Waste Area Grouping 4 Site Investigation Data and Records Management Plan, Oak Ridge National Laboratory, Oak Ridge, Tennessee
CDM Federal Programs Corporation

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Waste Area Grouping 4 Site Investigation Data Management Plan,
Oak Ridge National Laboratory, Oak Ridge, Tennessee

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Waste Area Grouping 4 Site Investigation
Data and Records Management Plan,
Oak Ridge National Laboratory
Oak Ridge, Tennessee

(ORNL/ER-298)

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<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>AR</td>
<td>Administrative Record</td>
</tr>
<tr>
<td>CDM Federal</td>
<td>CDM Federal Programs Corporation</td>
</tr>
<tr>
<td>CSL</td>
<td>Close Support Laboratory</td>
</tr>
<tr>
<td>DCN</td>
<td>document control number</td>
</tr>
<tr>
<td>DMC</td>
<td>Document Management Center</td>
</tr>
<tr>
<td>DOE</td>
<td>Department of Energy</td>
</tr>
<tr>
<td>DRMP</td>
<td>Data and Records Management Plan</td>
</tr>
<tr>
<td>DSC</td>
<td>Data Source Code</td>
</tr>
<tr>
<td>ER</td>
<td>Environmental Restoration</td>
</tr>
<tr>
<td>ESD</td>
<td>Environmental Sciences Division</td>
</tr>
<tr>
<td>ESTL</td>
<td>Energy Systems Technical Lead</td>
</tr>
<tr>
<td>FFA</td>
<td>Federal Facilities Agreement</td>
</tr>
<tr>
<td>ICP</td>
<td>inductively coupled plasma</td>
</tr>
<tr>
<td>MS</td>
<td>monitoring station</td>
</tr>
<tr>
<td>OREIS</td>
<td>Oak Ridge Environmental Information System</td>
</tr>
<tr>
<td>ORNL</td>
<td>Oak Ridge National Laboratory</td>
</tr>
<tr>
<td>ORO</td>
<td>Oak Ridge Operations</td>
</tr>
<tr>
<td>ORR</td>
<td>Oak Ridge Reservation</td>
</tr>
<tr>
<td>PM</td>
<td>Project Manager</td>
</tr>
<tr>
<td>QA</td>
<td>quality assurance</td>
</tr>
<tr>
<td>QC</td>
<td>quality control</td>
</tr>
<tr>
<td>RC</td>
<td>Records Coordinator</td>
</tr>
<tr>
<td>RMA</td>
<td>Records Management Area</td>
</tr>
<tr>
<td>SWSA</td>
<td>Solid Waste Storage Area</td>
</tr>
<tr>
<td>TOA</td>
<td>Tennessee Oversight Agreement</td>
</tr>
<tr>
<td>WAG</td>
<td>Waste Area Grouping</td>
</tr>
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</table>
1. INTRODUCTION

The purpose of this Data and Records Management Plan (DRMP) is to ensure that the Environmental Measurements data management process, from planning through measurement, recording, evaluation, analysis, use, reporting, and archival of data, is controlled in an efficient, comprehensive, and standardized manner. Proper organization will ensure that data and documentation are adequate to describe the procedures, events, and results of the Waste Area Grouping (WAG) 4 project. This plan will also provide guidance on handling documentation and project data diskettes, and the transfer of that information within the WAG 4 project team and to the Oak Ridge Environmental Information System (OREIS).

WAG 4 data management, as a project function, will interface with many support and task groups and may send and/or receive information. Although the context for individual interactions may vary, the emphasis must be on defining the structure of these interfaces and controlling the flow of information. WAG 4 project interactions are identified in Section 1.4.

The CDM Federal project data management team will receive data from the task data managers and will incorporate all data into the project database on an "as received" status. The CDM Federal Programs Corporation (CDM Federal) data management process for the Martin Marietta Energy Systems, Inc. (Energy Systems) Oak Ridge National Laboratory (ORNL) WAG 4 project is presented in Appendix A. The forms to be used as support of this process are presented in Appendix B. The project database that will process the data for the WAG 4 project will be developed from the data forms and will include all OREIS-required parameters.

The data management process manages the life cycle of environmental measurements data from the planning of data for characterization and remediation decisions through the collection, review, and actual usage of the data for decision-making purposes to the long-term storage of the data. The nature of the decision-making process for an Environmental Restoration (ER) project is inherently repetitive. Existing data are gathered and evaluated to establish what is known about a site. Decisions regarding the nature of the contamination and potential remedial actions are formulated. Based upon the potential risk to human health and the environment, an acceptable level of uncertainty is defined for each remediation decision. Sufficient data of adequate quality must exist or be collected by the project to support the decision. Investigation and collection of data continue until the uncertainty surrounding a decision has been reduced to an acceptable level.

1.1 PROJECT MISSION

WAG 4 is one of 17 WAGs within and associated with ORNL on the Oak Ridge Reservation (ORR) in Oak Ridge, Tennessee. WAG 4 is located along Lagoon Road south of the main facility at ORNL. WAG 4 is a shallow-waste burial site consisting of three separate areas: (1) Solid Waste Storage Area (SWSA) 4, a shallow-land burial ground containing radioactive and potentially hazardous wastes; (2) an experimental Pilot Pit Area, including a pilot-scale testing pit; and (3) sections of two abandoned underground pipelines formerly used for transporting liquid, low-level radioactive waste. In the 1950s, SWSA 4 received a variety of low- and high-activity wastes, including transuranic wastes, all buried in trenches and auger holes.
Recent surface water data indicate that a significant amount of $^{90}$Sr is being released from the old burial trenches in SWSA 4. This release represents a significant portion of the ORNL off-site risk. In an effort to control the sources of the $^{90}$Sr release and to reduce the off-site risk, a site investigation is being implemented to locate the trenches containing the most prominent $^{90}$Sr sources. The investigation has been designed to gather site-specific data to confirm the locations of $^{90}$Sr being released from SWSA 4.

The data should confirm the following statements.

- Drive point data can be used to map definite source areas within trenches and to determine if releases come from many trenches over a large area or simply from one or two trench sources for each seep. (To determine this, the results of the drive point sampling will be evaluated, with particular emphasis on the $^{90}$Sr data and the areal extent of trenches having elevated contamination.)

- Data generated from water-level and water-chemistry measurements within trenches are consistent with releases at seeps.

- Tracer tests demonstrate that individual sources or trenches definitely can be linked to specific seeps.

If evaluation of these data confirms that remedial efforts can focus on individual source areas or trenches, then some additional work around the sources would be warranted. The work would focus on generating physical data concerning the source/trench characteristics needed for an effective source-removal or isolation-system design.

If, however, the data evaluation does not lead to the conclusion that source isolation is a feasible remedial alternative, then additional data collection activities may be warranted to support other remedial alternatives. Specific activities will be implemented as soon as data generated from the field indicate the need for associated data, but the primary decision point will be whether specific sources or trenches can be isolated.

1.2 OBJECTIVES

The data collection objective of the WAG 4 project is to support the site investigation of SWSA 4 at WAG 4. This investigation has been designed to gather site-specific data to confirm the locations of $^{90}$Sr sources responsible for most off-site releases and to provide data to be used in evaluating potential interim remedial alternatives to reduce the $^{90}$Sr being released from the SWSA 4.

The data base used on this project will support project data collection activities, including field sampling parameters, field chain-of-custody, sample tracking, results of the laboratory analyses by the Close Support Laboratory (CSL) and the Y-12 laboratory, and the laboratory chain-of-custody forms. Information must be recorded in sufficient detail to allow traceability of the data. This DRMP will ensure the validity and accessibility of data to support environmental data analysis, and the evaluation of remedial action alternatives.
1.3 SCOPE AND LIMITATIONS

This DRMP applies to all organizations performing environmental measurements data management work for the WAG 4 project at ORNL. The organizations are presented in Fig. 1.1. This plan covers the activities involving the data and records generated and obtained during the project phase. This plan does not address the subsequent uses of the data generated during this investigation or the specific activities conducted once the records are received by the ER ORNL Document Management Center (DMC).

Current Monitoring Station-1 (MS-1) data collection activities are not subject to this DRMP. However, MS-1 data used in the evaluation of WAG 4 data will be included in the WAG 4 project data base. The MS-1 data will be provided to the WAG 4 data management team by the WAG 2 data management team.

The data generated during this site investigation will be screening-level data only and will consist of survey data, manual and automatic water level measurements, groundwater chemistry analysis, seep discharge flow rate and water quality measurements, and WAG 4 tributary discharge flow rate and water quality measurements. Any data that are used in the evaluation of the final data deliverable will be included in the project data base.

There is an order of non-release of all project information to any personnel outside the ER Division. For the process flow of information on the WAG 4 project, all information will flow through the Energy Systems Project Manager (PM) before being released for incorporation into the project data base and project files. The release of information to non-ER personnel will be at the discretion and approval of the ER PM.

Figure 1.1 shows the project organization, reporting relationship, and lines of authority for this project. As necessary, other personnel will be assigned responsibilities as described in the site logbook.

1.4 PROJECT DATA MANAGEMENT OVERVIEW

As discussed in the Waste Area Grouping 4 Site Investigation Sampling and Analysis Plan (DOE 1994), there will be multiple tasks ongoing during the investigation, which will be generating multiple data types. The major tasks are:

- Drive Point Installation
- Groundwater Sampling and Analysis
- Groundwater Level Monitoring
- Seep and Surface Water Sampling and Analysis and Flow Measurement
- Civil Survey
- Tracer Study
- MS-1 data acquisition

Overall coordination of each of these tasks will be under the direction of the Technical Lead/Field Team Leader, Dr. Dale Huff. However, the specific tasks will be managed by Task Managers, who will be responsible for generating specific data and records deliverables associated with the individual tasks. The specific data and records deliverables will be provided to the ER Project Manager and to CDM
Fig. 1.1. WAG 4 Site Investigation organization chart
Federal. CDM Federal will use the data and information to develop the Site Investigation Report as well as to prepare data and records deliverables for OREIS and the ORNL DMC. CDM Federal will also assist the Field Team Leader, as requested, in data management assessments during the course of the project. Responsible task data and records management deliverables and Task Managers are shown in Table 1.1.

Note that the data collected at MS-1 are being collected under an approved sampling plan and data management plan for WAG 2. It is not the intent of this DRMP to duplicate that effort or to add to the data management requirements for the MS-1 work. However, the data generated from MS-1 will be an integral part of the WAG 4 report. Therefore, the data deliverables from MS-1 shown on Table 1.1 are simply the data needed from MS-1 to complete the WAG 4 report.

Section 2 describes in more detail the specific data management activities for each field task described on Table 1.1.
Table 1.1. Data and records management deliverable

<table>
<thead>
<tr>
<th>Task / Manager</th>
<th>Project Task Deliverables</th>
<th>Information Submitted by</th>
</tr>
</thead>
</table>
| **Drive Point Installation** | 1. WAG 4 Well Log  
  2. Field Logbooks / Copies  
  3. Self Assessment/Surveillance Checklist | Task Data Manager via ER PM, Clay Bednarz, or his designee |
| **Norm Farrow** | | |
| **Groundwater Sample Collection** | 1. Field Sample Collection Form  
  2. Field Logbooks / Copies  
  3. Field Chain of Custody forms | Task Data Manager via ER PM, Clay Bednarz, or his designee |
| **Dan Marsh** | | |
| **Groundwater Level Measurement** | 1. Field Logbooks / Copies  
  2. Water Level Forms  
  3. Calibration Check Forms  
  4. Reduced Automatic Water Level Data (.dbf or ASCII tab delimited)  
  5. Electronic Copy of Manual Water Level Data Base (.dbf or ASCII tab delimited) | Task Data Manager Kim Michel via ER PM, Clay Bednarz, or his designee |
| **Dick Ketelle** | | |
| **Seeps & Surface Water Sample Collection** | 1. Field Sample Collection Form  
  2. Field Logbooks / Copies  
  3. Continuous Hydrograph (weekly & monthly)  
  4. Field Chain-of-Custody forms  
  5. Field forms when field measurements are recorded  
  6. Reduced Flow Data (.dbf or ASCII tab delimited) | Task Data Manager Ben Burgon via ER PM, Clay Bednarz, or his designee |
| **Ben Burgoa** | | |
| **MS-1 Data Collection at WAG 2 for WAG 4** | 1. All MS-1 data used in the evaluation of WAG 4 data  
  2. Electronic copy of Analytical Results (.dbf or ASCII tab delimited)  
  3. Data Forms  
  4. Hydrographs and Precipitation Data  
  5. Contaminant Flux Summaries (.dbf or ASCII tab delimited)  
  6. Field water quality measurements | Task Data Manager Jean Shaakir-Ali via ER PM, Clay Bednarz, or his designee |
| **Dennis Borders** | | |
| **Analytical Results (Screening Level Data)** | 1. Electronic results in the format of .dbf files, if provided in ASCII - must be in tab delimited format.  
  2. Analytical Chain of Custody  
  3. result documentation  
  4. Shall not include internal laboratory quality assurance sample results. | Task Data Manager Becky Bowman via ER PM, Clay Bednarz, or his designee |
| **Jack Burn, CSL** | | |
| **Civil Survey** | 1. Trench centerline (.dbf or ASCII tab delimited)  
  2. Drive Point "as built" specifications, Northing/Easting, and Referential Elevation (msl) (.dbf or ASCII tab delimited)  
  3. Seep collection geometry and discharge elevation (.dbf or ASCII tab delimited)  
  4. Wetland delineation (.dbf or ASCII tab delimited)  
  5. Miscellaneous site features (.dbf or ASCII tab delimited)  
  6. Field Logbook Copies | Task Data Manager via ER PM, Clay Bednarz, or his designee |
| **Steve Laman** | | |
| **Tracer Studies** | 1. Background or baseline concentration for tracer (.dbf or ASCII tab delimited)  
  2. Tracer concentration in seeps and downgradient drive points (.dbf or ASCII tab delimited)  
  3. Field Logbooks/Copies and Field Notes  
  4. Result Documentation | Task Data Manager via ER PM, Clay Bednarz, or his designee |
<table>
<thead>
<tr>
<th>Task / Manager</th>
<th>Project Task Deliverables</th>
<th>Information Submitted by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>OREIS Data Deliverable</td>
<td>1. OREIS letter of transmittal, and all documentation of data base, data content, data statistics (min, max, mean, and std deviation for numerical data; and character data)</td>
<td>Project Data Manager Connie Inman</td>
</tr>
<tr>
<td></td>
<td>2. Data Base Dictionary</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Electronic Transfer of Data</td>
<td></td>
</tr>
<tr>
<td>Connie Inman, CDM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ER ORNL DMC Records Transfer</td>
<td>1. Material Transfer Form</td>
<td>Project Records Coordinator, Tammie Jackson</td>
</tr>
<tr>
<td></td>
<td>2. All project documentation provided to the Project Temporary Storage Area</td>
<td></td>
</tr>
<tr>
<td>Connie Inman, CDM</td>
<td>3. Electronic Copy of Record Index, (askSam format)</td>
<td></td>
</tr>
</tbody>
</table>
2. DATA MANAGEMENT ACTIVITIES

Although most data analysis and reporting attention is focused on the measurement result, its meaning and quality are described by associated information. Therefore, the data management activities of the WAG 4 project will include the sampling information, field measurements, survey information, project documentation, and the data analysis and reporting functions.

Data must be traceable from the original generator recording the data through all electronic processing steps, including, but not limited to, entry, verification, analysis and reporting, and final data archival. The dates/times that activities were completed, files that were processed, and logs of data queries performed are examples of information to be retained. This traceability must extend to hard copy data records, logbooks, and forms stored in the project records management system through cross references in the electronic indexes.

Data accountability is closely linked to traceability. For example, information regarding who collected the sample and what sampling method was used, who reviewed the field data, who performed data entry, what laboratory performed the analyses, what analysis method was used, and who verified the data must be maintained to ensure a complete project data record.

Data accountability and traceability, with cross-references to supporting hard copy documentation, are required to ensure that technically defensible and legally admissible data of known quality are available to meet ER project and programmatic needs. The implementation of this DRMP will ensure the availability of quality assured data products to meet regulatory reporting requirements. The Federal Facilities Agreement (FFA) for the ORR and the Tennessee Oversight Agreement (TOA) between the state of Tennessee and the Department of Energy (DOE) mandate that data reporting activities are coordinated through a consolidated data base.

2.1 FIELD MEASUREMENTS DATA COLLECTION

Field data collection involves the activities conducted in the field to take measurements and gather samples from a particular monitoring location within a study site. Field sampling events are planned and scheduled. Necessary data entry forms, field logbooks, and data sets are prepared for data capture. The field sampling events are conducted to collect the samples and record the information in logbooks and/or monitoring event forms. Recorded information is intended to provide sufficient data and observations to enable participants to reconstruct events that occurred during the data collection process and to help qualify data. Reviews of the recorded data are performed to ensure correctness.

Field documentation generated during the WAG 4 field effort will be transferred monthly to the WAG 4 PM and then distributed to the data management team. Field documentation is to include, as appropriate,

- hydrographs,
- field logbooks (originals and copies),
- flow measurements,
- field parameter documentation,
- water level measurements,
self-assessment/surveillance checklists, calibration checklist, field chain-of-custody, and QC verification documentation.

All MS-1 data to be transferred from the WAG 2 data management team will include electronic analytical results (.dbf or ASCII tab delimited format), data forms, hydrographs, and flow measurements. Because of the information needed for the trench comparison, the groundwater quality team will be required to provide the water level forms and measurements.

When field data forms are not used and the information is recorded in the field logbook, the Data Collection Coordinator will be responsible for extracting the necessary information onto the appropriate data form developed by the data management team. The Data Collection Coordinator will read the field logbook and pull the necessary information onto the form for data entry into the project data base. A QC verification of 100% will be performed of the translated information before it is loaded to the project data base.

To the extent possible, hard copy data products should be able to stand alone. Documentation provides a basis for defensibility of the data product and a method for reproducing results. Documentation of data products requires information of three basic categories: (1) the source of the data, (2) the manipulations that were performed to present the data, and (3) the tools that were used to create the data product. Documentation of electronic data products should include (1) data source, manipulations, and tools; (2) project identification; (3) file descriptions; (4) file transfer format; (5) file transfer media; (6) summary information; (7) field definitions; and (8) code definitions.

2.1.1 Civil Survey

The data management activities for this task include obtaining civil survey information to locate and stake the centerline of the trenches of interest, based on the remote sensing information. In addition, a final survey of the site will be made to determine actual locations of drive points and other features of interest. The survey information will be provided by the Energy Systems Technical Lead (ESTL), Dr. Dale Huff, and Steve Laman of the Engineering Department. The "as built" specifications will be included in the transfer of data. This source of information will provide the northing/easting, and elevations of the drive point installations.

The records generated during the civil survey activity will be transferred to the engineering record files and the WAG 4 ESTL and then to the Data Collection Coordinator. The Data Collection Coordinator will review all documentation for completeness and will transfer needed information onto the appropriate data log form for inclusion in the project data base. The transfer of records will be completed weekly or monthly dependent on the volume of records generated during the time frame. The records may include, but not be limited to, field logbooks, field data forms, drive point records, calibration check verifications, self-assessment/surveillance checklists, and any documentation necessary to support the project recreation or data interpretation and traceability.

2.1.2 Hydrologic Field Measurements

The objective of collecting groundwater level data at WAG 4 is to document the spatial changes in water levels in the vicinity of WAG 4, and specifically in the vicinity of the 90Sr seeps and trenches
suspected to contain the contaminant sources. The data are critical to evaluating the mechanisms that must be considered in design and construction of hydrologic isolation and seepage collection and treatment facilities at WAG 4. Groundwater levels will be monitored in two ways: by manual measurement on a weekly frequency, and by using pressure transducers and data loggers to obtain continuous records of water level fluctuations.

2.1.2.1 Automatic groundwater level measurements

Energy Systems will collect monthly data strips of the automatic data loggers. The water level files will be reduced from the pre-defined interval readings to an hourly representative value. The manual water level measurements that will be used in the evaluation of WAG 4 project data will be recorded on a field data sheet and loaded to the same field data base as the automatic measurements. The field data base is maintained by the Environmental Sciences Division (ESD) of Energy Systems. The reduction of data will be the responsibility of ESD and will not be subject to this DRMP.

2.1.2.2 Discharge monitoring

The discharge monitoring activity will include the collection of continuous stream water level/stage height data. The stage height data are recorded by an electronic data logger at WAG 4 seeps. The data will be recorded at pre-defined intervals for conversion into hourly, daily, and monthly discharges using the weir stage-discharge relationship. The instrumentation used for collection of the stage height data will be the Omnidata Easy Logger.

2.1.2.3 Data Processing

On a monthly basis the reduced hydrologic field measurements will be transferred by diskette to the WAG 4 Energy Systems PM for distribution to the WAG 4 data management team. The electronic files will be transported in .dbf format or ASCII tab delimited to simplify the loading of the information into the project data base.

When the electronic files are forwarded, an information data sheet will be included that states the file format/layout, number of observations/records, and point of contact information for loading resolutions. Task teams will perform a 100% quality control (QC) verification of all hand entered information. The data management team will perform a 10% QC verification of all information to verify that the correct information was loaded to the project data base.

The documentation to be included in the monthly transfer of data may include, but not be limited to, field logbooks, data recording forms, quality assurance (QA) records, and the data manipulation log, as well as daily, weekly and monthly hydrographs.

2.2 SAMPLE COLLECTION

The WAG 4 sampling documentation and flow rate information will be forwarded monthly to the WAG 4 PM and then to the data management team. The field data deliverable will consist of copies of the field chain-of-custody forms, field logbooks, and any field documentation forms including the flow rate information and manual water level measurements.
2.2.1 Surface Water

Surface water samples will be collected from the seep weirs by grab sampling. Samples will be collected into two-liter plastic jars and taken to the CSL. Field chain-of-custody forms provided by the surface water program will be completed on-site and custody will be transferred to CSL personnel. The chain-of-custody forms provided by the CSL will be completed when the samples are taken to the CSL. Copies of both forms will be retained by all parties and forwarded with the sample results to the Energy Systems PM and, in turn, to the WAG 4 project data management team.

The grab samples from the seep weirs will be analyzed for \(^{90}\text{Sr}\) (using the Cerenkov method), \(^{3}\text{H}\) by gamma spectroscopy, gross alpha and beta, and tritium/carbon-14. Samples (approximately three from each seep) will be collected during baseflow conditions to define the constant concentration of contaminants from groundwater input and to identify seasonal changes in concentration. Samples will also be collected (approximately three from each seep) during storm events to determine any increase in contaminant flux during increased seep discharge. Both baseflow and stormflow concentrations will be compared to the tributary concentrations (data collected independently of this project) to determine relative input from specific seeps to total contaminant transport from WAG 4. The data used in evaluation of WAG 4 data will be supplied to the WAG 4 project data base by the WAG 2 data management team.

2.2.2 Groundwater Quality Samples

The Phase I groundwater quality samples will be collected in two aliquots. CSL will conduct screening-level analysis of the samples. The first aliquot, which will be preserved with HCl, will be analyzed at the CSL for gross beta activity, \(^{90}\text{Sr}\) (by Cerenkov) and \(^{137}\text{Cs}\) by gamma spectroscopy. The second aliquot, which will not be preserved, will be analyzed for \(^{3}\text{H}\). These analyses can be conducted rapidly, and the results will be used by the project team to guide selection of additional drive-point locations. This information will be included in the monthly transfer of information. All radiological data from the CSL will be reported in pCi/L.

The sample results under the quick-turn deliverable will be provided by facsimile to the WAG 4 ER project team and the WAG 4 Energy Systems PM. The Energy Systems PM will forward the information to the data management team.

Phase II groundwater sampling will be a repeat of the Phase I sampling, with additional aliquots collected for anions and ICP metals. The parameters pH, Eh, temperature, conductivity, DO, and alkalinity will be measured in the field using a Hygrolab and a Hoch alkalinity test kit. CSL will analyze all the lab parameters except ICP metals. These samples will be forwarded to the Y-12 laboratory for analyses. The ICP metals will be reported in a similar fashion as the CSL deliverable. The field parameters collected in Phase II by the groundwater quality team will be recorded on a standardized form and will be included in the monthly transfer of information. All radiological data will be in pCi/L and lab data will be in mg/L.

The sample results will be provided to the WAG 4 ER project team and the WAG 4 Energy Systems PM. The Energy Systems PM, or his designee, will forward the information to the WAG 4 project data management team.
2.2.3 Tracer Tests

It is anticipated that, as source trenches for $^{90}$Sr are located and drive point wells are installed, both gaseous and perhaps colloid tracers tests will be conducted to demonstrate a flow pathway from the trench to the seep discharge point. For the gaseous tracers, diffusion can be used to place detectable amounts of the tracer into trench water. Within 2 days, the gas diffusing into the sampler will be in equilibrium with the dissolved gas in the groundwater. The sampler then is removed, the gas from the chamber undergoes gas chromatography, and the quantity present is determined. No water samples are required to leave the site for analysis.

Colloid and bacteriophage testing requires injection of a broth of materials into the well, followed by collection and testing of samples for the presence of tracer. The volume of samples collected is minimal (a few milliliters), and tracer samples can be collected with other seep water samples. Sampling before injection of the tracers establishes the natural background levels. Observed concentrations in excess of five times the background are usually required to indicate a positive presence of the tracer.

When this method is used, the samples will be documented on a field chain-of-custody and forwarded to the CSL for analysis. The record requirements will be the same as for the seeps and surface water sampling.

2.3 ANALYTICAL DATA PROCESSING

All samples, excluding the inductively coupled plasma (ICP) metals for groundwater, will be analyzed by the ER ORNL CSL. The ICP metals will be analyzed by the Y-12 laboratory. The analytical deliverable will be forwarded to the WAG 4 Energy Systems PM and then to the data management and project teams. The CSL will produce a hard copy and an electronic deliverable. The data deliverable will consist of, but not be limited to, the analytical chain-of-custody form, result documentation, and an electronic data deliverable. The electronic deliverable will be in .dbf or ASCII tab delimited format and will consist of sample results except the internal laboratory QA sample results.

2.4 DATA COLLECTION AND REPORTING

The project reports will be generated by the CDM Federal project team. The Data Collection Coordinator will gather the report layout requirements and provide them to the Data Management Coordinator. The Data Management Coordinator will define the report layout and produce the reports from the project data base. Any data needed by the project report writers should be located in the project data base.

The reports generated for the WAG 4 site investigation will support the project DQOs defined in Sect. 4 of the WAG 4 Site Investigation Sampling and Analysis Plan (SAP) (DOE/OR/01-1337&D1, December 1994). The project will generate screening-level data only. A description of the PARCC parameters and criteria can also be found in Sect. 4 of the SAP.
2.5 RECORDS MANAGEMENT ACTIVITIES

Project data collection and management documentation shall be centralized. Data traceability and accountability rely upon accurate, complete, and readily available project data records. Project documentation shall be identified in governing plans and required records section of implemented procedures. Hard copy documents to be designated as official project records shall be identified and submitted to the project file. Documents shall be reviewed for completeness and adherence to records management requirements as described in the ER procedure "Receiving, Processing, and Maintaining Environmental Restoration Program Records" (ER/C-P1110) (Energy Systems 1992). Project implementation plans will identify the mechanisms employed to ensure that records of data management activities are controlled.

All records generated on the ORNL WAG 4 project are subject to the requirements of ES-QA 17.0, "Quality Assurance Records" (Energy Systems 1994b), and any associated requirements pertaining to the Administrative Record (AR) maintained by the ER Central DMC. The Energy Systems AR staff will initiate and designate documents for inclusion in the AR files, and will submit these documents to ER Central DMC.

2.5.1 Records Management Requirements

The CDM Federal data management team will be responsible for transferring the official WAG 4 project records to the ER ORNL DMC. Energy Systems will ensure consistent compilation, maintenance, and preservation of ER project files for operational, historical, and legal purposes. Legal ownership of the project records will remain with the ER ORNL DMC. Records in the CDM Federal Records Management Area (RMA) will be designated with "Record Copy."

The method of storage will be determined by the type of record involved. Special consideration will be given to records such as photographs, negatives, magnetic media, microfilm, or any other records that require special storage. Records in the master file sent to the ER ORNL DMC shall be legible, complete, and identifiable as to the subject and/or items to which they pertain. Records shall be considered valid only if stamped, initialed, signed, or otherwise authenticated and dated by project personnel. Records in the master file may be original copies or best-available reproductions. Internal working instructions will be developed to detail the processing, indexing, and filing of records in the master file.

A personal computer-based indexing and retrieval system will be used to maintain control and accountability of records to enter both the RMA and ER ORNL DMC. Access to the data base and hard copy files will be limited to ER ORNL DMC personnel and to individuals authorized by the WAG 4 QA Specialist. The project files will be opened at the beginning and closed at the end of each work day by the Records Coordinator. The records will be maintained in the RMA as project working files. The RMA is a fire-rated vault and will allow document safekeeping.

2.5.2 Indexing Records

Each contract-related document for the WAG 4 project maintained in the records management system and database is assigned a unique document control number (DCN) and is indexed in the following manner:

W4Txxxxx
where

\[
W4TA = \text{Waste Area Grouping 4 Trench Assessment,} \\
xxxxx= \text{the unique and sequential number assigned to the document.}
\]

2.5.3 Receipt and Processing of Records

The project records will be transferred to the WAG 4 Data Collection Coordinator, from the field teams, on a weekly or monthly basis, dependent upon the volume of records accumulated during the time frame. Upon receipt of records, the Data Collection Coordinator will make one copy of all records received and then forward the original records to the Records Coordinator (RC).

The field team will submit a Document Transfer Log with each transfer of records to the Data Collection Coordinator. The log will list the submitter, date/time, document titles, number of each type of document, logbook cover pages, number of pages from each log, and any DCNs already assigned by the ER ORNL DMC.

The Data Collection Coordinator will submit a Document Identification Form with each transfer of records to the RC. The form will provide necessary information to the RC for input into the data base and assignment of DCNs. The RC will produce an output listing of the records received and the DCN assigned to the Data Collection Coordinator. The Data Collection Coordinator will note the appropriate DCN on the forms and forward the listing to the data management group for attachment to the appropriate data files. When referring to the document on the data log forms, the Data Collection Coordinator will use the DCN.

All records are assigned a unique DCN and a bar code attached by the RC. The RC has the responsibility for logging all documents submitted to the Document Tracking System. The RC also ensures that the document transmittals to ER ORNL DMC are archived and that the file copies are inserted into the appropriate project file jacket.

2.5.4 Distribution and Transfer of Documents

A general distribution list of those people relevant to the WAG 4 project and its records will be created by the CDM Federal PM and will be distributed and updated as needed.

Major points to be checked by the RC before distribution of any document are

- completeness and legibility of the document and all copies,
- presence of relevant and up-to-date distribution list,
- requirements for controlled distribution, and
- presence of proper number of copies maintained on file.

The RC is responsible for transferring documents to the ER ORNL DMC. Documents being transferred to the ER ORNL DMC must be accompanied by a Document Transmittal Form; otherwise, they may not be accepted or inserted into the proper files. All records requiring transmittal to the ER ORNL DMC will be transferred at the end of the project phase.

95-03117908-009/0221
2.5.5 Disk Management System

The project diskettes will be managed by the data management team in accordance with CDM Federal disk management working instructions. There are three main steps in processing the diskettes: (1) completing the diskette log form, (2) assigning a diskette number and loading the diskette file information into the diskette data base, and (3) creating a working copy and archiving the original diskette. The process is diagrammed in Appendix A.
3. ROLES AND RESPONSIBILITIES

3.1 ENERGY SYSTEMS PM

The Energy Systems PM will be the central point of contact and will have primary responsibility for technical, financial, and scheduling matters. Data management duties to be performed by the Energy Systems PM or his designee will include the following:

- assigning the project data management team,
- providing project information for successful data management implementation,
- receiving the analytical deliverable from CSL and the Y-12 laboratory and executing distribution to the appropriate teams,
- assigning the records management team and the locations of temporary records storage facilities and the final repository of official project records, and
- assuring the appropriate project team has complied with the Analytical Projects Office requirements of the Local Sample Management System reports.

3.2 ENERGY SYSTEMS TASK MANAGERS

The Energy Systems Task Managers will ensure that their project team has read this DRMP and has been given the appropriate information to complete the field data and records management process. Additional responsibilities include the following:

- ensuring that the field activities have been recorded in the field logs;
- ensuring that the complete project records, as defined in Table 1.1, have been forwarded to the Energy Systems PM for inclusion in the project records management system;
- ensuring that the electronic data are complete and have been forwarded to the Energy Systems PM for inclusion in the project database;
- recording information regarding the activities necessary to change the status of a monitoring location;
- recording weather conditions, unusual site observations, etc.;
- verifying the calibration event;
- ensuring the recording of the field measurements;
- ensuring the recording of sample collection information;
- performing field verification for field measurements and sample documentation; and
• identifying and recording project non-conformances.

3.3 ENERGY SYSTEMS TECHNICAL LEAD

The ESTL will be responsible for oversight of all field activities. The ESTL’s data and records management responsibilities include the following:

• ensuring implementation of the DRMP and ensuring that the task managers have read the DRMP,
• providing direction and supervision to personnel to ensure that on-site activities adhere to the DRMP,
• verifying the use of calibrated equipment, and
• overseeing field data documentation.

3.4 CDM FEDERAL DATA COLLECTION COORDINATOR

The CDM Federal Data Collection Coordinator is responsible for coordinating between the field teams, PM, ESTLs, and the data and records management groups to ensure all data has been forwarded and provided for input to the project data base and the project files. The Data Collection Coordinator’s data and records management responsibilities include the following:

• reviewing the field logbooks and documenting the necessary information on the appropriate form;
• coordinating with the RC to ensure that the project file is being maintained; and
• resolving issues between the field team and the data management team regarding the loading of data (i.e., missing parameters, missing documentation, illegible handwriting, etc.).

3.5 CDM FEDERAL QA COORDINATOR

The CDM Federal QA Coordinator’s data management responsibilities are as follows:

• reviewing and approving the DRMP and all subsequent changes to these documents,
• preparing a monthly QA status report for submittal to the QA Specialist and ensuring that a copy has been entered into the project file, and
• arranging or performing audits or surveillance and ensuring that a copy of the report has been forwarded for inclusion in the project file.

3.6 CDM FEDERAL DATA MANAGER

The CDM Federal Data Manager will appoint the project data management team and will also be responsible for the following:

• developing the DRMP,
• ensuring the data and records management team has been trained on the use of the DRMP,
• working with the project team to develop the required field forms and project process flows, and
• overseeing the data transfers to the OREIS data base.

3.7 CDM FEDERAL DATA MANAGEMENT COORDINATOR

The CDM Federal Data Management Coordinator will train the data management staff on the use of the DRMP. The Data Management Coordinator will also perform the following tasks:

• complete the data transfers to the OREIS data base,
• identify data and records management issues to the task managers,
• ensure that the DRMP’s requirements are met,
• ensure that any existing data or new project data are properly incorporated into the project data base, and
• ensure that the hard copy data management records are processed according to project records management requirements.

3.8 CDM FEDERAL DATA MANAGEMENT SPECIALIST

The CDM Federal Data Management Specialist is responsible for entering project information into the electronic project-level repository and ensuring that all information has been entered into the repository correctly. Specific responsibilities include the following:

• acquiring existing data and converting them to the proper format,
• verifying data entry through QC practices,
• storing field event results electronically,
• creating backups of field event information,
• implementing the disk management process,
• storing field measurements and analytical data packages information electronically,
• conducting data verification activities,
• defining the project data base and input requirements,
• preparing the project reports,
• preparing the OREIS deliverable and notifying the Data Management Coordinator of any problems, and
Informing the Data Management Coordinator of work performed and of project data management issues in a weekly status report.

3.9 CDM FEDERAL RECORDS COORDINATOR

The RC is responsible for implementing and maintaining the security, storage, indexing, arrangement, retrieval, and transmittal of all records pertaining to the WAG 4 project. Additional responsibilities include the following:

- Setting up the structure of the data base to facilitate internal record keeping for the WAG 4 project;
- Developing task-specific working instructions to maintain continuity of the system;
- Examining all documents forwarded to the RMA for temporary storage;
- Logging project records into the Records Management System and ensuring that the correct number of copies are maintained in the project files;
- Conducting inventories and closeouts of files, including the transfer of project records to the ER ORNL DMC through the askSam Document Tracking System;
- Assigning DCNs and attaching bar codes using an automated data system;
- Ensuring that the proper information for identification has been completed on the RMA Document Identification form;
- Stamping incoming documents as “FILE COPY” to validate acceptance and creating file folders based on the list of document types approved by the Energy Systems PM; and
- Ensuring that the documents have been filed in a timely manner and placed in the proper file storage area.
4. DATA REQUIREMENTS

The data requirements for each task are identified in Table 4.1. The project field forms and data processing forms are located in Appendix B.

<table>
<thead>
<tr>
<th>Task / Manager</th>
<th>Project Task Deliverables</th>
<th>Data Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drive Point Installation</td>
<td>1. WAG 4 Well Log</td>
<td>Field Logbooks (ORNL/ER-225)</td>
</tr>
<tr>
<td>Norm Farrow</td>
<td>2. Field Logbooks / Copies</td>
<td>WAG 4-06 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>3. Self Assessment/Surveillance Checklist</td>
<td>WAG 4-05 (Rev. 0)</td>
</tr>
<tr>
<td></td>
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<td>QA-01 (Rev. 0)</td>
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<td>ES/QA 17.0</td>
</tr>
<tr>
<td>Groundwater Sample Collection</td>
<td>1. Field Sample Collection Form</td>
<td>Field Logbooks (ORNL/ER-225)</td>
</tr>
<tr>
<td>Dan Marsh</td>
<td>2. Field Logbooks / Copies</td>
<td>WAG 4-01 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>3. Field Chain of Custody forms</td>
<td>WAG 4-02 (Rev. 0)</td>
</tr>
<tr>
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<td></td>
<td>WAG 4-06 (Rev. 0)</td>
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<td>QA-01 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ES/QA 17.0</td>
</tr>
<tr>
<td>Groundwater Level Measurement</td>
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<td>Field Logbooks (ORNL/ER-225)</td>
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<td>Dick Ketelle</td>
<td>2. Water Level Forms</td>
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<td>3. Calibration Check Forms</td>
<td>QA-01 (Rev. 0)</td>
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<td>4. Reduced Automatic Water Level Data (.dbf or ASCII tab delimited)</td>
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<td>5. Electronic Copy of Manual Water Level Data Base (.dbf or ASCII tab delimited)</td>
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<td>Seeps &amp; Surface Water Sample Collection</td>
<td>1. Field Sample Collection Form</td>
<td>Field Logbooks (ORNL/ER-225)</td>
</tr>
<tr>
<td>Ben Burgoa</td>
<td>2. Field Logbooks / Copies</td>
<td>WAG 4-03 (Rev. 0)</td>
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<td></td>
<td>3. Continuous Hydrograph (weekly &amp; monthly)</td>
<td>WAG 4-04 (Rev. 0)</td>
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<tr>
<td></td>
<td>4. Field Chain-of-Custody forms</td>
<td>WAG 4-06 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>5. Field forms when field measurements are recorded</td>
<td>QA-01 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>6. Reduced Flow Data (.dbf or ASCII tab delimited)</td>
<td>Form TX-5830, Rev. 1 (14Dec94)</td>
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<td></td>
<td>ES/QA 17.0</td>
</tr>
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<td>MS-1 Data Collection at WAG 2 for WAG 4</td>
<td>1. All MS-1 data used in the evaluation of WAG 4 data</td>
<td>Field Logbooks (ORNL/ER-225)</td>
</tr>
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<td>Dennis Borders</td>
<td>2. Electronic copy of Analytical Results (.dbf or ASCII tab delimited)</td>
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<tr>
<td></td>
<td>3. Data Forms</td>
<td>QA-01 (Rev. 0)</td>
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<td>4. Hydrographs and Precipitation Data</td>
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<td></td>
<td>5. Contaminant Flux Summaries (.dbf or ASCII tab delimited)</td>
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<td>6. Field water quality measurements</td>
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<td>1. Electronic results in the format of .dbf files, if provided in ASCII - must be in tab delimited format.</td>
<td>Field Logbooks (ORNL/ER-225)</td>
</tr>
<tr>
<td>Jack Burn, CSL</td>
<td>2. Analytical Chain of Custody</td>
<td>WAG 4-06 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>3. result documentation</td>
<td>QA-01 (Rev. 0)</td>
</tr>
<tr>
<td></td>
<td>4. Shall not include internal laboratory quality assurance sample results.</td>
<td>ES/QA 17.0</td>
</tr>
<tr>
<td>Task / Manager</td>
<td>Project Task Deliverables</td>
<td>Data Requirements</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------------------</td>
<td>------------------</td>
</tr>
</tbody>
</table>
| Civil Survey   | 1. Trench centerline (.dbf or ASCII tab delimited)  
2. Drive Point “as built” specifications, Northing/Easting, and Referential Elevation (msl) (.dbf or ASCII tab delimited)  
3. Seep collection geometry and discharge elevation (.dbf or ASCII tab delimited)  
4. Wetland delineation (.dbf or ASCII tab delimited)  
5. Miscellaneous site features (.dbf or ASCII tab delimited)  
6. Field Logbook Copies | Field Logbooks (ORNL/ER-225)  
WAG 4-06 (Rev. 0)  
QA-01 (Rev. 0)  
ES/QA 17.0 |
| Steve Laman    |                          |                  |
|                |                          |                  |
| Tracer Studies | 1. Background or baseline concentration for tracer (.dbf or ASCII tab delimited)  
2. Tracer concentration in seeps and downgradient drive points (.dbf or ASCII tab delimited)  
3. Field Logbooks/Copies and Field Notes  
4. Result Documentation | Field Logbooks (ORNL/ER-225)  
WAG 4-06 (Rev. 0)  
QA-01 (Rev. 0)  
ES/QA 17.0 |
| Dale Huff      |                          |                  |
| OREIS Data Deliverable | 1. OREIS letter of transmittal, and all documentation of data base, data content, data statistics (min, max, mean and std deviation for numerical data; and character data)  
2. Data Base Dictionary  
3. Electronic Transfer of Data | Field Logbooks (ORNL/ER-225)  
WAG 4-06 (Rev. 0)  
QA-01 (Rev. 0)  
OREIS-1 (Rev. 1)  
(ERWM/ER-P2701) |
| Connie Inman, CDM |                          |                  |
| ER ORNL DMC Records Transfer | 1. Material Transfer Form  
2. All project documentation provided to the Project Temporary Storage Area  
3. Electronic Copy of Record Index, (askSam format) | Field Logbooks (ORNL/ER-225)  
WAG 4-06 (Rev. 0)  
QA-01 (Rev. 0)  
DMG-01  
MTF-01  
ES/QA-17.0  
ER/PI1110 (Rev. 0)  
WAG 4 DRMP (Rev. 0) |
5. PROJECT DATA BASE

The data management plan developed for the WAG 4 project is in accordance with the *Environmental Measurements Data Management Plan for the Environmental Restoration Program*, ES/ER/TM-88, Rev. 0 (Energy Systems 1994a). The relational data base developed for the project provides for the linkage of computerized data to the original hard copy sources and for the documentation of the flow of data from the hard copy sources to the final repository of the data.

5.1 WAG 4 PROJECT DATA BASE OBJECTIVES

The objectives of the WAG 4 project data base include, but are not limited to,

- providing environmental measurements data to support environmental remediation activities;
- establishing a comprehensive audit trail for the complete life cycle of environmental measurements data (i.e., data traceability);
- ensuring the timely and efficient transfer of environmental measurements data to the OREIS central repository;
- developing project data management systems following a structured approach; and
- documenting project data management systems. The appropriate documentation for each project will be determined by the software class.

5.2 WAG 4 PROJECT DATA BASE REQUIREMENTS

These requirements address the day-to-day operations of the WAG 4 project data base, including backups and disaster recovery of multiple applications and development environments. Security to the various environments and interfacing to other data management systems are also controlled through the data management system administration procedures and rules.

5.2.1 Data Entry/Transfer Verification

Data transformation and transfer activities shall be verified to ensure that data integrity is maintained. This includes all movement/copying of data from one storage medium to another and transformation from one format to another. All measurements data, including analytical data produced and reported by a laboratory, must conform to this requirement.

This requirement encompasses all data recording media, such as handwritten or hard copy produced by electronic means, as well as electronically stored, such as in a data base. It also includes all data collection methods (e.g., electronic collection through real-time monitoring instrumentation, and handwritten log entries).
If a data transformation or transfer activity has occurred before receipt of the data by ER personnel (i.e., between creation and final reporting), the verification may be performed by the reporting party, but only if sufficient evidence to support the validity of the process can be provided by the reporting party. For example, if a laboratory technician captures data from a laboratory instrument and records it in a logbook, enters the data from the logbook into an electronic data deliverable format, and then transfers the data to the project, the verification process will be performed by the laboratory. The laboratory will perform a 100% verification of all manual data entry prior to data delivery.

The data verification records shall be transferred in the scheduled records transfer with the standard project records. The electronically available data will be transferred into the project data base and a 10 percent QC check will be performed by the Data Management Specialist and the project team. A 100 percent QC review will be performed on the information that will require manual data entry. The data base will have internal validation checks to verify that the type of information in each field is a valid entry and that all required information has been provided.

The manually entered and electronically transferred data to be added to the project data base will undergo QC review using a “Yellow and Red” standard. Correct information will be highlighted using a yellow marker. The reviewer will strike through incorrect information using a single red line and will write the correct information above or to the right of the mark. The reviewer will initial and date each page if the sheets are not bound, the cover page only if bound, that has undergone QC review. The material then will be returned to the Data Management Specialist for the corrections. Once the corrections have been made in the data base, the corrected material will be reprinted and returned to the reviewer. The correction will be noted with a yellow marker and attached to the original sheet. The QC reviewer will be someone other than the person who entered the data electronically.

If an error has been found in a file after it has been transferred to an outside source, (i.e., OREIS, General Data Users, etc.) the file will be resubmitted with the form EMTF-01 within 16 working hours of correction. A detailed explanation of the correction will be provided in the “Comments” section of the form.

5.2.2 Data Tracking/Security

All information is loaded into the project data base with a Data Source Code. This Data Source Code is referenced in the data table “TABLEDATA.REF.” The Data Source Code identifies the source of the data, that is, where the data were obtained. The data then can be traced back to the origination point.

Access controls shall be managed based upon specific data user roles that will be defined by the types of data and functionality required (e.g., a Data Management Specialist may have the capability of creating and updating data from field logs; a PM may require read-only access to perform on-line queries).

The Energy Systems PM has the responsibility for approving an established and maintained list of data user roles and assigned individual tasks. The diskettes processed through the CDM Federal disk management system shall be given the access code of “01,” limited read. The access list shall adhere to the approved list of data users.
5.2.3 Change Control of Data Base Content

Before any changes are made to the contents of a project’s data base, appropriate approval must be granted and documented. All changes made to data shall be documented. Access control requirements shall be adhered to for all changes in data base content. The following information shall be maintained with the changed data in the data base:

- a description of the change, the reason for the change, the name of the individual making the change, and the date and time of the change, and
- a copy of the data before the change took place.

5.2.4 Electronic Data Backup and Recovery

Project data shall be protected from loss through preventive data base backup and recovery mechanisms. Data base backups shall be performed on a periodic basis at a frequency one time each week. This frequency shall be selected to minimize the extent of consequences of data loss and time required for data recovery. Recovery procedures are described in the CDM Federal Disk Management working instruction.

5.2.5 Transmitting Data to OREIS

Projects supporting ER that generate environmental data are required to submit these data to OREIS. OREIS, under the auspices of DOE-Oak Ridge Operations (ORO)/Environmental Restoration Division, serves as the central computerized repository of environmental measurements data for the DOE-ORO sites managed by Energy Systems. OREIS meets requirements mandated by the ORR FFA and TOA. The OREIS data base contains environmental measurements data, geographic data, and associated metadata.

Project data that have been quality assured and designated to be transferred to OREIS must first be reviewed as specified in other requirements (e.g., classification, OREIS transfer specifications, etc.). The transfer of these data to OREIS at a minimum shall be performed when an ER project generates its reports for a regulatory agency. It is desirable to transfer quality assured data to OREIS as soon as the appropriate requirements have been met to facilitate data availability and accessibility. The procedure “Transmitting Data to the Oak Ridge Environmental Information System (OREIS)” ERWM/ER-P2701, Rev.1 (June 6, 1991), will be used to transfer project data to the OREIS repository.
6. REFERENCES


APPENDIX A

ORNL WAG 4 DATA AND RECORDS MANAGEMENT
PROCESS FLOWS
Oak Ridge National Laboratory, WAG 4
Process Receipt of Analytical Laboratory
Electronic Data Deliverables (EDDs)

Data Management Specialist

- Receive Electronic Data Deliverable (EDD) and Run Virus Scan
- Clean Disk?
  - Yes: Assign Diskette Number and Input Information Into Diskette Data Base
  - No: Print Out Report
- Prepare Notice for Data Collection Coordinator and Energy Systems Project Manager

Data Management Coordinator

- Receive 2 Copies of Data Package, Issue Document Control Number, Return 1 Copy of Data Package to the Data Collection Coordinator, Archive 2nd Copy
- Issue Document Control Number and Retain 1 Copy of the Report for the Project Working File
- 1 Copy to the Data Management Coordinator, 1 Copy to the Data Collection Coordinator (and the diskette), 1 Copy to the Project Manager
- Fax a Copy of the Report to the Laboratory and Request Replacement EDD
- Print the Diskette Information and the File With the Log Form, Forward the Working Diskette

Records Coordinator

- Prepare Diskette Log Form (1 For All)
- Separate Hard Copy and EDD
- 3 Copies of Report and Damaged Disk

Data Collection Coordinator

- Receive and Copy Analytical Data Package
- Forward Data Package from Laboratory

Energy Systems Project Manager

- Forward Data Package from Laboratory

Rev. 0/02-21-1995

SEDOR0825/peledd.pre/2-7-95
Oak Ridge National Laboratory, WAG 4
Submitting Project Records Transfer

---

**Close Support Lab**

- The Close Support Lab will maintain the Official Analytical Project Record to include QC forms and information.

---

**Task Data Manager**

- Prepare Project Deliverable Package in accordance with Tables 1.1 and 4.1
- 100% QC of Automatic Data
- 100% QC of Manually Documented Information

---

**Energy Systems Project Manager**

- Prepare Project Field Record Transfer Form

---

**Data Collection Coordinator**

- Receive and Forward Project Field Record Package

---

**Data Management Specialist**

- Receive Records and Issue Appropriate Document Control Numbers

---

**Records Coordinator**

- Input Information into AskSam Data Base and File Record
- Prepare Record and Material Transfer Form

---

**ER DMC**

- Receive and Process Records

---

---

Note: The diagram illustrates the process flow for submitting project records transfer, involving various stages and stakeholders. Each step is connected with arrows indicating the flow of actions and responsibilities.
APPENDIX B

ORNL WAG 4 DATA AND RECORDS MANAGEMENT FORMS
Sample ID No.: __________________________

Project: WAG 4 Groundwater Sampling Log  Well No.: __________________________

Date: ______________ Time of Arrival on Site: ______________ Rad Survey cpm: ______________

Weather: Air Temp. _______ Wind NW N E SE S SW W _______ Wind 0–5 mph 5–10 mph _______ Speed: 10–15 mph 15–20 mph _______

Weather condition: cloudy clear sunny rain snow humid dry

Sampling procedure: __________________________ COC No.: __________________________

PPE: circle all that apply company clothes rubber boots gloves safety glasses tyvek hard hat face shield hearing protection

SSHO: ______________ Briefing Hazards: Radiation Chemical Biological Physical Meteorological Emergency

Team Leader: ______________ Team Members: __________________________

Equipment: □ Bicron Surveyor 50  S/N 1505-27P __________________________ Cal. & Source check  Y or N
□ Master Flex Peristaltic Pump  S/N C95000613 __________________________
□ Solonist Water Level Meter  S/N 07264 __________________________
□ Honda Portable Electric Generator  S/N EA4-1190474 __________________________
□ Hydrolab HG20 Multiprobe  S/N 23246 __________________________
□ Sentron pH meter  S/N 11801 __________________________
□ Tubing  Tygon # 16 dedicated  Y or N
□ Other __________________________

Initial Depth to Water (IDTW): _______ ft m  Depth of Well (DOW): _______ ft m

Sampling Depth: DOW - 1 ft or 0.33 m= _______ ft m  All depths measured from top of casing

Diameter of well casing: _______ in × 2.54 cm/in = _______ cm × 1 m/100 cm = _______ m

Height of Water Column (HOWC): DOW - IDTW = _______ ft m  _______ ft m

Before Sampling (BS)  After Sampling (AS)

Volume of Water in Well: HOWC BS × π/4 × d² × 1 = _______ m³  x 1/144 = _______ ft³

Sample color: clear milky grey blackish sediment  Sample Odor: None H2S musty organic

Sample Filtered: Y or N  if YES Type of Filter: 0.45 micron 0.1 micron <3 K <100 K other: ______

Sample Flow rate: measured _______ mL/min  Pump reading: __________________________

Lab Analyses: Radiological: 85Sr gross α/β gamma alpha spec 3H  99Tc other: ______
Metals: total dissolved both
Water Chem: Anions Alkalinity TDS/TSS TOC Silica Hardness Acidity Specific gravity
Other: Zeta potential Particle sizing Stable Isotopes
Field Dupe: Y or N   Dupe of: _______________   Field Blank: Y or N

Field Analyses:

<table>
<thead>
<tr>
<th>ACTUAL TIME</th>
<th>ELAPSED TIME</th>
<th>VOLS.-FURGED (mL)</th>
<th>TEMP (°C)</th>
<th>DO (mg/L)</th>
<th>SPEC COND (mS/cm)</th>
<th>pH</th>
<th>Eh (mV)</th>
<th>TURBIDITY (NTU)</th>
<th>OTHER</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Remarks: ____________________________________________________________

Military Time

Pump On: ______________
Collected Rad Sample: ______________
Collected Metals Sample: ______________
Collected Water Chemistry Sample: ______________
Pump Off: ______________
Left Site: ______________
### WAG 4 - CHAIN OF CUSTODY (COC-01)

<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sample Location</th>
<th>Sample Date</th>
<th>Sample Time</th>
<th>Sample Type</th>
<th>Matrix</th>
<th>Container Type</th>
<th>Volume</th>
<th>Quantity</th>
<th>Preservative</th>
<th>Requested Analysis</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sample Types:**
- **RB** = Rinse Blank,
- **FB** = Field Blank,
- **TB** = Trip Blank,
- **FLD** = Field Sample,
- **MS/MSD**

**Container Types:**
- **P** = High Density Polyethylene,
- **G** = Glass,
- **T** = Teflon

**Preservatives:**
- **A** = HCl to pH < 2,
- **B** = HNO₃ to pH < 2,
- **C** = H₂SO₄ to pH < 2,
- **D** = NaOH to pH > 12,
- **E** = Other (Specify)

**Laboratory:**
- Date Submitted to Lab:
- SDG ID:
- Cooler Temperature: °C

**Relinquished By:**
- Date: Time:
- Received By: Date: Time:
- Date: Time:
- Received By: Date: Time:
- Date: Time:
- Received By: Date: Time:

**Sample Disposed by:**
- Date: Time:
- Airbill Number:

Form Bar Code Label

WAG 4-02
WAG-4 EPIC Project Site Visit Form

DATE: _____________________ TIME: _____________________

Personnel  Badge #

Weather conditions:

PPE Level:

Safety Meeting Topic:

<table>
<thead>
<tr>
<th>Rad. Meters</th>
<th>Type</th>
<th>ID#</th>
<th>Cal Date</th>
<th>Source Ck'd?</th>
<th>Exit Frisked?</th>
<th>Results</th>
</tr>
</thead>
</table>

Comments:
### SEEP 1 WAG-4 EPIC PROJECT

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
</tr>
</thead>
</table>

- **Battery Voltage:**
- **Dessicant Checked / Changed?**
- **(Old) DSP Status:**
- **(Old) DSP Number:**
- **(New) DSP Status:**
- **(New) DSP Number:**

<table>
<thead>
<tr>
<th>Sensor Output</th>
<th>Staff Gage Reading</th>
<th>Time of Reading Sensor/Staff Gage</th>
<th>Formula and Offset (Old / New)</th>
<th>New Sensor Output</th>
</tr>
</thead>
</table>

### SEEP 2 WAG-4 EPIC PROJECT

<table>
<thead>
<tr>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
<th>Stage</th>
</tr>
</thead>
</table>

- **Battery Voltage:**
- **Dessicant Checked / Changed?**
- **(Old) DSP Status:**
- **(Old) DSP Number:**
- **(New) DSP Status:**
- **(New) DSP Number:**

<table>
<thead>
<tr>
<th>Sensor Output</th>
<th>Staff Gage Reading</th>
<th>Time of Reading Sensor/Staff Gage</th>
<th>Formula and Offset (Old / New)</th>
<th>New Sensor Output</th>
</tr>
</thead>
</table>
### SEEP 3 WAG-4 EPIC PROJECT

<table>
<thead>
<tr>
<th>Time:</th>
<th>Date:</th>
<th>Battery Voltage:</th>
<th>Dessicant Checked / Changed?</th>
<th>(Old) DSP Status:</th>
<th>(Old) DSP Number:</th>
<th>(New) DSP Status:</th>
<th>(New) DSP Number:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sensor Output</th>
<th>Staff Gage Reading</th>
<th>Time of Reading</th>
<th>Formula and Offset</th>
<th>New Sensor Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weir Faceplate Reading (if possible): ____________  Weir Level (Y / N)? ____________

Pipe Condition: ____________

Was Logging Stopped? ____________  Time Stopped: ____________  Time Started: ____________

Reason Logging Stopped: ____________

Transducer S/N: ____________  Logger S/N: ____________  I & C #: ____________

### SEEP 4 WAG-4 EPIC PROJECT

<table>
<thead>
<tr>
<th>Time:</th>
<th>Date:</th>
<th>Battery Voltage:</th>
<th>Dessicant Checked / Changed?</th>
<th>(Old) DSP Status:</th>
<th>(Old) DSP Number:</th>
<th>(New) DSP Status:</th>
<th>(New) DSP Number:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Sensor Output</th>
<th>Staff Gage Reading</th>
<th>Time of Reading</th>
<th>Formula and Offset</th>
<th>New Sensor Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Weir Faceplate Reading (if possible): ____________  Weir Level (Y / N)? ____________

Pipe Condition: ____________

Was Logging Stopped? ____________  Time Stopped: ____________  Time Started: ____________

Reason Logging Stopped: ____________

Transducer S/N: ____________  Logger S/N: ____________  I & C #: ____________
<table>
<thead>
<tr>
<th>DOQ Summary Form No.</th>
<th>Field Notebook #</th>
</tr>
</thead>
</table>

**Specific Task:**

**Sampling Team Members:**

**Responsible Person:**

**Surface Water Program Field Data Collection Form**
**SURFACE WATER PROGRAM FIELD CHAIN-OF-CUSTODY FORM FOR WATER SAMPLES**

**FIELD CUSTODIAN:**

(Signature)

**PROCESSING TEAM MEMBERS:**

(Signatures)

<table>
<thead>
<tr>
<th>FIELD NOTEBOOK #</th>
<th>DQO Summary Form No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE (ddmmmyy)</td>
<td>MILITARY TIME</td>
</tr>
<tr>
<td>LOCATION</td>
<td>SAMPLE ID (AAABBBNNCC)'</td>
</tr>
<tr>
<td></td>
<td>CONTAINER TYPE</td>
</tr>
<tr>
<td></td>
<td>PROCESSING &amp; PRESERVATIVE ACTION (describe &amp; initial)</td>
</tr>
<tr>
<td></td>
<td>REQUESTED ANALYSES or ACTION</td>
</tr>
<tr>
<td></td>
<td>FIELD DATA FORM #</td>
</tr>
<tr>
<td></td>
<td>CUSTODY TRANSFER LAB C-O-C Form #</td>
</tr>
</tbody>
</table>

(1) SAMPLE CUSTODY TRANSFER

DATE: ___ ___ ___ (dd mm yy)  TIME: ___ : ___ (hh:mm)

RELINQUISHED BY ___________________________ OF ______ (organization)

RECEIVED BY ___________________________ OF ______ (organization)

(2) SAMPLE CUSTODY TRANSFER

DATE: ___ ___ ___ (dd mm yy)  TIME: ___ : ___ (hh:mm)

RELINQUISHED BY ___________________________ OF ______ (organization)

RECEIVED BY ___________________________ OF ______ (organization)

---

1AAA=Site code; BB=Sample Descriptor, where GB=Grab Baseline, GS=Grab Storm, Bx=Baseline Sample where x=A-Z, Cr=Storm Intensive Sample where x=A-Z (Campbell Logger), or Ex=Storm Intensive Sample where x=A-Z (Easy Logger); NN=Sample Number (01-99); C=QC code (D=Duplicate, B=Blank, R=Rinsete)
# SURFACE WATER PROGRAM FIELD CHAIN-OF-CUSTODY FORM FOR WATER SAMPLES

**FIELD CUSTODIAN:**

(Signature)

**PROCESSING TEAM MEMBERS:**

(Signature)

<table>
<thead>
<tr>
<th>FIELD NOTEBOOK #</th>
<th>DQO Summary Form No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE (ddmmyy)</td>
<td>MILITARY TIME</td>
</tr>
<tr>
<td>LOCATION</td>
<td>SAMPLE ID (AAAABNNCC)</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) SAMPLE CUSTODY TRANSFER
DATE: _____ _____ _____ (dd mmm yyy)  TIME: _____ : _____ (hh:mm)
RELINQUISHED BY ___________________________ OF __________ (organization)
RECEIVED BY ___________________________ OF __________ (Organization)

(2) SAMPLE CUSTODY TRANSFER
DATE: _____ _____ _____ (dd mmm yyy)  TIME: _____ : _____ (hh:mm)
RELINQUISHED BY ___________________________ OF __________ (organization)
RECEIVED BY ___________________________ OF __________ (Organization)

1AAA = Site code; BB = Sample Descriptor, where GB = Grab Baseline, GS = Grab Storm, Bx = baseline Sample where x = A-Z, Cx = Storm Intensive Sample where x = A-Z (Campbell Logger), or Ex = Storm Intensive Sample where x = A-Z (easy Logger); NN = Sample Number (01-99); C = QC code (D = Duplicate, B = Blank, R = Rinsate)

TX-5830  Rev. 1 (14DEC94)
WAG4 WELL LOG FOR COMPLETION OF WELL

DATE: 1995  CREW: 

**Reference Stake:**
*Height above ground surface*  
<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
</table>

**AQ stock**

<table>
<thead>
<tr>
<th>quantity/description</th>
<th>length</th>
<th>factor</th>
<th>sub total</th>
<th>total rod length</th>
</tr>
</thead>
<tbody>
<tr>
<td>sub 2.40&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rod 60&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rod 24&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>rod 12&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Driving information**

Point, sub and 5’ rod driven to a stick-up of  

*Additional (5’,2’, 1’) rod driven to a stick-up of*  

*Additional (5’,2’, 1’) rod driven to a stick-up of*  

*Additional (5’,2’, 1’) rod driven to a stick-up of*  

*Additional (5’,2’, 1’) rod driven to a stick-up of*  

*Stick-up before pull-back =*  

**PVC well stock**

<table>
<thead>
<tr>
<th>quantity/description</th>
<th>length</th>
<th>factor</th>
<th>sub total</th>
<th>total rod length</th>
</tr>
</thead>
<tbody>
<tr>
<td>pt. sc. &amp; se. 13.25&quot;</td>
<td>x_1_</td>
<td></td>
<td>13.25&quot;</td>
<td></td>
</tr>
<tr>
<td>riser 60&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>riser 24&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>riser 12&quot;</td>
<td>x_1_</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cap 2.19&quot;</td>
<td>x_1_</td>
<td></td>
<td>2.19&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Total length of PVC material = 

**AQ rod adjustment (to set PVC assembly)**

Pull back:

*Stick-up after pull back*  

*Stick-up before pull back*  

Total pull back =  

(must be >= 13.5")  

Verified by:

**Depth to top of PVC well screen (TOS)**

**PVC:**

<table>
<thead>
<tr>
<th>Total length of PVC</th>
<th>&quot;Final PVC stick-up (w/cap)&quot;</th>
<th>Distance from point to TOS</th>
<th>Calculated depth to TOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Final PVC stick-up (w/cap)&quot;</td>
<td>12.5&quot;</td>
<td>&quot;Distance from point to TOS&quot;</td>
<td>&quot;Calculated depth to TOS&quot;</td>
</tr>
</tbody>
</table>

**AQ rod method:**

<table>
<thead>
<tr>
<th>Final AQ rod length</th>
<th>&quot;Final rod stick-up after well install.&quot;</th>
<th>Adjustment to PVC TOS</th>
<th>Alternate calculated depth to TOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final AQ rod length</td>
<td>&quot;Final rod stick-up after well install.&quot;</td>
<td>Adjustment to PVC TOS</td>
<td>Alternate calculated depth to TOS</td>
</tr>
</tbody>
</table>

Average:

(PVC TOS + AQ TOS)/2 = 

(Note: Both TOS calculations should be within +/- 1")  

Verified by:

**Total depth to refusal**

<table>
<thead>
<tr>
<th>Final AQ rod length</th>
<th>Drive point tip</th>
<th>&quot;AQ rod stick-up&quot;</th>
<th>Depth to refusal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Final AQ rod length</td>
<td>+<em>4.0</em>&quot;</td>
<td>&quot;AQ rod stick-up&quot;</td>
<td>Depth to refusal</td>
</tr>
</tbody>
</table>

"Indicates measured value"
**ORNL GW Continuous Data Collection Project**

**Installation Field Data Data Sheet**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Well</th>
<th>Personnel</th>
<th>Paired Well</th>
<th>Paired Well IFDS Number</th>
</tr>
</thead>
</table>

**Required Equipment**

- [ ] Pressure Transducer
- [ ] 1 Channel Logger
- [ ] 2 Channel Logger
- [ ] 4 Channel Logger

**Equipment Information Summary**

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Manufacturer</th>
<th>Model</th>
<th>Serial No.</th>
<th>Range</th>
<th>Last Calib. Ck.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Logger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transducer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water Level Indicator</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Well Data**

Measuring Point: __________ (MSL); TOC / Other __________

Static Water Level (SWL) (measured): __________ (ft BMP) __________ (MSL)

Total Well Depth (measured): __________ (ft BMP) __________ (MSL)

Well Diameter: 1/2/4 inches

Screen Length __________ (ft)

Depth to Top of Screen: __________ (ft BMP) __________ (MSL)

Maximum Depth to Water (DTW): __________ (ft BMP) __________ (MSL)

Minimum DTW: __________ (ft BMP) __________ (MSL)

**Calculations**

<table>
<thead>
<tr>
<th>Ft BMP</th>
<th>Ft BMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Well Depth</td>
<td>SWL (measured)</td>
</tr>
<tr>
<td>Less SWL</td>
<td>Plus Transducer Required Depth</td>
</tr>
<tr>
<td>Water Column Height</td>
<td>Depth of Transducer</td>
</tr>
</tbody>
</table>

**Comments**

Data Recorded by ___________________________ Date __________

Data Verified by ___________________________ Date __________
### ORNL GW Continuous Data Collection

#### Installation Field Data Sheet

**Date** ______  **Time** ______  **Personnel** ____________________________  **Well** ______

#### Equipment Installation

- [ ] Transducer Installed
  - Depth: _________ (ft BMP)  _________ (MSL)
  - Cable Length: _________ ft
- [ ] 1 / 2 / 4 Channel Logger Installed

#### Data Logger Records

<table>
<thead>
<tr>
<th>File Structure</th>
<th>Type</th>
<th>Units</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Column A</td>
<td>Time</td>
<td>minutes</td>
<td></td>
</tr>
<tr>
<td>Column B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column C</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Column E</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Number</th>
<th>ID</th>
<th>Interval</th>
<th>Date (MM/DD/YY)</th>
<th>Time (HH:MM:SS)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Calibration Check

- SWL _________; Data Logger _________
- Height Transducer Moved _________
- SWL _________; Data Logger _________

#### System Operation Check

Data Collection System Operating  **Y** / **N**

#### Comments

- Site Departure
  - [ ] Equipment Secured
  - [ ] Equipment Protected from Weather
  - [ ] Decontamination Completed

<table>
<thead>
<tr>
<th>Data Recorded by</th>
<th>Date</th>
<th>Data Verified by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## ORNL GW Continuous Datas Collection Project

### Service Field Data Sheet

**Date** _________  **Time** _________  **Well** _________

**Personnel** ______________  **IFDS Sheet Number** ______________

**Paired Well** ______________  **Paired Well Sheet Number** ______________

### Reference Data (Well/Paired Well)

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model</th>
<th>Serial Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Level Indicator</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Measuring Point:** ______________/_____________(MSL); **TOC/Other** ______________

<table>
<thead>
<tr>
<th>Transducer Operating Range: DTWs</th>
<th>MAX</th>
<th>MIN</th>
</tr>
</thead>
</table>

**Measured Total Depth**

**Current SWL**

**Instantaneous Logger Reading**

### Data Logger Records

**Test Stopped?** Y / N ;  **Time Stopped** ______________

<table>
<thead>
<tr>
<th>Test #</th>
<th>ID</th>
<th>Start Date</th>
<th>Start Time</th>
<th>End Date</th>
<th>End Time</th>
<th>Interval (minutes)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>MM/DD/YY</td>
<td>HH:MM</td>
<td>MM/DD/YY</td>
<td>HH:MM</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Download PC File Name** ______________ ;  **Copy to Floppy Disk**: Y / N

**Analysis PC File Name** ______________ ;  **Copy to Floppy Disk**: Y / N

**Data Format (circle one):** Unchanged (see IFDS); / Changed (complete table below)

### Calibration Check (Well/Paired Well)

**SWL** ______________/______________ ;  **Data Logger** ______________/______________

**Height Transducer Moved** ______________/______________

**SWL** ______________/______________ ;  **Data Logger** ______________/______________

**Data Recorded by** ______________ ;  **Date** ______________  **Data Verified by** ______________ ;  **Date** ______________
## ORNL GW Continuous Data Collection

### Removal Field Data Sheet

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Well</th>
<th>Personnel</th>
<th>Paired Well</th>
<th>SFDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SFDS**

- Final SFDS completed? Y / N
- SFDS Sheet Number

**Comments**

### Equipment Removal and Site Departure

<table>
<thead>
<tr>
<th>Equipment and material removed from site?</th>
<th>Y / N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap replaced on Well? On Paired Well?</td>
<td>Y / N</td>
</tr>
<tr>
<td>Wellhead locked on Well? On Paired Well?</td>
<td>Y / N</td>
</tr>
<tr>
<td>Site cleaned up?</td>
<td>Y / N</td>
</tr>
<tr>
<td>HP survey required?</td>
<td>Y / N</td>
</tr>
<tr>
<td>HP survey completed?</td>
<td>Y / N</td>
</tr>
<tr>
<td>Decontamination completed?</td>
<td>Y / N</td>
</tr>
</tbody>
</table>

**Comments**

### Data Recorded by

<table>
<thead>
<tr>
<th>Data Recorded by</th>
<th>Date</th>
<th>Data Verified by</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Subject: Transmitting Data to the Oak Ridge Environmental Information System (OREIS)

OREIS Data Transmittal

<table>
<thead>
<tr>
<th>CONTACTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Site Data Controller</td>
<td>2. Phone</td>
</tr>
<tr>
<td>3. Data Transmitter to OREIS</td>
<td>5. Phone</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA DESCRIPTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Title</td>
<td>7. Time Period (beginning yr. - ending yr.)</td>
</tr>
<tr>
<td>5. Facility</td>
<td>8. OREIS Category: o ER o EM o Other</td>
</tr>
<tr>
<td>6. Environmental Category</td>
<td>9. Location: o OU o WAG o SWMU</td>
</tr>
<tr>
<td>11. General Description</td>
<td>10. General Description</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATA DESCRIPTION</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14. Data Transfer Media Description</td>
<td>15. Footnote (brief statement that could be used with tables or graphs)</td>
</tr>
<tr>
<td>16. Cautions Associated with Using the Data</td>
<td>17. Reports (complete reference to RPs and/or other relevant documents)</td>
</tr>
<tr>
<td>18. Project Records (complete location information for lab books, data packages, QA/QC, etc.)</td>
<td>19. Document Management Center Documents/Records</td>
</tr>
</tbody>
</table>

OREIS Receiving/Review (for OREIS use only)

<table>
<thead>
<tr>
<th>OREIS Coordinator</th>
<th>21. Phone</th>
<th>22. Date Received</th>
<th>23. Date Acknowledged</th>
</tr>
</thead>
<tbody>
<tr>
<td>24. Comments</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OREIS PROJECT_ID</th>
<th>25. OREIS PROJECT_ID</th>
<th>26. OREIS DATASET_ID</th>
<th>27. OREIS TRANS_ID</th>
</tr>
</thead>
</table>
Oak Ridge National Laboratory
Waste Area Group 4

**Site Investigation**
*Project Documentation Transfer Inventory Form*

<table>
<thead>
<tr>
<th>Document Type*</th>
<th>Document Title</th>
<th>Date Used</th>
<th>DCN</th>
<th>Comments</th>
<th>Receipt Confirmation</th>
</tr>
</thead>
</table>
| Field Logbook, Logbook Copies, Field Chain of Custody, Analytical Chain of Custody, Hydrograph, Quality Assurance Records, Survey Data
Date Received: ______________________ |
Received By: ______________________    |
DCN: ______________________________ |

ORNL WAG 4 DRMP, Feb.1995, Rev. 0
doc_tran-2/95.0
# DISKETTE LOG FORM

<table>
<thead>
<tr>
<th>Project No./Name:</th>
<th>*Access Control: 1 2 3 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institute Received From:</td>
<td>Responsible Person:</td>
</tr>
<tr>
<td>Date Submitted:</td>
<td>Disk Size: Number of:</td>
</tr>
<tr>
<td>No. of Copies Required:</td>
<td>Submit Copies to:</td>
</tr>
<tr>
<td>Date/Time Copies Required (Normal turnaround time is ~3 business hours):</td>
<td></td>
</tr>
<tr>
<td>Diskette Type: Text Data EDD Back-up Graphic Program DBD</td>
<td></td>
</tr>
<tr>
<td>Program that created files (and version):</td>
<td></td>
</tr>
<tr>
<td>Contents and description (list SDGs, resubmittal of a particular disk, or any other relevant information to be included in the data base):</td>
<td></td>
</tr>
<tr>
<td>Retention Time:</td>
<td>Compressed: Yes No</td>
</tr>
</tbody>
</table>

## For Data Management Use Only

<table>
<thead>
<tr>
<th>Diskette Number:</th>
<th>Initial Copies Made:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Associated Barcode No.:</td>
<td>Date Entered In Computer/Initials:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>File Name</th>
<th>File Size</th>
<th>File Date</th>
</tr>
</thead>
</table>

# Data Management Work Request

<table>
<thead>
<tr>
<th>Project Title:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name/Badge # of requestor:</td>
<td></td>
</tr>
<tr>
<td>Date of Request:</td>
<td>Date Material Required:</td>
</tr>
<tr>
<td>Internal Charge Number:</td>
<td></td>
</tr>
</tbody>
</table>

**INFORMATION REQUESTED** (list materials provided and end product goals):

<table>
<thead>
<tr>
<th>Special Instruction (to be filled out by DMG):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Received by:</th>
<th>Date:</th>
</tr>
</thead>
</table>

**DMWR DCN:**
# Disk Copy Request Form

<table>
<thead>
<tr>
<th>Field</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diskette Number:</td>
<td></td>
</tr>
<tr>
<td>Project Number/Name:</td>
<td></td>
</tr>
<tr>
<td>Requested by:</td>
<td></td>
</tr>
<tr>
<td>Date of Request:</td>
<td></td>
</tr>
<tr>
<td>Date Required:</td>
<td></td>
</tr>
<tr>
<td>Disk Access Control:</td>
<td></td>
</tr>
<tr>
<td>Information Requested: (list specific files and approximate date)</td>
<td></td>
</tr>
<tr>
<td>Comments:</td>
<td></td>
</tr>
<tr>
<td>Diskette Submitted By:</td>
<td>Date:</td>
</tr>
<tr>
<td>DMG:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

CDM Federal Data Mgmt, July 1994, rev.1

Disk Request Form - CDM Federal Programs Corporation, a subsidiary of Camp, Drescher & McKee Inc.
## Data Management Control Form

**Project Title:**

<table>
<thead>
<tr>
<th>Name/Badge # of requestor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date of Request:</td>
</tr>
<tr>
<td>Internal Charge Number:</td>
</tr>
<tr>
<td>INFORMATION REQUESTED (list materials provided and end product goals):</td>
</tr>
</tbody>
</table>

| DMWR DCN: |
| Received by: | Date: |

### List of files:

<table>
<thead>
<tr>
<th>Diskette Number:</th>
<th>DCN:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status of above list of materials:</td>
<td></td>
</tr>
<tr>
<td>Date of Transfer:</td>
<td>Received by:</td>
</tr>
</tbody>
</table>

### Special Instructions:

1. Check transfer package for item(s) listed in block 2 above.
2. If correct, sign and date last line of block 2. Please fax this form to CDM Federal Programs, Attn. Ms. Connie Inman at (615) 481-3835. This original form need not be returned.
3. If incorrect or any problems with transfer package, please call Ms. Connie Inman at CDM Federal Programs (615) 482-1065.

---

**CDM Federal Programs**  
800 Oak Ridge Turnpike, Suite 500  
Oak Ridge, TN 37830  
(615) 482-1065  
(615) 481-3835 (fax)
Data Management Control Form
EMTF-04
(Hard Copy Deliverable)

Project Title: ________________________________

Name/Badge # of requestor:

Date of Request: Date Material Required:

Internal Charge Number:

INFORMATION REQUESTED (list materials provided and end product goals):

<table>
<thead>
<tr>
<th>DMWR DCN:</th>
<th>RMA DCN:</th>
</tr>
</thead>
</table>

Submitted by: Date:

Title of Document:

Number of Pages:

Condition of Receipt: ______ Acceptable ______ Resubmit (Reason)

Received by: Date:

Special Instruction:
1. Check transfer package for item(s) listed in block 2 above.
2. If correct, sign and date last line of block 2. Please fax this form to CDM Federal Programs, Attn. Ms. Connie Inman at (615) 481-3835. This original form may be mailed to the address below.
3. If incorrect or any problems with transfer package, please call Ms. Connie Inman at CDM Federal Programs (615) 482-1065.

CDM Federal Programs
800 Oak Ridge Turnpike, Suite 500
Oak Ridge, TN 37830

(615) 482-1065
(615) 481-3835 (fax)
CDM FEDERAL PROGRAMS
RECORDS MANAGEMENT AREA

MATERIAL TRANSFER FORM

To ensure inclusion in the correct Project File, this form *MUST* be attached to material being transferred to the CDM Records Management Area (RMA)

<table>
<thead>
<tr>
<th>Contract Number:</th>
<th>Document Type:</th>
</tr>
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<tbody>
<tr>
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<table>
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<table>
<thead>
<tr>
<th>Author:</th>
<th>Issue Date:</th>
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<table>
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<th>Special Instruction:</th>
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<table>
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<tr>
<th>Key Words:</th>
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<tbody>
<tr>
<td>1.)</td>
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<tr>
<td>2.)</td>
</tr>
<tr>
<td>3.)</td>
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<tr>
<td>4.)</td>
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<tr>
<td>5.)</td>
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<tr>
<td>6.)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Submitted by:</th>
<th>Date:</th>
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<tbody>
<tr>
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<table>
<thead>
<tr>
<th>For RMA Use Only</th>
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<table>
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<tr>
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<th>Processed By:</th>
</tr>
</thead>
<tbody>
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<table>
<thead>
<tr>
<th>Storage Location/Project File:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
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RM A-01
To ensure that correct Document Control Numbers are obtained this form must be completed.

<table>
<thead>
<tr>
<th>Requestor:</th>
<th>Date of Request:</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Time of Request:</td>
</tr>
<tr>
<td>Contract/Task No:</td>
<td>Charge No. (If different from Contract/Task No.):</td>
</tr>
<tr>
<td>Request(s)</td>
<td>Document Number Assigned</td>
</tr>
<tr>
<td>Title</td>
<td></td>
</tr>
<tr>
<td>1.)</td>
<td>To:</td>
</tr>
<tr>
<td></td>
<td>From:</td>
</tr>
<tr>
<td>2.)</td>
<td>To:</td>
</tr>
<tr>
<td></td>
<td>From:</td>
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<td>3.)</td>
<td>To:</td>
</tr>
<tr>
<td></td>
<td>From:</td>
</tr>
<tr>
<td>Special Instructions:</td>
<td></td>
</tr>
</tbody>
</table>

For RMA Use only

Date Completed: Time Completed: Completed By:

RMA-02
To ensure inclusion in the correct Project File, this form **MUST** be attached to materials being transferred to the Environmental Restoration Document Management Center (DMC).

<table>
<thead>
<tr>
<th>Document Number/Identifier:</th>
<th>Issue Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Document Title:</td>
<td>Operable Unit/Study Area:</td>
</tr>
<tr>
<td>Author/Affiliation:</td>
<td>Project File Number:</td>
</tr>
<tr>
<td>Program/Project Title:</td>
<td>Document Clearance Form Attached:</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Special Instructions/Comments:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
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</tr>
<tr>
<td>Key Words:</td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>2.</td>
</tr>
<tr>
<td>3.</td>
<td>4.</td>
</tr>
<tr>
<td>5.</td>
<td>6.</td>
</tr>
<tr>
<td>Submitted By:</td>
<td>Date:</td>
</tr>
</tbody>
</table>

**PORTION BELOW TO BE COMPLETED BY DOCUMENT CENTER PERSONNEL**

<table>
<thead>
<tr>
<th>Date Received:</th>
<th>Processed By:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Storage Location/Project File #:</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DISCLAIMER:** The Environmental Restoration DMC will not be responsible for material left in the DMC unattended.

MAT_TRAN.FR M 10/15/93

MTF-01
**Documentation Review**

<table>
<thead>
<tr>
<th><strong>Report</strong></th>
<th><strong>Table</strong></th>
<th><strong>Spreadsheet</strong></th>
<th><strong>Data Entry</strong></th>
<th><strong>Electronic Data Load</strong></th>
<th><strong>Calculation</strong></th>
</tr>
</thead>
</table>

To:   
From:  
Charge No.:  
DCN:  

Project Name:  
Document Title:  

Est. Review Hours:  
Date of Orig:  
Due Date:  

Please review this document for:

---

**For Document Reviewer Use Only**

Please answer each question with a Y (yes), N (no), or NA (not applicable). If the answer is N, please comment below.

- [ ] Are assumptions clearly stated, justified, and documented?
- [ ] Does the report follow a logical sequence and is it clear in its presentation?
- [ ] Are correct equations used?
- [ ] Are equation input parameters correct?
- [ ] Are equations used correctly?
- [ ] Are recommendations sound and defensible?

Review Comments or Conclusions (attach a separate page if additional space is needed)

---

Reviewer:  
Date Reviewed:  
Hours:  

Print/Signature  

Final QC Approval:  
Date:  

Print/Signature  

DCN:  

---

ORNL WAG 4 DRMP, Feb.1995, Rev. 0  
doc_qcrvw-2/95.0
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17. G. Thompson
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19-21. Central ER Document Management Center
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