Technology and Data Quality

- Accuracy
  - no profound contribution to accuracy

Technology and Data Quality

- Consistency
  - ensure that **some** data values are provided in the same way
  - identify potential incorrect values, misnomers, and values that should be added to regulated lists
  - determine whether common scenarios have been captured the same way

Technology and Data Quality

- Integrity
  - ultimate tool in ensuring integrity
  - implement security and access control
  - implement business process

Technology and Data Quality

- Challenges
  - technology cannot make all the decisions necessary for ensuring accuracy and consistency

Firm QA/QC Processes and Data Quality

- Accuracy
  - ultimate tool in ensuring accuracy
  - review data against the proper information sources

Firm QA/QC Processes and Data Quality

- Consistency
  - the ultimate tool in ensuring consistency
  - make decisions about whether values are incorrect, misnomers, and values that should be added to regulated lists
  - ensure that minor variations in common scenarios and other scenarios are captured logically

Firm QA/QC Processes and Data Quality

- Integrity
  - ensure that the data has passed through all the proper channels and received all appropriate levels of review

Firm QA/QC Processes and Data Quality

- Challenges
  - resource availability
  - time
  - responsibility

Data Responsibility

Who is responsible for producing, performing QA/QC on, maintaining, and serving up data?

Data Responsibility
CERCLA-enforced IC Data

- Produce: EPA Regions and State-lead Agencies with assistance of EPA HQ Contractor
- QA/QC: EPA Regions (RPMs/State Project Managers, Attorneys, Management) and EPA HQ Contractor
- Maintain: EPA Regions and EPA HQ (ICTS)
- Serve: EPA HQ (Cleanups in My Community, Public Access Pages) and External Data Providers (Google Earth, MS Visual Earth, etc.)

Data Responsibility
CERCLA-enforced IC Data

- Production of Data
  - data collection from site documents, RPMs, State project managers, and attorneys
  - data entry into the IC Data Collection Booklet (Booklet) while conforming to the *Institutional Control Tracking System (ICTS) Data Collection Booklet Reference Guide*

Data Responsibility
CERCLA-enforced IC Data

- QA/QC of Data
  - completeness/consistency review by EPA HQ contractor
  - content review by RPMs, State project managers, attorneys, and management

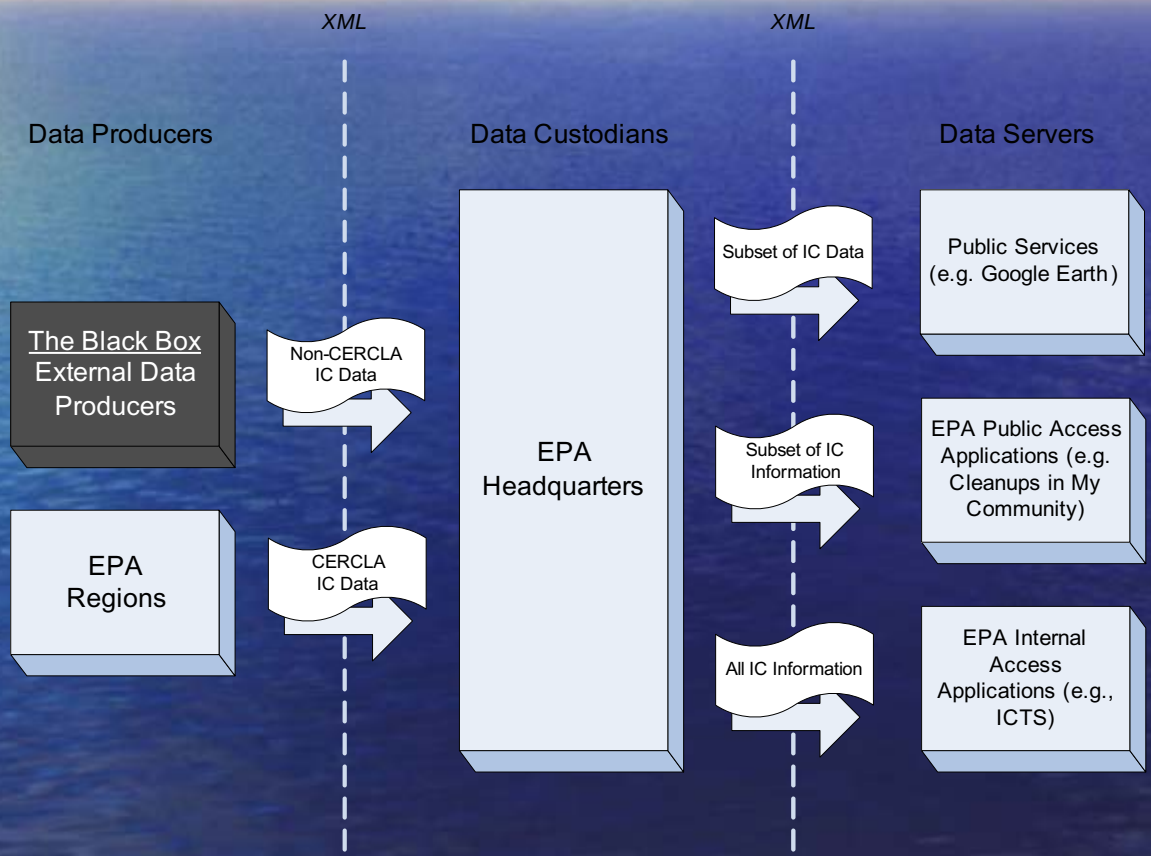
Data Responsibility
CERCLA-enforced IC Data

- Maintenance of Data
  - data transmission from the Booklets to the Institutional Control Tracking System (ICTS) Tier 2 application via XML in conformance to the anticipated IC Data Standard
  - regulated list management activities
  - information updates communicated from EPA Regions and State-lead Agencies

Data Responsibility
CERCLA-enforced IC Data

- Serving of Data
  - EPA HQ will serve to:
    - Public – via Cleanups in My Community Web site.
    - Agency – via ICTS
    - External geospatial service provider – via XML
  - External geospatial service provider will serve to:
    - Public and Agency – via public services (e.g., Google Earth, MS Visual Earth, etc.)

Data Responsibility



Data Responsibility
Non-CERCLA-enforced IC Data

- Production of Data (Opening the “Black Box”)
  - Scenario 1:
    - Local Gov’t -> EPA HQ
    - State Gov’t -> EPA HQ
  - Scenario 2:
    - Local Gov’t -> State Gov’t -> EPA HQ
  - Scenario 3:
    - Local Gov’t -> EPA Region -> EPA HQ
    - State Gov’t -> EPA Region -> EPA HQ
  - Scenario 4:
    - Local Gov’t -> State Gov’t -> EPA Region -> EPA HQ

Data Responsibility
Non-CERCLA-enforced IC Data

- QA/QC of Data
  - At what stages is QA/QC reliable, important, and feasible?
  - Is EPA responsible for QA/QC of data from external sources?
  - Is EPA accountable for serving up inaccurate data provided from external sources?
  - Does EPA reserve the right to modify data from external sources?

Data Responsibility
Non-CERCLA-enforced IC Data

- Challenges
  - adopting the most efficient data production and QA/QC model
  - regulating processes of external sources
  - getting buy-in from external sources to—
    - conform to data standards
    - provide quality data
    - provide current data

Data Standards

How can changes to the data standard be incorporated into existing systems in the most efficient and cost-effective manner?

What can be done to limit these changes?

Data Standard Evolution

- Data standards are bound to change due to emerging needs and evolving requirements.

Data Standard Evolution

- Major Changes
  - example: addition/removal of data elements/data modules
  - can kick-start a year-long process:
    - assemble action team
    - discuss changes
    - incorporate changes
    - poll the public for comments
    - respond to and incorporate comments
    - publish
  - obsolete data continues to stream in

Data Standard Evolution

- Minor Changes
  - example: addition of values to a regulated list
  - much less time-consuming process for publication
  - data streaming in remains compliant with the standard and may only require mapping

Data Standard Evolution: The Challenge

- Designing a data standard that—
  - meets the needs of several different stakeholders with several different goals;
  - minimizes the amount of changes needed in the future; and
  - is easy to understand and implement.

IC Data Standard

- Modular design
- Currently undergoing revision
  - will be more generic making the core model stronger
  - will make more use of code sets and regulated lists

IC Data Standard

- Strong Core Model
  - anticipates future needs
  - handles change elegantly

As change occurs, the core model stays the same and everything changes around it.

IC Data Standard

- Modules:
  - Facility Site
  - Location
  - Geographic Feature
  - Resource
  - Event
  - IC Objective
  - Use Restriction
    - Individual
    - Organization
    - Engineering Control
    - Environmental Media

IC Data Standard

- Facility Site
  - captures facility sites (e.g., NPL sites), sub-sites/sub-areas, areas of interest, operable units, affected “off-site” properties, etc. and their identifiers
  - ability to relate areas as sub-areas (Note: Because each sub-area is its own standalone entity, it has its own location, contacts, use restrictions, etc. even though it is part of the same site)
  - references the *Facility Site Identification Data Standard*

IC Data Standard

- Location
  - captures all location information (state, city, county, postal code, etc.)
  - references the *Contact Information Data Standard*

IC Data Standard

- Geographic Feature
  - captures all coordinate information
  - implemented via the *IC Vector Profile Technical Specification* (first step to an Agency-wide geospatial standard)
  - references the *Latitude/Longitude Data Standard*

IC Data Standard

- Resource
  - captures all document/resource information including decision, enforcement, instrument, monitoring, termination, reporting, and support/reference documents
  - can be tied to several events of any nature (drafting, publication, approval, etc.)
  - references the *Bibliographic Reference Data Standard*

IC Data Standard

- Event
  - captures information about any event, the types of which are unlimited (e.g., document issuance, meetings, etc.)

IC Data Standard

- IC Objective
  - captures information about IC objectives extracted from decision documents and is tightly linked with environmental media and areas of IC interest

- Use Restriction
  - captures information about use restrictions extracted from instruments and is tightly linked with environmental media and areas of IC interest

IC Data Standard

- Individual
  - captures information about any individual associated with the site
  - references the *Contact Information Data Standard*
- Organization
  - captures information about any organization associated with the site
  - references the *Contact Information Data Standard*

IC Data Standard

- Engineering Control
  - captures information about any engineering controls that require protection by ICs and is tightly linked with environmental media and IC objectives
- Environmental Media
  - captures basic information about environmental media and is tightly linked with IC objectives, use restrictions, and engineering controls

Questions

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Facilitating Access to Superfund Information

Presented at the Long Term Stewardship Training and Conference, April 4, 2007
San Diego, California

Michael Bellot and Larry Zaragoza
U.S. Environmental Protection Agency

EPA

Presentation Outline

- New opportunities for displaying state and EPA environmental data
- EPA efforts to assemble information for the public
- Opportunities for merging state, local, responsible party, federal facility and EPA data

The New Tools

- New Internet tools – e.g., Google Earth, Microsoft Live
  - powerful search engines
  - consolidated data
  - growing popularity
  - multiple uses (e.g., planning trips, selecting hotels, finding banks, mapping distances)
- Data from government agencies will be provided on these sites
- How should we work with these data providers?

Working with New Tools

- EPA's Office of Environmental Information lead
- Superfund is the first to work with OEI
- IC data from various agencies are needed for a full understanding
- States and local government data

IC Information Helps to better manage Sites

- Institutional Controls (ICs) are needed to protect health and remedies
- ICs inform responsible redevelopment
- The banking/insurance/other financial organizations want to know that ICs are in place
- All Appropriate Inquiry

Sites that may Require ICs and Engineering Controls (ECs)

Program	Universe of Sites	Comment
Superfund NPL	1,600	About 900 construction complete sites
RCRA Corrective Action	3,800	There is a much larger universe of generators and treatment, storage and disposal facilities that could require ICs
UST	260,000 Sites	Of these, about 900 sites are managed by EPA as Federal-lead Tribal
Brownfields/ Voluntary Cleanup	400,000-500,000	These sites are managed at the local/state level

Why is effective communications on IC/EC information so important?

- Because information on ICs/ECs may only be found in documents that are not readily accessible, important information may not be available to support:
  - Permitting decisions
  - Land transactions
  - Excavation activities
  - Land use planning
- Any of the above could impact the integrity of ICs/ECs

Data Under Consideration for EPA to suggest

- Start data sharing with Superfund sites
  - Of high interest
  - Data is available
- Start simple and provide a model for expanding data shared
- Basic (minimum) Data to include:
  - Site name
  - Latitude/longitude
  - Link to Agency site with additional information
  - Site Identifier number

Superfund Plans for Release of IC Information to the Public

- Now completing an intensive effort to collect IC information on all construction compete sites with a priority on reuse and deleted sites
- Information collected is generally linked to data sources such as decision documents (e.g., ROD)
- This information should be of use to communities, those interested in fulfilling All Appropriate Inquiry requirements, and others

The IC Data Standard

Expanding Information prepared for Data Providers

- Data Providers want information with the same definitions and format
- The IC Data Standard provides definitions and XML Schema
- Technical Specification developed for GIS data
- Discussion has been initiated with ASTSWMO's Long Term Stewardship group
- A meeting with data providers will be hosted by EPA date TBD

IC Data Standard Development

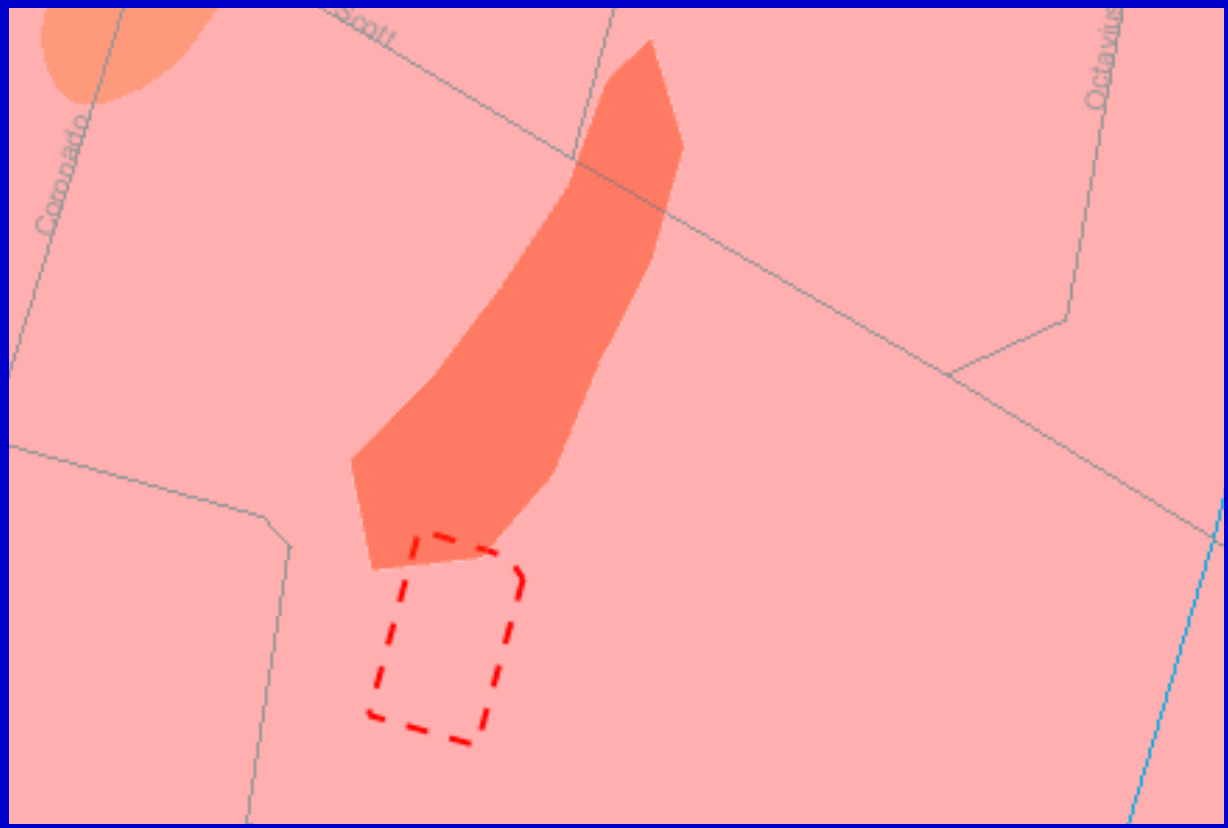
- Collaborative development process under the Environmental Data Standards Council
- Developed as a tool for exchanging information with States/Tribes and others
- Component-based structure to facilitate data exchange and foster reuse
- Flexible design to accommodate future additions to existing lists

Data Standard Components

GIS data will make a difference in maintaining the integrity of ICs

- Facilitate the comparison of contamination with ICs/ECs
- Comparisons may require adjustments to ICs and ECs
- Facilitate review of requests for excavation
- Efforts to integrate IC information into one call systems is under discussion
- Facilitate land use planning reviews

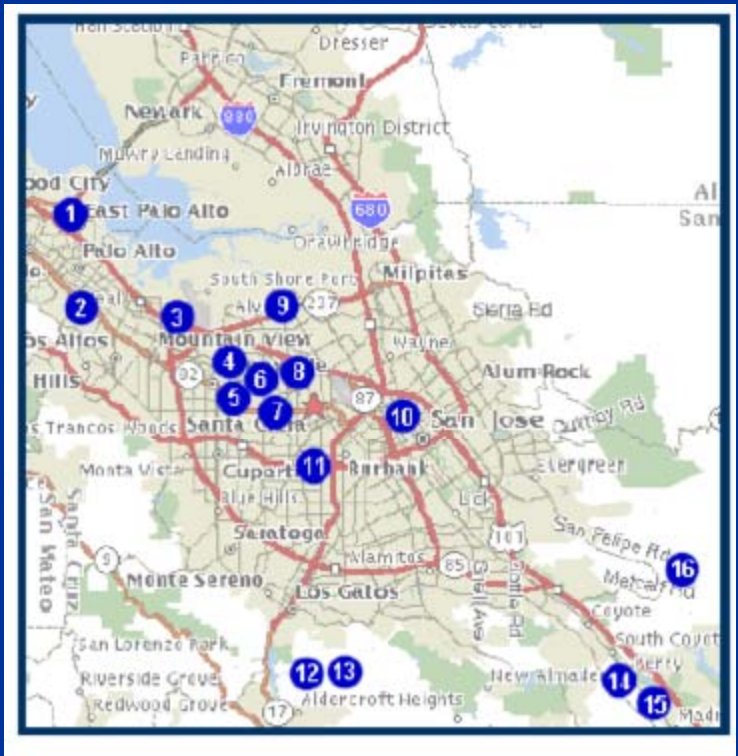
GIS Faciliatates Comparisons such as the area of contamination with ICs/ECs



How will GIS data make a difference in maintaining the integrity of ICs? (Cont.)

- Maps will be far more effective in communicating the location of residual contamination and IC/ECs to the public than text
- Aerial and site photos would also be helpful to inform the public on sites

Cleanups in My Community



Users can zoom in or call up a geographic area by State, County or City

http://www.epa.gov/enviro/cleanups/

Next Steps

- GIS information to include area of contamination, ICs, Engineering controls
- Work with data providers to obtain feedback on efforts
- Continue discussions with State and Local governments and others to foster support for data exchange

For Information

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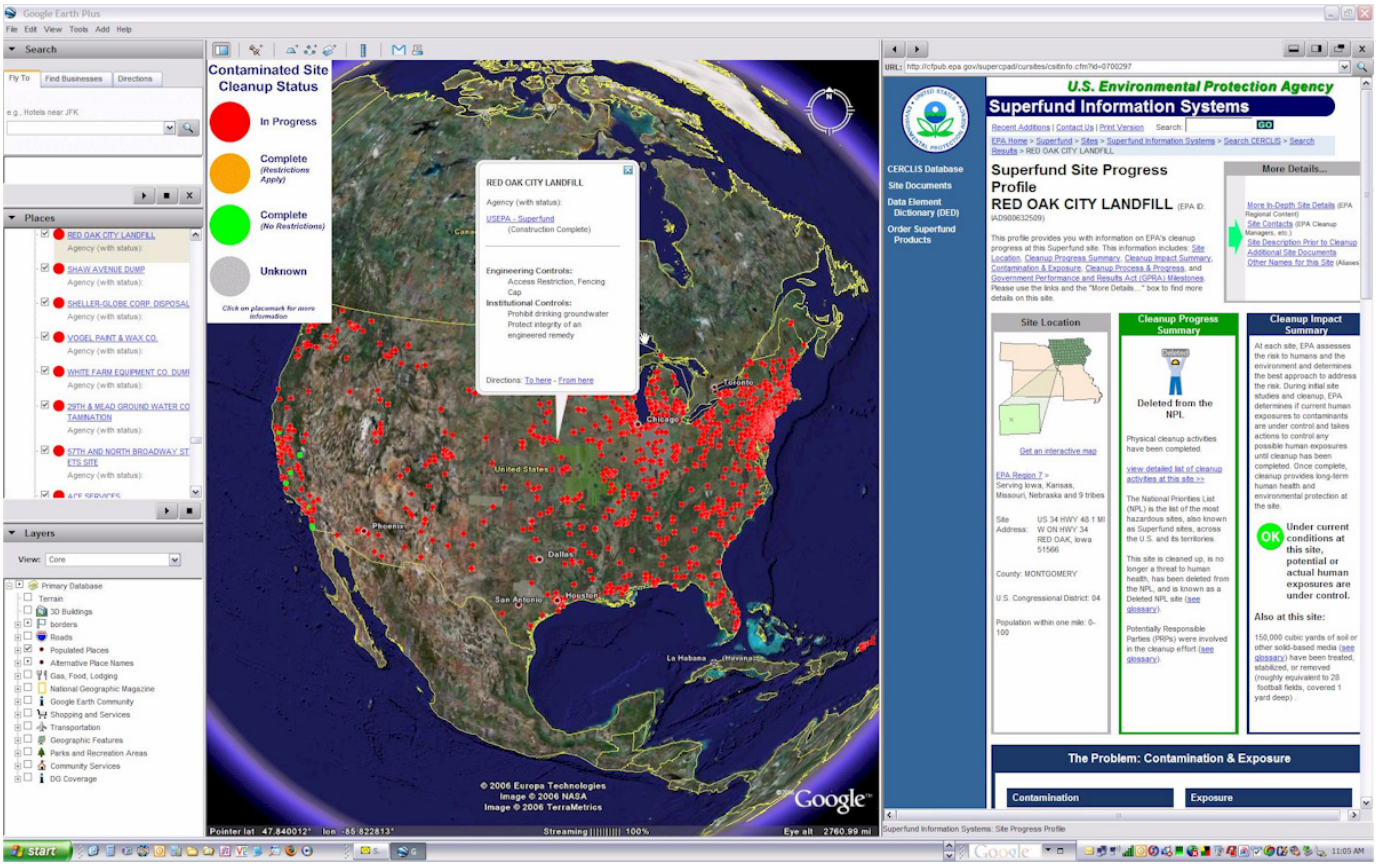
- Larry Zaragoza
  - Zaragoza.Larry@epa.gov
  - 703-603-8867
- www.epa.gov/superfund/action/ic/index.htm
- http://www.envdatastandards.net/

Google Earth as a Working Institutional Control Exchange Model[1]

2007 Long Term Stewardship Roundtable

Bob Wenzlau, P.E.
Terradex, Inc.



1 Description of Technology:

Google Earth is a web based technology that allows the user to open Google Earth, activate the environmental sites layer (now an internet link), and then browse through an area of interest for environmental sites, including those with institutional controls. The user would see that some sites have federal or multiple state agency listings. The user doesn't have to worry about finding which

[1] This is extracted from a pending compilation of Institutional Control technology practice by the Brownfield Committee of the Interstate Technology & Regulatory Council (ITRC). No endorsement by ITRC is expressed in this document.

agency website to visit, the Internet links are embedded. The user can browse seamlessly from one state to another, and not be burdened with any inconvenience – that is done in the background.

The Terradex application aggregates the information from 120,000 sites referenced on websites – primarily location, status, and URL. The layer includes national Federal RCRA corrective action and Superfund sites. The layer also includes California (Envirostor, Geotracker and Solid Waste Information System), Oregon, Washington and New Jersey listed sites.

The technology has been used to introduce institutional controls to local government planners and other stakeholder by revealing environmentally-impaired sites through a simple users interface. Sites with institutional controls are revealed with a bright yellow icon indicative of conditional use, with links to agency websites that hold deeper information resources.

2 Features of Technology

The Google Earth application can serve as a resource to any local or state government that desires to map environmental site locations assembled from state and federal agencies. The technology has served several audiences.

- Colored icons illuminate the status of the site – red for cleanup in progress, yellow typically for sites with institutional controls, and green for sites where cleanup has been achieved.
- One can "Mouse over" the site and learn the name of the site and if they click on the site, basic information is displayed.
- Within the site description, one can choose to link on the regulatory link(s).
- Zoom out and federal facilities show; zoom in state sites show with an emphasis on site priority.
- When a link over a site is clicked, the integrated internet browser window displays the site-specific agency website. The Google Earth application increases the use of a state environmental agency's Internet resources, while also introducing them to overlapping federal or regional resources.
- Ability for a user to comment on the location or accuracy of an environmental site record.

This layer within Google Earth is a work in progress. Within the states of California, Oregon, Washington and New Jersey one can see representative data density. The balance of the states does not yet have the site data collected and processed into this layer. Additionally, polygons showing the boundaries of institutional controls can be introduced.

3 Technology Platform

The Terradex Environmental Layer with Google Earth is a computer platform technology, which requires that the user download Google Earth (version 4). The data is in a SQL2005 server, and the Google Earth network link is served from an Internet Server – the data is always fresh in a user session. Terradex hosts the data layer, and has entered discussions with Google to incorporate the information within the public views. Now a user obtains the link to the content from Terradex's website. Given the hundreds of thousands of data points, the environmental sites are transferred to a user based on the latitude and longitude of their view window. As a user zooms closer, the server increases the site shown.

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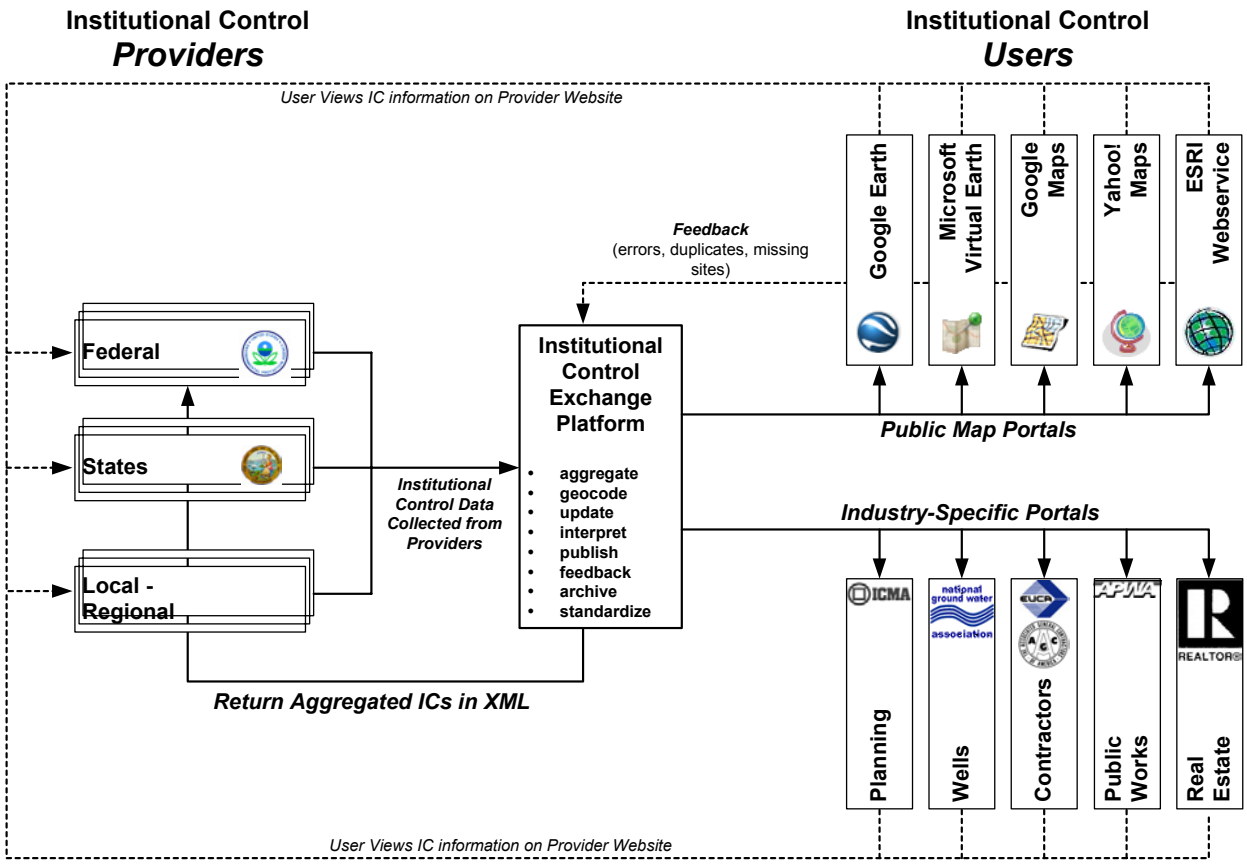

4 Costs Associated with Implementation

The effort to date has been self-funded by Terradex. There is no cost to the individual user. The environmental aggregation may be sustained through advertising or could be supported by government funding. Terradex has a pending grant request for development of this service with USEPA and others to complete the national aggregation. After funding, the application would allow state control in managing the presentation through Google Earth and other map engines.

5 Advantages

- Has the capability to locate all environmental data, including institutional controls
- Success through simplicity, allowing broad stakeholder access to useful information
- The site relies on thorough data presentations by individual agencies through their web presence
- Incorporating a "wiki" feature to involve stakeholder in improving geospatial accuracy.
- Complimenting, not replaces important state web presence.

6 Limitations

- Not all sites are show as some agencies do not have web sites or have poor address records (Google Earth can show basic site information, pending an agency's creation of a web presence; geocoding can be provided during the assembly of the application)
- Terradex has a prototype built on viewing through an Internet browser based on Google Maps API and Virtual Earth API. There is a cost for business/government to use Google Earth that the browser based version would offset.
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7 Users

The target audience is the public stakeholder as a service to the environmental agency.

- **General Public** – Google Earth and Terradex provide an intuitive way for the general public to discover neighborhood environmental sites, and learn their status, including any LUCs.
- **Planning Departments** – City or local government planning departments have used as an easy way to find various sites within their jurisdictions. Planning departments have been able to follow link to more specific information.
- **Environmental Agency Staff** – Have used the site as a way to see the overall environmental site setting within their jurisdiction (Feds can see state sites and states see federal sites)

- **Industry**. Several industry groups representing excavators, water well drillers, and real estate agents have viewed the technology as another way to find/show data.

8 Case Study

Project Location: Palo Alto, California

Project Team: Palo Alto Planning Department

Description of Technology Implementation: The environmental sites layer has been a resource to planning staff in the discretionary planning process. The layer has permitted radius searches for impaired properties, thereby informing planners as they evaluated projects.

Project Outcome/Lessons Learned: The service has been helpful to planning, required little training to apply, and did not burden the information service staff. Challenges were encountered when upgrades to Google Earth occurred, and but these were resolved through phone calls to Terradex.

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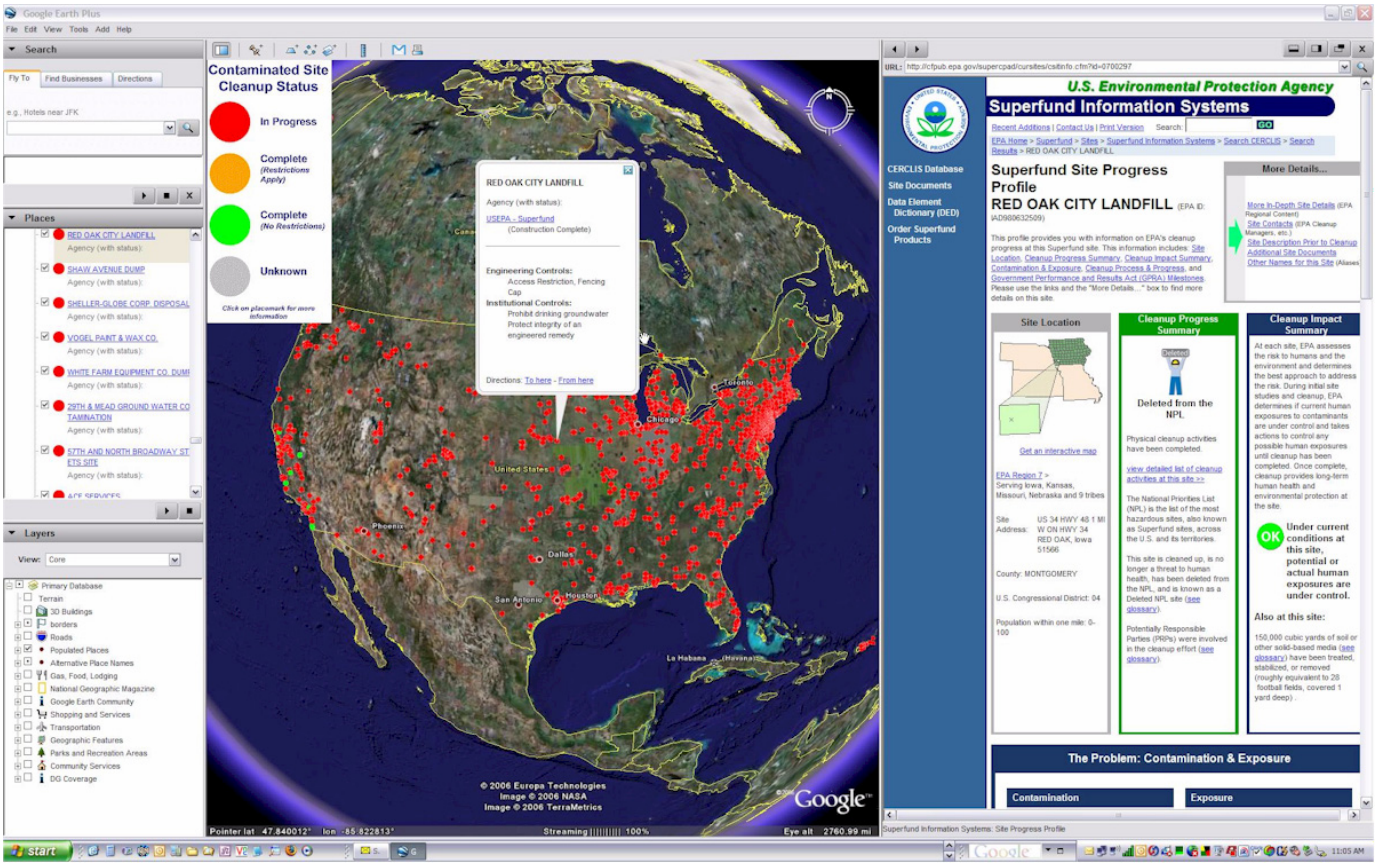

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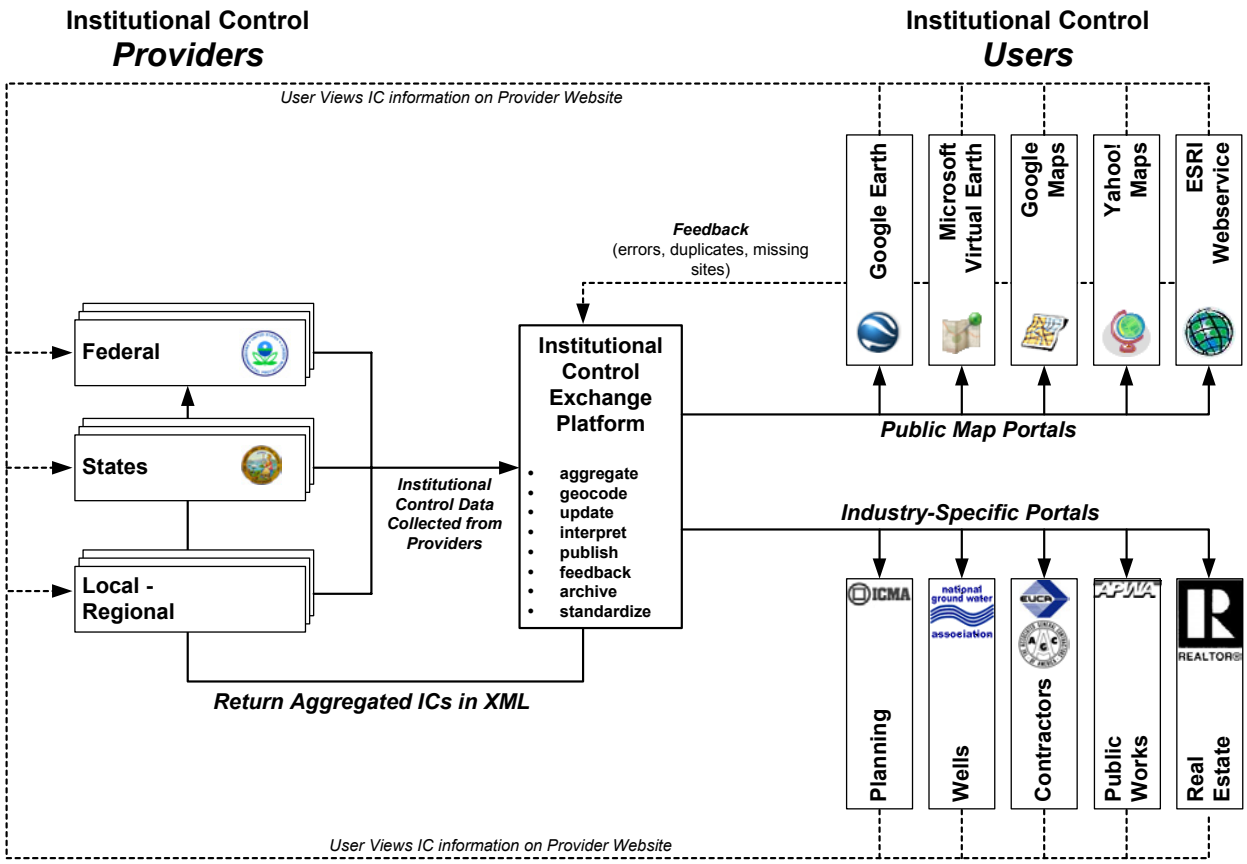

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Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**States, Local Governments and EPA LTS Coordination**
Date and Time:	Wednesday, April 4, 2007, 11:00 a.m., Session B
Speakers:	Marshall Cedilote, TX CEQ Ted Yackulic, EPA Region 10 Brian Boerner, Ft. Worth DEM

Marshall Cedilote Presentation

Texas and the IC Experience

- Recognized types of ICs:
  - Restrictive covenants: binding on current and future owners.
  - Deed notice: provides information on contamination left in place.
  - Equivalent zoning or ordinance: TCEQ must approve or consent to future changes.
- Resolved issues by establishing a "Global Workgroup" comprised of TCEQ and EPA as well as Remedial Project Managers to:
  - Foster better communications.
  - Understand each others' definitions.
  - Draft standard language for RODs.
  - Identify roadblocks.
- Lessons Learned:
  - Effectiveness of use in layering ICs (e.g., a deed notice plus a drilling restriction plus a city ordinance provides more protection than any one of those alone).
  - Accept that there are differences between state and federal IC definitions.
  - In Texas the preference is for restrictive covenants over deed notices. They are easier to find in property records and can be enforced with direct civil action.
  - States need direct oversight, control and enforcement.
  - Clarify responsibility for placing and maintaining ICs. Which is the most appropriate agency?
  - Evaluate ICs with same rigor and at the same time as the feasibility phase. Do not make ICs an afterthought.

Ted Yackulic Presentation

Bunker Hill Mining and Metallurgical Superfund Site Institutional Control Program Provides an example of working with the Superfund process.

- During the feasibility study alternatives were evaluated against nine criteria:
  - Protection of human health and the environment.
  - Compliance with regulations.
  - Implementability.
  - Long-term impacts.
  - Short-term impacts.
  - Reduction of toxicity, mobility and volume.

- Cost.
- State/Tribal acceptance.
- Community acceptance.

- Create zoning overlay where future development concerns are specific to zoning.
- Example of permitting through health department (no fees) for disposal and collection of clean soil.

Brian Boerner Presentation

States, Local Governments, and EPA Long Term Stewardship Coordination: A Municipal Perspective, Fort Worth, TX

- Objectives of talk to discuss the following questions:
  - Why are institutional controls important to local governments?
  - How does long-term stewardship promote increased protection to public health and the local environment?
  - Does it present or address an Environmental Justice issue?All response is local – do not forget who is served by ICs and cleanup.
- What defines results? Possible answers include: the contamination is addressed, properties are redeveloped, property values increase which yields greater resale and a larger tax base, increased economic development.
- How can changes in zoning be addressed? Fort Worth utilized the development of a comprehensive plan, which identified long-term objectives, zoning, and land use throughout the city.
- Steps taken included:
  - Working with developers to determine end-use zoning.
  - Identifying pieces of property and issues with those properties.
  - Identification of deed restrictions were included as part of the comprehensive plan (e.g., restricting residential use and requiring further remediation to meet residential standards).
  - Issuing certificates of completion when zoning was changed to residential.

Questions and Discussion

- In order for an IC to be effective, does the state need to have authority to enforce it? Is an environmental covenant that runs with the land considered an institutional control?
  - In the Fort Worth example, if an EC or IC was included in the Record of Decision, it involved Texas' direct input. The state agency is in control of not only monitoring and oversight of ICs, but also creation and implementation.

- What role do you see for EPA in the process of negotiating the definition of ICs?
  - EPA's language for restrictive covenants is significantly different than that of the State of Texas. Negotiations need to be made on a case-by-case basis.

- In the instance of Bunker Hill, why is the community accepting the various restrictions on development, use and redistribution of soil?
  - A committee of local people and government representatives looked at the issue prior and during the development of the permitting process. People can see the results in decreasing the blood lead levels and then "buy-in" to the restrictions. Property values

have increased from mining leaving the area. New employers are returning. Long-term safety was of critical importance to the community.

- At what point do you determine that ICs are not effective?
  - Voluntary notification is provided from adjoining owners, citizens or the property owner.
  - The Five-Year Review process can reveal this.

- Where have you found instances of Environmental Justice and how do state and locals handle it?
  - Environmental Justice issues are commonly related to zoning. For example, ICs are used to create reuse opportunities such as those for improved neighborhoods. This is related to improving quality of life.

- What can be done to address the lack of adequate local institution to support LTS and ICs? (Example of site in a county with no zoning)
  - Better communication of what can work given the limitations of no local governmental structure.
  - The prevailing theme is one of cooperation and communication across all institutions and agencies.

TEXAS AND THE IC EXPERIENCE

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Texas Commission on Environmental Quality
Remediation Division
(512) 239-4134
mcedilot@tceq.state.tx.us

TEXAS AND THE IC EXPERIENCE

Texas' Institutional Controls are defined and outlined in the Texas Risk Reduction Program (TRRP) rules and associated guidance.

Rules at and guidance at:

http://www.tceq.state.tx.us/remediation/trrp

TEXAS AND THE IC EXPERIENCE

Recognized types of ICs:

1. Restrictive Covenant
   Binding on current and future landowners.

2. Deed Notice
   Provides information on contamination left in place.

TEXAS AND THE IC EXPERIENCE

Types of institutional controls (cont.)

3. Equivalent Zoning or Ordinance

   TCEQ must approve and consent to future changes.

TEXAS AND THE IC EXPERIENCE

Some General Information….

- For State or Federally funded sites, TX prefers a Restrictive Covenant. The fallback is a Deed Notice. Restrictive Covenant is more enforceable.

- TX will not compensate landowners for filing an IC (property rights issue). This includes innocent parties. Compensation required at PRP lead sites.

TEXAS AND THE IC EXPERIENCE

Some General Information….

- TX will allow interim ICs (i.e. contaminated groundwater will take >15 years).

TEXAS AND THE IC EXPERIENCE

REAL SITES, REAL SITUATIONS

TEXAS AND THE IC EXPERIENCE

Jasper Creosoting

- NPL site in east Texas
- Groundwater contaminated with VOCs, PAHs, and Pentachlorophenol.
- RCRA vault constructed for waste disposal onsite.


HAZARDOUS
WASTE
BURIAL
VAULT
DO NOT
DIG!


JASP

TEXAS AND THE IC EXPERIENCE

Issues at Jasper…..

- EPA proposed a prohibition on drilling new wells (met their IC definition).
- TCEQ has no direct control over this. Notice of drilling restriction by Texas Department of Licensing and Regulation (TDLR), monitoring by the local groundwater conservation district.
- This is a rural area - approx. 95% of people don't register their wells.

TEXAS AND THE IC EXPERIENCE

Issues at Jasper….

- EPA also proposed a city ordinance to restrict access and property use. This did not meet TCEQ's IC requirement since EPA would be managing it.

- Does not meet TX definition of an IC. TCEQ has no enforcement ability. Also no zoning in Jasper County.

TEXAS AND THE IC EXPERIENCE

How it all worked out….

- Drilling restriction would be included in the ROD but not specifically listed as an IC.

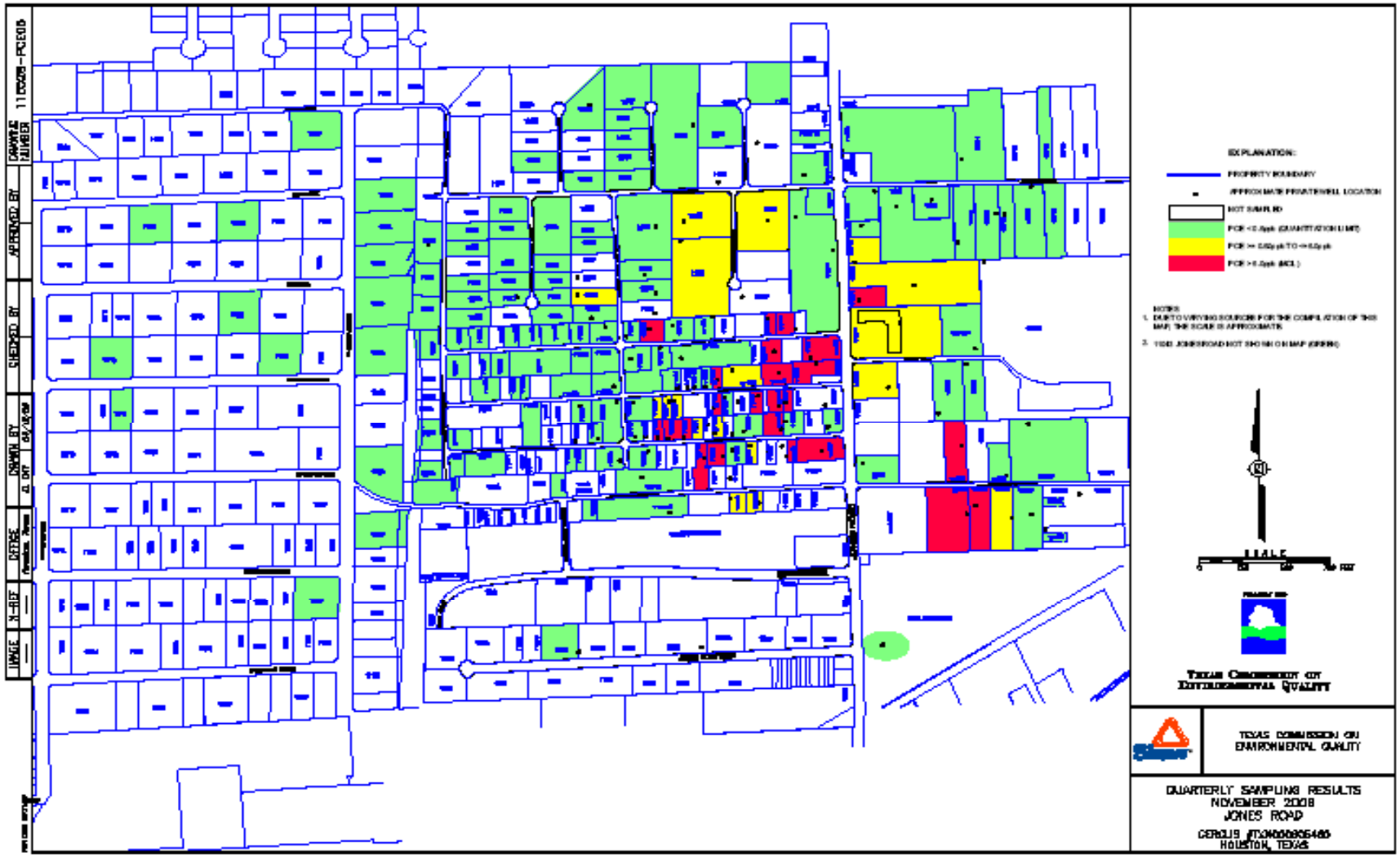
- EPA would assist TCEQ in placement of the deed notice. Provide property descriptions where Deed Notice is necessary.

- TCEQ signed conditional ROD. EPA needs TCEQ concurrence on delisting.

TEXAS AND THE IC EXPERIENCE

Jones Road Groundwater Plume

- NPL site in northwest Houston.
- Drinking water contaminated with tetrachloroehtylene (PCE). RI in progress.
- 34 private wells with filtration systems. TCEQ performing quarterly monitoring and installing new systems as necessary.


EXPLANATION:
PROPERTY BOUNDARY
APPROXIMATE PRIVATE WELL LOCATION
NOT SAMPLED
PCB <1.0ppb (QUANTITATION LIMIT)
PCB >= 0.02ppb TO <=0.2ppb
PCB >1.0ppb (MCL)
NOTES:
1. DUE TO VARYING SOURCES FOR THE COMPILATION OF THIS MAP, THE SCALE IS APPROXIMATE.
2. 1960 JONES ROAD NOT SHOWN ON MAP (ERROR)
TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
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QUARTERLY SAMPLING RESULTS
NOVEMBER 2008
JONES ROAD
CERCLIS #TXD008065480
HOUSTON, TEXAS

TEXAS AND THE IC EXPERIENCE

An Interim Measure But *Not* an IC per se….

- TDLR restricted drilling new wells within the PCE plume. Any new wells drilled were subject to more stringent construction requirements.
- Notice published in newspaper and sent to all water well drillers, residents. County passed an ordinance restricting drilling in the area.
- Despite this, new water well drilled. Neither TCEQ or TDLR notified. Discovered by contractor during a quarterly sampling event.

TCEQ

Jones Road Ground Water Plume, Harris County, Texas

Legend

Proposed Area of Drilling Restriction

N
W E
S

0.05 0 0.05 0.1 0.15 Miles

Source

The base data used is the Satsuma NW and SW, Texas Digital Orthoquarter Quadrangles (DOQQs), which are digital versions of aerial photographs. These DOQQs were produced by the TNRCC using U.S. Geological Survey guidelines.
UTM NAD 83 Zone 15

TEXAS AND THE IC EXPERIENCE

Working to Resolve Issues

- Creation of a “Global Workgroup”

  Made up of TCEQ and EPA senior attorneys as well as remedial project managers.
- Meeting every 2 weeks at the beginning; about once a month now.

TEXAS AND THE IC EXPERIENCE

Global Workgroup Goals

- Better overall communication.
- Understand each other's definitions of ICs – similarities and differences and how they apply.
- Draft standard language for RODs, etc.
- Identify roadblocks.

TEXAS AND THE IC EXPERIENCE

Pursue “Layering” of ICs

- Not specifically listed in TCEQ’s rules, but a good policy concept.
- The more mechanisms in place, the better chance of success.
- Deed Notice + Drilling Restriction + City Ordinance = More protective than any single one by itself.

TEXAS AND THE IC EXPERIENCE

Lessons Learned

- Accept that there will be differences between State and Federal IC definitions. Get on the same page at the beginning and work toward standardized language.

- Restrictive Covenants preferable to Deed Notices. Binding on current and future landowners; easier to enforce with a direct civil action.

TEXAS AND THE IC EXPERIENCE

Lessons Learned

- States need direct oversight, control and enforcement of ICs.
- Layering of ICs can theoretically work. Always clarify who has the responsibility of placing and maintaining which layer and whether they are the most appropriate entity to do so.
- Workgroups with State and Federal reps can work through the issues.

TEXAS AND THE IC EXPERIENCE

Lessons Learned

- Evaluate ICs with the same rigor that engineering controls are evaluated during the FS phase. Don’t make ICs an afterthought.

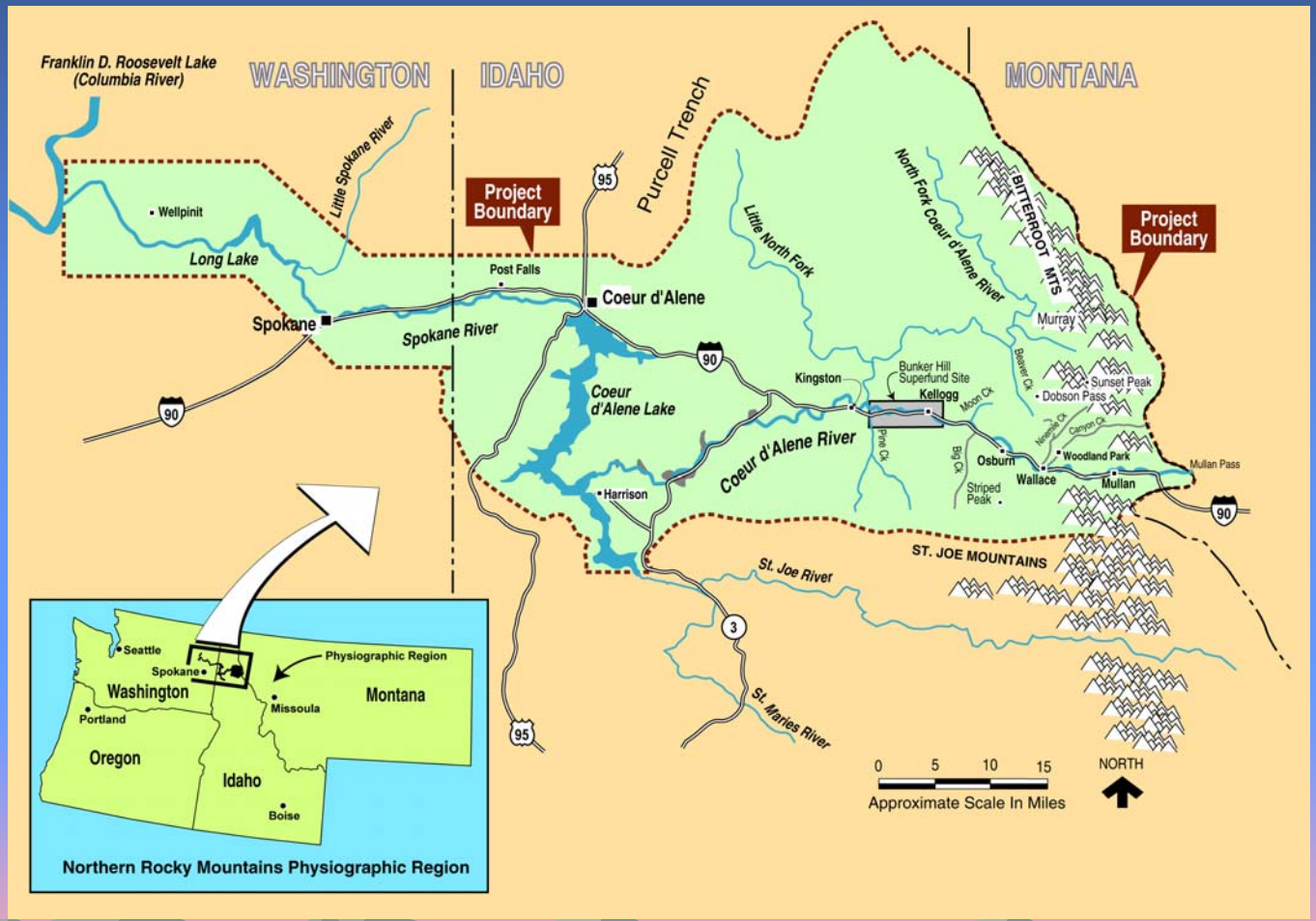

"That's all Folks!"

Bunker Hill Mining and Metallurgical Superfund Site Institutional Control Program

Ted Yackuliic

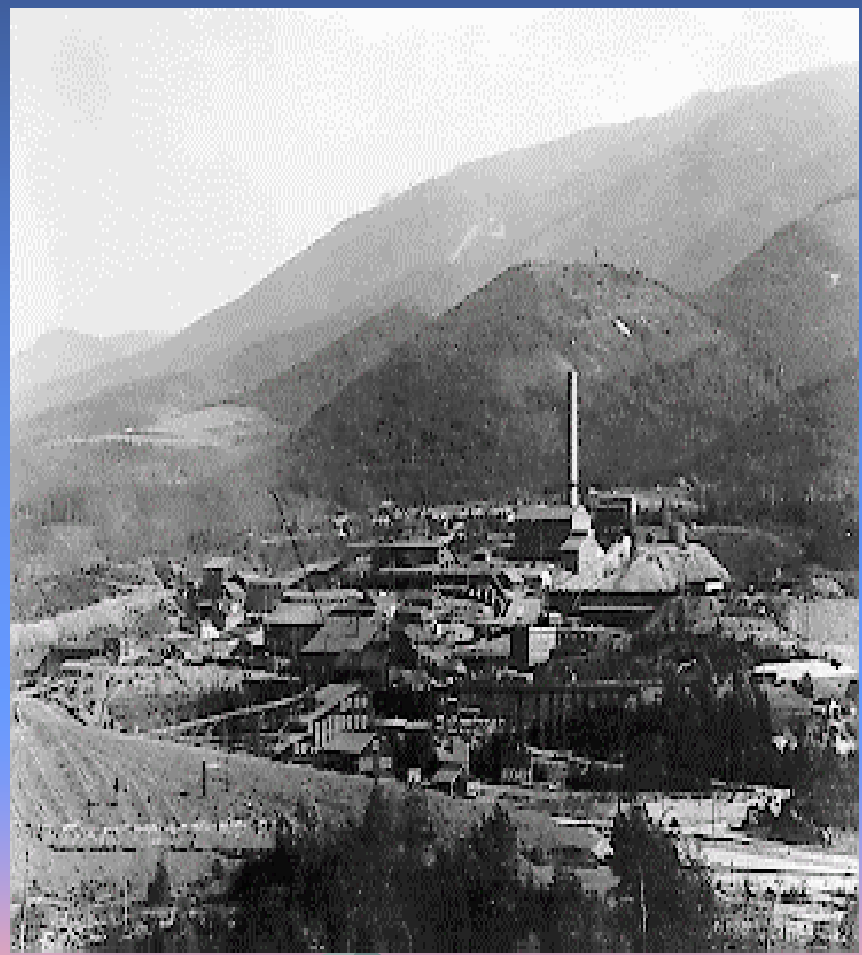
Assistant Regional Counsel

Bunker Hill Site



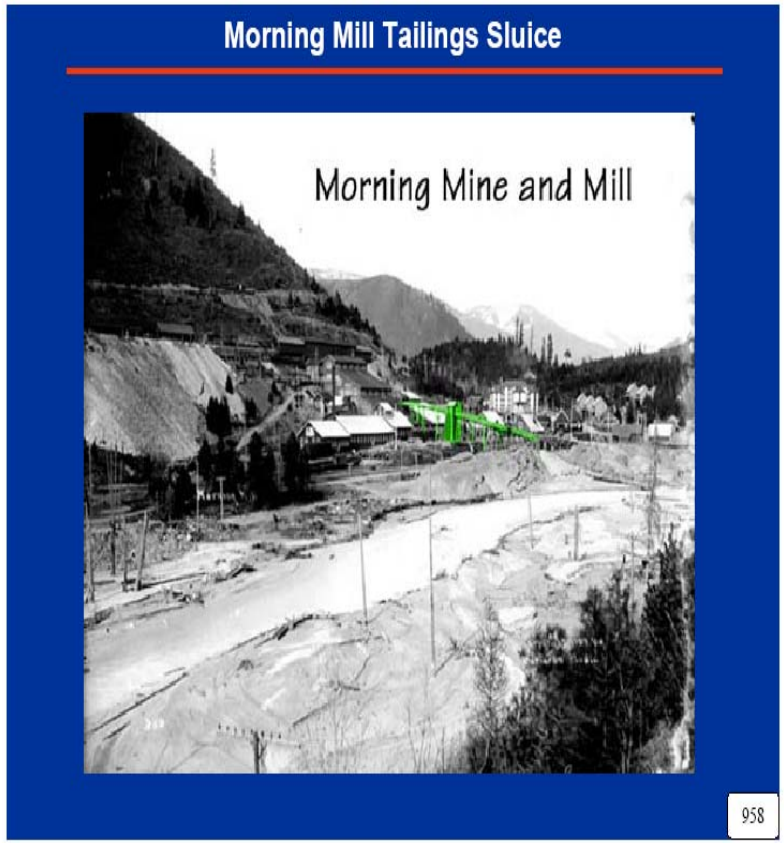
Site Background

- Coeur d'Alene Basin impacted by over 100 years of mining.
- Smelter operated from 1917 to 1981.
- Air, soil and water pathways were significant.
- Some of highest blood leads measured here.



Site History

- Until 1968, 2200 tons/day of mine waste discharged to South Fork CDA River.
- Estimated over 100 million tons of mine waste, including 2.4 billion pounds of lead, dispersed over 1,000's of acres.
- Until 1968, 2200 tons/day of mine waste discharged to South Fork CDA River.
- Site listed on NPL in 1983



The Superfund Process

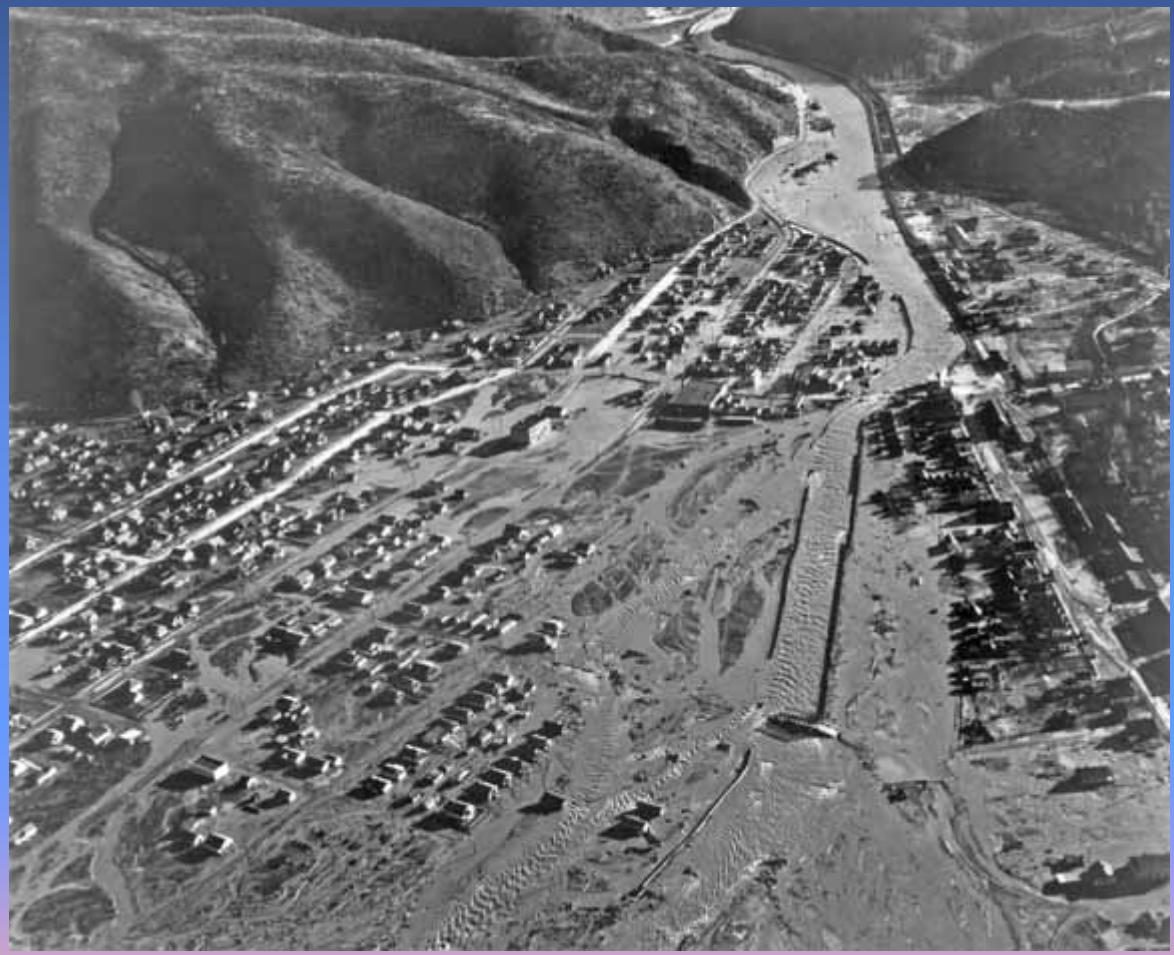
- Identification of hazardous site
- Remedial Investigation/Feasibility Study
- Remedial Investigation: data collection to identify nature and extent of contamination. Risk assessment to determine whether there is unacceptable risk to human health and/or the environment.

Superfund Process

- Feasibility Study evaluates cleanup alternatives that will address all risks identified for the site.
- Alternatives are evaluated against 9 criteria:
  - Protection of human health and the environment;
  - compliance with regulations;
  - implementability;
  - long-term impacts;
  - short-term impacts;
  - reduction of toxicity, mobility and volume;
  - cost;
  - State/Tribe acceptance; and
  - community acceptance.

Fate and Transport

- Tailings transported downstream especially during high-flow events
- Deposited as layers and sediment mixtures in downstream beds, banks and floodplains
- Fine grained material washed through lake and deposited in Spokane River
- Mine waste used as fill material in road building and construction.



Bunker Hill Populated Areas Record of Decision

- Addresses residential, commercial, rights-of-way and public properties (schools and parks)
- Remove lead contaminated soil greater than 1000 ppm lead
- Replace with one foot of clean soil
- Contamination is left in place
- Implemented by PRPs
- Institutional Control Program integral part of maintenance and implementation of remedy

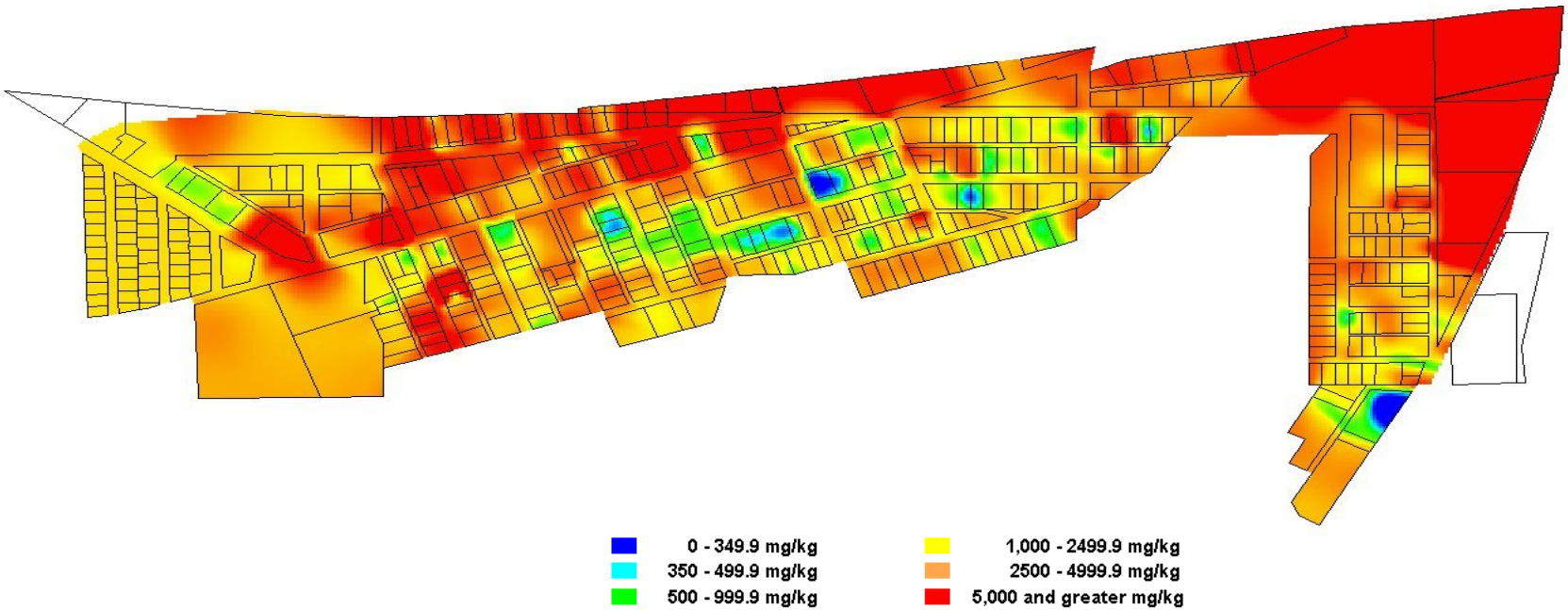
Institutional Control Program

- Administered by Panhandle Health District
- Maintains database of remedy implementation and soil sampling results
- Provides zoning overlay; locally enforced regulations
- Permit required major projects (> 1 yard soil removed)
- Provides disposal location
- No fees associated with permits
- Provides clean soil for small projects
- Education – provides info on where contaminants are and how to avoid exposure

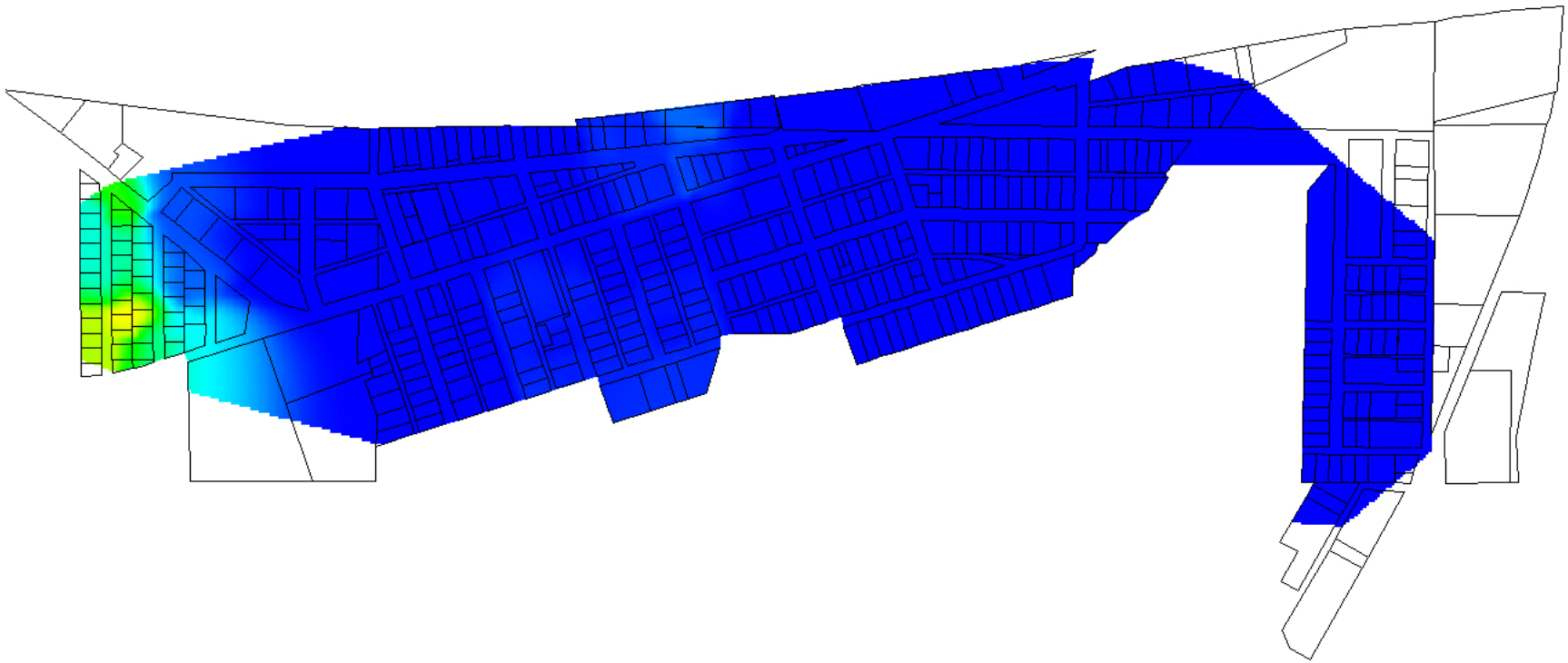
Before, During and After

Cleanup and Institutional Controls

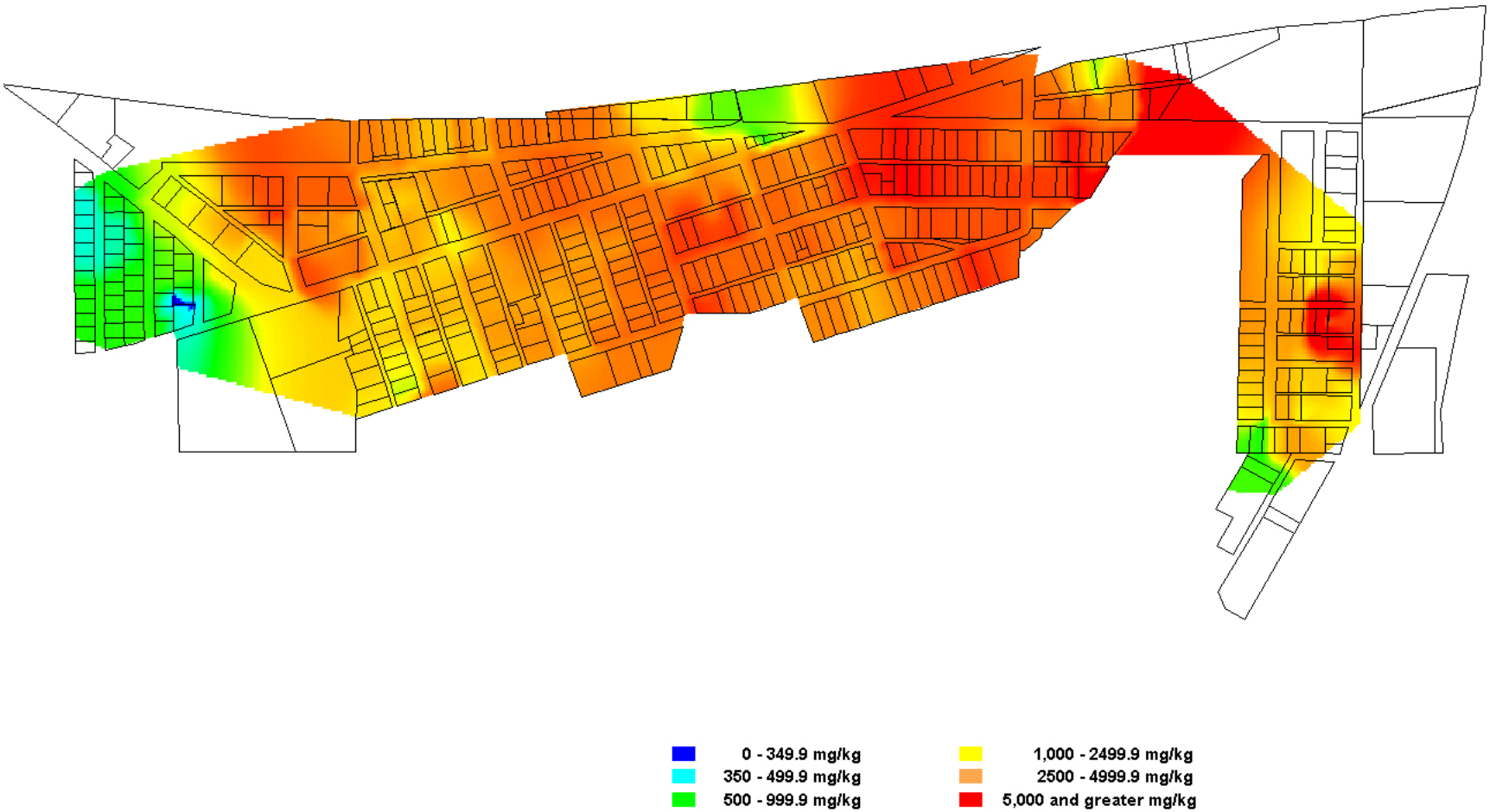
Current Subsurface Soil (Below Barriers) Lead Concentrations - Smelterville



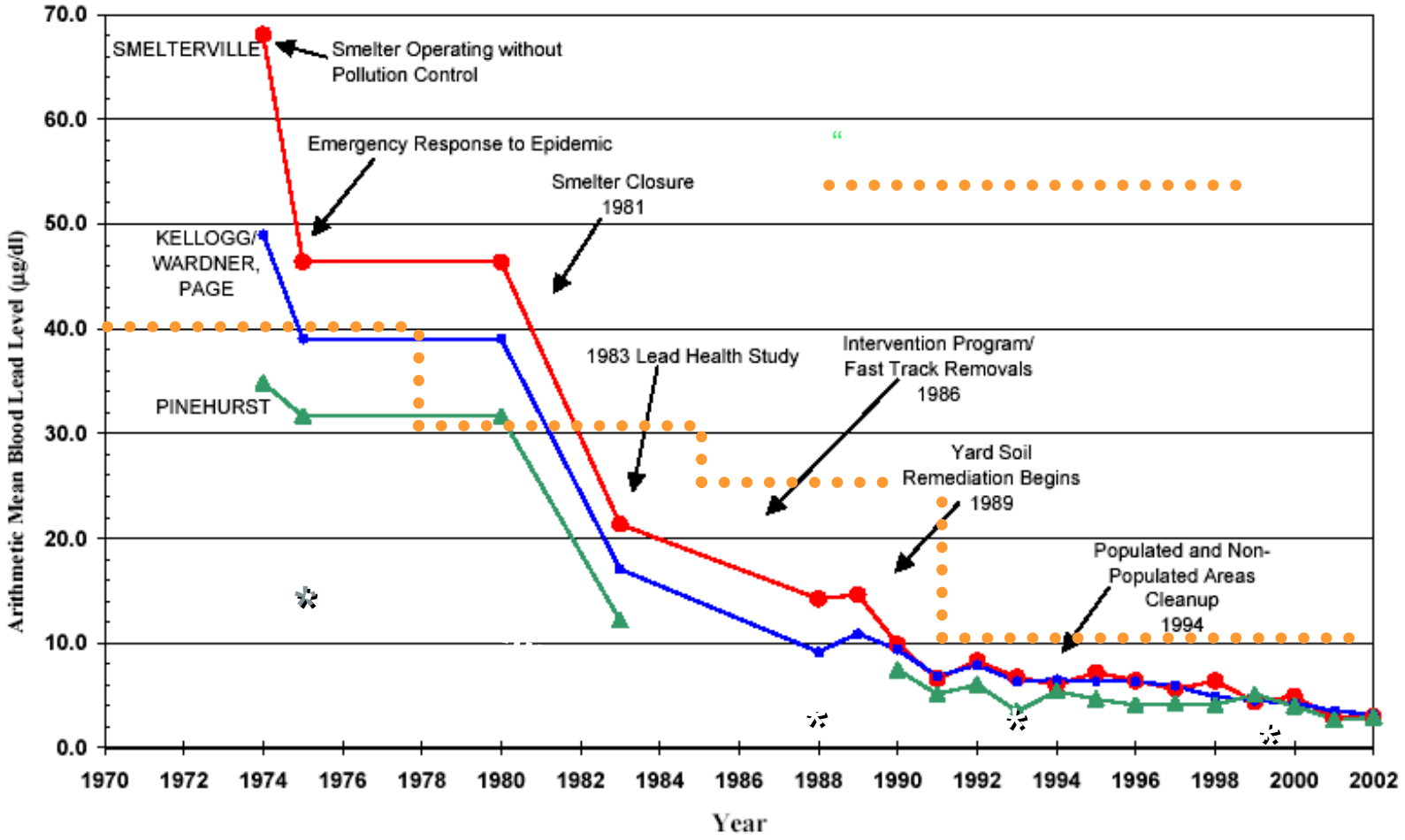
Neighborhood Soil Lead Concentrations Smelterville - 1997



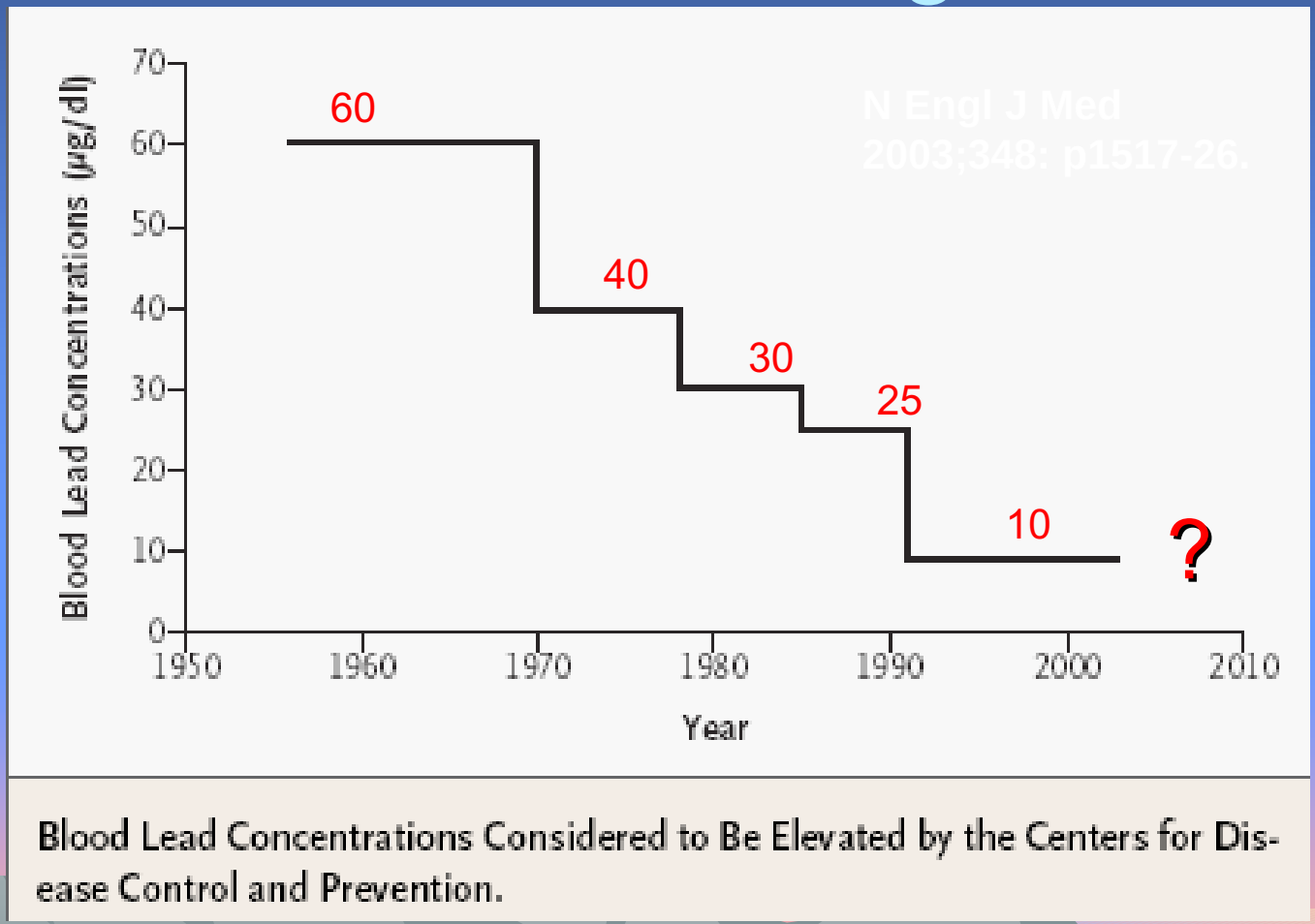
Neighborhood Soil Lead Concentrations Smelterville - 1989



Bunker Hill Box
Mean Blood Lead Levels: 1974-2002

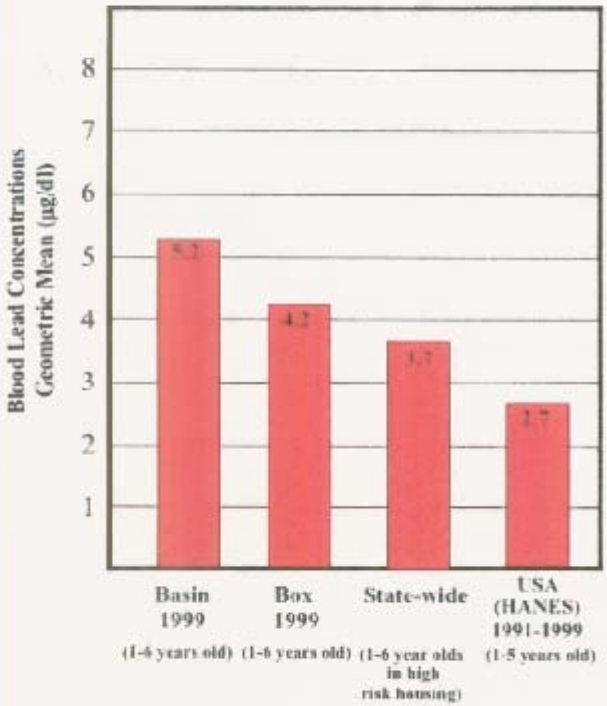


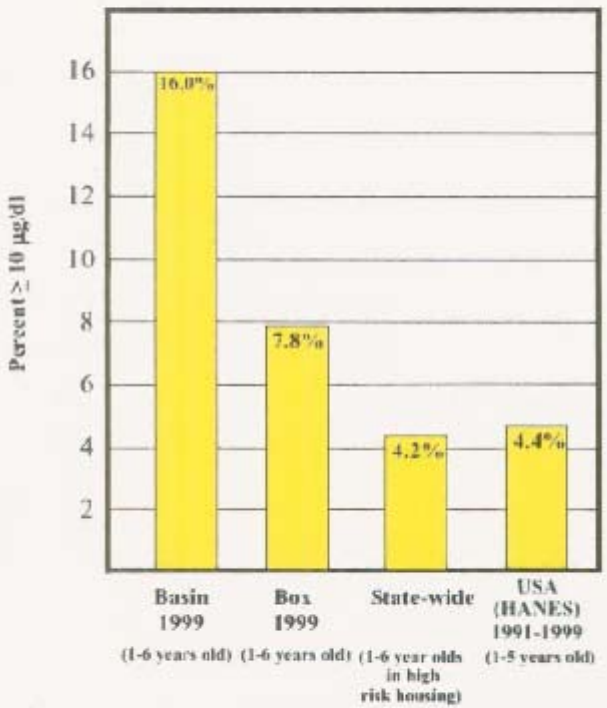
Decreasing "Elevated" Blood Lead Recognition



Blood Lead Concentrations Considered to Be Elevated by the Centers for Disease Control and Prevention.

Comparison of Blood Lead Levels in the Coeur d'Alene Basin and Box to Statewide and National Blood Lead Levels





1138

GOVERNMENT EXHIBIT 1138-R

Source: HHRA, July 2000

States, Local Governments, and EPA Long Term Stewardship Coordination: A Municipal Perspective

Brian K. Boerner, CHMM

April 4, 2007

Long Term Stewardship Roundtable and Training

Objectives

- Why are institutional controls important to local governments?
- How does long term stewardship promote increased protection to public health and local environment?
- Does it present or address an Environmental Justice Issue?

All Response is Local

- Where are illegal dumps found?
- Who is affected by releases of hazardous materials?
- Who is the first to respond to impacted conditions?
- Who benefits from
  - Institutional Controls?
  - Long Term Stewardship?

LTS in the City of Fort Worth

A Case Study

- Pesses Chemical –
  - Former battery recycling facility
    - Lead
    - Cadmium
  - Superfund Site
    - Onsite soils stabilized
    - Buildings decontaminated
    - Covered with 8” concrete
    - Completed September 1992
  - Continued Investigations and Site Evaluations

LTS in the City of Fort Worth

A Case Study

- Gateway Park –
  - Regional Park In east Fort Worth
  - Site of the former Riverside Sewage Treatment Plant
    - Operated Prior to Pre-Treatment Requirements
      - Metals
      - PCBs
  - Local Response with State and Federal Partners
    - Onsite soils stabilized
    - Artificial soccer fields and rugby pitch installed
    - Closure under Texas Voluntary Cleanup Program
  - Continued Maintenance, Investigations and Site Evaluations

LTS in the City of Fort Worth

- Brownfields
  - Use of State and Federal Tools
    - Risk Reduction Rules
      - Federal Ready for Reuse
      - Texas Risk Reduction Program
    - Controls
      - Engineered
      - Administrative or Institutional
        - » Municipal Setting Designation

Results

- Contamination addressed
- Properties redeveloped
  - Property value increased
    - Greater resale
    - Larger tax base
- Increased Economic Development

Win/Win

Questions and Discussion

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**LTS and Large Scale Sites**
Date and Time:	Wednesday, April 4, 2007, 11:00 a.m., Session C
Speakers:	Jeff Swanson, CO DPHE
	Mary Beth Marks, USDA Forest Service
	Sheri Bianchin, EPA Region 5

Jeff Swanson Presentation
Long Term Stewardship—Managing Growth & Development on a Former Bombing Range

- There are many challenges associated with development on a former bombing range.
- Management strategy is to acknowledge and disclose the existence of risks; educate the public on proper response or reaction to exposure; and minimize potential for exposure.
- LTS implementation strategies are awareness and education; developer verification; incident response contingencies; and land use restrictions (interim and long term).

Questions and comments related to the presentation were as follows:

- Were the land developers able to get liability insurance?
  - Development companies that wanted to use the site did their own clean ups. They also accepted the long-term liability. No one has discussed difficulties with insurance with Mr. Swanson.

- Have signs been used to educate or warn the public?
  - Yes, but the signs have been disappearing because they are interesting signs (e.g., "Do Not Enter, Possible Explosives").

- Has ordnance affected property sales in the area?
  - No.

- There was a new high school built in an area on this range where chemical ordnance was found. Only through Mr. Swanson's involvement was the issue examined critically. Mr. Swanson's role needs to be institutionalized.

Mary Beth Marks Presentation
Assessment and Closure of the Glengarry Adit

- Used a grout curtain and a series of water tight plugs to eliminate acid mine drainage.
- Monitoring wells remain on site.

Questions related to the presentation were as follows:

- Were rainfall and snow events tracked as part of the long-term monitoring?
  - We are in a drought, but there has been a bit of rain and snowfall.

- What maintenance is required at this site?
  - There are 50 sites in this area. There are a variety of different things that might need to be done.

- Were institutional controls included as part of the settlement?
  - No, the consent decree did not envision long-term stewardship.

Sheri Bianchin Presentation

Long Term Stewardship at the NL/Taracorp Superfund Site

- IC workplan developed for former lead smelter in Region 5.
- Several areas where ICs are needed: residential areas, Slough Road areas, main industrial properties, and city alleys and roads.
- IC options are numerous and include use of the One-Call system, limitations on land use, restrictive covenants, and limitations on ground water use.

Questions and comments related to the presentation were as follows:

- What kinds of ICs were in place?
  - The pile was capped and no use is allowed on top of it. The commercial/industrial area is now a warehouse. Restrictions for the property are in negotiation.

- Why wasn't access to the residential properties available?
  - A result of misinformation and a different mindset.

- How are you dealing with those properties where owners are not cooperating?
  - EPA is going to go back to them and see if they will be cooperative as soon as the litigation is over. If the owners will not cooperate, EPA might have to use a little more force (e.g., if the owners do not cooperate they might become PRPs instead of innocent landowners).

- If an owner were to sell his or her property would they have to notify new owners?
  - Only as required by real estate disclosure laws.

- If a person does not allow sampling on his or her property, then he or she does not have to disclose information if the property is sold, because it is unknown if contamination exists.

- There is concern about properties that changed owners before ICs were in place.

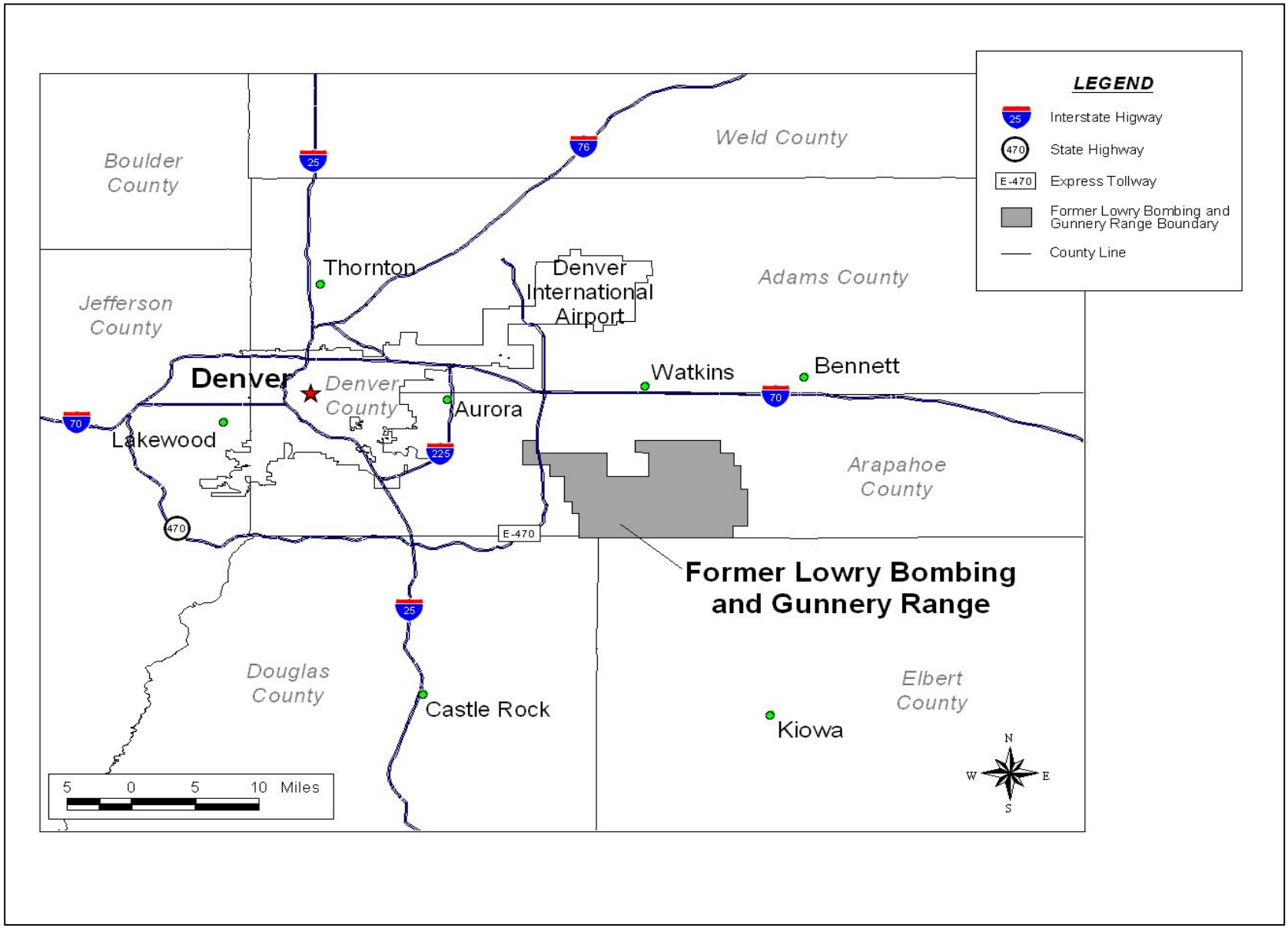
- There is a need to talk about ICs at the beginning of clean up to avoid scrambling at the end of the process.

Long Term Stewardship – Managing Growth & Development on a former Bombing Range

Mr. Jeff Swanson, P.E.
Colorado Dept of Public Health & Environment

Long-Term Stewardship Roundtable & Training
April 4-6 2007, San Diego, CA

Former Lowry Bombing and Gunnery Range



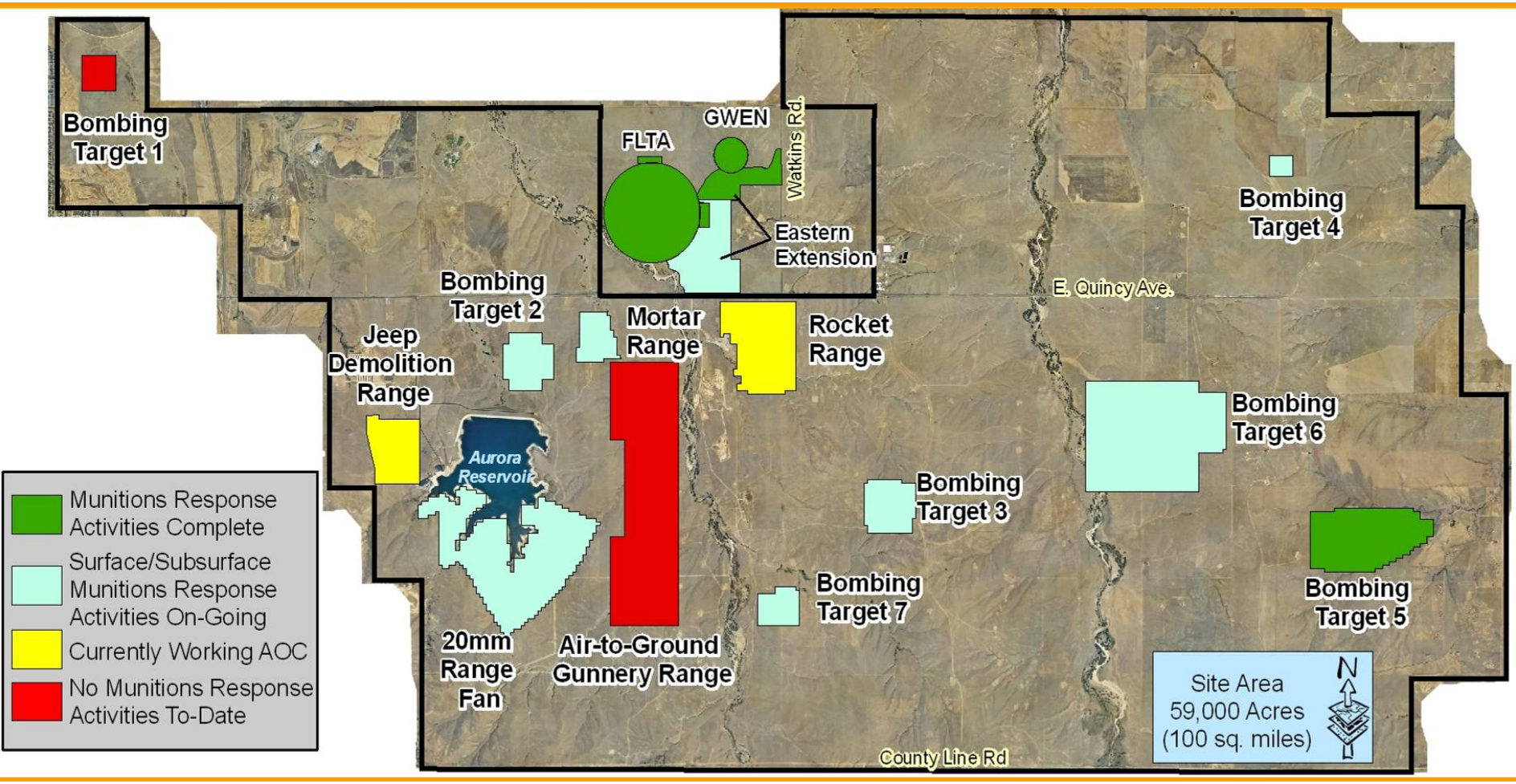
SITE HISTORY

- Acquired by Denver and donated to the War Department in 1938
- Used heavily in WWII for various armament and bombing training exercises
- Portions of the range continued to be active during Korean War and Vietnam Conflict

- Four Titan I Missile facilities built in 1959; closed in 1965
- Majority of the range was sold or transferred in 1965 to federal, state, local government, and private parties
- Air Force EOD School operated at Jeep/Demolition Range through early 1970's

Former Lowry Bombing & Gunnery Range

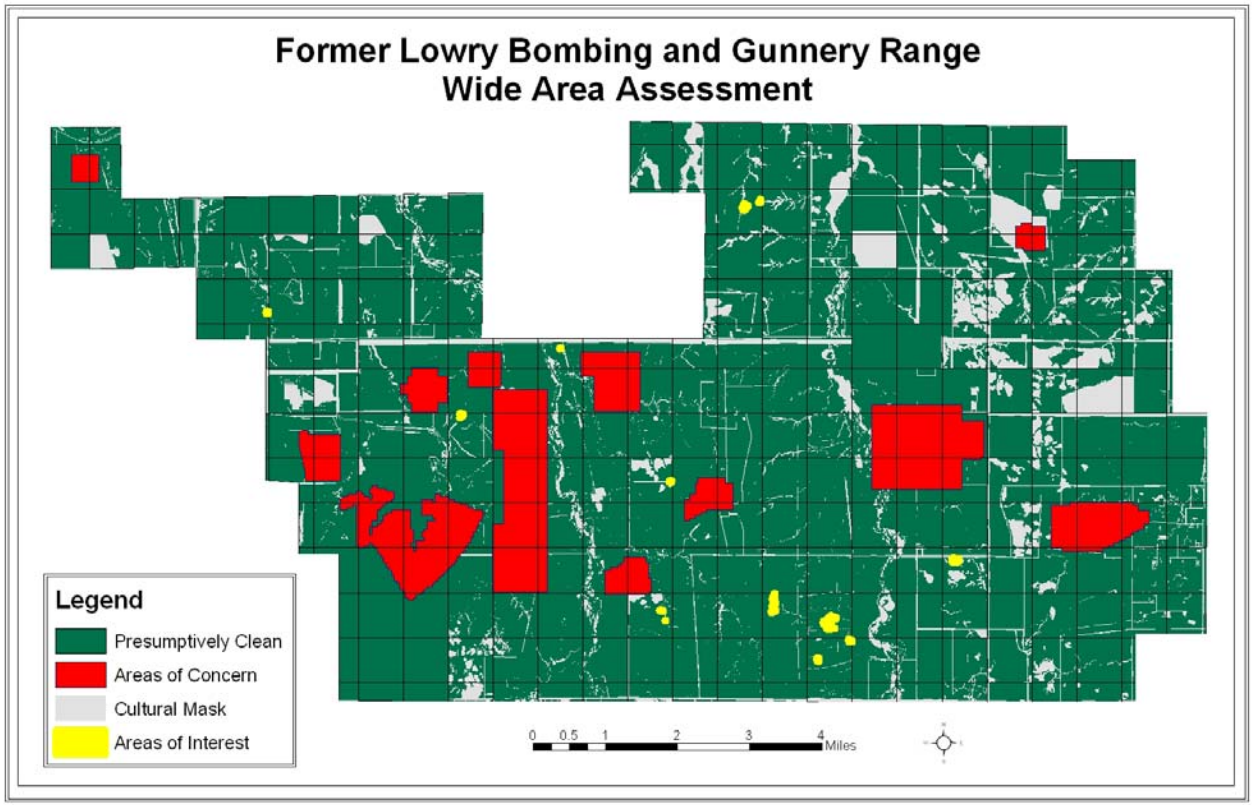
Known Areas of Concern (Munitions Response Sites)

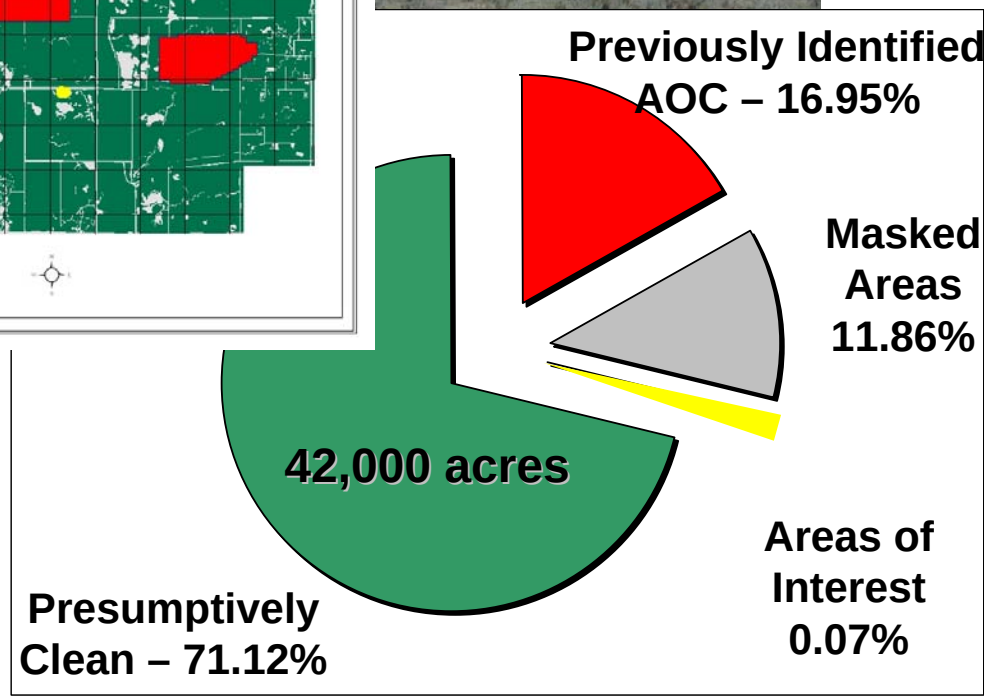


MEC Cleanup Approach

- Identify “Presumptively Clean” Areas
  - Historical Information
  - Wide Area Assessment
- Cleanup Known AOCs (MRS)
  - Removal to-depth with BADT
  - Post Clearance Verification
- Long Term Stewardship
  - Residual Risk Management

Presumptively Clean Areas



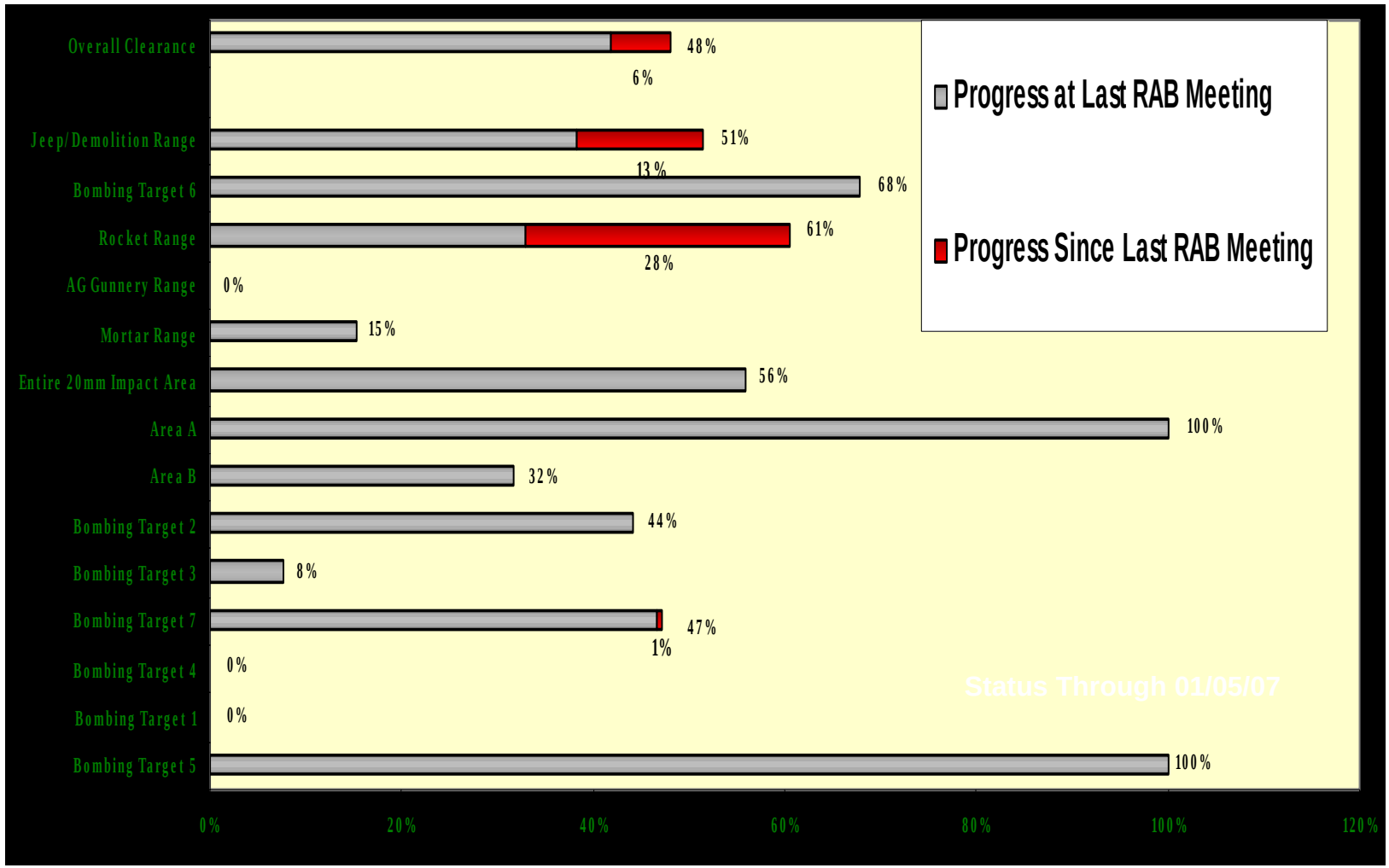


Presumptively Clean:

1. No Historical Evidence of AOC
2. No Known UXO Incidents
3. No Sites Identified by Wide Area Assessment Screening.

MEC Cleanup Progress

Estimated Percent Complete

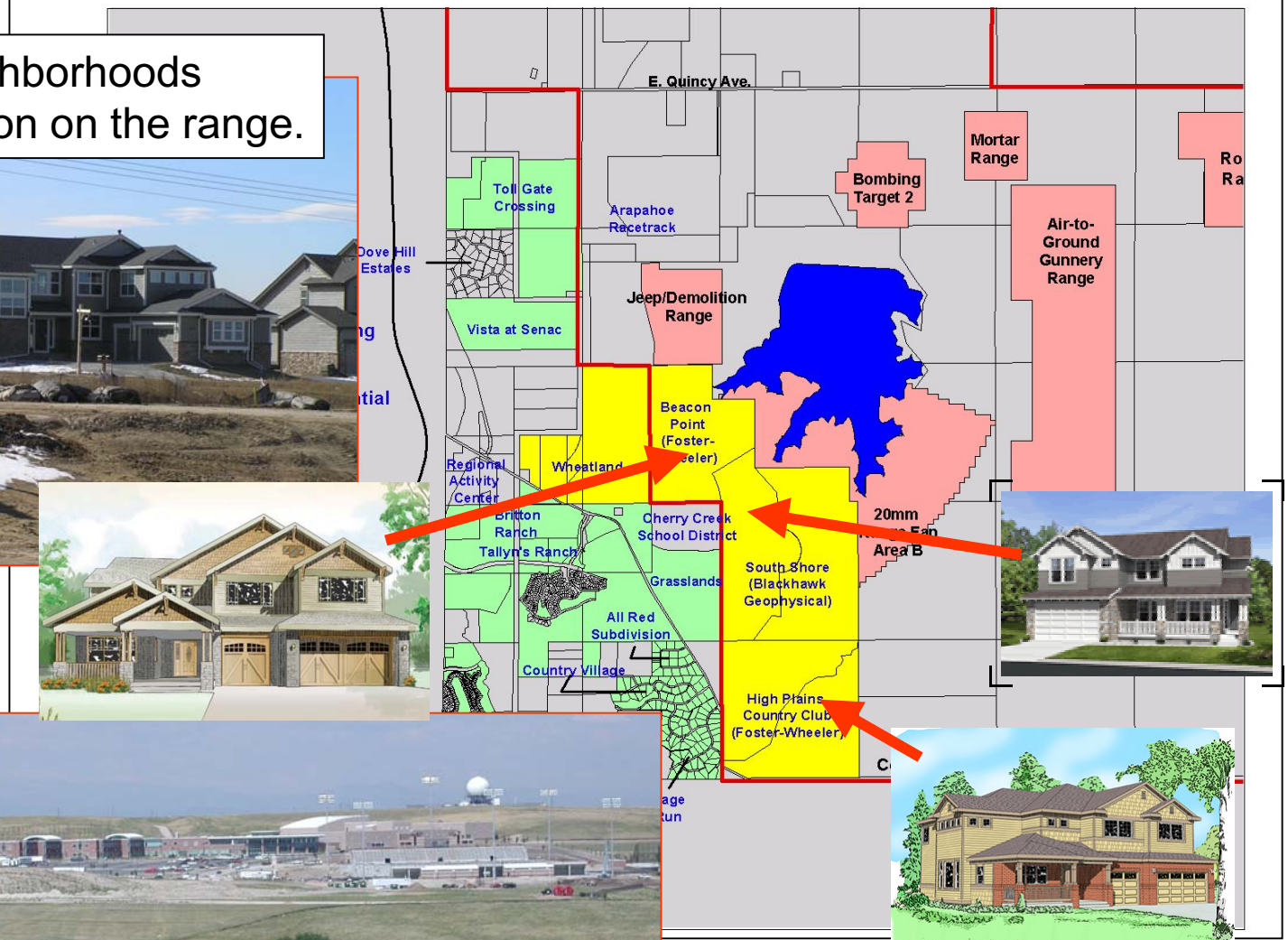


UXO Cleanup Limitations

- Very Large Areas (1,000's of acres)
- Technology Limitations
- Resource Limitations
- Unique Nature of UXO Risk
  - Chronic exposure to potential acute hazard
    - Compound chain of events to cause injury
  - Personal awareness of exposure
  - Direct causal link – injury to exposure event

Current Growth and Development on the Lowry Bombing Range

Residential Neighborhoods under construction on the range.

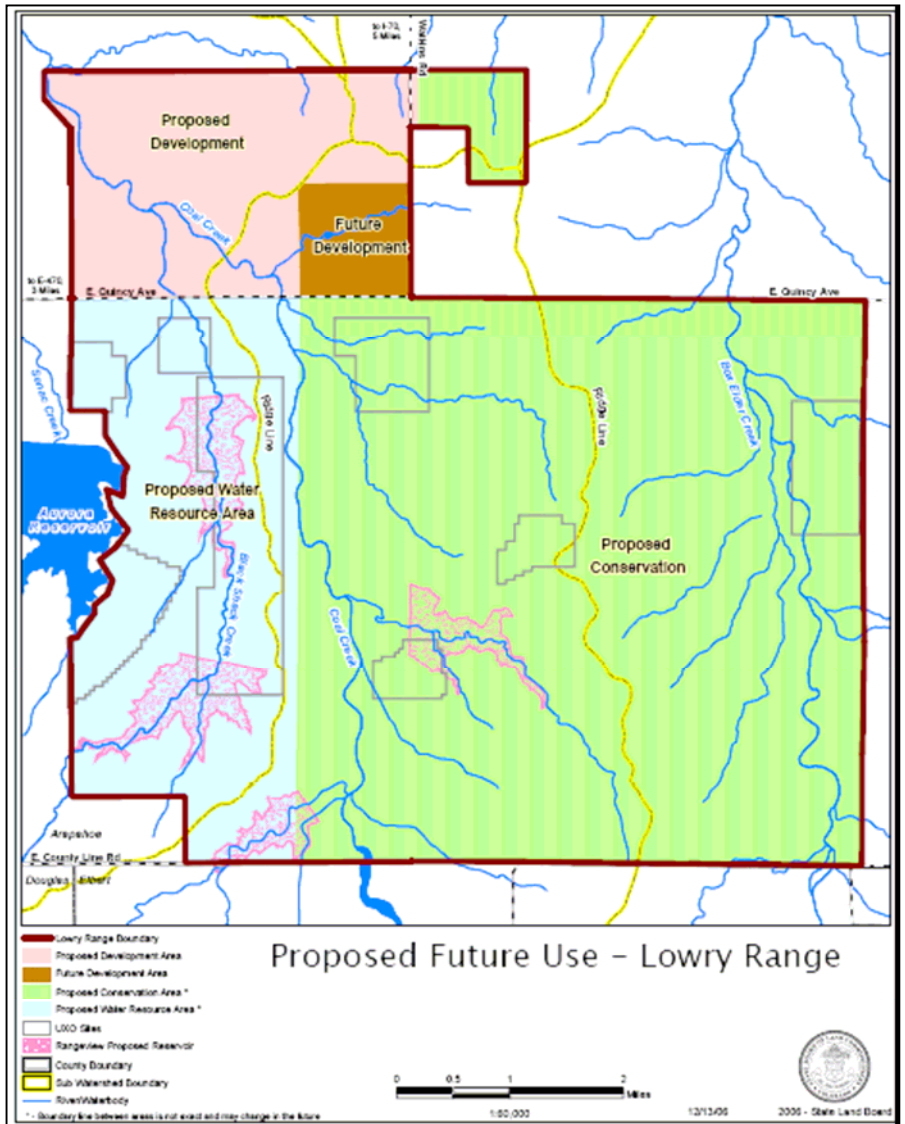


High School & Middle School – Opened 2005

The Future – The Next Wave of Development on the Bombing Range

State Land Board Lands

- 24,000 acres
- Focus
  - Residential
  - Water Resources
  - Conservation

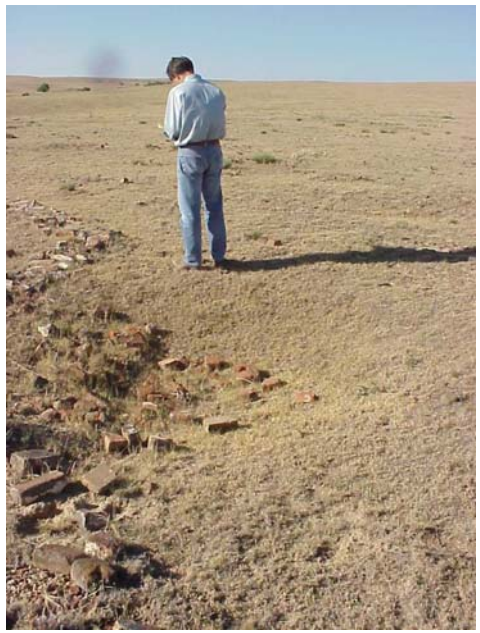


Future Land Uses on the Range

- Broad Mix of Development Planned:
  - Residential Subdivisions
  - Residential Ranchettes (35+ ac.)
  - Schools and Playgrounds
  - Commercial Developments
  - Industrial - Mineral Extraction, Landfill
  - Water Resource Development
  - Outdoor Recreation - Parks & Open Space
  - Conservation – Agricultural & Wildlife Mgnt
- 25 to 50 year build out

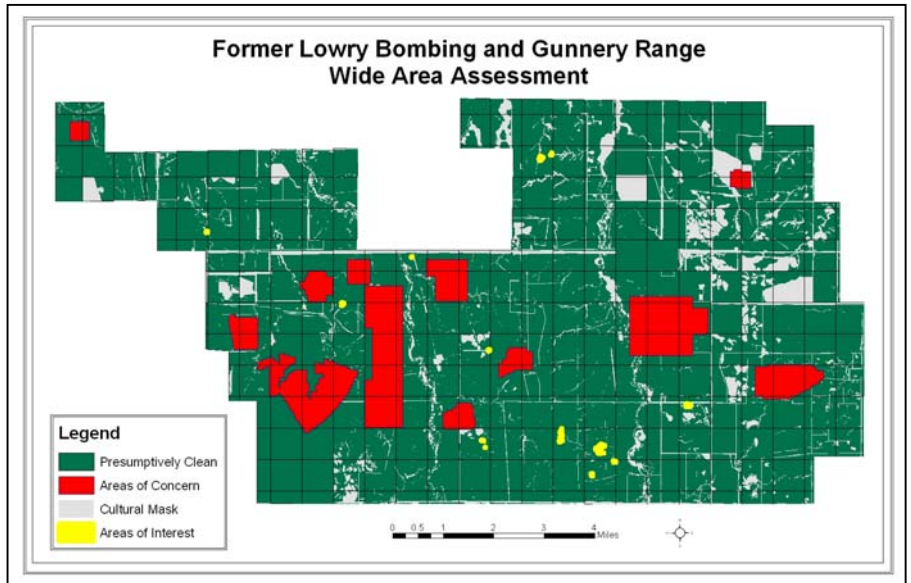
Residual Risk Management

- Potential Residual UXO Risks
  - Individual Outliers – random finds of single munitions
  - Unknown Targets or Impact Areas
  - Incomplete Response at Known Areas
    - Items “missed” during cleanup
    - Partial removals (i.e. surface or 1 ft clearance)



Residual Risk Management

- Management Strategy
  - Acknowledge and Disclose existence of risks.
  - Educate public on proper response or reaction to exposure and support that response.
  - Minimize potential for exposure to residual risks in sensitive use areas.



LTS Design Parameters

- Partnership & Local Responsibility
  - most effective as a local community approach
  - community buy-in to need, goals & strategy
- Long-Term Stewardship Principals
  - Broad based community acceptance
  - Institutionalized Tools & Process
  - Self implementing process
  - Community based (not rely on Fed govn or $)
  - Respect property rights
  - Individual responsibility

LTS Implementation Strategies

- Awareness & Education
- Developer Verification
- Incident Response Contingencies
- Land Use Restrictions
  - Interim (during cleanup)
  - Long-Term (after cleanup)
    - Environmental covenants

Awareness & Education

- Disclosures
  - System entry points
  - Information needs and uses
  - Legal disclosure requirements (real estate, leases)
- Community outreach and education
  - Safety education training materials
  - Community groups and events
  - Fact sheets targeting specific groups
    - Fact sheets
    - Kiosk
    - Posters and signs
- Incident Response Contingencies
  - Local police and fire rescue

Developer Verification

- Developer Verification Survey
  - Further reduce potential residual risk in “High Public Use” areas
    - Residential subdivisions, school sites, parks
  - Confirm no “unknown” munitions hazards
  - Require developer/site owner to conduct subsurface geophysical mapping of development footprint.

Summary

- Residual Risks of living on a former range identified and acknowledged.
- Common vision and strategy for Long Term Stewardship being established.
- Implementation plan and processes being developed.

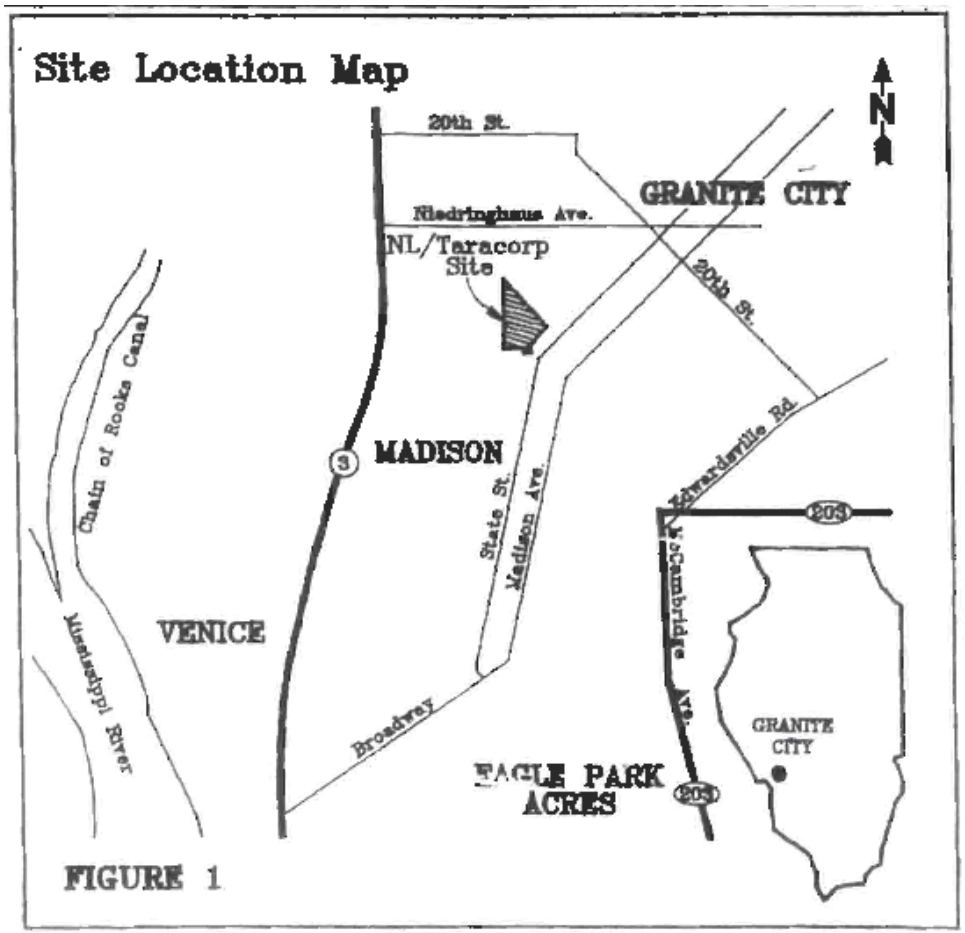
Long Term Stewardship at the NL/Taracorp Superfund Site

by Sheri L. Bianchin
Remedial Project Manager
U.S. EPA - Region 5

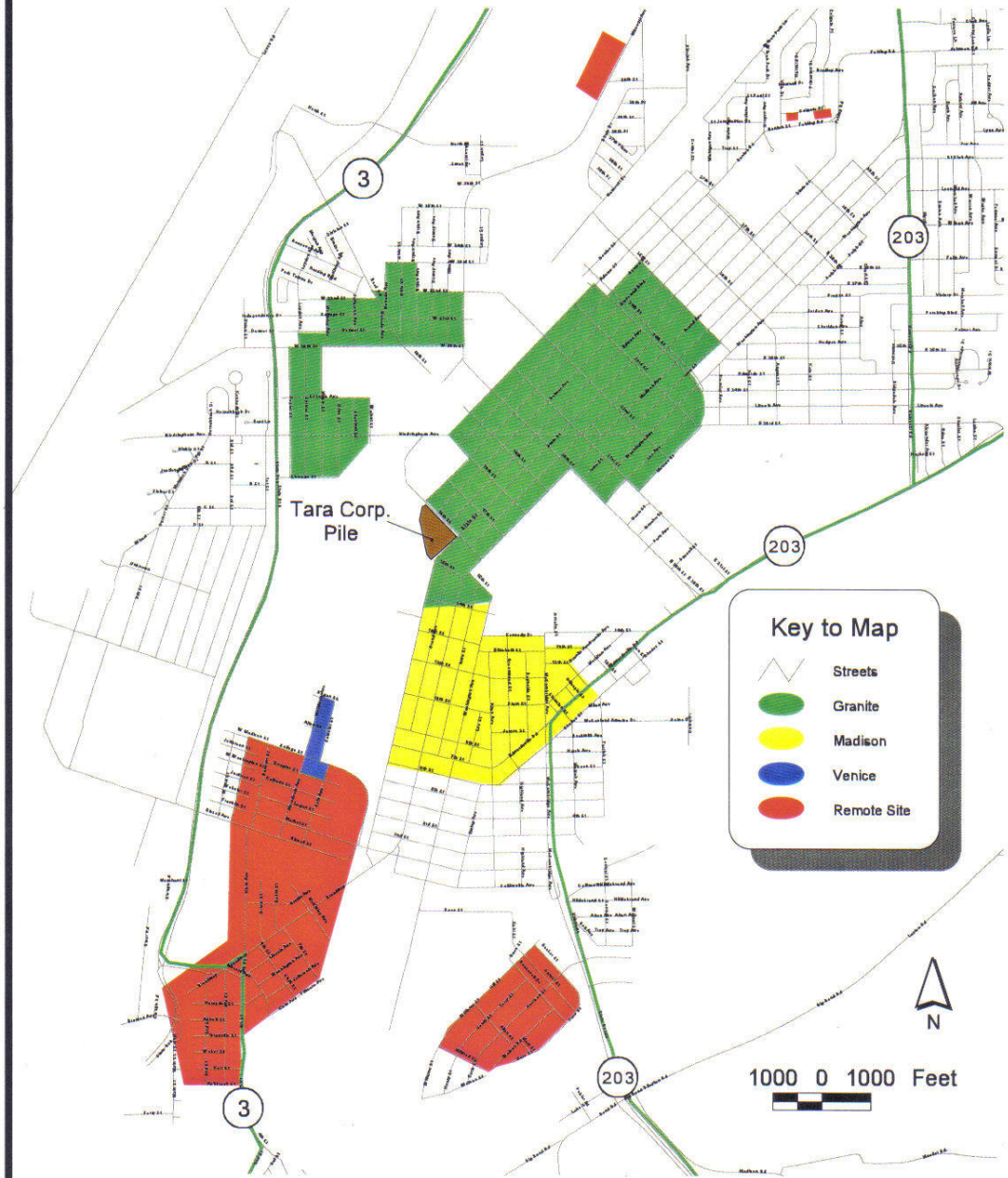
Site History

- Secondary Lead Smelter and Battery Breaker in Granite City, IL
- Operated from turn of century (1900) until 1983
- During operation, Granite City exceeded NAAQS for lead
- Operators gave/sold “Fill” to local areas
- Listed on the NPL in 1986

NL/Taracorp - Secondary Lead Smelter



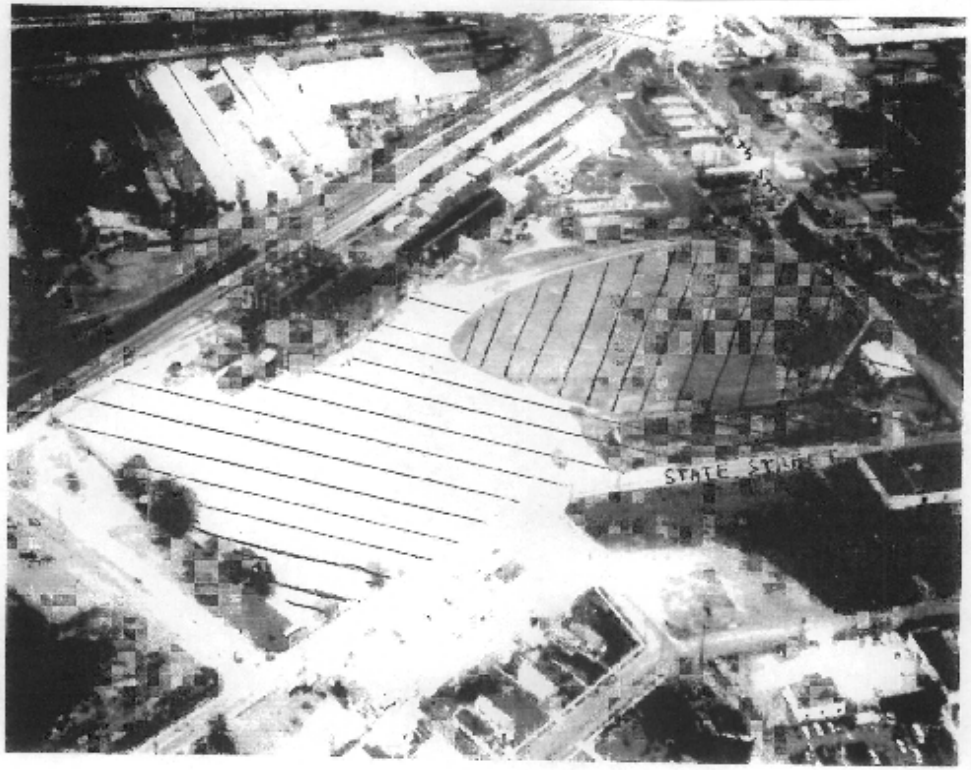
N.L. Tara Corp Super Fund Site
Clean Up Zones



Remedy

- Capping in-place 3.5 acreTaracorp Pile
- Cleanup of 1600 residential properties to 500 ppm lead
- Cleanup of Industrial Property to 1000 ppm
- Cap alleys and roadways
- Heavily Wooded Area Beyond Slough Road - Left in-place
- O&M
- Institutional Controls

Main Industrial Properties



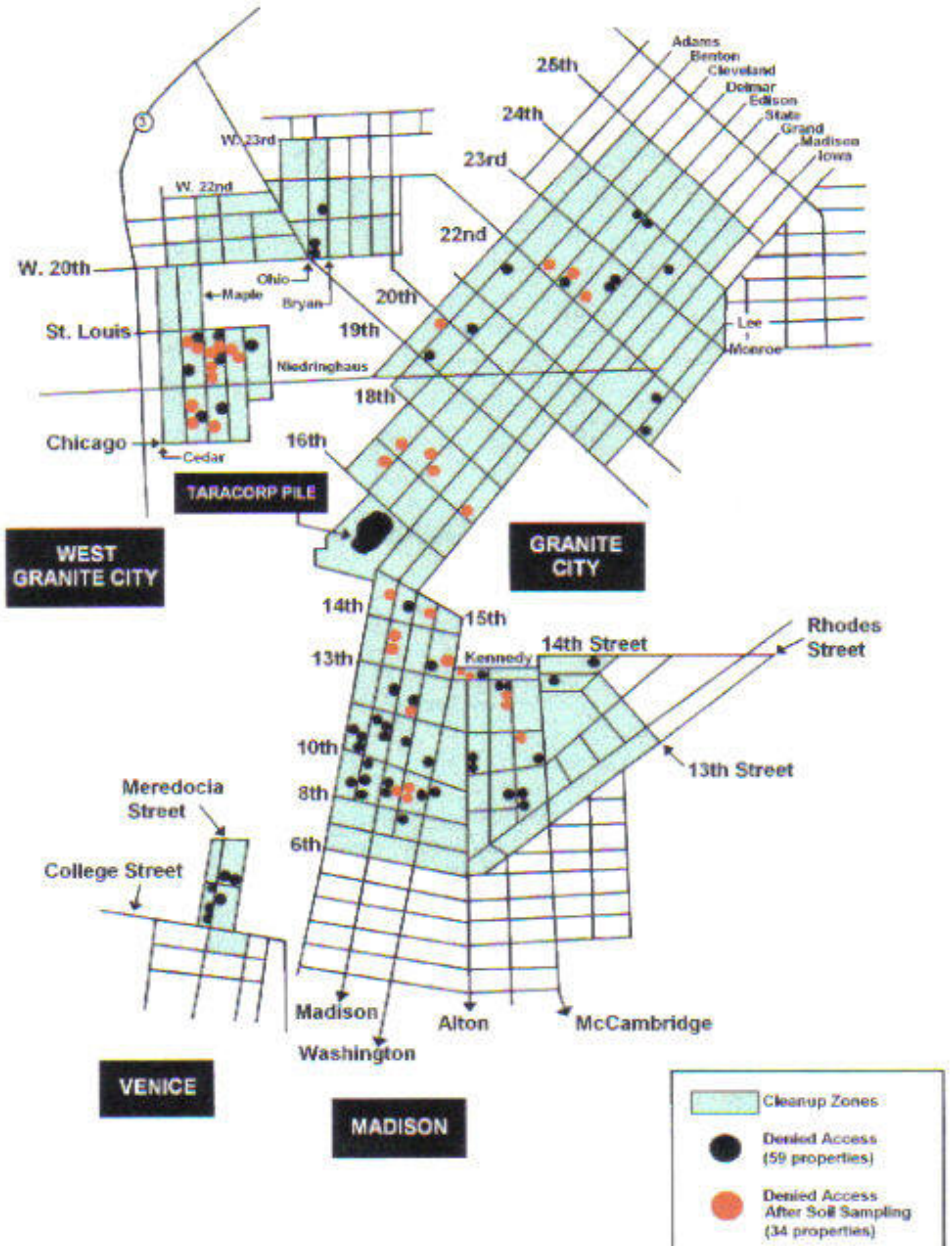
NL/TARACORP SITE

Industrial Site, Including Taracorp Pile
May 2000

Taracorp Property

Trust 454, BV&G Transport, and Rich Oil Properties

NL INDUSTRIES/TARACORP SUPERFUND SITE



Restricted Areas – Areas that does not allow unlimited use and unrestricted exposure- will require ICs

- RCRA Subtitle C landfill cap
- Alleys in Venice and Eagle Park Acres where crushed hard rubber battery case material was paved over
- Slough Road area where crushed hard rubber battery case material was left in-place
- Residential properties where access for sampling/cleanup was denied

“PRP Takeover of EPA lead Cleanup- "

2 Major Settlements- $65 million PRP Lead Cleanup
=>Incentives for PRPs to work with EPA

- Avoid extensive cleanup
- Limit Future Liability
- Get in and get out
- At Construction Completion (2000) - 50 residents refused sampling and 25 additional refused cleanup
- No ICs in place and minimal consideration to ICs

EPA Requested IC Workplan

- Including Restrictive Covenants and Environmental Easements- EPA provided drafts to be executed
- Proof of Ownership and survey of properties to be restricted
- IC Monitoring Plan
- But we have some risks . . . .

Main Industrial Properties

INSTITUTIONAL CONTROLS WORK PLAN

NL Industries/Taracorp Superfund Site
Granite City, Illinois

Watson Alley, Eagle Park Acres

Venice Alleys

Slough Road

July 2006

INSTITUTIONAL CONTROLS WORK PLAN
NL INDUSTRIES/TARACORP SUPERFUND SITE
GRANITE CITY, ILLINOIS

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INSTITUTIONAL CONTROLS WORK PLAN
NL INDUSTRIES/TARACORP SUPERFUND SITE
TABLE OF CONTENTS (CONTINUED)

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LIST OF FIGURES

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Monthly Conference Calls

- PRPs committed to work with EPA to provided long-term stewardship.
- PRPs committed to using One-call system for all areas where residual contamination remains

Present Considerations

- Generator PRP Group responsible for completing work
- Group is not local to area – no business presence
- Group does not own land where residual contamination remains (except parcel with Pile/Fill).
- Group has incentive to minimize long-term commitments
- Reconsideration given to attempt residential cleanup for the properties which were access refused

Residential Properties

- Approximately 75 uncooperative landowners where sampling and/or cleanup was not allowed.
- Purpose of IC- Notification of contaminated area and assure proper management of contaminated soil during maintenance

Residential Properties=> IC Options

- Attempt to conduct further cleanup activities
- Attempt to record deed restriction for each property
- Attempt to create ordinances to be applied to areas with residual contamination
- Attempt to place notice of contamination in land records
- Also, use One Call System
- Notify local realtors in area of properties with residual contamination

Slough Road

- Multiple Landowners
- Largest Landowner runs Intermodal Business near Mississippi River
- Former mixed residential/ commercial area
- Used for midnight dumping
- Capped Road yet residual contamination (battery chips) distributed through out area- left in-place

Slough Road

- Purpose of IC- Limit Land use to commercial/industrial and provide for property management of material during maintenance
- Owner is Willing to record deed restrictions to limit use and provide proper disposal of contaminated soil if required
- Owner is willing to attempt to buy other properties

Main Industrial Areas- ICs

- Need to record restrictions in chain of title to indicate that residual contamination remains
- Purpose of ICs for Cap => Provide for no interference with Cap and proper maintenance
- Purpose of ICs for Other Industrial Areas Limit Land Use to commercial/industrial –
- No residential and No Groundwater Uses Shall be Allowed
- Provide for proper handling during maintenance

Main Industrial Properties

- Restrictive Covenants/ Easements- PRP reluctant to be a grantee on restrictive covenants. Looking at third party grantee to contract with such as Guardian Trust

City Alleys and Roads

- Battery Chips remain under alleys and roadways.
- Purpose of IC=> Inform public and assist in managing areas of residual contamination

City Alleys and Roads

- Need good survey and map of areas of concern
- Need to work with city officials to implement ordinances or record restrictions on the properties
- Need to engage 3 governmental entities
- City of Granite City is willing to facilitate communication with other city governments.

Follow-ups and Potential Issues

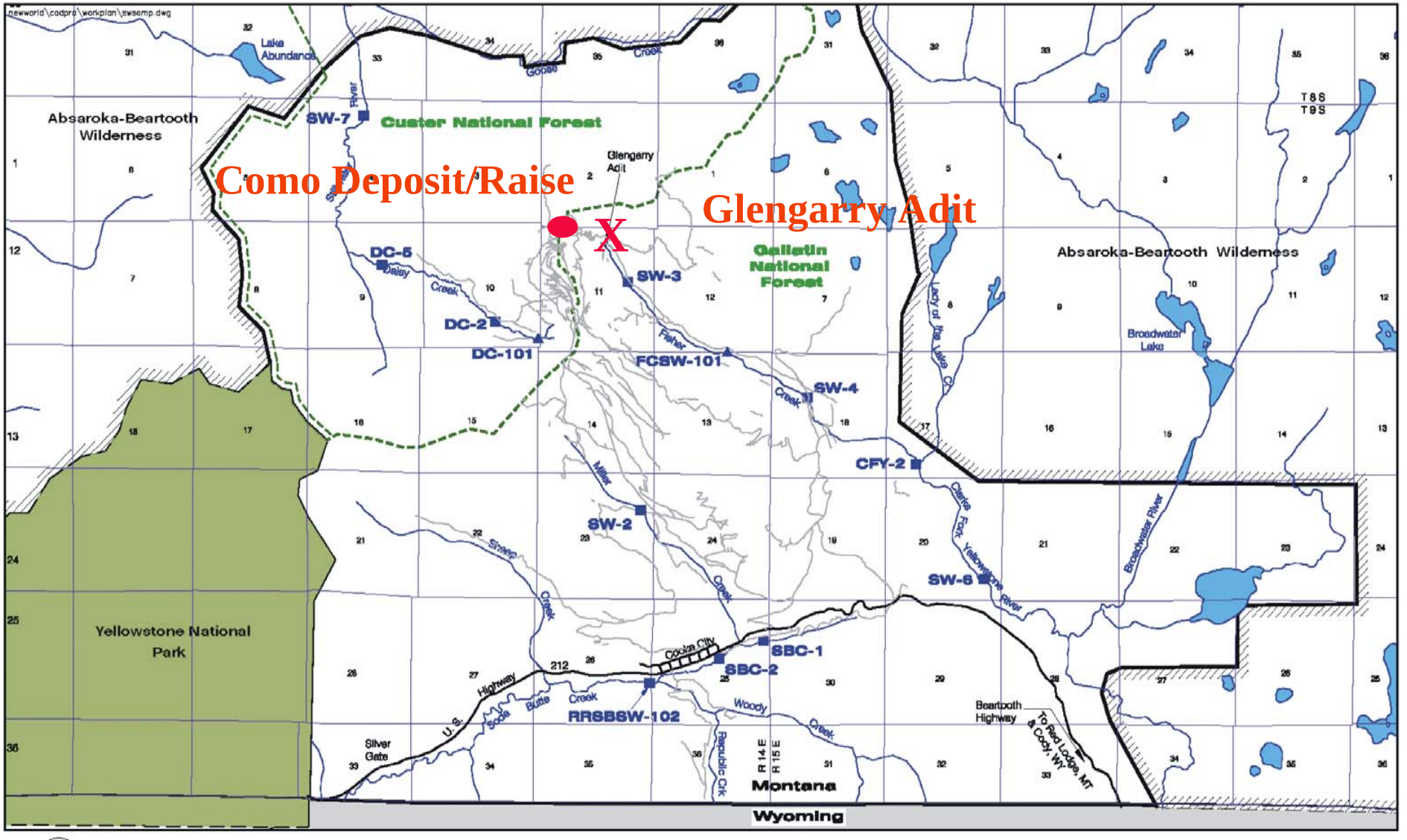
- Getting quality surveys/ maps of all areas where residual contamination remains
- Finding third party to be a grantee on Deed Restrictions- Restrictive Covenants
- Getting residents to agree to sampling/ cleanup or using ICs or Recording Restrictions on their property
- Drafting and managing ordinances for 3 cities
- Contracting with and managing One Call system

New World Mining District, Cooke City, Montana

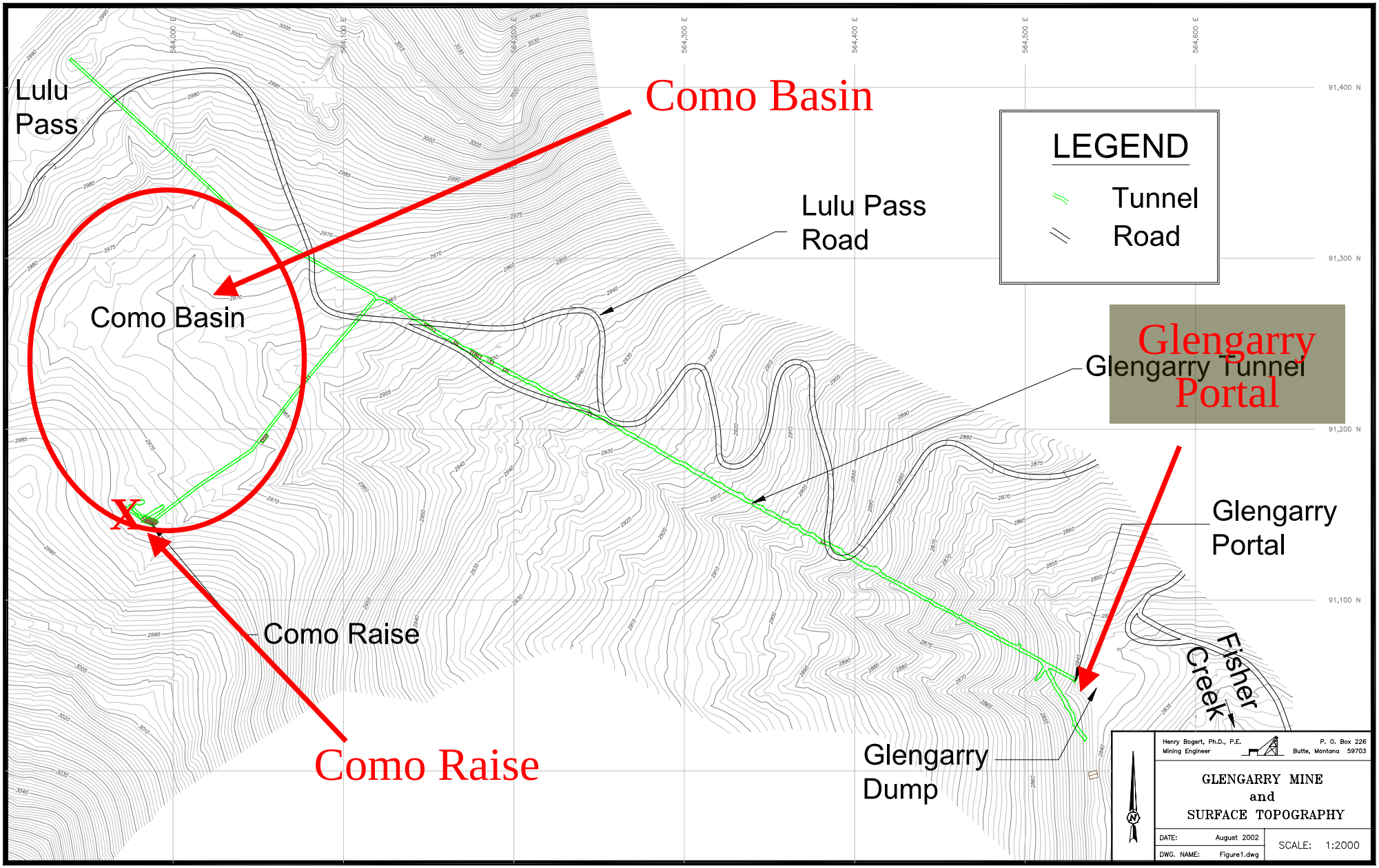
Assessment and Closure of the Glengarry Adit

- **M.B. Marks, H. Bogert, A.R. Kirk, and M. Cormier**

The New World District



Como Basin / Glengarry Mine Surface Topography



Glengarry Mine

- 3,200 feet of underground workings, with raise to surface in the Como Basin

Como Basin

- 950,000 tons massive sulfide (>30%) ore and soils at the surface, covering 5.5 acres at the surface

The Major Problem

- Portal discharge to headwaters of Fisher Creek
- Poor surface and groundwater quality

Portal

Water Quality

pH = 2.2

Cu = 6.9 ppm

Fe = 77.6 ppm

Como Basin pre-1992

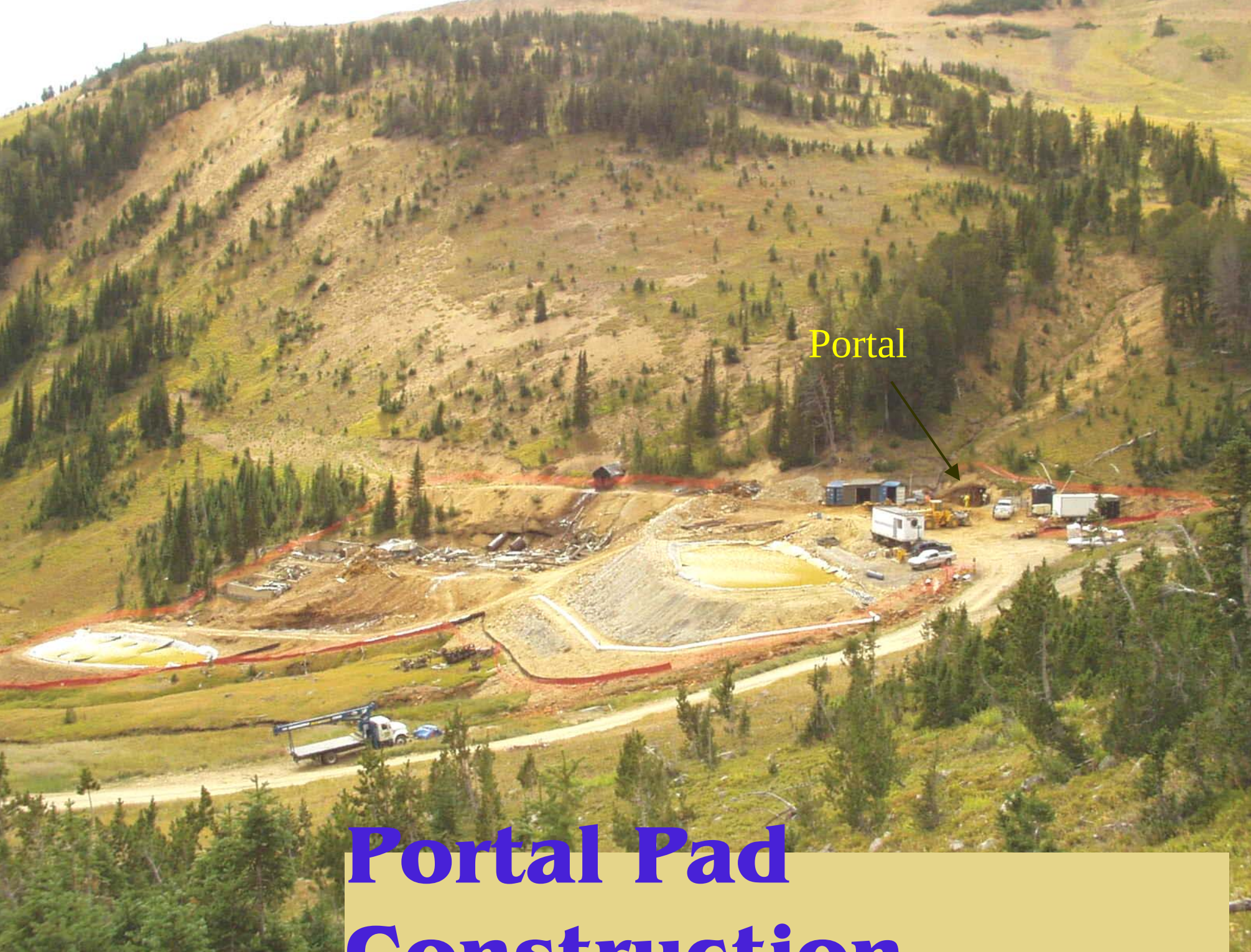
10 -200+ gallons per minute inflow

Major flow through colluvium above Park Formation bedrock contact

pH 2.2 to 2.5

Copper (17-53 ppm)

Iron (107-392 ppm)



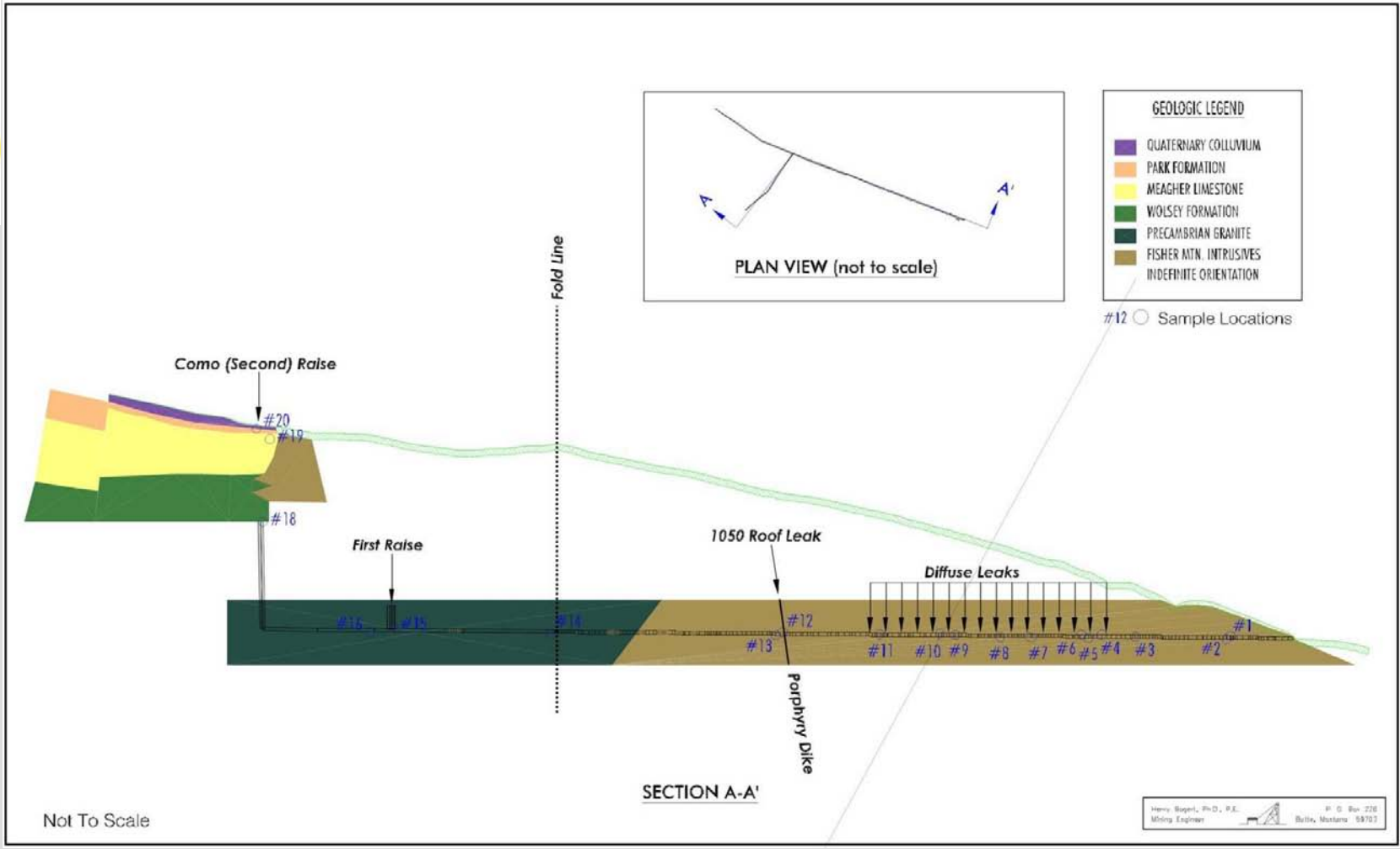
Portal Pad Construction

Glengarry workings

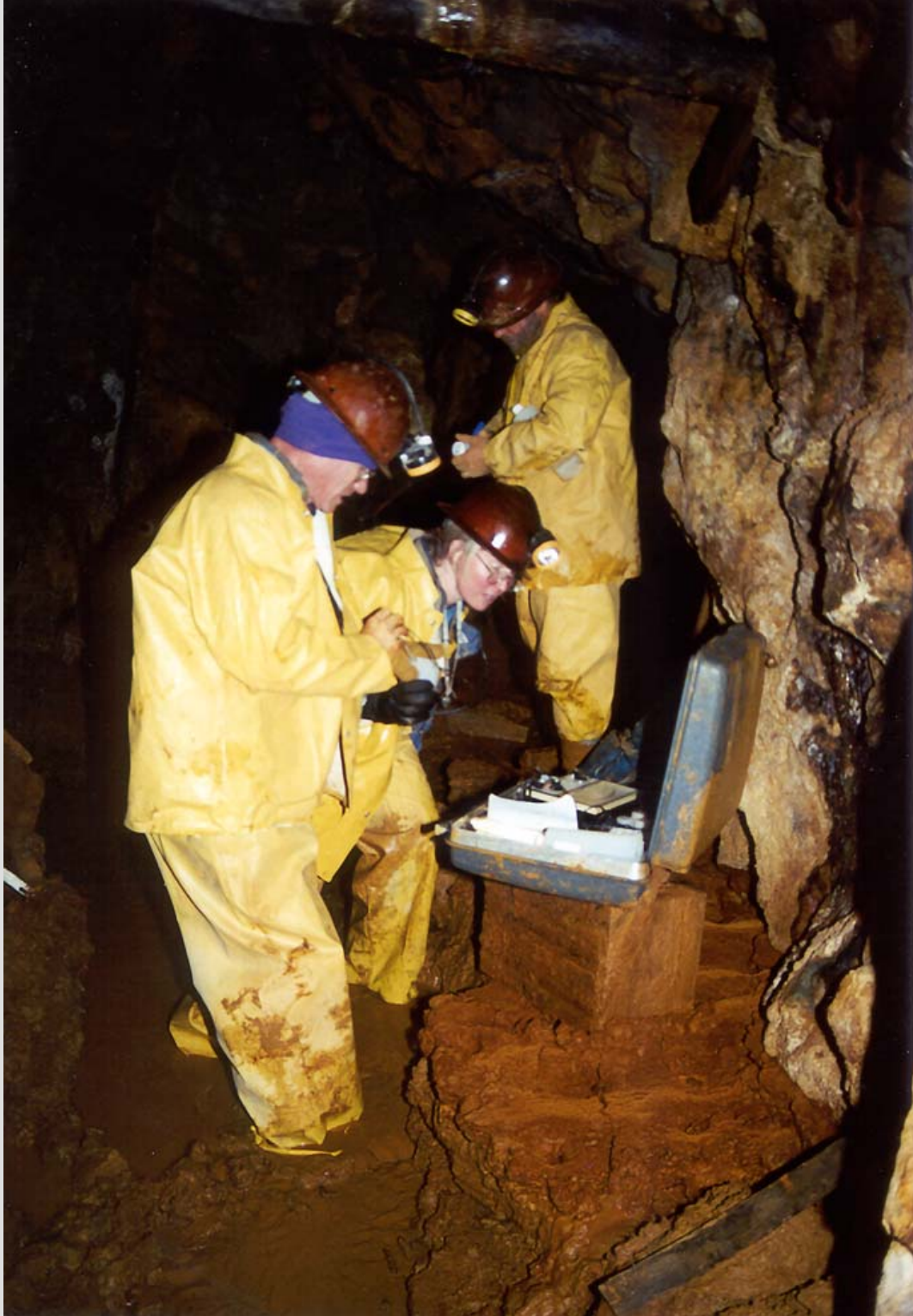
Rehabilitation of the workings

View Down Como Raise

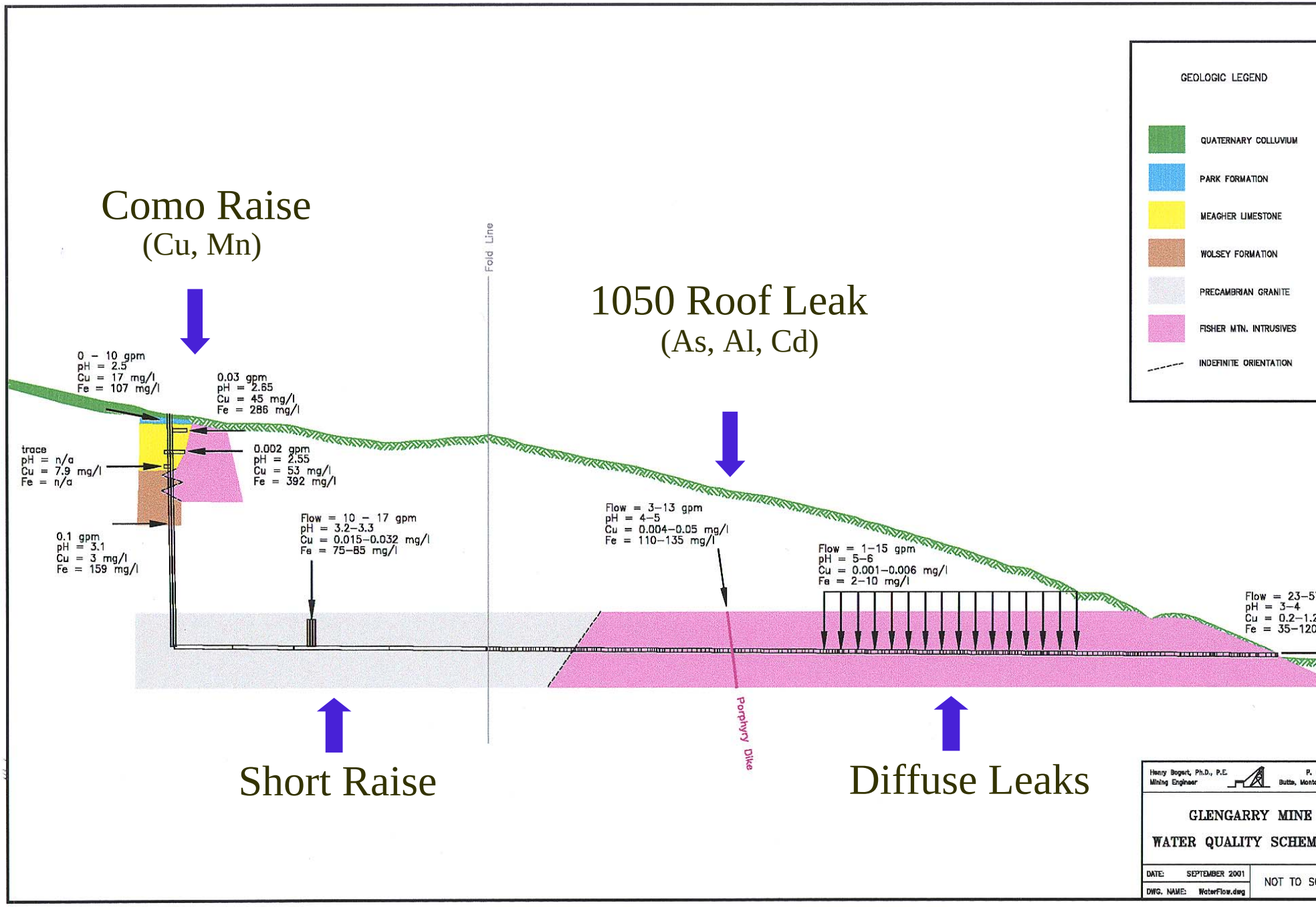
Geology of Workings
(Cross Section)



Inflow Water Sampling



Flow and Chemistry of Inflows



Key Findings

- Majority of loading comes from Como Raise, Short Raise and 1050 Roof Leak
  - Greater Cu from top of Como Raise than from all other in-flows
  - More As, Al and Cd from 1050 roof leak
- Control of raises and 1050 roof leak most important in reducing contaminant loading

USDA-FS EE/CA Glengarry Removal Action

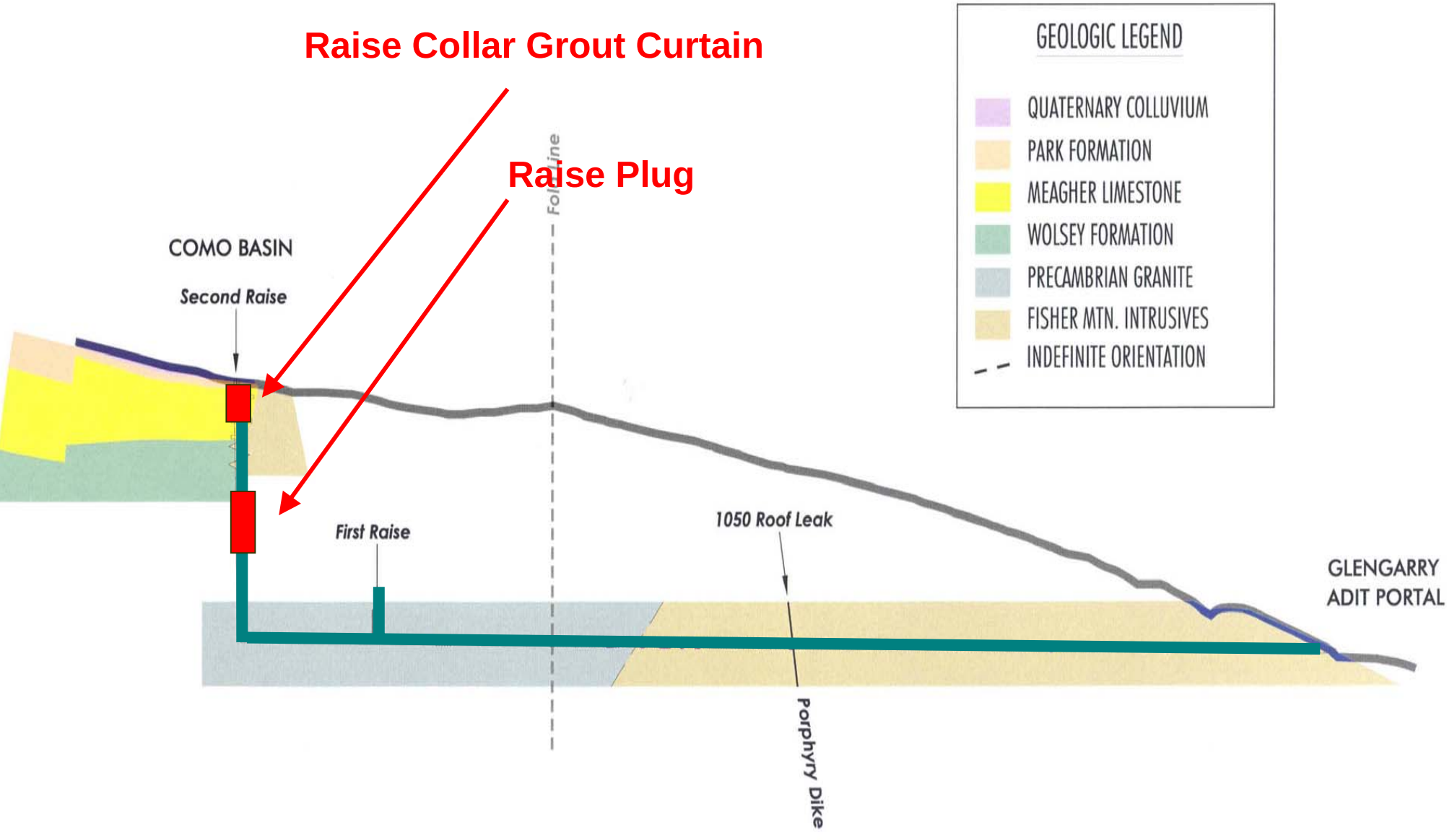
Phase I (2003)

- Grout Curtain Around Como Raise Collar
- Grout 1066 Fault Zone

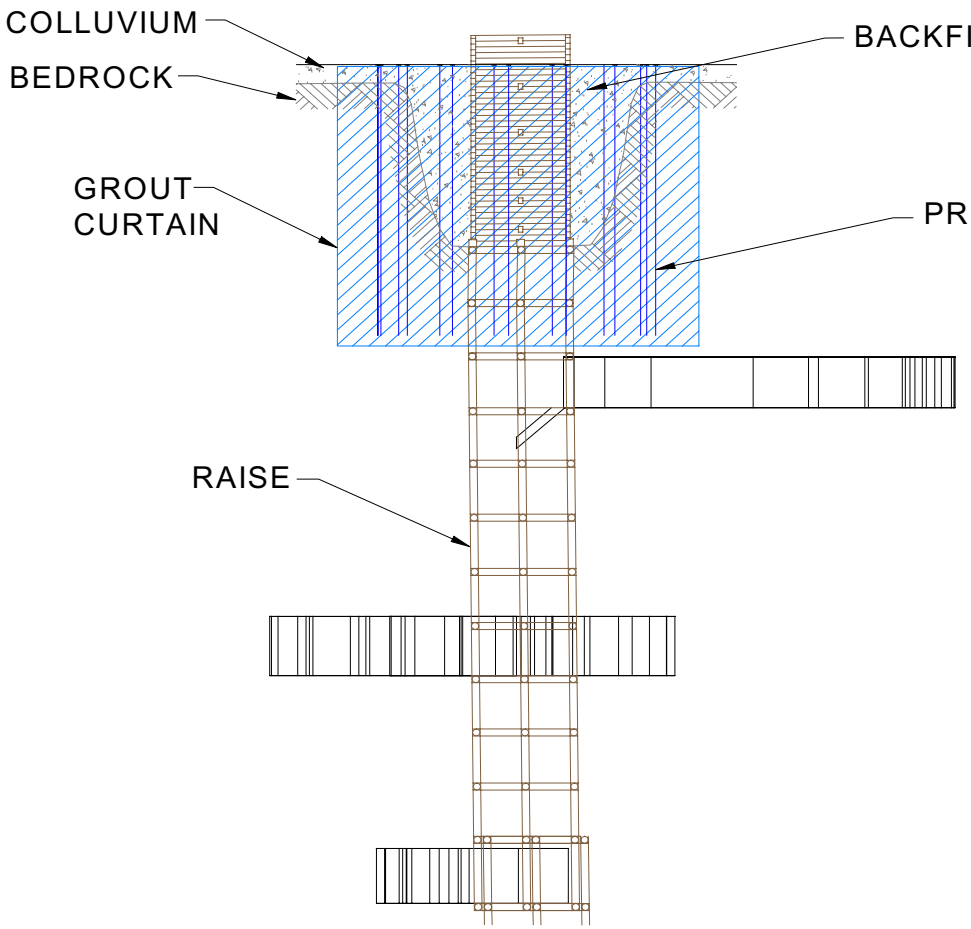
Phase II (2004 and 2005)

- Backfill and Place a Watertight Plug in Como Raise
- Backfill and Place Four Watertight Plugs in the Glengarry Drift

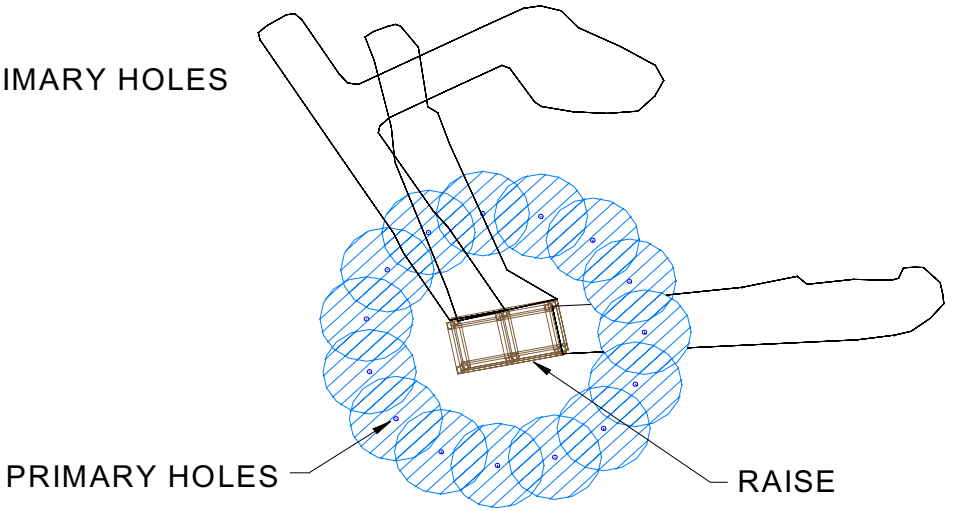
Como Raise Collar Grouting



Como Raise Grout Curtain



LOOKING NORTHWEST



PLAN VIEW

Henry Bogert, Ph.D., P.E.
Mining Engineer
P. O. Box 226
Butte, Montana 59703

COMO RAISE GROUT CURTAIN

DATE: November 2001

SCALE 1:250

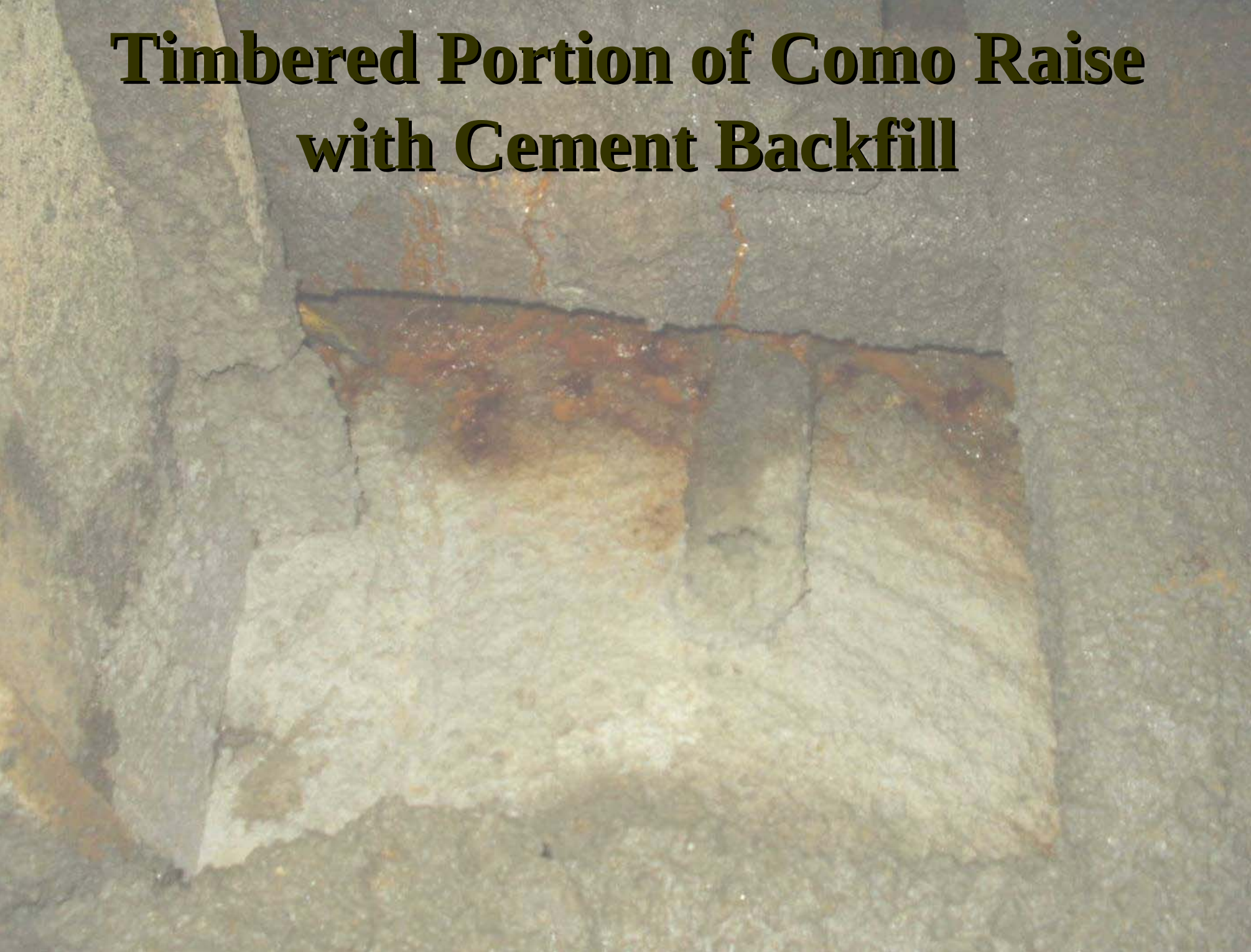
Shallow and Deep Bedrock Grouting

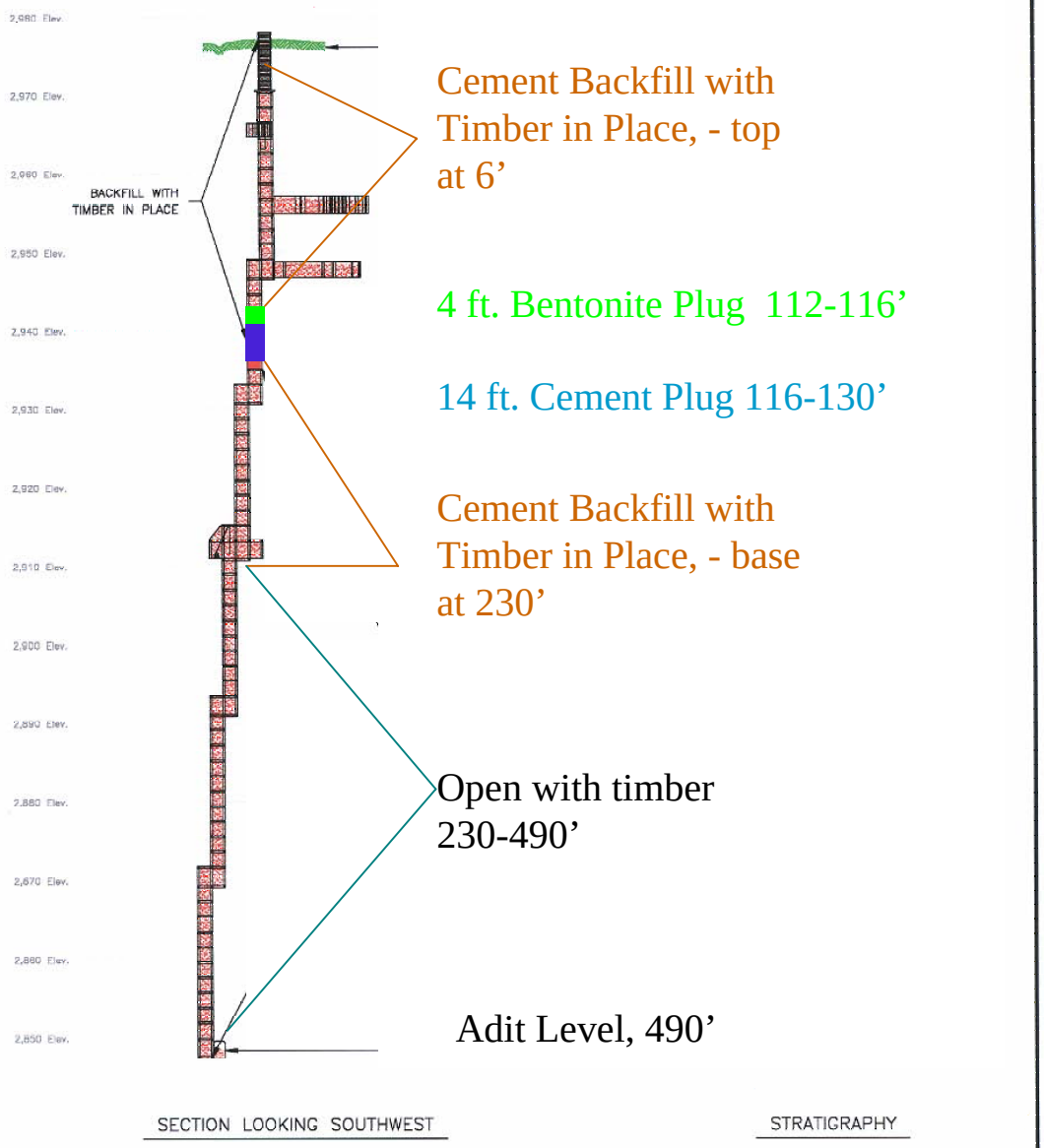
Primary and Secondary Holes

The Thrill of Grouting

Como Raise – Cement Batch Plant

Timbered Portion of Como Raise with Cement Backfill





"As Built"

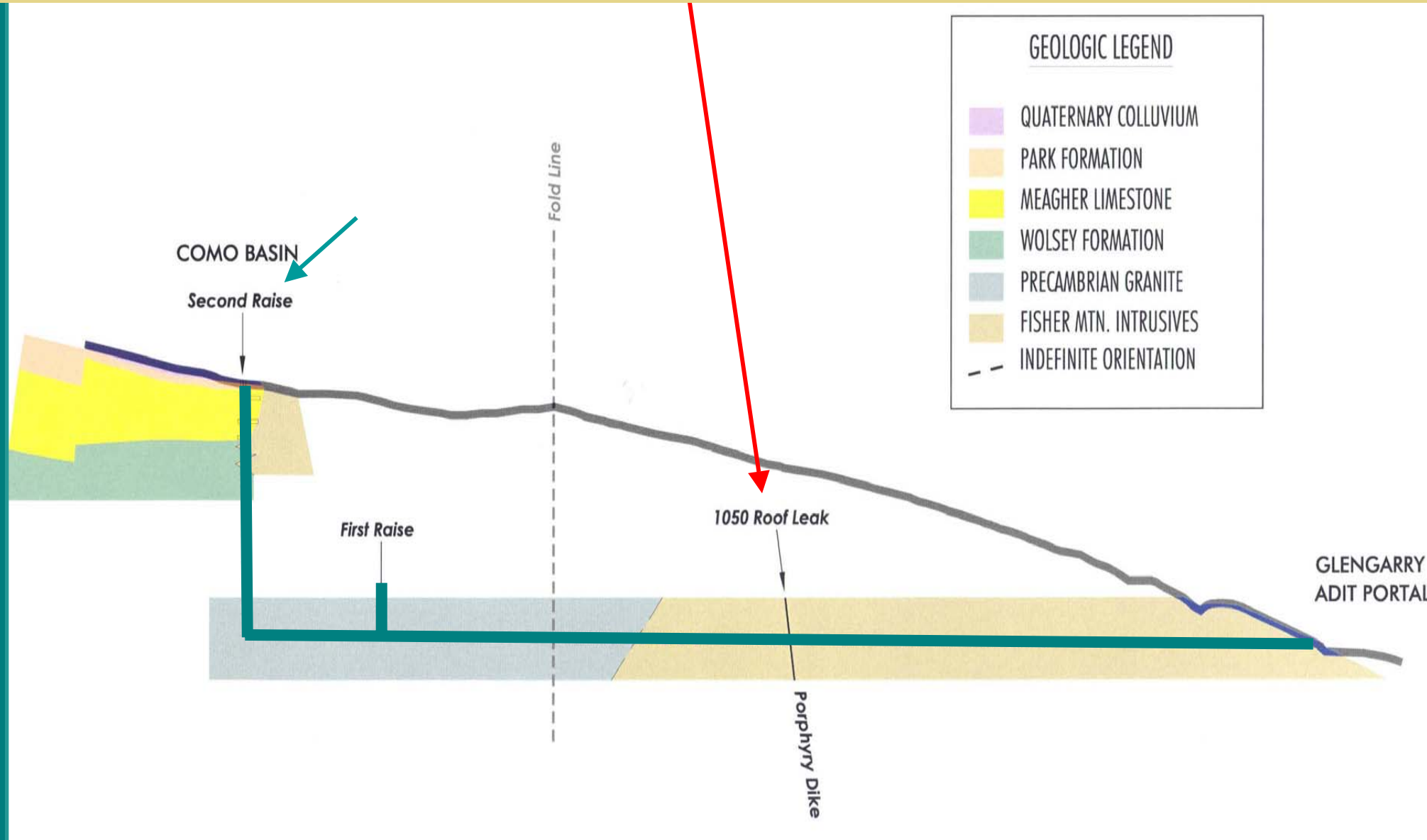
Como Raise

Watertight Plug

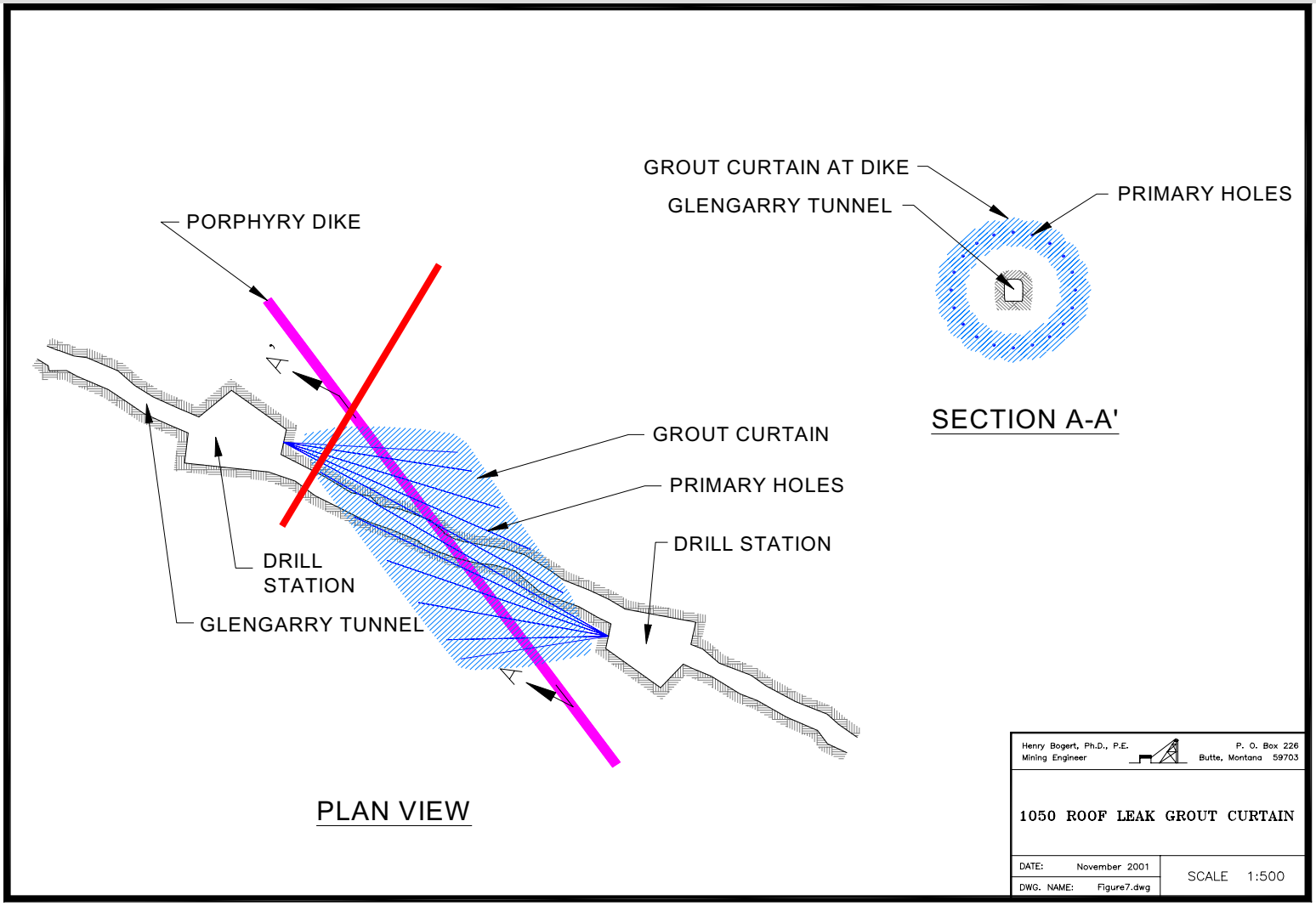
And

Backfill

Grout Curtain –Conqueror Fault

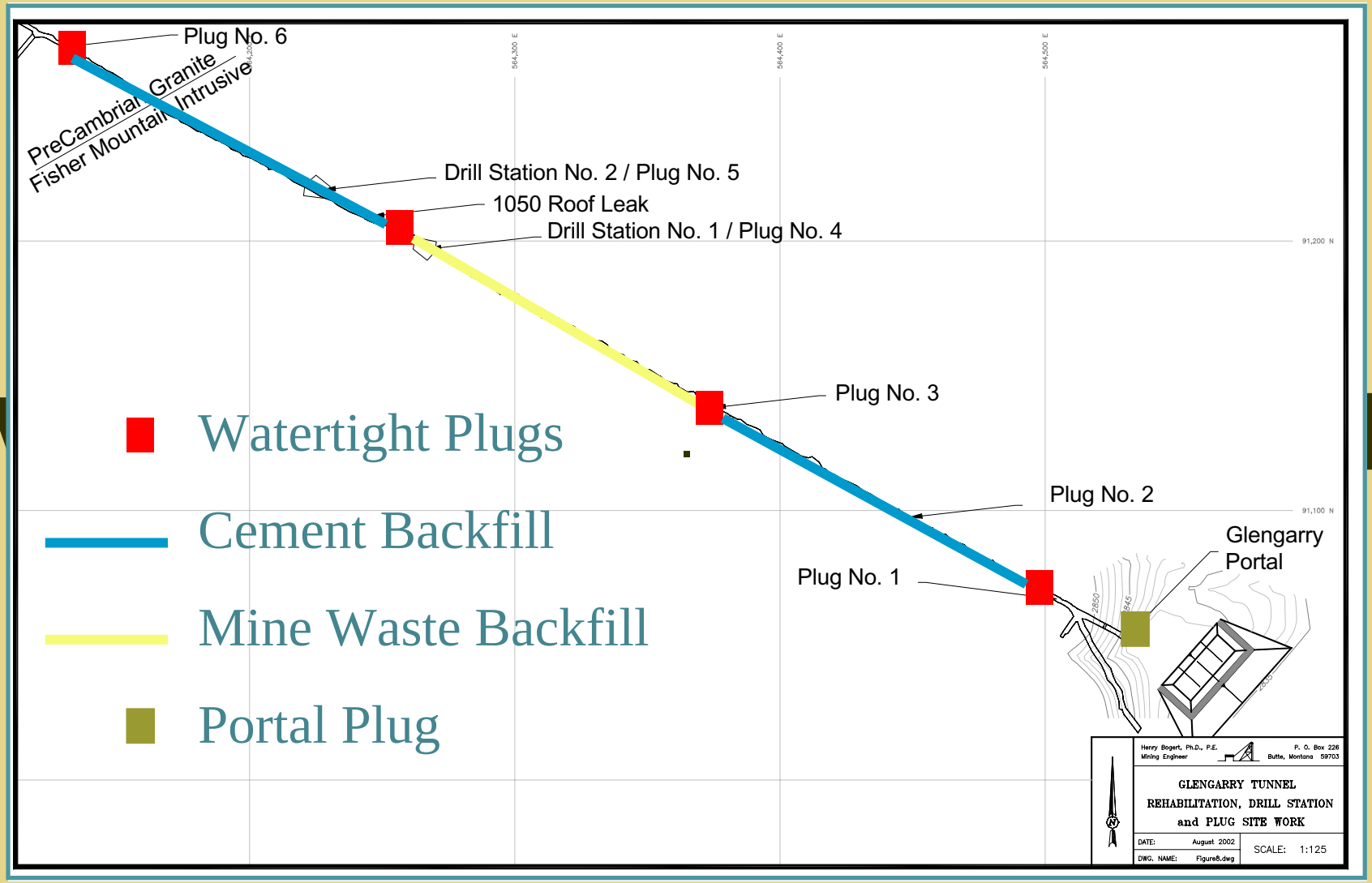


1066 Grout Curtain



Underground Grouting

Watertight Plugs and Backfill

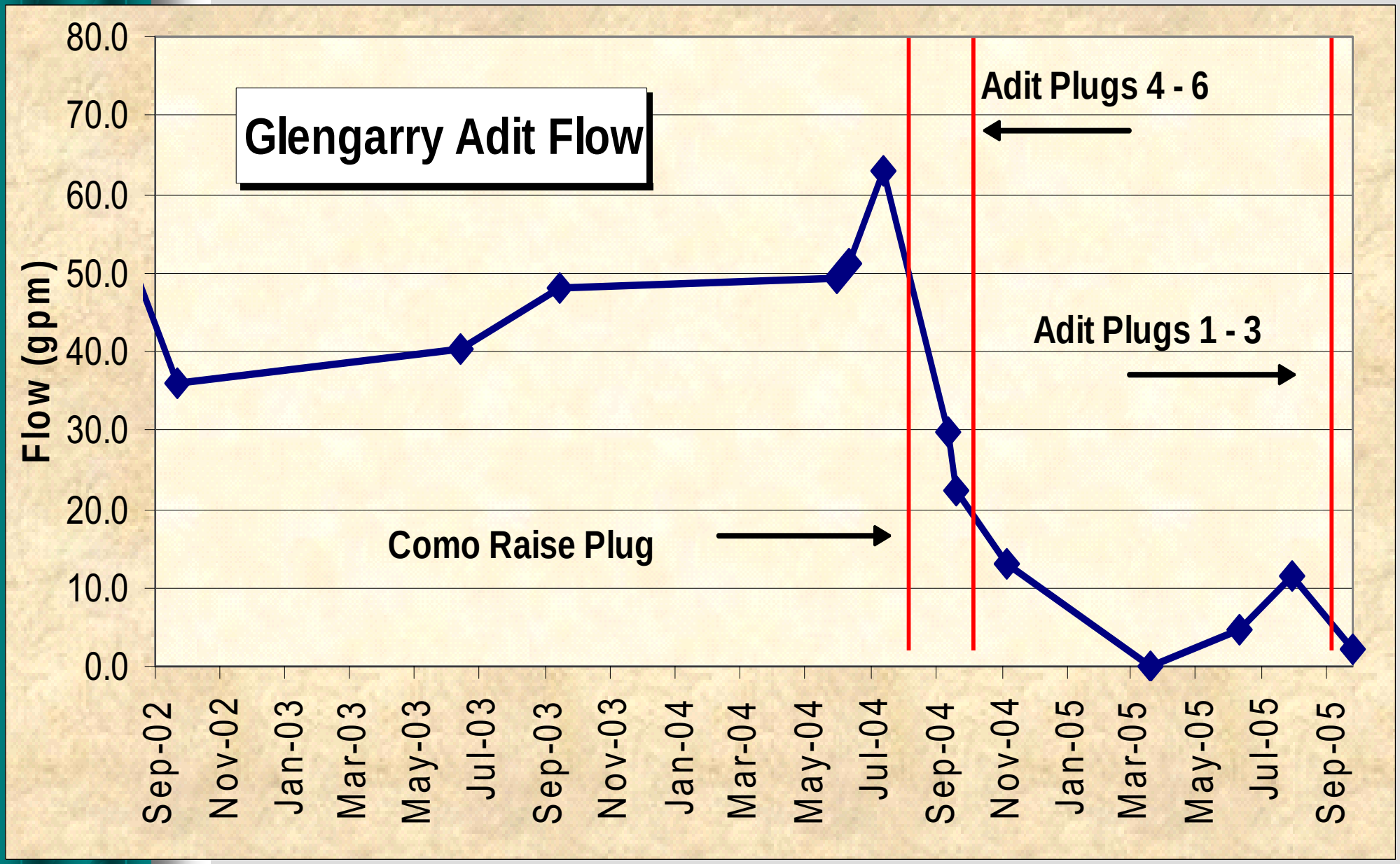


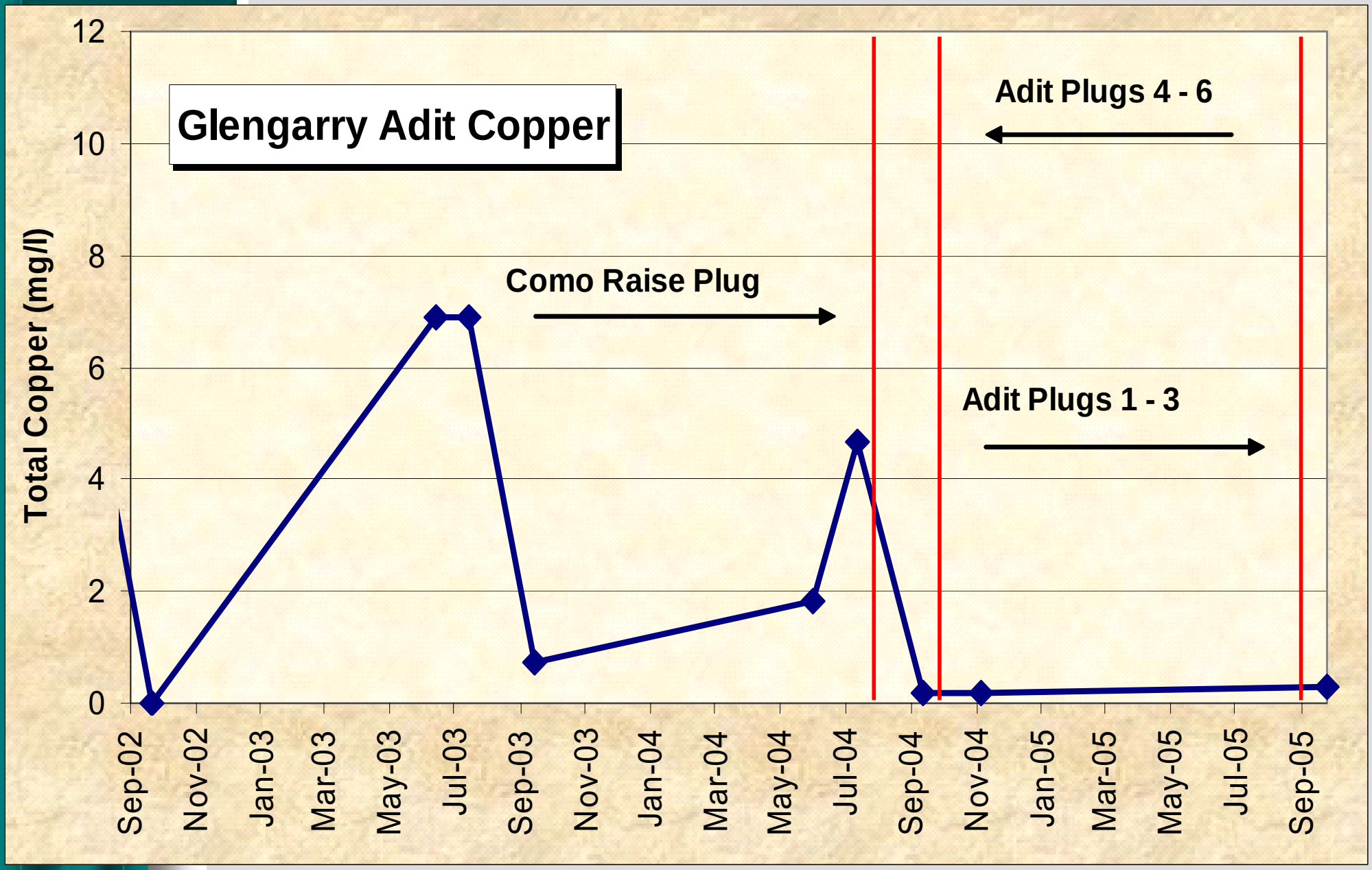
Plug #5 Cement Backfill

Intermediate Temporary


Portal Plug
Drain Rock and
Fabric


Portal Backfill


Glengarry Adit Flow
Flow (gpm)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
Adit Plugs 4 - 6
Adit Plugs 1 - 3
Como Raise Plug
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05


Glengarry Adit Copper
Total Copper (mg/l)
12
10
8
6
4
2
0
Como Raise Plug
Adit Plugs 4 - 6
Adit Plugs 1 - 3
Sep-02
Nov-02
Jan-03
Mar-03
May-03
Jul-03
Sep-03
Nov-03
Jan-04
Mar-04
May-04
Jul-04
Sep-04
Nov-04
Jan-05
Mar-05
May-05
Jul-05
Sep-05

GLENGARRY WATER QUALITY COMPARISON – PRE AND POST CLOSURE

Parameter	Measured Value			Load (kilograms per day)		
	10/6/2000	6/28/2006	% Reduction	10/6/2000	6/28/2006	% Reduction
Flow (gpm)	38.15	0.5	98.7	--	--	--
pH (s.u.)	3.19	6.4	--	--	--	--
Sulfate (mg/L)	337	138	59.1	69.98	0.38	99.5
Aluminum (mg/L)	6.6	0.07	98.9	1.371	0.00019	100.0
Cadmium (mg/L)	0.0013	0.0001	92.3	0.00027	0.0000003	99.9
Copper (mg/L)	0.7	0.038	94.6	0.145	0.0001	99.9
Iron (mg/L)	121	2.32	98.1	25.127	0.0063	100.0
Lead (mg/L)	0.055	0.001	98.2	0.0114	0.00003	100.0
Manganese (mg/L)	4.87	0.29	94.0	1.01	0.0008	99.9
Zinc (mg/L)	0.27	0.03	88.9	0.056	0.00008	99.9
Average Reduction (%)			**90.5**			**99.9**

Glengarry Adit

Monitor Well

***Underground Completion**

***Stainless Steel Screen**

- Redundancy in design
- Cost -$3,297,000

New World Locals

Long-Term Stewardship Roundtable and Training
April 4-5, 2007
San Diego, California
Session Summary

Session Title:	**Partnering with Municipalities to Ensure Long Term Stewardship: Cooperation or Coercion?**
Date and Time:	Wednesday, April 4, 2007, 11:00 a.m., Session D
Speakers:	Bob Soboleski, NJ DEP Thomas Potter, MA DEP Steven Claybrook, City of Lubbock, Texas

Thomas Potter Presentation

Municipal Outreach for Sites with Activity & Use Limitations (AULs) in Massachusetts

- In 1993, a privatized Waste Site Cleanup Program was established for state sites.
- Licensed Site Professionals (LSPs) manage cleanups on state's behalf.
- Activity and Use Limitations (AULs) are Massachusetts ICs.
- AULs must be registered or recorded at the appropriate Registry of Deeds or Land Registration Office.

Questions and comments related to the presentation were as follows:

- What incentives are in place to encourage people to do this on a voluntary basis?
  - Communities have an incentive to protect themselves from something in their backyard.

- What are the requirements for becoming an LSP?
  - Eight years of technical professional experience, five years of relevant experience, three years in a decision-making capacity, and good moral character. It also requires a test and an application for a license.

- How have you dealt with lenders and people doing real estate transactions?
  - We rely heavily on due diligence. We would like to require it from local governments, but they are already over burdened.

- If audits are done on the third or fourth deed transfer, and the remedies are falling out, what do you do to reincorporate them?
  - It is a violation of the regulations. Maintaining an AUL is very important, and we have authority to conduct enforcement and fine the owner of the property.

- Do these ICs apply across the board?
  - They apply to tanks and petroleum sites, but not to RCRA sites.

- Notification letters that are sent to municipalities seem to be ignored. Is there any way to make municipalities care about them?
  - Ideally, the best way would be to contact each community one by one.

- It is important to keep communities informed.

Bob Soboleski Presentation
Institutional Control Problems

- In New Jersey there is biennial certification and New Jersey DEP inspects every five years.
- New Jersey is addressing problems with the program such as publicly available information, low rates of compliance, and daycares.

Questions and comments related to the presentation are as follows:

- Why are the New Jersey and Massachusetts programs so different?
  - (Potter) New Jersey is not privatized to the extent that Massachusetts is. Massachusetts is privatized which is why the notices are going where they are. Massachusetts is regulated to audit an AUL at anytime during its life span. If the title insurance company does not want to release the information, then Massachusetts can enforce. Title companies have no obligation to make environmental notices available.
  - (Soboleski) In New Jersey we can only do as much as we can. Some responsibility is with the banks and lenders, and the local role is critical. There is suspicion with what they are trying to do with deed notices. Most often enforcement is done after the fact, which is too late. It is a real risk on the people who are doing the work. If you enforce up front and people understand what the issues are, fewer will be at risk.

- It is cheaper to comply than it is to get caught. We hope we do not punish the innocent because of a few bad apples.

- There is not a lot of due diligence in New Hampshire.

- There are problems with public participation and remedy selection, which is time consuming. New Jersey has revamped the public participation part of its program. Townships are supposed to get copies of all documents. Some communities are excited about the information and some do not want to know.

Steven Claybrook Presentation
Municipal Setting Designations (MSDs) Experiences of the City of Lubbock

- In 2003 MSDs were enacted into law.

- MSDs are intended to prohibit ground water use. The law reduces the need and scope of investigations and response actions addressing contaminants and their impact on ground water.
- To be eligible for an MSD, no potable wells may exist within a half-mile radius of the property.

Questions and comments related to the presentation were as follows:

- What documentation is used for the basis of the MSD?
  - It is a site assessment that must be done under TRP. The assessment determines the extent of contamination. Once a responsible party applies for an MSD, there are no requirements for establishing the dimensions of the plume and no further investigation is required. The source and any additional contribution to contamination must be removed.

- When does an MSD start?
  - Only after the municipality and TCEQ has approved the MSD.

- Are there any monitoring requirements to check on the stability of plume?
  - There would be a required assessment of current wells on the property.

- Since there is a huge public notice requirement for MSD, what is the public's reaction to the MSD like?
  - This is a new program for Lubbock and there have only been a few issues and they were just misunderstandings.

- The burden is on municipalities to monitor and maintain ICs.

- Today we have heard a lot about unfunded mandates and Lubbock's is one that the municipality chooses to make.

- Illinois has 90 communities that have adapted similar ordinances. Ohio has as well.

- The half-mile limitation is controversial: you are not eligible for an MSD if you have a well within a half-mile and the source is removed. The boundary of the property is the line that is used, not the contamination.

- It is not surprising to find commingled plumes.

- From the city's standpoint, the procedures, systems and models are in place, but there is no clearinghouse for the information. We need a database with a list of ICs, ECs, and Land Use restrictions, all mapped, to use when dealing with changes in zoning and property transfer. This would help out the due diligence for the community.

Institutional Control Problems

Bob Soboleski, NJDEP

IC Roundtable

San Diego, CA

April, 2007

Background

- 491 Active GW O&M
- 800 Post NFA Monitoring 6 Staff FTEs

- 82 Active PF O&M Cases
- 575 Deed Notice Cases
- 130 CKEs 5 Staff FTEs

IC Requirements

- Biennial Certification required every 2 years as of date establsihed
- NJDEP inspection every 5 years
- Changes in ownership, site use, surrounding land/water use, potable wells
- CEA closeout - 2 sampling events below applicable ground water standard

Problems

- Grace Period Rule: IC violations are non-minor; loss of CNS
- Databases made publicly available (Dataminer)
- Low rate of compliance
- Day cares (5,000+ in 3 years)

(continued)

- NJEMS training for Grace Period implementation 9/19/2006; low outputs
- Notices of Deficiency, Violation
- Identifying responsible entities; limited access to enter in Masterfile

(continued)

- NRD, cost recovery, file reviews
- Delays in potable well searches
- Anticipated failed contacts, no response
- Anticipated inquiries

FIXES

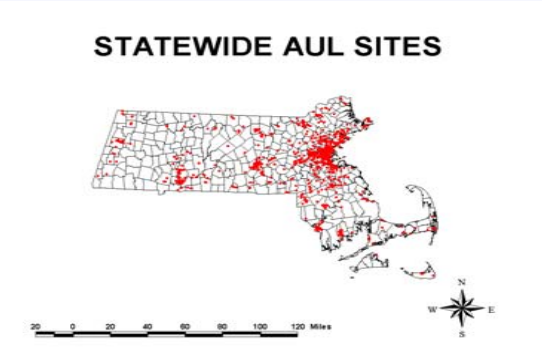
- Pre- Grace Period effort to address expired CEAs
- This year, notices sent for compliance by 6/30/07
- Include information on IC responsibilities in (conditional) NFA letters
- Clarify Deed Notice disruption notification requirements

Future Fixes

- Electronic report submissions, review and fee processing
- Plug in to netonline, efirstsearch, or parasec for property transactions, zoning variances
- NJDigSafe
- Possible Pilot - Chrome sites

Municipal Outreach For Sites With Activity & Use Limitations (AULs) In MASSACHUSETTS
Wednesday, 04 April 2007

Long-Term Stewardship Roundtable & Training
Co-sponsors: EPA, ASTSWMO and ICMA
April 4-6 2007 – San Diego, California



Thomas M. Potter
Section Chief, Audit Coordinator
Commonwealth of Massachusetts
Department of Environmental Protection
Bureau of Waste Site Cleanup
One Winter Street, 7th Floor, Boston, MA 02108
Phone: (617) 292-5628
Email: Thomas.Potter@state.ma.us
Web: http://www.mass.gov/dep/cleanup/compliance/audits.htm

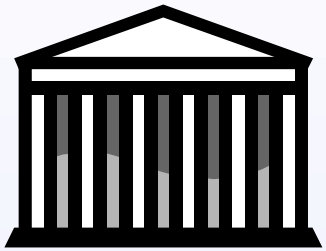
In Massachusetts

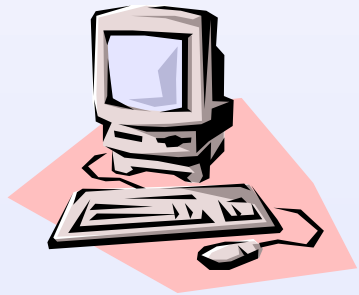
- A **Privatized** Waste Site Cleanup program for state sites established in 1993.
- Established a "**Licensed Site Professional**" (LSP) to manage cleanups on behalf of state.
- MA Institutional Controls implemented at **Cleanup End Point** (Response Action Outcome)
- **Activity & Use Limitations** or AULs are Massachusetts Institutional Controls.
- Requirement to **Audit** sites and AULs.

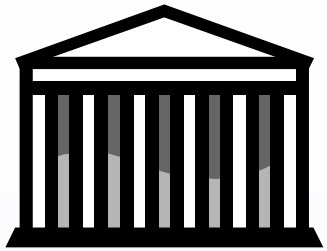
Massachusetts AULs

- Total Notices of AUL = ~ 2,100
- Implemented at ~9% of waste sites achieving a Cleanup End Point or RAO
- 91% on commercial or industrial properties
- 9% on residential properties
- ~ 100 filed each year (declining)

LOCAL OFFICIAL & PUBLIC OUTREACH







Registry of Deeds

- An AUL is not considered valid unless the AUL is in effect, which means recorded or registered at the appropriate Registry of Deeds or Land Registration Office.

- In COUNTY (IN Massachusetts) where AUL is located.

Similar to other Real Estate Instruments

NOTICE OF ACTIVITY AND USE LIMITATION
M.G.L. c. 21E, §6 and 310 CMR 40.0000

Disposal Site Name: Titan Tool Company
DEP Release Tracking No.(s): 3-0000

This Notice of Activity and Use Limitation ("Notice") is made as of this 3rd day of July, 19 97, by Titan Tool Company, Inc., a Massachusetts corporation having a principal place of business at 345 Main Street, Siteville, Massachusetts 99999, together with its successors and assigns (collectively, "Owner").

W I T N E S S E T H:

WHEREAS, Titan Tool Company, Inc., of Siteville, Essex County, Massachusetts, is the owner in fee simple of that certain parcel of land located in Siteville, Essex County, Massachusetts, with the buildings and improvements thereon ("Property");

WHEREAS, said parcel of land, which is more particularly bounded and described in Exhibit A, attached hereto and made a part hereof ("Property") is subject to this Notice of Activity and Use Limitation. The property is shown on a plan recorded with Essex County Registry of Deeds (Southern District) in Plan Book 150, Plan 10.

WHEREAS, a portion of the Property ("Portion of the Property") is subject to this Notice of Activity and Use Limitation. The Portion of the Property is more particularly bounded and described in Exhibit A-1, attached hereto and made a part hereof. The Portion of the Property is shown as the "AUL Area" on the aforementioned plan recorded with said Deeds in Plan Book 150, Plan 10;

WHEREAS, the Portion of the Property comprises part of a disposal site as the result of a release of oil and/or hazardous material. Exhibit B is a sketch plan showing the relationship of the Portion of the Property subject to this Notice of Activity and Use Limitation to the boundaries of said disposal site (to the extent such boundaries have been established). Exhibit B is attached hereto and made a part hereof; and

WHEREAS, one or more response actions have been selected for the Portion of the Disposal Site in accordance with M.G.L. c.21E ("Chapter 21E") and the Massachusetts Contingency Plan, 310 CMR 40.0000 ("MCP"). Said response actions are based upon (a) the restriction of human access to and contact with oil and/or hazardous material in soil and/or (b) the restriction of certain activities occurring in, on, through, over or under the Portion of the Property. The basis for such restrictions is set forth in an Activity and Use Limitation Opinion ("AUL Opinion"), dated July 2, 1997, (which is attached hereto as Exhibit C and made a part hereof);

NOW, THEREFORE, notice is hereby given that the activity and use limitations set forth in said AUL Opinion are as follows:

1. Permitted Activities and Uses Set Forth in the AUL Opinion. The AUL Opinion provides that a condition of No Significant Risk to health, safety, public welfare or the environment exists for any foreseeable period of time (pursuant to 310 CMR 40.0000) so long as any of the following activities and uses occur on the Portion of the Property:

(i) Commercial and/or industrial uses and activities associated therewith, including, but not limited to, pedestrian and/or vehicular traffic, landscaping, and routine maintenance of landscaped areas, which do not cause and/or result in the disturbance and/or the re-location of petroleum-contaminated soil located at 4 to 8 feet below surface grade;

(ii) Short-term (three months or less) underground utility and/or construction activities including, but not limited to, excavation (including emergency repair of underground utility lines), which are likely to disturb petroleum-contaminated soil located at 4 to 8 feet below surface grade, provided that such activities are conducted in accordance with Obligations/Conditions (i) and (ii) in Section 3 of this Activity and Use Limitation Opinion ("Opinion"), the soil management procedures of the MCP cited at 310 CMR 40.0030, and all applicable worker health and safety practices pursuant to 310 CMR 40.0018;

(iii) Activities and uses which are not identified in this Opinion as being inconsistent with maintaining a condition of No Significant Risk; and

(iv) Such other activities and uses which, in the Opinion of an LSP, shall present no greater risk of harm to health, safety, public welfare, or the environment than the activities and uses set forth in this Paragraph.

2. Activities and Uses Inconsistent with the AUL Opinion. Activities and uses which are inconsistent with the objectives of this Notice, and which, if implemented at the Portion of the Property, may result in a significant risk of harm to health, safety, public welfare or the environment or in a substantial hazard, are as follows:

(i) Use of the portion of the property as a residence, school (with the exception of adult education), daycare, nursery, recreational area (such as a park or athletic fields), and/or any other use at which a child's presence is likely;

(ii) Any activity including, but not limited to, excavation, which is likely to disturb petroleum-contaminated soil located at 4 to 8 feet below surface grade associated with underground utility and/or construction work, without prior development and implementation of a Soil Management Plan and a Health and Safety Plan in accordance with Obligations (I) and (ii) of Section 3 of the AUL;

(iii) Any activity which is likely to disturb petroleum-contaminated soil located at 4 to 8 feet below surface grade for a period of time greater than three months, unless such activity is first evaluated by an LSP who renders an Opinion stating that such activity is consistent with maintaining a condition of No Significant Risk and that such activity is conducted in accordance with Obligations (i) and (ii) of Section 3 of this AUL;and

(iv) Relocation of petroleum-contaminated soil located at 4 to 8 feet below surface grade, unless such relocation is first evaluated by an LSP who renders an Opinion stating that such relocation is consistent with maintaining a condition of No Significant Risk.

3. Obligations and Conditions Set Forth in the AUL Opinion. If applicable, obligations and/or conditions to be undertaken and/or maintained at the Portion of the Property to maintain a condition of No Significant Risk as set forth in the AUL Opinion shall include the following:

(i) A Soil Management Plan must be prepared by a Licensed Site Professional (LSP) prior to the commencement of any activity which is likely to disturb petroleum-contaminated soil located at 4 to 8 feet below surface grade. The Soil Management Plan should describe appropriate soil management, characterization, storage, transport and disposal procedures in accordance with the provisions of the MCP cited at 310 CMR 40.0030 et seq. Workers who may come in contact with the petroleum-contaminated soil should be appropriately trained on the

Why?

- Registration provides property owners, holders of interest in the property and others who review property records at the Registry of Deeds with notice of the presence and location of contamination remaining at a site.

- Available Online:
  - www.masslandrecords.com

- Upon transfer of any interest in and/or a right to use the property or a portion thereof that is subject to a Notice of Activity and Use Limitation, the Notice of Activity and Use Limitation shall be incorporated either in full or by reference into all future deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer.

MassDEP Confirmation

In order to verify that the AUL was recorded or registered, MassDEP requires:

- Within 30 days of recording and/or registering any Notice of Activity and Use Limitation, the property owner shall submit the following to the Department a certified Registry copy of the Notice bearing the book and page/instrument number and/or document number; and Registry copy of the required survey plan(s) referenced in the Notice, bearing the plan book/plan number(s). (uncertified photocopy is insufficient)

Public Involvement Requirements
310 CMR 40.1400

Within 30 days after recording and/or registering any original, amended, released or terminated AUL a copy of the recorded and/or registered AUL shall be provided to **LOCAL OFFICIALS** and **the PUBLIC** to inform of the limitations which apply to activities and/or uses of a property subject to an AUL

To LOCAL OFFICIALS

- Chief Municipal Official (CMO)
  - City = mayor
  - Town = Board of Selectmen
- Board of Health (BOH)
- Building Code Enforcement Official
- Zoning Official

Why?

- To encourage information sharing for property users
- To empower municipal officials to be vigilant
- To encourage enforcement

- [NOTE: MassDEP cannot require any proactive steps by municipal officials without Legislation – “unfunded mandate”]

To The PUBLIC

- A public notice which indicates the recording and/or registering of the original, amended, released or terminated AUL shall be published in a **newspaper** that circulates in the community(ies) in which the property subject to the AUL is located.

- A copy of this legal notice shall be submitted to the Department within seven (7) days of its publication.

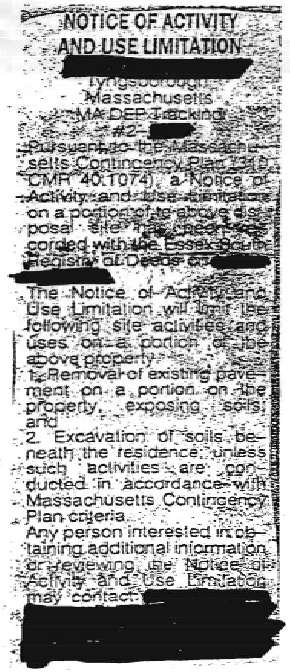
What Should Be Said?

This notice shall be in a form established by the Department for such purpose and shall include, but not be limited to:

- the name, address, and Release Tracking Number(s) of the disposal site associated with the Activity and Use Limitation;
- the type of Activity and Use Limitation;
- information about where the AUL instrument and disposal site file can be reviewed; and
- the name, address and telephone number of the person recording and/or registering the Activity and Use Limitation from whom the public can obtain additional information.

Examples:

Example #1



NOTICE OF ACTIVITY AND USE LIMITATION

[redacted]

Massachusetts
MA DEP Tracking
#2-[redacted]

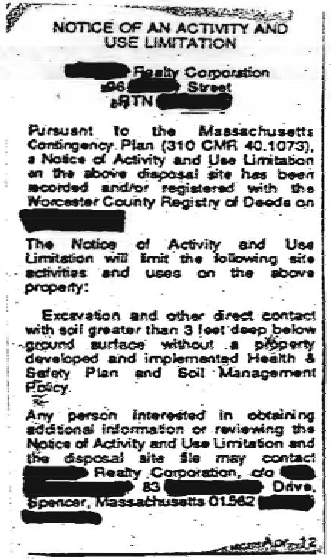
Pursuant to the Massachusetts Contingency Plan (310 CMR 40.1074), a Notice of Activity and Use Limitation on a portion of the above disposal site has been recorded with the Essex South Registry of Deeds on [redacted]

The Notice of Activity and Use Limitation will limit the following site activities and uses on a portion of the above property:

1. Removal of existing pavement on a portion on the property, exposing soils; and
2. Excavation of soils beneath the residence, unless such activities are conducted in accordance with Massachusetts Contingency Plan criteria.

Any person interested in obtaining additional information or reviewing the Notice of Activity and Use Limitation may contact [redacted]

Example #2



NOTICE OF AN ACTIVITY AND USE LIMITATION

[redacted] Realty Corporation
[redacted] Street
[redacted]

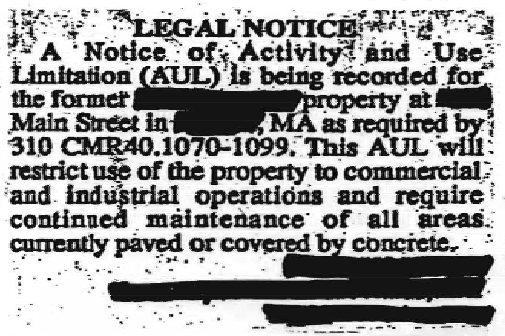
Pursuant to the Massachusetts Contingency Plan (310 CMR 40.1073), a Notice of Activity and Use Limitation on the above disposal site has been recorded and/or registered with the Worcester County Registry of Deeds on [redacted]

The Notice of Activity and Use Limitation will limit the following site activities and uses on the above property:

Excavation and other direct contact with soil greater than 3 feet deep below ground surface without a property developed and implemented Health & Safety Plan and Soil Management Policy.

Any person interested in obtaining additional information or reviewing the Notice of Activity and Use Limitation and the disposal site file may contact [redacted] Realty Corporation, c/o [redacted] 83 [redacted] Drive, Spencer, Massachusetts 01562 [redacted]

Example #3



LEGAL NOTICE

A Notice of Activity and Use Limitation (AUL) is being recorded for the former [redacted] property at [redacted] Main Street in [redacted], MA as required by 310 CMR40.1070-1099. This AUL will restrict use of the property to commercial and industrial operations and require continued maintenance of all areas currently paved or covered by concrete.

[redacted]

Why?

- To encourage information sharing for property users
- To empower the public to be vigilant
- To encourage enforcement

MassDEP Resources

- Online:

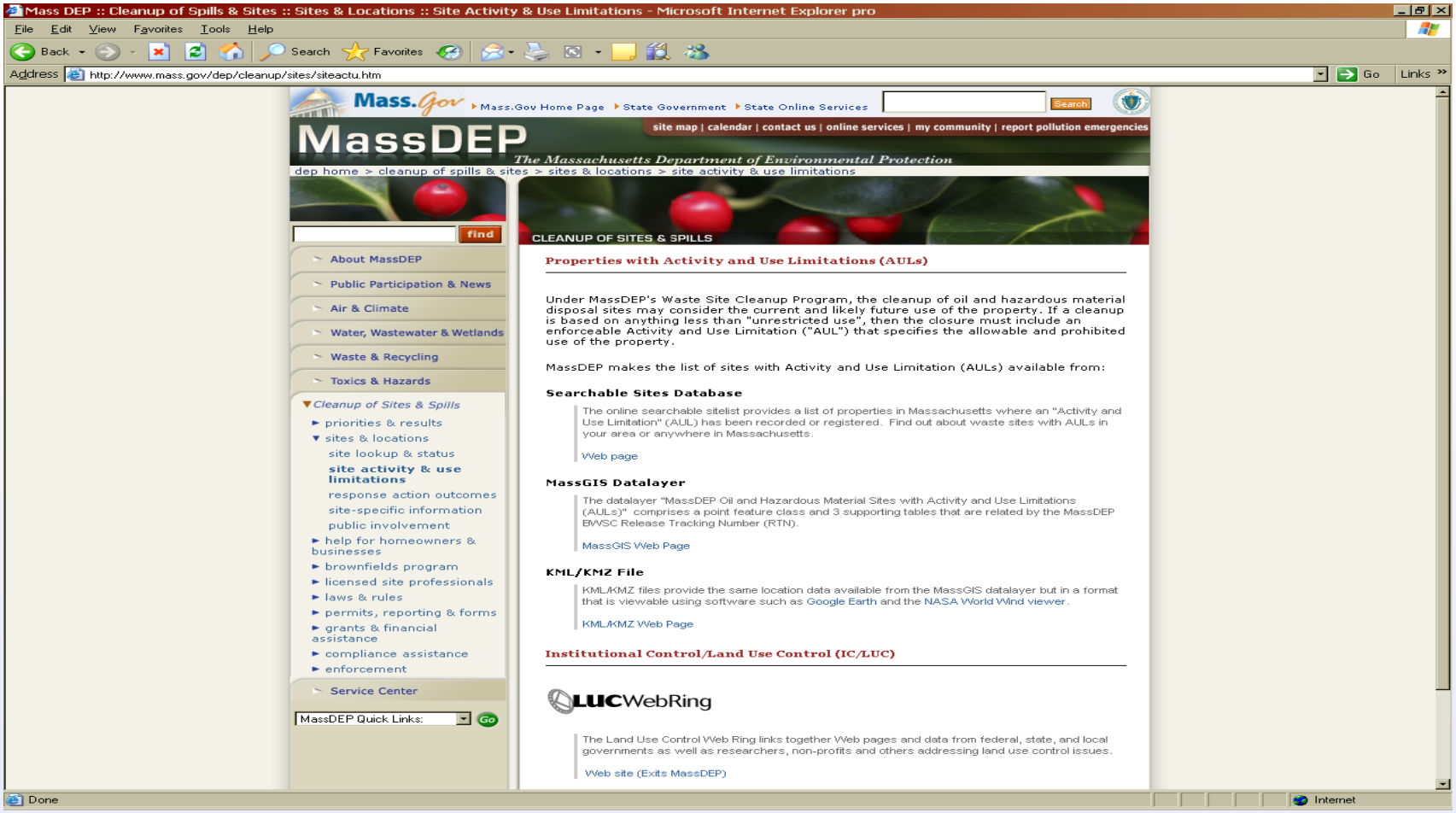
  http://www.mass.gov/dep/cleanup/sites/siteactu.htm

  - Sites Database
  - GIS Data Layer

  ICMA Web Ring

- 4 Regional Service Center File Reviews:
  - Western: Springfield
  - Central: Worcester
  - Northeast: Wilmington
  - Southeast: Lakeville

“www.Mass.Gov” - Web Site



MassDEP Informational Efforts

- Public Outreach
  - Annual Mass Health Officers Association Meeting (CEU credits for BOH Officers)
  - Public Meetings/local cable access
  - Upon request

Potential LTS Benefits of Local Official and Public Notification

- Real Estate Assessment
- Issuing Building Permits
- Potential Zoning Changes
- Future property use vigilance by Local Officials*
- Future property use vigilance by The Public

* Mass BOH responsible for issuing private well permits

Future Considerations for MA

- One-on-One educational outreach to MA Cities/Towns (similar to MA wetlands efforts)
- Foster Municipal Official Roll
  - i.e. encourage Building Inspectors to notify MassDEP when building permits are issued at sites with AULs.

Municipal Setting Designations (MSD)
Experiences of the City of Lubbock

Steven K. Claybrook, CHMM
Environmental Compliance Department
City of Lubbock, Texas

MSD Legal History

- Impetus was property development
- Enacted into law in 2003 by the 78th Texas Legislature, effective September 1, 2003
- Codified in Texas Health and Safety Code Title 5, Subtitle B, Solid Waste Disposal Act, Subchapter 361.801
- Revisions proposed in current Texas legislative session

MSD In General

- Intended to prohibit the use of groundwater under an MSD because water quality presents an actual or potential threat to public health
- Texas has determined that “substantial and legitimate interests are advanced by restricting the access to contaminated groundwater and reducing requirements for cleanup”
- Response actions are still required for other medias and pathways for exposure (e.g. air, soil, surface water)
- MSD “runs with the land” unlike an Innocent Owner/Operator certificate

Purpose of the Law

- Proposed to solve serious property remediation/redevelopment delays under VCP
- Reduces the need and/or scope of investigations and response actions addressing contaminants and their impact on groundwater
- Spur redevelopment of brownfields by reducing responsibilities to cleanup groundwater
- Municipal action in the form of an ordinance or restrictive covenant is required

Eligibility for an MSD

- The property must be in the corporate limits of a municipality with a population of >20,000
- No potable water wells may exist within a ½ mile radius of the subject property
- A public water system must exist that is capable of supplying drinking water to the property for which the designation is sought and to properties within one-half mile

MSD Requires Support

- Application for an MSD must be supported by:
  - All property owners within the boundaries of the MSD,
  - Municipalities with corporate boundaries extending into the five mile radius,
  - Retail public utilities that have jurisdiction and/or facilities within 5 miles
- Application must be approved by the Texas Commission on Environmental Quality (TCEQ)

Applicant Must Provide Notice

- To each municipality
- To owners of property within ½ mile
- To owners of private water wells within 5 miles
- To each retail public utility that operates a groundwater supply well(s) within 5 miles

Governing Authority

- A public hearing is held by City Council to hear discussion and concerns from impacted parties/individuals
- Decision is made locally to support the application to TCEQ, and enact a binding ordinance
- Responsibility for enforcing the groundwater usage restrictions fall to the Municipality that passes the ordinance (as opposed to the TCEQ)

Lubbock's Actions

- Passed a procedural ordinance Jan - '07 to allow MSD applications
- Applications require a certified survey and GPS coordinates
- Lubbock requires all adjacent public right-of-way to be included in MSD
- MSD Properties are added to GIS mapping system
- The City is considering an inter-local agreement with local groundwater district with well permitting authority

The City has Benefited

- First application was from the City for a mothballed electric power plant and surrounding municipal and industrial properties
- Currently pending approval with TCEQ
- If approved the City (and other PRPs) expect to save >$1million as a result of not having to remediate the groundwater contamination
- Multiple potential redevelopers have indicated interest in the site

Questions

- Thank You

IC 101

April 4, 2007

What Is An IC?

- Non-engineered administrative or legal controls that limit land or resource use and/or protect the integrity of a remedy

When Are ICs Used?

- Used when contamination is first discovered to limit exposure
- Used during cleanups
- Used when residual contamination is left in place after site cleanup

What Are ICs Used For?

- Two primary purposes:
  - Minimize the potential for exposure to contaminants
  - Protect the integrity of the remedy

How Do ICs Work?

- Work by
  - Limiting land or resource use
  - Providing information to modify behavior

The NCP

- Emphasizes the use of ICs
  - To supplement the use of engineering controls in all phases of cleanup
  - As a component of the completed remedy
  - Cautions against use as a sole remedy unless active response measures are impractical

When are ICs Necessary

- Threshold for ICs
  - Unlimited use and unrestricted exposure
    - Site-specific determination
    - Residential v. UU/UE

IC Categories

- There are four general categories of ICs
  - Governmental controls
  - Proprietary controls
  - Enforcement and permit tools with IC components
  - Informational devices

Evaluating ICs

- Evaluate with same degree of care as remedy
  - Use the NCP criteria
- Remedial Criteria
  - Implementability
  - Effectiveness

Implementability

- Research/Consultation
  - What authority exists (thresholds/interest holder)
  - What agency is responsible (zoning/deed notice)
  - What processes are required (administrative)
- Analysis
  - Timeframe (reasonable)
  - Requirements (recordation requirements)
  - Willingness and capability
- Develop agreements

Effectiveness

- Begin with the end in mind
  - Protect remedy from excavators
    - Good choices
      - Excavation Permits
      - One-Call Systems
      - Building Permits
    - Less effective choices
      - Deed Notice
      - Consent Decree/Orders/RCRA Permits

Effectiveness (Cont.)

- Control of future land use in future property sale
  - Good choices
    - Easement
    - Zoning
    - Deed Notice
  - Less effective
    - One Call
    - State Registries
- Document in the FS

Questions

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Greg Sullivan – 202-564-1298