**Idaho National Engineering Laboratory**

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**INFORMATION ONLY**

# DATA MANAGEMENT PLAN FOR TRACK 2 INVESTIGATIONS OF OPERABLE UNITS 1-03, 4-10, 6-04, AND 5-07 CONDUCTED BY THE ENVIRONMENTAL RESTORATION DEPARTMENT AT THE IDAHO NATIONAL ENGINEERING LABORATORY

M. J. Jorgenson-Waters

EG&G Idaho

*Work performed under DOE Contract No. DE-AC07-76ID01570*

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# Data Management Plan for Track 2 Investigations of Operable Units 1-03, 4-10, 6-04, and 5-07 Conducted by the Environmental Restoration Department at the Idaho National Engineering Laboratory

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## ABSTRACT

The Environmental Restoration Department at EG&G Idaho, Inc. is conducting Track 2 investigations of Operable Units 1-03, 4-10, 6-04, and 5-07. These investigations are being conducted as part of the Corrective Action Program under the Resource Conservation and Recovery Act; and the Comprehensive Environmental Response, Compensation, and Liability Act Federal Facility Agreement and Consent Order. This Data Management Plan will provide or reference procedures and requirements necessary to ensure effective data management of the Track 2 investigations.

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# CONTENTS

# ACRONYMS

| | |
|---|---|
| AR | Administrative Record |
| ARA | Auxiliary Reactor Area |
| ARDC | Administrative Record and Document Control |
| ATSDR | Agency for Toxic Substance and Disease Registry |
| CCS | contract compliance screening |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| CFA | Central Facility Area |
| CLP | Contract Lab Program |
| CO | Consent Order |
| CRP | Community Relations Plan |
| DBA | Database Administrator |
| DMP | Data Management Plan |
| DOE | Department of Energy |
| EBR | Experimental Breeder Reactor |
| EIRC | ERD Independent Review Committee |
| EPA | Environmental Protection Agency |
| ERIS | Environmental Restoration Information System |
| ERD | Environmental Restoration Department |
| FDC | Field Data Coordinator |
| FFA/CO | Federal Facility Agreement/Consent Order |
| FS | Feasibility Study |
| FSP | Field Sampling Plan |

| | |
|---|---|
| IDHW | Idaho Department of Health and Welfare |
| IEDMS | Integrated Environmental Data Management System |
| INEL | Idaho National Engineering Laboratory |
| L&V | limitations and validation |
| OU | Operable Unit |
| PA | Preliminary Assessment |
| PHEA | Public Health and Environmental Assessments |
| QAPjP | Quality Assurance Project Plan |
| QA/QC | Quality Assurance/Quality Control |
| QC | Quality Control |
| RI | Remedial Investigation |
| ROD | Record of Decision |
| SAP | Sampling and Analysis Plan |
| SDG | sample delivery group |
| SMO | Sample Management Office |
| SOP | Standard Operating Procedure |
| SOW | Scope of Work |
| TAN | Test Area North |
| TCLP | Toxicity Characteristic Leaching Procedure |
| WAG | Waste Area Group |

# Data Management Plan for Track 2 Investigations of Operable Units 1-03, 4-10, 6-04, and 5-07 Conducted by the Environmental Restoration Department at the Idaho National Engineering Laboratory

## 1. INTRODUCTION

The U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and Idaho Department of Health and Welfare (IDHW) have signed a Federal Facility Agreement/Consent Order (FFA/CO). To ensure that any releases or threatened releases of hazardous materials to the environment at the Idaho National Engineering Laboratory (INEL) are investigated in accordance with the National Contingency Plan. The agreement also ensures that remedial actions are undertaken and completed as necessary to protect human health and the environment.

All investigations are conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The INEL is divided into Waste Area Groups (WAGs) to facilitate the remediation efforts. These WAGs are further divided into Operable Units (OUs), which contain one or more similar sites for the basis of making investigative decisions.

Under the FFA/CO and consistent with the DOE bias for action philosophy, the FFA/CO Action Plan allows provisions to determine an early action if sufficient data are available. In the FFA/CO Action Plan, OUs are assigned to tracks to facilitate the investigative process. During the Track 2 process (defined in the FFA/CO) data are collected from a site and evaluated to determine whether the risk posed by releases from the site is great enough to remediate the site.

This Data Management Plan (DMP) ensures effective management of the information associated with the Track 2 investigations at OU 1-03 (TSF-02 Gasoline Spill, TSF-38 Bottle Site, TSF-03 Burn Pit, and WRRTF-01 Burn Pit), OU 4-10 (CFA Landfill I), OU 6-04 (Radioactive Soil Contamination at EBR-I), and OU 5-07 (ARA-02 Sanitary Septic System, and ARA-03 Radioactive Spill). The data objectives and the site background information for the OUs are summarized in each OU Track 2 investigation Scope of Work (SOW).

This DMP provides or references procedures and requirements necessary to develop a database of relevant information that can be readily accessed and accurately maintained. This plan describes the data flow process, data custodianship, and organizational and individual responsibilities associated with the Environmental Restoration Department (ERD) Track 2 investigation data management activities. The plan also provides project file and reporting requirements and identifies extensive database capability requirements to allow selective data sorting, analysis, formatting, and reporting.

In Section 2, the data flow process and the associated individual responsibilities are discussed. Data quality and control objectives as they pertain to the database and data management are also

outlined. The data flow process includes initial evaluation of data information and quality requirements through procedure specifications, data collection, validation, database entry and control, and reporting.

Section 3 identifies requirements for project files and describes the two major file systems: administrative and technical.

Section 4 describes data reduction, validation, and reporting requirements.

Management of technical data is accomplished primarily with computer database systems. Section 5 describes computer database design and capabilities. The data are controlled by taking advantage of existing databases and data processing systems at the INEL.

Data presentation and reporting requirements are presented in Section 6. The section includes a description of reports, information display techniques, and data and quality assurance presentation formats and requirements.

Data management requirements for analytical techniques are described in Section 7.

The implementation schedule for the activities associated with this DMP is discussed in Section 8.

This DMP docs not include a discussion of data management for field activities. Field activities will be addressed in the Track 2 investigation quality assurance project plans (QAPjP) and field sampling plans (FSP) prepared for each OU.

# 2. DATA FLOW PROCESS AND CUSTODIANSHIP

Program Directive (PD) 2.4 directs the flow of information within the ERD. This PD addresses the following topics:

- Identify data requirements
- Identify data objectives
- Data verification
- Data validation
- Data storage
- Data reporting.

## 2.1 Functional Structure and Individual Responsibilities

Responsibilities of individuals assigned to manage each of the functional areas in the data flow process are explained in the following sections and are illustrated in Figure 2 of ERD PD 2.4.

### 2.1.1 ERD Administrative Record and Document Control Technical Leader

The responsibilities of the ERD Administrative Record and Document Control (ARDC) Technical Leader are to: (a) maintain all project and administrative record files, including hard copy, microfiche, and auxiliary electronic information files (all files categorized into administrative and technical areas); (b) construct and maintain a filing index of all information, data, and documents included in the ERD project files; (c) locate, control, and secure all file information listed in the *ERD Quality Program Plan* (QPP-149), Appendix C that is provided by the project managers; (d) control and document all releases of data from these files; and (e) ensure that modifications to the ERD administrative record system are approved by DOE-ID and are clearly documented.

### 2.1.2 Integrated Environmental Data Management System Database Administrator

The Integrated Environmental Data Management System (IEDMS) Database Administrator (DBA) provides database control for both the IEDMS and interim databases used for IEDMS activities. The DBA is responsible for processing analytical data. Data processing includes electronic capture of the data, verification of the data, completeness reporting, and initial tabular presentation of the data. The DBA also controls data change requests, maintains security for the database, performs self assessments, and uploads data into the Environmental Restoration Information System (ERIS) database.

### 2.1.3 Environmental Restoration Information System Database Administrator

The ERIS DBA provides database control for ERIS. The ERIS DBA is responsible for control, data change requests, and security for the ERIS database. The DBA is also responsible for database quality checks, audits, maintenance, and operations.

### 2.1.4 Environmental Restoration Department Independent Review Committee Chairman

The ERD Independent Review Committee (EIRC) Chairman will provide leadership for the EIRC. Responsibilities for the EIRC are listed in the *ERD Quality Program Plan* (QPP-149).

### 2.1.5 Environmental Restoration Department Quality Engineer

At the request of the WAG manager or project manager the ERD Quality Engineer ensures that: (a) all field sampling and data measurements are coordinated and conducted in accordance with the *ERD Quality Program Plan* (QPP-149) and specific sampling and analysis plans; (b) key individuals are assigned within each area of sampling and data collection to oversee and monitor the process and results of data collection; (c) all necessary sampling and data collection documents are prepared and maintained; and (d) all procedures for quality, control, and processing are followed. The ERD Quality Engineer periodically audits performance of field and laboratory activities and systems used in project activities to ensure they conform to the *ERD Quality Program Plan* (QPP-149) and specific QAPjPs.

### 2.1.6 Environmental Restoration Department Sample Management Office

The ERD Sample Management Office (SMO) is responsible for establishing subcontracts for sample analyses with laboratories. The SMO ensures that data are produced in accordance with procedural and contractual requirements and monitors the laboratory's performance to ensure complete, accurate, and timely performance and results. The SMO receives data from the Environmental Restoration Department Field Data Coordinator (ERD-FDC) and ensures that it is validated using SMO standard operating procedures (SOPs) and ERD PDs.

### 2.1.7 Waste Area Group Managers/Project Managers

ERD WAG managers are responsible for implementing the data management guidance contained in this plan and the requirements contained in ERD PDs; however, responsibilities can be delegated to specific project managers, which makes them jointly responsible for data management. WAG managers and project managers are responsible for identifying and summarizing all data presentation forms and formats used to communicate raw data and summary results to agencies outside EG&G Idaho. They ensure that reporting formats are coordinated so data are reported consistently, results are presented based on analytical manipulations of the raw data, and presentations and reports are reviewed before their release.

## 2.2 Quality Assurance/Control Objectives

The data quality assurance and control objectives of this plan are primarily concerned with maintaining complete, accurate, and well documented information. Hard copy, electronic, microfiche, and optical disk copy document files are maintained so ERD documentation is current and complete and all modifications and revisions are recorded. A key information users list will be maintained, and copies of all revisions are distributed to information users.

Similar controls are performed for the electronic data files (database files). QA and control requirements during measurement, sampling, control, and analyses are identified in the *ERD Quality Program Plan* (QPP 149), and the applicable QAPjP. QA/QC functions of data validation are documented in the SMO SOPs. The ERD SMO receives the data from the ERD-FDC, documents any method nonconformance using ERD PD 5.8, "Control of Nonconforming Analytical Data," and the SMO SOPs, and assigns data qualifier flags to indicate limitations on the usability of the data. Once the data are entered in the database, database management, maintenance, and operation procedures specify the audit and check functions to be performed to ensure that the data are correctly and completely entered; data loss or destruction does not occur; changes do not occur outside established change control; and data security is controlled.

# 3. PROJECT FILES

All project files within the ERD are managed in accordance with ERD PD 1.8 *Administrative Record* and ERD PD 1.9, "Records Management." Project files consist of hard copy, microfiche, or optical disk copies of field logs, correspondence, reports, documents, measurements, and sample analysis data. In addition to these files, an electronic database are used to store, access, manipulate, format, and present data, documentation, reports, and analytical results. The electronic records are cross-referenced to microfiche/optical disk records as deemed necessary. The ERD ARDC Technical Leader under the direction of the WAG manager and the project manager oversees and coordinates the project file activity.

ERD project hard copy files are divided into two major categories: administrative and technical. A file identification and numbering index is established and updated in accordance with PD 1.8 to provide ready access to filed information. The ERD ARDC Technical Leader assigns file identification numbers and maintains adequate storage facilities with security and control sufficient to protect against document loss or unauthorized access. A project file is maintained as a measure of document control to ensure that all project documents are readily accessible and accounted for when the project is complete.

Management of electronically stored data is discussed in detail in Section 4.

Two separate files are maintained for each WAG/Unit, OU, and task site, respectively. A comprehensive Project File that includes all documents, correspondence, data, and other pertinent information generated, is maintained by ARDC. Another file, referred to as the administrative record (AR), is also maintained by ARDC. The AR is required pursuant to Section 113 of CERCLA to facilitate public participation in the investigative process (EPA 1988).

The information included in the AR is essentially a subset of the information contained in the Project File. While the purpose of the Project File is to document all administrative and technical information generated for each WAG/Unit, OU, and task site, the purpose of the AR is to document only that information considered or needed to select a remedy for the site. Therefore, certain administrative documents such as State quarterly reports, site-specific contracts, procurement packages, audit reports, etc., are not included in the AR. As information pertaining to OU 1-03, 4-10, 5-07, and 6-04 Track 2 investigation activities is generated and received by ARDC it is entered into an Optical Imaging System (OIS). OIS reports are generated to relate document information including title, author, receiver, date, and location of AR of Project File(s). These reports are generated periodically for each WAG/Unit. WAG/project managers shall indicate whether or not they concur with the file location for each document listed in the OIS report. The OIS report with the WAG/project manager changes incorporated is then submitted to DOE-ID to undergo the same process.

# 4. DATA REDUCTION, VALIDATION, VERIFICATION, AND REPORTING

## 4.1 Data Reduction, and Reporting

Data reduction refers to computations and calculations performed on the analytical data. This includes computing summary statistics, standard errors, confidence limits, tests of hypothesis relative to the parameters, and model validation. Standard equations and statistically acceptable procedures are used and are specified in the QAPjP portion of the OU sampling and analysis plan (SAP). When appropriate, data are reported with statistically supported limits of uncertainty to indicate limitations on the use of the data. All data, when reported, are rounded to the number of significant figures consistent with the confidence limits. Confidence limits are justified by the accuracy and precision of the sampling measurement and the analytical method.

Laboratory data reduction is addressed in the OU project-specific analytical SOW issued to the analytical laboratory(s). Bench chemists document sample preparation activities in a bound laboratory notebook or on bench sheets, which serve as one of the primary records for subsequent data reduction. Final data reduction of analyses performed is the responsibility of the individual compiling the summary report. Results from each data collection activity are reported in consistent units throughout each task. When applicable, as when presenting data on contaminant concentrations relative to the Resource Conservation and Recovery Act Toxicity Characteristic Leaching Procedure (TCLP), any applicable State or Federal regulatory limits are presented with the analytical data.

Field data reporting procedures and formats are also specified in the QAPjP portion of the OU SAP. Laboratory data reporting follows the procedures and format specified in the OU project-specific analytical SOW. Results and QC data for each analysis are transcribed to analytical reporting forms specific to the particular analysis. For most of the analyses, the forms are provided in the analytical SOW. Data are checked for accuracy and precision at the bench and instrument operator/analyst level and the laboratory manager's level before submitting the data package to EG&G Idaho.

## 4.2 Data Validation and Verification

The OUs analytical SOW specifies information and guidance specific to the samples being analyzed and data reporting forms used. A separate SOW for chemical, radiological, and geological property analyses has separate reporting requirements, and is prepared.

The data flow process begins when a SAP database is developed for a project. After completion of the SAP database, the sample tracking system is "populated" with sample numbers of the samples planned for collection. Sample labels and tags (when requested) are printed by data management personnel using this database. After sampling, selected field data are captured by data management for producing summary tables of field and analytical data.

The laboratory performing analyses for ERD receives samples from one or more projects concurrently. Through the analytical SOW, provided to the laboratory by the SMO, the laboratory is instructed to divide the samples into "Sample Delivery Groups" (SDGs). The definition of a SDG

is a set of samples from a single project, submitted for one analysis (i.e., volatile organics), received over a fourteen (or less) day period, never exceeding twenty samples. The data are reported in data packages corresponding to SDGs. Thus, the terms data package and SDG are used synonymously.

Laboratory data packages are received from the analytical laboratory in triplicate. When the ERD-FDC receives a data package from the laboratory, the sample tracking system is updated. The sample tracking system tracks samples by EG&G Idaho sample number and analysis type. If the data package requires Level A or B data validation, as specified in SMO-SOP-12.1.1, one copy of the data package is transmitted to the SMO. A second copy of the package is transmitted to the IEDMS DBA, and the third copy of the package is kept on file at the ARDC. The SMO performs method validation of the data to either Level A or B concurrently with data entry in the IEDMS. The level of method validation required is specified in the QAPjP.

Level A validation represents the maximum effort for chemical analysis data validation (i.e., complete review of the raw data for a given sample analysis, mass spectral confirmation, instrument calibration, calculation checking, etc). Level A validation is recommended on all samples used to make final decisions concerning remediation completeness and risk assessment and should be used for critical samples in site characterization activities.

Level B validation includes a check of the following; chain of custody, requested versus reported analyses, analysis holding times, method blank analyses, matrix spike/matrix spike duplicate analyses, duplicate analyses, internal standard areas, surrogate recoveries, and any other method specific quality control criteria. Level B validation is appropriate for data that will be used for site characterization or waste characterization (i.e., TCLP data). Standard EG&G practice is to perform Level B validation on TCLP data. All data that are not validated to Level A criteria, when a percentage of a project is validated to Level A are validated to Level B.

Level C validation ensures the data have been checked so that the value returned from the laboratory or field instrument is the value that is input into ERIS (i.e., transcription error checking). All data that are not validated to Level B criteria, when a percentage of a project are validated to Level B, are validated to Level C.

If only a percentage of the data are validated to either Level A or B, this is also specified in the QAPjP. Percentage validation is defined as follows: "x %" Level A data validation means that x % of the samples in all of the data packages (SDGs) will be validated to the Level A criteria, and that the remainder of the samples in each data package (SDG) will be validated to the Level B criteria. For all data that are not validated to either Level A or B, the ARDC-FDC forwards the data package only to the IEDMS DBA for Level C processing.

When IEDMS data management personnel receive a data package, the first step is to prepare the package for data entry by computer programs, followed by data entry with automated error checks of the data. The data management staff decides if the package has sufficient completeness and accuracy for entry to the IEDMS and reports to the appropriate OU project manager. The process often results in a need to procure additional data or clarification from the laboratory that performed the analyses. For example, a data package cannot be entered with the proper linkage maintained for records if sample numbers are used inconsistently throughout the data package. Once the package is deemed adequate, it is entered to the IEDMS.

Concurrent with data entry, an automated routine is invoked that performs a set of checks on the data as part of the data verification and validation process. A listing of suspect data entries (i.e., errors) is printed to an output file; an attempt is made to resolve each error. First, a check is made to determine if the error resulted from data entry. Other attempts are made to resolve the errors, and when the effort is successful, the data forms and databases are modified to reflect any changes. A listing of the residual set of errors is made, and each error is highlighted on the applicable data form. The data entry clerk visually verifies the data by comparing data on the original data forms and data on electronically produced forms, the latter originates from the database created in the data entry process. For data packages generated using EPA Contract Lab Program (CLP) protocols, the data are evaluated for adherence to the specific CLP SOW using a set of contract compliance screening (CCS) procedures. The CCS procedures evaluate the data for completeness and technical compliance to the CLP SOW. When desired, for inclusion in reports, the IEDMS can generate QC tables, which provide an efficient, easily readable tabular presentation of all data included on the complete set of data forms.

The SMO ensures that the method validation is performed using SMO SOPs. The SMO SOPs used for method validation include: (a) SMO-SOP-12.1.2, "Radiological Data Validation," (b) SMO-SOP-12.1.3, "Validation of Volatile and Semivolatile Gas Chromatography/Mass Spectrometry," (c) SMO-SOP-12.1.4, "Validation of Gas Chromatographic Data," and (d) SMO-SOP-12.1.5, "Validation of Inorganic Data." The method validation chemists attempt to resolve deficiencies identified during the method validation process. The chemist reviews the raw data to assess whether or not the analysis was performed using the specifications in the analytical method and that data on the reporting forms are consistent with the raw data. All laboratory data is cross-referenced to the appropriate trip blank, field blank, rinsate (equipment blank), method blank, field duplicate or replicate, matrix spike, and matrix spike duplicate. In addition, all pertinent data (date of sample collection, date received by the laboratory, and date analyzed or prepared for analysis) for each sample is referenced against their respective holding times.

After a chemist's evaluation, a Data Limitations and Validation (L&V) report is produced. The data forms with data validation flags are then resubmitted to the IEDMS staff. The L&V report is written after a thorough examination of the data. The L&V report states whether the data are consistent with the analytical level requested in the SOW, explain any limitations on use of the data, and defines any flags used in the method validation/qualification process. The L&V report together with the QC tables, when requested, allows the customer effective use of data. At completion of the method validation process, validated data are uploaded to the ERIS. The ERIS is discussed in Section 5.

All analytical laboratory data is validated as described in the OUs QAPjP. Twenty-five percent of all samples are validated at Level A and the remainder at Level B. All critical samples are validated at Level A. Following the Track 2 investigation, before the summary report is written, method validation, field data validation, and project DQO validation are performed to ensure that the DQOs outlined in the OU SOW and SAP are achieved.

# 5. COMPUTER DATABASE

The IEDMS is a PC-based system that can support environmental investigations from their design stage and throughout the duration of the study. The system integrates data originating from the SAP, field data, and analytical findings. The IEDMS automated features include:

- Sampling guidance forms
- Barcoded sample labels and tags
- Field and analytical forms reproduction
- Sample tracking
- Analytical data qualification
- Completeness reports
- Results and QC data reporting.

The IEDMS has extensive automated capabilities that support a systematic and comprehensive process for performing quality assessment of analytical data. One product of this process is a unique and extremely useful tabular presentation of the data. This table contains the complete set of results and QC data included on the data reporting forms while presenting the information consistent with the chronology in which the analysis was performed.

The ERIS computer database provides storage, control, management, and analysis of samples, measurements, and analytical results pertaining primarily to the site, contaminants, and the environment. The database is fully relational, providing electronic control of and access to all validated data in several data subject areas. They are radiological, environmental, geological, and chemical. The system also provides useful management and analytical software processing tools to allow data summarization and analytical evaluations with tabular and graphical displays. Development of the database system to full performance capabilities is being accomplished over an extended timeframe. However, interim management, control, analysis, etc., of the data can be accomplished without compromise to data quality, control, and security. Existing electronic and hard copy database systems are used. ERIS database description, quality, control, and management are described in White 1989, White 1991, and White 1991a.

# 6. DATA PRESENTATION

## 6.1 Tabular and Graphical Displays

Sample data are generated from previous investigations at the OUs under consideration. Additional data pertinent to assessing the magnitude and extent of contamination and the risks posed by the contamination are collected in the course of the Track 2 investigations that requires reporting, sorting, manipulation, and analysis.

A number of tabular and graphical displays are used to complete the requisite analyses and data manipulation and to report the information and conclusions in a clear and logical format. This manipulation of the data is necessary to assess information trends, identify adequacy of the data, identify missing information that needs to be collected, select sampling locations, and visually represent site conditions or data. Tabular presentations of all data, including results of data manipulation, shall be accompanied by their associated uncertainties.

Data representations in tabular format are expected to include:

- Unsorted (i.e., raw) data (when applicable)
- Results for each medium or for each constituent monitored
- Data sorted by potential stratification factors (e.g., location, topography, and analytical level).

Analytical data anticipated to be sorted and displayed in tables includes:

- Lists of chemical constituents of concern and pertinent regulatory concentration limitations
- Sorted sampling data results by analytical level
- Sorted sampling data results by analysis type within each medium and with depth in each medium
- Comparisons of background concentrations, sampling data, and regulatory limitations
- Limited statistical evaluation of sampling results
- Qualitative risk evaluation data
- Comparison of predicted results with measured concentrations
- Analytical QC data.

Data representations in graphical formats are anticipated to include:

- Sampling locations
- Boundaries of sampling areas and areas that require more data
- Levels of contamination at each sampling location
- Potential receptors.

Site features anticipated to be displayed graphically are:

- Site layout
- Sampling locations (bore hole locations, and maps of other sampling locations)
- Features affecting intramedia and intermedia transport
- Estimate of waste source dimensions and/or volume.

Graphic displays of the extent of contamination are expected to include:

- Vertical distribution of each contaminant
- Predicted concentrations of contaminants (changes over time at given locations)
- Predicted spread of contaminants over time.
- Photos and/or videos of waste sources and sampling locations.

Two-dimensional or three-dimensional diagrams of specific features are used in graphical displays. The exact selection is determined at the time of data compilation and assessment.

## 6.2 Project Reporting Requirements

Reports and documentation are required to keep project personnel and regulatory agencies informed of project status and results. These reports are filed by ARDC and are available as file copies and also in the database. Report generation is required to support a given project. Results of all investigations are documented in reports and shall:

- Characterize the OUs
- Determine the presence or absence of the contaminants of concern
- Determine the presence or absence of any other contamination

- Determine risk for each exposure route to actual or potential receptors and recommend that an OU proceed as a; (a) no action site, (b) interim action site, or (c) RI/FS scoping study.

## 6.3 Synthesized Data Presentation

Synthesized data are carefully distinguished from sample data. To accomplish this, all synthesized data are marked accordingly, and the equations or algorithms used are documented or referenced.

## 6.4 Quality Assurance of Data Presentation

Analytical data presented contains both the data quality level and the data limitations as identified during validation. Data are evaluated against precision, accuracy, representativeness, completeness, comparability, and overall project DQOs to assess the level of uncertainty associated with the data. The level of uncertainty affects the confidence level in the data and any decisions made.

# 7. DATA ANALYSIS TECHNIQUES

Data analysis techniques are documented in detail with appropriate references.

# 8. IMPLEMENTATION SCHEDULE

The implementation schedule for Track 2 investigation activities is discussed in each OU SOW.

# 9. REFERENCES

EG&G Idaho, 1989, *Environmental Restoration Program BWP Data Qualification Manual*, EGG-WM-8488, EG&G Idaho, Inc., Idaho Falls, ID, 1989.

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