U.S. EPA Region 8
Superfund Remedial Data Management Plan

Region 8 Ecosystems Protection and Remediation
Program Support
Data Systems Team

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Table of Contents

List of Acronyms 6
Background 7
Introduction 7
Purpose 7
Responsibilities 8
Data Management Practices 8
Scribe Formatted Data Files 8
- Environmental Data Management 8
- Product Overview 9
- Scribe 9
- Scribe.NET 9

Data Requirements 9
- Data Quality Objectives 9
- Quality Assurance Project Plans 10
- Sampling and Analysis Plans 10
- Data Management Plan 10

QA Document Types 10
- Data Types 11
- Data Inputs 12
- Other Data 13

Data Storage/ Scribe Database 14
Data Management Process 14
- Field Data Management 14
- Laboratory Data Management 14

Minimum Data Requirements 15
Scribe Data Auditor 15
GIS Deliverables 15
EPA Lead 15
Federal Agency Lead 16
Tribal Lead 16
State Lead 16
RP Lead 17
Delivery Requirements 17
Appendix A – Minimum Data Requirements 18
Appendix B – Scribe Templates 23

DRAFT

ED_002345B_00010709-00005

Appendix C – Additional Scribe EDDs 24
Appendix D – Data Element Dictionary 25
Appendix E – Data Review Process 26
Appendix F – EPA Region 8 GIS Deliverable Guidance 28
Appendix G- Region 8 sites with data already in Scribe 29
Appendix H - Auditor Queries 30
Appendix I – Training Materials 31
Appendix J – Region 8 Site Specific Data Management Plan Template 32

List of Acronyms

ASB	Analytical Services Branch
ASR	Analytical Service Request
CLP	Contract Laboratory Program
COC	Chain of Custody
DMP	Data Management Plan
DQO	Data Quality Objectives
EDD	Electronic Data Deliverable
EPA	U.S. Environmental Protection Agency
EPR	Ecosystems Protection and Remediation
ERT	Environmental Response Team
ESAT	Environmental Services Assistance Team
ESDS	Electronic Sample Documentation System
ESRI	Environmental Systems Research Institute, Inc.
EXES	Electronic Data Exchange and Evaluation System
FSDS	Field Sample Data Sheet
GIS	Geographic Information System
GPS	Geographical Positioning System
LIMS	Laboratory Information System
MDR	Minimum Data Requirements
OSC	On-Scene Coordinator
PDF	Portable Document Format
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QATS	Quality Assurance Technical Support
QC	Quality Control
QMP	Quality Management Plan
RAC	Remedial Action Contract
RPM	Remedial Project Manager
RSCC	Regional Sample Control Coordinator
SAP	Sampling and Analysis Plan
SDMS	SEMS Document Management System
SEMS	Superfund Enterprise Management System
SMO	Sample Management Office
SOP	Standard Operating Procedure
START	Superfund Technical Assessment and Response Team

ED_002345B_00010709-00006

TDF	Technical Direction Form
UFP-QAPP	Uniform Federal policy for Quality Assurance Project Plans
USEPA	United States Environmental Protection Agency
XML	Extensible Markup Language

Background

EPA Region 8 has and will continue to place emphasis on the use of data to track the outcomes of its environmental clean-up efforts and to better support its decision making processes. As such, it is imperative that a properly designed and maintained data system provide easy access to site analytic data of known quality and be able to distinguish between Screen vs Definitive data. To ensure this, the Ecosystems Protection and Remediation (EPR) Data Systems Team has developed a comprehensive data management plan for all Superfund Remedial programs based on the Scribe database. The development of a Quality Management Plan (QMP), Data Quality Objectives (DQO), Quality Assurance Project Plan (QAPP), Field Sampling Plan (FSP), Sampling and Analysis Plan (SAP) and Minimum Data Requirements (MDR) for data deliverables are a part of the quality control process. Additionally, QA/QC SOPs and data review processes have been developed for the data entry staff. The project will be a "living plan", providing room for growth and enhancements in performance measures and data management needs.

Introduction

In an effort to have all Region 8 Superfund analytic data accessible to Management, Site Project Managers, Toxicologists, Scientists, Contractors and others in a standardized data format, Region 8 has selected Scribe as the Database of Record for Region 8 Superfund sites and select non-NPL sites where the EPR program is collecting samples and analyzing data. This standardized database will improve data quality and accessibility to the Region while reducing cost. Scribe is an EPA product and has the following advantages:

1) EPA Region 8 as the Lead Agency uses Scribe as the Database of Record.
2) Ensure future use and access to EPA data.
3) START, ESAT and RACS Contractors are already using Scribe.
4) Major EPA Contractors own projects in Scribe and are familiar with its use.
5) Chains of Custody (COCs) from Scribe.
6) Provide an archive of analytical and field data that can be easily accessed.
7) Scribe is supported by EPA at minimal cost to the Region.
8) Scribe is a known data format that the Removal program is required to use.
9) Builds on what was done instead of starting from scratch.

Purpose

The purpose of this document is to provide guidance for data collection, processing and management to Site Project Managers, EPA staff , Contractors, Laboratories, Grantees, Field Personnel, States, Tribes and others who produce analytical data and field data deliverables to EPA Region 8 programs, projects, or staff in order to support operational decisions and share these data with others.

ED_002345B_00010709-00007

Scope

This document covers the types of analytical and field data deliverables anticipated in Region 8 and how the Region would like to receive these deliverables in a standardized format. Additionally, data standards, formats, and best management practices are identified. Large and complex sites frequently require a site-specific Data Management Plan. A site-specific Data Management Plan will be based on the requirements contained in the Region 8 Superfund Remedial Data Management Plan and will provide site-specific guidance for data collection and management. Examples of site-specific customization may include:

- Site-specific data elements and/or valid values.
- Site-specific data workflow.
- Site-specific scribe.net subscription information.
- Site-specific QA procedures and Auditor queries.

Responsibilities

The Region 8 EPR Data Team and the Site Project Manager are responsible for maintaining this document and providing it to the RPM and those parties who provide Region 8 with analytical and field data or products. It is the responsibility of the Site Project Manager to ensure that those providing data deliverables to the Region to adhere to the guidance, Data Quality Objectives and Minimum Data Requirements provided in this document. The Region 8 Data Team relies on other EPA staff such as Grant/Contracting Officers, RPMs, OSCs, Risk Assessors and other EPA staff to ensure data are being submitted for long-term use.

Data Management Practices

Data planning should take place during the initial project kickoff meeting with the Site Project Manager. Data discussions should take place prior to development of the Sampling and Analysis Plan (SAP) and before any data collection begins. Planning will allow data to be collected consistently and with the entire project scope in mind.

Suggested items for data collection strategy session include:

- Data streams (geospatial, sampling data, photos, documents, etc.)
- Project specific data elements and valid values
- Data collection tools
- Required data deliverables (such as site-specific viewer, maps, data summary reports, etc) including timing and frequency

Scribe Formatted Data Files

Environmental Data Management

Scribe is the tool to be used in all data collection activities to facilitate the management of large quantities of analytic and field data from different sources. These data are published to scribe.net and is the Database of Record.

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Product Overview

Scribe is a software tool developed by the USEPA's Environmental Response Team (ERT) to assist in the process of managing environmental data. Scribe is a Microsoft Access Database that captures sampling, observational, and monitoring field data. Examples of Scribe field tasks include Soil Sampling, Water Sampling, Air Sampling, Toxicological Testing, and Biota Sampling. Scribe can import electronic data deliverable (EDD) files including analytical lab result EDD files, sampling location EDD data files, photographs and any additional documentation that is used in the decision making process.

Scribe

Scribe outputs include labels for collected samples, Chain of Custody generation and analytical lab result data reports. Scribe provides a flexible user interface to manage, query and view all this information. Scribe supports exporting electronic data for user services such as GIS tools and spreadsheets so sampling data may be further analyzed and incorporated into report writing and deliverables.

Scribe V 3.9, training and supporting documentation can be found at www.epaosc.org/scribe.

Scribe.NET

Scribe.net provides a method of storing and sharing Scribe projects. Using Scribe.NET, Scribe projects can be shared between Scribe desktop clients and/or enterprise Oracle/SQL database clients. Scribe projects are "Published" from the Scribe desktop client, and other desktop/enterprise users "Subscribe" to the published projects. Users can subscribe to individual or multiple projects. Regional or global subscriptions can also be created for sharing entire sets of published projects. Once a Scribe project is published to Scribe.net it becomes a database of record.

Data Requirements

When designing what a database should look like, which data to capture, which samples are to be taken from which media, there are several documents that are used in Region 8. The US EPA Region 8 Quality Management Plan (QMP) contains a basic introduction of a quality system as well as the roles and responsibilities for implementation of the Quality System within Region 8. Closely linked to its implementation is the organizational structure, which describes how various groups and/or individuals work together within its structure to accomplish Region 8's mission and Quality Policy. The QMP describes the processes and procedures at the organizational level, management and staff responsibilities and line of authority. The QMP also describes how the other required documents for a site (QAPP, SAP, DMP, SOPs) are linked.

Data Quality Objectives

It is necessary to collect data of sufficient quantity and quality to support defensible decision making. The most efficient way to accomplish these objectives is to begin by determining the type, quality, and quantity of data and required data deliverables necessary to address the problem before the study begins. Data Quality Objectives (DQO) should be planned based on what data will be required for site assessment, sample collection, data management and risk assessment. DQOs are qualitative and quantitative statements derived from the data quality objectives (DQO) process, as defined by EPA QA/G-4. DQOs can be used as the basis for establishing the quality and quantity of the data needed to support decisions, and the data management activities that are associated with environmental data collection. DQOs will be developed during the initial concept stages of a project for all environmentally related measurement and data management activities and subsequently incorporated into the project-

ED_002345B_00010709-00009

specific or site-specific QAPP. Once the Data Quality Objectives and data management requirements are known, they are detailed in the Quality Assurance Project Plan (QAPP) that is required for each site and/or project. These objectives will specify the acceptance criteria for standard operating checks and balances used to evaluate and validate the databases based on parameters such as: precision, accuracy, representativeness, completeness, comparability, and sensitivity. DQOs will follow the EPA guidance EPA 540-R-96-055, *Guidance for using the Data Quality Objectives Process (EPA QA/G-4)*, February, 2006.

Quality Assurance Project Plans

Prior to data collection, a QAPP will have been created for the site or project. The QAPP defines the site-specific QA/QC activities and data management that will be performed to obtain the desired data quality. The QAPP is the document that details the who, what, when, where, why and how of the DQO. The QAPP is based on the DQOs that have been developed for a specific site or project. All QAPPs will follow the UFP-QAPP Manual per OSWER Directive 92720-17 dated June 7, 2005, EPA QA/R-5 *Requirements for Quality Assurance Plans* (EPA/240/B-01/003), March 2001, reissued May, 2006 and EPA QA/G5, *Guidance for Quality Assurance Project Plans* (EPA/240/R-02/009), December 2002. Each site and/or project will have a site-specific QAPP.

Sampling and Analysis Plans

Sampling and Analysis Plans (SAP) will be developed for projects in which sampling activities will occur. The SAP is used in conjunction with the QAPP and Data Management Plan for the site or project. The SAP provides specific and usable documentation to field personnel to ensure that the field collection activity and data management expectations are met. Sampling Plans will be developed in accordance with the guidance provided in the UFP-QAPP Manual and QA/G-5S, *Guidance on choosing a sampling design for Environmental Data Collection* (EPA/240/R-02/005), December 2002.
EPAs quality program as outlined at www.epa.gov/quality.

Data Management Plan

The Region 8 Superfund Data Management Plan (DMP) will serve as the central guidance document for all data collected at Superfund Remedial sites in Region 8. The site-specific documents for each site shall incorporate what data will be collected and loaded into Scribe and what intervals or events will require these data to be published to scribe.net. Site-specific sampling and analytical requirements will be detailed in the Quality Assurance Project Plan (QAPP) and the Sampling and Analysis Plan (SAP) and shall incorporate the Minimum Data Requirements included in this Data Management Plan. Larger more complex sites may have a site-specific Data Management Plan.

QA Document Types

The figure below illustrates the relationships between the documents (QMP, QAPP, FSP, SAP, SOPs, and the DMP) referenced thus far in the Data Management Plan.

ED_002345B_00010709-00010

- The **Quality Management Plan (QMP)** describes processes and procedures at the organizational level, management and staff functional responsibilities and line of authority. Include all QMP elements (QA/R-2).

- The **Quality Assurance Project Plan (QAPP)** is the document that details the who, what, when, where, why and how of the project objectives (data quality objectives). Include all QAPP elements (QA/R-5 and QA/G-5).

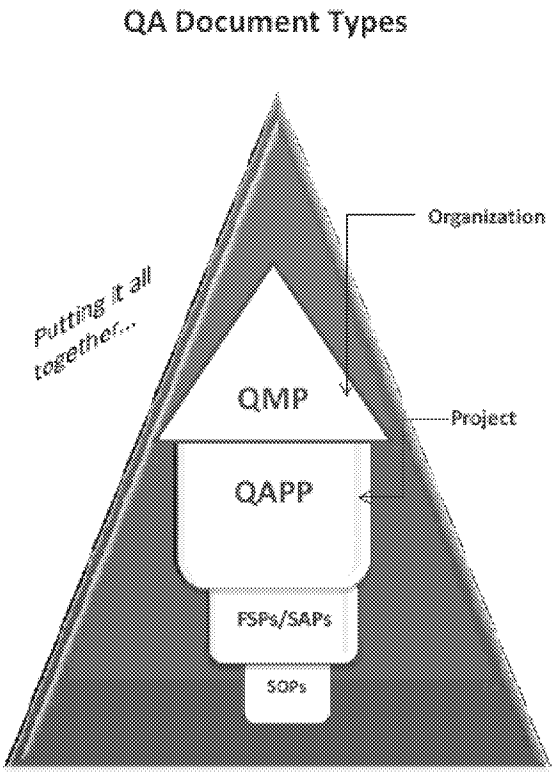
- The **Field Sampling Plan (FSP)** provides the field sampling details for the sampling event(s).

- The **Sampling and Analyses Plan (SAP)** provides the field and analytical details for the sampling event(s).

- **Standard Operating Procedures (SOPs)** describe specific procedures (e.g., sampling techniques or field analytical methodologies) used. These are attached to the approved QA Document(s).

Note:
- FSPs, SAPs, and SOPs are subsets of a QAPP

- FSPs and SAPs may be addendums to a previously approved QAPP
  or
  a stand alone document, if all QAPP elements are included (QA/R-5 and QA/G-5)



Data Types

The following are the data types that will be managed according to specific Sampling and Analysis Plans (SAPs), Quality Assurance Project Plans (QAPPs) and other Workplans in order to ensure that data quality and accuracy are preserved.

1) Sample identification and sample characteristics (e.g. field forms).
2) Sample collection field observations (e.g. field logbooks).
3) Sample processing field observations (e.g. laboratory reports, validation reports).
4) Photographic documentation.
5) Field-generated parameters (e.g. health and safety monitoring results, groundwater field parameters).
6) Laboratory hardcopy and/or electronic Portable Document Format (PDF) files.
7) Laboratory electronic data deliverables (EDDs).
8) Project specific data elements and valid values.
9) Required data deliverables including timing and frequency.
10) Laboratory data verification reports.

ED_002345B_00010709-00011

Electronic and hard-copy data are generated at each site. The exact make-up of these data will differ by site and will be detailed in each site's SAP, QAPP and site-specific Data Management Plan. The electronic data includes Scribe-acceptable laboratory EDDs and field data that will be linked, imported into Scribe and published to Scribe.net by the ESAT contractor, another EPA contractor or grantee tasked with data management for a site. Additional EDD templates for Scribe are available from the EPAOSC website at www.epaosc.org/scribe to assist in the process of importing data into Scribe. Laboratories will submit copies of hard-copy data packages and EDDs to the EPA Site Project Manager and/or their designated contractor electronically as Portable Document Format (PDF) and Scribe ready digital files. The Site Project Manager will be responsible for ensuring that these data are loaded into Scribe, published to Scribe.net and supporting documentation made available in Scribe or through the EPA Region 8 Records Center.

The hard-copy data includes but is not limited to: field notes and logbooks, field sampling forms, chain-of-custody forms, phone logs, and hard-copy laboratory reports. This hard-copy data will be scanned and saved as electronic PDF files. Electronic scanned versions of field-generated documents will be provided to the EPA Site Project Manager as directed and at the end of each sampling event or as specified by the SAP, QAPP and/or DMP. All analytical data, EDDs, field and laboratory notes files acquired or developed to support any data collection activity by a contractor or grantee are considered property of the EPA and are required to be submitted to EPA. The required Data Inputs are shown in the table below. These data will be managed according to the site-specific SAP, QAPP and DMP.

Data Inputs

Data Input	Data Type	Data Type Description	Collection Strategy	Processed Deliverable	Repository
Site Documents	Documents	Documents related to the site or site data	Various	Microsoft Office Formats, PDF - All with associated metadata table which is also uploaded and maintained in SDMS	SDMS R8 Records Center
Site Images	Photos	Photos related to the site or site data	iPad, iPhone, Digital Camera	jpg, tiff - All with associated metadata table which is also uploaded and maintained in SDMS	SDMS R8 Records Center
Sampling Data	Sampling, Monitoring	Sample and location data taken for a sample or monitoring data point	Scribe Data Entry Screens OR Ipad, Trimble Unit or laptop with Filemaker or ArcGIS Mobile,	EDD from collection device	Scribe, scribe.net
Analytical Results	Analytical	Results data for samples or monitoring data	Lab EDD	Lab EDD verified by data verifiers and imported to Scribe or csv from monitoring device imported to scribe	Scribe, scribe.net
Validation Qualifiers	Analytical	Results of validation of lab data	Enter into lab EDD (typically spreadsheet or database table)	Lab EDD with validation qualifiers inserted delivered by validator and imported into scribe	Scribe, scribe.net

ED_002345B_00010709-00012

Data Input	Data Type	Data Type Description	Collection Strategy	Processed Deliverable	Repository
Site Documents	Documents	Documents related to the site or site data	Various	Microsoft Office Formats, PDF - All with associated metadata table which is also uploaded and maintained in SDMS	SDMS R8 Records Center
Site Images	Photos	Photos related to the site or site data	iPad, iPhone, Digital Camera	jpg, tiff - All with associated metadata table which is also uploaded and maintained in SDMS	SDMS R8 Records Center
Field Measurements	Monitoring	Results for monitoring data	Monitoring equipment software	csv from monitoring device imported to scribe	Scribe, scribe.net

Other Data

It is possible that additional or non-standard field data may be required. Possible data include:

- Field observations or reconnaissance data
- Geologic Data
- Well Logs

Due to the uniqueness of these data the protocol for these should follow the following hierarchy:

1. The site data collection application should be modified to allow data collection. The modifications should be documented in the site-specific DMP.

2. Field forms should be created so that the data can be collected in a Scribe compatible format. The modifications should be documented in the site-specific DMP.

3. Data should be documented in the site logbook and transcribed into a scribe compatible EDD to check for completeness and the consistency with the R8 data elements and valid values. The modifications should be documented in the site-specific DMP.

Other data that may be collected during field activities include:

- Historical data
- START historical data
- EPA collected data
- PRP collected data
- Other Agency collected data

Due to the uniqueness of this data the protocol for these should follow the following hierarchy:

1. Data collected in the field by other agencies should follow the defined protocols for the data type.

ED_002345B_00010709-00013

2. An electronic copy of scribe compatible EDDs should be provided to other agencies so that they can provide their data in an electronic format that is consistent with Scribe.
3. Historical data should be transcribed into scribe compatible EDDs. Assumptions and missing data should be documented in the site-specific DMP.

Data Storage/ Scribe Database

The Scribe database and when data is published to scribe.net, is the Database of Record for analytic data from all Region 8 Superfund sites. Scribe.net will be used as the primary data management and storage tool for EPA analytical and field data. Scribe is a Microsoft Access database designed to manage environmental data. Each contractor or grantee tasked with data management will manage the Scribe database and the scribe.net publishing and subscriptions with assistance from EPA ERT.

Additionally, a document repository, the SEMS Document Management System (SDMS) will also be used as the document repository to store and facilitate transmission of PDFs and paper documents. It will be the Project Managers responsibility to ensure that documents are submitted to the EPA Records Center for entry into SDMS. All samples analyzed by the EPA CLP laboratories will have their EDDs and PDF files temporarily archived in the SMO Portal for retrieval and future use and the permanent record will be archived in the Regional Records Center

Data Management Process

The following subsections document the general data management process for the types of sampling and analytical data that will be generated at Superfund sites by EPA, its contractors and grantees, states, responsible parties and/or their contracted representatives.

Field Data Management

Site specific sampling will be defined in the Sampling and Analysis Plan (SAP) for each individual site. The EPA sample information, including type, analytical methods, analytes, bottles, laboratories, field parameters and data management are identified in the UFP-QAPP, the site-specific SAP, QAPP and a site-specific Data Management Plan. Field and analytical data will be entered into Scribe as directed by TDF, reviewed for accuracy and completeness against the original field notes and published to scribe.net by the contractor as tasked and as directed by the Site Project Manager and in the site specific SAP, QAPP and DMP.

Laboratory Data Management

Laboratory-generated analytical data, for all major media types may include: soil, sediment, surface water, groundwater, porewater, tissue, solid waste, air, toxicity testing results, benthic community analysis, and fish community results. Laboratories have been provided with the specifications of the EDD format required for direct loading into Scribe for all major media types. Laboratory data will be verified per the details specified in the activity-specific Analytical Service Requests (ASRs), SAPs, QAPPs, and the Contractor's Quality Management Plan (QMP). Once data from each sampling event have been reviewed for accuracy, it will be uploaded and published to Scribe.net at a frequency outlined in the site-specific SAP, QAPP, site-specific DMP, as directed by the Site Project Manager or as tasked by TDF. Once the data is published via Scribe.net, data will be able to be accessed through a Scribe.net subscription. Scribe.net subscription databases are a copy of the published databases, ensuring that the master copy is not modified. Only the database owner can modify the data. When the database owner publishes the data, subscribers may view the latest modifications to the database after updating their Scribe.net subscription.

ED_002345B_00010709-00014

Minimum Data Requirements

EPA Region 8 has established a set of Minimum Data Requirements (Appendix A) for each sampling event. These data will be entered into Scribe and published to scribe.net as directed by the site-specific Data Management Plan, SAP and QAPP.

Scribe Data Auditor

The Scribe Data Auditor is a tool that is available in Scribe V3.8 and higher that allows the owner or user of the data to run an SQL query against a set of valid values. This SQL query will identify any exceptions in the database. Any Scribe project can be audited using any existing rules. It will be the responsibility of the contractor tasked with data management at the site to run the Data Auditor prior to publishing to scribe.net. The Auditor query can be found in Appendix H. Additional queries can be created. ERT Support will provide assistance as needed.

GIS Deliverables

All GIS files submitted to EPA must have spatial reference information that describes the projection, datum, and where applicable the collection methods. The EPA requests that all vector data be submitted in geographic coordinate system, decimal degree units, and NAD83 datum as is required under the EPA National Geospatial Data Policy, 2008. See Appendix F for the complete Region 8 GIS Data Deliverable Guidance.

GPS Deliverables

ESAT receives raw data that they download from Trimble or other GPG units, Latitude and Longitudes with different coordinate systems (NAD83 or WGS84) and CAD and image formatted files that they project into GIS coordinate systems. ESAT relies heavily on their GIS analyst's experience to get the spatial data into their standard ARCGIS format. ESAT does have a peer review process where this would be checked. GPS data collected in the field is given to the ESAT GIS team for post processing and assimilation into their SDE. The GIS team then passes the locational information (Latitude, Longitude, comments, etc) from the sample stations to the ESAT field group for inclusion in their reports. From there they make their way to the data team and Scribe.

EPA Lead

The EPA Site Project Manager is responsible to ensure that data for all Region 8 lead sites they are assigned will be loaded into Scribe and published to Scribe.net by the contractor tasked with data management responsibilities. These data shall be managed in accordance with the Regional Data Management Plan (DMP), Quality Assurance Project Plans (QAPPs), Sampling and Analysis Plans (SAPs), Standard Operating Procedures (SOPs) and any site-specific Data Management Plan. As each site will be different, the minimum data requirements and any additional site-specific required data will be detailed in the site-specific Sampling and Analysis Plan and/or a site-specific Data Management Plan. The Minimum Data Requirements in Appendix "A" will entered into Scribe and the data will be published to Scribe.net.

ED_002345B_00010709-00015

Federal Agency Lead

Data management where another Federal Agency is the lead will be that agencies responsibility. Stage documents and data will be delivered to the EPA Site Project Manager by the lead Federal Agency and will be entered in the Administrative Record. These data, documents and the Administrative Record will be sent to the EPA Region 8 Records Center and placed in the Site File. The lead agency will be responsible for maintaining the original data for the site in accordance with that agencies policies and procedures. The site-specific procedures are detailed in the UFP-QAPP, DQOs, QAPPs, SAPs and SOPs for each site and approved by EPA. Region 8 will request the data to be in a Scribe ready format when submitted to EPA as outlined in this Data Management Plan.

Tribal Lead

Data management for Tribal lead sites in Region 8 will be detailed in the DQOs, QAPPs, SAPs and SOPs for each site approved by EPA. Region 8 will require the data to be in a Scribe ready format when submitted to EPA as outlined in this Data Management Plan. Currently, there is only one Tribal Lead Superfund site in Region 8. EPA Region 8 is currently managing sample collection and data for the Sheyenne River Sioux Tribe in South Dakota. Future data management will be in accordance with this Data Management Plan.

State Lead

Data management for state lead Superfund sites will be in accordance with that states policies and procedures.

The State of Colorado has a pre-approved QAPP for Superfund sites. This document does not however address data management. The data management will be detailed for each site in the QAPP, SAP and Data Management Plan for each site individually. Currently the Summitville site has its own site-specific Data Management Plan. Data is loaded into Scribe for select sites and each project manager is responsible for data management at their assigned sites. The contact person for Superfund in the State of Colorado is Doug Jamison at (303) 692-3404 or doug.jamison@state.co.us.

The State of Montana currently uses a variety of contractors for sample collection and data management. The State is currently working on a state-wide Data Management Plan and IT infrastructure to host these data. To obtain data for sites where the State of Montana is the Lead Agency, contact Lisa DeWitt at (406) 841-5037 or ldewitt@mt.gov.

The State of North Dakota is the lead for the Arsenic Trioxide site. Analytical data from that project is maintained electronically in an Access database. Reports, letters, etc. are maintained in paper files. Paper records are usually stored in the North Dakota Department of Health office or transferred to an off-site storage building (not an official state records storage center). The ATS files are currently in the ND Department of Health office. Future Superfund projects may have different contact people, depending on which Division (Waste, Ground Water, Municipal Facilities) was designated as the lead agency. The contact person for the Arsenic Trioxide site is Carl Anderson at (701) 328-5213 or cjanders@nd.gov.

ED_002345B_00010709-00016

The State of South Dakota has not been the Lead Agency, nor have they collected data at any Superfund sites in South Dakota. The South Dakota Department of Environment and Natural Resources currently has a Quality Assurance Project Plan that has been approved by Region 8. The contact person for Superfund in South Dakota is Mark Lawrensen, (605) 773-5868 or Mark.Lawrensen@state.sd.us.

The State of Utah Division of Environmental Response and Remediation (DERR) manages data at State Lead Superfund sites. Data for these sites are managed site specifically. Generally, they have contractor support on these sites and data collected is typically managed by the State's contractor. Currently, Utah's Level of Effort Contractor is URS. Sample data is managed using a variety of software (e.g. MS Excel, MS Access, etc.) and the Division manages the Final Reports with data packages (paper format) produced as a result of the data collection. The contact person for Superfund in The State of Utah is Hans Millican, (801) 536-4115 or hmillican@utah.gov.

The State of Wyoming is not the lead agency for any Superfund sites in the State. Jane Francis at the Wyoming Department of Environmental Quality is the contact person for Superfund in the State of Wyoming. She can be reached at (307)777- 7092 or jane.francis@wyo.gov.

RP Lead

While the RP may be collecting and managing data at their site, EPA is the ultimate owner of these data which are used in site characterization, risk assessment, feasibility study, and remedial response decision making. It is EPA's responsibility to assure the integrity and adequacy of site-data in support of a Record-of-Decision issued by EPA pursuant to CERCLA and the NCP. Data management for RP lead sites will be defined by several documents including, but not limited to: the Consent Decree, Administrative Settlement Agreement and Order on Consent, and the contracted Statement of Work. Sampling and Analysis Plans (SAPs) that include elements of the Quality Assurance Project Plans (QAPPs) and Standard Operating Procedures (SOPs) will include the data requirements and guidance provided in this Data Management Plan. The RP and their contractor tasked with data management shall provide specific quality control and data management requirements for each project and submit data to EPA in a Scribe ready format as defined by this Data Management Plan. Each Contractor shall develop a Quality Management Plan (QMP) that contains the overall quality policies, data management procedures, criteria for areas of application, roles and responsibilities and authorities of the Contractor that is performing work on the project.

Data collected by the RP shall meet the minimum data requirements in this Data Management Plan and quality requirements of EPAs quality program as outlined at www.epa.gov/quality. Additionally see the "Overview of the EPA Quality System for Environmental Data and Technology" EPA/240/R-02/003 November 2002.

ANSI/ASQC E4-1994, "Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs". (American National Standard, January 5, 1995) Contractors Quality Management Plan (QMP).

Delivery Requirements

EPA will accept data delivered on CD, DVD, external hard drive, or as direct electronic submission via email or FTP site. Other delivery methods may be negotiated and allowed if methods listed present a significant burden or as technology changes to allow new processes.

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Appendix A – Minimum Data Requirements

CLP Scribe Fields	Description	Data Type	Field Size	Required
CAS_NUMBER	Chemical Abstracts Service (CAS) Registry Number for the chemical compound or element reported.	Text	50	R
ANALYTE	A parent data element that describes the analyte level data from one analysis or one group of analyses.	Text	60	R
FINAL_RESULT	The final validated result of the chemical compound or element that was measured.	Text	8	R
RESULT_UNITS	The units of measurement for the "Final Result" and "Lab Result".	Text	20	R
FINAL_VALIDATION_QUALIFIER	National Functional Guidelines Data Validation or MEL Data Qualifiers. These should be identified in the QAPP.	Text	10	R
PERCENT_SOLIDS	The Percent Solids for soils and sediments. Used to determine the dry weight basis of the chemical analyses.	Text	8	R
DILUTION_FACTOR	Dilution Factor applied to the digest or extract. The dilution factor is only applied when the laboratory has diluted the extract or digest due to a high concentration of analyte(s).	Text	8	R
ANALYSIS_FRACTION	Identifies the type of analysis fraction or method category of the analysis.	Text	100	R
SAMPLE_DATE_TIME	The Date & Time of Sample Collection	Date/Time	20	R
DATE_SHIPPED	Date of Sample Shipment.	Date	20	R
PREP_DATE_TIME	Date & Time of Sample Digestion/Extraction.	Date/Time	20	R
ANALYSIS_DATE_TIME	The Date & Time of Analysis of the sample digest or extract.	Date/Time	20	R
LAB_SAMPLE_TYPE	Identifies types of samples as either "field" or specific lab QCbut does not identify field QC types. Required by the Contract Lab Program.	Text	40	R
SAMPLE_MATRIX	Identifies the matrix type of soil, water, etc. as reported by the lab. Required by the Contract Lab Program.	Text	20	R
LAB_NAME	Laboratory Name (long name)	Text	50	R
TR_COC_NUMBER	The Traffic Report (TR) /Chain of Custody Form Number is a unique tracking number assigned to the COC.	Text	30	R
SAMPLE_ALIQUOT	The mass or volume of sample that removed for extraction or digestion.	Text	8	R

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SAMPLE_ALIQUOT_UNITS	The units of measurement for the mass or volume of sample that removed for extraction or digestion.	Text	20	R
FINAL_VOLUME	The final volume of the sample Digest or Extract.	Text	8	R
FINAL_VOLUME_UNITS	Volume of Sample Digest /Extract Units	Text	20	R
PREPARATION_METHOD	Type of Extraction for Organics or Digestion for Inorganics. "SONC" for sonication etc. (SVOA/PEST/PCB) of Organics and most relevant method digestion numbers for Inorganic.	Text	100	R
SAMPLE_SUBMATRIX	Scribe Matrix, expanded to include surface water, surface sediment etc. Use a custom list in Scribe	Text	40	R
SAMPLE_COLLECTION_METHOD	Sample Collection Method (i.e., Grab, Composite, Discrete Interval)	Text	30	R
EPA_REGION	"EPA Region" plus the Regional designation number (EPA Region 8)	Text	15	R
STATION_LOCATION	Station Location Codes	Text	20	R
LOCATION_DESCRIPTION	Further descibes the Station Location.	Text	100	R
SCRIBE_SAMPLE_NUMBER	The Scribe / field sample number. This may be Scribe generated or a Regionally assigned number.	Text	20	R
LATITUDE	The geographic latitude where the sample was collected or field measurement was taken.	Text	12	R
LONGITUDE	The geographic longitude where the sample was collected or field measurement was taken.	Text	12	R
DATUM	The horizontal coordinate system reference Datum name.	Text	50	R
GEOMETHOD	The method used to determine latitude and longitude.	Text	30	R
SAMPLER_NAME	Sampler Name	Text	30	R
SAMPLING_COMPANY_CONTACT	Contractor Sample Coordinator	Text	50	R
SAMPLING_COMPANY_NAME	Sampling Company Name	Text	50	R
PROJECT_NAME	Site Name / Project Name	Text	50	R
SITE_PROJECT_CODE	Regional Project Code	Text	50	R
SITE_EVENT_ID	EventID. Use to group data by sampling/monitoring events (i.e. EOC, Site Assessment) (Primary Key)	Text	50	R
STATE	State where sample collection occurred. This field is populated in CLPSS during ASR entry	Text	20	R
CITY	City where sample collection occurred. This field is populated in CLPSS during ASR entry	Text	60	R
CERCLIS	CERLIS ID	Text	20	R

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SCRIBE_SITE_NUMBER	Scribesite key (Primary Key)	Text	12	R
SCRIBE_NET_PROJECT_ID	ScribeNetID Project ID	Text	4	R
SAMPLE_TAG	Container ID codes - autogenerated if left blank	Text	15	R
FIELD_SAMPLE_TYPE	Distinguishes field samples from lab QC, field QC and other associated sample types.	Text	30	R
QC_SPIKE_RECOVERY	Percent Recovery of lab QC types (matrix spikes, surrogates, etc).	Text	8	R

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ESAT Scribe Fields	Description	Data Type	Field Size	Required
CLIENT	Superfund	Text	20	R
PROJECT	Scribe Project Name	Text	50	R
PROJECTNUM	TDF#	Text	50	R
LABNAME	Laboratory Name (long name)	Text	50	R
STATION_ID	Location ID Code	Text	20	R
ADDL_LOCATION_INFO	Scribe Sample #	Text	100	R
EPATAGNO	Scribe Analysis Designation	Text	15	R
MATRIX	Identifies the matrix type of soil, water, etc. as reported by the lab.	Text	20	R
SUBMATRIX	Scribe Matrix, expanded to include surface water, surface sediment etc. Use a custom list in Scribe	Text	40	R
SAMPLE_TYPE	Identifies types of samples as either "field" or specific lab QCbut does not identify field QC types.	Text	40	R
SAMPDATE	The Date & Time of Sample Collection	Date/Time	20	R
PREPDATE	Lab Prep Date	Date/Time	20	R
ANADATE	The Date & Time of Analysis of the sample digest or extract.	Date/Time	20	R
BATCH	Lab Batch #	Text	10	R
METHODNAME	Analytical Method Name	Text	100	R
PREPNAME	Analytical Prep Name. Type of Extraction for Organics or Digestion for Inorganics. "SONC" for sonication etc. (SVOA/PEST/PCB) of Organics and most relevant method digestion numbers for Inorganic.	Text	100	R
ANALYTE	Name of the chemical compound or element that was measured.	Text	60	R
CASNUMBER	Chemical Abstracts Service (CAS) Registry Number for the chemical compound or element reported.	Text	50	R
SURROGATE	Analytical Surrogate	Text	5	R
RESULT	The final validated result of the chemical compound or element that was measured.	Text	8	R
DETECTION	Result Detection Value	Text	8	R
DETECTED	Detected (Y/N)	Text	1	R
RESULT_QUALIFIER	Lab Qualifier Added by System	Text	10	R
UNITS	The units of measurement for the "Final Result" and "Lab Result".	Text	20	R
DILUTION	Dilution Factor applied to the digest or extract. The dilution factor is only applied when the	Text	8	R

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	laboratory has diluted the extract or digest due to a high concentration of analyte(s).			
PSOLIDS	The Percent Solids for soils and sediments. Used to determine the dry weight basis of the chemical analyses.	Text	8	R
SAMPLER	Sampler Name	Text	30	R
SAMPLETIME	The Date & Time of Sample Collection	Date/Time	20	R
VALIDATOR_QUALIFIER	National Functional Guidelines Data Validation or MEL Data Qualifiers. These should be identified in the QAPP.	Text	10	R

Field Data Scribe Fields	Description	Data Type	Field Size	Required
PH	The pH Determination of a soil or water sample. Reported in pH Units (SVOA/PEST/PCB, and Inorganic water samples)	Numeric	8	R
TEMP	Temperature in degrees celsius	Numeric	8	R
CONDUCT	Conductivity, µs/cm	Numeric	8	R
DO	Dissolved O2, mg/L	Numeric	8	R
FLOW	Flow CFS, Stream flow or Guage Reading	Numeric	8	R

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Appendix B – Scribe Templates

ESAT_INORGANIC_EDD.xls

ESAT_ORGANIC_EDD.xls

CLP_inorganic universal EDD.xls

CLP_organic universal EDD.xls

EDDBiotaSampling Field Descriptions_R8

Additional Scribe templates can be found at www.epaosc.org/scribe

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Appendix C – Additional Scribe EDDs

Importing Data into Scribe
Using
Scribe EDD Templates

Additional Electronic Data Deliverable (EDD) templates for Scribe are available to assist in the process of importing data into Scribe using Scribe's Custom Import feature available from the Scribe File Menu, Import, Custom Import. The EDD templates provided are boilerplate .csv files, for example EDDSoilSampling.csv, that contain Scribe field names in the first row of the file which make it easier to map field names and import data into Scribe. You can copy and use these EDD files to record data to be imported into Scribe. The Field Descriptions.xls files also specify Required Fields and fields that uniquely identify a record as a Primary Key (PK). Additional Scribe EDD templates can be found on the EPA OSC web site at www.epaosc.org/scribe
For assistance in importing data into Scribe, please contact ERT Support.

ERT Software Support
ERTSupport@epa.gov
(800) 999-6990

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Appendix D – Data Element Dictionary

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Appendix E – Data Review Process

The ESAT Data Review process is as follows:
The first level is an analyst level review (ESAT ICP-OE Data Review Form.pdf) this is a method-specific review completed by the analyst who ran the test. This includes a cover sheet with all of the standard, batch and sequence IDs, followed by a data review form. Each analytical run for each test gets one of these. They have slight differences between the methods based on the NELAC requirements for each one, but the overall form and format is the same.
Next are the Level II, III, & IV forms (ESAT Data Package Completeness and Tracking Form). A breakdown of the steps is listed below:

Level II - Here the data package is compiled from all of the different analyses and analytical runs (groups of raw and final data, each with a completed level I review and reviewed for completeness). Level II takes place over the course of the entire process. The QA/QC part of the level II review (peer data review) happens on form (TLF-06.00).

Level III – the completed data package is reviewed, LIMs data verification takes place and a QA/QC report is generated and reviewed, as well as a case narrative.

Level IV – an overall data review is performed with an emphasis on completeness, TDF requirements, contractual obligations, etc. At this step, at least 10% of the data is reviewed back to the raw data and calculations are double checked.

Finally, the package returns to the Level II reviewer for digitalization and delivery to the client.
Level III and IV level reviews are confined to small group of senior personnel with more 10 years of experience.
A more detailed description may be found in the SOP. Document No: 16-DAT-01.00, effective 03/12/2014.

Other laboratories and contractors will have their own data review procedures that will be detailed the site-specific SAP and QAPP. Guidelines for data validation and review for Superfund use is attached below.

Transmittal Memo-SF Data Validation (

EPA-540-R-08-005.pdf

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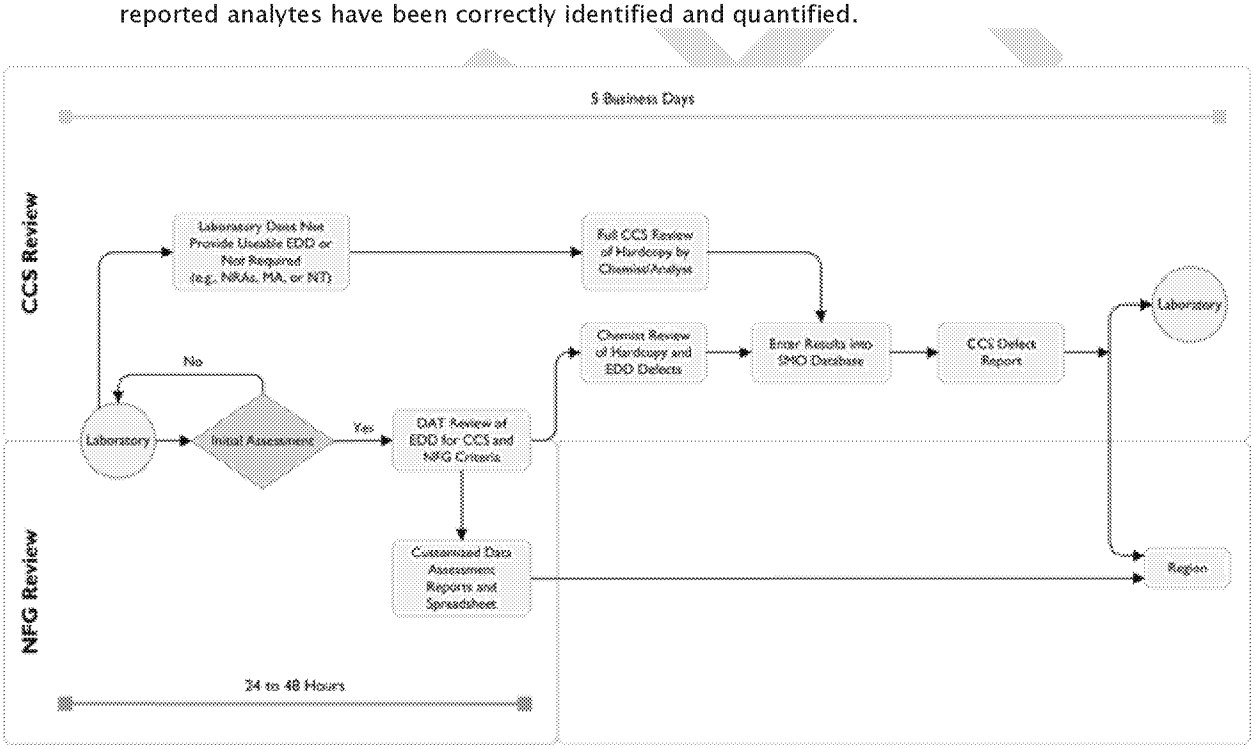
CLP Data Review Process

The Analytical Services Branch (ASB) provides data assessment services to CLP customers through the Sample Management Office (SMO) contractor. SMO performs data assessment on laboratories' hardcopy and electronic deliverables based on contractual and technical requirements outlined in the Statement of Work (SOW), Request for Proposal (RFP), and National Functional Guidelines (NFGs) for each analytical service.

Data assessment includes the following:

- **Completeness** – SMO ensures that all requested data are present and consistent (based on hardcopy and/or electronic reporting requirements)
- **Compliance** – SMO compares the analytical Quality Control (QC) results with the SOW, method, contract, and regional validation requirements or guidelines.
- **Recalculation Checks** – SMO confirms laboratory reported values (e.g., sample results) by recalculating them using the instrument output data reported by the laboratory in their Electronic Data Deliverable (EDD)
- **Instrument Output** – SMO reviews the actual instrument outputs to ensure that the laboratory reported analytes have been correctly identified and quantified.



Data Assessment Process Overview

SMO provides various tools to facilitate the data assessment process.

Additional Guidance Documents for the Contract Laboratory Program (CLP) may be found on the CLP website http://www.epa.gov/superfund/programs/clp/guidance.htm

Appendix F – EPA Region 8 GIS Deliverable Guidance

Region8_GIS_Deliverable_Guidance.pdf

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Appendix G- Region 8 sites with data already in Scribe

The attachment contains all of the known sites that have data in the Scribe database as of March, 2015.

Appendix G_Sites with data in Scribe.x

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Appendix H - Auditor Queries

Appendix H - R8DMP
Scribe Data Audit Rul

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Appendix I – Training Materials

All Scribe training, user guides and the Scribe software can be downloaded from the Scribe Development web site at:

https://www.epaosc.org/Scribe

Additional support can be found on the ERT Software Support web site at:

http://www.ertsupport.org

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Appendix J – Region 8 Site Specific Data Management Plan Template

Appendix J -
Example Site-Specifi

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