

Air Force Center for Environmental Excellence
Environmental Resources Program
Information Management System

ERPIMS '98 DATA LOADING HANDBOOK

Version 4.0

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Air Force Center for Environmental Excellence
(AFCEE)
Brooks AFB, TX

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1.0 INTRODUCTION

The Air Force Center for Environmental Excellence (AFCEE) is a service center that supports Air Force Environmental programs. This support includes technical and contract administration support for Air Force installations and Major Commands. Environmental projects generate technical reports containing large volumes of hydrogeological and chemical data that are difficult to manage with manually maintained systems. Mere storage and availability of this type of hard-copy data does not represent information, in the modern sense, without the ready access and computational capability of a mainframe computer equipped with the query tools of a relational database. It was with these factors in mind that the Installation Restoration Program Information Management System (IRPIMS) was designed for use by the IRP Program Office and its customers. IRPIMS was designed by a multidisciplinary team of professionals consisting of hydrogeologists, chemists, applied statisticians, system analysts and environmental project managers. The major emphasis in designing the system in 1986 was to provide an application tool to assist technical personnel, contract administrators and program managers. The design of the system took approximately one year, and the first generation system (IRPIMS) was operational in 1987. Major changes in system architecture were made in 1988, and the second generation system was developed within a year. During the period of 1995 through 1997, the new (ERPIMS 98) data structure was revised and modified for several reasons:

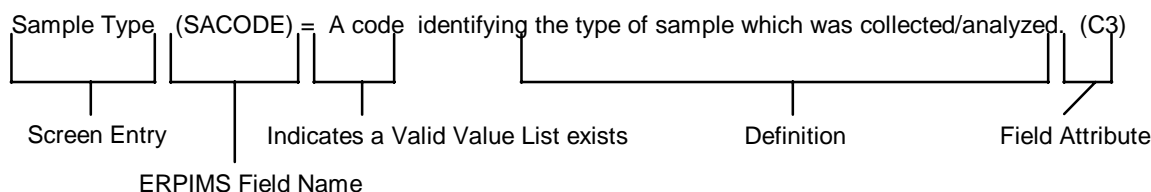
- to provide additional information that is required by users
- to incorporate information from the AFCEE Quality Assurance Project Plan (QAPP)
- to support initiatives of the Defense Environmental Security Corporate Information Management (DESCIM) Program Management Office (PMO)

In October 1997, the name of the program was changed from IRPIMS to ERPIMS (the Environmental Resources Program Information Management System) to reflect the expanded scope of environmental data to be stored in the repository. Simultaneously, the names of this Data Loading Handbook and the latest release of data loading and validation software (ERPTools v 2.0) have been changed accordingly. At the time this handbook was written, ERPIMS hardware consisted of a Digital Equipment Corporation VAX 6620 computer. Data is entered, stored and managed by ORACLE, a commercially available relational database management system. Other application software, existing both in the VAX and personal computer (PC) environments, support the system relative to data entry, graphics, statistics, reporting, groundwater modeling, and Geographical Information System (GIS) applications.

1.1 USING THIS MANUAL

The tables in sections 2.1 through 2.10, 3.1 through 3.10, and 4.0.1 through 4.4.12 show the fields in the Environmental Resources Program Information Management System (ERPIMS) database and how data entries map to those fields between IRPTools (versions 1.*), ERPTools (versions 2.*) and the Contractor Data Loading Tool/Quality Control Tool (CDLT/QCTool). **Use of CDLT is no longer recommended for submitting ERPIMS deliverables, but submissions, validated by QCTool will be accepted in this format through December 1997.** Starting in calendar year 1998, a waiver will be required in order to submit CDLT/QCTool data. Waivers will only be granted under extraordinary circumstances and must be requested from the ERPIMS Help Desk at 1-800-477-4673. Data input using CDLT can be imported into ERPTools or IRPTools for validation and submission. Submissions validated by ERPTools/IRPTools will be accepted indefinitely. The ERPIMS field attributes, type and length are given as N = number, C = character, D = date (in DD-MMM-YY format for CDLT; DD-MMM-YYYY format for ERPTools/IRPTools).

Appendix A gives definitions of terms in the following format:



Most information stored by ERPIMS is coded to save database space. To enter data in ERPIMS format, the codes used must be the codes found in the current Valid Value List (VVL). If the appropriate code cannot be found in the VVL, a code can be requested through the ERPIMS Help Desk, 1-800-477-4673 (1-800-IRPIMS3). If the code requested is approved for use in ERPIMS, it will be added to the Valid Value List. VVL lists are available on the World Wide Web at:

http://www.afcee.brooks.af.mil/ms/irp_vvl.htm

Key fields are an important concept used in relational databases such as ERPIMS. Key fields are used to uniquely identify a record and distinguish that record from all other records. The names of the key fields used in ERPIMS are in **boldface** in all applicable tables. Required fields are those which must be filled for the data submission to pass validation and to be acceptable. In the section covering ERPTools 2.0, required fields for ERPIMS submissions have both the "Yes" in the Req'd column and their start-end position numbers in **boldface** in the applicable tables. Fields that are in ERPTools 2.0 that were not in the previous structures have the field name underlined.

1.2 THE AIR FORCE-WIDE ENVIRONMENTAL RESOURCES PROGRAM INFORMATION MANAGEMENT SYSTEM (AFW-ERPIMS)

AFW-ERPIMS is a relational database maintained for the Air Force, by HQ AFCEE to store and manage data collected for Air Force environmental projects. AFW-ERPIMS stores information in separate, interrelated tables and maintains table and record relationships by having common fields within tables. ERPIMS has been modified to incorporate a range of additional environmental data. Among those tables and fields which have been added are elements to accommodate the reporting of greater well construction and lithology detail including a table to incorporate well maintenance data. Further, tables have been added which will allow the Air Force to begin to track and monitor remediation system parameters and performance characteristics. Though data items traditionally included in the database will continue to be collected and validated, this change in direction toward the support of Long Term Operations and Long Term Monitoring (LTO/LTM) has suggested the need for a name change to indicate this broader perspective. As a result, the name for the Air Force Wide database of environmental technical data was changed to the Air Force Wide-Environmental Resources Program Information Management System 98 (AFW-ERPIMS 98) effective on the first of October 1997. Prior to October 1997, this system went by the name IRPIMS. The name ERPIMS 98 is used to refer to this version (4.0) of the ERPIMS (IRPIMS) Data Loading Handbook.

Environmental contractors must submit data (historical or current) in a format compatible with AFW-ERPIMS IAW Draft AFI 32-7020. The AFW-ERPIMS Data Loading Handbook (DLH) is the guide for contractors to use to ensure they enter data in the proper format for the AFW-ERPIMS database to accept. The AFW-ERPIMS Data Loading Handbook can also be used by data administrators/managers and AFW-ERPIMS users to facilitate understanding the AFW-ERPIMS fields, formats and general AFW-ERPIMS requirements.

The contractor may submit either current (ongoing) or historical data. In either case, the data submissions must be consistent with the contractor's Statement of Work (SOW) and any related contractual guidance. The data generated from these Environmental studies can come from field investigations, laboratory analyses, site characterizations, risk assessments, remediation feasibility studies, remedial designs, remedial actions, *etc.*

If a contractor has an Air Force SOW to remediate an Air Force installation, the data obtained from this remediation effort would then be considered current data and should be submitted in the specified format. AFCEE will provide the latest version of Environmental Resources Program Tools (ERPTools) to Environmental contractors to facilitate data entry. Other software packages for data entry may be used as long as AFW-ERPIMS compatible submissions which meet the criteria set forth in this document are produced. The data must pass the quality checks in ERPTools/IRPTools (or QC Tool through Dec 97) prior to submission. These data validation tools are not totally authoritative, hence data that passes their QC may still require some correction in order to be acceptable for insertion into the ERPIMS database.

Requirements for submitting data to AFW-ERPIMS are specified in the Statement of Work (SOW) of the contract that specifies the work effort. For the purposes of existing contractual actions, the names ERPIMS and IRPIMS will be considered interchangeable. When questions arise concerning data to be submitted to AFW-ERPIMS, the Project Manager for the contract is the point of contact for coordinating contractual determinations. The submitting contractor is responsible for the accuracy and completeness of all data submitted as well as correction of any errors in the data identified by AFCEE.

A brief introduction for IRPTools 1.*, CDLT, and ERPTools 2.* are presented in Sections 2.0, 3.0 and 4.0 respectively. ERPTools and IRPTools software perform both data entry and quality control functions. ERPTools versions 2.* will handle data formats 2.3, 3.0, and 4.0. IRPTools versions 1.* will handle data formats 2.3 and 3.0. For CDLT submissions, the quality control function can be performed by any of the AFCEE validation software packages. QC Tool will only handle data format 2.3.

1.3 ERPIMS DATA SUBMISSION MODES

All ERPIMS electronic data deliverables must have been processed by one the Government provided data quality control software tools: ERPTools, IRPTools, or (until Dec 31, 1997) QCTools. This manual contains a chapter for each tool that describes, in detail, the requirements for using that tool to prepare a data submission.

1.4 DATA LOADING TOOL vs DATA LOADING HANDBOOK CROSS-REFERENCE

Throughout this manual, the terms for data submitted using a certain version of data loading/validation software are used interchangeably. Data Loading Handbook is often abbreviated as DLH. The following table shows these equivalencies.

Data Loading/Validation Tool Name(s)	Data Loading Handbook Version Number(s)
CDLT, QCTool	2.3
IRPTools 1.*	3.0, 3.1
ERPTools 2.*	4.0

2.0 PROCESSING INFORMATION WITH THE INSTALLATION RESTORATION PROGRAM TOOLS (IRPTools 1.*)

The Installation Restoration Program Tools (IRPTools) is a relational database system that has been developed to assist environmental contractors. Contractors have the choice of using IRPTools, ERPTTools (See chapter 4), or their own tools for the electronic loading of *current* data into ERPIMS format. ERPTTools is the AFCEE recommended data validation tool. IRPTools is a program that provides a relational database, has the look and feel of other Windows products, allows for the import and export of data and has much improved validation over CDLT. All IRPTools v. 1.* submissions must be processed through the validation module of IRPTools (or ERPTTools) before submission to AFCEE. The data format presented in chapter two of this handbook is provided to enable the import of this data into version 1.* of IRPTools.

Beware, just because your submission passes through the validation modules does not necessarily mean it is error free or can be loaded into the centralized database.

If a submission is not in the proper ERPIMS data format or does not pass AFCEE validation, it will not be processed and loaded into the central ERPIMS database and will be returned to the submitting contractor for correction.

All data submitted via IRPTools is in *submission group* format. A single submission file is created for each submission group. The table below shows the information that will be provided in each of the three file submission groups.

**IRPTools 1.*
Import Data Files**

		<u>File Name</u>	<u>File Description</u>
All Groups	[1]	N/A	Contract Information Record Name: CON
Group1	[2]	LDI	Location Definition Information
Group1	[3]	SLI	Site and Location Information
Group1	[4]	WCI	Well Completion Information
Group2	[5]	GWD	Groundwater Level Data
Group2	[6]	CALC	Calculated Hydrologic Parameters
Group2	[7]	LTD	Lithologic Description Information
Group3	[8]	SAMP	Environmental Sampling Data
Group3	[9]	TEST	Sample Preparation Information
Group3	[10]	RES	Analytical Results

2.1 AIR FORCE INSTALLATION AND CONTRACT INFORMATION

Information is captured which pertains to an Air Force Installation, or occasionally a non-Air Force facility, or off-base location, where environmental data was collected in support of environmental efforts.

In IRPTools, the CON record corresponds to the CDLT BCHCON file. The first line of every IRPTools produced submission file will be the CON record. This record captures basic installation information as well as information pertaining to the contract used in the environmental management process. A complete and accurate CON record must be included in every submission to AFCEE. If this record is not complete and accurate, the submission will be returned for correction.

In IRPTools 1.*, the CON record is created from the information entered on the Project Information screen.

**IRPTools 1.*
Record Name: CON**

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
CONTRACT_ID	7-22		Contract Number. [C16] Contract number, consisting of a fiscal year and contract sequence number, (e.g., F33615-84-D-4402).
DO_ID	24-27		Delivery Order Number. [C4] Sequential number assigned to the Air Force form "Orders for Supplies and Services."
SUBDATE#	29-39		Submission Date. [DD-MMM-YYYY] Date that the data is submitted to AFCEE by the contractor.
HNDBKV#	41-43		Data Loading Handbook Version. [C3] See the first page of the section of the applicable section of the Data Loading Handbook for version number. (e.g., 4.0)

These fields are not entered into the ERPIMS database. They are used during processing at AFCEE only.

2.2 Location Definition Information

The Location Definition Information (LDI) file is the foundation for all the subsequent environmental data submitted to ERPIMS and ties together all hydrogeological and chemical data. A location is a geographical point where an environmental measurement was taken. Incomplete Location Definition Information (LDI) will limit the usefulness of the data in Geographic Information Systems (GIS). The Location Identification (LOCID) for a given location must be consistent throughout a submission and between submissions. A sampling location that may have begun as a borehole and was later completed as a monitoring well needs only one LDI record. If a location has not been previously entered into ERPIMS and was not entered while submitting a current LDI file, the location's technical information cannot be accepted. (See Appendix A, Definitions, for more information.)

IRPTools provides the option to load production ERPIMS LDI records (to your PC) from diskettes when new Air Force projects are created. These records will reflect the current status in the ERPIMS database. LDI records loaded in this manner shall not be included in a submission unless changes are made to them. To avoid errors, such as duplication and missing data, users **SHALL** contact the ERPIMS Help Desk for a current list of ERPIMS locations previously entered into the central database for their particular Air Force installation before submitting new LDI information.

In IRPTools 1.*, the following information is entered in the Location Definition Information screen.

IRPTools 1.* Filename: LDI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
SITEID	18-20		Site Identification. [C3] Unique identifier assigned by AFCEE used to represent a site within an Air Force installation investigated under an environmental management program. The contractor shall contact AFCEE to obtain a list of existing ERPIMS sites at the installation.
LTCCODE	22-23	YES	Location Classification Code. [C2] Coded value describing locations where measurements or samples are taken.
LPRCODE	25-25	YES	Location Proximity Code. [C1] Coded value indicating whether a sampling or measuring location is within or outside the Air Force installation boundaries.
NCOORD	27-37		North State Plane Coordinate. [N10,2] [XXXXXXXXXX.XX] The y-value (North-South) of the distance in feet of a sampling or measuring location from the reference location of known state plane coordinates.
ECORD	39-49		East State Plane Coordinate. [N10,2] [XXXXXXXXXX.XX] The x-value (East-West) of the distance in feet of a sampling or measuring location from the reference location of known state plane coordinates
ELEV	51-58		Surface Elevation. [N7,2] [XXXXX.XX] Elevation of ground surface (for groundwater, soil, or sediment sampling) or water surface (for surface water sampling) at a sampling or measuring location. Record data in feet above mean sea level. For groundwater sampling locations, use the elevation of the land surface at which the monitoring well is located.
ESCCODE	60-63	YES	Establishing Company Code. [C4] Coded value identifying the organization which establishes a sampling or measuring location, typically the prime contractor.
DRLCODE	65-68	YES	Drilling Company Code. [C4] Coded value identifying the organization that drilled a borehole at a sampling or measuring location. This organization is typically the drilling subcontractor. Enter NA in this field for locations where no drilling took place, e.g., surface water sampling points.

IRPTools 1.*
Filename: LDI (Cont.)

Short Name	Start End	VVL	Definition
EXCCODE	70-73	YES	Excavating Company Code. [C4] Coded value identifying the organization that excavated a test pit at a sampling or measuring location. Enter NA for all non-excavated locations.
CMCCODE	75-76	YES	Construction Method Code. [C2] Coded value identifying the method by which a borehole or test pit was constructed (Drilling or Excavation Method). Enter NA for locations where no construction occurs, e.g., surface water and some sediment sampling locations.
ESTDATE	78-88		Date Established. [DD-MMM-YYYY] The date that construction of a sampling or measuring location was completed. This field is required in all LDI records.
DEPTH	90-96		Borehole Depth. [N6,2] [XXXX.XX] The total depth of a borehole (including boreholes drilled to install wells) measured in feet relative to ground surface. The value must be positive.
BHDIAM	98-102		Borehole Diameter. [N4,2] [XX.XX] The diameter of a borehole in inches. Leave blank for locations where no drilling took place, e.g., surface water sampling points.
LOCDESC	104-343		Location Description. [C240] Any additional information to describe a sampling or measuring location in text format, e.g., "Monitoring well located 10 feet Northeast of Building 532 within spill area".

* Note: All depths are positive values.

2.3 SITE AND LOCATION INFORMATION

A site is some defined area. A location is a specific point where sampling has taken place or a measurement has been taken. A location can be associated with more than one site, in which case *a record should be created for each site-location combination*. The purpose of capturing site and location information is to establish the spatial and hydrologic relationships between locations and sites.

IRPTools 1.* captures this information in the Site Location Information File (SLI). The ERPIMS site identifiers for Air Force Installations are contained within the GSI_VVL Table. **When sites, for an Air Force Installation are not listed in IRPTools, users shall request Site Identifiers (SITEIDs) through the ERPIMS Help Desk.** AFCEE will provide written approval to users to add sites to the ERPIMS database. **Contractors shall never enter new sites into IRPTools without written approval from AFCEE.**

In IRPTools, the Site Location Information screen is used to capture site and location information.

IRPTools 1.*
Filename: SLI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
SITEID	18-20		Site Identification. [C3] Unique identifier assigned by AFCEE used to represent a site within an Air Force installation investigated under an environmental management program. The contractor shall contact AFCEE to obtain a list of existing ERPIMS sites at the installation.
SITENAME	22-56		Site Name. [C35] The name of a site. e.g., Landfill 1, Fire Protection Training Area 1 or Hazardous Waste Disposal Area 3. SITENAMES should match GSI VVL listings.
SITEXREF	58-67		Site Cross Reference. [C10] The site cross reference is the abbreviated name of a site. e.g., Landfill 1 would have a SITEXREF of LF-1, and Fire Protection Training Area 1 would have a SITEXREF of FPTA-1.
GFCCODE	69-69	YES	Geohydrologic Flow Classification. [C1] The GFCCODE is a single character that describes the hydraulic relationship between a location and a site. More than one GFCCODE may be assigned to a location; however, the data is entered in separate records. For example, a location may be downgradient of one site and upgradient of another. This information is usually taken from maps of groundwater elevation and flow direction. See section 10.2 of Appendix B for further explanation of GFCCODEs

2.4 Well Completion Information

Data pertaining to the installation of wells are captured in ERPIMS. The measuring point elevation and total well depth entries are used together with the location's ground surface elevation (from the Location Definition Information) in the calculation of many hydrologic parameters and in most of the subsequent data analyses.

IRPTools 1.* captures this information via the Well Completion Information screen.

IRPTools 1.*
Filename: WCI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
INSDATE	18-28		Installation Date. [DD-MMM-YYYY] Date that a well casing is installed.
WELCODE	30-33	YES	Well Owner Code. [C4] Coded value identifying the owner of a well that is monitored or tested.
WTCCODE	35-37	YES	Well Type Classification Code. [C3] Coded value identifying the type of well.
WCMCODE	39-40	YES	Well Completion Method Code. [C2] Coded value identifying the method used to complete the well or the nature of the openings that allow water to enter the well.
GZCCODE	42-42	YES	Geologic Completion Zone. [C1] General hydrologic description of well completion zone.
SAQCODE	44-47	YES	Sole Source Aquifer Code. [C4] Coded value identifying the sole source aquifer in which the well was completed. If not completed in a sole source aquifer, leave this field blank.
SEDEPTH	49-55		Seal End Depth. [N6,2] [XXXX.XX] Depth in feet (positive value) at which the bottom of the bentonite seal is positioned, relative to the ground surface.
FPL	57-62		Filter Pack Length. [5,2] [XXX.XX] Length in feet from the bottom of the seal to the bottom of the borehole.
MPELEV	64-71		Measuring Point Elevation. [N7,2] [XXXXX.XX] Elevation of the measurement reference point used for groundwater depth level measurements, expressed in feet above Mean Sea Level; normally, the elevation where the top of casing is notched.
TOTDEPTH	73-79		Total Casing Depth. [N6,2] [XXXX.XX] Total depth in feet (positive value) below land surface of well casing including screen, blank casing, and well foot.
CASDIAM	81-86		Casing Inside Diameter. [N5,2] [XXX.XX] For monitoring wells, enter the inside diameter of the screened interval. For production wells, enter the diameter of the cased interval where the pump is positioned. For others, enter the diameter of the casing.
CMACODE	88-90	YES	Casing Material Code. [C3] Coded value identifying the material used as well casing.
SBDEPTH	92-98		Screen Beginning Depth. [N6,2] [XXXX.XX] Depth in feet at which the top of the screen is placed, relative to the ground surface (e.g., positive value measured below land surface).
SCRLENGTH	100-105		Screen Length. [N5,2] [XXX.XX] The length in feet of the screened interval.
SOUA	107-112		Screen Slot Size. [N5,2] [XXX.XX] Vertical size of slot opening in inches.
SCRDIAM	114-119		Screen Diameter. [N5,2] [XXX.XX] Inside diameter of the screened interval in inches.
PCTOPEN	121-124		Percent Open Area. [N3,1] [XX.X] Percent of screened interval that is open for water flow.
REMARKS	126-365		Remarks. [C240] Comments or remarks on the purpose or construction of the well, or identifying the geologic formation of completion. These comments should also address backfills and hole closures as well as anything eventful that transpired during well construction.

2.5 Groundwater Level Data

Information concerning groundwater levels must be captured to allow accurate site and location characterization. A GWD record provides measurements collected for one well on a given day. In order for the groundwater information to be entered, there must be a log date and log time.

Static water level and sounding should be measured before any equipment enters the well and each time a well is sampled or other testing (such as pump tests) is begun. Groundwater level and sounding should be measured to the nearest 0.01 foot. Static measurements are the measurements of the well's groundwater under stable or calm conditions. Wells which are dry should be noted as such. Sounding is the total depth (in feet) measured from the measuring point elevation of the well to the bottom of a well (not the bottom of the borehole). Only the final results of the aquifer tests should be submitted.

Dynamic measurements are considered to be the measurements taken from a well which is undergoing current work such as purging or pumping. If dynamic measurements are submitted, all of the following must be entered: the production rate, the pumping level, the recovery depth, as well as the recovery time. An initial depth must be recorded for the static water depth before pumping is begun.

In IRPTools 1.*, static and dynamic groundwater measurements are keyed into two separate screens. Dynamic measurements are entered into the screen designated as Groundwater Levels - Dynamic. Static measurements are entered into the screen designated as Groundwater Levels - Static. The information is captured in the Groundwater Level table.

**IRPTools 1.*
Filename: GWD**

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-28		Log Date. [DD-MMM-YYYY] Date that a water level measurement is made.
LOGTIME	30-33		Log Time. [C4] Time of day (HHMM) that a water level measurement is made using 24HR time with no colon.
LOGCODE	35-38	YES	Logging Company Code. [C4] Coded value identifying the company performing field tests.
GWDTYPE	40-46		Groundwater Type. [C7] Indicates STATIC or DYNAMIC well measurement.
STATDEP	48-55		Static Water Depth. [N7,2] [XXXXX.XX] Depth to water in feet measured from the measuring point (see MPELEV in file WCI) for well under static conditions.
PRODRATE	57-63		Production Rate. [N6,1] [XXXXX.X] Pump/purge rate in gal/min at which well is evacuated during groundwater level measurement. Leave this field blank for static water level measurements.
PUMPDEP	65-72		Pumping Level. [N6,2] [XXXX.XX] Lowest dynamic water level depth in feet measured during pumping or purging, relative to the reference point; normally, the elevation where the top of the casing is notched. Leave this field blank for static water level measurements.
DEPWAT	74-81		Recovery Depth. [N7,2] [XXXXX.XX] Dynamic depth of water after recovery from purge, measured in feet from the reference point; normally, the elevation where the top of the casing is notched. Leave this field blank for static water level measurements.
RECTIME	83-86		Recovery Time. [N4] Elapsed time in minutes for water level to stabilize or recover to a certain level after purge. [OPT] Leave this field blank for static water level measurements.

**IRPTools 1.*
Filename: GWD (cont.)**

Short Name	Start End	VVL	Definition
SOUNDING	88-95		Sounding. [N7,2] [XXXXX.XX] Total depth to the bottom of well in feet at time of test, measured from the reference point; normally the elevation where the top of the casing is notched.
DRY	97-97		Dry. [C1] Identification of dry or wet wells by entering the notation "Y" or "N" where "Y" indicates DRY.
REMARKS	99-338		Remarks. [C240] Comments or remarks pertinent to the data collected from groundwater level measurements. The comments should cover any unusual occurrences encountered while taking the measurements.

* Note: All depths are positive values.

2.6 CALCULATED HYDROLOGIC PARAMETERS

Parameters which are calculated or obtained from aquifer and tracer tests, such as pump or slug tests are captured in ERPIMS. Parameters include effective porosity, hydrologic conductivity, transmissivity and storativity.

IRPTools 1.* captures this information via the Calculated Hydrologic Parameters screen.

IRPTools 1.*
Filename: CALC

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, <i>etc.</i> ; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-28		Log Date. [DD-MMM-YYYY] Date that a water level measurement is made.
LOGTIME	30-33		Log Time. [C4] Time of day (HHMM) that a water level measurement is made using 24HR time with no colon.
CALCPARCODE	35-39	YES	Calculated Parameter Code. [C5] Unique identifier used to indicate which parameter has been derived from aquifer or tracer tests.
PARVAL	41-55		Parameter Value. [N13,4][XXXXXXXXXX.XXXX] The actual numeric value of the calculated or measured parameter being reported. This value is expressed in terms of the units of measure reported in the UNITS field.
UNITS	57-66	YES	Units of Measure. [C10] Coded value identifying the units of measure for the calculated parameter.

2.7 LITHOLOGIC DESCRIPTION INFORMATION

Lithologic descriptions and classifications of cuttings and cores taken from boreholes and test pits are captured in ERPIMS. Each record describes a distinct lithologic interval (stratum). There may be more than one record of a particular lithology (at different depths) depending on whether the lithologic sampling is performed continuously, or every five feet, or when lithology type changes. Usually when lithology is described continuously or every five feet, the potential to have more than one record of the same lithology is possible. Use the VISDESC field to augment the LITHCODE field by describing any secondary characteristics or color, listing the formation name, and providing other descriptive lithologic information. The results of soil/rock properties tests (e.g. soil plasticity) should be entered in the VISDESC field and not in the chemistry files.

IRPTools 1.* captures this information via the Lithologic Description Information screen.

IRPTools 1.* Filename: LTD

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
BEGDEPTH	18-25		Beginning Depth. [N7,2] [XXXXX.XX] Upper depth of a lithologic stratum, measured below the ground surface in feet (reported as a positive value).
ENDDEPTH	27-34		End Depth. [N7,2] [XXXXX.XX] Lower depth of a lithologic stratum, measured below the ground surface in feet (reported as a positive value).
LOGCODE	36-39	YES	Logging Company Code. [C4] Coded value identifying the company logging the borehole or pit.
LOGDATE	41-51		Log Date. [DD-MMM-YYYY] Date that the logging is performed.
LITHCODE	53-56	YES	Lithology Code. [C4] 4-Character code indicating lithologic description of layer. This should include both consolidated and unconsolidated material.
ASTMCODE	58-61	YES	ASTM Soil Classification Code. [C4]. A 2 or 4 character code used in ASTM classification of unconsolidated deposits. Deposits possessing characteristics of two groups are designated by combinations of group symbols (e.g., SPSM). The predominant group shall be entered as the second 2 character code (e.g., SM is the predominant group if SPSM is entered in the field). Enter space characters in positions 60 and 61 if a 2 character code is entered.
STRATORDER	63-65		Stratigraphic Order. [N3] [XXX] Number assigned by site geologist to each distinct lithologic interval at a site.
VISDESC	67-306		Visual Description. [C240] Textural and mineralogical description of the material comprising the layer, to augment or qualify the lithologic codes. This field should include grain sizes, color, secondary characteristics, geologic formation name, and any other lithologic information.

2.8 Environmental Sampling Information

ERPIMS stores information regarding how an environmental sample was collected, the analyses performed on it, and the results of the analyses. A sampling event will result in one sample record. The same sampling event can produce multiple test records. Each test record can produce multiple results records. In IRPTools this screen and file provide information regarding environmental sampling events. Each record represents data concerning the sample taken in the field. For every combination of location, log date, log time, sample type, matrix, sample beginning depth, and ending depth a separate record must be entered. All depth entries must be reported as positive numbers. **In IRPTools 1.*, this information is captured in the SAMPLES screen.**

IRPTools 1.*
Filename: SAMP

Short Name	Start-End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc. Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in an investigation should be identified as "MW-06" in future investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the Help Desk at (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-28		Log Date. [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME	30-33		Log Time. [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
SACODE	35-37	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1 of Appendix B for further discussion of sample types.
MATRIX	39-40	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
SBD	42-49		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.
SED	51-58		Sample Ending Depth. [N7,2] [XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).
LOTCTLNUM	60-64		Lot Control Number. [C5] Coded Value denoting a set of samples that comprise an autonomous group of field environment samples and field QC samples. See Section 2 of Appendix B for direction and examples of how to assign LOTCTLNUMs.
LOGCODE	66-69	YES	Logging Company Code. [C4] Coded value identifying the company collecting samples or performing field tests.
SMCODE	71-72	YES	Sampling Method Code. [C2] Coded value identifying the sampling method used to collect a sample. Use the code NA for all QC records aside from Equipment Blanks.

2.9 TEST INFORMATION

In IRPTools, records representing the extraction and analysis information for one environmental sample at one location will be placed into the TESTS file. The results of the analytical testing will be entered into the RESULTS file. IRPTools accommodates multiple runs for a given extraction/analytical method combination performed on a single sample using the RUN_NUMBER field.

NOTE: Field tests such as methods E120.1 (specific conductance), E150.1 (pH), E170.1 (temperature) and E180.1 (turbidity) should be performed during monitoring well purging for groundwater sampling and well development. These field tests may be performed multiple times during monitoring well purging or development. Only the final result prior to groundwater sampling and conclusion of well development (after stabilization of field test parameters) should be recorded in ERPIMS.

In IRPTools 1.*, this information is entered via the Tests Screen

IRPTools 1.* Filename: TEST

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, <i>etc.</i> ; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-28		Log Date. [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME	30-33		Log Time. [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
SACODE	35-37	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1 of Appendix B for further discussion of sample types.
MATRIX	39-40	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, <i>etc.</i> For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
SBD	42-49		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.
SED	51-58		Sample Ending Depth. [N7,2] [XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).

IRPTools 1.*
Filename: TEST (cont.)

Short Name	Start End	VVL	Definition
ANMCODE	60-65	YES	Analytical Method Code. [C6] Coded value representing the method of analysis of a given parameter.
EXMCODE	67-72	YES	Extraction Method Code. [C6] Coded value representing the method used to extract or prepare a sample for a particular analysis.
LABCODE	74-77	YES	Analytical Laboratory Code. [C4] Coded value identifying the analytical laboratory that performed the analysis of a sample. For field tests use the code FLD.
RUN_NUMBER	79-80		Run Number. [N2] This field permits the numerical coding of multiple or repeat analyses of a sample by the same analytical method on the same day.
LABSAMPID	82-93		Laboratory Sample Identification. [C12] Identifier assigned to a sample by a laboratory and included in the reporting of the results. Enter space characters for field tests.
EXTDATE	95-105		Extraction Date. [DD-MMM-YYYY] Date that an extraction or preparation is made from a sample. Enter space characters in this field for all field tests.
EXTTIME	107-110		Extraction Time. [C4] Time of day (HHMM), using a 24-hour clock without a colon, that an extraction or preparation is made from a sample.
ANADATE	112-122		Analysis Date. [DD-MMM-YYYY] Date that a sample or extract is analyzed in a laboratory.
ANATIME	124-127		Analysis Time. [C4] Time of day (HHMM), using a 24-hour clock without a colon, that a laboratory analysis is done on a sample or extract.
LABLOTCTL	129-138		Laboratory Lot Control Number. [C10] The batch designator of an autonomous group of environmental samples and associated QC samples analyzed by a test. This group is equivalent to the EPA SW-846 concept of "Analytical Batch." Enter space characters for field tests. See Section 2 in Appendix B for examples.
BASIS	140-140		Basis. [C1] For tissue or solid samples enter whether results are reported on a wet (W) or dry (D) basis. Enter "X" for water, air, and gas matrix, FIELDQC, and LABQC samples.

*Note: All depths are positive values.

2.10 RESULT INFORMATION

This file reports analytical results for one or more analytes obtained from a single extraction and testing event. Each record in the file provides the analytical result for a single analyte. For field analysis of pH, temperature, and specific conductance, submit only one result each per environmental sampling event; this should be the result recorded closest to the time when the samples were obtained.

All results above the established laboratory detection limits should be submitted as quantifiable results. All non-detectable results should be entered with PARVAL = 0 and PARVQ = ND; note for these records LABDL is of particular importance. Non-detectable results must be entered so that ERPIMS has an affirmation record of environmental contaminants for which analysis was performed, but contaminants were not found.

In cases where confirmation of gas chromatography results is required, three confirmatory data pairs (PARVAL and PARVQ) entries will be entered for each RESULTS record. The value for the first and second column results will be entered in the fields VAL_1C and VAL_CONFIRM respectively while the qualifier for the first and second column results will be entered in the fields VQ_1C and VQ_CONFIRM. The primary result, which is the most reliable result as judged by the laboratory, must be entered in the fields PARVAL and PARVQ for each RESULTS record. **Averaging the first column and confirming results to get the primary result is not allowed.**

In IRPTools 1.*, this information is entered via the RESULTS screen

IRPTools 1.* Filename: RES

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-28		Log Date. [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME	30-33		Log Time. [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
SACODE	35-37	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1.0 of Appendix B for further discussion of sample types.
MATRIX	39-40	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
SBD	42-49		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.

IRPTools 1.*
Filename: RES (cont.)

Short Name	Start End	VVL	Definition
SED	51-58		Sample Ending Depth. [N7,2] [XXXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).
ANMCODE	60-65	YES	Analytical Method Code. [C6] Coded value representing the method of analysis of a given parameter.
EXMCODE	67-72	YES	Extraction Method Code. [C6] Coded value representing the method used to extract or prepare a sample for a particular analysis.
LABCODE	74-77	YES	Analytical Laboratory Code. [C4] Coded value identifying the analytical laboratory that performed the analysis of a sample. For field tests use the code FLD.
RUN_ NUMBER	79-80		Run Number. [N2] This field permits the numerical coding of multiple or repeat analyses of a sample by the same analytical method on the same day.
PARLABEL	82-93	YES	Parameter Label. [C12] An abbreviated, common acronym representing a parameter or analyte.
PARVQ	95-96	YES	Parameter Value Qualifier. [C2] Coded value qualifying the analytical results field (PARVAL). This field should be filled in every record.
PARVAL	98-112		Parameter Value. [N14,4] [XXXXXXXXXX.XXXX] The actual numeric value of the calculated or measured parameter being reported. This value is expressed in terms of the units of measure reported in the UNITS field.
PARUN	114-126		Parameter Value Uncertainty. [N12,4] [XXXXXXXXXX.XXXX] The uncertainty of a measured value due to a measuring technique (expressed as plus or minus some value).
LABDL	128-142		Laboratory Detection Limit. [N14,4] [XXXXXXXXXX.XXXX] This field should be filled-in with the specified Reporting Limit (RL). For AFCEE contracts, the entry for this field will be specified by the AFCEE Quality Assurance Project Plan (QAPP). When RLs are reported, the transmittal letter that accompanies the submission must be annotated to state this. <u>If there is no RL specified</u> , then the following definition for LABDL applies: The minimum detectable quantity of a parameter based on laboratory conditions, analytical method, or field conditions. This detection limit should be that which applies specifically to the result given in the same record, and should account for any dilution done on a sample beyond the normal dilution called for in the analytical method. Enter space characters for results such as pH and temperature that have no detection limit.
EXPECTED	144-158		Expected Parameter Value. [N14,4] [XXXXXXXXXX.XXXX] The target value for a QC sample. This field is required for all samples having a SACODE other than N. If the SACODE is N, then this field should be left blank. See Tables in sections 1.1 and 1.2 of Appendix B for further guidance on entering values in the EXPECTED field.
UNITS	160-169	YES	Units of Measure [C10] Units of measure used to report the parameter value. Units do not have to conform to those mandated for an environmental technical report.
VQ_1C	171-172		First Column Qualifier [C2] Parameter value qualifier associated with VAL_1C. VQ_1C relates to VAL_1C in the same way as PARVQ relates to PARVAL.
VAL_1C	174-188		First Column Result [N14,4] [XXXXXXXXXX.XXXX] Result from primary or initial GC or GC/MS analysis.
VQ_CONFIRM	190-191		Confirming Value Qualifier [C2] Parameter value qualifier associated with VAL_CONFIRM. VQ_CONFIRM relates to VAL_CONFIRM in the same way as PARVQ relates to PARVAL.
VAL_CONFIRM	193-207		Confirming Value Result [N14,4] [XXXXXXXXXX.XXXX] Result from primary or initial GC or GC/MS analysis.
EPA_FLAG	209-214		EPA Flag [C6] A field allowing the entry of established US EPA qualifier codes not addressed by the Parameter Value Qualifier (PARVQ) codes.
PRECISION	216-216		Precision [N1] The number of significant digits (decimal places) for the PARVAL, PARUN, EXPECTED and LABDL fields.

*Note: All depths are positive values.

3.0 CONTRACTOR DATA LOADING TOOL (CDLT)

The Contractor Data Loading Tool (CDLT) is a software program developed for distribution to environmental contractors. Contractors have the choice of using ERPTools, IRPTools, (temporarily) CDLT, or their own tools for the electronic loading of *current* data into ERPIMS format. If the contractor uses either ERPTools or IRPTools software and supporting documentation, the data will automatically be in the proper ERPIMS format. All CDLT data submissions must be processed through a data validation program prior to being sent to AFCEE. There are three such programs, The Quality Control Tool (QCTool), IRPTools, and ERPTools, that check data submissions for the proper ERPIMS format. ERPTools is the recommended validation tool. QCTool validated submissions will only be accepted through December 1997. If a submission is not in the proper ERPIMS data format, it cannot be processed and loaded into the central ERPIMS database and will be returned to the submitting contractor for correction.

Beware, just because your submission passes QCTool, IRPTools, or ERPTools does not automatically mean it is error free and can be loaded into the central database. This is especially true of QCTool submissions.

All data submitted via the CDLT is in ASCII format in ten files. The table below provides the ten CDLT (ASCII) file names and a description for each.

CDLT (ASCII) Import Data Files		
	File Name	File Description
[1]	BCHCON	Contract Information
[2]	BCHLDI	Location Definition Information
[3]	BCHSLI	Site and Location Information
[4]	BCHWCI	Well Completion Information
[5]	BCHGWD	Groundwater Level Data
[6]	BCHCALC	Calculated Hydrologic Parameters
[7]	BCHLTD	Lithologic Description Information
[8]	BCHSAMP	Environmental Sampling Data
[9]	BCHTEST	Sample Preparation Information
[10]	BCHRES	Analytical Results

For more information about CDLT, QCT and ASCII files, see Chapter 3, Appendix D and the CDLT user's manual.

3.1 CONTRACT INFORMATION FILE (BCHCON)

Information is captured which pertains to the Air Force Installation, or occasionally non-Air Force facilities or off-base locations, where environmental data was collected in support of an environmental program.

In the Contractor Data Loading Tool (CDLT), the BCHCON file contains a record which captures basic installation information, as well as information pertaining to the contract used in the environmental management process. This information is entered in the new project screen. If this file is not complete, the submission cannot be processed, and the submission will be returned to the submitting contractor for correction.

A copy of this BCHCON file must be included on every disk of every submission sent to AFCEE.

CDLT
Filename: BCHCON

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
CONTRACT_ID	7-22		Contract Number. [C16] Contract number, consisting of a fiscal year and contract sequence number, e.g., F33615-84-D-4402.
DO_ID	24-25		Delivery Order Number. [C2] Sequential number assigned to the Air Force form "Orders for Supplies and Services."
SUBDATE#	27-35		Submission Date. [DD-MMM-YY] Date that the data is submitted to AFCEE by the contractor.
HNDBKV#	37-39		Data Loading Handbook Version. [C3] See the first page of the section of the applicable section of the Data Loading Handbook for version number. (e.g., 4.0)

These fields are not entered in the ERPIMS database. They are used during processing at AFCEE only.

3.2 Location Definition Information

The Location Definition Information (LDI) is the foundation for all the subsequent environmental data submitted to ERPIMS and ties together all hydrogeological and chemical data. A location is a geographical point where some environmental measurement was taken. Incomplete location definition information will limit the usefulness of the data in Geographic Information Systems (GIS). A Location Identification (LOCID) for a given location must be consistent throughout a submission and between submissions. A sampling location that may have begun as a borehole and was later completed as a monitoring well needs only one LDI record.

If a location has not been previously entered into ERPIMS or is not being entered while submitting a current LDI file, the location's technical information cannot be accepted. To avoid duplication, before users enter or submit LDI information, they **SHALL** contact the ERPIMS Help Desk for a current list of ERPIMS locations previously entered in LDI for their particular Air Force installation.

In CDLT, the ASCII file created is the BCHLDI file; the information is entered on the Location Definition screen.

CDLT Filename: BCHLDI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
SITEID	7-9		Site Identification. [C3] Unique identifier assigned by AFCEE used to represent a site within an Air Force installation investigated under an environmental management program. The contractor shall contact AFCEE to obtain a list of existing ERPIMS sites at the Installation.
LOCID	11-20		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LTCCODE	22-23	YES	Location Classification Code. [C2] Coded value describing location where measurements or samples are taken.
LPRCODE	25-25	YES	Location Proximity Code. [C1] Coded value indicating whether sampling or measuring location is within or outside the Air Force installation boundaries.
NCOORD	27-37		North State Plane Coordinate. [N10,2] [XXXXXXXXXX.XX] The y-value (North-South) of the distance in feet of a sampling or measuring location from the reference location of known state plane coordinates.
ECORD	39-49		East State Plane Coordinate. [N10,2] [XXXXXXXXXX.XX] The x-value (East-West) of the distance in feet of a sampling or measuring location from the reference location of known state plane coordinates
ELEV	51-58		Surface Elevation. [N7,2] [XXXXXX.XX] Elevation of ground surface (for groundwater, soil, or sediment sampling) or water surface (for surface water sampling) at a sampling or measuring location. Record data in feet above mean sea level. For groundwater sampling locations, use the elevation of the land surface at which the monitoring well is located.
ESCCODE	60-63	YES	Establishing Company Code. [C4] Coded value identifying the organization which establishes a sampling or measuring location, typically the prime contractor.
DRLCODE	65-68	YES	Drilling Company Code. [C4] Coded value identifying the organization that drilled a borehole at a sampling or measuring location. This organization is typically the drilling subcontractor. Enter space characters in this field for locations where no drilling took place, e.g., surface water sampling points.
EXCCODE	70-73	YES	Excavating Company Code. [C4] Coded value identifying the organization that excavated a test pit at a sampling or measuring location. Enter space characters for all non-excavated locations.

CDLT
Filename: BCHLDI (cont.)

Short Name	Start End	VVL	Definition
CMCCODE	75-76	YES	Construction Method Code. [C2] Coded value identifying the method by which a borehole or test pit was constructed (Drilling or Excavation Method). Enter space characters for locations where no construction occurs, e.g., surface water and some sediment sampling locations.
ESTDATE	78-86		Date Established. [DD-MMM-YY] The date that construction of a sampling or measuring location was completed.
DEPTH	88-94		Borehole Depth. [N6,2] [XXXX.XX] The total depth of a borehole (including boreholes drilled to install wells) measured in feet relative to ground surface. The value must be positive.
BHDIAM	96-100		Borehole Diameter. [N4,2] [XX.XX] The diameter of a borehole in inches. Enter space characters for locations where no drilling took place, e.g., surface water sampling points.
LOCDESC	102-341		Location Description. [C240] Any additional information to describe a sampling or measuring location in text format, e.g., "Monitoring well located 10 feet Northeast of Building 624 within spill area."

3.3 SITE AND LOCATION INFORMATION FILE (BCHSLI)

A site is some defined area. A location is a specific point where sampling has taken place or a measurement has been taken. A location can be associated with more than one site, in which case *a record should be created for each site-location combination*. The purpose of capturing site and location information is to establish the spatial and hydraulic relationship between locations and sites.

NOTE: There is no utility (e.g., data entry screen) in CDLT for automatically creating an ASCII file of site and location relationships. The user must create an ASCII file of the information, in columnar format, and submit it as the Site and Location Information BCHSLI file. The BCHSLI file should be submitted with the first group of electronic data.

The CDLT captures this information via the Site and Location Information screen. In CDLT, the ASCII file created is the BCHSLI file.

CDLT
Filename: BCHSLI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
SITEID	7-9		Site Identification. [C3] Unique identifier assigned by AFCEE used to represent a site within an Air Force installation investigated under an environmental management program. The contractor shall contact AFCEE to obtain a list of existing ERPIMS sites at the Installation.
SITENAME	11-45		Site Name. [C35] The name of a site. e.g., Landfill 1, Fire Protection Training Area 1 and Hazardous Waste Disposal Area 3 etc.
SITEXREF	47-56		Site Cross Reference. [C10] The site cross reference is the abbreviated name of a site. For examples: Landfill 1 would have a SITEXREF of LF-1, and Fire Protection Training Area 1 would have a SITEXREF of FPTA-1.
LOCID	58-67		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
GFCCODE	69-69		Geohydrologic Flow Classification. [C1] The GFCCODE is a single character that describes the hydrologic relationship between a location and a site. More than one GFCCODE may be assigned to a location; however, the data is entered in separate records. For example, a location may be downgradient of one site and upgradient of another. This information is usually taken from maps of groundwater elevation and flow direction. See section 10 of Appendix B for further explanation of GFCCODEs.

3.4 WELL COMPLETION INFORMATION FILE (BCHWCI)

Data pertaining to the installation of wells is captured in ERPIMS. The measuring point elevation and total well depth entries are used together with the location's ground surface elevation (from the Location Definition Information) in the calculation of many hydrologic parameters and in most of the subsequent data analyses.

The CDLT captures this information via the Well Completion Information screen. In CDLT, the ASCII file created is the BCHWCI file.

CDLT
Filename: BCHWCI

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
INSDATE	18-26		Installation Date. [DD-MMM-YY] Date that a well casing is installed.
WELCODE	28-31	YES	Well Owner Code. [C4] Coded value identifying the owner of a well that is monitored or tested.
WTCCODE	33-35	YES	Well Type Classification Code. [C3] Coded value identifying the type of well.
WCMCODE	37-38	YES	Well Completion Method Code. [C2] Coded value identifying the method used to complete the well or the nature of the openings that allow water to enter the well.
GZCCODE	40-40	YES	Geologic Completion Zone. [C1] Hydrologic description of well completion zone.
SAQCODE	42-45	YES	Sole Source Aquifer Code. [C4] Coded value identifying the sole source aquifer in which the well was completed. If not completed in a sole source aquifer, enter space characters in this field.
SEDEPTH	47-53		Seal End Depth. [N6,2] [XXXX.XX] Depth in feet (positive value) at which the bottom of the bentonite seal is positioned, relative to the ground surface.
FPL	55-60		Filter Pack Length. [5,2] [XXX.XX] Length in feet from the bottom of the seal to the bottom of the borehole.
MPELEV	62-69		Measuring Point Elevation. [N7,2] [XXXXX.XX] Elevation of the measurement reference point used for groundwater depth level measurements, expressed in feet above Mean Sea Level; normally, the elevation where the top of casing is notched.
TOTDEPTH	71-77		Total Casing Depth. [N6,2] [XXXX.XX] Total depth in feet (positive value) below land surface of well casing including screen, blank casing, and well foot.
CASDIAM	79-84		Casing Inside Diameter. [N5,2] [XXX.XX] For monitoring wells, enter the inside diameter of the screened interval. For production wells, enter the diameter of the cased interval where the pump is. For others, enter the diameter of the casing.
CMACODE	86-88	YES	Casing Material Code. [C3] Coded value identifying the material used as well casing.
SBDEPTH	90-96		Screen Beginning Depth. [N6,2] [XXXX.XX] Depth in feet at which the top of the screen is placed, relative to the ground surface (e.g., positive value measured below land surface).
SCRLENGTH	98-103		Screen Length. [N5,2] [XXX.XX] The length in feet of the screened interval.
SOUA	105-110		Screen Slot Size. [N5,2] [XXX.XX] Vertical size of slot opening in inches.
SCRDIAM	112-117		Screen Diameter. [N5,2] [XXX.XX] Inside diameter of the screened interval in inches.
PCTOPEN	119-122		Percent Open Area. [N3,1] [XX.X] Percent of screened interval that is open for water flow.
REMARKS	124-363		Remarks. [C240] Comments or remarks on the purpose or construction of the well, or identifying the geologic formation of completion. The remarks should include information on backfills and hole closures. They should also mention any out of the ordinary events that occurred during well construction.

*Note: All depths are positive values.

3.5 GROUNDWATER LEVEL DATA FILE (BCHGWD)

Information concerning groundwater levels must be captured to allow accurate site and location characterization. Each record provides measurements collected for one well on a given day. In order for the groundwater information to be entered, there must be a log date. If a well is tested more than once a day, there must also be a log time. Static measurements are the measurements of the well's groundwater at stable or calm conditions. Static water levels should be measured before any equipment enters the well and each time a well is sampled or other testing (such as pump tests) is begun. Groundwater level should be measured to the nearest 0.01 foot. If static measurements are reported, enter the water level in the STATDEP field, and space characters in the PRODRATE, PUMPDEP, DEPWAT, and RECTIME fields.

Dynamic measurements are considered to be the measurements taken from a well which is undergoing current work such as the purging or pumping of a well. If dynamic measurements are submitted, the recovery depth would be recorded in the DEPWAT field, as well as the production rate (PRODRATE), the pumping level (PUMPDEP) and the recovery time (RECTIME). Wells which are dry should be noted as such in the remarks field.

The CDLT captures this information via the Groundwater Level Information screen. In CDLT, the ASCII file created is the BCHGWD file.

CDLT Filename: BCHGWD

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-26		Log Date. [DD-MMM-YY] Date that a water level measurement is made.
LOGCODE	28-31	YES	Logging Company Code. [C4] Coded value identifying the company performing field tests.
LOGTIME	33-36		Log Time. [C4] Time of day (HHMM) that a water level measurement is made using 24HR time with no colon.
STATDEP	38-44		Static Water Depth. [N7,2] [XXXXX.XX] Depth to water in feet measured from the measuring point (see MPELEV in file BCHWCI) for well under static conditions.
PRODRATE	46-51		Production Rate. [N6,1] [XXXXX.X] Pump/purge rate in gal/min at which well is evacuated during groundwater level measurement. Enter space characters in this field for static measurements.
PUMPDEP	53-59		Pumping Level. [N6,2][XXXX.XX] Lowest dynamic water level depth in feet measured during pumping or purging, relative to the reference point; normally, the elevation where the top of the casing is notched. Enter space characters in this field for static water level measurements.
DEPWAT	61-67		Recovery Depth. [N7,2] [XXXXX.XX] Dynamic depth of water after recovery from purge, measured in feet from the reference point; normally, the elevation where the top of the casing is notched. Enter space characters in this field for static measurements.
RECTIME	69-72		Recovery Time [C4] Elapsed time in minutes for water level to stabilize or recover to a certain level after purge.
SOUNDING	74-80		Sounding. [N7,2] [XXXXX.XX] Total depth to the bottom of well in feet at time of test, measured from the reference point; normally the elevation where the top of the casing is notched.
REMARKS	82-321		Remarks. [C240] Comments or remarks on the groundwater depth measurements. The word "DRY" should appear as the first three characters if a dry well is detected.

*Note: All depths are positive values.

3.6 CALCULATED HYDROLOGIC PARAMETERS FILE (BCHCALC)

This file reports parameters that are calculated from aquifer tests or tracer tests. The parameters to be reported include effective porosity, hydraulic conductivity, transmissivity, and storativity.

The CDLT captures this information via the Calculated Hydrologic Parameters screen. In CDLT, the ASCII file created is the BCHCALC file.

CDLT
Filename: BCHCALC

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, <i>etc.</i> ; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-26		Log Date. [DD-MMM-YY] Date that a water level measurement is made.
CALCPARCODE	28-32	YES	Calculated Parameter Code. [C5] Unique identifier used to indicate which parameter has been derived from aquifer or tracer tests.
PARVAL	34-47		Parameter Value. [N13,4][XXXXXXXXXX.XXXX] The actual numeric value of the calculated or measured parameter being reported. This value is expressed in terms of the units of measure reported in the UNITS field.
UTMCODE	49-58	YES	Units of Measure. [C10] Coded value identifying the units of measure for the calculated parameter.

3.7 LITHOLOGIC DESCRIPTION FILE (BCHLTD)

This file reports the lithologic description and classification of cuttings and cores taken **from boreholes or test pits**. Each record in the file contains distinct data for one lithologic interval. The site geologist should examine the stratigraphy of the entire site and assign numbers (sequentially increasing with depth) to each distinct stratum on a site-wide basis. **These numbers should then be entered in the STRATORDER field of each record in this file.**

A complete log from the ground surface to the bottom of a borehole may require many **records in this file**. Use the VISDESC field to augment the LITHCODE field by describing any secondary characteristics or colors, listing the formation name, and providing other descriptive lithologic information.

The CDLT captures this information via the Lithologic Description screen. In CDLT, the ASCII file created is the BCHLTD file.

CDLT
Filename: BCHLTD

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, <i>etc.</i> ; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGCODE	18-21	YES	Logging Company Code. [C4] Coded value identifying the company logging the borehole or pit.
LOGDATE	23-31		Log Date. [DD-MMM-YY] Date that the logging is performed.
BEGDEPTH	33-39		Beginning Depth. [N6,2][XXXX.XX] Upper depth of a lithologic stratum, measured below the ground surface in feet (reported as a positive value).
ENDEPTH	41-47		End Depth. [N7,2][XXXXX.XX] Lower depth of a lithologic stratum, measured below the ground surface in feet (reported as a positive value).
LITHCODE	49-52	YES	Lithology Code. [C4] 4-Character code indicating lithologic description of layer. This should include both consolidated and unconsolidated material.
ASTMCODE	54-57	YES	ASTM Soil Classification Code. [C4]. A 2 or 4 character code used in ASTM classification of unconsolidated deposits. Deposits possessing characteristics of two groups are designated by combinations of group symbols (e.g., SPSM). The predominant group shall be entered as the second 2 character code (e.g., SM is the predominant group if SPSM is entered in the field). Enter space characters in positions 56 and 57 if a 2 character code is entered.
STRATORDER	59-61		Stratigraphic Order. [N3] [XXX] Number assigned by site geologist to each distinct lithologic interval at a site.
VISDESC	63-302		Visual Description. [C240] Textural and mineralogical description of the material comprising the layer, to augment or qualify the lithologic codes. This field should include grain sizes, color, secondary characteristics, geologic formation name, and any other lithologic information.

*Note: All depths are positive values.

3.8 ENVIRONMENTAL SAMPLING INFORMATION FILE (BCHSAMP)

This file reports information regarding a water, soil, or environmental sampling event. Each record in the file provides data about the sampling of one environmental medium at one sampling location. If several environmental media were sampled at one location, a separate record must be created for each medium. For QC samples such as blanks, enter the date and time that the QC sample was created in the LOGDATE and LOGTIME fields. The LOGDATE should be taken from the normal environmental sample associated with blanks generated in the field.

This information is entered in the Environmental Sampling Information screen. In CDLT, the ASCII file created is the BCHSAMP file.

CDLT
Filename: BCHSAMP

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-26		Log Date. [DD-MMM-YY] Date that a sample is collected, a field test is performed, or a QC sample is created.
LOGTIME	28-31		Log Time. [C4] Time of day (HHMM) that a sample is collected, a field measurement is made, or a QC sample is created using a 24-hour clock without a colon.
LOTCTLNUM	33-36		Lot Control Number. [C4] Number denoting a set of samples that comprise an autonomous group of field environment samples and field QC samples. See Section 4.0 in Appendix A for direction and examples of how to assign lot control numbers.
LOGCODE	38-41	YES	Logging Company Code. [C4] Coded value identifying the company collecting samples or performing field tests.
SBD	43-49		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.
SED	51-57		Sample Ending Depth. [N7,2] [XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth, if greater than zero, should never be reported as a smaller value than the sample beginning depth (SBD).
SMCODE	59-60	YES	Sampling Method Code. [C2] Coded value identifying the sampling method used to collect a sample. For QC blanks (or other samples where sampling method is not applicable), use the code NA.
MATRIX	62-63	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
SACODE	65-67	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1 in Appendix B for further discussion of sample types.

*Note: All depths are positive values.

3.9 SAMPLE PREPARATION INFORMATION FILE (BCHTEST)

This file reports information relating a single sampling event to one or more **sample extraction and analysis events**. Each record in the file describes a single extraction and analysis event for one environmental sample at one location. Thus, a groundwater sample extracted and analyzed for base-neutral organic compounds, and digested and analyzed for metals, requires two records for data entry. **Surrogate spike results should be included as part of the regular list of analytes for a test.**

In cases where confirmation of gas chromatography results is required, at least three entries will be required in BCHTEST. Each test will have a separate entry. To distinguish the first and second column tests, enter PVCCODE of 1C and 2C, respectively. Also, the primary result must be entered with the PVCCODE of PR. This entry is the best result as judged by the lab. Averaging the first column and confirming results to get the primary result is not allowed.

This information is entered in the Test and Results Data Entry screen. In CDLT, the ASCII file created is the BCHTEST file.

CDLT Filename: BCHTEST

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-26		Log Date. [DD-MMM-YY] Date that a sample is collected, a field test is performed, or a QC sample is created.
MATRIX	28-29	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
ANMCODE	31-36	YES	Analytical Method Code. [C6] Coded value representing the method of analysis of a given parameter.
LABCODE	38-41	YES	Analytical Laboratory Code. [C4] Coded value identifying the analytical laboratory that performed the analysis of a sample. For field tests use the code FLD.
LABSAMPID	43-54		Laboratory Sample Identification. [C12] Identifier assigned to a sample by a lab and included in the reporting of the results. Enter space characters for field tests.
SACODE	56-58	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1 in Appendix B for further discussion of sample types.
EXMCODE	60-65	YES	Extraction Method Code. [C6] Coded value representing the method used to extract or prepare a sample for a particular analysis.
SBD	67-73		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.
SED	75-81		Sample Ending Depth. [N7,2] [XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth, if greater than zero, should never be reported as a smaller value than the sample beginning depth (SBD).

CDLT
Filename: BCHTEST (cont.)

Short Name	Start End	VVL	Definition
EXTDATE	83-91		Extraction Date. [DD-MMM-YY] Date that an extraction or preparation is made from a sample. Enter space characters in this field for all field tests.
EXTTIME	93-96		Extraction Time. [C4] Time of day (HHMM), using a 24-hour clock without a colon, that an extraction or preparation is made from a sample.
PVCCODE	98-99	YES	Parameter Value Classification Code. [A2] Coded value representing whether the parameter is the primary result or a confirming result. Use the code PR for all tests EXCEPT gas chromatographic (GC) tests.
ANADATE	101-109		Analysis Date. [DD-MMM-YY] Date that a sample or extract is analyzed in a laboratory.
ANATIME	111-114		Analysis Time. [C4] Time of day (HHMM), using a 24-hour clock without a colon, that a laboratory analysis is done on a sample or extract.
LABLOTCTL	116-125		Laboratory Lot Control Number. [C10] The batch designator of an autonomous group of environmental samples and associated QC samples analyzed by a test. This group is equivalent to the EPA SW-846 concept of "Analytical Batch." Enter space characters for field tests. See Section 2.2 in Appendix B for further explanation.
UNITS	127-136	YES	Units of Measure. [C10] The units of measure used to report a result (e.g., mg/kg for soil or $\mu\text{g/l}$ for water) Enter NONE for methods that don't require a unit of measure (e.g. pH).
BASIS	138-138		Basis. [C1] For tissue or solid samples enter whether results are reported on a wet (W) or dry (D) basis. Enter X for water, air, and gas matrix, FIELDQC, and LABQC samples.

*Note: All depths are positive values.

3.10 ANALYTICAL RESULTS FILE (BCHRES)

This file reports analytical results for one or more analytes obtained from a single extraction and testing event. Each record in the file provides the analytical result for a single analyte.

For field analysis of pH, temperature, and conductance, submit only one result each per environmental sampling event; this should be the result recorded closest to the time when the samples were obtained.

All results above the established laboratory detection limits should be submitted as quantifiable results. All non-detectable results should be entered with PARVAL = 0 and PARVQ = ND; note that for these records LABDL is of particular importance. Non-detectable results must be entered so that ERPIMS has an affirmative record of environmental contaminants for which analysis was performed, but contaminants were not found.

In cases where the SOW requires confirmation of gas chromatography (or GC/MS) results, at least three entries will be required in BCHRES. Each result will be a separate record and all fields, except PARVQ, PVCCODE, and PARVAL will match. To distinguish the first and second column tests, enter PVCCODE of 1C and 2C (or MS), respectively. In addition, the primary result must be entered with the PVCCODE of PR. This entry is the best result as judged by the lab.

Averaging the first column and confirming results to get the primary result is not allowed. For 2C or MS data, capture only those analytes for which a positive result was obtained on the first run. Therefore, analytes that did not confirm on a second run will be reported with a PARVQ value of "ND" and a PVCCODE of "PR." Methods or analytes not requiring confirmation should be reported with the PVCCODE "PR."

This information is entered in the Test and Results Data Entry screen. In CDLT, the ASCII file created is the BCHTEST file.

CDLT Filename: BCHRES

Short Name	Start End	VVL	Definition
AFIID	1-5	YES	Air Force Installation Identification. [C5] Unique code used to represent a base, installation, or plant. These coded values usually represent Air Force installations.
LOCID	7-16		Location Identification. [C10] Unique identifier assigned to a location within an Air Force installation where measurements or samples are taken (typically synonymous with monitoring well ID, borehole ID, etc.; e.g., "MW-06"). Location Identifications used in previous environmental investigations must be consistently and uniquely coded from one investigation to another (e.g., "MW-06" in a Stage 1 investigation should be identified as "MW-06" in Stage 2 and subsequent investigations). Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE	18-26		Log Date. [DD-MMM-YY] Date that a sample is collected, a field test is performed, or a QC sample is created.
MATRIX	28-29	YES	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables in sections 1.1 and 1.2 of Appendix B).
ANMCODE	31-36	YES	Analytical Method Code. [C6] Coded value representing the method of analysis of a given parameter.
SACODE	38-40	YES	Sample Type Code. [C3] Coded value identifying the QC type of sample collected. See Section 1 in Appendix B for further discussion of sample types.
EXMCODE	42-47	YES	Extraction Method Code. [C6] Coded value representing the method used to extract or prepare a sample for a particular analysis.
SBD	49-55		Sample Beginning Depth. [N7,2] [XXXXX.XX] The upper depth in feet from the ground surface (e.g., land surface) or the water surface at which a sample is collected. All values should be positive. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screens where samples are taken at several different depths.

CDLT
Filename: BCHRES (Cont.)

Short Name	Start End	VVL	Definition
SED	57-63		Sample Ending Depth. [N7,2] [XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth, if greater than zero, should never be reported as a smaller value than the sample beginning depth (SBD).
PVCCODE	65-66	YES	Parameter Value Classification Code. [A2] Coded value representing whether the parameter is the primary result or a confirming result. Use the code PR for all test EXCEPT gas chromatographic (GC) tests.
PARLABEL	68-79	YES	Parameter Label. [C12] An abbreviated, common acronym representing a parameter or analyte.
PARVQ	81-82	YES	Parameter Value Qualifier. [C2] Coded value qualifying the analytical results field (PARVAL). This field should be filled in every record.
PARVAL	84-97		Parameter Value. [N14,4] [XXXXXXXXXX.XXXX] Actual analytical value for a given parameter (analytical result), reported in units consistent with the UNITS field in the BCHTEST file.
PARUN	101-112		Parameter Value Uncertainty. [N12,4] [XXXXXXXXXX.XXXX] The uncertainty of a measured value due to a measuring technique (expressed as plus or minus some value) [OPTIONAL]
LABDL	117-125		Laboratory Detection Limit. [N14,4] [XXXXXXXXXX.XXXX] This field should be filled-in with the specified Reporting Limit (RL). In the case of AFCEE contracts, the entry for this field will be specified by the AFCEE Quality Assurance Project Plan (QAPP). When RLs are reported, the transmittal letter that accompanies the submission should be annotated to state this. If there is no RL specified, then the following definition for LABDL applies: The minimum detectable quantity of a parameter based on laboratory conditions, analytical method, or field conditions. This detection limit should be that which applies specifically to the result given in the same record, and should account for any dilution done on a sample beyond the normal dilution called for in the analytical method. Enter space characters for results such as pH and temperature that have no detection limit.
EXPECTED	141-154		Expected Parameter Value. [N14,4] [XXXXXXXXXX.XXXX] The target value for a QC sample. This field is required for all samples having a SACODE other than N. If the SACODE is N, then enter space characters in the field. See Tables in section 1 of Appendix A for further guidance on entering values in the EXPECTED field.
EPA_FLAGS	156-161		EPA Flags. [C6] A field allowing the entry of established US EPA qualifier codes not addressed by the Parameter Value Qualifier (PARVQ) codes.

*Note: All depths are positive values.

4.0 PROCESSING INFORMATION WITH ENVIRONMENTAL RESOURCES PROGRAM TOOLS (ERPTools 2.*)

The Environmental Resources Program Tools (ERPTools) is a relational database system that has been developed to assist environmental contractors. Contractors have the choice of using ERPTools, IRPTools, or their own tools for the electronic loading of *current* data into ERPIMS format. ERPTools is the recommended tool which provides a relational database, has the look and feel of other Windows products, allows for the import and export of data and has much improved validation. ERPTools v. 2.* data submissions must be processed through the validation module of ERPTools before submission to AFCEE. The data format presented in this section is used to import data into version 2.* of ERPTools.

Beware, just because your submission passes through the validation modules does not mean it is error free and can be loaded into the centralized database.

If a submission is not in the proper ERPIMS data format or does not pass AFCEE VAX validation, it will not be processed and loaded into the central ERPIMS database and will be returned to the submitting contractor for correction. All data submitted via ERPTools is in *submission group* format. A single submission file is created for each submission group. The table below shows the information that will be provided in each of the three file submission groups.

There is further data that can be stored in the current ERPIMS data structure that is not currently being loaded. Information on the additional fields and tables can be found in the ERPIMS 2.0 database model that can be downloaded at the following web address: http://www.afcee.brooks.af.mil/ms/irp_spec.htm. The URL for the ERPIMS Home Page is http://www.afcee.brooks.af.mil/ms/msc_irp.htm.

**ERPTools 2.*
Import Data Files**

<u>Data Group</u>	<u>File Name</u>	<u>File Description</u>
All Groups	CON	Contract Information Record
Group 1	MRI	Map Reference Information
Group 1	SCC	Site Contamination
Group 1	SLX	Site and Location Cross-Reference
Group 1	LDI	Location Definition Information
Group 1	ZDI	Zone
Group 1	ZLX	Location, Zone Cross-Reference
Group 1	WCI	Well Completion Information
Group 1	WINT	Well Construction Interval
Group 1	WMI	Well Maintenance
Group 2	LTD	Lithologic Description Information
Group 2	STU	Stratigraphic Unit
Group 2	HSU	Hydrostratigraphic Unit
Group 2	CALC	Calculated Hydrologic Parameters
Group 2	PUMPINT	Pumping Interval
Group 2	GWD	Groundwater Level Data
Group 2	ATI	Aquifer Test
Group 2	TWI	Test Well
Group 2	PUMPRATE	Pump Rate
Group 2	OWL	Observation Well Water Level
Group 2	TRI	Tracer Injection
Group 2	TOW	Tracer Observation Well
Group 3	SAMP	Environmental Sampling Data
Group 3	TEST	Sample Preparation Information
Group 3	RES	Analytical Results
Group 3	EMI	Environmental Measurements

ERPTools 2.* (Cont'd)
Import Data Files

<u>Data Group</u>	<u>File Name</u>	<u>File Description</u>
Group 4	OU	Operable Unit
Group 4	OUC	Operable Unit Contaminant
Group 4	RSI	Remediation System
Group 4	RTI	Remediation Technology
Group 4	RSP	Remediation System Performance
Group 4	RTP	Remediation Technology Performance
Group 4	LSX	Location, Remediation System Cross-Reference
Group 4	LTX	Location, Remediation Technology Cross-Reference
Group 4	LOX	Location, Operable Unit Cross-Reference
Group 4	SOX	Site, Operable Unit Cross-Reference
Group 4	RSX	Remediation System, Site Cross-Reference
Group 4	ROX	Remediation System, Operable Unit Cross-Reference

NOTE: Group 4 data is optional information which should only be submitted if it is called for in the contract or if it is requested by a Contracting Officer or a Contracting Officer's Representative.

4.0.1 Record Name: CONTRACT

Short Name: CON

Service center and base-level contract, delivery order and project information. Information is captured which pertains to Air Force installations, some off-base locations, and occasionally from non-Air Force facilities, where environmental data was collected in support of an environmental management program. In ERPTools 2.*, the CON record corresponds to the CDLT BCHCON file. **ERPTools will create this record for you** and use it to identify the data to be included in any data submission group. The first line of every ERPTools 2.* produced submission file will be the CON record. This table is used to store the information that uniquely identifies an ERPIMS project. The number of the basic contract, along with the delivery order number can be supplemented by a project identifier in the event that there are multiple projects under one delivery order. This information is entered in the ERPTools 2.* project screen. A complete and accurate CON record must be included in every submission to AFCEE. **If this information is incomplete or inaccurate, the submission will be returned for correction.**

In ERPTools 2.*, the CON record is created from the project information entered on the *New Project Information* screen.

ERPTools 2.*
Record Name: CON

<u>Short Name</u>	<u>VVL</u>	<u>Req'd</u>	<u>Start End</u>	<u>Description</u>
CONTRACT_ID		Yes		CONTRACT NUMBER [C16] Number identifying the contract; this number must be unique across all Air Force organizations.
DO_ID		Yes		DELIVERY ORDER NUMBER [C4] Number identifying the delivery order.
PROJECT_ID		Opt		PROJECT IDENTIFIER [C20] Name of the project the contract supports.
<u>CTYPE</u>	Yes	Opt		CONTRACT TYPE [C5] Type of contract.
<u>AGENCY</u>	Yes	Opt		CONTRACTING AGENCY [C5] Name of the agency administering the contract.

4.1 ERPTools 2.* Submission Group One

The data contained in ERPTools 2.* Submission Group One is the background information that provides the underlying structure for the ERPIMS database. Group One information establishes the relationships between its fields and the fields in Groups Two, Three, and Four. The data tables that comprise group one are described in this section.

4.1.1 Table Name: MAP REFERENCE

Short Name: MRI [NEW]

Description of the physical map of an installation. This table is used to relate installations to electronic maps. Its structure and data are designed to facilitate use of the ERPIMS database for Geographical Information System (GIS) applications. This table covers the extent of the area to be mapped on (or near) the installation and contains the mapping scale and the reference point (benchmark) necessary for the posting of the ERPIMS data. **This data is an optional portion of the Group One data submission.**

ERPTools 2.* captures this information via the *Map Reference Data Entry* screen.

ERPTools 2.*
Table Name: MRI

Short Name	VVL	Req'd	Start End	Description
<u>AFIID</u>	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>MAPRID</u>		Yes	7-14	MAP REFERENCE IDENTIFIER [C8] Unique identifier assigned to each map for an installation.
<u>MAPCODE</u>	Yes	Yes	16-19	MAPPING COMPANY CODE [C4] Coded value identifying the company responsible for producing a map of a designated area.
<u>MTCCODE</u>	Yes	Yes	21-24	MAP TYPE CODE [C4] Coded value identifying the type of map.
<u>MCCCODE</u>	Yes	Yes	26	MAP COVERAGE CODE [C1] Coded value delineating the extent to which a reference map covers specified features associated with a site, zone, or entire installation.
<u>MAPSCALE</u>		Opt	28-31	MAP SCALE [N4] The drawing scale of a map expressed as inches of drawing per foot of terrain.
<u>LLNORTH</u>		Cond	33-40	LOWER LEFT NORTH [N8] The lower left y-value of a general area of interest.
<u>LLEAST</u>		Cond	42-49	LOWER LEFT EAST [N8] The lower left x-value of a general area of interest.
<u>URNORTH</u>		Cond	51-58	UPPER RIGHT NORTH [N8] The upper right y-value of a general area of interest.
<u>UREAST</u>		Cond	60-67	UPPER RIGHT EAST [N8] The upper right x-value of a general area of interest.
<u>BMDESIG</u>		Opt	69-88	BENCHMARK DESIGNATION [C20] Code, label, name, etc. of a benchmark.
<u>BMNORTH</u>		Opt	90-100	BENCHMARK NORTHING [N10,2][XXXXXXXXXX.XX] The y-value of a map benchmark.
<u>BMEAST</u>		Opt	102-112	BENCHMARK EASTING [N10,2][XXXXXXXXXX.XX] The x-value of a map benchmark.
<u>BMELEV</u>		Opt	114-121	BENCHMARK ELEVATION [N7,2][XXXXXX.XX] The ground surface elevation of a map benchmark.
<u>MAPDESC</u>		Opt	123-362	DESCRIPTION [C240] Textual description of the mapped area.

4.1.2 Table Name: SITE CONTAMINATION**Short Name: SCC [NEW]**

Description of the type of contamination at a site. This table is provided to allow for established groups of analytes to be reported as contamination at a given site. These groupings do not necessarily correspond to any particular analytical method but rather are indicative of types of contaminants that are likely to have been released together or that are found mixed together for some particular industrial process. Sites and analyte groups are selected from preliminary assessment results. **This table is an optional part of the Group One data submission.**

ERPTools 2.* captures this information via the *Site Contamination Data Entry* screen.

ERPTools 2.*
Table Name: SCC

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>GROUPCODE</u>	Yes	Yes	7-16	ANALYTE GROUP CODE [C10] A unique code which identifies a group of environmental contaminants, (e.g., CHLOR, SOLVENT, PEST).
SITEID		Yes	18-20	SITE IDENTIFIER [N3] Number which uniquely identifies a site.

4.1.3 Table Name: LOCATION SITE XREF

Short Name: SLX

Information about locations associated with a site that have been selected for study. An ERPIMS site is an area that has been defined in terms of a contaminant release or a proposed (or active) remedial activity. A location is a specific point where environmental sampling has taken place or where a measurement has been taken. A location can be associated with more than one site, in which case *a record should be created for each site-location combination*. The purpose of capturing site and location information is to establish the spatial and hydrologic relationships between locations and sites. **This table is a required part of the Group One data submission.**

ERPTools Versions 2.* captures this information in the Site Location XRef File (SLX). CDLT and IRPTools used the SLI and SLX tables for this purpose. ERPIMS site identifiers for Air Force Installations are contained within the GSI VVL table. **When sites for an Air Force Installation are not listed in ERPTools 2.*, users shall request Site Identifiers (SITEIDs) through the ERPIMS Help Desk. AFCEE will provide written approval to users to add sites to ERPTools 2.*. Contractors shall not enter new sites into ERPTools 2.* without prior approval from AFCEE.**

ERPTools 2.* captures this information via the *Location/Site Cross Reference Data Entry* screen.

**ERPTools 2.*
Table Name: SLX**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations..
SITEID		Yes	7-9	SITE IDENTIFIER [N3] Number which uniquely identifies a site.
LOCID		Yes	11-25	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g, "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
GFCCODE	Yes	Yes	27	GEOHYDROLOGIC FLOW CLASSIFICATION [C1] The GFCCODE is a single character that describes the hydraulic relationship between a location and a site. More than one GFCCODE may be assigned to a location; however, the data is entered in separate records. For example, a location may be downgradient of one site and upgradient of another. This information is usually taken from maps of groundwater elevation and flow direction. See section 10.2 of Appendix B for further description of GFCCODEs.
SPCODE	Yes	Yes	29	SITE PROXIMITY CODE [C1] A coded value indicating whether the location is in the site, outside the site or background.

4.1.4 Table Name: LOCATION**Short Name: LDI**

General information about sampling locations. The Location Definition Information (LDI) file is the foundation for all the subsequent environmental data submitted to ERPIMS and ties together all hydrogeological and chemical data. A location is a uniquely defined geographical point where some environmental sample or measurement was taken for inclusion into ERPIMS. Incomplete location definition information will limit the usefulness of the data in Geographic Information Systems (GIS). The Location Identification (LOCID) for a given location must be consistent throughout a submission and between submissions. A sampling location that may have begun as a borehole and was later completed as a monitoring well needs only one LDI record. If a location has not been previously entered into ERPIMS and was not entered while submitting a current LDI file, the location's technical information cannot be accepted. (See Appendix A, Definitions, for more information.)

Note: There can be only one sampling location with a given coordinate pair. Distinction of samples collected at different depths or contained in different matrices are reflected in the Samples table and must **not** be treated as if collected from different LOCIDs. If a location type is converted, say from a borehole to a monitoring well, contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to have the location information updated. You must contact the Help Desk for a list of current locations and the associated information. AFCEE will provide an electronic copy of an installation's LDI records upon request. These records can be provided as text or formatted for import into an installed ERPTools 2.* setup. Only LDI records that are newly created or have been modified are included in Group One data submissions.

ERPTools 2.* provides the option to load current ERPIMS LDI records from diskettes when new Air Force projects are created. LDI records loaded in this manner shall not be submitted unless changes are made to them. To avoid errors, such as duplication and missing data, users **SHALL** contact the ERPIMS Help Desk for a current list of ERPIMS locations previously entered into the central database for their particular Air Force installation before submitting new LDI information. **This table is a required part of a Group One data submission.**

ERPTools 2.* captures this information via the *Location Data Entry* screen.

**ERPTools 2.*
Table Name: LDI**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g, "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LTCCODE	Yes	Yes	23-24	LOCATION TYPE [C2] Location classification code; Coded value describing the location where measurements or samples are taken.
LPRCODE	Yes	Yes	26	LOCATION PROXIMITY CODE [C1] Coded value indicating whether sampling or measuring location is within or outside the Air Force installation boundaries.
NCOORD		Yes	28-38	NORTH COORDINATE [N10,2][XXXXXXXXXX.XX] North state plane coordinate; The y-value (North-South) of the distance (measured in feet) of a sampling or measuring location from the reference location of known state plane coordinates.
ECOORD		Yes	40-50	EAST COORDINATE [N10,2][XXXXXXXXXX.XX] East state plane coordinate; The x-value (East-West) of the distance (measured in feet) of a sampling or measuring location from the reference location of known state plane coordinates.
<u>CRDTYPE</u>	Yes	Yes	52-54	COORDINATE TYPE [C3] The type of coordinate system used (e.g, UTM, STP, GEO, etc.).
<u>CRDMETH</u>	Yes	Yes	56-60	COORDINATE METHOD [C5] Indicates method used to determine the location (e.g, survey, GPS, estimated, digitized, etc.).
<u>CRDUNITS</u>	Yes	Yes	62-71	COORDINATE UNITS [C10] Units of measure of the surveyed northing and easting values.

**ERPTools 2.*
Table Name: LDI (Cont'd)**

Short Name	VVL	Req'd	Start End	Description
<u>CRDUN</u>		Opt	73-79	COORDINATE UNCERTAINTY [N6,3][XXX.XXX] The expression of the precision of the location coordinates.
<u>ESTDATE</u>		Yes	81-91	DATE ESTABLISHED [DD-MMM-YYYY] The date that construction of a sampling or measuring location was completed.
<u>ESCCODE</u>	Yes	Yes	93-96	ESTABLISHING COMPANY CODE [C4] Coded value identifying the organization which establishes a sampling or measuring location, typically the prime contractor.
<u>DRLCODE</u>	Yes	Cond	98-101	DRILLING COMPANY CODE [C4] Coded value identifying the organization that drilled a borehole at a sampling or measuring location. This organization is typically the drilling subcontractor.
<u>EXCCODE</u>	Yes	Cond	103-106	EXCAVATING COMPANY CODE [C4] Coded value identifying the organization that excavated a test pit at a sampling or measuring location.
<u>CMCCODE</u>	Yes	Cond	108-109	CONSTRUCTION METHOD CODE [C2] Coded value identifying the method by which a borehole or test pit was constructed (Drilling or Excavation Method).
<u>ELEV</u>		Yes	111-118	GROUND SURFACE ELEVATION [N7,2][XXXXX.XX] Elevation of ground surface (for groundwater, soil, or sediment sampling) or water surface (for surface water sampling) at a sampling or measuring location.
<u>ELEV METH</u>	Yes	Yes	120-124	ELEVATION METHOD [C5] Method used in to determine the location's elevation.
<u>ELEVUNITS</u>	Yes	Yes	126-135	ELEVATION UNITS [C10] The unit of measure that the elevation was measured in feet or meters.
<u>ELEVUN</u>		Opt	137-143	ELEVATION UNCERTAINTY [N6,3][XXX.XXX] The expression of the precision of the location coordinates.
<u>ELFLAG</u>		Opt	145	MODIFIED ELEVATION FLAG [C1] Flag that indicates whether or not more current measurements for the Ground Surface Elevation are available in the Well Maintenance table.
<u>DEPTH</u>		Cond	147-154	BOREHOLE DEPTH [N7,2][XXXXX.XX] The total depth of a borehole (including boreholes drilled to install wells) measured in feet relative to ground surface.
<u>BHDIAM</u>		Cond	156-160	BOREHOLE DIAMETER [N4,2][XX.XX] The diameter of a borehole in inches.
<u>BHANGLE</u>		Opt	162-167	BOREHOLE ANGLE [N5,2][XXX.XX] Angle (in degrees from vertical) at which the borehole was drilled.
<u>BHAZIM</u>		Opt	169-175	BOREHOLE AZIMUTH [N6,2][XXXX.XX] Azimuth (degrees on a compass) of which the borehole was drilled.
<u>DATUM</u>		Opt	177-188	GEODETIC DATUM [C12] Identifier representing the geodetic datum used in the survey (e.g, State Plane Coordinate System NAD 1983, Florida Western Zone).
<u>STPZONE</u>	Yes	Cond	190-194	STP ZONE [C5] The STP coordinate zone that corresponds to the reported Geodetic Datum entry.
<u>STPPROJ</u>	Yes	Cond	196-200	STP PROJECTION [C5] Geographic projection used by the state planar system.
<u>UTMZONE</u>	Yes	Cond	202-206	UTM ZONE [C5] The UTM coordinate zone that corresponds to the reported Geodetic Datum entry.
<u>GEOLOG</u>		Opt	208-242	GEOPHYSICAL LOG [C35] Contains the reference to any/all geophysical logs created during drilling operations.
<u>LOCDESC</u>		Yes	244-483	DESCRIPTION [C240] Additional information that describes a sampling or measuring location in text format. This required field should always have <u>at least</u> a meaningful one sentence description of the location.
<u>MAPID</u>		*	N/A	MAP IDENTIFIER [N6] GIS Map Identification; the number assigned to a map that uniquely identifies it for GIS purposes. ASSIGNED by AFCEE only.
<u>MSLINK</u>		*	N/A	MAP LINK [N6] GIS Link Field; the number assigned to a map that enables it to be linked to ERPIMS data by GIS systems. ASSIGNED by AFCEE only.
<u>FCODE</u>		*	N/A	FEATURE CODE [C12] The code assigned to a map feature for use by GIS systems. ASSIGNED by AFCEE only.

* These fields are filled at AFCEE. This information is available to ERPIMS data users for GIS applications.

4.1.5 Table Name: ZONE**Short Name:ZDI [NEW]**

User defined groupings of sampling locations. This table provides the means for the installation to define groupings of sampling locations in any way needed. User defined zones should not be confused with ERPIMS sites as maintained in the (GSI) table. Zones may contain, overlap, or be contained by environmental Sites. **This optional table is part of the Group One data submission.**

ERPTools 2.* captures this information via the *Zone Data Entry* screen.

ERPTools 2.*
Table Name: ZDI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>ZONEID</u>		Yes	7-16	ZONE IDENTIFIER [C10] Unique identifier for a group of individual locations maintained for collective study and evaluation.
<u>ZNAME</u>		Yes	18-52	ZONE NAME [C35] Name of the zone.
<u>ZONEDESC</u>		Opt	54-293	DESCRIPTION [C240] Textual description of the zone and its purpose.

4.1.6 Table Name: LOCATION_ZONE_XREF**Short Name: ZLX**

Cross-reference between sampling locations and zones. This table establishes the relationship between user-defined zones and their ERPIMS sampling locations. **This optional table is part of the Group One data submission.**

ERPTools 2.* captures this information via the *Location/Zone Cross Reference Data Entry* screen.

ERPTools 2.*
Table Name: ZLX

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>ZONEID</u>		Yes	7-16	ZONE IDENTIFIER [C10] Unique identifier for a group of individual locations maintained for collective study and evaluation.
LOCID		Yes	18-32	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g, "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.

4.1.7 Table Name: WELL**Short Name: WCI**

Well completion information. Data pertaining to the installation of wells is captured in ERPIMS. The measuring point elevation and total well depth entries are used together with data from the Well Interval and Location Definition tables in the calculation of many hydrologic parameters and in most of the subsequent data analyses. **This information is a mandatory part of the Group One data submission whenever wells are completed, maintained, or have new intervals installed.**

ERPTools 2.* captures this information via the *Well Data Entry* screen.

**ERPTools 2.*
Table Name: WCI**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
INSDATE		Yes	23-33	INSTALLATION DATE [DD-MMM-YYYY] Date that a well was installed.
WELCODE	Yes	Yes	35-38	WELL OWNER CODE [C4] Coded value identifying the owner of a well that is monitored or tested.
WTCCODE	Yes	Yes	40-42	WELL TYPE CLASSIFICATION CODE [C3] Coded value identifying the type of well in which the measurements are being taken (e.g., slugged, observation).
WCMCODE	Yes	Yes	44-45	WELL COMPLETION METHOD CODE [C2] Coded value identifying the method used to complete the well or the nature of the openings that allow water to enter the well. (e.g., "NP" for natural filter pack or "P" for perforated or slotted.)
GZCCODE	Yes	Yes	47	HYDROGEOLOGIC COMPLETION ZONE. [C1] General Zone hydrogeologic description of well completion zone
SAQCODE	Yes	Yes	49-52	SOLE SOURCE AQUIFER CODE [C4] Coded value identifying the sole source aquifer in which the well was completed. If not completed in a sole source aquifer, leave this field blank.
WDPROC	Yes	Yes	54-58	WELL DEVELOPMENT PROCEDURES [C5] Indicates the type of well development procedures used.
MPELEV		Yes	60-67	MEASURING POINT ELEVATION [N7,2][XXXXX.XX] Elevation of the measurement reference point used for groundwater depth level measurements, expressed in feet above Mean Sea Level. Normally, the reference point is a notch in the top of the well casing.
MPFLAG		Opt	69	MODIFIED MEASURING POINT FLAG [C1] Flag that indicates whether or not more current measurements for the Measuring Point Elevation are available in the Well Maintenance table.
TOTDEPTH		Yes	71-77	TOTAL WELL DEPTH [N6,2][XXXX.XX] Total depth in feet (positive value) below land surface of well casing including screen, blank casing, and well foot.
REMARKS		Opt	79-318	REMARKS [C240] Textual description to provide any additional information necessary to understand the characteristics of the well. This should include information relating to backfills, and hole closures as well as anything eventful that occurred during construction of the well.

4.1.8 Table Name: WELL CONSTRUCTION INTERVAL**Short Name: WINT [NEW]**

Description of each well interval. This table stores the depths at which the various components of a well begin and end. It is designed to contain a record for every segment of a well. The captured intervals include screens, seals, grout, blank casing, *etc.* ERPTools 2.* will not include WCI or WMI data into a submission unless there is WINT information that references the well or well segment. A screened interval is defined as the area above the bottom of the screen segment up to the bottom of the next screen segment (or to the ground surface for the top screened interval). A described interval is an interval that has a corresponding WINT record. See section 9.0 of Appendix B for information on providing WINT data. Well components are shown on Figures B-5 and B-6 in Appendix B. **This table must be included in the Group One submission if any new wells and/or well segments have been established.**

ERPTools captures this information via the *Well Construction Interval Data Entry* screen.

ERPTools 2.*
Table Name: WINT

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>IBDEPTH</u>		Yes	23-30	INTERVAL BEGINNING DEPTH [N7,2][XXXXXX.XX] Depth, in feet relative to ground surface, to the top of the described interval.
<u>IEDEPTH</u>		Yes	32-39	INTERVAL ENDING DEPTH [N7,2][XXXXXX.XX] Depth, in feet relative to ground surface, to the bottom of the described interval.
<u>CLASS</u>	Yes	Yes	41-45	CLASSIFICATION [C5] Descriptive classification of the well interval. May be seal, screen, well foot, blank, grout, or filter pack.
<u>SCRNO</u>		Yes	47	SCREEN NUMBER [N1] The number assigned to all components of a screened interval to facilitate data validation. A screened interval is composed of the following components: blank, grout, seal, filter-pack, screen, and foot. Screened intervals are numbered sequentially with #1 being the interval closest to the ground surface. For wells containing multiple screened intervals, the Interval Ending Depth (IEDEPTH) of the of the screen (or foot for the terminal interval) is always considered to be the last member of that interval.
<u>MATERIAL</u>	Yes	Yes	49-51	MATERIAL [C3] The material being used for well casing or construction includes grout, filter pack, screen, well seal, <i>etc.</i> This expands upon the CMACODE field in earlier versions of ERPIMS.
<u>SDIAM</u>		Yes	53-58	SEGMENT DIAMETER [N5,2][XXX.XX] The nominal inside diameter of the well casing being described. For screen intervals, it is the inside diameter of the screen.
SOUA		Cond	60-65	SCREEN SLOT SIZE [N5,3][XX.XXX] Vertical size of slot opening in inches. This is a required field for screened well intervals.
PCTOPEN		Cond	67-72	PERCENT OPEN AREA [N5,2][XXX.XX] Percent of screened interval that is open for water flow. This field is required for screened well intervals.
REMARKS		Yes	74-313	REMARKS [C240] Textual description to provide additional information necessary to understand the characteristics of the well interval based upon its classification.

4.1.9 Table Name WELL MAINTENANCE

Short Name WMI [NEW]

Historical log of maintenance activities at each well. This table is designed to capture data related to well maintenance activities, especially anything that changes the measuring point elevation and/or ground surface elevation. This allows hydrogeologic calculations to be made using the most current parameters. In the remarks, the user should detail the circumstances surrounding any elevation changes and whether they are natural or due to human intervention. **This data is required for any Group One data submission that indicates well maintenance activity.**

ERPTools 2.* captures this information via the *Well Maintenance Data Entry* screen.

ERPTools 2.*
Tablename: WMI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	LOGGING DATE [DD-MMM-YYYY] Date of the well maintenance activity.
MTYPE	Yes	Yes	35-39	MAINTENANCE TYPE [C5] The type of maintenance performed on the well.
MPELEV		Yes	41-48	MEASURING POINT ELEVATION [N7,2][XXXXX.XX] Elevation of the measurement reference point used for groundwater depth level measurements, expressed in feet above Mean Sea Level. Normally, the reference point is a notch in the top of the well casing.
ELEV		Yes	50-57	SURFACE ELEVATION [N7,2][XXXXX.XX] Elevation of ground surface at a sampling or measuring location.
REMARKS		Opt	59-298	REMARKS [C240] Textual description of the well maintenance.

4.2 ERPTools 2.* Submission Group Two

Group Two contains the information on lithology, wells, aquifer tests, and groundwater levels that is loaded into the ERPIMS database.

4.2.1 Table Name LITHOLOGIC DESCRIPTION

Short Name LTD

Lithologic Description. Lithologic descriptions and classifications of cuttings and cores from boreholes and test pits are captured in ERPIMS. Each record describes a distinct lithologic interval. Records for all of the strata at a given location must relate to the stratigraphic column for the installation. The optional fields: (Stratigraphic Unit and Hydrostratigraphic Unit) should be filled unless that information is not available. Use the VISDESC field to augment the LITHCODE field by describing any secondary characteristics or color, listing the formation name, and providing other descriptive lithologic information. Test results of soil/rock properties (e.g., soil plasticity) should be entered in the VISDESC field and not in the chemistry tables. **LTD is required for the Group Two data submission whenever a new borehole/well location is drilled or a core/cutting sample is collected.**

ERPTools 2.* captures this information via the *Lithologic Description Data Entry* screen.

ERPTools 2.*
Table Name: LTD

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
BEGDEPTH		Yes	23-30	BEGINNING DEPTH [N7,2] [XXXXX.XX] Upper depth of a lithologic stratum. Measured below the ground surface in feet (reported as a positive value.)
ENDDEPTH		Yes	32-39	ENDING DEPTH [N7,2] [XXXXX.XX] Lower depth of a lithologic stratum, measured below the ground surface in feet (reported as a positive value.)
LOGDATE		Yes	41-51	LOG DATE [DD-MMM-YYYY] Starting date that a sample is collected, a field test is performed, or a QC sample is created.
LOGCODE	Yes	Yes	53-56	LOGGING COMPANY CODE [C4] Coded value identifying the company performing field tests.
LITHCODE	Yes	Yes	58-61	LITHOLOGY CODE [C4] 4-Character code indicating lithologic description of layer. This should include both consolidated and unconsolidated material.
ASTMCODE	Yes	Yes	63-66	ASTM SOIL CLASSIFICATION CODE [C4] A 2 or 4 character code used in ASTM classification of unconsolidated deposits. Deposits possessing characteristics of two groups are designated by combinations of group symbols (e.g., SM is the predominant group if SPSM is entered in the field). Enter spaces for the last two characters if a two character code is entered.
HS_UNIT		Opt	68-92	HYDROSTRATIGRAPHIC UNIT [C25] Working name given to a hydrostratigraphic unit.
ST_UNIT		Opt	94-113	STRATIGRAPHIC UNIT [C20] Descriptive name given to a stratigraphic unit.
VISDESC		Yes	115-354	VISUAL DESCRIPTION [C240] Textural and mineralogical description of the material comprising the layer, to augment or qualify the lithologic codes.

4.2.2 Table Name: STRATIGRAPHIC UNIT**Short Name: STU [NEW]**

Description of the units in the interpreted stratigraphic column for an installation. Every installation should have an official, master stratigraphic column designated/interpreted by a geologist. There may be more than one record of a particular lithology (at different depths) depending upon whether the lithologic sampling is performed continuously, every five feet, or when the lithology type changes. Usually, when lithology is described continuously, or every five feet, the potential to have more than one record of the same lithology is possible. Not every layer (or stratigraphic unit) will be found at every location, so it is important that lithologic information from sampling locations (as found in the Lithology Description table) be in agreement with the master column. **This optional Group Two data should be submitted whenever possible to the ERPIMS database as it is the basis for geologic analysis.**

ERPTools 2.* captures this information via the *Stratigraphic Unit Data Entry* screen.

**ERPTools 2.*
Table Name: STU**

Short Name	VVL	Req'd	Start End	Description
<u>AFIID</u>	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>ST_UNIT</u>		Yes	7-26	STRATIGRAPHIC UNIT [C20] Descriptive name given to a stratigraphic unit
<u>STRATORDER</u>		Yes	28-30	STRATIGRAPHIC ORDER [N3] Number assigned to the unit by the interpreting geologist for each distinct lithologic interval. Unit 1 is the oldest, the number decreases with age.
<u>GRPNAME</u>		Opt	32-51	GROUP NAME [C20] Name of the geological group of which the unit is part.
<u>FORMATION</u>		Opt	53-72	FORMATION NAME [C20] Name of the geological formation of which the unit is a part.
<u>MBRNAME</u>		Opt	74-93	MEMBER NAME [C20] Name of the geological member of which the unit is a part.
<u>BEDNAME</u>		Opt	95-114	BED NAME [C20] Name of the geological bed of which the unit is a part.
<u>SUDESC</u>		Opt	116-355	DESCRIPTION [C240] Textual description of the stratigraphic unit.

4.2.3 Table Name: HYDROSTRATIGRAPHIC UNIT**Short Name: HSU [NEW]**

Data for a body of rock or soil with lateral extent that composes the geologic framework for a hydrologic system. This table contains data on hydrostratigraphic units. These differ from the stratigraphic units found in the table of the same name in that hydrostratigraphic units are defined on the basis of how groundwater behaves and is contained rather than the material that forms the units (layers.) Hydrostratigraphic units are layers of rock and/or soil that contain hydrologic (groundwater) systems. **This data is very helpful for groundwater modeling efforts, so it is advisable to supply it even though it is an optional table in the Group Two submission file.**

ERPTools 2.* captures this information via the *Hydrostratigraphic Unit Data Entry* screen.

ERPTools 2.*
Table Name: HSU

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>HS UNIT</u>		Yes	7-31	HYDROSTRATIGRAPHIC UNIT [C25] Working name given to the unit.
<u>HSTYPE</u>	Yes	Yes	33-36	UNIT TYPE [C4] USCS soil or rock classification for the type of soil/rock which comprises this hydrostratigraphic unit.
<u>HSDESC</u>		Opt	38-277	DESCRIPTION [C240] Textual description of the hydrostratigraphic unit.

4.2.4 Table Name: CALCULATED HYDROLOGY**Short Name: CALC**

Calculated Hydrology Parameters. This table contains data that has been derived from data stored in it and other tables. It utilizes data from Location Description, Well Completion, Well Maintenance, and Well Construction Interval to establish the framework that enables the calculation of parameters from aquifer and tracer tests. Parameters include effective porosity, hydrologic conductivity, transmissivity and storativity. **This data is required for the Group Two data submission.**

ERPTools 2.* captures this information via the *Calculated Hydrology Data Entry* screen.

ERPTools 2.*
Table Name: CALC

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	TEST DATE [DD-MMM-YYYY] The starting Date of the aquifer test that is being taken.
LOGTIME		Yes	35-38	TEST TIME [C4] The starting time, using the 24 hour clock (HHMM), of the aquifer test that is being conducted.
TESTMETH	Yes	Yes	40-44	TEST METHOD [C5] The type of test that is being performed on the well for which the calculation is being made.
CALCMETH	Yes	Yes	46-50	CALCULATION METHOD [C5] The type of method used to calculate the results (e.g., Theis, Theim, Chow, Hantush-Jacob, etc).
CALCPARCODE	Yes	Yes	52-56	RESULT TYPE [C5] The type of result of the calculation (e.g., transmissivity, hydraulic conductivity, storage coefficient, etc.).
LOGCODE	Yes	Yes	58-61	LOGGING COMPANY CODE [C4] Coded value identifying the company performing field tests.
PARVAL		Yes	63-74	RESULT VALUE [N11,6][XXXXX.XXXXXX] The value of the calculation result or calculated parameter.
UNITS	Yes	Yes	76-85	RESULT UNITS [C10] Coded value identifying the units of measure for the calculated parameter.
WELLDIST		No	87-93	Leave this field blank for version 2.0 ERPTools submissions. RADIAL WELL DISTANCE [N6,2][XXXX.XX] The distance, expressed in feet, between the test/injection well and the observation well. Note: This field is not used in ERPTools version 2.0. This field will be moved to the Observation Well Water Level and Tracer Observation Well tables in future ERPTools revisions.
WTDEPTH		Opt	95-102	WATER TABLE DEPTH [N7,2][XXXXX.XX] The estimated depth of the water table used for the calculation; this value would be the top of a confined aquifer.
AQTHICK		Opt	104-111	SATURATED AQUIFER THICKNESS [N7,2][XXXXX.XX] The assumed saturated thickness of the aquifer used to perform the calculation.
AQBASEDEPTH		Opt	113-120	AQUIFER BASE DEPTH [N7,2][XXXXX.XX] The estimated depth of the aquifer used to make the calculation.
SUPPDATA	Yes	Cond	122-124	SUPPORTING DATA [C3] Indicates that primary data (e.g., pump test or slug test data) supporting the calculation are available. This is a required field when this data exists.
REMARKS		Opt	126-365	REMARKS [C240] Comments concerning the calculation, including definitions, explanations for constants, variables, or assumptions used to derive the result.

4.2.5 Table Name: PUMPING INTERVAL**Short Name PUMPINT [NEW]**

Description of the operation of an extraction or injection well over time. This table contains the data that covers the addition or removal of liquid to/from a well including the involved times and flow rates. This table quantifies continuous pumping and does not contain data from pump or slug tests. **This data is only required for Group Two data submissions if pumping is employed.**

ERPTools 2.* captures this information via the *Pumping Interval Data Entry* screen.

ERPTools 2.*
Table Name: PUMPINT

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>BEGDATE</u>		Yes	23-33	BEGINNING DATE [DD-MMM-YYYY] The starting date the pumping was performed.
<u>BEGTIME</u>		Yes	35-38	BEGINNING TIME [C4] The starting time, using the 24 hour clock (HHMM), when the pumping was performed.
<u>ENDDATE</u>		Yes	40-50	ENDING DATE [DD-MMM-YYYY] The ending date the pumping was performed.
<u>ENDTIME</u>		Yes	52-55	ENDING TIME [C4] The ending time, using the 24 hour clock (HHMM), when the pumping was performed.
<u>BEGDEPTH</u>		Yes	57-66	BEGINNING INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The upper depth of the interval being tested.
<u>ENDDEPTH</u>		Yes	68-77	ENDING INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The lower depth of the interval that is being tested.
<u>LOGCODE</u>	Yes	Yes	79-82	LOGGING COMPANY CODE [C4] Coded value identifying the company performing field tests.
WTCCODE	Yes	Yes	84-86	WELL TYPE CLASSIFICATION CODE [C3] Coded value identifying the type of well in which the measurements are being taken (e.g., slugged, observation).
<u>PUMPDEPTH</u>		Yes	88-97	PUMP DEPTH [N9,2][XXXXXXXX.XX] The depth of the pump.
<u>PUMPINGRATE</u>		Yes	99-105	PUMPING RATE [N6,1][XXXXX.X] The rate that the well was pumped.
UNITS	Yes	Yes	107-116	UNITS [C10] Unit of measure the discharge was reported in (e.g., gal/min).
REMARKS		Opt	118-357	REMARKS [C240] Comments describing the pumping.

4.2.6 Table Name GROUNDWATER LEVEL**Short Name GWD**

Specific test data to determine the groundwater level over time at a location. Information concerning groundwater levels must be captured to allow accurate site and location characterization. A GWD record provides measurements collected for one well at a given day and time. In order for the groundwater information to be entered, there must be a log date and log time. **When groundwater data is collected, this table is required for Group Two data submissions.**

Static water level and sounding should be measured before any equipment enters the well and each time a well is sampled or other testing (such as a pump test) is begun. In the case of an aquifer test, only the final (post recovery) water level should be reported in GWD. Groundwater level and sounding should be measured to the nearest 0.01 foot. Static measurements are the measurements of the well's groundwater level under stable or calm conditions. Wells which are dry should be noted as such. Sounding is the total depth (in feet) measured from the measuring point elevation of the well to the bottom of a well (not the bottom of the borehole).

Dynamic measurements are considered to be the measurements taken from a well which is undergoing current work such as purging or pumping. Data from these tests is captured in the new tables: Test Well and Pump Rate. An initial depth must be recorded for the static water depth before pumping is begun.

In ERPTools 2.*, static and dynamic groundwater measurements are keyed into two separate screens. Static measurements are entered into the screen designated *Groundwater Level Data Entry*. This information is captured in the Groundwater Level table. Dynamic water level measurements are entered into the *Test Well and Pump Rate Data Entry Screens*.

ERPTools 2.*
Table Name: GWD

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	LOG DATE [DD-MMM-YYYY] Starting date that a sample is collected, a field test is performed, a QC sample is created, or a water level measurement made.
LOGTIME		Yes	35-38	LOG TIME [C4] Starting time, using the 24 hour clock (HHMM), that a sample is collected, a field test is performed, or a QC sample is created.
IBDEPTH		Yes	40-49	BEGINNING INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The upper depth of the interval being tested.
IEDEPTH		Yes	51-60	ENDING INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The lower depth of the interval that is being tested.
LOGCODE	Yes	Yes	62-65	LOGGING COMPANY CODE [C4] Coded value identifying the company performing field tests.
STATDEP		Cond	67-74	STATIC WATER DEPTH [N7,2][XXXXX.XX] Depth to water in feet measured from the measuring point. This is a required field unless the well is dry.
SOUNDING		Cond	76-83	SOUNDING [N7,2][XXXXX.XX] Total depth, measured in feet from the reference point, to bottom of well at time of test. This field is required unless the well is dry.
FTCODE	Yes	Yes	85	LIQUID TYPE [C1] The type of liquid encountered in the well. This would normally be groundwater. If another type of liquid is encountered in the well bore during the test, then it should be noted here and explained in the comments.
MEASMETH	Yes	Yes	87-91	MEASURING METHOD [C5] Coded value representing the method used to make the measurement.
DRY		Yes	93	DRY WELL FLAG [C1] Flag indicating whether the well is dry. Valid entries are "D" and "W" where "D" indicates dry and "W" indicates wet.
REMARKS		Opt	95-334	REMARKS [C240] Textual comment describing the groundwater measurement level. This should include any commentary that relates to the taking of the depth measurements as well as any problems encountered.

4.2.7 Table Name AQUIFER TEST**Short Name ATI [NEW]**

Data describing an aquifer, pump, slug or tracer test used to determine aquifer attributes. This table contains data for such aquifer tests as pump and slug tests where a discrete volume of liquid is being pumped in or out of the aquifer test well. This table also captures directional changes in the head or water flow of the aquifer system. **Only when data is being submitted from aquifer tests is this table required in the Group Two data submission.**

ERPTools 2.* captures this information via the *Aquifer Test Data Entry* screen.

ERPTools 2.*
Table Name: ATI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	LOG DATE [DD-MMM-YYYY] Starting date that a field test is performed.
LOGTIME		Yes	35-38	LOG TIME [C4] Starting time, using the 24 hour clock (HHMM), that a field test is performed.
<u>LOGCODE</u>	Yes	Yes	40-43	LOGGING COMPANY CODE [C4] Coded value identifying the company performing field tests.
<u>HEADDIR</u>	Yes	Yes	45-47	CHANGING HEAD DIRECTION [C3] The direction of the observed or expected well drawdown trend during a slug or aquifer test; this may be expressed as rising head, falling head, drawdown, residual, or recovery.
<u>SLUGVOL</u>		Opt	49-55	SLUG VOLUME [N6,2][XXXX.XX] The volume of a slug used to displace groundwater during a slug test.
UNITS	Yes	Opt	57-66	SLUG UNITS [C10] The units in which the volume of the slug was measured.

4.2.8 Table Name TEST WELL**Short Name: TWI [NEW]**

Specific data for pump test wells. This table holds the water level interval data for wells involved in aquifer tests. Dynamic measurements are considered to be the measurements taken from a well which is undergoing current work such as purging or pumping. **This information is only required for the Group Two data submission when certain types of tests (pump, aquifer, slug, tracer, etc.) are being run.**

ERPTools 2.* captures this information via the *Test Well Data Entry* screen.

ERPTools 2.*
Table Name: TWI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	LOG DATE [DD-MMM-YYYY] Starting date that a field test is performed.
LOGTIME		Yes	35-38	LOG TIME [C4] Starting time, using the 24 hour clock (HHMM), that a field test is performed.
<u>TIDEPH</u>		Opt	40-49	TOP INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The upper depth of the interval being tested
<u>BIDEPH</u>		Opt	51-60	BOTTOM INTERVAL DEPTH [N9,2][XXXXXXXX.XX] The lower depth of the interval that is being tested
DEPWAT		Opt	62-71	DYNAMIC LIQUID DEPTH [N9,2][XXXXXXXX.XX] Recovery depth, dynamic depth of water after recovery from purge, measured in feet from the reference point; generally the elevation where the top of the casing is notched.
<u>FTCODE</u>	Yes	Yes	73	LIQUID TYPE [C1] The type of liquid encountered in the well. This would normally be groundwater. If another type of liquid is encountered in the well bore during the test, then it should be noted here and explained in the comments.
REMARKS		Opt	75-314	REMARKS [C240] A textual description to aid in the understanding of the well test.

4.2.9 Table Name PUMP RATE**Short Name: PUMPRATE [NEW]**

Measurements of the change in pump rate over time. This table collects the volume of liquid pumped into or out of a well. It contains a record for each time the rate of flow is changed to enable an accurate determination of total volume pumped. This type of pumping can be discontinuous and can be used to keep the water level constant during times when environmental or other factors would otherwise be causing it to fluctuate. **This table is required for Group Two data submissions when such pumping is performed.**

ERPTools 2.* captures this information via the *Pump Rate Data Entry* screen.

ERPTools 2.*
Table Name: PUMPRATE

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	LOG DATE [DD-MMM-YYYY] Starting date that a sample is collected, a field test is performed, or a QC sample is created.
LOGTIME		Yes	35-38	LOG TIME [C4] Starting time, using the 24 hour clock (HHMM), that a sample is collected, a field test is performed, or a QC sample is created.
<u>STARTDATE</u>		Yes	40-50	STARTING DATE [DD-MMM-YYYY] The initial date the pump rate was measured.
<u>STARTTIME</u>		Yes	52-55	STARTING TIME [C4] The initial time, using the 24 hour clock (HHMM), the pump rate was measured.
<u>ENDDATE</u>		Yes	57-67	ENDING DATE [DD-MMM-YYYY] The ending date the pump rate was measured.
<u>ENDTIME</u>		Yes	69-72	ENDING TIME [C4] The ending time, using the 24 hour clock (HHMM), the pump rate was measured.
<u>PUMPRATE</u>		Yes	74-81	PUMP RATE [N7,2][XXXXX.XX] The measured rate of the pump.
UNITS	Yes	Yes	83-92	RATE UNITS [C10] The units used to measure the pump rate.
REMARKS		Opt	94-333	REMARKS [C240] Comments describing the pump rate.

4.2.10 Table Name: OBSERVATION WELL WATER LEVEL Short Name: OWL [NEW]

Well liquid measurements collected during timed intervals. This table is used to store water levels in observation wells that are associated with aquifer tests. The Location Name (LOCID) field should be filled with the location name for the well where the aquifer test liquid has been added/removed and the Observation Well Location (OBS_LOCATION) is the location name for the well where the recorded water level was taken. **Whenever aquifer test results from wells other than the test well are being included in the data submission, this table will be required in Group Two.**

ERPTools 2.* captures this information via the *Observation Well Water Level Data Entry* screen.

ERPTools 2.*
Table Name: OWL

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>OBS_LOCATION</u>		Yes	23-37	OBSERVATION WELL LOCATION [C15] Name of a location on an installation that is used to monitor aquifer or slug tests.
LOGDATE		Yes	39-49	LOG DATE [DD-MMM-YYYY] Starting date that a sample is collected, a field test is performed, or a QC sample is created.
LOGTIME		Yes	51-54	LOG TIME [C4] Starting time, using the 24 hour clock (HHMM), that a sample is collected, a field test is performed, or a QC sample is created.
<u>MEASDATE</u>		Yes	56-66	MEASUREMENT DATE [DD-MMM-YYYY] Date the liquid level measurement was taken. Generally, the liquid will be groundwater.
<u>MEASTIME</u>		Yes	68-71	MEASUREMENT TIME [C4] Time of day, using the 24 hour clock (HHMM), the liquid level measurement was taken. Generally, the liquid will be groundwater.
DEPWAT		Opt	73-82	DYNAMIC LIQUID DEPTH [N9,2][XXXXXXX.XX] The depth from the measuring point to the top of the liquid in the well bore. These measurements will include the water level at the beginning of the test (time=0). These measurements are used to calculate drawdown.
FTCODE	Yes	Yes	84	LIQUID TYPE [C1] The type of liquid encountered in the well. This would normally be groundwater. If another type of liquid is encountered in the well bore during the test, then it should be noted here and explained in the comments.
WTCCODE	Yes	Yes	86-88	WELL TYPE CLASSIFICATION Code [C3] Coded value identifying the type of well in which the measurements are being taken (e.g., slugged, observation.)
REMARKS		Opt	90-329	REMARKS [C240] Comments concerning the drawdown measurements.
<u>WELLDIST</u>		No	N/A	RADIAL WELL DISTANCE [N6,2][XXXX.XX] The distance, expressed in feet, between the test well and the observation well. Note: This field will be added to this table in future revisions of ERPTools.

4.2.11 Table Name TRACER INJECTION**Short Name TRI [NEW]**

Description of the tracer liquids injected into a well during well tests. This table is used to store the information pertinent to the tracer injection test. This information includes timing, as well as tracer type, concentration, and volume. **This table is only required for the Group Two submission when tracer test results are being reported.**

ERPTools 2.* captures this information via the *Tracer Injection Data Entry* screen.

ERPTools 2.*
Table Name: TRI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>STARTDATE</u>		Yes	23-33	START DATE [DD-MMM-YYYY] Date that the tracer test was conducted.
<u>STARTTIME</u>		Yes	35-38	INJECTION START TIME [C4] The time of day, using the 24 hour clock (HHMM), that the tracer injection was started.
<u>ENDTIME</u>		Yes	40-43	INJECTION END TIME [C4] The time of day, using the 24 hour clock (HHMM), that the tracer injection was completed.
<u>TRC_CONC</u>		Opt	45-52	TRACER CONCENTRATION [N7,2][XXXXXX.XX] The value of the concentration of the tracer that was injected into the well.
<u>TRCUNITS</u>	Yes	Opt	54-63	CONCENTRATION UNITS [C10] The unit of measure for the tracer concentration.
<u>TRCTYPE</u>	Yes	Yes	65-69	TRACER TYPE [C5] The type of tracer that was used for the tracer test.
<u>TRCVOL</u>		Opt	71-78	TRACER VOLUME [N7,2][XXXXXX.XX] The volume of the tracer material that was used to conduct the tracer test.
<u>TRCVOLUN</u>	Yes	Opt	80-89	TRACER VOLUME UNITS [C10] The unit of measure applied to the Tracer Volume.
REMARKS		Opt	91-330	REMARKS [C240] Textual annotation that aids the understanding of the tracer test.

4.2.12 Table Name: TRACER OBSERVATION WELL**Short Name: TOW [NEW]**

Information on observation wells sampled during a tracer test. This table stores the data gathered from the observation wells used to monitor a tracer injection test. The Location Name (LOCID) to be entered should be the location name for the well where the tracer chemical was injected. The Observation Well Location (OBS_LOCATION) should be entered as the location name of the well/piezometer where the recorded tracer concentration was measured.

This table is only required for the Group Two submission when tracer test results are being reported.

ERPTools 2.* captures this information via the *Tracer Observation Well Data Entry* screen.

**ERPTools 2.*
Table Name: TOW**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>STARTDATE</u>		Yes	23-33	START DATE [DD-MMM-YYYY] Date that the tracer test was conducted.
<u>STARTTIME</u>		Yes	35-38	INJECTION START TIME [C4] The time of day, using the 24 hour clock (HHMM), that the tracer injection was started.
<u>ENDTIME</u>		Yes	40-43	INJECTION END TIME [C4] The time of day, using the 24 hour clock (HHMM), that the tracer injection was completed.
<u>OBS_LOCATION</u>		Yes	45-59	OBSERVATION WELL LOCATION [C15] Name of a location on an installation that is used to monitor tracer tests
<u>MEASDATE</u>		Yes	61-71	MEASUREMENT DATE [DD-MMM-YYYY] Date that the observation well was measured.
<u>MEASTIME</u>		Yes	73-76	MEASUREMENT TIME [C4] Time of day, using the 24 hour clock (HHMM), that the observation well was measured.
<u>TRC CONC</u>		Yes	78-85	TRACER CONCENTRATION [N7,2][XXXXX.XX] The detected concentration of tracer material.
<u>TRCUNITS</u>	Yes	Yes	87-94	CONCENTRATION UNITS [C10] The unit of measure for the tracer concentration value.
<u>WELLDIST</u>		No	N/A	RADIAL WELL DISTANCE [N6,2][XXXX.XX] The distance, expressed in feet, between the injection well and the observation well. Note: This field will be added to this table in future revisions of ERPTools.

4.3 ERPTools 2.* Submission Group Three

ERPIMS stores information regarding how an environmental sample was collected, the analyses performed on it, and the results of the analyses. The associated ERPIMS tables named Samples, Tests, and Results as well as the Environmental Measurements table constitute ERPTools 2.* Submission Group Three. These tables differ significantly from previous versions of IRPIMS. Descriptions of each of the data tables and all of their fields are found below. A sampling event will result in one sample record. The same sampling event may produce multiple test records. Each test record may produce multiple results records. In ERPTools 2.*, information concerning sampling events will be placed into the SAMPLES table. Records that represent the extraction and analysis information for one environmental sample at one location will be placed into the TESTS table. The records generated for the results of the analytical testing will be entered into the RESULTS table. For a Group Three submission to be complete, any records from the Samples, Tests, or Results tables must have related records in the other two tables. Thus, there are only three ways (shown below) to assemble a complete Group Three Submission:

- Samples, Tests, and Results
- Samples, Tests, Results, and Environmental Measurements
- Environmental Measurements (New table)

4.3.1 Table Name: SAMPLE COLLECTION

Short Name: SAMPLES

Environmental Sampling Information. This table contains information pertinent to environmental sampling events and the samples collected. Each record represents data concerning the sample taken in the field. A separate record must be entered for every combination of location, log date, log time, sample type, matrix, sample beginning depth, and sample ending depth. For all Field QC samples and Field blanks, enter the date and time that the QC sample was created in the LOGDATE and LOGTIME fields. Samples records will only be included in data submissions if related TESTS and RESULTS records are included. The format for the ABLLOT, EBLLOT, and TBLLOT field entries is [DDMMYYNN] where DD is the numeric date of the month, MM is the number for the month, YY is the last two digits of the calendar year, and NN is the sequentially assigned number for the lot. **This table is required for any Group Three data submission that is to include TESTS and RESULTS records.**

The NFL column in the table below indicates whether the field is included in the record for 'N' Normal samples, 'F' Field QC samples, or 'L' Laboratory QC samples.

ERPTools 2.* captures this information via the *Sample Collection (SAMPLES) Data Entry* screen.

ERPTools 2.*
Table Name: SAMPLES

Short Name	NFL	VVL	Req'd	Start End	Description
AFIID	NFL	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID	N		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.

ERPTools 2.*

Table Name: SAMPLES (Cont'd)

Short Name	NFL	VVL	Req'd	Start End	Description
LOGDATE	NFL		Yes	23-33	SAMPLE DATE [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME	NFL		Yes	35-38	SAMPLE TIME [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
MATRIX	NFL	Yes	Yes	40-41	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see section 1 of Appendix B).
SBD	N		Yes	43-50	SAMPLE BEGINNING DEPTH [N7,2][XXXXX.XX] The upper depth in feet from the ground surface or the water surface at which a sample is collected. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screened intervals where samples are taken at several different depths.
SED	N		Yes	52-59	SAMPLE ENDING DEPTH [N7,2][XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).
SACODE	NFL	Yes	Yes	61-62	SAMPLE TYPE [C2] A coded value indicating the type of sample collected (e.g., normal, equipment blank, lab replicate, blank spike, etc.). See Section 1 of Appendix B for further discussion of sample types.
SAMPNO	NFL		Yes	64-65	SAMPLE NUMBER [N2] This number is sequentially assigned to samples of a given Sample Type collected at the same location on the same day.
LOGCODE	NFL	Yes	Yes	67-70	LOGGING COMPANY CODE [C4] Coded value identifying the company collecting samples or performing field tests. Report NA for LAB QC samples.
SMCODE	NFL	Yes	Yes	72-73	SAMPLING METHOD CODE [C2] Coded value identifying the sampling method used to collect a sample. For QC blanks (or other samples where sampling method is not applicable) use the code NA.
FLDSAMPID	NF		Yes	75-104	FIELD SAMPLE ID [C30] Unique number assigned to the sample in the field.
COCID	NF		Opt	106-117	CHAIN OF CUSTODY [C12] Unique identification reference to the chain of custody describing the transport of the sample to the laboratory.
COOLER	NF		Yes	119-120	FIELD COOLER ID [C2] The unique number assigned to the cooler used to transport the sample. If a sample is split, enter the ID for the cooler containing the VOCs. Coolers with VOC samples must contain an associated trip blank.
ABLOT	N		Yes	122-129	AB FIELD LOT ID [C8][DDMMYYNN] Ambient Blank Field Lot Identifier. This field should only be filled-in for environmental samples with associated ABs and should never be filled-in for blank samples themselves.
EBLOT	N		Yes	131-138	EB FIELD LOT ID [C8][DDMMYYNN] Equipment Blank Field Lot Identifier. This field should only be filled-in for environmental samples with associated EBs and should never be filled-in for blank samples.
TBLOT	N		Yes	140-147	TB FIELD LOT ID [C8][DDMMYYNN] Trip Blank Field Lot Identifier. This field should only be filled-in for environmental samples with associated TBs and should never be filled-in for blank samples
REMARKS	NFL		Opt	149-388	REMARKS [C240] Textual comments about the sample.

4.3.2 Table Name: TEST PROCEDURE**Short Name: TESTS**

Environmental Sample Preparation Information. This table contains information pertinent to environmental sample preparation and handling. Each TESTS record captures data concerning a single extraction or preparation. Every TESTS record must have a parent SAMPLES record to which it is related by installation, location, log date, log time, matrix, beginning and ending depths, sample code, and sample number. TESTS must also have at least one related RESULTS record in order to be included in the data submission. A separate record must be entered for every combination of analytical method, extraction method, leachate method, lab code, and run number that has the same parent sample record. ERPTools 2.* accommodates multiple runs for a given extraction/analytical method combination performed on a single sample using the RUN_NUMBER field. **This table is required for all Group Three data submissions.**

Tests such as methods E120.1 (specific conductance), E150.1 (pH), E170.1 (temperature) and E180.1 (turbidity) should be performed during monitoring well purging for groundwater sampling and well development. These field tests may be performed multiple times during monitoring well purging or development. Only the final result prior to groundwater sampling and conclusion of well development (after stabilization of field test parameters) should be recorded in ERPIMS.

ERPTools 2.* captures this information via the **Test Procedure (TESTS) Data Entry** screen.

**ERPTools 2.*
Table Name: TESTS**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-JRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	SAMPLE DATE [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME		Yes	35-38	SAMPLE TIME [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
MATRIX	Yes	Yes	40-41	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see Tables section 1 of Appendix B).
SBD		Yes	43-50	SAMPLE BEGINNING DEPTH [N7,2][XXXXX.XX] The upper depth in feet from the ground surface or the water surface at which a sample is collected. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screened intervals where samples are taken at several different depths.

Table Name: TESTS (Cont'd)

Short Name	VVL	Req'd	Start End	Description
SED		Yes	52-59	SAMPLE ENDING DEPTH [N7,2][XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).
SACODE	Yes	Yes	61-62	SAMPLE TYPE [C2] A coded value indicating the type of sample collected (e.g., normal, equipment blank, lab replicate, blank spike, etc.). See Section 1 of Appendix B for further discussion of sample types.
SAMPNO		Yes	64-65	SAMPLE NUMBER [N2] This number is sequentially assigned to samples of a given Sample Type collected at the same location on the same day.
LABCODE	Yes	Yes	67-70	ANALYTICAL LABORATORY CODE [C4] Coded value identifying the actual laboratory that performed the analysis of a sample. For field tests, use the code FLD.
ANMCODE	Yes	Yes	72-78	ANALYTICAL METHOD CODE [C7] Coded value representing the method of analysis (analytical method) used to perform laboratory testing.
EXMCODE	Yes	Yes	80-86	PREPARATION METHOD [C7] Coded value representing the method used to extract or prepare a sample for a particular analysis.
LCHMETH	Yes	Opt	88-94	LEACHATE METHOD [C7] Coded value representing the method used to derive leachate from a given sample.
RUN_NUMBER		Yes	96-97	RUN NUMBER [N2] This field permits the numerical coding of multiple or repeat analyses of a sample by the same analytical method on the same day.
LABSAMPID		Yes	99-110	LABORATORY SAMPLE IDENTIFICATION [C12] Identifier assigned to a sample by the laboratory and included in the reporting of results. Enter a space character for field tests.
EXTDATE		Yes	112-122	PREPARATION DATE [DD-MMM-YYYY] Date that an extraction or some other preparation is made from a sample. Enter a space character in this field for all field tests.
EXTTIME		Yes	124-127	PREPARATION TIME [C4] Time of day, using the 24 hour clock (HHMM), that an extraction or other preparation is made from a sample. Enter a space character in this field for all field tests.
LCHDATE		Opt	129-139	LEACHATE DATE [DD-MMM-YYYY] Date that leachate was derived from the sample.
LCHTIME		Opt	141-144	LEACHATE TIME [C4] Time of day, using the 24 hour clock (HHMM), that the leachate was derived from the sample.
LCHLOT		Opt	146-155	LEACHATE LOT [C10] The batch designator of an autonomous group of environmental samples and associated QC samples leached together.
ANADATE		Yes	157-167	ANALYSIS DATE [DD-MMM-YYYY] Date that the sample or extract was analyzed in a laboratory.
ANATIME		Yes	169-172	ANALYSIS TIME [C4] Time of day, using the 24 hour clock (HHMM), that a laboratory analysis was performed on a sample or extract.
ANALOT		Opt	174-183	ANALYTICAL LOT [C10] The batch designator of an autonomous group of environmental samples and associated QC samples analyzed together.
LABLOTCTL		Yes	185-194	PREPARATION LOT [C10] The batch designator of an autonomous group of environmental samples and associated QC samples prepared together.
CALREFID		Opt	196-205	CALIBRATION REFERENCE [C10] A coded value which establishes a reference link between environmental and QC samples and their corresponding calibration records.
RTTYPE	Yes	Opt	207-211	REMEDICATION TECHNOLOGY TYPE [C5] Type of remediation technology (e.g., slurry wall, <i>in-situ</i> vitrification, bio-reactor).
BASIS	Yes	Yes	213	BASIS [C1] For tissue or solid samples enter whether results are reported on a wet (W) or dry (D) basis. Enter an X for samples of water, air, and gas matrix Field QC and Lab QC samples.

4.3.3 Table Name: ANALYTICAL RESULT**Short Name: RESULTS**

Analytical Chemistry Results Information. This table records analytical results for one or more analytes obtained from a single extraction and testing event. Each record in the table provides the analytical result for a single analyte and the associated unit of measure. This table also contains information such as data qualifiers, data flags, uncertainties, precision, and dilution factors. RESULTS records also include the method detection limit (MDL) and the required reporting limit (RL). To be accepted by ERPIMS, each RESULTS record must have corresponding parent records in the TESTS and SAMPLES tables. **This information is required for the Group Three data submission.**

All results above the Method Detection Limits (MDLs) should be submitted as quantifiable results. All non-detectable results should be entered with PARVAL = 0 and PARVQ = ND. Note, for these records, MDLs are of particular importance. Non-detectable results must be entered so that ERPIMS has an affirmation record of environmental contaminants for which analysis was performed, but contaminants were not found.

In cases where the SOW requires confirmation of gas chromatography (GC) or high performance liquid chromatography (HPLC) results, three confirming data pairs (PARVAL & PARVQ, VAL_1C & VQ_1C, and VAL_CONFIRM & VQ_CONFIRM) will be entered for each RESULTS records. The PARVAL and PARVQ for each first and second column result will be entered in the fields VAL_1C, VQ_1C, VAL_CONFIRM and VQ_CONFIRM, respectively. The primary result, which is the one chosen as most reliable by the laboratory, must be consistently entered in the fields PARVAL and PARVQ for each RESULTS record. **Averaging the first column and confirming results to get the primary result is not allowed.**

ERPTools 2.* captures this information via the *Analytical Results (RESULTS) Data Entry* screen.

ERPTools 2.*
Table Name: RESULTS

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	SAMPLE DATE [DD-MMM-YYYY] Date that a sample is collected or a field test is performed. For Trip Blanks, LOGDATE should record when the sample was placed into the cooler. The LOGDATE for other Field QC samples is the date the sample was created. For Lab QC samples, LOGDATE relates to the earlier of ANADATE and EXTDATE from the TESTS table
LOGTIME		Yes	35-38	SAMPLE TIME [C4] Time of day (HHMM) that a sample is collected or a field measurement is made. For Trip Blanks, LOGTIME should record when the sample was placed into the cooler. The LOGTIME for other Field QC samples is the date the sample was created. For Lab QC samples, LOGTIME relates to the earlier of ANADATE and EXTDATE from the TESTS table. All times are reported using a 24-hour clock without a colon.
MATRIX	Yes	Yes	40-41	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see section 1 of Appendix B).

ERPTools 2.*

Table Name: RESULTS (Cont'd)

Short Name	VVL	Req'd	Start End	Description
SBD		Yes	43-50	SAMPLE BEGINNING DEPTH [N7,2][XXXXX.XX] The upper depth in feet from the ground surface or the water surface at which a sample is collected. Zero should be entered when depth is not used to identify where the sample was taken, e.g., for QC blanks and most water samples. A value greater than zero should be entered for groundwater samples if depth is required to identify where the sample was taken, e.g., for a well with multiple screened intervals where samples are taken at several different depths.
SED		Yes	52-59	SAMPLE ENDING DEPTH [N7,2][XXXXX.XX] Lower depth in feet at which a soil sample is collected for analysis, relative to the ground surface. IMPORTANT: Water or field QC samples should have a zero in this field, not space characters. Zero should be entered when depth is not used to identify where the sample was taken. Sample ending depth (SED) if greater than zero should never be a smaller value than the sample beginning depth (SBD).
<u>SACODE</u>	Yes	Yes	61-62	SAMPLE TYPE [C2] A coded value indicating the type of sample collected (e.g., normal, equipment blank, lab replicate, blank spike, etc.). See Section 1 of Appendix B for further discussion of sample types.
<u>SAMPNO</u>		Yes	64-65	SAMPLE NUMBER [N2] This number is sequentially assigned to samples of a given Sample Type collected at the same location on the same day.
<u>LABCODE</u>	Yes	Yes	67-70	ANALYTICAL LABORATORY CODE [C4] Coded value identifying the actual laboratory that analyzed the sample. For field tests, use the code FLD.
<u>ANMCODE</u>	Yes	Yes	72-78	ANALYTICAL METHOD CODE [C7] Coded value representing the method of analysis (analytical method) used to perform laboratory testing.
<u>EXMCODE</u>	Yes	Yes	80-86	PREPARATION METHOD [C7] Coded value representing the method used to extract or prepare a sample for a particular analysis.
<u>LCHMETH</u>	Yes	Opt	88-94	LEACHATE METHOD [C7] Coded value representing the method used to derive leachate from a given sample.
<u>RUN_NUMBER</u>		Yes	96-97	RUN NUMBER [N2] This field permits the numerical coding of multiple or repeat analyses of a sample by the same analytical method on the same day.
<u>PARLABEL</u>	Yes	Yes	99-110	ANALYTE [C12] A coded value that must be selected from the PAR Valid Value List, that represents a particular analyte or parameter.
<u>PRCCODE</u>	Yes	Yes	112-114	ANALYTE TYPE [C3] Coded value identifying a class or group that a parameter is associated with (e.g. ORG, MET, STD, etc.).
<u>PARVQ</u>	Yes	Yes	116-117	PARAMETER VALUE QUALIFIER [C2] Coded value qualifying the analytical results field (PARVAL). This field must be filled in every result record.
<u>PARVAL</u>		Yes	119-133	PARAMETER VALUE [N14,4][XXXXXXXXXX.XXXX] The actual numeric value of the calculated or measured parameter being reported. This value is expressed in terms of the units of measure reported in the UNITS field. This field also captures the primary value for Gas Chromatography (GC) and High Performance Liquid Chromatography (HPLC) analyses.
<u>PARUN</u>		Cond	135-147	PARAMETER VALUE UNCERTAINTY [N12,4][XXXXXXXXXX.XXXX] A value that expresses the uncertainty of measured values inherent in the measuring technique (expressed as + or - some value).
<u>PRECISION</u>		Yes	149	PRIMARY VALUE PRECISION [N1] Number indicating the precision (number of digits after the decimal point) that applies to the reported PARVAL, PARUN, EXPECTED, MDL, and RL fields.
<u>EXPECTED</u>		Cond	151-165	EXPECTED VALUE [N14,4][XXXXXXXXXX.XXXX] The target result for a spiked sample (e.g., Matrix Spike, Matrix Spike Duplicate, surrogate, etc.).
<u>EVPREC</u>		Cond	167	EXPECTED VALUE PRECISION [N1] Number indicating the precision (number of digits after the decimal point) that applies to the reported value for EXPECTED.
<u>MDL</u>		Yes	169-183	METHOD DETECTION LIMIT [N14,4][XXXXXXXXXX.XXXX] The smallest quantity of analyte that can be detected from a prepared sample subject to the applied analytical method.

ERPTools 2.*

Table Name: RESULTS (Cont'd)

Short Name	VVL	Req'd	Start End	Description
<u>RL</u>		Cond	185-199	REPORTING LIMIT [N14,4][XXXXXXXXXX.XXXX] The applicable reporting limit for the project. If the project is following the AFCEE QAPP, the QAPP will give the AFCEE reporting limit or there will be an AFCEE approved, project-specific reporting limit.
UNITS	Yes	Yes	201-210	UNITS [C10] Units of measure applied to the parameter value (PARVAL). If VAL_1C or VAL_CONFIRM are reported, the same UNITS must apply to them.
VQ_1C	Yes	Cond	212-213	FIRST COLUMN VALUE QUALIFIER [C2] Coded value qualifying the reported VAL_1C. VQ_1C relates to VAL_1C in the same way as PARVQ relates to PARVAL.
VAL_1C		Opt	215-229	FIRST COLUMN VALUE [N14,4][XXXXXXXXXX.XXXX] The primary value result for an analyte, from a Gas Chromatography (GC) or High Performance Liquid Chromatography (HPLC) analysis.
<u>FCVALPREC</u>		Cond	231	FIRST COLUMN PRECISION [N1] Number indicating the precision (number of digits after the decimal point) that applies to the reported VAL_1C.
VQ_CONFIRM	Yes	Cond	233-234	CONFIRMING VALUE QUALIFIER [C2] Coded value qualifying the reported VQ_CONFIRM. VQ_CONFIRM relates to VAL_CONFIRM in the same way as PARVQ relates to PARVAL.
VAL_CONFIRM		Opt	236-250	CONFIRMING VALUE [N14,4][XXXXXXXXXX.XXXX] The confirming value for an analyte, from a GC or HPLC analysis that requires second column confirmation.
<u>CNFVALPREC</u>		Cond	252	CONFIRMING VALUE PRECISION [N1] Number indicating the precision (number of digits after the decimal point) that applies to the reported VAL_CONFIRM.
<u>DILUTION</u>		Opt	254-261	DILUTION FACTOR [N8] Numeric expression of the amount of dilution required to bring the analyte concentration in the sample into analysis range.
<u>DQTYPE</u>	Yes	Opt	263-264	DATA QUALIFIER TYPE [C2] A code identifying the type of data qualifier.
EPA_FLAGS		Opt	266-271	DATA QUALIFIER [C6] EPA qualifier codes that are assigned during chemistry data validation.
<u>QAPPFLAGS</u>	Yes	Cond	273-274	QAPP FLAGS [C2] A coded value assigned to analytical results during laboratory or validation review. Flags are set in accordance with the AFCEE Quality Assurance Project Plan (QAPP).

4.3.4 Table Name: ENVIRONMENTAL MEASUREMENT**Short Name:EMI [NEW]**

Environmental Measurement Results. This table collects result information for tests that fall outside the category of standard analytical testing. This includes such tests as wind velocity, ambient temperature, barometric pressure, and relative humidity.

ERPTools 2.* captures this information via the *Environmental Measurement (EMI) Data Entry* screen.

ERPTools 2.*
Table Name: EMI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, etc. (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-JRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
LOGDATE		Yes	23-33	SAMPLE DATE [DD-MMM-YYYY] The date that the sample was taken, a field test was performed, or a QC sample was created.
LOGTIME		Yes	35-38	SAMPLE TIME [C4] The time of day, using the 24 hour clock (HHMM), that the sample was taken, a field test was performed, or a QC sample was created.
MATRIX	Yes	Yes	40-41	Sampling Matrix. [C2] Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see section 1 of Appendix B).
SBD		Yes	43-50	TOP TESTED INTERVAL [N7,2][XXXXXX.XX] The top of the interval from which the sample was collected or recovered, expressed in feet relative to mean sea level.
SED		Yes	52-59	BOTTOM TESTED INTERVAL [N7,2][XXXXXX.XX] The bottom of the interval from which the sample was collected or recovered, expressed in feet relative to mean sea level.
ANADATE		Yes	61-71	TEST DATE [DD-MMM-YYYY] The starting date of the sample test. This attribute is used if the samples are related to an aquifer test or tracer test. A series of samples taken at different times can be related using the start date and times.
ANATIME		Yes	73-76	TEST TIME [C4] The time of day, using the 24 hour clock (HHMM), that the sample was tested.
ANATYPE	Yes	Yes	78-82	TEST TYPE [C5] The type of test being performed on the sample (e.g., air sampling, water velocity, soil sample, well bore fluid sample, etc.).
PARVAL		Yes	84-91	PARAMETER VALUE [N7,2][XXXXXXXXXX.XX] Actual analytical value of calculated or measured parameter reported with values consistent with the UNITS field.
UNITS	Yes	Yes	93-102	UNITS [C10] Units of measure used for the parameter value.
REMARKS		Opt	104-343	REMARKS [C240] Comments to clarify the test.

4.4 ERPTools 2.* Submission Group Four

Group Four data submissions contain the data related to remedial actions that is loaded into the ERPIMS database. This entire group of data tables is new to this version of the Data Loading Handbook. The previous database structure did not capture remediation data.

Group Four data is optional information which should only be submitted if it is called for in a contract or if it is requested by either a Contracting Officer or a Contracting Officer's Representative.

4.4.1 Table Name: OPERABLE UNIT

Short Name: OU [NEW]

Description of the remedial action activity. An Operable Unit is defined as a specified area where some kind of cleanup effort is being undertaken. Operable Units differ between environmental sites and may contain, partially contain, or span numerous sites.

ERPTools 2.* captures this information via the *Operable Unit (OU) Data Entry* screen.

**ERPTools 2.*
Table Name: OU**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>OUCODE</u>		Yes	7-9	OPERABLE UNIT CODE [C3] A coded value representing the Operable Unit Name; used as part of the primary key.
<u>OUNAME</u>		Yes	11-45	OPERABLE UNIT NAME [C35] Name of the Operable Unit.
<u>OUDESC</u>		Opt	47-286	DESCRIPTION [C240] Textual description of the Operable Unit.

4.4.2 Table Name: OPERABLE UNIT CONTAMINANT**Short Name: OUC [NEW]**

Type of contaminant being treated by the operable unit. This is significant for the selection and performance monitoring of remediation technologies and remediation systems.

ERPTools 2.* captures this information via the *Operable Unit Contaminant (OUC) Data Entry* screen.

ERPTools 2.*
Table Name: OUC

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>OUCODE</u>		Yes	7-9	OPERABLE UNIT CODE [C3] A coded value representing the Operable Unit Name; used as part of the primary key.
GROUPCODE	Yes	Yes	11-20	ANALYTE GROUP CODE [C10] A unique code which identifies a group of environmental contaminants being treated by the Operable Unit. (e.g., CHLOR, SOLVENT, PEST).
<u>MATRIX_TYPE</u>	Yes	Yes	22	SAMPLING MATRIX [C1] Coded value that identifies the sample medium collected in association with the remedial treatment, (e.g., soil, water, etc.). For QC blanks and reference materials, use the codes W, S, and A for water, soil, and air respectively. Since QC replicates and matrix spikes are in effect the same as the original sample, enter the same code that was used for the original sample.

4.4.3 Table Name: REMEDIATION SYSTEM**Short Name: RSI [NEW]**

A series of Remediation Technologies that work in concert that can be composed of only one remedial technology. Table entries may also consist of groups of subsystems of remediation technologies. A Remediation System is made-up of one or more Remediation Technologies (or Remediation Units) that are used together to treat a particular area of contamination. Remediation Systems are sometimes referred to as Remediation Trains.

ERPTools 2.* captures this information via the *Remediation System (RSI) Data Entry* screen.

ERPTools 2.*
Table Name: RSI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>RSID</u>		Yes	7-16	REMEDATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	18-20	REMEDATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).
<u>RSNAME</u>		Yes	22-56	REMEDATION SYSTEM NAME [C35] Name of the remediation system.
<u>RSDESC</u>		Opt	58-297	DESCRIPTION [C240] Textual description of the remediation system.

4.4.4 Table Name: REMEDIATION TECHNOLOGY**Short Name: RTI [NEW]**

Description of a discrete remediation activity. This table captures the information with regard to a particular piece of equipment that is used in the remedial action. The term Remediation Technology can also refer to a group of components that acts as a single unit cleanup apparatus. Thus, a Remediation Technology is sometimes referred to as a Remediation Unit.

ERPTools 2.* captures this information via the *Remediation Technology (RTI) Data Entry* screen.

ERPTools 2.*
Table Name: RTI

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>RSID</u>		Yes	7-16	REMEDICATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	18-20	REMEDICATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).
<u>RTID</u>		Yes	22-36	REMEDICATION TECHNOLOGY ID [C15] User defined name for the Remediation Technology; used as part of the primary key.
<u>RTTYPE</u>	Yes	Yes	38-42	REMEDICATION TECHNOLOGY TYPE [C5] Type of remediation technology (e.g., slurry wall, <i>in-situ</i> vitrification, bio-reactor).
<u>RTNAME</u>		Yes	44-78	REMEDICATION TECHNOLOGY NAME [C35] Name of the remedial Technology.
<u>RTCLASS</u>	Yes	Yes	80	REMEDICATION TECHNOLOGY CLASS [C1] A coded value representing the Remediation Technology Class (<i>in-situ</i> , <i>ex-situ</i> or mixed).
GROUPCODE	Yes	Yes	82-91	ANALYTE GROUP CODE [C10] A unique code which identifies a group of environmental contaminants. (e.g., CHLOR, SOLVENT, PEST).
<u>MEDIA</u>	Yes	Yes	93-94	MEDIA [C2] Coded value identifying the sample medium collected in association with the remedial treatment. (e.g., soil, water, etc.).
<u>ESTDATE</u>		Yes	96-106	ESTABLISHED DATE [DD-MMM-YYYY] Date the construction of the remediation technology was complete
<u>STARTDATE</u>		Yes	108-118	START DATE [DD-MMM-YYYY] Date the remediation technology started operating
<u>RTDESC</u>		Opt	120-359	DESCRIPTION [C240] Textual description of the remedial unit.

4.4.5 Table Name: REMEDIATION SYSTEM PERFORMANCE Short Name: RSP [NEW]

Information critical to conduct performance assessment on the effectiveness, efficiency, and optimization of the remediation system. This table captures the information that can be used to determine the level of performance for a particular Remediation System.

ERPTools 2.* captures this information via the *Remediation System Performance(RSP) Data Entry* screen.

ERPTools 2.*
Table Name: RSP

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>RSID</u>		Yes	7-16	REMEDICATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	18-20	REMEDICATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).
<u>BEGDATE</u>		Yes	22-32	BEGINNING DATE [DD-MMM-YYYY] Beginning date of the remediation.
<u>ENDDATE</u>		Yes	34-44	ENDING DATE [DD-MMM-YYYY] Ending date of the remediation.
<u>PARAMETER</u>	Yes	Yes	46-50	PERFORMANCE PARAMETER [C5] Performance Parameter (e.g., destroyed mass, extracted , concentration, collection frequency, etc.)
PARVAL		Yes	52-62	PARAMETER VALUE [N10,2][XXXXXXXXXX.XX] Value of the performance parameter in terms commensurate with the information in the UNITS field.
PARUN		Yes	64-74	PARAMETER UNCERTAINTY [N10,2][XXXXXXXXXX.XX] A value which measures the uncertainty of the measurement (expressed as + or - some value).
UNITS	Yes	Yes	76-85	UNITS [C10] Units of measure associated with a parameter.
REMARKS		Yes	87-326	REMARKS [C240] Textual description of parameter and result.

4.4.6 Table Name: REMEDIATION TECHNOLOGY PERFORMANCE Short Name: RTP [NEW]

Information critical to conduct performance assessment on the effectiveness, efficiency, and optimization of the remediation technology. This table captures the information that can be used to determine the level of performance for a particular Remediation System.

ERPTools 2.* captures this information via the *Remediation Technology Performance (RTP) Data Entry* screen.

ERPTools 2.*
Table Name: RTP

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>RSID</u>		Yes	7-16	REMEDICATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	18-20	REMEDICATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).
<u>RTID</u>		Yes	22-36	REMEDICATION TECHNOLOGY ID [C15] User defined name for the Remediation Technology; used as part of the primary key.
<u>RTTYPE</u>	Yes	Yes	38-42	REMEDICATION TECHNOLOGY TYPE [C5] Type of remediation technology (e.g., slurry wall, <i>in-situ</i> vitrification, bio-reactor, etc.) undergoing performance analysis.
<u>BEGDATE</u>		Yes	44-54	BEGINNING DATE [DD-MMM-YYYY] Beginning date of the remediation.
<u>ENDDATE</u>		Yes	56-66	ENDING DATE [DD-MMM-YYYY] Ending date of the remediation.
<u>PARAMETER</u>	Yes	Yes	68-72	PERFORMANCE PARAMETER [C5] Performance Parameter (e.g., Destroyed Mass, extracted , concentration, collection frequency, etc.)
PARVAL		Yes	74-84	PARAMETER VALUE [N10,2][XXXXXXXXXX.XX] Value of the performance parameter in terms commensurate with the information in the UNITS field.
PARUN		Yes	86-96	PARAMETER UNCERTAINTY [N10,2][XXXXXXXXXX.XX] A value which measures the uncertainty of the measurement (expressed as + or - some value).
UNITS	Yes	Yes	98-107	UNITS [C10] Units of measure associated with a parameter.
REMARKS		Yes	109-348	REMARKS [C240] Textual description of parameter and result.

4.4.7 Table Name: LOCATION REMEDIATION SYSTEM XREF Short Name: LSX [NEW]

Cross-reference table between locations and remediation systems.

ERPTools 2.* captures this information via the *Location/Remediation System Cross Reference (LSX) Data Entry* screen.

ERPTools 2.*
Table Name: LSX

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>RSID</u>		Yes	23-32	REMEDICATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	34-36	REMEDICATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).

4.4.8 Table Name: LOCATION REMEDIATION TECHNOLOGY XREF Short Name: LTX [NEW]

Cross-reference table between locations and remediation technologies.

ERPTools 2.* captures this information via the *Location/Remediation Technology Cross Reference (LTX) Data Entry* screen.

ERPTools 2.*
Table Name: LTX

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>RSID</u>		Yes	23-32	REMEDICATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	34-36	REMEDICATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).
<u>RTID</u>		Yes	38-52	REMEDICATION TECHNOLOGY ID [C15] User defined name for the Remediation Technology; used as part of the primary key.
<u>RTTYPE</u>	Yes	Yes	54-58	REMEDICATION TECHNOLOGY TYPE [C5] Type of remediation technology (e.g., slurry wall, <i>in-situ</i> vitrification, bio-reactor).

4.4.9 Table Name: LOCATION OPERABLE UNIT XREF**Short Name: LOX [NEW]**

Cross-reference table between sampling locations and operable units.

ERPTools 2.* captures this information via the *Location/Operable Unit Cross Reference (LOX) Data Entry* screen.

ERPTools 2.*
Table Name: LOX

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
LOCID		Yes	7-21	LOCATION NAME [C15] Unique identifier assigned to a location within a USAF installation where measurements or samples are taken. This is typically synonymous with monitoring well, borehole, <i>etc.</i> (e.g., "MW-06.") Prior to any initial input of data or establishment of any new sampling locations, the contractor shall contact the ERPIMS Help Desk at 1-800-IRP-IMS3 (1-800-477-4673) to obtain a list of existing ERPIMS locations at the installation.
<u>OUCODE</u>		Yes	23-25	OPERABLE UNIT CODE [C3] A coded value representing the Operable Unit Name; used as part of the primary key.

4.4.10 Table Name: SITE OPERABLE UNIT XREF**Short Name: SOX [NEW]****Cross-reference table between operable units and sites.**

ERPTools 2.* captures this information via the *Remediation System/Operable Unit Cross Reference (SOX) Data Entry* screen.

**ERPTools 2.*
Table Name: SOX**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
SITEID		Yes	7-9	SITE IDENTIFIER [N3] Number which uniquely identifies a site.
<u>OUCODE</u>		Yes	11-13	OPERABLE UNIT CODE [C3] A coded value representing the Operable Unit Name; used as part of the primary key.

4.4.11 Table Name: REMEDIATION SITE XREF**Short Name: RSX [NEW]**

Cross-reference table between remediation systems and sites.

ERPTools 2.* captures this information via the *Remediation System/Site cross reference (RSX) Data Entry* screen.

ERPTools 2.*
Table Name: RSX

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
SITEID		Yes	7-9	SITE IDENTIFIER [N3] Number which uniquely identifies a site.
<u>RSID</u>		Yes	11-20	REMEDATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	22-24	REMEDATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).

4.4.12 Table Name: REMEDIATION SYSTEM OPERABLE UNIT XREF Short Name: ROX [NEW]

Cross-reference table between operable units and remediation systems.

ERPTools 2.* captures this information via the *Remediation Technology/Operable Unit Cross Reference (ROX) Data Entry* screen.

**ERPTools 2.*
Table Name: ROX**

Short Name	VVL	Req'd	Start End	Description
AFIID	Yes	Yes	1-5	INSTALLATION CODE [C5] Unique code used to represent an installation, base, or plant. These coded values usually represent Air Force installations.
<u>OUCODE</u>		Yes	7-9	OPERABLE UNIT CODE [C3] A coded value representing the Operable Unit Name; used as part of the primary key.
<u>RSID</u>		Yes	11-20	REMEDIATION SYSTEM ID [C10] User defined name for the Remediation System; used as part of the primary key.
<u>RSSTAGE</u>	Yes	Yes	22-24	REMEDIATION SYSTEM STAGE [C3] Type of remediation system (e.g., treatability study, pilot study, field demo, full-scale remediation).

APPENDIX A**DATA LOADING
DEFINITIONS AND EXPLANATIONS****DEFINITION OF TERMS**

ABLOT = See Ambient Blank Field Lot

AF Base Code = see AF Installation Identification

AF Installation (AFIID) = A code representing an installation, plant, or base from which Environmental data is collected. The AFIID code does not necessarily have to be an Air Force Base, it can be an Air National Guard Base, airport, Air Force Plant or other government installation. These coded values usually represent Air Force installations. (C5)

Alternate Name (ALTNAME) = Another name that is or has been used to label the site or location. This field should only be filled if the area delineated by the alternate name (alias) is an exact match for the area delineated by the identified ERPIMS identifier. (C15)

Ambient Blank = ASTM Type II Reagent Grade Water is poured at ambient (current) conditions into a sample container at a sampling site. The purpose of this blank is to detect sample contamination introduced during, or as a result of, field sampling activities.

Ambient Blank Field Lot (ABLOT) = This field is used in ERPTools to relate a lot of normal samples (collected in the field) to the related ambient blank. There will only be an entry for normal samples that are associated to an ambient blank. This field in the sample record for the ambient blank itself will be left blank. Entries in this field will be formatted as date and SAMPNO (DDMMYYNN) See section 2 of Appendix B for further details. (C8)

Ambient Conditions Blank = See Ambient Blank

Analysis Date (ANADATE) = The date a sample or extract is analyzed in a laboratory. (D)

Analysis Time (ANATIME) = The time of day (24-hour clock) that a sample is analyzed in a laboratory. (N4)

Analyte (PARLABEL) = A code representing the analytical parameter for which an analysis was performed. (C12)

Analyte Group Code (GROUPCODE) = A code that identifies a group of environmental contaminants. This field will only be filled with an entry from its related Valid Value List. (C10)

Analytic(al) Method (ANMCODE) = A code identifying the method of analysis by which the sample was analyzed. The format of this field is version specific, (C6) for CDLT & IRPTools, and (C7) for ERPTools.

Aquifer Base Depth (AQBASEDEPTH) = The estimated water depth of an aquifer that is used to calculate certain hydrologic parameters. (N7,2)

Aquifer Thickness = See Saturated Aquifer Thickness

ASTM Code (ASTMCODE) = A 2 or 4 character code used in the ASTM classification of *unconsolidated* deposits. Deposits having characteristics of two lithologic groups are designated by a combination of the two character ASTM symbols. The predominant group is entered as the second 2-character code. For example, if the lithologic description is silty sand with clay, the ASTM Code would be "CLSC" with SC being the dominant lithology. If the material is composed of a single group, then only one 2 character code should be entered. If the layer consists of consolidated material, use the code "NACM" for the ASTM code and enter the appropriate LITHCODE in the Lithology Code field. (C4)

Base Code = see AF Installation

Base Name = see AF Installation

Basis (BASIS) = Identifies the basis (W = wet, D = dry or X = not applicable) on which analytical results are reported for all matrices. The basis for water, air, QC and gas samples is X while the basis for tissue and soil samples may be W or D. (C1)

Bed Name (BEDNAME) = The name of the geological bed to which a given Stratigraphic Unit belongs. (C20)

Begin(ning) Depth (BEGDEPTH) = The upper depth (in feet below ground surface) of a lithologic stratum. (N7,2)

Borehole Depth (DEPTH) = The total depth in feet of a borehole (including boreholes drilled to install wells) relative to the ground surface. (See Figures A-2, A-5, B-4, and B-5.) (N6,2)

Borehole Diameter(BHDIAM) = The diameter of a borehole in inches. (N4,2)

Calc(ulate)d Param(eter) Code (CALPARCODE) = A code to identify which parameter has been derived from aquifer tests or tracer tests. (C5)

Calibration Reference (CALREFID) = A coded entry that links environmental and quality control (QC) samples to the corresponding calibration data.

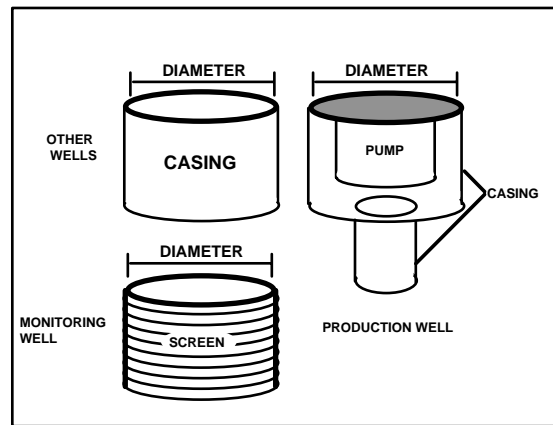


FIGURE A-1

Casing Inside Diameter(CASDIAM) = The inside diameter (in inches) of a casing. For monitor wells, the inside diameter of a screened casing interval should be used. For production wells, this is the inside diameter of the casing interval where the pump has been positioned. For all other wells, use the inside diameter of the casing. (See Figure A-1.) (N5,2)

Casing Material Code (CMACODE) = A code describing the type of material used to make the casing for a well. (C3)

Chain of Custody (COCID) = Identifies the chain of custody report that describes the handling and transport of the sample. (C12)

Changing Head Direction (HEADDIR) = An indicator of the direction of change in water level related to slug and aquifer tests. Choices from the Valid Values List cover the following possibilities: Rising head, falling head, recovery, drawdown, or residual. (C3)

Completion Method Code = see Well Completion Method Code

Confirming Value = see VAL_CONFIRM

Construction Method Code (CMCCODE) = A code indicating the type of equipment used to drill a borehole or excavate a test pit (Drilling or Excavation Method). Enter "NA" for locations where construction was not done, e.g., surface water, sediments. (C2)

Contract ID (CONTRACT_ID) = The unique number assigned by the Air Force to a project after it has been contracted, but before the work begins. It is used to keep track of the work being performed. (C16)

Cooler = See Field Cooler ID

Coordinate Type (CRDTYPE) = The coordinate basis to which all coordinates are referenced at the installation. (C25)

Coordinates East (ECOORD) = The x-value (East-West) which is found by having a known reference point and measuring the distance to a sampling location. The coordinates must be State Plane Coordinates. (N10,2)

Coordinates North (NCOORD) = The coordinate y-value (North-South) which is found by having a known reference point and measuring the distance to a sampling location. The coordinates must be State Plane Coordinates. (N10,2)

Crossgradient = A location is crossgradient of a site if it is adjacent to the flow path passing beneath the contaminant source. (See Figure B-6.)

Data Loading Handbook Version (HNDBKV) = The version of the ERPIMS Data Loading Handbook followed during data entry via the Contractor Data Loading Tool, ERPTools, or IRPTools. **In practice, this refers to the version of validation software used.**(C3)

Date Established (ESTDATE) = The date the construction of a sampled or measured location was completed. (D)

Date of Test = see Log Date

Delivery Order (DO_ID) = A number which is assigned to the Air Force form for "Orders for Supplies and Services." This sequentially assigned number is specific for a task under the contract number. (C4)

Depth of Borehole or Test Pit = see Borehole Depth

Detection Limit = see Method Detection Limit (MDL)

DL = see Method Detection Limit (MDL)

DO ID = see Delivery Order

DO Num(ber) = see Delivery Order

Downgradient = A location is downgradient of a site if groundwater from the site will flow to the location. (See Fig B-6.)

Drilling Company (DRLCODE) = A code identifying the organization doing the drilling at a sampled location. For a location in which there was no drilling taking place, enter "NA" in this field. An example of this would be where a location had only surface water points sampled. (C4)

Drilling/Excavation Method = see Construction Method Code

Dry = Identification of a dry well. (C1) IRPTools and ERPTools only.

Dynamic measurements = Measurements taken from a well which is undergoing current work such as pumping or purging. If dynamic measurements are taken, data fields for two depths (pumping level and recovery depth) as well as production rate and recovery time are to be completed.

EBLOT = See Equipment Blank Field Lot

Elevation (ELEV) = The elevation of the ground surface (for groundwater, soil or sediment sampling) or water surface (for surface water sampling) at a sampling location in feet above mean sea level. (See Figure A-2.) (N7,2)

End(ing) Depth (ENDDEPTH) = The lower depth (in feet below ground surface) of a lithologic stratum. (N7,2)

EPA = see EPA Data Qualifiers

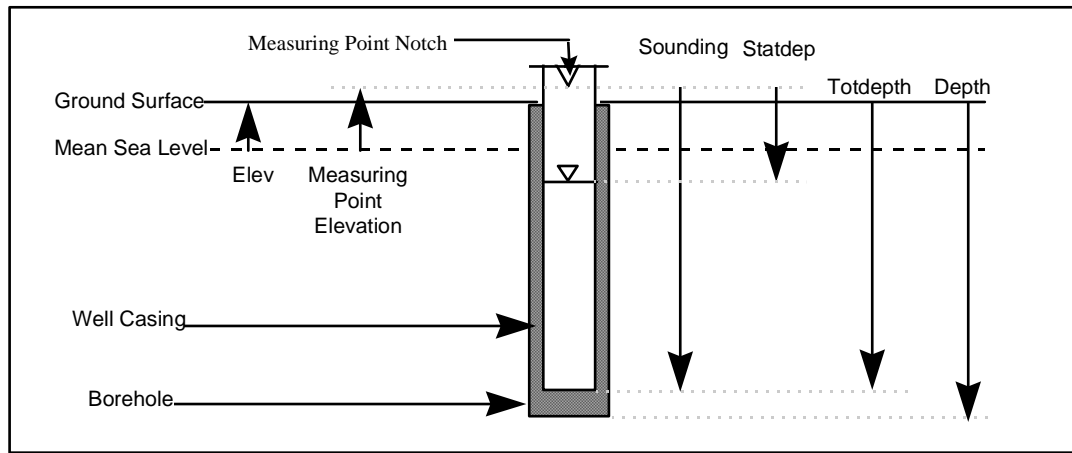


FIGURE A-2

EPA Data Qualifiers (EPA_FLAGS) = A field allowing the entry of established US EPA data qualifier codes not addressed by the Parameter Value Qualifier (PARVQ) codes. For CDLT and IRPTools submissions, CLP Concentration and Data Quality flags are allowed for metals and organic compounds. For ERPTools submissions, data flag type and version are indicated by the valid value entered in the field DQTYPE. In all cases regardless of version, the use of contractor or laboratory defined flags is not allowed. All EPA_FLAGS entries are validated at the submission level, relative to analyte type, PARVAL, PARVQ and RL (or LABDL). (C6)

Equipment Blank = ASTM Type II Reagent Grade Water is poured over or through sample collection devices at a sampling site. The purpose of this blank is to verify the cleanliness of the sampling device(s). If multiple devices are used in sample collection, there can be an equipment blank produced for each device (*e.g., bailer and pump*).

Equipment Blank Field Lot (EBLOT) = This field is used, in ERPTools, to relate a lot of normal samples (collected in the field) to the related equipment blank(s). There will only be an entry for normal samples that are associated to an equipment blank. This field will be left blank in the sample record for the equipment blanks themselves. Entries in this field will be formatted as date and SAMPNO (DDMMYYNN) See section 2 of Appendix B for further details. (C8)

Equipment Rinsate = See Equipment Blank

ERPIMS = The acronym for the Environmental Resources Program Information Management System. As of October 1st, 1997, this name replaces the name IRPIMS. (See also: IRPIMS)

Establishing Company (ESCCODE) = A code identifying the organization which establishes a sampling or measuring location. This company is generally the prime contractor. (C4)

Excavating Company Code (EXCCODE) = A code used only when a test pit is being established at a sampled or monitored location and is usually a different company from the drilling and establishing companies. For locations which have not been excavated, "NA" is entered. (C4)

Expected (EXPECTED) = The target result for a quality control sample or surrogate spike. An entry is required in this field for all samples having a SACODE other than "N." For normal environmental samples, a value is required for surrogates only. (See Tables in Section 1.1 and 1.2 of Appendix B.) (N14,4)

Extraction Date (EXTDATE) = The date a sample is extracted or prepared for analysis. (D)

Ex(traction) Method Code (EXMCODE) = A code indicating the method which was used to extract or prepare a sample for analysis. (See Appendix A, section 3.0.) Format is software specific, CDLT & IRPTools (C6), ERPTools (C7).

Extraction Time (EXTTIME) = The time of day, 24-hour clock, a sample was extracted or prepared. (C4)

Field Blank = See Ambient Blank.

Field Cooler ID (COOLER) = This field is used to identify the cooler that was used to transport a group of samples. This information can be used to determine if anomalous results can be attributed to contamination introduced during transportation. (C2)

Field Lot Control Number = See Lot Control Number.

Field Tests = Tests done in the field (e.g., pH, conductivity, specific gravity, etc.)

Filter Pack Length (FPL) = The length (in feet) from the bottom of the seal to the end of the filter pack, usually the end of the borehole. Filter pack length (FPL) = borehole depth (DEPTH) - seal end depth (SEDEPTH). (See Fig A-5.) (N5,2)

Formation (FORMATION) = This field captures the name assigned to the geological formation to which a given Stratigraphic Unit belongs. (C20)

Fluid Type Code = See Liquid Type Code

Geohydrologic Completion Zone (GZCCODE) = A code providing a general description of the water bearing zone where the well has been screened. (C1)

Geohydrologic Flow Classification Code (GFCCODE) = A code that classifies and describes the flow of water in relation to the location and site. There can be more than one GFCCODE assigned to a location, but the data must be entered as separate records. For example, a location may be downgradient of one site and upgradient of another site. This information is usually taken from groundwater elevation and flow direction maps. Please note that the valid values for GFCCODE differ between data submission tools, and may not be interchanged. For further details, see section 10 of Appendix B, Entering Site & Location (SLI/SLX) data. (C1)

Ground Surface Elevation = see Elevation

Groundwater Type = Indicates STATIC or DYNAMIC well measurement. (C7) This information is only reported in IRPTools and ERPTTools submissions.

Group Code = See Analyte Group Code

Group Name (GRPNAME) = The name of the geologic group to which a given Stratigraphic Unit belongs. See also: Bed Name, Member Name, and Formation Name (C20)

Head Direction = See Changing Head Direction

Hydrostratigraphic Unit (HS_UNIT) = This field holds the name for a Hydrostratigraphic Unit that is entered into the ERPIMS database. A Hydrostratigraphic Unit is defined as a body of rock or soil that contains related and characterized groundwater systems. In contrast, a Stratigraphic Unit is defined solely by the rock and/or soil that makes-up its composition. (C25)

Initial Depth (STATDEP) = The first measurement of a well's water depth under dynamic conditions (pumping or purging of a well). (N7,2)

Installation Date (INSDATE) = The date the well casing was installed. (D)

IRPIMS = An acronym for the Installation Restoration Program Information Management System. This name was superseded on October 1st, 1997. This program is now called ERPIMS. (See also: ERPIMS)

Lab Detection Limit (LABDL) = This field is reported in CDLT & IRPTools submissions. The LABDL field should be filled-in with the specified Reporting Limit (RL). In the case of AFCEE contracts, the entry for this field will be specified by the AFCEE Quality Assurance Project Plan (QAPP). When RLs are reported, the transmittal letter that accompanies the submission should be annotated to state this. If there is no RL specified, then the following definition for LABDL applies: The minimum detectable quantity of a parameter based on laboratory conditions, analytical method, or field conditions. This detection limit should be that which applies specifically to the result given in the same record, and should account for any dilution done on a sample beyond the normal dilution called for in the analytical method. Enter space characters (CDLT) or leave blank (IRPTools) for results such as pH and temperature that have no detection limit. See Reporting Limit and Method Detection Limit. (N14,4)

Lab QC Lot Number (LABLOTCTL) = A number identifying an autonomous batch or group of environmental samples analyzed together sharing the same quality control within the same time period. This grouping is equivalent to the EPA SW-846 concept of an "Analytical Batch." Field tests do not require an entry in this field. (Appendix B, sect. 2.2.) (C10)

Lab Samp(le) ID (LABSAMPID) = The identification number assigned to a sample by the laboratory doing the testing. When a field test was performed, CDLT users should enter space characters in this field but ERPTools/IRPTools users should leave the field blank. (C12)

Laboratory (LABCODE) = A code identifying the analytical laboratory which performed the analysis of a sample(s). When a field test was performed, enter "FLD." (C4)

Leachate Lot (LCHLOT) = This field is used in ERPTools to identify a group of analytical samples that were prepared (together in a single batch) for testing by leaching from an environmental sample. LCHLOT is also used to preserve the relationship between the analytical samples, the (original) environmental sample, and any quality control samples that are associated. (C10)

Leachate Method (LCHMETH) = This field is used to record the method, chosen from the Valid Values List, that was used for preparation (by leaching) of environmental samples. (C7)

Liquid Type Code (FTCODE) = This field is used to record the coded VVL value that corresponds to the nature of the liquid that was encountered in a well. Normally, this liquid will be groundwater. If another kind of liquid (free product for instance) is encountered, this field shall so note and this should be explained in the Remarks field of the Groundwater Level Table. (C1)

Lith(ology) Code (LITHCODE) = A LITHCODE is a coded value describing the lithologic composition of both consolidated and unconsolidated materials. The LITHCODE NAUM, that stood for Not Applicable Unconsolidated Material, has been removed from the ERPIMS Valid Value List, and will NOT be accepted in future submissions. (C4)

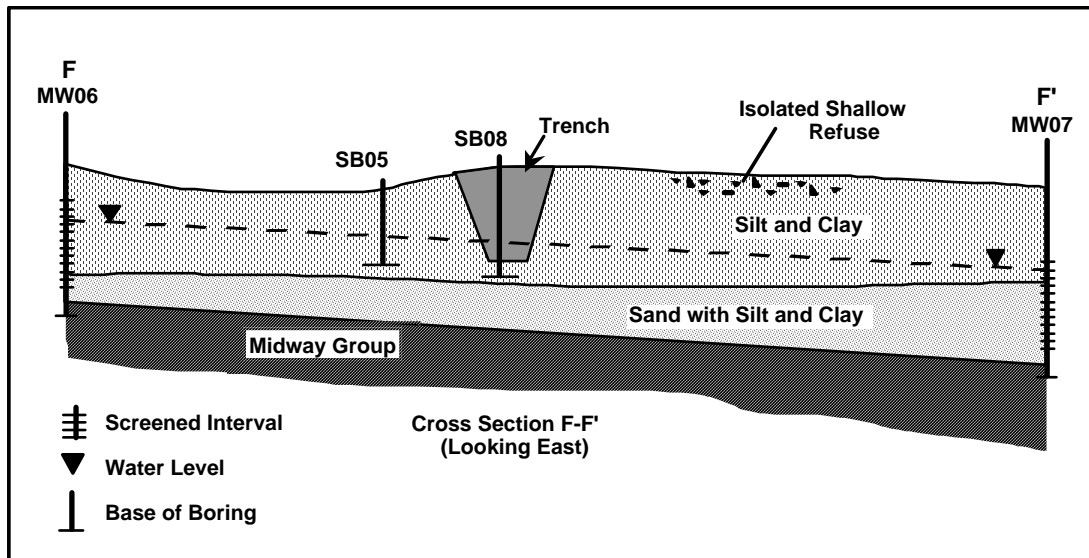


FIGURE A-3

Location Classification Code (LTCCODE) = A code describing the type of location which is undergoing sampling. Examples of LTCCODE are: BH...borehole, WL...well, CH...channel/ditch, etc. (C2)

Location Description (LOCDESC) = An area where text can be entered concerning any additional information describing a sampled location. This location description primarily gives information on the actual location of a well/borehole. (C240)

Location Identification (LOCID) = This is a unique identifier assigned to a specific point (location) where measurements or samples are taken. (See Figure A-4.) Once assigned, a Location Identification *must be consistent* from one environmental investigation to another. When a location is initially established as a borehole and later completed as a monitoring well, only one LDI record is required.

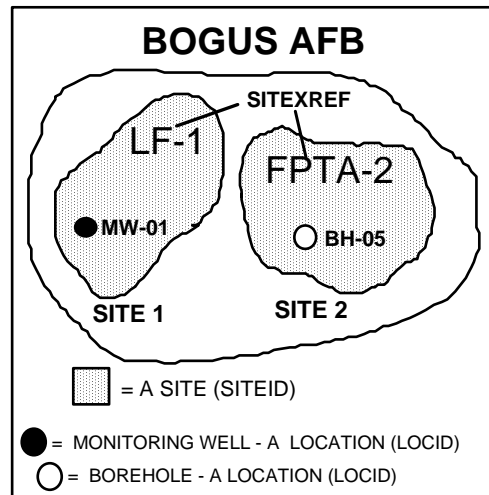


FIGURE A-4

Existing Location Identifications shall be obtained by contacting the ERPIMS Help Desk. The LOCID field for quality control samples is not used to reflect a geographic location, instead the field designates whether the QC sample is a field QC (FIELDQC) or a laboratory QC (LABQC). When entering LOCIDs, the format shall follow the following naming convention: the first two positions of the LOCID shall refer to a valid location type (LTCCODE). The third position may contain a hyphen (-). This is the only special character that is allowed in LOCID. The fourth and fifth position shall contain numbers. **Do not use spaces (e.g., enter MW01 or MW-01 not MW 01).** (see Figure A-4)

Background locations shall be submitted like any normal location. If the location is newly established, indicate that the location was selected for background sampling in the remarks field of the LDI file. If the location is not located within an official site, it is not necessary to enter a site identifier in the LDI file. (**Note:** you will receive a warning if this field is left blank.) The user shall include a statement in the transmittal letter to indicate that the field was left blank because the location served as a background check, and it is not associated with a site. Regardless, whether a sampling location is new or old, an entry shall be made in the BCHSLI file, with the GFCCODE "B," indicating that it is being utilized as a background location for the site to which it pertains. See also Appendix B, section 10. (C10)

Location Proximity Classification Code (LPRCODE) = A code indicating the proximity of a sampled location to the applicable installation's boundaries. There are only two codes for LPRCODE: I - inside installation's boundaries and O - outside installation's boundaries. **Do not enter 1 (one) or 0 (zero).** (C1)

Location Type Classification Code = see Location Classification Code

LOCID = see Location Identification

Log Code (LOGCODE) = A code identifying the company collecting the samples or performing field tests. (C4)

Log Date (LOGDATE) = This is the date the logging of a borehole or a pit is performed (lithologic description information), the date a test is performed (calculated hydrologic parameter information), the date a measurement is taken (groundwater level data) or the date a sample is collected, field test performed or a field quality control sample generated (environmental sampling information, sample/test/result information). (D)

Log Time (LOGTIME) = The time a measurement is taken (groundwater level data) or sample is collected, a field test performed, or a field quality control sample is generated (environmental sampling information). This information must be provided if more than one test is done on a single well on the same day. If this does not occur, enter four zeros (0000). Note that LOGTIMES must be consistent between Normal samples (N) and any associated QC samples (e.g., MS, FD, SD, LR). (C4)

Logging Company Code (LOGCODE) = A code identifying the logging company responsible for the logging or testing of a borehole or a pit (lithologic description information), the taking of a measurement (groundwater level data), the collection of samples or the performing of field tests (environmental sampling information). This company is usually the same as the establishing company (ESCCODE). (C4)

Lot Control Number (LOTCTLNUM) = A coded value that signifies a set of samples which link a group or batch of environmental samples and their corresponding field quality control samples. Sometimes referred to as Field Lot Control Number. Only used for CDLT and IRPTools submissions. (See Appendix B, section 2.) (C5)

Lot Control = see Lot Control Number

Matrix (MATRIX) = Coded value identifying the sample medium collected for analysis, e.g., soil, water, air, etc. For QC blanks and reference materials, use the codes WQ, SQ, and AQ as specified in the valid value list. Since QC replicates and matrix spikes are in effect the same as the original sample, use the actual matrix of the original sample (see sections 1.1 and 1.2 of Appendix B). (C2)

Measuring Point Elevation (MPELEV) = The elevation (in feet above mean sea level) of the measuring reference point used for measuring groundwater depth level measurements. Typically, this elevation is measured from the top of the notched well casing. (See Figures A-2, A-5.) (N7,2)

Media (Media) = A coded value, chosen from the Valid Values List, that indicates the type of material or sample medium that is being treated by a given Remediation Technology. (C1)

Member Name (MBRNAME) = This field captures the name of the geological member to which a given Stratigraphic Unit belongs. (C20)

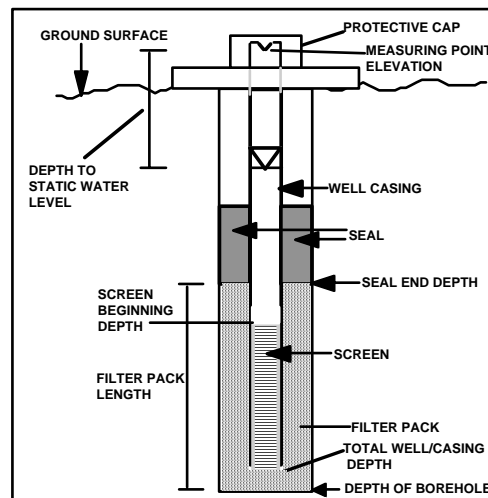


FIGURE A-5

Method Detection Limit (MDL) = This field is used to report the smallest quantity of a given analyte that can be detected from a prepared sample by using the indicated analytical method. MDLs are corrected for dilutions when performed. This information is used to fill the Laboratory Detection Limit (LABDL) in CDLT and IRPTools. When reporting dilutions, the detection limit must be multiplied by the dilution factor in order to reflect accurately the detection limit for the diluted sample. The MDL field should be left blank (in CDLT, enter "0") for surrogate compounds, for most analytes reported in the units "PERCENT" and for measurements where detection limits are not applicable, (e.g., temperature, pH, specific conductance and turbidity.) See also: Reporting Limit (RL) and Practical Quantitation Limit (PQL). (N14,4)

Observation Well Location (OBS_LOCATION) = This field is used to record the location (using the observation well's LOCID) of the place where an observation is made for an aquifer test or a tracer test. Observation well water levels for aquifer tests are captured in the Observation Well Water Level table (OWL). Tracer material concentrations at observation wells are captured in the Tracer Observation Well table (TOW). **NOTE: The LOCID field in OWL and TOW tables must be filled with the location where the slug/tracer was injected. The OBS_LOCATION field in these tables specifies where the water level or tracer concentration were measured.**

Operable Unit Code (OUCODE) = A two character code that is used to uniquely identify a specific Operable Unit. (C2)

Parameter (PARAMETER) = This field is used in the Remediation Technology Performance (RTP) and Remediation System Performance (RSP) tables to identify what aspect of system/technology performance is being monitored. (C5)

Parameter Label (PARLABEL) = A code identifying an individual parameter, compound or analyte analyzed. (C12)

Parameter Value (PARVAL) = This field represents the actual analytical value for a compound/analyte generated after a

sample has been analyzed or a test performed. (N14,4)

Parameter Value Qualifier (PARVQ) = A code qualifying the analytical results (PARVAL). These codes are not the same as EPA or CLP qualifiers and are not designed to code for QC criteria failure. The qualifiers used must be ERPIMS qualifiers. Contact the ERPIMS Help Desk if clarification is needed. See Appendix B, section 4.0 for more details. (C2)

Parameter Value Uncertainty (PARUN) = The value which measures the uncertainty of the analytical test (expressed as + or - some value). It is established through the analysis of laboratory quality control samples associated with the normal environmental samples. (N12,4)

Percent Open Area (PCTOPEN) = The percent of the screened interval which is open. (N3,1)

Practical Quantitation Limit (PQL) = PQL is defined as the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine operation. PQL data is neither collected by CDLT, IRPTOOLS, nor ERPTools. ERPTools 2.* captures the Reporting Limit (RL) which serves a purpose similar to that of PQL. Any PQL reported must be adjusted for dilutions. See also Reporting Limit (RL) and Method Detection Limit (MDL).

Precision = the number of digits to the right of the decimal point. Precision only applies to the PARVAL, PARUN, EXPECTED and LABDL fields. (N1)

Prod(uction) Rate (PRODRATE) = The pumping/purging rate (in gallons/minute) at which a well is evacuated during groundwater level measurements. Used for the dynamic measurements taken during a pumping or purging of a well. (N6,1)

Pump Depth (PUMPDEP) = The lowest groundwater level depth measurement (in feet) during the pumping or purging of a well. The measurement is taken from the well's reference point (MPELEV). A dynamic measurement. (N7,2)

PVC Code (PVCCODE) = This code allows the coding of Gas Chromatography or Gas Chromatography/Mass Spectroscopy results indicating whether the result reported was obtained from a primary or a confirmatory analysis. Use the code "PR" for all tests except gas chromatographic tests. Used in CDLT only. (C2)

QAPP Flags (QAPPFLAGS) = Flag values are set in accordance with the AFCEE Quality Assurance Project Plan (QAPP). These are qualifiers assigned to analytical result data during validation and review. (C2)

QC Type = see Sample Type

Radial Well Distance (WELLDIST) = The distance, expressed in feet, between the observation well and the injection/test well. **Note:** This field will be added to the TOW and OWL tables in future revisions of ERPTools.

Recovery Depth (DEPWAT) = The measurement of water depth (in feet) after recovery from purging. This measurement is made from the reference point which is the elevation from the top of the casing where it is notched (MPELEV). (N7,2)

Rec(overy) Time (RECTIME) = The elapsed time (in minutes) for a well's water level to stabilize or recover to a certain level after purging. This is a dynamic measurement. (N4)

Remediation System = A series of Remediation Technologies that work in concert that can be composed of a single or multiple remediation technologies. Table entries may also consist of groups of subsystems of remediation technologies. A Remediation System is made-up of one or more Remediation Technologies (or Remediation Units) that are used together to treat a particular area of contamination. Remediation Systems are sometimes referred to as Remediation Trains.

Remediation System ID (RSID) = A user defined name that is used to refer to a Remediation System that is maintained as part of the record for that Remediation System.

Remediation System Stage (RSSTAGE) = Coded value for the type of remediation system that is being used. *e.g.*, treatability studies, field demonstrations, pilot studies, *etc.*

Remediation Technology = Description of a discrete remediation activity. This is the information with regard to a particular piece of equipment that is used in the remedial action. The term Remediation Technology can also refer to a group of components that acts as a single unit cleanup apparatus. Thus, a Remediation Technology is sometimes referred to as a Remediation Unit.

Remediation Technology Class (RTCLASS)= A code that represents a particular classification of Remediation Technologies. (e.g., *in-situ*, *ex-situ*, or mixed)

Remediation Technology ID (RTID) = A user defined name that is used to refer to a Remediation Technology that is maintained as part of the record for that Remediation Technology.

Remediation Technology Type (RTTYPE) = A coded value that represents a particular type of Remediation Technology. (e.g., *in-situ* vitrification, bio-reactor, slurry wall, etc.)

Remediation Train = See Remediation System

Remediation Unit = See Remediation Technology

Reporting Limit (RL) = This field captures the reporting limit specified for the project. In the case of AFCEE contracts, this limit will either be specified in the AFCEE Quality Assurance Project Plan (QAPP) or will be an AFCEE approved project-specific reporting limit. RL is required for all ERPTools data submissions. For CDLT & IRPTools submissions, the RL should be reported in the LABDL field whenever it is available. Reported RLs must be adjusted for dilutions. The submission transmittal letter should indicate when RL information is entered into the LABDL field. See also: Method Detection Limit (MDL) and Practical Quantitation Limit (PQL). (N14,4)

Result = see Parameter Value

Run Number (RUN_NUMBER) = This field permits the numerical coding (in IRPTools) of multiple or repeat analyses of a sample by the same analytical method. For example, a sample extract is diluted and re-analyzed for analytes that exceeded calibration during the first run. Data from the first run are captured as RUN_NUMBER = 1 and from the second as RUN_NUMBER = 2. (N2)

Sample Begin(ning) Depth (SBD) = The upper depth (in feet) from the ground surface or water surface at which a sample is collected. (N7,2)

Sample End(ing) Depth (SED) = The lower depth (in feet) from the ground surface or water surface at which a sample is collected. (N7,2)

Samp(le) Matrix = See Matrix

Samp(ing) Meth(od) Code (SMCODE) = A code identifying the method of sampling used to collect a sample. For QC blanks or other samples where sampling method is not applicable, enter "NA." (C2)

Sample QC Type = see Sample Type

Sample Type (SACODE) = A code identifying the type of sample which was collected/analyzed. The first one or two alphanumeric characters define the type of sample, the next character is for sequential numbering (normally 1-9) for any samples of the same type collected or prepared on the same day or during the same sampling event. (These vary by data loading tool. For more details, see section 1 of Appendix B and the chapter covering the tool you use) (C3)

Sampling Program (SAPROG) = A valid value code that represents the program under which the sampling was performed. Examples include: periodic monitoring, remedial investigation/feasibility study, remedial activity, etc. (C3)

Saturated Aquifer Thickness (AQTHICK) = This field captures the assumed thickness (distance from top surface to bottom) of an aquifer for use in hydrologic parameters. (N7,2)

Screen Beginning Depth (SBDEPTH) = This is the depth (in feet below ground surface) to the top of the screen. The Screen Beginning Depth must be larger than the Seal Ending Depth. (See Figure A-5.) (N6,2)

Screen Diameter (SCRDIA) = The inside diameter (in inches) of a casing's screened interval section. It is usually the same measurement as a casing's diameter, but can be different. (See Figure A-1.) (N5,2)

Screen Length (SCRLENGTH) = The length (in feet) of the screen. Screen length (SCRLENGTH) = total casing depth (TOTDEPTH) - screen beginning depth (SBDepth). (See Figure A-5.) (N5,2)

Screen Percent Open Area = see Percent Open Area

Screen Slot Size (SOUA) = The vertical measurement (in inches) of the screen slot openings. This information is provided by the manufacturer of the screen. (N5,2)

Seal Ending Depth (SEDEPTH) = The depth (in feet) from the ground surface to the bottom of the seal. In most cases, the seal will be bentonite. (See Figure A-5.) (N6,2)

Site Cross Reference (SITEXREF) = An abbreviated name of a site. For example, the SITEXREF for Landfill 1 would be LF-1 and the site cross reference for the Fire Protection Training Area 1 would be FPTA-1. (See Figure A-4.) (C10)

Site Identification (SITEID) = A unique number assigned by the ERPIMS data manager at AFCEE used to represent a site within an installation which is under an environmental investigation. New and existing site identifiers are obtained by contacting the ERPIMS Help Desk. Site identifiers must be assigned by AFCEE prior to being used for data entry. These site identification numbers are not WIMS-ES/AFRIMS site numbers. WIMS-ES/AFRIMS numbers must be obtained from HQ USAF/CEVR. Locations are not required to be associated with a site (e.g., background samples taken outside a site boundary). (See Figure A-4.) (C3)

Site Name (SITENAME) = The name of a site under an Environmental investigation, such as "Landfill 1", "Fire Protection Training Area 1" and "Hazardous Waste Disposal Area 3." (C35)

Site Proximity Code (SPCODE) = A coded value that gives placement information for the site. See section 10 of Appendix B for valid values and further clarification. (C1)

Slug Volume (SLUGVOL) = This field captures the volume of the slug that is used to displace groundwater in a test well during an aquifer or slug test. This can alternatively be used to capture the volume of water that is added to a test well to run a similar test. (N6,2)

Sole Source Aquifer Code (SAQCODE) = A code identifying the sole source aquifer where the well was completed. If a well was not completed in an area containing a sole source aquifer, then enter "NSSA." Sole source aquifers are those recognized and named by the USGS. (C4)

Sounding (SOUNDING) = The total depth (in feet) to the bottom of a well (not the bottom of the borehole) at the time the sounding test is performed. The reference point for measurement is the elevation where the top of the well's casing is notched (MPELEV). (See Figure A-2.) (N7,2)

Static Depth (STATDEP) = The depth (not elevation) of water when measured from the measuring point (MPELEV) during stable or calm conditions. In some cases the water level elevation (ELEV) must be subtracted from the measuring point elevation (MPELEV) in order to obtain the static depth. (See Figure A-2.) (N7,2)

Static measurements = Measurements of a well's groundwater at stable or calm conditions.

Stratigraphic Order (STRATORDER) = The field STRATORDER is used to assign a unique numerical identifier to each unique geologic unit in the subsurface. There are numerous subsurface structural conditions such as folding or faulting that can result in formations being encountered more than once within a borehole. If a unit does repeat during drilling, it should be given the same STRATORDER number each time it is encountered. The geologist working on the project should be able to assign preliminary geologic stratigraphic ordering for subsurface units prior to drilling. This information is generally available from the state geological surveys, and(or) other government and academic reports. The drilling program should confirm the geologic reasoning used to develop the numbered sequence. The STRATORDER provided with each sample description, should reflect the current knowledge of the subsurface at the site. Refer to Figure A-3. (N3)

Stratigraphic Unit (ST_UNIT) = One of the defined units in an installation's master stratigraphic column. Designation of a unit is totally independent from the designation of geologic groups, formations, members, or beds. (C20)

Submission Date (SUBDATE) = The date data is submitted to AFCEE by the contractor. If more than one submission for the same base is being submitted concurrently, ensure the submission dates are different. (D)

Surface Elevation (ELEV) = The elevation of ground surface or water surface at a sampled location. The data is recorded in feet above mean sea level and is commonly referred to as land surface elevation. For well locations in which

the groundwater was sampled, use the elevation of the land surface at which the monitoring well is located. (See Figure A-2.) (N7,2)

Surrogate = An organic compound that is similar to the target analyte(s) in chemical composition and behavior in the analytical process but that is not normally found in environmental samples.

Supporting Data (SUPPDATA) = A valid value code that indicates the availability of data that supports the calculation of the hydrologic parameter. Whenever such data is available, this field must be completed to so indicate. (C3)

TBLOT = See Trip Blank Field Lot

Time = see Extraction Time or Analysis Time

Total Casing Depth (TOTDEPTH) = The total depth (in feet) from the ground surface to the bottom of the well casing or well foot. This measurement includes the screen, the blank casing and the well foot. (See Figures A-2, A-5.) (N6,2)

Total Well Depth = see Total Casing Depth

Tracer Concentration (TRC_CONC) = This is the concentration of the tracer material that was injected into the test well. This combined with the Tracer Volume will be used in association with tracer concentrations detected at tracer observation wells to study the hydrology of the area. (N7,2)

Tracer Type (TRCTYPE) = A valid value code that represents the kind of tracer material that was injected into the test well. This will also be the material tested for in the samples taken from the tracer observation wells. (C5)

Tracer Volume (TRCVOL) = This is the volume of tracer material that was injected into the test well. (N7,2)

Trip Blank = ASTM Type II Reagent Grade Water is used to fill trip blank vials at the laboratory. These vials are sent to the sampling location and are returned to the laboratory along with other environmental samples, especially samples that contain Volatile Organic Compounds (VOCs). Upon return to the laboratory, the trip blanks are analyzed for VOCs. Ordinarily, there will be one trip blank per cooler used to transport volatile samples. The purpose of trip blanks is to determine sample contamination occurring during transportation or resulting from improper handling procedures.

Trip Blank Field Lot (TBLOT) = This field is used in ERPTools to relate a lot of normal samples (collected in the field) to the related trip blank(s). There will only be an entry for normal samples that are associated to a trip blank. This field will be left blank in the sample record for the equipment blanks themselves. Entries in this field will be formatted as date and SAMPNO (DDMMYYNN) See section 2 of Appendix B for further details. (C8)

Upgradient = A location is upgradient of a site if groundwater from the location will flow to the site. (See Figure B-6.)

Units (UNITS) = The units of measure used to report a result (e.g., mg/kg for soil or ug/l for water). The codes can be found in the UTMCODE valid value list. Enter "NONE" for methods that don't require a unit of measure (e.g., pH). See Appendix B, section 5.0 for more details. (C10)

Units of Measure = see Units

VAL_CONFIRM = This field allows for an entry identifying whether or not a second column confirmation was performed. If, for example, a sample is analyzed by GC and target compounds are discovered at limits above the required detection limits, most laboratories will confirm these results by re-analyzing the sample on a different GC column or, by analyzing it by GC/MS. Using either one of these confirming methods will prove that the high results discovered by the first column are valid and therefore are reportable results. Consult the description of the BCHRES/RES/RESULTS table of the tool used for more details. (N14,4)

VAL_1C = The result from the primary or initial GC or GC/MS analysis. Consult the description of the results (BCHRES/RES/RESULTS) table of the tool being used for more details. (N14,4)

Visual Description (VISDESC) = This field allows for a text description of the material comprising a lithologic layer and to augment or qualify any lithologic codes. The description should include soil grain sizes, soil color, secondary characteristics, the name of the geologic formation and any other pertinent lithologic information. (C240)

VQ (PARVQ) = see Parameter Value Qualifier

Water Depth = see Recovery Depth

Water Table Depth (WTDEPTH) = The estimated depth of the water table that is provided for the calculation of certain hydrologic parameters. This value represents the top of a confined aquifer. (N7,2)

Well Completion Method Code (WCMCODE) = A code indicating how a well was constructed and what type of materials were used to allow water to flow through the well. (C2)

Well Distance = See Radial Well Distance

Well Owner Code (WELCODE) = A code identifying the owner of a well which is being monitored or tested. (C4)

Well Type Classification Code (WTCCODE) = A code identifying the type of well that is monitored or sampled. Examples of this code are: MNW - monitoring well, OBS - observation well and PRW - production well. (C3)

WIMS-ES Official Site Identification (WIMS_ID) = The identifier for the site in the Work Information Management System - Environmental Subsystem. This identifier is assigned by HQ USAF/CEVR. (N5)

Zone Identifier (ZONEID) = This field captures the name used to uniquely identify a user defined zone. Zones are defined and used as desired by the installation, however, it is advised that they not be named in a manner that could cause them to be confused with existing sites, locations, or operable units. (C10)

1C = see VAL_1C

2C = see VAL_CONFIRM

***** All coded fields can be located in the ERPIMS Valid Value List.**

APPENDIX B

DATA ENTRY & GUIDANCE

1.0 SAMPLE TYPE CODE ASSIGNMENT

During an environmental process, many different sample types are established. Within ERPIMS, these sample types are identified by the Sample Type Code (SACODE). A sample will be either a normal environmental sample or a type of quality control sample. When assigning the SACODE, the *purpose* of the sample should guide the choice of code.

For ERPTools versions 2.*, SACODE entries follow a generic form of alphanumerics where the two characters define the type of sample. If normal samples of the same type (*e.g.*, N, FD, *etc.*) are taken from a given location on the same day (with the same log date, sample type, matrix, beginning depth and ending depth) and its purpose is not that of quality control, these samples would be differentiated from each other by entering different LOGTIMES.

For IRPTools and CDLT, all SACODE entries follow a generic form of alphanumerics where, in most cases, the first two characters define the type of sample and the third character is for sequential numbering. Locations investigated as part of environmental studies will typically yield only one normal environmental sample per day. The first normal environmental sample taken at any location is assigned the SACODE of "N1." When normal samples of the same type (*e.g.*, N, FD, *etc.*) are collected from any location on the same day, they usually serve some field quality control function. If a second normal sample is taken from the same location (with the same log date, sample type, matrix, beginning depth and ending depth) and its purpose is not quality control, this sample would be assigned the SACODE of "N2." If a second sample is taken for duplicate analysis for quality control purposes, the assigned SACODE would be "FD1."

CDLT does not allow an entry for RUN_NUMBER. If using CDLT, when entering sampling information for a given location from chain of custody forms, SACODEs would be incremented when all the key fields in BCHTEST are identical to the previous test entries.

In CDLT, when a *normal* sample is used for laboratory quality control purposes, such as lab replicates, matrix spikes and matrix spike duplicates, a record in the BCHSAMP file is required. The sample entry would be identical to its parent sample with the exception of SACODE. In CDLT, for laboratory quality samples with the LOCID = LABQC, no record in the BCHSAMP file is required.

The following pages list the sample type, the SACODE and the definition of the sample type.

1.1 Field Sample Types

Ambient Conditions Blank (AB) An ambient conditions blank, also referred to as a field blank, is ASTM Type II Reagent Grade Water poured at ambient (current) conditions into a sample container at a sampling site. The purpose of this blank is to detect sample contamination introduced during, or as a result of, field sampling activities.

Equipment Blank (EB) An equipment blank, also referred to as an equipment rinsate, is ASTM Type II Reagent Grade Water which is transported to the sampling site, opened and poured over or through the sample collection device, collected in a sample container and sent to the laboratory. The purpose of equipment blanks or rinsates is to measure the cleanliness of the sampling device. There can be more than one equipment blank taken for one site, especially if two different types of equipment are used, such as a bailer and a pump.

Field Duplicate (FD) A field duplicate is a second sample collected as close as possible to the same point in space and time as the sample. There are two separate samples taken from the same source, stored in separate containers and analyzed independently. Field duplicates are useful in documenting the precision of the sampling process and the sample's homogeneity.

Field Replicate (FR) A field replicate, also known as field split, is one sample that is divided and sent to the same or separate laboratories for analysis. Field replicates are used to document the precision of field sampling events and sample homogeneity.

Field Spike (FS) A field spike, or a field matrix spike, is a sample prepared in the field by adding a known amount of analyte(s) to selected samples. They are used to check the effect of field sampling events upon analyte recovery and instrument accuracy. Field spikes are not normally performed due to the possible sources of error which can occur during their preparation.

Material Blank (MB) Occasionally, samples will be collected on various materials used at or located at a

sampling location. This sample is called a material blank. It provides a quality control check on site materials such as cement, bentonite and sand or gravel filter packs.

Material Blank Rinse (RB) Whereas a material blank is an actual sample of a material used or located at a site, a material blank rinse is a rinsate sample collected after the rinsing of a particular site material such as cement, bentonite and sand or gravel filter packs. Like a material blank, it provides a check on the type of material being used at a site.

Normal Environmental (N) This is an environmental sample which is a representative sample of any matrix (water, soil, hazardous waste, etc.) collected at a location to make a determination of the location's composition of contamination.

Regulatory Duplicate (RD) Regulatory duplicates, also referred to as referee duplicates or splits, are samples that have been divided into two portions. One of the portions is sent to the referee Quality Assurance (QA) laboratory, if specified by the regulators (state or region), or if a special problem occurs in sample analyses or collection. These duplicates/splits are collected and analyzed in addition to the field duplicates. Regulatory duplicates are used to check precision and accuracy of the analyses being performed.

Trip Blank (TB) Trip blanks are used to detect contamination by volatile organic compounds (VOCs) during sample shipping and handling. Trip blanks are 40 ml VOA vials filled at the laboratory with ASTM Type II Water, transported to the sampling site and returned to the laboratory with volatile samples. These blanks remain unopened until reaching the laboratory where they are only analyzed for volatile organic compounds. One trip blank accompanies each cooler containing volatile samples. A trip blank is used to document contamination traceable to shipping and field handling procedures. This type of blank is useful in documenting contamination of volatile organic samples for both soil and water samples.

Values Used for Entry of Field Quality Control Samples						
Sample Type	LOCID	SBD & SED	MATRIX	SACODE		EXPECTED
				(a)	(b)	
Ambient blank	FIELDQC	0,0	xQ	AB	Abn	0.0000
Equipment blank	FIELDQC	0,0	xQ	EB	Ebn	0.0000
Field duplicate	[PARENT]	[PARENT]	[PARENT]	FD	FDn	amount in parent sample
Field replicate	[PARENT]	[PARENT]	[PARENT]	FR	FRn	amount in parent sample
Field spike	[PARENT]	[PARENT]	[PARENT]	FS	FSn	amount added + amount in parent sample
Material blank	(c)	0,0	(d)	MB	MBn	0.0000
Material blank rinse	(c)	0,0	(e)	RB	RBn	0.0000
Trip blank	FIELDQC	0,0	xQ	TB	TBn	0.0000

(a) This column under SACODE applies to data for ERPTools versions 2.*.

(b) This column under SACODE applies to data for IRPTools and CDLT.

(c) For ERPTools 2.*, this entry should be the LOCID where the activity occurred or FIELDQC for the other tools.

(d) For ERPTools 2.*, this entry should be the matrix of the material tested or "WH" for the other tools.

(e) For ERPTools 2.*, this entry should be the matrix of the material tested or "xQ" for the other tools.

x = use W for aqueous, S for solid, A for air, G for gaseous or T for tissue quality control samples. Identify the actual matrix of the quality control sample, NOT the matrix of the associated environmental sample.

n = sequential number, normally from 1 to 9, to accommodate multiple blanks, etc., in a single day.

PARENT = The same information as the parent sample.

1.2 Laboratory Sample Types

Blank Spike (BS) Blank spikes are used to demonstrate the laboratory process for sample preparation and analysis is in control. Another name for the blank spike is the Laboratory Control Sample (LCS). Both the blank spike and the LCS consist of analyte free matrix that has been spiked with known amounts of specific analytes and are carried through the complete sample preparation and analysis procedure.

Blank Spike Duplicate (BD) The blank spike duplicate is a duplicate sample of the blank spike. This duplicate is taken from the same spiked analyte mix from which the blank spike was made. The blank spike duplicate and the blank spike are designed to check the precision and accuracy of a laboratory's analytical procedures by reporting the percent recovery of a known concentration of an analyte or analytes of interest in the pair of blank spikes.

Lab Blank (LB) A lab blank is a water sample of ASTM Type II Water which is designed to detect contamination of the environmental samples introduced by the laboratory. Contamination can occur from laboratory airborne contaminants, instrumentation (GC, GC/MS, *etc.*) not being clean before sample analysis, improper handling of the sample in the laboratory or other factors. Method blanks and extraction blanks are classified as lab blanks.. A method blank is used to determine the existence and magnitude of possible contamination encountered during the preparation and analysis of a sample. The lab blank must be carried through the complete sample preparation and analytical procedure. For example, when samples are prepared for pesticide extraction, a lab blank is also prepared for pesticide extraction and the samples and the lab blank are extracted together as a batch.

Lab Matrix Spike (MS) A matrix spike is an aliquot (portion) of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to the sample's preparation and analysis. This spike is used to document the bias introduced due to matrix effects.

Lab Matrix Spike Dupe (SD) Matrix spike duplicates are intralaboratory split samples spiked with identical concentrations of target analyte(s). Along with the matrix spike, the matrix spike duplicate is used to document the precision and bias of an analytical method in a given sample matrix.

Lab Replicate (LR) A lab replicate is a sample split in the laboratory and analyzed twice. These samples are designed to check the precision of the analytical results.

Reference Material (RM) This laboratory quality control is usually a water sample of ASTM Type II Water which contains known quantities of target analytes. It is commonly referenced as an instrument's (GC, GC/MS, *etc.*) check standard and is analyzed before, during and after sample analysis. This reference material, or check standard, is performed in order to ensure that the instrument's calibration is maintained throughout sample analysis. It also is used to re-calibrate an instrument, if necessary, and document the bias of the analytical process being performed.

Reference Mat'l Dupe (KD) This laboratory quality control is a second analysis of the first successful analysis of the reference material, or check standard. Its purpose is to confirm the results of the first reference material, instrument calibration and analytical method bias.

Values Used for Entry of Laboratory Quality Control Samples						
Sample Type	LOCID	MATRIX	SACODE		SBD & SED	EXPECTED
			(a)	(b)		
Lab blank	LABQC	xQ	LB	LBn	0,0	0.0000
Lab replicate	[PARENT]	[PARENT]	LR	LRn	[PARENT]	amount in parent sample
Blank spike	LABQC	xQ	BS	BSn	0,0	amount added
Blank spike duplicate	LABQC	xQ	BD	BDn	0,0	amount added
Lab matrix spike	[PARENT]	[PARENT]	MS	MSn	[PARENT]	amount added + amount in parent sample
Lab matrix spike duplicate	[PARENT]	[PARENT]	SD	SDn	[PARENT]	amount added + amount in parent sample
Reference material	LABQC	xQ	RM	RMn	0,0	amount present in reference material
Reference material duplicate	LABQC	xQ	KD	KDn	0,0	amount present in reference material

(a) This column under SACODE applies to data for ERPTools versions 2.*.

(b) This column under SACODE applies to data for IRPTools and CDLT.

x = use W for aqueous, S for solid, A for air, G for gaseous or T for tissue quality control samples. Identify the actual matrix of the quality control sample, NOT the matrix of the associated environmental sample.

n= sequential number, normally from 1 to 9, to accommodate multiple blanks, *etc.*, in a single day.

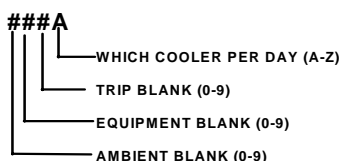
PARENT = The same information as the parent sample.

2.0 LOT CONTROL NUMBERS

2.1 FIELD LOT CONTROL NUMBERS

2.1.1 Field Lot Control Numbers for IRPTools versions 1.* and CDLT

Field lot control numbers are used to associate samples sharing common field quality control (QC) samples. Field lot control numbers consist of four characters. The first three characters are used to identify associated field quality control samples. The first character indicates whether there is an ambient conditions blank associated with the sample. The second character indicates whether there is an associated equipment blank and the third character indicates whether there is an associated trip blank. The fourth character is used to identify the cooler in which the samples were packed for shipment. If a specific type of blank was not collected, a zero (0) is placed in that position. To assign the cooler designation if more than one cooler is involved and the field quality control samples must be associated with only one cooler, use the cooler designation containing the samples to be analyzed for volatile organic compounds.

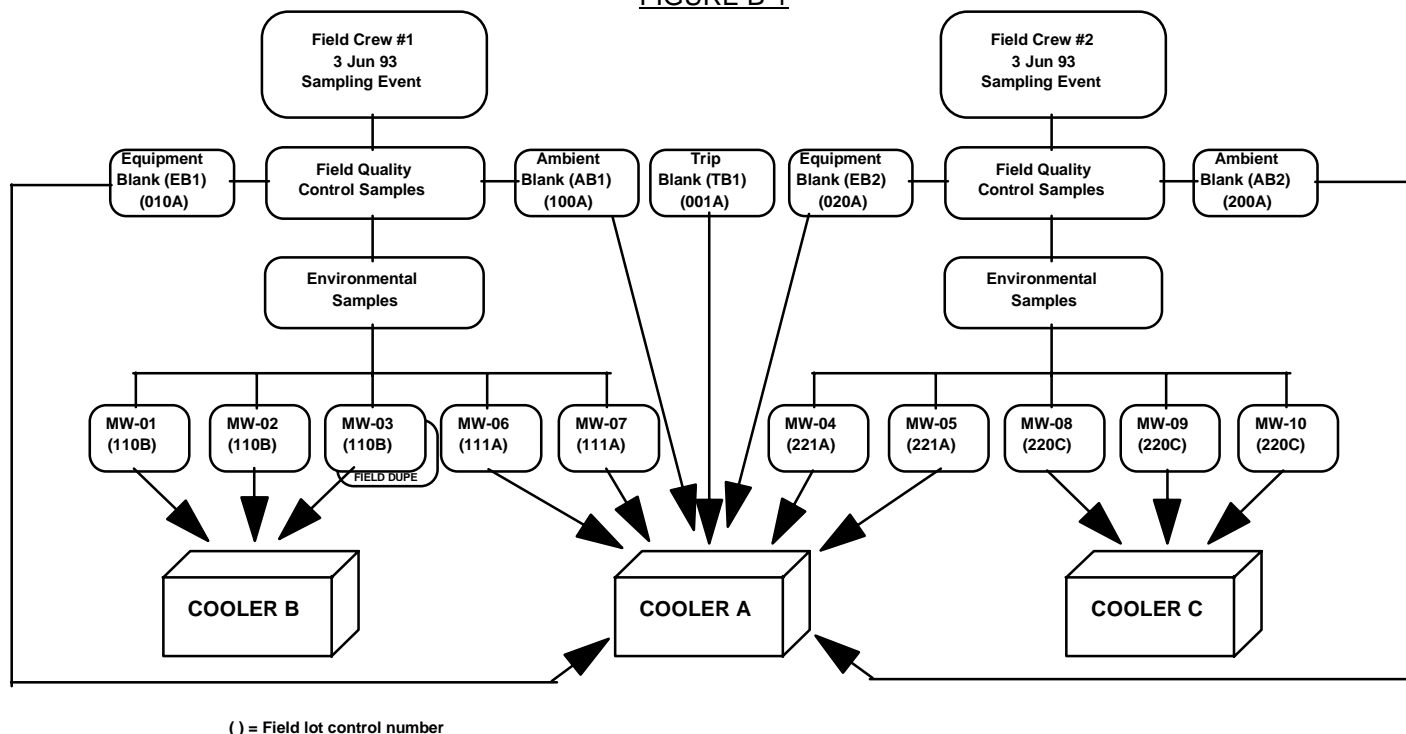


The LOTCTLNUM (field lot control number) and LOGDATE (sampling date) comprise the link between environmental samples and their associated field quality control samples. The numbering process starts over for each day of sampling. A sample will have only one field lot control number regardless of the number of samples collected. If three days of samples are shipped together, the samples for each day must have their own unique field lot control numbers.

EXAMPLE

Two crews conducted sampling on the same day. Crew #1 collected normal environmental samples from monitoring wells # 01, 02, 03, 06 and 07 and a field duplicate from monitoring well #03. They also collected an equipment blank and an ambient blank. Crew #2 collected normal environmental samples from monitoring wells # 04, 05, 08, 09 and 10. They also collected an equipment blank and an ambient blank. The samples (and field duplicate) from wells 1, 2 and 3 were shipped in cooler B. The samples from wells 4, 5, 6 and 7 and the equipment blanks, ambient blanks and the trip blank were shipped in cooler A. The samples from wells 8, 9 and 10 were shipped in cooler C. The following figure shows the field lot control numbers associated with each sample collected.

FIGURE B-1



In the case where one sample is taken and distributed to several vials for various analytical methods and placed in different coolers, only one sample entry will occur in the SAMPLES table. The field lot control number for this entry should include the numerical designator of the associated AB, EB, and TB samples. If samples were collected for volatiles, specify the cooler (alpha character) containing the volatiles and the TB.

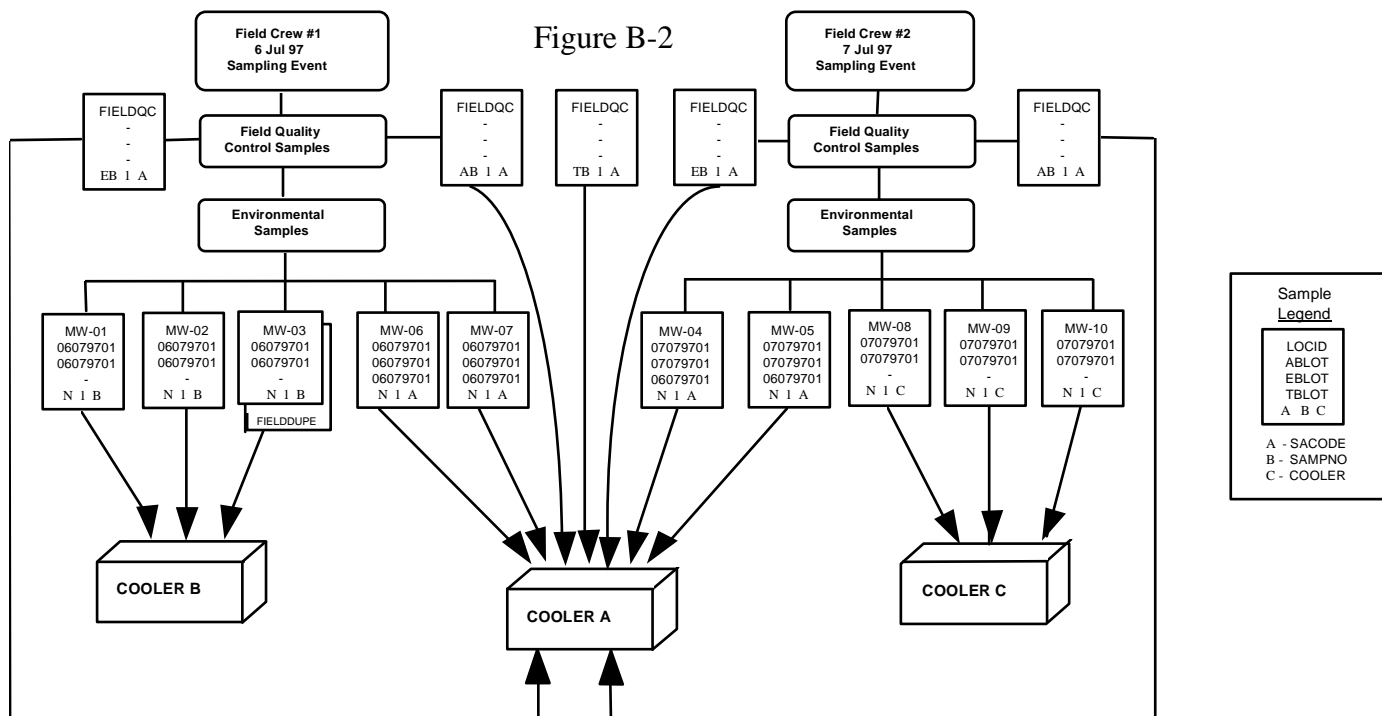
In the case where samples are collected over several days and are shipped in the same cooler, LOGDATE is a vital factor in the field lot control number concept. In order to correctly achieve this purpose, the LOGDATE is required to be the same for a designated group of samples which share the same quality control samples. The LOGDATE should be taken from the normal environmental samples associated with blanks generated in the field.

2.1.2 Field Lot Control Numbers for ERPTools versions 2.*

Field lot control numbers are used to associate samples sharing common field quality control (QC) samples. The format and functionality of the field lot control numbering system has been changed to allow the assignment of blanks to normal samples collected over multiple days. Field lot control numbers now consist of four fields: ABLOT, EBLOT, TBLOT and COOLER. The ABLOT, EBLOT and TBLOT fields are formatted as N8, DDDMMYYNN. The field COOLER is formatted as C2 to indicate the alphanumeric assignment of a specific cooler id to the ice chest in which the normal samples and field blanks were placed.

As in previous DLH versions, enter into the LOGDATE field the date that a blank is placed in a cooler with its associated normal samples. Leave the ABLOT, EBLOT, and TBLOT fields null for all blank samples. For all normal samples, enter the numeric date (DDMMYY) of an associated blank's LOGDATE in the appropriate lot field (ABLOT, EBLOT or TBLOT), combined with the SAMPNO of the associated blank. Enter into field COOLER, the alpha-numeric id of the cooler containing a trip blank and its related samples. For normal samples not associated with a blank, leave the corresponding field blank. Thus, if there is no Trip Blank associated with a normal sample, the TBLOT field will be left blank. The same reasoning applies to normal samples not related to Ambient or Equipment blanks.

EXAMPLE #1 - Two crews conducted sampling on consecutive days. Crew #1 collected normal environmental samples from monitoring wells # 01, 02, 03, 06 and 07 and a field duplicate from monitoring well #03. They also collected an equipment blank an ambient blank and a trip blank. The next day, crew #2 collected normal environmental samples from monitoring wells # 04, 05, 08, 09 and 10. They also collected an equipment blank and an ambient blank. The samples (and field duplicate) from wells 1, 2 and 3 were shipped in cooler B. The samples from wells 4, 5, 6 and 7 and the equipment blanks, ambient blanks and the trip blank were shipped in cooler A. The samples from wells 8, 9 and 10 were shipped in cooler C. The following chart and figure show the field lot control numbers associated with each sample taken. In this example the two ambient blanks and the two equipment blanks are differentiated from each other by their LOGDATEs. The association to the normal samples are covered by the first six digits of the ABLOT and EBLOT entries.

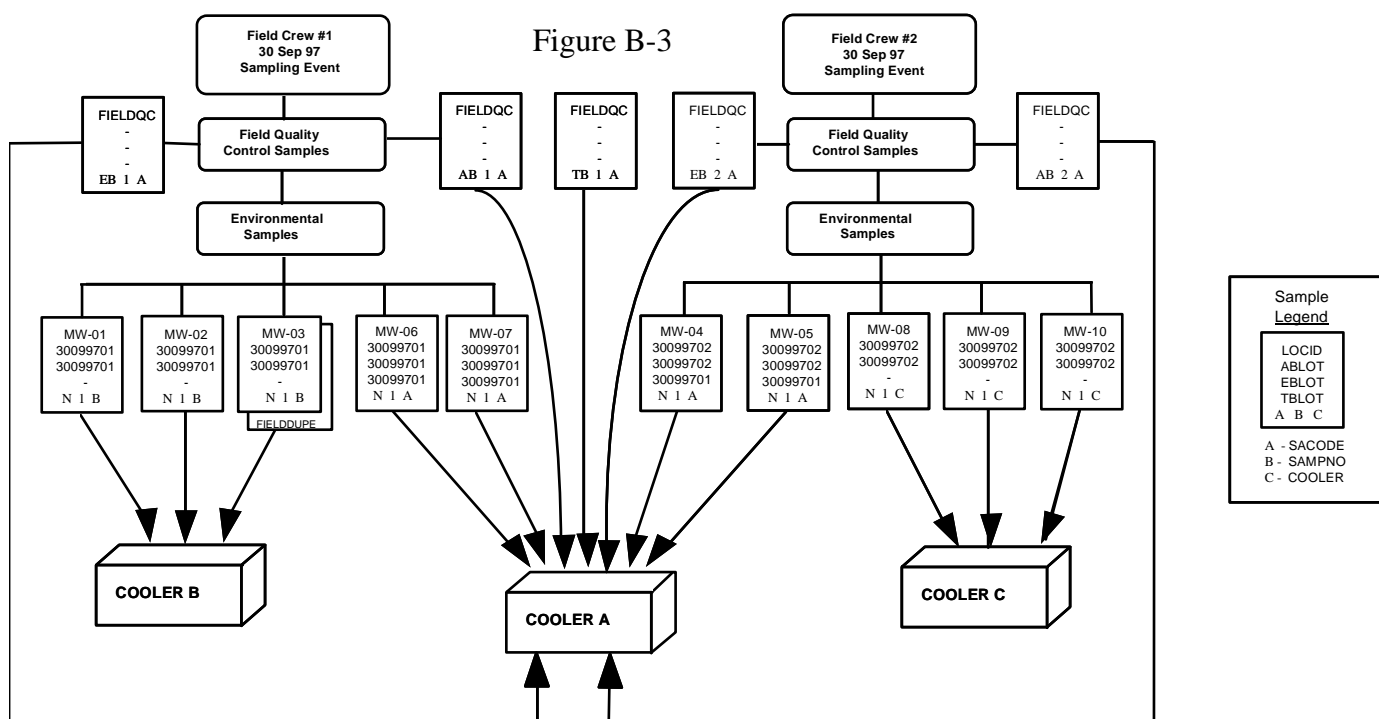


Data Table for Example #1

CREW 1 06Jul97								CREW 2 07Jul97							
LOCID	LOGDATE	A	B	ABLOT	EBLOT	TBLOT	COOLER	LOCID	LOGDATE	A	B	ABLOT	EBLOT	TBLOT	COOLER
MW-01	06Jul97	N	1	06079701	06079701		B	MW-04	07Jul97	N	1	07079701	07079701	06079701	A
MW-02	06Jul97	N	1	06079701	06079701		B	MW-05	07Jul97	N	1	07079701	07079701	06079701	A
MW-03	06Jul97	N	1	06079701	06079701		B	MW-08	07Jul97	N	1	07079701	07079701		C
MW-06	06Jul97	N	1	06079701	06079701	06079701	A	MW-09	07Jul97	N	1	07079701	07079701		C
MW-07	06Jul97	N	1	06079701	06079701	06079701	A	MW-10	07Jul97	N	1	07079701	07079701		C
FIELDQC	06Jul97	AB	1				A	FIELDQC	07Jul97	AB	1				A
FIELDQC	06Jul97	EB	1				A	FIELDQC	07Jul97	EB	1				A
FIELDQC	06Jul97	TB	1				A								

EXAMPLE #2

Two crews conducted sampling on the same day. All other conditions are identical to example #1. In this example the two ambient blanks and the two equipment blanks are differentiated from each other by their SAMPNOs. The association to the normal samples are covered by the last two digits of the ABLOT and EBLOT entries.



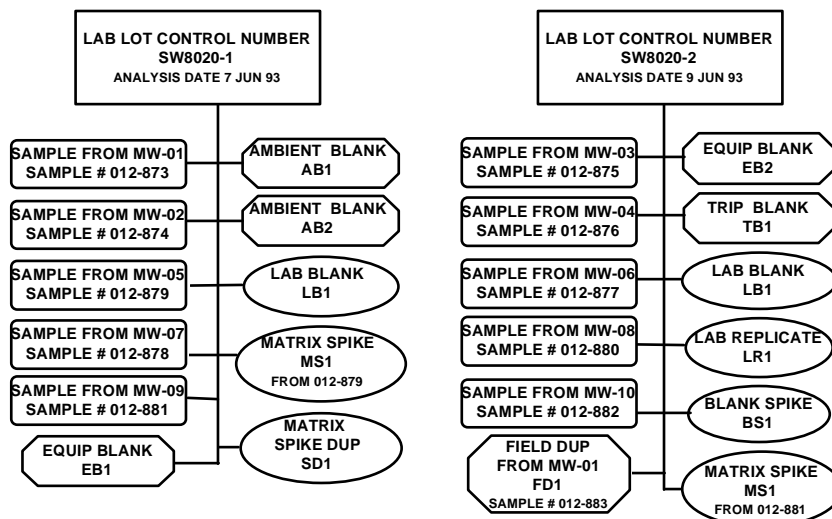
Data Table for Example #2

CREW 1 30Sep97								CREW 2 30Sep97							
LOCID	LOGDATE	A	B	ABLOT	EBLOT	TBLOT	COOLER	LOCID	LOGDATE	A	B	ABLOT	EBLOT	TBLOT	COOLER
MW-01	30Sep97	N	1	30099701	30099701		B	MW-04	30Sep97	N	1	30099702	30099702	30099701	A
MW-02	30Sep97	N	1	30099701	30099701		B	MW-05	30Sep97	N	1	30099702	30099702	30099701	A
MW-03	30Sep97	N	1	30099701	30099701		B	MW-08	30Sep97	N	1	30099702	30099702		C
MW-06	30Sep97	N	1	30099701	30099701	30099701	A	MW-09	30Sep97	N	1	30099702	30099702		C
MW-07	30Sep97	N	1	30099701	30099701	30099701	A	MW-10	30Sep97	N	1	30099702	30099702		C
FIELDQC	30Sep97	AB	1				A	FIELDQC	30Sep97	AB	2				A
FIELDQC	30Sep97	EB	1				A	FIELDQC	30Sep97	EB	2				A
FIELDQC	30Sep97	TB	1				A								

2.2 Laboratory Lot Control Numbers

Laboratory lot control numbers are used to associate samples sharing common laboratory quality control samples. The laboratory lot control number is a number assigned to analytical batches by the laboratory. The following figure shows how the samples (from the field lot number example) might be "batched" together with laboratory QC samples and assigned a laboratory lot control number.

FIGURE B-3



3.0 ANALYTICAL METHOD, EXTRACTION METHOD, AND LEACHATE METHOD CODES

In ERPTools, leachate method has been added as a key field. In addition, the field widths for analytical, extraction, and leachate methods have been expanded to 7 (allowing for the indication of method version and/or method revisions). For all versions of the data loading handbook there are basically four categories of extraction method codes that determine which extraction method code should be used, (or leachate method if applicable).

1	NONE - Used when no extraction method is used or called for in the analytical method. Examples are determinations such as pH, temperature, specific conductivity, percent moisture, <i>etc.</i>
2	METHOD - Most commonly used with EPA drinking water methods or laboratory modified methods where the extraction method is specified within the analytical method. METHOD should never be used for metal analyses.
3	Specific EPA methods such as SW5030 or SW3510. Documented, published methods for which a code exists in the EXMCODE VVL.
4	TCLP, EPTOX and the California Waste Extraction Technique are indicated by the EXMCODE or LEACHMETH depending upon DLH version. See table below.

For all versions of the DLH, metal analyses performed on the original sample matrix (NO LEACHATE) are entered as follows:

<u>ANMCODE</u>	<u>Digestion</u>	<u>Parameter</u>	<u>Use this EXMCODE*</u>
Metals	SW3005	Total Recoverable Metals	TOTREC
Metals	SW3005	Dissolved Metals	FLDFLT
Metals	SW3005	Suspended Metals	FLTRES
Metals	SW3010	Total Metals	SW3010 or TOTAL
Metals	SW3015	Available Metals	SW3015
Metals	SW3020	Total Metals	SW3020 or TOTAL
Metals	SW3040	Soluble Metals	SW3040
Metals	SW3050	Total Metals	SW3050 or TOTAL
Metals	SW3060	Alkaline Digestion for Hexavalent Chromium	SW3060
SW7470	Per Method	Mercury, Aqueous Matrix	TOTAL or FLDFLT
SW7471	Per Method	Mercury, Soil or Sediment	TOTAL

*the EXMCODEs "METHOD" and "SW3005" should not be used for metals

Samples that have been leached and analyzed should be coded as follows:

For CDLT and IRPTools,

The field LCHMETH is not present in the structure. Leachate methods are indicated by the EXMCODEs SW1310, SW1311, SW1312, and WET etc. In all cases, the performance of a leachate method takes precedence over any other EXMCODE value. Any subsequent extractions will be inferred from the combination of analytical method code and matrix.

For ERPTools,

Leaching procedures are indicated by a value other than “NONE” entered in the LCHMETH field. The appropriate EXMCODE will be that used or performed on the leachate itself. If further processing of the leachate is performed prior to analysis, enter the appropriate EXMCODE ie: SW5030 for purge and trap methods, or SW3510 for semi-volatile analyses. If no further processing of the leachate is performed prior to analysis, use the EXMCODE “NONE”.

4.0 PARAMETER VALUE QUALIFIERS

The following list details the most commonly used Parameter Value Qualifier (PARVQ) codes. Note that in general, the PARVQ does not indicate QC failures or deficiencies such as accuracy, precision, blank contamination, or holding time violations. The field EPA_FLAGS, exists for the purpose of adding additional CLP data qualifiers as needed. The last three codes in the table are only valid for CDLT data submissions.

PARVQ	Definition
ND	Analyte was not detected. <i>Enter 0 (zero) for the parameter value (PARVAL).</i>
=	Represents both the qualitative and quantitative, unqualified, presence of an analyte, at the reported level, above the detection limit.
TR	Qualifies an analyte present at an estimated concentration above the detection limit and below the reporting limit (RL).
>	Used in situations where the laboratory reports a quantitative value exceeding the linear range of calibration. The concentration is an estimated value. Exceptions to this rule apply for reporting results of ignitability and flash point. Contact the ERPIMS Help Desk if clarification is needed.
CE	Estimated or questionable value due to co-elution.
S	The value reported has been determined by the Method of Standard Addition.
TI	Tentatively identified compound.
<	The use of this code has been discontinued for the reporting of quantitative determinations of organic and metallic constituents. Exceptions to this rule apply when reporting CDLT results for ignitability and flash point. Contact the ERPIMS Help Desk if clarification is needed.
I	Questionable or estimated value due to interference. Used only in CDLT.
%	Used in CDLT for reporting percent recovery of spiked analytes. See Appendix B, section 5.0.

5.0 Units of Measure

Surrogate Spikes, Blank Spike and Blank Spike Duplicates, Matrix Spike and Matrix Spike Duplicates, and Reference Material and Reference Material Duplicates shall be expressed as percent recovery. When results are expressed in percent recovery, the fields (RL, MDL, and LABDL) should always be left blank for analytes reported with the units “PERCENT.” This section only applies to CDLT submissions. ERPTools and IRPTools enforce these requirements as pre-submission validation rules.

With the exception of surrogate compounds, only analytes having the SACODES BS, BD, MS, SD, RM and KD may be expressed as “Percent Recovery,” unless the concentration units “PERCENT” are specified by the analytical method. Surrogates shall be expressed in “Percent Recovery” regardless of SACODE.

Analytes reported in the units “PERCENT” should be entered as such in the method setup screen. If for example, surrogates were reported in the units “PERCENT” and normal analytes were reported in the absolute units “UG/L,” enter

the normal analytes in the method setup screen with the units "UG/L," and enter the surrogates with the units "PERCENT." The units specified within the method setup for each analyte serve as the default units for all RESULTS data entered using this setup. Since method setups are saved on the basis of distinct ANMCODE and MATRIX type combinations, it may not be practical to enter a method setup for QC samples alone, e.g., blank and matrix spikes reported in the units "PERCENT." In such cases, these samples should be entered as usual in the RESULTS data-entry screen, and the units of the analytes reported in the units "PERCENT" should be edited accordingly.

6.0 Percent Moisture and Solids

This section only applies to CDLT submissions. ERPTools and IRPTools enforce these requirements as pre-submission validation rules. When entering percent moisture and solids data, take note of the PARLABEL's definition and the unit of measure used below:

<u>PARLABEL</u>	<u>Definition</u>	<u>UNITS</u>
MOIST	Moisture, Percent	Percent
SOLID	Solids, Percent	Percent
SS	Suspended Solids (Residue, Non-Filterable)	Per Unit Volume
TDS	Total Dissolved Solids (Residue, Filterable)	Per Unit Volume
TSO	Total Solids	Per Unit Volume
TVS	Total Volatile Solids	Per Unit Volume
VSS	Volatile Suspended Solids	Per Unit Volume
VTDS	Volatile Total Dissolved Solids	Per Unit Volume

If soil samples are reported on a dry-weight basis, then all analytical results and detection limits should be captured on a dry-weight basis (BASIS D). Otherwise capture the wet weight results and detection limits (BASIS W). When multiple % Moisture or Solids determinations have been performed on a sample, capture these results within the analytical method to which they pertain.

7.0 Soil Gas Survey and Air Monitoring Data

This section only applies to CDLT submissions. ERPTools and IRPTools enforce these requirements as pre-submission validation rules. For *ambient air samples*, the following associations are valid. Usually, the extraction method code SW5030 is not valid.

For EPA TO methods, the extraction method code (EXMCODE) "METHOD" is applicable. For most spikes, the sample type code (SACODE) will be "RM." Matrix (MATRIX) will always be "A*" or "G*."

Samples requiring extraction will use the extraction method code (EXMCODE) expected for water or soil samples, e.g., "SW8080", "SW8270." The sample type codes (SACODE) will be normal, e.g., "LB," "BS," "MS." Matrix (MATRIX) will always be "A*" or "G*."

For soil gas samples, the extraction method code (EXMCODE) "NONE" should be used. Codes used are outlined below. Spikes will usually have a sample type code (SACODE) of "RM." It is possible to have samples with a sample type code of "AQ," but the use of this code should be clarified with the ERPIMS Help Desk prior to use. For soil gas samples, the sampling method code (SMCCODE) and location type classification code (LTCCODE) is "PR."

<u>MATRIX CODES</u>	<u>SMCCODE</u>	<u>LTCCODE</u>
AA Ambient air	AC Air canister	
AQ Air quality control matrix	AT Sampling train	A Air
GL Headspace of a liquid sample	HV High volume air sampler	PR Soil gas probe
GE Gaseous effluent (stack gas)	LV Low volume continuous air sampler	
GS Soil gas	PR Stainless steel soil gas probe	
GQ Headspace or gaseous-phase QC matrix	w/retractable inlet sleeve	

8.0 FLASH POINT AND IGNITABILITY

This section only applies to CDLT submissions. ERPTools and IRPTools enforce these requirements as pre-submission validation rules. For flash point and ignitability, enter 0 (zero). Results should be reported as follows:

	<u>PARLABEL</u>	<u>PARVAL</u>	<u>PARVQ</u>	<u>UNITS</u>	<u>RL/MDL/LABDL</u>
Ignitability, positive	IGNITIB	60	<	DEGC	0
	IGNITIB 140	<	DEGF		0
Ignitability, negative	IGNITIB	60	>	DEGC	0
	IGNITIB 140	>	DEGF		0
Flashpoint	FLASHPT	any parval	=	DEGC	0
	FLASHPT	any parval	=	DEGF	0

9.0 Entering Well Interval Data (ERPTools Only)

In ERPTools the structures of the well information tables have been upgraded significantly. Well completion information previously contained in the WCI table (CDLT & IRPTools) has been split into three components Well (WCI), Well Interval (WINT) and Well Maintenance Information (WMI). WCI stores basic well completion information. WINT stores specific well interval or segment information and WMI stores routine well maintenance information. WCI and WINT are required tables for all newly established well locations.

New WCI entries follow the same basic format as in previous validation tools, with the exception that all well segment information has been moved to the WINT table.

WINT has been designed to capture the following attributes of each well segment: start/end depth, material composition, diameter, and where applicable screen slot size and percent open area. A well interval (screened interval) is defined by the sum of multiple well segments i.e.: (screen, blank casing, filter pack etc.). Segment type is synonymous with, and identified by the valid value entered in the field CLASS. The easiest way to conceptualize the mechanics of this table is to view the casing (and all components attached to it such as screen and foot) as one component, and all other materials serving to secure or seal the casing component in the borehole (e.g. grout, seal, and filter pack) as the other component. Within each component all depth entries must be contiguous. No overlap between depth entries is allowed within a component. Overlapping depth entries must occur between components for the well to function properly, but again no overlap can occur within a component. Note in the example below depth, screen no., class, and material are required for all segments. Segment diameter is supplied for the casing and screen only. Slot size and percent open area apply only to the screened segment. Validation will be performed on the values in this table alone and versus applicable depth and diameter fields in both LDI and WCI i.e.; borehole depth, borehole diameter, and total casing depth).

As mentioned previously, screen no. is assigned by the user to each screened or well interval. Its purpose is to define a logical screened interval for validation that can be treated as a single unit within a well. Validation proceeds to ensure that each component within a segment makes sense (spatial and logical): i.e. the seal IED can't be greater than screen IBD, or screen IED can't exceed TOTDEPTH or borehole depth). In the case of multiple screens, screen no. separates each interval, so that each segment is validated within its own interval, and intervals are compared to each other as a whole.

Additional screens that exist down hole are added and incremented after the preceding screen, (all components of the second screen for example have the screen no. 2 starting with the blank connected to the first screen). See example 2 below.

Well Maintenance Information has been added to allow the capture of routine maintenance items such as protective cap replacement, ground surface elevation changes or measuring point elevation changes. When submitting elevation changes (ground surface or measuring point) both elevation and measuring point elevation must be supplied.

Example #1

Monitoring Well Construction

Logged by: Jane Doe

Client: Base Swampy

Well Number: MW-01

Date Installed: 18-NOV-95

Sole Source Aquifer: Great Briny Aquifer (GBA) (Confined Aquifer)(C)

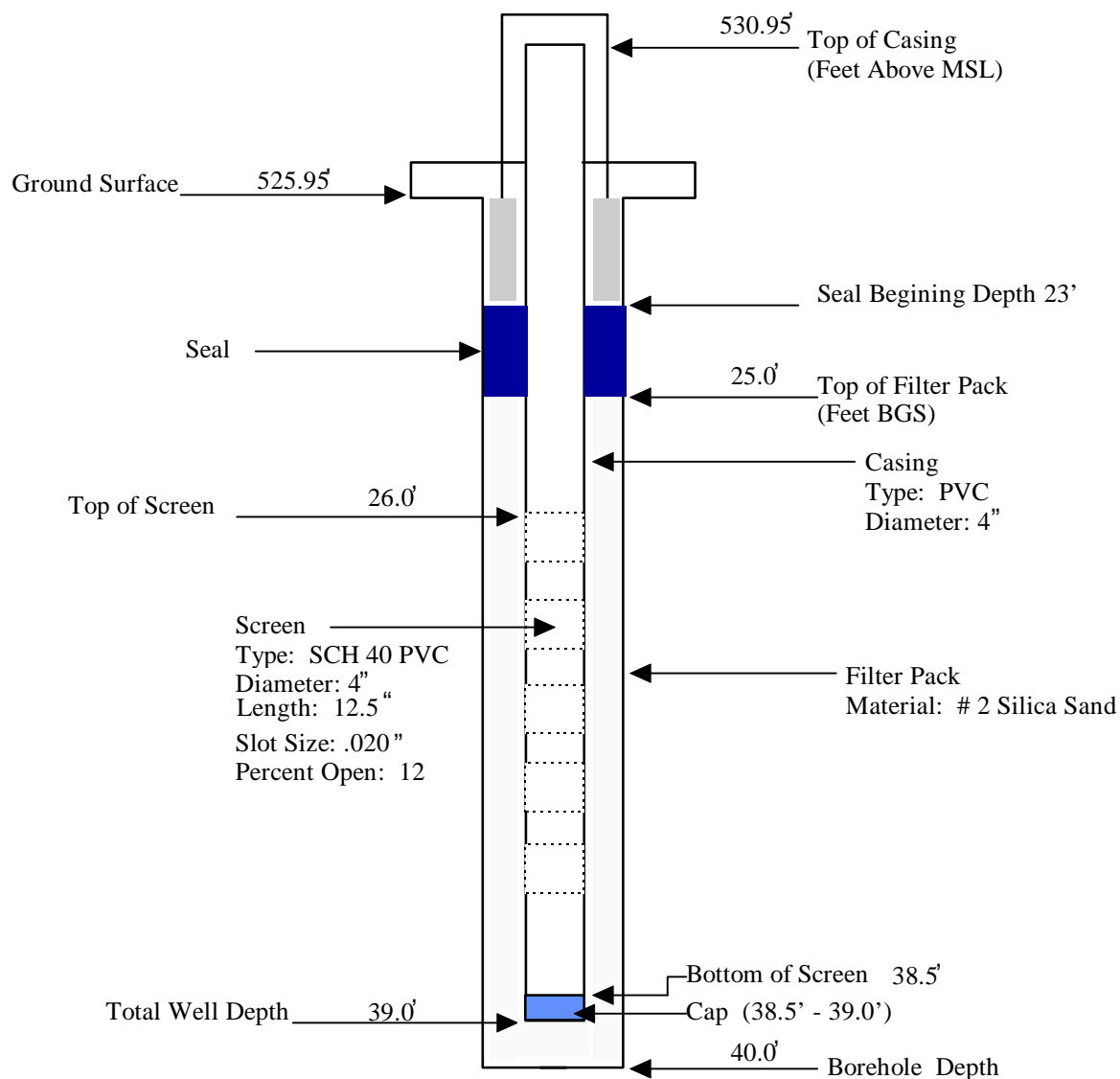


FIGURE B-4

LOCID	IBDEPTH	IEDEPTH	CLASS	SCRNO	MATERIAL	SDIAM	SOUA	PCTOPEN
MW-01	0.00	23.00	GROUT	1	CNC			
MW-01	0.00	26.00	BLANK	1	PVC	4.00		
MW-01	23.00	25.00	SEAL	1	BNT			
MW-01	25.00	40.00	FILPK	1	FSP			
MW-01	26.00	38.50	SCRN	1	PVC	4.00	0.02	12
MW-01	38.50	39.00	FOOT	1	PVC			

Example #2

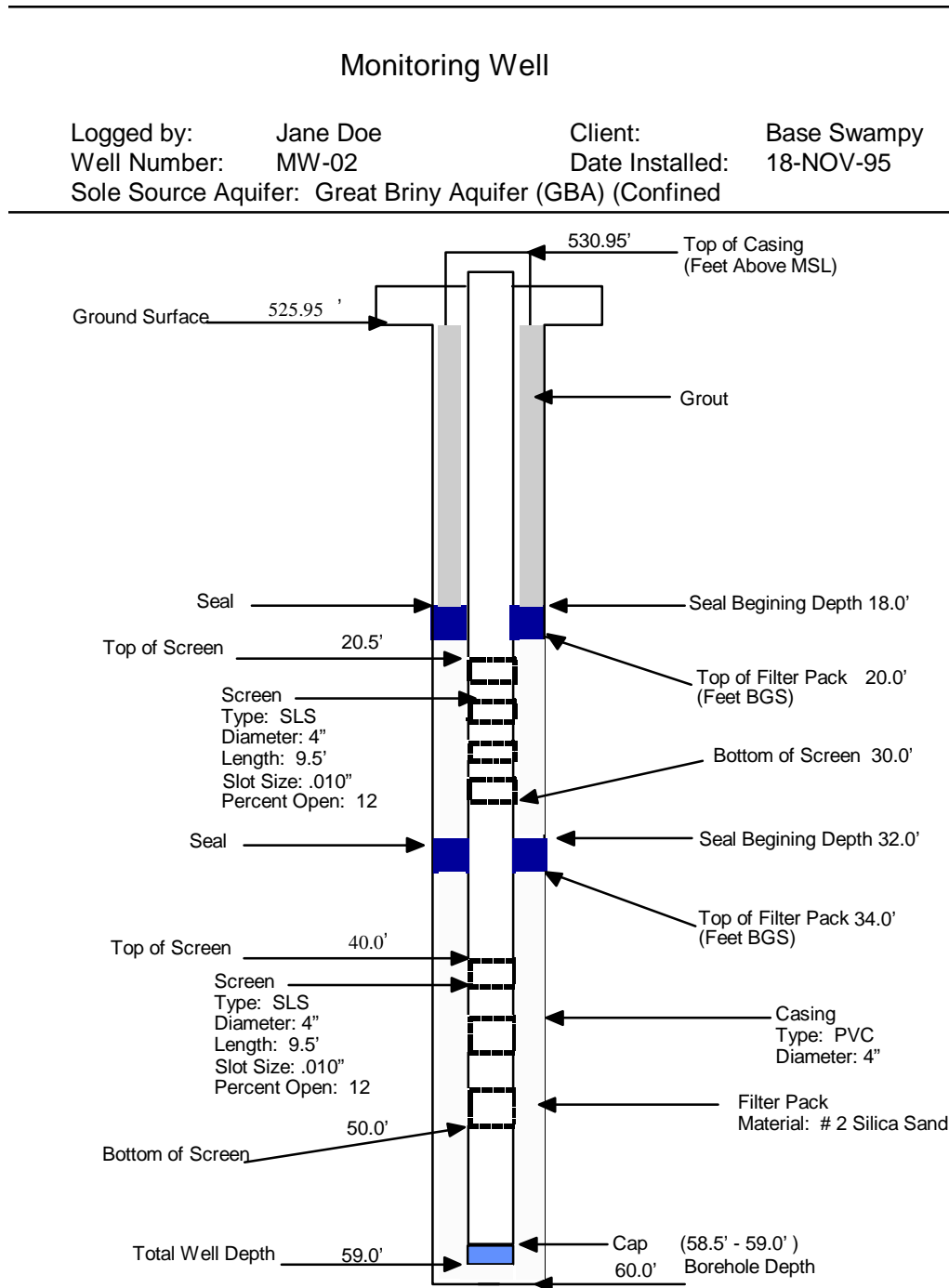


FIGURE B-5

LOCID	IBDEPTH	IEDEPTH	CLASS	SCRNO	MATERIAL	SDIAM	SOUA	PCTOPEN
MW-02	0.00	18.00	GROUT	1	CNC			
MW-02	0.00	20.50	BLANK	1	PVC	4		
MW-02	18.00	20.00	SEAL	1	BNT			
MW-02	20.00	32.00	FILPK	1	FSP			
MW-02	20.50	30.00	SCRN	1	SLS	4	0.010	12
MW-02	30.00	40.00	BLANK	2	PVC	4		
MW-02	32.00	34.00	SEAL	2	BNT			
MW-02	34.00	60.00	FILPK	2	FSP			
MW-02	40.00	50.00	SCRN	2	SLS	4	0.010	12
MW-02	50.00	58.5	BLANK	3	PVC	4		
MW-02	58.50	59.00	FOOT	3	PVC			

10.0 ENTERING SLI/SLX DATA

10.1 Entering SLX Data into ERPTools 2.*

The Site and Location Information table (SLI) captures the spatial and hydrogeologic flow relationships existing between a site and locations associated to it. These relationships are very important to a wide range of environmental activities such as: groundwater modeling and contaminant flow path studies, and numerous GIS and graphical data presentation applications. Previous iterations of the SLI table (in CDLT and IRPTools) captured spatial and hydrogeologic flow components as a single value. This approach often is a hindrance to the presentation of data for such applications and often results in data-gaps for either spatial or hydrogeologic components. In ERPTools, GFCCODE exists to indicate whether the hydraulic flow at a location is up, down, or cross gradient to its associated site. The field Site Proximity Code (SPRCODE) has been added to indicate whether a location lies within or is outside site boundaries, or whether the location is serving as background for the site.

<u>GFCCODE</u>	<u>Definition</u>
U	A location positioned up-gradient hydrologically from the contaminant source.
D	A location positioned down-gradient hydrologically from the contaminant source.
C	A location positioned cross-gradient hydrologically from the contaminant source.

<u>SPRCODE</u>	<u>Definition</u>
O	On-site
E	Off-site
B	Background by positioning in an area unaffected by the contaminant source.

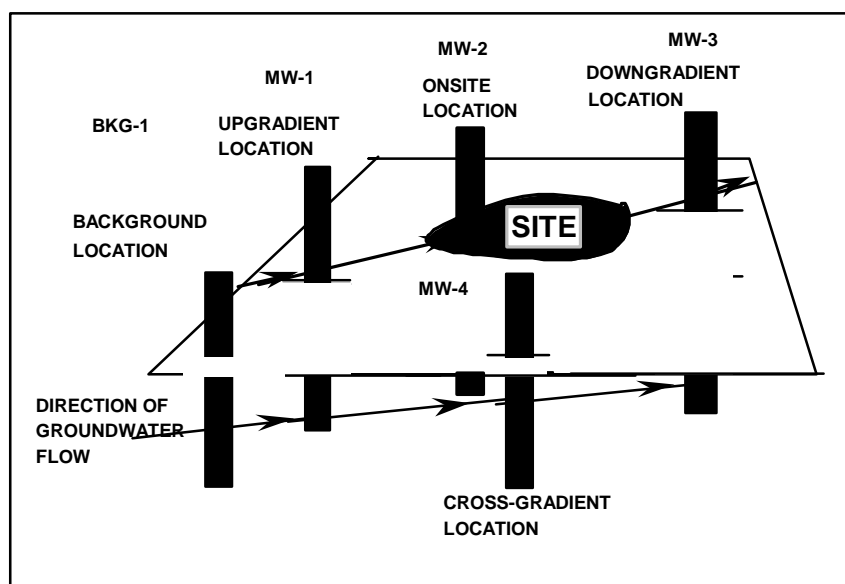


FIGURE B-6

Data obtained from the figure above would be entered as follows:

AFIID	SITEID	LOCID	SPRCODE	GFCCODE
BOGUS	1	MW-1	E	U
BOGUS	1	MW-2	O	D
BOGUS	1	MW-3	E	D
BOGUS	1	MW-4	E	C
BOGUS	1	BKG-1	B	U

10.2 Entering SLX Data into CDLT and IRPTools

The structure of SLI for these tools 3.0 have not been altered. However, additional GFCCODES have been added to allow the coding of both components within this field. See list below. ERPTools submissions must only enter the values for GFCCODE shown in section 10.1 above.

<u>Code</u>	<u>Definition</u>
A	Background by positioning in an area unaffected by the contaminant source, upgradient of the contaminant source.
B	Background by positioning in an area unaffected by the contaminant source.
C	Cross-gradient adjacent to flow path passing beneath contaminant source.
D	Downgradient hydrologically from the contaminant source.
E	A location not within site boundaries, hydrologic component not applicable.
F	Background by positioning in an area unaffected by the contaminant source, downgradient of the contaminant source.
G	Background by positioning in an area unaffected by the contaminant source, cross-gradient of the contaminant source.
K	A location within site boundaries, positioned upgradient hydrologically from the contaminant source.
L	A location within site boundaries, positioned downgradient hydrologically from the contaminant source.
M	A location within site boundaries, positioned cross-gradient hydrologically from the contaminant source.
O	On site by positioning beneath the contaminant source.
P	A location not within site boundaries, positioned upgradient hydrologically from the contaminant source.
Q	A location not within site boundaries, positioned downgradient hydrologically from the contaminant source.
R	A location not within site boundaries, positioned cross-gradient hydrologically from the contaminant source.
U	Upgradient hydrologically from the contaminant source.

APPENDIX C

SUBMISSION OF IRPTools 1.* DATA FILES

1.0 IRPTools (V 1.*) SUBMISSION REQUIREMENTS

Field, record and submission requirements are strictly enforced in order for IRPTools 1.* to generate a submission the ERPIMS database can accept. Data submitted through IRPTools 1.* is validated during the IMPORT function, the Data Entry function, and at submission creation. If any of the following requirements are not followed, the submission will be returned to the contractor for corrections and resubmission.

2.0 FIELD REQUIREMENTS

Field formats (attributes) must be strictly followed. Field formats are listed in tables in the IRPTools portion of the handbook on pages 2-3 through 2-15. Key fields are **boldfaced** in these tables.

- Valid data must be entered for every field. Do not add, delete, or omit any fields. If a field's data is available, it must be entered.

There are specific requirements for data when files are created for import and validation. Fields in a table will only allow a certain number of characters to represent data in the field and the data for the field must be in a specific position. This is called the "Start-End Position." Begin data entry for each field in the start position. If the data entered is shorter than the field allows, leave the remaining positions blank. If the data to be entered is longer than the allowed field width, it must be shortened to a unique identifier or significant value. These start and end position numbers give the exact character positions where the applicable data must be placed in the file.

- In cases where the field is a single character field, it will have a single number for its start-end position. The one character of data must be put in that position of the record.

3.0 REQUIRED FILES FOR DATA SUBMISSIONS

The CON or Contract Information record must be included as the first record of each submission to AFCEE. All of the data on the diskette should be a deliverable of the contract and delivery order which is specified in the CON record. Large data files may be zipped, spanning multiple diskettes if necessary. If any of the data on the diskette is not associated with the contract and delivery order stated in the CON record, that data will be rejected. SLI data must be submitted electronically as part of a Group One data submission. In order to ensure the data is in proper ERPIMS format, the IRPTools 1.* software incorporates numerous automatic error checking routines such as not allowing duplicate LDI records, checking for incorrect date/time/number formats, invalid codes and the failure to enter data in a required field. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

IRPTools 1.* will create the following files:

Group I	irpgrp1.dat
Group II	irpgrp2.dat
Group III	irpgrp3.dat

3.1 IRPTools 1.* File groupings

Contractors are required to submit certain groups of file submissions to AFCEE within the time frames listed in the table on the next page or according to the requirements specified in the contractor's Statement of Work (SOW).

IRPTools 1.* Data Submission Groups	
Irpggrp1.dat includes: CON WCI LDI SLI	This submission group containing the CON, LDI, SLI, and WCI information, must be submitted no later than 30 days after site and sampling location assignments have been determined or after borehole installations have been completed, whichever is later.
Irpggrp2.dat includes: GWD CALC LTD	This submission group containing the GWD, CALC, and LTD information, must be submitted no later than 40 days after sample collection has taken place in the field or after field tests have been performed, whichever is later.
Irpggrp3.dat includes: SAMP RES TEST	This submission group containing SAMP, TEST, and RES information, must be submitted no later than 30 days after obtaining analytical results from the laboratory.

4.0 DISKETTE REQUIREMENTS

Each diskette must be externally labeled with the Air Force installation's name(AFIID), the contract ID, delivery order number, and the name of each submission group, irpggrp#.dat, on that diskette. The IRPTools 1.* file names must be used (see para. 2). All of the data submissions must be sent to AFCEE on one of the diskette formats listed in the table below. Some submissions can be rather large and will therefore require more than one diskette for submission. Submissions will be accepted in zipped format that pkunzip.exe can decode.

ASCII Data Submission Diskette Formats		
Diskette Size	Diskette	Formatted Capacity
5.25 inches	360 KB	Double Density
5.25 inches	1.2 MB	High Density
3.50 inches	720 KB	Double Density
3.50 inches	1.44 MB	High Density
* Format each diskette using MS-DOS.		

5.0 OTHER REQUIREMENTS

5.1 Transmittal Letter for IRPTools 1.* Data Submissions

Submissions must be accompanied by a transmittal letter to AFCEE. This letter must specify the following:

1. Which submission groups are included which groups (if any) are to follow
2. The installation name and identification (AFIID)
3. The applicable contract number and delivery order number
4. The contractor point of contact for data submission issues
5. An Air Force or other Government point of contact with oversight of the applicable contract and delivery order
6. Explanations of errors and/or omissions including any issues found on the Items of Interest Report
7. Explanations of any data not following the ERPIMS Data Loading Handbook guidelines
8. Any guidance received from the ERPIMS Help Desk

In certain instances, particular submission groups will not be complete due to the contractor's SOW not requiring all of the information. For example, if a project involves only soil sampling and analysis, the data pertaining only to water sampling would not be included. Therefore, the WCI, GWD and CALC portions of Irpgrp1 and Irpgrp2 would not be required and would therefore be excluded. If this is the case, the contractor must also state this in the transmittal letter. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

5.2 Items of Interest Report

IRPTools 1.* is a stand alone piece of software which checks each field, record and the entire data submission for the proper ERPIMS format. All (current) data submissions must be processed through IRPTools for validation processing. IRPTools 1.* will generate an Items of Interest Report, a signed copy of which must accompany all IRPTools 1.* data submissions.

6.0 SUMMARY

All IRPTools 1.* submissions must contain the following:

- All necessary diskettes, properly labeled
- A Transmittal letter
- A signed copy of the Items of Interest Report(s)

APPENDIX D

SUBMISSION OF ASCII DATA (CDLT) FILES

1.0 CDLT SUBMISSION REQUIREMENTS

Until January 1998, AFCEE will continue to accept ERPIMS submissions prepared using CDLT and validated by QCTool. The cursory level of validation performed by QCTool is far inferior to any version of ERPTools/IRPTools. This low level of validation greatly increases the likelihood that the data submission will be returned to the contractor for correction. Thus, it is in the best interest of both the contractor and AFCEE that ERPTools be used for data validation. CDLT prepared submissions that are imported into, validated by, and submitted from either ERPTools or IRPTools will be accepted indefinitely.

2.0 FILE, RECORD AND FIELD REQUIREMENTS

File, record and field requirements must be strictly followed in order for the ERPIMS database to accept data submitted in ASCII format, including CDLT file submissions. If any of the following requirements is not followed, the submission will be returned to the contractor for corrections and resubmission.

2.1 File and Record Requirements

Each data file consists of one or more lines of data. Each line of data is equivalent to a single record in the data submission. Each record is made up of distinct fields of information. For QCTool, a record must not be dependent any other record or file for data. Actual valid data must be entered in each record. Listed below are the ASCII file and record specifications for entering each record of data in its specified file. All of the following requirements apply to generated ASCII files for QCTool validation. For CDLT users, that program will handle issues 1-3 below for you.

1. Do not enter the column heading or field name in the ASCII file. This information is not part of the file. For example, do not enter AFIID in the AFIID field. Only the appropriate code from the most current Valid Value List, for instance, BROOK would be entered for Brooks AFB. Only valid codes from VVL lists should be keyed into fields requiring valid values.
2. Do not create left margins. In every file, every record starts in the farthest left position, "position number 1." If entering your data via a spreadsheet, set your left margin at zero and your right margin at the end position of the last field in your record.
3. The first record or row in the file and every subsequent record or row must contain valid data. Blank or empty rows (lines) or records are not permitted in ASCII CDLT files.
4. Every record within a file must be unique. If a record's data appears in another record exactly the same for each key field, these two records are considered to be duplicate records. Do not enter data that refers to another record such as entering a record in the BCHLDI file that says "see record number 10 above" or "same as above."

2.2 Field Requirements

Field formats (attributes) must be strictly followed. Field formats are listed in tables in the CDLT portion of the handbook. This information is shown in sections 3.1 through 3.10. Key fields are **boldfaced**.

- Valid data must be entered for every field. Do not add, delete, or omit any fields. If a field's data is available, it must be entered.

There are specific requirements for data when files are created for import and validation. Fields in a file will only allow a certain number of characters to represent data in the field and the data for the field must be in a specific position. This is called the "Start-End Position." Begin data entry for each field in the start position. If the data entered is shorter than the field allows, enter space characters in the field's remaining positions, including the end position. If the data to be entered is longer than the allowed field width, it must be shortened to a unique identifier

or significant value. These start and end position numbers give the exact character positions where the applicable data must be placed in the file.

- There are some cases where the field is a single character field and therefore will have the same start and end position number. The one character of data must be put in that position of the record.

3.0 REQUIRED ASCII FILES FOR DATA SUBMISSIONS

The BCHCON or Contract Information file must be included on each diskette submitted to AFCEE. All of the data on the diskette must be a deliverable of the contract and delivery order which is specified in the BCHCON file. Large data files may be zipped, spanning multiple diskettes if necessary. In no case should a data file be manually split onto different diskettes. If any of the data on a diskette is not associated with the contract and delivery order stated in the BCHCON file, the data will be rejected. BCHSLI files must be submitted electronically (in the format specified on page 3.4 of this manual) because CDLT does not have a module for entry or automatic production of a BCHSLI file. In order to ensure the data is in proper ERPIMS format, the CDLT software incorporates numerous automatic error checking routines such as not allowing duplicate records in the BCHLDI file, not allowing for incorrect date/time/number formats or invalid codes and identifying the failure to enter data in a required field. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

3.1 ASCII FILE SUBGROUPING

Contractors are required to submit certain groups of ASCII file submissions (if submitting files in groups) to AFCEE within the time frames listed in the table below or according to the requirements specified in the contractor's SOW.

ASCII File Grouping for CDLT Submissions		
GROUP 1	BCHCON BCHLDI BCHSLI BCHWCI	This group of files must be submitted no later than 30 days after site and sampling location assignments have been determined or after borehole installations have been completed, whichever is later.
GROUP 2	BCHCON BCHGWD BCHCALC BCHLTD	This group of files must be submitted no later than 40 days after sample collection has taken place in the field or after field tests have been performed, whichever is later.
GROUP 3	BCHCON BCHSAMP BCHTEST BCHRES	This group of files must be submitted no later than 30 days after obtaining analytical results from the laboratory.

4.0 DISKETTE REQUIREMENTS

Each diskette must be externally labeled with the Air Force installation's name, the contract ID, delivery order number and the name of each file on that diskette. The ASCII file names must be used (see table above). All of the data files must be submitted to AFCEE on one of the diskette formats listed in the table below. Some submissions can be rather large and will therefore require more than one diskette for submission.

ASCII Data Submission Diskette Formats		
Diskette Size	Diskette	Formatted Capacity
5.25 inches	360 KB	Double Density
5.25 inches	1.2 MB	High Density
3.50 inches	720 KB	Double Density

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3.50 inches	1.44 MB	High Density
* Format each diskette using MS-DOS.		

5.0 OTHER REQUIREMENTS

5.1 Transmittal Letter for ASCII Data Submissions

Along with the submitted file(s) must be a transmittal letter to AFCEE which specifically states which files are being submitted, if more files are to follow, the base identifications, the contract number and delivery order number, a contractor point of contact, an Air Force (or service center) point of contact, explanations of errors and/or omissions, explanations of any data not following the ERPIMS Data Loading Handbook guidelines, and any guidance received from the ERPIMS Help Desk. In certain instances, particular files will not be submitted due to the contractor's SOW not requiring them. For example, if a project only involves soil sampling and analysis, the BCHWCI, BCHGWD and BCHCALC files (which pertain only to water sampling) would not be required and would therefore be excluded. If this is the case, the contractor must also state this in the transmittal letter. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

5.2 Quality Control Tool Report

The Quality Control Tool is a stand alone piece of software which checks each data submission for the proper ERPIMS format. If the ill-advised choice is made to use QCTool instead of ERPTools or IRPTTools to validate the submission, a hard copy of the QCT report must be provided with all such data submissions. CDLT prepared data can be imported into ERPTTools for validation and submission. If this preferable option is chosen, the appendix that applies to that tool applies.

5.3 Resubmission of Corrected Data

Along with the submitted file(s) must be a copy of the original transmittal letter to AFCEE or a reference to the AFCEE task request number (TR XX-XXXX) under which the evaluation was done. In addition, a cover letter which specifically states which files are being resubmitted and if more files are to follow is required. The letter should include the base identifications, the contract number and delivery order number, a contractor point of contact, an Air Force (or service center) point of contact and explanations of errors and/or omissions pertaining to the resubmission.

6.0 SUMMARY

All ASCII (CDLT/QCTool) submissions must contain the following:

- All necessary diskettes, properly labeled
- Transmittal letter
- Quality Control Tool report

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APPENDIX E

SUBMISSION OF ERPTools (V 2.*) DATA FILES

1.0 ERPTools (V 2.*) SUBMISSION REQUIREMENTS

Field, record and submission requirements are strictly enforced in order for ERPTools 2.* to generate a submission the ERPIMS database can accept. Data submitted through ERPTools 2.* is validated during the IMPORT function, the Data Entry function, and at submission creation. If any of the following requirements are not followed, the submission will be returned to the contractor for corrections and resubmission.

2.0 FIELD REQUIREMENTS

Field formats (attributes) must be strictly followed. Field formats are listed in tables in the ERPTools 2.* portion of the handbook in sections 4.0.1 through 4.4.12. In these tables, Key fields are bolded, the start-end positions of required fields are boldfaced, and names of fields that are new in this version are underlined.

- Valid data must be entered for every field. Do not add, delete, or omit any fields. If a field's data is available, it must be entered.

There are specific requirements for data when files are created for import and validation. Fields in a table will only allow a certain number of characters to represent data in the field and the data for the field must be in a specific position. This is called the "Start-End Position." Begin data entry for each field in the start position. If the data entered is shorter than the field allows, enter space characters in the field's remaining positions, including the end position. If the data to be entered is longer than the allowed field width, it must be shortened to a unique identifier or significant value. These start and end position numbers give the exact character positions where the applicable data must be placed in the file.

- In cases where the field is a single character field, it will have a single number for its start-end position. The one character of data must be put in that position of the record.

3.0 REQUIRED FILES FOR DATA SUBMISSIONS

The CON or Contract Information record must be included as the first record of each submission to AFCEE. All of the data on the diskette should be a deliverable of the contract and delivery order which is specified in the CON record. Large data files may be zipped, spanning multiple diskettes if necessary. If any of the data on the diskette is not associated with the project name, contract and delivery order stated in the CON record, that data will be rejected. SLX data must be submitted electronically as part of a Group One data submission. In order to ensure the data is in proper ERPIMS format, the ERPTools 2.* software incorporates numerous automatic error checking routines such as not allowing duplicate LDI records, checking for incorrect date/time/number formats, invalid codes and the failure to enter data in a required field. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

ERPTools 2.* will create the following files:

Group I	project.sg1
Group II	project.sg2
Group III	project.sg3
Group IV	project.sg4

where **project** is the project name derived from the *New Project Information* Data Entry Screen.

3.1 ERPTools version 2.* File groupings

Contractors are required to submit certain groups of file submissions to AFCEE within the time frames listed the table below or according to the requirements specified in the contractor's Statement of Work (SOW).

ERPTools 2.* Data Submission Groups	
Project.sg1 includes: CON LDI WCI WINT SCC SCX WMI ZDI ZLX	This submission group containing the CON, LDI, SCC, SLX, WCI, WINT, WMI, ZDI, ZLX, LOCALIAS, and SITEALIAS information, must be submitted no later than 30 days after site and sampling location assignments have been determined or after borehole installations have been completed, whichever is later.
project.sg2 includes: ATI CALC GWD HSU LTD OWL PUMPINT PUMPRATE STU TOW TRI TWI	This submission group containing the ATI, CALS, GWD, HSU, LTD, OWL, PUMPINT, PUMPRATE, STU, TOW, TRI, and TWI information, must be submitted no later than 40 days after sample collection has taken place in the field or after field tests have been performed, whichever is later.
Project.sg3 includes: EMI RES SAMP TEST	This submission group containing EMI, RES, SAMP, and TEST information, must be submitted no later than 30 days after obtaining analytical results from the laboratory.
Project.sg4 includes: LOX LSX LTX OU OUC ROX RSI RSP RSX RTI RTP SOX	This submission group containing the LOX, LSX, LTX, OU, OUC, ROX, RSI, RSP, RSX, RTI, RTP, and SOX information must be submitted no later than 40 days after the remediation system and/or technology is monitored.

4.0 DISKETTE REQUIREMENTS

Each diskette must be externally labeled with the Air Force installation's name (AFIID), the contract ID, delivery order number, and the name of each submission group, project.sg#, on that diskette. The ERPTools 2.* submission file names must be used (see section 3.0). All of the data submissions must be sent to AFCEE on one of the diskette formats listed in the table below. Some submissions can be rather large and will therefore require more than one diskette for submission. Submissions will be accepted in zipped format that pkunzip.exe can decode.

ERPTools Data Submission Diskette Formats		
Diskette Size	Diskette	Formatted Capacity
5.25 inches	360 KB	Double Density
5.25 inches	1.2 MB	High Density
3.50 inches	720 KB	Double Density
3.50 inches	1.44 MB	High Density
* Format each diskette using MS-DOS.		

5.0 OTHER REQUIREMENTS

5.1 Transmittal Letter for ERPTools 2.* Data Submissions

Submissions must be accompanied by a transmittal letter to AFCEE. This letter must specify the following:

1. Which submission groups are included which groups (if any) are to follow
2. The installation name and identification (AFIID)
3. The applicable contract number and delivery order number
4. The contractor point of contact for data submission issues
5. An Air Force or other Government point of contact with oversight of the applicable contract and delivery order
6. Explanations of errors and/or omissions including any issues found on the Items of Interest Report
7. Explanations of any data not following the ERPIMS Data Loading Handbook guidelines
8. Any guidance received from the ERPIMS Help Desk

In certain instances, particular submission groups will not be complete due to the contractor's SOW not requiring all of the information. For example, if a project involves only soil sampling and analysis, the data pertaining only to water sampling would not be included. Therefore, the WCI, GWD and CALC portions of irpgrp1 and irpgrp2 would not be required and would therefore be excluded. If this is the case, the contractor must also state this in the transmittal letter. If previously submitted data (e.g., corrected or updated) is resubmitted concurrently with new data, the submissions must be on separate media with separate transmittal letters.

5.2 Items of Interest Report

ERPTools 2.* is a stand alone piece of software which checks each field, record and the entire data submission for the proper ERPIMS format. All (current) data submissions must be processed through ERPTools for validation processing. ERPTools 2.* will generate an Items of Interest Report, a signed copy of which must accompany all ERPTools data submissions.

6.0 SUMMARY

All ERPTools 2.* submissions must contain the following:

- All necessary diskettes, properly labeled
- A Transmittal letter
- A signed copy of the Items of Interest Report(s)

HELP !

Even *after reading* the new and improved ERPIMS Data Loading Handbook, consulting the Oracle of Delphi, and even asking Oprah for her advice, you may still need help or have questions about how to enter data. Do not despair. The friendly people manning the ERPIMS Help Desk are standing by to take your calls. The ERPIMS Help Desk phone number is:

1-800-IRPIMS3 or 1-800-477-4673

The ERPIMS Help Desk can take your calls Monday through Friday (excluding holidays) from 8AM to 4PM (CST).