RETRIEVING METEOROLOGICAL INFORMATION

CONTENTS

SUPERCEDES: SOP #2048; Revision 0.0; 08/11/92; U.S. EPA Contract EP-W-09-031.

RETRIEVING METEOROLOGICAL INFORMATION

1.0 SCOPE AND APPLICATION

The objective of this Standard Operating Procedure (SOP) is to define the protocol for retrieving meteorological information to be used as inputs to categorize on-site field conditions in "real-time."

This SOP is applicable to all field activities which involve the collection of environmental data or which include activities that expose workers to climate related stresses.

This SOP is not intended to cover all possible meteorological data retrieval venues, but to describe several of those which are readily available to ERT/SERAS personnel.

These are standard (i.e., typically applicable) operating procedures, which may be varied or changed as required, dependent upon site conditions, equipment limitations or limitations imposed by the procedure. In all instances, the ultimate procedures employed should be documented and associated with the final report.

Mention of trade names or commercial products does not constitute U.S. Environmental Protection Agency (U.S. EPA) endorsement or recommendation for use.

2.0 METHOD SUMMARY

There are several sources of meteorological data available. In practice, more than one source should be accessed to ensure (a degree of) reliability in the data. Sources of meteorological data include:

- On-Site Meteorological Data Acquisition Systems (OMDAS)
- National Weather Service (NWS) and Other Governmental Services
- Airports
- Neighboring Industrial Facilities
- Public Bulletin Boards

Prior to site activities, field personnel are expected to contact and to be familiar with the avenues of obtaining meteorological information. A more detailed description is provided in Section 7.0 of this SOP.

3.0 SAMPLE PRESERVATION, CONTAINERS, HANDLING, AND STORAGE

This section is not applicable to this SOP.

4.0 INTERFERENCES AND POTENTIAL PROBLEMS

There is no chemical interferences for this procedure; however, the instrumentation is fragile and there is a chance of breakage.

5.0 EQUIPMENT/APPARATUS

Necessary equipment for the OMDAS is discussed in ERT/SERAS SOP #2120, Remote Meteorological Station. Computers connected to phone modems are required to access public bulletin boards.

6.0 REAGENTS

This section is not applicable to this SOP.

7.0 PROCEDURE

This section discusses the methods of retrieving meteorological data. This SOP does not list all of the methods of meteorological data retrieval, but it does provide sufficient information to obtain data from various sources. These information sources should be checked prior to the site operations.

An excellent source of meteorological data is provided by an OMDAS. An OMDAS provides the site personnel with easy access to meteorological information and informs site workers of local conditions when the site environment differs from surrounding areas. In addition to on-site measurements, meteorological conditions should be obtained by an outside, reliable source. These sources may include:

- National Weather Service (NWS)
- National Climatic Data Center (NCDC)
- Accu-Weather's Accu-Access
- Weather-Brief
- Major City/Airport Data
- Neighboring Industrial Facilities

7.1 National Weather Service

The local NWS offices are listed in the "Blue Pages" (Government Agencies) in the phone book. If they are not listed separately, the number can be found under the Department of Commerce. The NWS headquarters is in Kansas City and can be reached at 1510 East Bannister Road, Building, 1 Kansas City, MO 64131 (816-926-7993). They will provide telephone numbers for other local or regional NWS offices.

Typical data which should be obtained includes surface temperature, barometric pressure, wind speed and wind direction. At times it may be necessary to obtain upper air information which includes ceiling height, cloud cover, and upper level wind speed and direction. The NWS also has access to radar data which may provide useful information.

7.2 National Climatic Data Center

The NCDC, in Asheville NC, offers historical meteorological data. The hourly data is provided in one year segments, and is similar to that provided by the NWS (barring the radar). The data is encoded differently than that from the NWS, but a separate file including their format is provided. See the SERAS meteorologists for more information.

7.3 Accu-Weather's Accu-Data/Weather-Brief

ERT/SERAS currently subscribes to a communication software link to Weather-Brief, Inc. The

link attaches users to a direct access or menu driven bulletin board that provides several types of meteorological data, including: hourly observations, short-range forecasts, long-range forecasts, radar information, and satellite data. To access data for a specific location, the user must provide a three-letter station identifier. The hourly observation data (preferred for modeling) is updated continuously. Seventy-two hours of archived hourly data is available. Other software links are available. One such software, Accu-Weather's Accu-Data may be subscribed to on a bi-annual basis.

7.4 Major City/Airport Weather (Weather-Brief)

Current weather conditions, as well as forecast information can be accessed by dialing 1-800-WX-BRIEF. Identify yourself as a U.S. EPA contractor and tell the operator the city(ies)/area(s) for which you want information.

7.5 Neighboring Industrial Facilities

Some facilities have their own OMDAS which are checked monthly for statistical errors. These sites offer good data for dispersion models which may require a meteorological history. To receive copies of their weather data, interested parties should contact the plant's facility manager or the local air management agency. Many facility managers will provide copies of the data at no charge. Local air management agencies may be able to provide information regarding the quality of meteorological data available at facilities within their district. See the SERAS meteorologists for more information.

7.6 Data Storage

Preservation, handling and storage of the OMDAS data is discussed in ERT/SERAS SOP #2120, Remote Meteorological Station. Meteorological data obtained during, or for, field activities should be stored on magnetic media which is labeled to include:

- Name of site
- Date(s) data were collected
- Specific information collected

A copy of this information should be provided to the SERAS meteorological and modeling staff for future use.

8.0 CALCULATIONS

The OMDAS is a direct reading device which provides wind flow parameters (such as wind speed, wind direction and temperature). Specific OMDAS calibration and calculations are available in ERT/SERAS SOP #2120, Remote Meteorological Station.

9.0 QUALITY ASSURANCE/QUALITY CONTROL

Before beginning site activities, Task Leaders are responsible for accessing the meteorological service closest to the planned site. In addition, Task Leaders should familiarize themselves with the proper use and acquisition of data from the OMDAS. Periodic checks should be made every two hours with the local

weather service to ensure instrument reliability and worker safety.

In addition, the following general quality assurance procedures apply:

1. All data must be documented on field data sheets or within site logbooks.

2. All instrumentation must be operated in accordance with operating instructions as supplied by the manufacturer, unless otherwise specified in the work plan. Equipment checkout and calibration activities must occur prior to sampling/operation and they must be documented.

10.0 DATA VALIDATION

Data validation is made possible by checks through several sources. See the SERAS meteorologists for further information and assistance.

11.0 HEALTH AND SAFETY

Physical hazards of the OMDAS may be avoided by securing the cables from the probes and the antenna with a velcro tie as described in ERT/SERAS SOP #2120, Remote Meteorological Station.

When working with potential hazardous materials, follow U.S. EPA, OSHA and corporate health and safety procedures.

12.0 REFERENCES

This section is not applicable to this SOP.