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July 1997

Tri-Service CADD/GIS Technology Center

Comparison of Tri-Service Spatial Data Standards (TSSDS), Release 1.6, and Intergraph Corporation Environmental Resource Management Application (ERMA) Software

by M. Scott Herbst, Matthew A. Sanfilippo, Michael Baker Corporation

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Contents

Preface

This report provides a detailed comparison of the graphic and nongraphic schemas of Intergraph Corporation's Environmental Resource Management Application (ERMA) suite of Windows NT Geographic Information System (GIS) software with that of the Tri-Service Spatial Data Standards (TSSDS), Release 1.6. The purposes of the study and subsequent report were to: (a) identify areas of the TSSDS which require future development, and (b) provide assistance to GIS vendors and ERMA users in implementing the TSSDS. ERMA was selected for this study because it is the commercially available GIS-based software package available for environmental restoration work which currently is the most widely used by Department of Defense organizations. Similar studies will be conducted for other government and commercially available Computer-Aided Design and Drafting (CADD)- and GIS-based software in the future, as available funds permit.

The preparation of this report was funded through the Tri-Service CADD/GIS Technology Center (Tri-Service Center) located at the Information Technology Laboratory (ITL), U.S. Army Engineer Waterways Experiment Station (WES) in Vicksburg, MS.

The report was prepared under Delivery Order No. 7 of the Tri-Service CADD/GIS Technology Center Contract No. DACA39-96-D-0005. Authors of the report include Mr. M. Scott Herbst and Mr. Matthew A. Sanfilippo, Michael Baker Corporation. The Tri-Service Center Point of Contact and Project Manager for completion of the study and development of the report was Mr. Bobby Carpenter, ITL.

The report was prepared under the direction of Dr. N. Radhakrishnan, Director, ITL, and Messrs. John A. Hood III, and Harold Smith, Acting Chiefs, Tri-Service Center. The Tri-Service Center functions under the guidance and direction of the Executive Steering Group, which is composed of Dr. Get Moy (Navy), present chairman of the group, and Messrs. Steven Stockton, U.S. Army Corps of Engineers (USACE), Charlie Cheung (USACE); Mark Meranda (Army); and Gary Erickson (Air Force). The goals and objectives of the Tri-Service Center are reviewed and guided by the Executive Working Group, currently chaired by Mr. Don Ritenour (Air Force); and composed of Messrs. Dana (Deke) Smith (Navy); Ron Hatwell (USACE); M.K. Miles (USACE); Jim Carberry (Navy); Thomas Rutherford (OSD); Joseph LaVoie (Army); Jeff Huskey (Navy); Paul Herold (Coast Guard); and Peter J. Sabo (Army); COL William Pearson (Air Force); and Dr. N. Radhakrishnan (WES).

The members of the Tri-Service Center's Environmental Field Working Group during FY96 included Mr. Christopher Kyburg, Southwest Division NAVFACENGCOM, and FY96 chairman; Mr. Steven Gonzales, HQ NAVFACENGCOM; Mr. Sam Bass, USACE HTRW MCX; Mr. Mung Lun Yuen, HQ AFCEE; Mr. Phil Hunter, HQ AFCEE; Ms. Vicky Cwiertnie, Aberdeen Proving Ground;

Mr. Bill Lopp, HQ AETC; Mr. Larry Mann, USAE District, Seattle; Mr. Neil Fehr, USAE District, Kansas City; Mr. Thomas Stephan, Northern Division NAVFACENGCOM; Ms. Georgette Myers, Army Environmental Center; and Mr. Bobby Carpenter, Tri-Service Center.

During the publication of this report, Dr. Robert W. Whalin was the Director of WES, and COL Bruce K. Howard, EN, was the Commander.

1 Introduction

This document compares the environmental portion of the Tri-Service Spatial Data Standards (TSSDS) to the default data structure provided with Intergraph Corporation's Environmental Resource Management Application (ERMA) software.

Purpose

The purpose of this comparison analysis was to evaluate the ability of the ERMA product to support the data structures, attributes, and domains required by the TSSDS. It was not the intent of this project to revise the TSSDS nongraphic schema to mirror or comply with the requirements of ERMA, because the TSSDS nongraphic schema has been designed to provide reporting and analysis capability beyond that of ERMA. This report was prepared to provide guidance to Department of Defense (DoD) personnel and their contractors who may be implementing the TSSDS and may be using the ERMA suite of products. This report will be used by the Tri-Service Computer Aided Drafting and Design (CADD)/Geographic Information Systems (GIS) Technology Center (the Center) to help determine areas for further development of the TSSDS, and it will be provided to Intergraph Corporation for their use in potentially developing a TSSDS-compliant ERMA package.

Applicability

This report is applicable to all DoD project management and technical design personnel involved in the acquisition of the services of environmental GIS contractors or the development of TSSDS-compliant ERMA databases. This report would also be useful to environmental contractors who are involved with the development of TSSDS-compliant ERMA databases for DoD organizations.

This comparison was originally prepared using Version 1.4 of the TSSDS; however, it has been updated to reflect changes pursuant to Version 1.6, which was released by the Center in January 1997.

Background

As more environmental cleanup and restoration projects within the DoD begin to take advantage of the capabilities of GIS, use of the environmental portions of the TSSDS has been increasing.

Until recently, few off-the-shelf applications have existed to help environmental restoration managers take advantage of the power of GIS for their projects. In the past several years, a few

software companies have begun releasing environmental-restoration GIS products. One of these products is Intergraph's ERMA software. Intergraph Corporation has developed the ERMA product to perform environmental GIS within the popular Modular GIS Environment (MGE) family of products. Because the Intergraph ERMA products are approved under the Naval Facilities CAD2 Contract, use of these products is expanding with the DoD for environmental applications.

As DoD project managers began implementing the ERMA software and configuring it to become TSSDS-compliant, it became clear to the Center that a duplication of effort was taking place from project to project. Therefore, the Center developed this report to provide DoD project managers with a baseline comparison of the default ERMA data schema with the TSSDS.

Intergraph was contacted about participating in the development of this report, but did not participate in its completion. Intergraph has been provided with copies of this report.

Comparison Analysis Development Process

This report was prepared by Michael Baker Corporation (420 Rouser Road, Airport Office Park, Building 3, Coraopolis, PA 15108) through Contract No. DACA39-96-D-0005 with the Tri-Service CADD/GIS Technology Center, U.S. Army Engineer Waterways Experiment Station, 3909 Halls Ferry Road, Vicksburg, MS 39180-6199.

Several detailed matrices were constructed to provide a comparison of the TSSDS as it applies to environmental restoration projects with the functionality that comes with the off-the-shelf ERMA product. These matrices compare the table structures, domain sets, and symbology that accompany both products. The purpose for this comparison was to determine if the ERMA software application could be easily adapted to fully support the environmental components of the TSSDS for performing environmental restoration GIS applications.

The first step in the comparison process was to compare the domain sets delivered with the TSSDS Release 1.6 and ERMA's default domains. This process was accomplished using a two-tiered approach; the first tier was a comparison of entire domain sets (Appendix A.1), and the second tier was the actual domain-value-to-domain-value comparison (Appendix A.2), which was prepared to provide complete documentation of the differences between the two products. These two matrices were developed by using the ERMA domain values as the "baseline," then mapping the corresponding TSSDS values to the ERMA values.

Instructions for Reading the Comparison Matrices

When reading the domain-value-to-domain-value matrix, all of the ERMA values are listed first, then they are "mapped" across to the corresponding values in the appropriate TSSDS domain set. If there is no corresponding TSSDS domain value for a particular ERMA domain value, "None" appears in column 5 and "N/A" appears in the comments column (column 6). In the event that the TSSDS domain set contained values that were not represented in the corresponding ERMA set, these "additional" values were listed following the last ERMA value (the value "None" will appear in the ERMA column [column 3] for each of the "additional" TSSDS domain values). If a row is shaded, the actual domain values were different, but had the same (or equivalent) definitions. It should be noted that the value definitions are listed exactly as they were listed in the TSSDS and in the ERMA software. If a definition appears to be incomplete, it is likely because of truncations caused by database field lengths that were shorter than the actual definitions. Finally, text appearing **in bold** in columns 4 and 6 is not

actually part of the definitions, but is provided to give additional information for the reader.

The table and symbology comparison matrices were completed using the values from the ERMA product as the baseline for comparison, with the corresponding TSSDS values mapped accordingly.

2 Software and Schema Specifications

Overview of the ERMA Suite of Products

The Intergraph ERMA suite of products was designed to provide a spatial data management, analysis, and presentation tool for environmental cleanup projects. It is intended to provide integrated tools to manage site information, perform technical analysis applications, and provide advanced visualization of a site's environmental aspects.

The Intergraph ERMA product is composed of three main modules. All three modules are part of Intergraph's MGE family of products.

As tested, the ERMA system requires the use of other products to make the software operational. These products included Microsoft Windows NT, MicroStation CAD software, the MGE Basic Nucleus software for Windows NT, the MGE Basic Administrator, a relational database management system (RDMS), and database server software such as Intergraph's Relational Interface System Server (RIS). RIS allows the user to select from RDMS packages such as ORACLE, INGRES, INFORMIX, DBS, RDB, and SYBASE.

The following are short descriptions of the basic functionality of the ERMA modules:

ERMA Data Manager - The ERMA Data Manager is the basis for the other ERMA modules and is a required piece of the ERMA package. The ERMA Site Geologist and ERMA Groundwater Modeler cannot be used without ERMA Data Manager. The ERMA Data Manager provides the basic tools for managing, analyzing, reporting, and posting sample data (point data) from the RDMS onto maps, drawings, tables, etc. A wide range of sampling information can be used with the ERMA Data Manager, including soil, air, groundwater, surface water, sediment, etc. The ERMA Data Manager provides database tools and basic mapping utilities to allow the user to integrate and manage point data (such as sampling locations) in a graphic environment.

The ERMA Data Manager stores the sample locations (or point features) in database tables rather than in separate graphic files. This allows for the management of the sample locations that were collected at various locations during various sampling events (i.e., temporal data).

Some specific functions of the ERMA Data Manager are:

a. Creating new base maps (two-dimensional/three-dimensional (2-D/3-D)) and performing basic file management functions.

b. Posting data (typically sample results) to active design files and creating bubble maps.

c. Performing map utility functions such as scaling posted data and map symbols and placing map borders.

d. Creating pie charts, stiff diagrams, bar charts, and scatter plots.

e. Entering/editing/reviewing data in the project database.

f. Creating basic database reports.

The ERMA Data Manager module is delivered with a default database schema which can be used with the product. Although ERMA does not require the use of this schema, changing the schema may affect the performance of the product. This will be discussed in further detail later in this report. A default ERMA Data Manager schema was used for the TSSDS comparison analysis in the report.

ERMA Site Geologist - The ERMA Site Geologist requires the use of the ERMA Data Manager as described above. The ERMA Site Geologist shares a common project database with the ERMA Data Manager. The ERMA Site Geologist adds database tools to aid in the management and manipulation of a project's geologic data. This includes the generation of boring logs, cross sections, monitoring well construction records, etc. The ERMA Site Geologist uses the RIS access to extract the necessary information from the RDMS to allow for creation of these products. The ERMA Site Geologist uses MicroStation to create and post drawings.

Some specific functions of the ERMA Site Geologist are:

a. Creating cross sections and boring logs in MicroStation using data from the RDMS.

b. Posting geologic information on active design files.

c. Organizing wells and borings into logically grouped well lists.

d. Entering/editing/reviewing data in the project database.

e. Building well and boring log display templates.

ERMA Groundwater Modeler - The ERMA Groundwater Modeler requires the use of the ERMA Data Manager as described above. The ERMA Groundwater Modeler is designed to provide an interface between the ERMA suite of products (the GIS environment) and the MODFLOW, MODPATH, and MT3D groundwater models (which are included). The ERMA Groundwater Modeler provides pre- and post-processing functions for these groundwater models.

Software Specifications Used for the Comparison Analysis

The specific ERMA software packages used in this comparison consisted of the Naval Facilities CAD2 Contract CLIN Number A019CU/Part Number SJBY429 (ERMA Groundwater Modeler for Windows NT), CLIN Number A019CV/Part Number SJBY430 (ERMA Site Geologist for Windows NT), and CLIN Number A019CW/Part Number SJBY431 (ERMA Data Manager for Windows NT). The RDMS used in this comparison was Oracle 7 for Windows NT.

Overview of the Environmental TSSDS

The subset of TSSDS tables and domains that are applicable to environmental restoration and compliance work are largely confined to the *environmental hazards* entity set of the TSSDS; however, tables from other entity sets ("*geology*" for example) would be required in order to perform all of the functions that are represented in the ERMA products.

It is important to note that to develop an environmental database using the TSSDS as a foundation would allow much more "room" to accommodate a wider variety of environmental data, such as tank information, air pollution hazards, and with the release of the TSSDS 1.6, additional functionality to track indoor hazards such as asbestos. The greatest limitation of the TSSDS is its rather overwhelming appearance, which makes it initially difficult to implement for a user who has little experience with RDMSs or GIS.

Table 1 includes all of the tables in Release 1.4 of the TSSDS which could be used in the implementation of an environmental GIS. Note that not all of the tables listed are applicable to the ERMA product, and by consequence, were not investigated for this report.

Overview of the ERMA Default Schema

The ERMA default schema enables the GIS user to maintain a wide variety of analytic and geologic data that are produced during typical environmental site investigations. The ability to customize the default database structure gives the user a great deal of flexibility in managing and organizing the data.

When setting up a project with ERMA, the user is able to choose from the four pre-defined project schemas that come with the software, or a user-defined schema may be selected provided that it conforms to the default configuration of the ERMA schemas. The four pre-defined schemas are:

a. **Minimum Database Schema** - The minimum schema required for successful operation of the basic GIS components that underlie the ERMA software.

b. **Basic Environmental Schema** - All the tables in the Minimum Database Schema, plus four tables for storing basic sampling information and analytical results, and three tables which contain optional domain values.

c. **Minimum Geology Schema** - All the tables in both of the aforementioned schemas, plus eight additional tables for storing well and geologic data, as well as additions to the MGE **feature** table.

d. **Basic Environmental / Geology Schema** - All of the tables in the above schemas, plus three additional tables for storing well completion data, sample data, and other down-hole test data, as well as four additional columns in the **well** table (which is in the Minimum Geology Schema). For the purposes of this report, this schema was used for all comparisons to the TSSDS.

It is critical to note, however, that the "learning curve" for successful implementation of the ERMA system is somewhat steep. In order to harness the full capabilities of this suite of software products, the intended user should have a strong working knowledge of what an RDMS is and how it functions, the ability to work within the MicroStation environment, and some familiarity with MGE. Even with these prerequisites, implementing this system with historical data involves a large investment in data preparation before the first map or cross section can be generated. Additionally, the documentation that accompanies these products is not easily digested, which adds to the level of frustration and loss in productivity during the initial "ramp up" phase of ERMA implementation. Once these obstacles are surmounted, however, the ERMA software provides a powerful and highly customizable vehicle for performing environmental GIS analyses.

3 Results of Comparison Analysis

Overall, it was determined that the ERMA software could be easily configured to utilize the TSSDS environmental schema for basic 2-D GIS applications that manage general sample and well location information, environmental sample data, and analytic results. Complications with the use of the ERMA software to perform more complex, 3-D GIS applications (for the maintenance and display of geologic cross sections information, and so forth) may arise due to the ERMA software's dependence on certain portions of the geology schema remaining unaltered. (See page 1-12 in *ERMA Data Dictionary*, Appendix B). Extensive modifications to these portions of the ERMA schema should be made only under the guidance of Intergraph's technical support staff to avoid any loss in software functionality.

The following paragraphs summarize the comparison analysis, and are organized by matrix type.

Domain Comparison

The following describe the findings of the domain comparison analysis. These items are further explained in Appendix A.2.

a. ERMA does not differentiate between the original (1986) U.S. Environmental Protection Agency (EPA) method SW-846 and the 1992 revision of this method. The TSSDS does make this distinction.

b. In the TSSDS domain, *env-analytical method code* values that end with an "A" reflect EPA revisions/updates to that particular method. The most recent revisions of some analytic methods were not incorporated into ERMA's corresponding domain set (Analysis Method). The domains that are impacted are:

-- SW6010 vs. SW6010A
-- SW7061 vs. SW7061A
-- SW8040 vs. SW8040A

It should be noted that it is the ERMA domain set that contains the outdated domains, making it the "deficient" domain set. Additionally, several of the ERMA analytic methods for which there are no corresponding values in the TSSDS were not found in any of the EPA methods documentation. Through discussions with Intergraph, it was determined that these values were most likely the result of work imported from the Air Force Installation Restoration Program Information Management System (IRPIMS) data structure.

a. The following domain sets have **major** differences:

-- *Well Type* (13403) vs. *well - construction type*
-- *Drilling Method* (13404) vs. *geology - drill/excavation method*

-- *Fill or Seal Type* (13407) vs. *geology - constr/fill mat code*

b. The lack of a Chemical Abstract Services (CAS) Number domain set in the TSSDS is perhaps the most noteworthy finding of the domain comparison process. Such a domain would be helpful in the TSSDS, as many common environmental contaminants are commonly referred to by different synonyms depending on the laboratory that performs environmental sample analyses, risk analyst and chemist preferences, and so forth. CAS numbers provide a common reference that removes the confusion and ambiguity that may result from the use of synonyms to describe chemical compounds present in the environment.

Table and Attribute Comparison

The following items summarize the findings relative to the table and attribute comparison analysis. These findings are further illustrated in Appendix A.3.

a. The TSSDS do not currently contain all of the tables/attributes that are used for the geologic applications that the Intergraph Site Geologist module performs. As a result, the default Environmental/Geology Schema in the ERMA product has tables that do not have direct "matches" in the TSSDS. For example, the tables **sect_line** and **sect_vert** in ERMA store information about cross section lines and section line vertices, respectively. These tables are populated by the software as a result of user inputs while in the graphics portion of the product, and consequently are not to be modified by the user outside the actual application. Because these tables are utilized by the software, it stands to reason that the TSSDS would not have comparable tables because the TSSDS was developed as a non-platform specific set of standards.

b. The TSSDS has no comparable table to the ERMA table **lithology**. The closest table that could be found is the TSSDS table **gelthbdk**, which is the geology - lithology table for bedrock information. The **gelthbdk** table allows for the horizontal definition of lithology boundaries, but not the vertical definition. The ERMA **lithology** table allows for the vertical definition of soil types and bedrock lithologies. This information is used for the creation of boring logs and cross sections.

c. The TSSDS has no comparable table for the ERMA table **down_hole_test**. This table is used to store information about tests that are conducted in wells (e.g., SPT, CPT, VST, slug tests, etc.).

d. Additionally, the TSSDS lacks comparable tables for most of the tables that ERMA uses in the geology portion of the schema (see matrix). Because the proper operation of the Site Geologist module relies on the schema delivered with the software remaining intact, the Site Geologist software would have to be modified for it to function properly with the TSSDS. Otherwise, the user could add the additional ERMA required tables to a TSSDS compliant schema to potentially allow for the module to operate (see Chapter 4).

e. Many of the TSSDS tables have redundant information that could be eliminated prior to utilizing the TSSDS for ERMA schema development. Many of these redundancies have been illustrated in the matrix, and notations have been made concerning from which tables these redundant attributes could be eliminated if the ERMA schema is used as the "baseline."

f. If the goal of the environmental GIS system is to maintain environmental sample data, as well as general monitoring well and other sample location data for 2-D spatial data posting and analysis, the TSSDS may be very easily incorporated into the ERMA software. However, if the goal of a GIS system using the Intergraph products is to be able to utilize additional MGE modules (such as Site Geologist) for cross section generation and so forth, more extensive changes will need to be made (see Chapter 4).

Symbology Comparison

The following describe the findings of the symbology comparison analysis. These items are further explained in Appendix A.4.

a. Many of the pre-defined font symbols that come with the ERMA product do not have a corresponding graphic entity in the TSSDS (e.g., Salt Water Disposal Well, Abandoned Oil Well, etc.). For most DoD installation GIS work, however, the lack of these environmental graphic entities in the TSSDS is probably not crucial.

b. Release 1.4 of the TSSDS included an index file for the geologic patterns (to use for cross sections and so forth); however, the actual graphics were not available.

c. Most of the line styles specific to the ERMA product are not defined in the TSSDS for the same reason that many of the tables in ERMA do not have TSSDS counterparts - they are specific to the Site Geologist Module. The only line style that is common between the packages is the contour line (ERMA code GC_CMJ).

4 Recommendations to Improve ERMA/TSSDS Compatibility

The level of effort necessary to achieve compatibility of the ERMA product with the TSSDS is varied depending on the type of GIS application to be implemented. If the goal of the environmental GIS system is to maintain environmental sample data, as well as general monitoring well and other sample location data for 2-D spatial data posting and analysis, the TSSDS may be very easily incorporated into the ERMA software. This may be achieved by simply modifying the delivered domain sets that accompany the ERMA product to support the TSSDS domains, and by defining TSSDS-compliant tables prior to project creation in ERMA. However, if the goal of a proposed GIS system using the Intergraph products is to be able to use additional MGE modules (such as Site Geologist) for cross section generation and so forth, more extensive and more difficult changes/additions would have to be completed.

Intergraph was unable to provide information on the level of effort that would be required to provide a fully TSSDS-compatible default schema with their ERMA product.

Suggestions for 2-D ERMA/TSSDS Compliance

For a simple 2-D environmental GIS application, the TSSDS tables listed in Table 2 could be substituted for ERMA tables with minor modifications.

These table substitutions, with the corresponding changes to attribute names (see Appendix A.3), would provide a basic GIS system with the capability to maintain analytic results and spatial data that would provide basic 2-D GIS mapping/posting capabilities (the functionality inherent in ERMA's Basic Environmental Schema), as well as the contouring functionality provided via MGE Modeler. In terms of general GIS functionality, this system may be adequate for a wide variety of user applications which do not require the maintenance of geologic data or well construction details. Note that this model does not include any changes to the Minimum Database Schema, which contains the required "core" GIS tables upon which ERMA relies to operate within the MGE framework. For a more detailed visual description of the entire ERMA data model, refer to page 1-22 in the ERMA Data Dictionary (Appendix B).

Suggestions for 3-D ERMA/TSSDS Compliance

Although the ERMA Data Dictionary warns against making extensive changes to the Basic Geology Schema for 3-D GIS applications,

TSSDS-compliant geology tables could be substituted for the existing ERMA tables under the following conditions:

a. The TSSDS adopts additional tables that would enable a GIS user to store vertical geologic data such as depth intervals of specific lithologic units and the corresponding U.S. Geological Survey (USGS) codes for these intervals, depth intervals of specific stratigraphic units, and so forth.

b. The end user has a strong understanding of Structured Query Language to provide the ERMA software with the database joins and views required to interpret these tables and post the data to a 3-D section accordingly.

For example, as previously stated, the TSSDS table **gelthbdk** only contains attributes for area-type analysis, whereas the ERMA **lithology** table is configured to maintain vertical data (depths).

Therefore, if the users implement the suggested 2-D changes described above, coupled with the changes outlined below, a fully TSSDS/ERMA project could potentially be created. To allow the system to handle monitoring well construction details, lithology and geology information, and so on, the tables shown in Table 3 could be modified and substituted for use with ERMA.

It is important to note that the ERMA schema is not a normalized database schema. For example, the ERMA tables **well_sample_data** and **sample_data** contain much of the same information, and, depending on user preferences and project requirements, these tables could be "combined" into one table, thereby eliminating much unnecessary data duplication (it is for this reason that TSSDS table **ehchasam** is shown as the corresponding table to **well_sample_data** in the table above).

The key relationships that ERMA describes in the Data Dictionary (Appendix B) are also not actually created at the database level, but are enforced through ERMA itself. This could create problems for a user in terms of referential integrity if the user chooses to load data into the project database without using ERMA.

It is also important to point out that many of the geology-oriented tables that appear in the ERMA schema do not have matching tables in the TSSDS. If the demand for GIS systems that can support geologic and lithologic data is high, then these table types could be incorporated into the TSSDS in subsequent releases. If this is the case, it is recommended that the tables to be added to the TSSDS be developed independent of the current ERMA configuration for reasons of platform independence and database performance mentioned earlier.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
gelthbdk	geology	geology_lithology	This table contains data about bedrock.
getecflt	geology	geology_tectonic	This table contains data about geologic faults of fault zones.
gesurfet	geology	geology_surface	This table contains data about specific geologic features such as caves or sinkholes.
getecsei	geology	geology_tectonic	This table contains data about seismic risk zones.
gesurgeo	geology	geology_surface	This table contains data about surface geology.
getecevn	geology	geology_tectonic	This table contains data about volcanic events or eruptions.
getecvlc	geology	geology_tectonic	This table contains data about volcanoes.
hysubaqf	hydrography	hydrography_subsurface	This table contains data about aquifers.
hysurfet	hydrography	hydrography_surface	This table contains data about specific hydrographic features.
hyflpflz	hydrography	hydrography_floodplain	This table contains data about flood zones.
hysubgwt	hydrography	hydrography_subsurface	This table contains data about ground water.
hyhdbply	hydrography	hydrography_hydrobasin	This table contains data about playas.
hycznbuf	hydrography	hydrography_coastal_zone	This table contains data about shoreline buffer areas.
hycznshr	hydrography	hydrography_coastal_zone	This table contains data about shorelines or coastlines.
hysurwbd	hydrography	hydrography_surface	This table contains data about surface bodies of water.
hysurchn	hydrography	hydrography_surface	This table contains data about channels.
hysurcrs	hydrography	hydrography_surface	This table contains data about surface water courses.
hyhdbwts	hydrography	hydrography_hydrobasin	This table contains data about watersheds.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
hywetbuf	hydrography	hydrography_wetland	This table contains data about wetland buffer areas.
hywetlnd	hydrography	hydrography_wetland	This table contains data about wetlands.
sogenunt	soil	soil_general	This table contains data about areas of the Earth's surface with similar soil characteristics and content.
sogensmp	soil	soil_general	This table contains data about soil sampling sites.
sogenres	soil	soil_general	This table contains data about soil sample results.
sogentax	soil	soil_general	This table contains data about soil taxonomic classification including soil series descriptions used to organize, group, and communicate knowledge about soils.
ehsitaoc	environmental_hazards	env_haz_site_management	This table contains data about an area of potential concern.
ehsitdod	environmental_hazards	env_haz_site_management	This table contains data about a department of defense environmental hazards site which is not separately addressed.
ehsitepa	environmental_hazards	env_haz_site_management	This table contains data about a superfund site.
ehsitfud	environmental_hazards	env_haz_site_management	This table contains data about a department of defense formerly used defense site.
ehsitirp	environmental_hazards	env_haz_site_management	This table contains data about a department of defense installation restoration program site.
ehgencrz	environmental_hazards	env_haz_general	This table contains data about a contamination reduction zone.
ehgendcl	environmental_hazards	env_haz_general	This table contains data about a decontamination line.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehgenedp	environmental_hazards	env_haz_general	This table contains data about an equipment decontamination pad
ehgenexz	environmental_hazards	env_haz_general	This table contains data about an exclusion zone.
ehgenocp	environmental_hazards	env_haz_general	This table contains data about an onsite command post.
ehgensga	environmental_hazards	env_haz_general	This table contains data about a staging area.
ehgensic	environmental_hazards	env_haz_general	This table contains data about a site information center.
ehgensra	environmental_hazards	env_haz_general	This table contains data about a seasonal restriction area.
ehgensuz	environmental_hazards	env_haz_general	This table contains data about a support zone.
ehgenwwt	environmental_hazards	env_haz_general	This table contains data about a washdown water tank.
ehhmwast	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about an aboveground storage tank.
ehpolhwd	environmental_hazards	env_haz_general_pollution	This table contains data about hazardous waste disposal area.
ehhmwhsa	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a contained hazardous materiel/hazardous waste storage area.
ehmrmmwd	environmental_hazards	env_haz_munitions_remediation	This table contains data about munitions waste disposal area.
ehhmwust	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about an underground storage tank.
ehremopu	environmental_hazards	env_haz_pollution_remediation	This table contains data about an operable unit.
ehsitpro	environmental_hazards	env_haz_site_management	This table contains data about an environmental hazards remediation or restoration project.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehremtsa	environmental_hazards	env_haz_pollution_remediation	This table contains data about a temporary stockpile area.
ehremexa	environmental_hazards	env_haz_pollution_remediation	This table contains data about an excavation area.
ehchaspt	environmental_hazards	env_haz_characterization	This table contains data about an environmental field sample (i.e., soil, sediment, ground water, surface water, or exterior air) collection location.
ehhmwcma	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a contained hazardous chemical materiel.
ehhmwmem	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained hazardous medical materiel.
ehhmwrma	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained radioactive materiel.
ehmmwcem	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained explosive munitions .
ehmmwbwm	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained biological warfare munitions materiel.
ehmmwchm	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained chemical warfare munitions materiel.
ehhmwcwa	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained chemical waste.
ehhmwmew	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained medical waste.
ehhmwmiw	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained mixed waste.
ehhmwrwa	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained radioactive waste.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehmmwbww	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained biological warfare waste.
ehmmwcww	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained chemical warfare waste.
ehmmwoew	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained ordnance and explosive waste.
ehswmamo	environmental_hazards	env_haz_solid_waste_management	This table contains data about an ash monofill.
ehswmcfa	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste composting facility.
ehswmcll	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill cell.
ehswmcom	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste compactor.
ehswmcop	environmental_hazards	env_haz_solid_waste_management	This table contains data about landfill leachate or gas collection piping.
ehswmgcw	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill gas collection well.
ehswmgfl	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill gas flare station.
ehchagmp	environmental_hazards	env_haz_characterization	This table contains data about a gas monitoring probe.
ehswmgtc	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill gas transport compressor.
ehswmgtp	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill gas treatment plant.
ehswminc	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste incinerator.
ehswmlcs	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill leachate collection sump.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehswmlep	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill leachate transport pump.
ehswmlfl	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste landfill.
ehswmlrd	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill runoff drain.
ehswmltp	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill leachate treatment plant.
ehswmmcf	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste materiel recovery collection facility.
ehswmrra	environmental_hazards	env_haz_solid_waste_management	This table contains data about a landfill runoff retention area.
ehswmswd	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste dump.
ehswmsws	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste stockpile.
ehswmswt	environmental_hazards	env_haz_solid_waste_management	This table contains data about a solid waste transfer station.
ehswmtrp	environmental_hazards	env_haz_solid_waste_management	This table contains data about landfill leachate or gas transport piping.
ehgwtiso	environmental_hazards	env_haz_groundwater_pollution	This table contains data about a groundwater pollution isoline.
ehmrmbww	environmental_hazards	env_haz_munitions_remediation	This table contains data about a biological warfare waste polluted area.
ehsoiche	environmental_hazards	env_haz_soil_pollution	This table contains data about a chemical waste polluted soil area.
ehpolpsp	environmental_hazards	env_haz_general_pollution	This table contains data about a pollution source point.
ehsoirad	environmental_hazards	env_haz_soil_pollution	This table contains data about a radioactive waste polluted soil area.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehmrmcww	environmental_hazards	env_haz_munitions_remediation	This table contains data about a chemical warfare waste polluted area.
ehsoimed	environmental_hazards	env_haz_soil_pollution	This table contains data about a medical waste polluted soil area.
ehsoimix	environmental_hazards	env_haz_soil_pollution	This table contains data about a mixed (radioactive & chemical) waste polluted soil area.
ehpolnsp	environmental_hazards	env_haz_general_pollution	This table contains data about a nonpoint source pollution area.
ehmrmoew	environmental_hazards	env_haz_munitions_remediation	This table contains data about an ordnance and explosive waste polluted area.
ehgwtplu	environmental_hazards	env_haz_groundwater_pollution	This table contains data about a groundwater pollution plume.
ehempeme	environmental_hazards	env_haz_emergency_preparedness	This table contains data about an emergency eyewash.
ehempems	environmental_hazards	env_haz_emergency_preparedness	This table contains data about an emergency shower.
ehempprl	environmental_hazards	env_haz_emergency_preparedness	This table contains data about a potential pollution release location.
ehempscf	environmental_hazards	env_haz_emergency_preparedness	This table contains data about a spill containment feature.
ehempsct	environmental_hazards	env_haz_emergency_preparedness	This table contains data about a spill containment tank.
ehempsrf	environmental_hazards	env_haz_emergency_preparedness	This table contains data about a spill response feature.
ehempsrs	environmental_hazards	env_haz_emergency_preparedness	This table contains data about a spill response staging area.
ehbdhiah	environmental_hazards	env_haz_bldg_hazard_remediation	This table contains data about an indoor air hazard.
ehbdhldh	environmental_hazards	env_haz_bldg_hazard_remediation	This table contains data about a lead hazard.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehhmwhsb	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a contained hazardous material/hazardous waste storage building
ehchamwl	environmental_hazards	env_haz_characterization	This table contains data about a groundwater monitoring well.
gesubbhl	geology	geology_subsurface	This table contains data about a borehole or boring.
ehchamst	environmental_hazards	env_haz_characterization	This table contains data about an exterior air quality monitoring station (i.e., located outside of a building or structure).
ehchamag	environmental_hazards	env_haz_characterization	This table contains data about a magnetometer detection location.
ehhmwcpp	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained petroleum product.
ehhmwcpw	environmental_hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained petroleum waste.
ehsoipet	environmental_hazards	env_haz_soil_pollution	This table contains data about a petroleum waste polluted soil area.
ehmmwrmm	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained radioactive munitions materiel.
ehmmwrmw	environmental_hazards	env_haz_munmat_munwaste_manage	This table contains data about contained radioactive munitions waste.
ehchasam	environmental_hazards	env_haz_characterization	This table contains data about a field sample collection occurence.
ehchalab	environmental_hazards	env_haz_characterization	This table contains data about the laboratory analysis of a field collected sample which yields a chemical result.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehchares	environmental_hazards	env_haz_characterization	This table contains a summary of the chemical results of the laboratory analysis of a field collected sample.
ehbdhacm	environmental_hazards	env_haz_bldg_hazard_remediation	This table contains data about an asbestos containing materiel.
ehsitsit	environmental_hazards	env_haz_site_management	This table contains basic data about an environmental hazards site.
ehairche	environmental_hazards	env_haz_air_pollution	This table contains data about air polluted with chemical waste or emissions.
ehairiso	environmental_hazards	env_haz_air_pollution	This table contains data about an air pollution isoline.
ehairmed	environmental_hazards	env_haz_air_pollution	This table contains data about air polluted with medical waste or emissions.
ehairmix	environmental_hazards	env_haz_air_pollution	This table contains data about air polluted with mixed waste or emissions.
ehairpet	environmental_hazards	env_haz_air_pollution	This table contains data about air polluted with petroleum waste or emissions.
ehairplu	environmental_hazards	env_haz_air_pollution	This table contains data about an air pollution plume.
ehairrad	environmental_hazards	env_haz_air_pollution	This table contains data about air polluted with radioactive waste or emissions.
ehgwtche	environmental_hazards	env_haz_groundwater_pollution	This table contains data about groundwater polluted with chemical waste.
ehgwtmed	environmental_hazards	env_haz_groundwater_pollution	This table contains data about groundwater polluted with medical waste.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehgwtmix	environmental_hazards	env_haz_groundwater_pollution	This table contains data about groundwater polluted with mixed waste.
ehgwtpet	environmental_hazards	env_haz_groundwater_pollution	This table contains data about groundwater polluted with petroleum waste.
ehgwtrad	environmental_hazards	env_haz_groundwater_pollution	This table contains data about groundwater polluted with radioactive waste.
ehsedche	environmental_hazards	env_haz_sediment_pollution	This table contains data about sediment polluted with chemical waste.
ehsediso	environmental_hazards	env_haz_sediment_pollution	This table contains data about a sediment pollution isoline.
ehsedmed	environmental_hazards	env_haz_sediment_pollution	This table contains data about sediment polluted with medical waste.
ehsedmix	environmental_hazards	env_haz_sediment_pollution	This table contains data about sediment polluted with mixed waste.
ehsedpet	environmental_hazards	env_haz_sediment_pollution	This table contains data about sediment polluted with petroleum waste.
ehsedplu	environmental_hazards	env_haz_sediment_pollution	This table contains data about a sediment pollution plume.
ehsedrad	environmental_hazards	env_haz_sediment_pollution	This table contains data about sediment polluted with radioactive waste.
ehsoiiso	environmental_hazards	env_haz_soil_pollution	This table contains data about a soil pollution isoline.
ehsoiplu	environmental_hazards	env_haz_soil_pollution	This table contains data about a soil pollution plume.
ehswtche	environmental_hazards	env_haz_surface_water_pollution	This table contains data about surface water polluted with chemical waste.
ehswtiso	environmental_hazards	env_haz_surface_water_pollution	This table contains data about a surface water pollution isoline.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehswtmed	environmental_hazards	env_haz_surface_water_pollution	This table contains data about surface water polluted with medical waste.
ehswtmix	environmental_hazards	env_haz_surface_water_pollution	This table contains data about surface water polluted with mixed waste.
ehswtpet	environmental_hazards	env_haz_surface_water_pollution	This table contains data about surface water polluted with petroleum waste.
ehswtplu	environmental_hazards	env_haz_surface_water_pollution	This table contains data about a surface water pollution plume.
ehswtrad	environmental_hazards	env_haz_surface_water_pollution	This table contains data about surface water polluted with radioactive waste.
ehbdhbdh	environmental_hazards	env_haz_bldg_hazard_remediation	This table contains basic data about a building with environmental hazards.
ehhmwhsl	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains general data about a bulk or contained hazardous materiel/hazardous waste storage location (e.g., area, building, room, or tank).
ehmmwmsl	environmental hazards	env_haz_munmat_munwaste_manage	This table contains general data about a bulk or contained munitions materiel/munitions waste storage location (e.g., area, building, room).
hysurwsc	hydrography	hydrography_surface	This table contains data about surface and subsurface water sources.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
gesublic	geology	geology_subsurface	This table contains an interpreted description of a lithologic interval at a particular location (e.g., borehole). A set of lithologic interpretations makes up the interpretation of the lithologic column at a location.
gesublit	geology	geology_subsurface	This table contains a description of a lithologic interval at a particular location (e.g., borehole). A set of lithologic descriptions makes up the description of the lithologic column at the particular location.
gesubsti	geology	geology_subsurface	This table contains a classification description of the interpreted stratigraphic column for a defined area (e.g., an installation). Multiple columns may be constructed for a single defined area, allowing multiple interpretations using different criteria
gesubstu	geology	geology_subsurface	This table contains a description of a single unit of the interpreted stratigraphic column for a defined area (e.g., an installation). Common names of formal geologic nomenclature may be used.
ehairasp	environmental hazards	env_haz_air_pollution	This table contains data about a specific location where air emissions or air pollution originates.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehairpsa	environmental hazards	env_haz_air_pollution	This table contains data about a defined area where air emissions or air pollution originate.
ehchagwm	environmental hazards	env_haz_characterization	This table contains data about a groundwater monitoring station.
ehchaswm	environmental hazards	env_haz_characterization	This table contains data about a surface water monitoring station.
ehhmwhma	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about an area designated for the storage of contained hazardous materiels.
ehhmwhmb	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a building designated for the storage of contained hazardous materiels.
ehhmwhml	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains basic data about a location designated for the storage of contained hazardous materiels.
ehhmwhmr	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a room designated for the storage of contained hazardous materiels.
ehhmwhmv	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a secured vault or cabinet designated for the storage of contained hazardous materiels.
ehhmwhsr	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a room designated for the storage of contained hazardous waste.
ehhmwhsv	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about a secured vault or cabinet designated for the storage of contained hazardous waste.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehhmwpcb	environmental hazards	env_haz_hazmat_hazwaste_manage	This table contains data about contained polychlorinated biphenyls (e.g., electrical transformers, etc.).
ehpolaoc	environmental hazards	env_haz_general_pollution	This table contains data about a polluted area of concern located within an environmental hazards site.
ehpolcon	environmental hazards	env_haz_general_pollution	This table contains data about contaminants at a polluted area of concern.
ehpolszn	environmental hazards	env_haz_general_pollution	This table establishes the relationship between an environmental hazards investigative zone and an environmental hazards site.
ehpolzon	environmental hazards	env_haz_general_pollution	This table contains data about a zone which represents geographically contiguous investigative units amenable to management as a single remedial investigation.
ehreminc	environmental hazards	env_haz_pollution_remediation	This table contains data about a pollution remediation incinerator.
ehremmat	environmental hazards	env_haz_pollution_remediation	This table contains data concerning the pollution remediation operable unit target matrix and contaminants.
ehremsog	environmental hazards	env_haz_pollution_remediation	This table establishes the relationship between a pollution remediation operable unit (from Table ehremopu), environmental hazards site group (from Table ehsitgrp), environmental hazards investigative zone (from Table ehpolzon), and an environmental hazard.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehremtdu	environmental hazards	env_haz_pollution_remediation	This table contains data about a pollution remediation thermal desorption unit.
ehsitali	environmental hazards	env_haz_site_management	This table contains data about a site alias name.
ehsitath	environmental hazards	env_haz_site_management	This table establishes the relationship between an environmental hazards regulatory authority (from Table ehsitreg) and an environmental hazards site (from Table ehsitsit).
ehsitcon	environmental hazards	env_haz_site_management	This table contains data about the general category or type of site contamination at an environmental hazards site.
ehsitgrp	environmental hazards	env_haz_site_management	This table contains data identifying an arbitrary grouping of sites for management, technical, or regulatory purposes.
ehsitmat	environmental hazards	env_haz_site_management	This table contains data about the general category or type of polluted matrix at an environmental hazards site.
ehsitpol	environmental hazards	env_haz_site_management	This table establishes the relationship between the general category of site contamination (from Table ehsitcon), the general category of polluted matrix (from Table ehsitmat) , and an environmental hazards site (from Table ehsitsit).
ehsitreg	environmental hazards	env_haz_site_management	This table contains data about an environmental hazards regulatory authority.

TABLE 1

ENVIRONMENTAL TSSDS TABLES (RELEASE 1.6)

TABLE NAME	ENTITY SET NAME	ENTITY CLASS NAME	DEFINITION
ehsitsgp	environmental hazards	env_haz_site_management	This table establishes the relationship between an environmental hazards site group and an environmental hazards site.
ehsituse	environmental hazards	env_haz_site_management	This table contains data about past usage of an environmental hazards site.
ehtnkast	environmental hazards	env_haz_regulated_tank_manage	This table contains data about aboveground storatge tanks.
ehtnkfrm	environmental hazards	env_haz_regulated_tank_manage	This table contains data about regulated tank farms.
ehtnktnk	environmental hazards	env_haz_regulated_tank_manage	This table contains data about a fuel or chemical storage tank regulated by an environmental regulatory authority.
ehtnkust	environmental hazards	env_haz_regulated_tank_manage	This table contains data about underground storatge tanks.

Source: Tri-Service Spatial Data Standards Release 1.6

Table 2
Suggestions for 2-D ERMA/TSSDS Compliance

ERMA Table Name	ERMA Join Column	TSSDS Table Name	TSSDS Join Column
sample_location	location_name	ehchaspt	sam_pt_id
sample_data	sample_id	ehchasam	chasam_id
analytic_methods	sample_id	ehchalab	chasam_id
analytic_results	sample_id	ehchares	chasam_id

Table 3
Suggestions for 3-D ERMA/TSSDS Compliance

ERMA Table Name	ERMA Join Column	TSSDS Table Name	TSSDS Join Column
well_sample_data	well_name	ehchasam	chabhl_id
down_hole_test	N/A	NONE	N/A
well_completion	well_name	ehchamwl	chabhl_id
well	official_name	ehchamwl	chabhl_id
strat_pen	N/A	NONE	N/A
strat_name	N/A	NONE	N/A
fluid_pen	N/A	NONE	N/A
fluid	N/A	NONE	N/A
lithology	N/A	NONE	N/A

Appendix A
Instructions for Reading the Comparison Matrix

When reading the domain-value-to-domain-value matrix, all of the ERMA values are listed first, then they are "mapped" across to the corresponding values in the appropriate TSSDS domain set. If there is no corresponding TSSDS domain value for a particular ERMA domain value, "None" appears in column 5 and "N/A" appears in the comments column (column 6). In the event that the TSSDS domain set contained values that were not represented in the corresponding ERMA set, these "additional" values were listed following the last ERMA value (the value "None" will appear in the ERMA column [column 3] for each of the "additional" TSSDS domain values). If a row is shaded, the actual domain values were different, but had the same (or equivalent) definitions. It should be noted that the value definitions are listed exactly as they were listed in the TSSDS and in the ERMA software. If a definition appears to be incomplete, it is likely because of truncations caused by database field lengths that were shorter than the actual definitions. Finally, text appearing **in bold** in columns 4 and 6 is not actually part of the definitions, but is provided to give additional information to the reader.

The table and symbology comparison matrices were completed using the values from the ERMA product as the baseline for comparison, with the corresponding TSSDS values mapped accordingly.

APPENDIX A.1
DOMAIN COMPARISON
SET TO SET MAP

ERMA DOMAIN	ERMA MSLINK VALUE	ERMA DOMAIN DESCRIPTION	CORRESPONDING TSSDS DOMAIN
Fluid Type	10245	Abbreviated names for fluids in the project area.	well - fluid type
Main Lithology	10250	Describes the composition of the rocks at a site in terms of color, mineralogic makeup, and grain size.	env-lithology type
Collection Method	13201	Describes the manner in which a sample was obtained.	None*
Sampling Equipment	13202	Instruments or other machinery used to collect an environmental sample.	env-sampling equipment
Sampling Location Type	13203	Describes from where an environmental sample was collected.	env-location class code
Sampling Type	13204	Describes the sample type from a QA/QC perspective.	env-sample type code
Sample Matrix	13205	Describes the medium of a particular environmental sample.	env-sample matrix type
Analysis Protocol	13206	Describes the analysis protocol used for a specific environmental sample	env-reference sample QC code
Partition or Analysis Class	13207	Broad category of types of compounds or analytes being analyzed for in a sample.	None
Analysis Method	13208	Specific method used by a laboratory to analyze an environmental sample	env-analytical method code
Analysis Basis	13209	Describes the basis under which a laboratory reports its results.	env-analytical result basis

APPENDIX A.1
DOMAIN COMPARISON
SET TO SET MAP

ERMA DOMAIN	ERMA MSLINK VALUE	ERMA DOMAIN DESCRIPTION	CORRESPONDING TSSDS DOMAIN
Extraction Method	13210	Describes a standard laboratory protocol for the preparation / extraction of an environmental sample for analysis.	env-extraction method code
Column Type	13211	Describes the column used in the laboratory analysis of a sample.	None
Value Name	13212	Abbreviated versions of the names of compounds/analytes in environmental samples.	env-parameter label code
CAS Number	13213	The Chemical Abstract Services numbers for the compounds or analytes in environmental samples.	None
Value Qualifier	13214	A qualifier that applies to an analytic result.	env-parameter value qualifier
QA Qualifier	13215	A qualifier that applies when there is reason to believe that the quality of a result is suspect.	env-laboratory note
Sampling Location Status	13216	Derived from EPA's GRITS, used to describe the relative quality of the sampling location.	None
Well Status	13401	Describes the relative condition / operational status of a well.	well - well status
Well Type	13402	Value that describes the type of well or boring.	well - well type classification
Completion Method	13403	Value that describes the type or method of well completion.	well - construction type
Drilling Method	13404	Describes the equipment / method used to install a well.	geology - drill / excavation meth
Casing Status	13405	Describes the status of the well casing.	None

APPENDIX A.1
DOMAIN COMPARISON
SET TO SET MAP

ERMA DOMAIN	ERMA MSLINK VALUE	ERMA DOMAIN DESCRIPTION	CORRESPONDING TSSDS DOMAIN
Casing or Screen Material	13406	Describes the type of material of which the well casing or screen is fabricated.	geology - casing material type **OR** well - protective casing mat
Fill or Seal Type	13407	Describes the material used as fill for, or to be used as a seal for a well.	geology - constr/fill mat code
Screen Type	13408	A description of the type of screen installed in a well.	None
Pump Type	13409	Describes the type of pump installed in a well.	env - sampling equipment

* The Tri Services Domain set *env - sample method* is more equipment-oriented.

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Fluid Type / well - fluid type	10245	FLP	Floating Product	FREE_PETROLEUM	free petroleum
		OTH	Other	OTHER	other type of fluid encountered which is described in comment field.
		WAT	Water	GROUNDWATER	groundwater
		None	N/A	TCE	tce
		None	N/A	TRACER	tracer substance
		None	N/A	UNKNOWN	unknown
Main Lithology / geology - lithology type	10250	AH	Anhydrite	AH	anhydrite
		AK	Arkose	AK	arkose
		AL	Argillaceous limestone	AL	argillaceous limestone
		BR	Breccia	BR	breccia
		CG	Conglomerate	CG	conglomerate
		CH	Inorganic clays of high plasticity, fat clays	None	N/A
		CK	Chalk	CK	chalk
		CL	Inorganic clays of low to medium plasticity	None	N/A
		CO	General coal (carbonaceous)	CO	general coal (carbonaceous)
		CY	Clay	CL	clay
		DL	Dolomitic limestone	DL	dolomitic limestone
		DM	Dolomite	DM	dolomite
		DY	Dykes	DY	dykes
		EX	Extrusive (volcanic) rocks	EX	extrusive (volcanic) rocks

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Main Lithology / geology - lithology type (continued)		GC	Clayey gravels, poorly graded gravel-sand-clay mixtures	None	N/A
		GK	Greywacke	GK	greywacke
		GM	Silty gravels, poorly graded gravel-sand-silt mixtures	None	N/A
		GP	Poorly graded gravels, gravel-sand mixtures; little or no fines	None	N/A
		GV	Gravel	GV	gravel
		GW	Well-graded gravels, gravel-sand mixtures; little or no fines	None	N/A
		IG	Igneous rocks in general	IG	igneous rocks in general
		IN	General intrusives (plutonics)	IN	general intrusives (plutonics)
		KM	Potassium and magnesium salts	KM	Potassium and Magnesium salts in
		LC	Limestone (calcareous)	LS	limestone (calcareous)
		LG	Lignite (brown coal)	LG	lignite (brown coal)
		LS	Sandy limestone	None	N/A
		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Main Lithology / geology - lithology type (continued)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity	None	N/A
		MM	Metamorphics in general	MM	metamorphics in general
		MR	Marl	MR	marl
		MS	Mudstone	MS	mudstone
		NA	Halite	NA	halite
		NP	No ASTM classification, problems in sampling	None	N/A
		NU	No ASTM classification, reasons unknown	None	N/A
		OH	Organic clays of medium to high plasticity	None	N/A
		OL	Organic silts and organic silt clays of low plasticity	None	N/A
		PT	Peat and other highly organic soils	None	N/A
		QT	Quartzite	QT	quartzite
		SA	Sand	SA	sand
		SC	Clayey sands, poorly graded sand-clay mixtures	None	N/A
		SH	Shale	SH	shale
		SJ	Silt	SJ	silt
		SL	General salt (saliferous)	SL	general salt (saliferous)
		SM	Silty sands, poorly graded sand-silt mixtures	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Main Lithology / geology - lithology type (continued)		SP	Poorly graded sands, gravely sands; little or no fines	None	N/A
		SS	Sandstone	SS	sandstone
		ST	Siltstone	ST	siltstone
		SW	Well-graded sands, gravely sands; little or no fines	None	N/A
		TF	Tuff	TF	tuff
		TI	Tillite diamictite	TI	tillite, diamictite
		VA	Volcanic agglomerate/breccia	VA	volcanic agglomerate/breccia
		Z	Other	None	N/A
		None	N/A	DS	dune sand
		None	N/A	SC	sandy limestone
Collection Method / None*	13201	BL	Undisturbed bulk sample	None	N/A
		CF	Flow-weighted composite	None	N/A
		CS	Composite sample	None	N/A
		CT	Time-weighted composite	None	N/A
		DB	Disturbed bulk sample	None	N/A
		GR	Grab	None	N/A
		NA	Not applicable	None	N/A
		OT	Other	None	N/A
		QC	Quality-control samples	None	N/A
		UN	Unknown	None	N/A
Sampling Equipment / env-sampling equipment	13202	AC	Air canister	AC	Air Canister

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Equipment / env-sampling equipment (continued)		AL	Air lift sampler	AL	Air-Lift Sampler
		AP	Air lift pump	AP	Air Lift Pump
		AS	Ashing	AS	Ashing
		BA	Bailer	B	Bailer
		BR	Brass (California) ring	BR	Brass (California) Ring
		BP	Gas-operated bladder pump	BP	Gas Operated Bladder Pump
		CF	Continuous-flight auger	C	Continuous Flight Auger
		CH	Charcoal sampling tube	CH	Charcoal Sampling Tube
		CL	Clover-leaf dredge sampler	CL	Clover Leaf Dredge Sampler
		CP	Centrifugal pump	CP	Centrifugal Pump
		CR	Cutting returns	CR	Cutting Returns
		DS	Drive sample (2-inch/ASTM-D1586)	S	Drive Sample - 2 inch/ASTM D1586
		E1	Electrical submersible pump (pre-1982)	E1	Electrical Submersible Pump (Pre-1982)
		E2	Electrical submersible pump (1982+)	E2	Electrical Submersible Pump (1982+)
		EK	Eckman dredge sampler	EK	Eckman Dredge Sampler
		GD	Electrical submersible pump (gear-driven)	GD	Electrical Submersible Pump (Gear-Driven)
		GP	Gas-operated, double-acting piston pump	GP	Gas-operated, double acting Piston Pump
		HA	Hand auger	HA	Hand Auger
		HB	Hand-bucket auger	HB	Hand Bucket Auger

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Equipment / env-sampling equipment (continued)		HR	Electrical submersible pump (helical rotor)	HR	Electrical Submersible Pump (Helical Rotor)
		HS	Hollow-stem auger	H	Hollow Stem Auger
		HV	High-volume air sample	HV	High Volume Air Sampler
		KS	Kemmeter sampler	KS	Kemmerer Sampler
		LY	Lysimeter	LY	Lysimeter
		NA	Not applicable	NA	not applicable
		NQ	NQ wireline rock coring (ASTM-D2113)	NQ	NQ Wireline Rock Coring/ASTM-D2113
		NX	NX rock coring (ASTM-D2113)	NX	NX Rock Coring/ASTM-D2113
		PI	Piston pump	PI	Piston Pump
		PP	Peristaltic pump	PP	Peristaltic Pump
		SC	Scraped from exposed surface	SC	Scraped From Exposed Surface
		SH	Shelby tube (ASTM-D1587)	T	Shelby Tube/ASTM-D1587
		SL	Suction-lift pump	SL	Suction Lift Pump
		SP	Submersible pump	SP	Submersible Pump
		SS	Split spoon	SS	Split Spoon
		ST	Submersible turbine pump	ST	Submersible Turbine Pump
		SW	Swab or wipe	W	Swab Or Wipe
		SY	Syringe	SY	Syringe
		TS	Thief sample and/or thief type sampler	TS	Thief Sampler and/or Thief Type Sampler

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Equipment / env-sampling equipment (continued)		TU	Tube sampler (3"/ASTM-D3550)	U	Tube Sampler - 3 inch/ASTM-D3550
		UN	Unknown	None	N/A
		VD	VanDorn sampler	VS	Van Dorn Sampler
		WF	Wellhead faucet (grab sample from)	WF	Wellhead Faucet (Grab Sample From)
		None	N/A	HX	High-Volume Air Sampler with XAD Resin
		None	N/A	NC	Nickel Coated Brass Bomb Sampler
		None	N/A	HU	High-Volume Air Sampler with Puf Resin
		None	N/A	HP	Hydropunch
		None	N/A	LV	Low Volume Continuous Air Sampler
		None	N/A	PR	Stainless Steel Soil Gas Probe with a Retractable
		None	N/A	RS	Hollow Glass Sampling Rod
		None	N/A	CF	Flow Weighted Composite
		None	N/A	CC	5 Foot Continuous Core Sampler
		None	N/A	CN	Cone Penetrometer
		None	N/A	BL	Undisturbed Bulk Sample
		None	N/A	AT	Sampling Train
		None	N/A	G	Grab

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Equipment/ env-sampling equipment (continued)		None	N/A	FC	Cassette Filter
		None	N/A	DT	Driven Tube
		None	N/A	DS	Dredge Sampler (Brass, Etc.)
		None	N/A	D	Disturbed Bulk Sample
		None	N/A	CY	Cyclone Method of Sampling Drill Cuttings
		None	N/A	CT	Time Weighted Composite
Sampling Location Type / env-location class code	13203	AA	Ambient air	A	Air
		BR	Nonfixed location receptable, including barrels and containers	BR	Non-Fixed Locations Receptical Including Barrels & [Containers]
		CP	Cone penetrometer / hydropunch	PH	Cone Pentrometer/Hydropunch
		FW	Faucet/tap	FW	Faucet/Tap
		OC	Outcrop	OC	Outcrop
		QC	Field QC sample	None	N/A
		SA	Screened water	WL	Well
		SB	Soil boring	BH	Borehole
		SD	Sediment	MS	Marine Sediment
		SS	Surface survey	SS	Surface Survey
		SSGP	Geophysics	None	N/A
		SSSG	Soil gas	PR	Soil Gas Probe
		SSMG	Methane gas	None	N/A
		SW	Surface water	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Location Type / env-location class code (continued)		SWCH	Channel/ditch	CH	Channel/Ditch
		SWLK	Lake/pond	LK	Lake/Pond
		SWRV	River/stream	RV	River/Stream
		SWSE	Seep	SE	Seep
		SWSP	Spring	SP	Spring
		TK	Fixed-location receptable, including tanks, containers, vats	TK	Fix Loc Receptical Including Tanks, Containers and [Vats]
		TP	Test pit	TP	Test Pit
		TR	Trenching	None	N/A
		UN	Unknown	None	N/A
		None	N/A	SR	Sewer System
		None	N/A	PZ	Piezometer
		None	N/A	AS	Pump and Treat (Air Stripping)
		None	N/A	SW	Storm Water
		None	N/A	TE	Tank/Pipe removal excavation
		None	N/A	VF	Emission isolation flux chamber, utilizing stainle[...]
		None	N/A	SL	Surface Location
		None	N/A	ON	Ocean
		None	N/A	LH	Leachate From Landfill
		None	N/A	HP	Holding Pond/Lagoon
		None	N/A	CP	Composite From Several Locations

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Location Type / env-location class code (continued)		None	N/A	BL	Manmade Building materiels from Roof, Walls, Basem[...]
		None	N/A	WW	Waste Water
		None	N/A	RE	Residence
Sampling Type / env-sample type code	13204	AB	Ambient conditions blank	AB	ambient conditions
		AV	Average of QA duplicates	None	N/A
		BD	Blank-spike duplicate	BSD	blank spike duplicate
		BS	Blank spike	BS	blank spike
		EB	Equipment blank	EB	equipment blank
		FD	Field duplicate	FD	field duplicate
		FR	Field replicate/duplicate	FR	field replicate
		FS	Field spike	FS	field spike
		KD	Known (external reference material) duplicate	KMD	known (external reference materiel) duplicate
		LB	Lab blank	LB	lab blank
		LR	Lab replicate	LR	lab replicate
		MB	Material blank	MB	materiel blank
		MS	Lab-matrix spike	LMS	lab matrix spike
		NE	Normal environment sample	N	normal environmental sample
		RB	Material rinse blank	RB	materiel rinse blank
		RD	Regulatory duplicate	RD	regulatory duplicate
		RM	Known (external reference material)	KM	known (external reference materiel)
		SD	Lab-matrix spike duplicate	LMSD	lab matrix spike duplicate

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Type / env-sample type code (continued)		TB	Trip blank	TB	trip blank
		None	N/A	CC	continuing calibration verification
		None	N/A	S	environmental sample
		None	N/A	IC	initial calibration verification
		None	N/A	RS	reagent solvent
		None	N/A	EBD	equipment blank duplicate
		None	N/A	FBLR	field blank lab replicate
		None	N/A	FRLR	field replicate lab replicate
		None	N/A	FBLD	field blank lab matrix spike duplicate
		None	N/A	TBD	trip blank duplicate
		None	N/A	TBR	trip blank replicate
Sample Matrix / env-sample matrix type	13205	AB	Ambient air	None	N/A
		AQ	Air quality-control matrix	None	N/A
		DC	Drill cuttings	None	N/A
		DW	Development water	None	N/A
		LD	Drilling fluid	None	N/A
		LF	Floating/free product on groundwater table	None	N/A
		LO	Oil, all types	None	N/A
		PW	Purge water	None	N/A
		SE	Sediment (assoc. w/surface H20)	None	N/A
		SG	Soil gas	None	N/A
		SL	Sludge	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sample Matrix / env-sample matrix type (continued)		SO	Soil	None	N/A
		SQ	Soil quality-control matrix	None	N/A
		SS	Scrapings	None	N/A
		SW	Swab or wipe	None	N/A
		TA	Animal tissue	None	N/A
		TP	Plant tissue	None	N/A
		TQ	Tissue quality-control matrix	None	N/A
		WD	Well development water	None	N/A
		WE	Estuary	None	N/A
		WF	Filtered water	None	N/A
		WG	Ground water	None	N/A
		WH	Equipment wash water	None	N/A
		WL	Leachate	None	N/A
		WM	Special water-quality-control matrix	None	N/A
		WO	Ocean water	None	N/A
		WP	Drinking water	None	N/A
		WQ	Water quality control matrix	WZ	Special Water Quality Control Matrix
		WR	Filtered residue water	None	N/A
		WS	Surface water	None	N/A
		WU	Unfiltered water	None	N/A
		WW	Waste water	None	N/A
		None	N/A	AX	Air sample from unknown origin

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sample Matrix / env-sample matrix type (continued)		None	N/A	MX	Multiple phase sample from unknown origin
		None	N/A	SC	Cement
		None	N/A	SX	Soil or Solid Sample of unknown origin
		None	N/A	TX	Tissue from unknown origin
		None	N/A	W	Water
		None	N/A	WX	Water of unknown origin
Analysis Protocol / env-reference sample QC code	13206	ASTM	ASTM standard procedures	None	N/A
		CLP	U.S. EPA's Contract Lab Program, CLP	CLP90	USEPA Contract Laboratory Program - March 1990
		OTH	Other	None	N/A
		SW	U.S. EPA's Test Methods for Evaluating Solid Waste, SW-846	SW1986	Test Methods for Evaluating Solid Waste Nov 1986
				SW1992	Test Methods for Evaluating Solid Waste Nov 1986 - Rev July 1992
		UNK	Unknown	None	N/A
		None	N/A	WW1983	Method for Chemical Analysis of Water and Wastes - Rev March 1983
Partition or Analysis Class / None	13207	FMET	Filtered metals	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Partition or Analysis Class / None (continued)		INORG	Inorganics	None	N/A
		ORG	Organics	None	N/A
		OTH	Other	None	N/A
		SVOA	Semi-volatile organics	None	N/A
		VOA	Volatile organics	None	N/A
Analysis Method / env-analytical method code	13208	A303A	Metals (by Direct Aspiration into an Air-Acetylene Flame)	None	N/A
		A312B	Chromium, Hexavalent (Colorimetric Method)	None	N/A
		A403	Alkalinity	None	N/A
		A405	Bromide	None	N/A
		A407A	Chloride (Argentometric)	None	N/A
		A407B	Chloride (Mercuric Nitrate Method)	None	N/A
		A412D	Total Cyanide (Colorimetric Method)	None	N/A
		A412E	Cyanide, by ION Selection Electrode	None	N/A
		A412F	Cyanide, Amenable to Chlorination	None	N/A
		A413C	Fluoride (Spadns)	None	N/A
		A418F	Nitrogen (Nitrate, Automated Cadium Reduction Method)	None	N/A
		A419	Nitrogen (Nitrite)	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		A424G	Phosphate (Ascorbic Acid Reduction)	None	N/A
		A426D	Sulfate (Automated Methylthymol Blue Method)	None	N/A
		A429	Anions by ION Chromatography	None	N/A
		A506	Total Organic Halide (TOX)	None	N/A
		A508A	Chemical Oxygen Demand	None	N/A
		A509A	Organochlorine Pesticides	None	N/A
		A509B	Chlorinated Phenoxy and Herbicides	None	N/A
		A701C	Gamma Spectralanalysis	None	N/A
		A703	Gross Alpha-Gross Beta	None	N/A
		A705	Total Radium	None	N/A
		A706	Radium-226	None	N/A
		A711	Uranium	None	N/A
		CLP390	CLP-390	None	N/A
		CLP788	CLP-788	None	N/A
		CLP288	CLP-288	None	N/A
		D1385	Hydrazine (Spectrophotometric)	None	N/A
		D2216	Percent Solid	D2216	Percent Solid
		D3695	Volatile Alcohols in Water by Direct Aqueous Injection GC	None	N/A
		E120.1	Specific Conductance	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E130.2	Hardness, Total (Titrimetric)	E130.2	Hardness, Total (Titrimetric)
		E150.1	PH, Electrometric	None	N/A
		E160.1	Filterable Residue (also known as Total Dissolved Solids)	E160.1	Residue, Filterable (TDS)
		E160.2	Residue Non-Filterable	E160.2	Residue, Non-Filterable
		E160.3	Residue Total Gravimetric, Dried at 103-105 Deg C	E160.3	Residue, Total (Gravimetric, Dried at 103-105 Degrees)
		E1624	Volatile Organic Comounds by Isotopedilution GC/MS	None	N/A
		E1625	Semivolatile Organic Compounds by Isotope Division GC/MS	None	N/A
		E170.1	Temperature	None	N/A
		E200.7	Inductively Coupled Plasma (ICP) Metals Screen	E200.7	Inductively Coupled Plasma Emission
		E202.1	Aluminum	E202.1	Aluminum (AA, Direct Aspiration)
		E204.1	Antimony (AA, Direct Aspiration)	E204.1	Antimony (AA, Direct Aspiration)
		E204.2	Antimony (Atomic Absorption, Furnace Technique)	E204.2	Antimony (AA, Furnace Technique)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E206.2	Arsenic (AA, Furnace)	E206.2	Arsenic (AA, Furnace)
		E206.3	Arsenic (AA, Hydride)	E206.3	Arsenic (AA, Hydride)
		E208.1	Barium (AA, Direct Aspiration)	E208.1	Barium (AA, Direct Aspiration)
		E208.2	Barium (AA, Furnace)	E208.2	Barium (AA, Furnace)
		E210.1	Beryllium	E210.1	Beryllium (AA, Direct Aspiration)
		E213.1	Cadmium (AA, Direct Aspiration)	E213.1	Cadmium (AA, Direct Aspiration)
		E213.2	Cadmium (AA, Furnace)	E213.2	Cadmium (AA, Furnace)
		E215.1	Calcium (AA, Direct Aspiration)	E215.1	Calcium (AA, Direct Aspiration)
		E218.1	Chromium (AA, Direct Aspiration)	E218.1	Chromium (AA, Direct Aspiration)
		E218.2	Chromium (AA, Furnace)	E218.2	Chromium (AA, Furnace)
		E218.5	Soluble Chromium (AA, Furnace)	E218.5	Chromium Hexavalent, Dissolved (AA, Furnace)
		E219.2	Cobalt (Atomic Absorption, Furnace Technique)	E219.2	Cobalt (Atomic Absorption, Furnace Technique)
		E220.1	Copper (AA, Direct Aspiration)	E220.1	Copper (AA, Direct Aspiration)
		E220.2	Copper (AA, Furnace)	E220.2	Copper (AA, Furnace)
		E236.1	Iron (AA, Direct Aspiration)	E236.1	Iron (AA, Direct Aspiration)
		E239.1	Lead (AA, Direct Aspiration)	E239.1	Lead (AA, Direct Aspiration)
		E239.2	Lead (AA, Furnace)	E239.2	Lead (AA, Furnace)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E242.1	Magnesium (AA, Direct Aspiration)	E242.1	Magnesium (AA, Direct Aspiration)
		E243.1	Maganese (AA, Direct Aspiration)	E243.1	Manganese (AA, Direct Aspiration)
		E245.1	Mercury (Cold Vapor, Manual)	E245.1	Mercury (Cold Vapor, Manual)
		E245.2	Mercury (Cold Vapor, Automated)	E245.2	Mercury (Cold Vapor, Automated)
		E245.5	Mercury (Cold Vapor, Sediments)	E245.5	Mercury (Cold Vapor, Sediments)
		E246.2	Molybdenum (Atomic Absorption, Furnace Technique)	E246.2	Molybdenum (AA, Furnace Technique)
		E249.1	Nickel (AA, Direct Aspiration)	E249.1	Nickel (AA, Direct Aspiration)
		E249.2	Nickel (AA, Furnace)	E249.2	Nickel (AA, Furnace)
		E258.1	Potassium by (AA Direct Aspiration)	E258.1	Potassium (AA, Direct Aspiration)
		E270.1	Selenium (AA, Direct Aspiration)	E270.1	Selenium (AA, Direct Aspiration)
		E270.2	Selenium (AA, Furnace)	E270.2	Selenium (AA, Furnace)
		E270.3	Selenium (AA, Hydride)	E270.3	Selenium (AA, Hydride)
		E272.1	Silver (AA, Direct Aspiration)	E272.1	Silver (AA, Direct Aspiration)
		E272.2	Silver (AA, Furnace)	E272.2	Silver (AA, Furnace)
		E273.1	Sodium (AA, Direct Aspiration)	E273.1	Sodium (AA, Direct Aspiration)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E279.1	Thallium (AA, Direct Aspiration)	E279.1	Thallium (AA, Direct Aspiration)
		E279.2	Thallium (AA, Furnace)	E279.2	Thallium (AA, Furnace)
		E289.1	Zinc (AA, Direct Aspiration)	E289.1	Zinc (AA, Direct Aspiration)
		E289.2	Zinc (AA, Furnace)	E289.2	Zinc (AA, Furnace)
		E300	Determination of Inorganic Anions in Water by Ion Chromatography	E300	Inorganic Anions by Ion Chromatography
		E310.1	Alkalinity (Titrimetric)	E310.1	Alkalinity , Total (as Carbonate)
		E310.2	Alkalinity Colorimetric, Methyl	E310.2	Alkalinity , Total (as Carbonate)
		E325.2	Chloride (as CL), Automated Ferricyanide, AA II	E325.2	Chloride (as Cl)
		E325.3	Chloride (Titrimetric, Mercuric Nitrate)	E325.3	Chloride (as Cl)
		E335.2	Total Cyanide	E335.2	Total Cyanide
		E335.3	Total Cyanide, Colorimetricmethod Using Automated UV	E335.3	Total Cyanide (Colorimetric, Automated UV)
		E340.1	Fluoride (Colorimetric)	E340.1	Fluoride
		E340.2	Fluoride, Potentiomeetric, Ion Selective Electrode	E340.2	Fluoride

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E350.1	Nitrogen (Ammonia - Colorimetric, Automated Phenate)	E350.1	Nitrogen, Ammonia (as N)
		E350.3	Nitrogen, Ammonia (Potentiometric, Ionselective Electrode)	E350.3	Nitrogen, Ammonia (as N)
		E351.2	Nitrogen (Kjeldahl-Colorimetric Semi-Auto Flock Digester AA II)	E351.2	Nitrogen , Kjeldahl, Total
		E351.4	Nitrogen,Kjeldahl,Total(Potentiometric,Ionselective Electrode)	E351.4	Nitrogen , Kjeldahl, Total
		E352.1	Nitrogen (Nitrate - Colorimetric Brucine)	E352.1	Nitrogen, Nitrate (as N)
		E353.1	Nitrogen (Nitrate-Nitrite Colorimetric,Auto Hydrazine Reduction)	E353.1	Nitrogen, Nitrate-Nitrite
		E353.2	Nitrogen (Nitrate-Nitrite Colorimetric, Auto CAD Reduction)	E353.2	Nitrogen, Nitrate-Nitrite
		E353.3	Nitrogen, Nitrate-Nitrite	E353.3	Nitrogen, Nitrate-Nitrite
		E354.1	Nitrogen (Nitrite - Spectrophotometric)	E354.1	Nitrogen, Nitrite
		E360.1	Oxygen, Dissolved (Membrane Electrode)	E360.1	Oxygen, Dissolved

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E365.1	Phosphorus, All Forms (Colorimetric, Automated Ascorbic Acid)	E365.1	Phosphorus, All Forms, (Colorimetric, Automated, Asorbic Acid)
		E365.2	Phosphorus, All Forms (as P)	E365.2	Phosphorus, All Forms (as P)
		E365.3	Phosphorus, All Forms (Colorimetric, Ascorbic Acid, Two Reagent)	E365.3	Phosphorus, All Forms (Colorimetric, Ascorbic Acid)
		E365.4	Phosphorus(as PO4),Total(Colorimetric,Aut o Block Digestor,AA II)	E365.4	Phosphorus, Total (Colorimetric, Automated Block Digestor, AA II)
		E375.1	Sulfate, Colorimetric, Automated Chloranilate	E375.1	Sulfate
		E375.2	Sulfate, Automated Methyl Thymol Blue AAII	E375.2	Sulfate
		E375.3	Sulfate (as SO4), Gravimetric	E375.3	Sulfate
		E375.4	Sulfate (as SO4), Turbidimetric	E375.4	Sulfate
		E410.1	Chemical Oxygen Demand	None	N/A
		E410.4	Chemical Oxygen Demand (Colorimetric, Automated Manual)	E410.4	Chemical Oxygen Demand - Colorimetric
		E413.1	Oil and Grease, Total Recoverable (Gravimetric)	None	N/A
		E413.2	Oil and Grease, Total Recoverable	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E415.1	Total Organic Carbo, Combustion or Oxidation	E415.1	Total Organic Carbon (Combustion or Oxidation)
		E415.2	Total Organic Carbon (UV Promoted, Persulfate Oxidation)	E415.2	Total Organic Carbon (UV Promoted, Persulfate Oxidation)
		E418.1	Petroleum Hydrocarbons, Total Recoverable(Spectrophotometric IR)	E418.1	Petroleum Hydrocarbons, Total Recoverable
		E420.1	Phenolics, Total Recoverable (Spectrophotometric, Manual)	None	N/A
		E420.2	Phenolics (Colorimetric, Automated 4-AAP with Distillation)	None	N/A
		E420.3	Phenolics, Total Recoverable (Spectrophotometric, Manual 4-AAP)	None	N/A
		E501.1	Trihhalomethanes	None	N/A
		E502.1	Volatile Halogenated Organics	None	N/A
		E502.2	Vol Organic Comp (Photoionization & Electrolytic Cond Detect)	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E503.1	Volatile Aromatic and Unsaturated Organics	None	N/A
		E504	1, 2-Dibromoethane (EDB) and 1.2 Dibromo-3-Chloropropane (DBCP)	None	N/A
		E524.1	Volatile Organic Compounds in Water by Purge and Trap GC/MS	None	N/A
		E524.2	Volatile Organic Comp by Purge & Trap Capillary Column GC/MS	E524.2	Volatile Organic Compounds by Purge & Trap
		E601	Purgeable Halocarbons	E601	Purgeable Halocarbons
		E602	Purgeable Aromatics	E602	Purgeable Aromatics
		E603	Acrolein and Acrylonitrile	None	N/A
		E604	Phenols	None	N/A
		E607	Nitrosamines	None	N/A
		E608	Organochlorine Pesticides and PCBS	E608	Organochlorine Pesticides and PCBs
		E612	Chlorinated Hydrocarbons	None	N/A
		E613	2,3,3,8-Tetrachlorodibenzo-p-Dioxin	None	N/A
		E614	Pesticides, Organo Phosphorus	E614	Determination of Organophosphorus Pesticides
		E615	Chlorinated Herbicides	E615	Chlorinated Herbicides

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		E617	Determination of Carbophenothion in Wastewater	None	N/A
		E624	Purgeables Organics GC/MS	None	N/A
		E625	Extractable Priority Pollutants (Base/Neutral and Acid)	E625	Extractable Priority Pollutants
		E632	Determination of Carbamate and Urea Pesticides in Wastewater	None	N/A
		EPTOXH	EP Toxicity-Herbicides	None	N/A
		EPTOXM	EP Toxicity-Metals	None	N/A
		EPTOXP	EP Toxicity-Pesticides	None	N/A
		HNU	Field HNU Meter Readings	None	N/A
		MD8015	California Modified SW8015 Hydrocarbon Fingerprint	M8015	Modified SW8015 for Gasoline or Diesel Determination
		N7903	Acids, Inorganic	None	N/A
		PH_PAP	PH Paper Strips	None	N/A
		SSW8250	Extractable Priority Pollutants (Base/Neutral and Acid) Packed	None	N/A
		SW1010	Flash Point (Closed Cup Tester)	SW1010	Flash Point (Closed Cup Tester)
		SW1110	Corrosivity Toward Steel	SW1110	Corrosivity Toward Steel

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW1320	Multiple Extraction Procedure	None	N/A
		SW3810	Headspace	None	N/A
		SW3820	Hexadecane extractionand Screening of Purgeable Organics	None	N/A
		SW6010	**Inductively Coupled Plasma Atomic Emission Spectroscopy**	**SW6010A**	**Inductively Coupled Plasma-Atomic Emission Spectroscopy**
		SW7020	Aluminum (AA, Direct Aspiration)	SW7020	Aluminum (AA, Direct Aspiration)
		SW7040	Antimony (AA, Direct Aspiration)	SW7040	Antimony (AA, Direct Aspiration)
		SW041	Antimony (AA, Furnace Technique)	SW7041	Antimony (AA, Furnace Technique)
		SW7060	Arsenic (AA, Furnace Technique)	SW7060	Arsenic (AA, Furnace Technique)
		SW7061	**Arsenic (AA, Gaseous Hydride)**	**SW7061A**	**Arsenic (AA, Gaseous Hydride)**
		SW7080	Barium (AA, Direct Aspiration)	SW7080	Barium (AA, Direct Aspiration)
		SW7090	Beryllium (AA, Direct Aspiration)	SW7090	Beryllium (AA, Direct Aspiration)
		SW7091	Beryllium (AA, Furnace Technique)	SW7091	Beryllium (AA, Furnace Technique)
		SW7130	Cadmium (Flame)	SW7130	Cadmium (AA, Direct Aspiration)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW7131	Cadmium (Furnace)	SW7131	Cadmium (AA, Furnace Technique)
		SW7140	Calcium (AA, Direct Aspiration)	SW7140	Calcium (AA, Direct Aspiration)
		SW7190	Chromium (Flame)	SW7190	Chromium (AA, Direct Aspiration)
		SW7191	Chromium (Furnace)	SW7191	Chromium (AA, Furnace Technique)
		SW7195	Chromium, Hexavalent (Coprecipitation)	SW7195	Chromium, Hexavalent (Coprecipitation)
		SW7196	Chromium, Hexavalent (Colorimetric)	SW7196	Chromium, Hexavalent (Colorimetric)
		SW7197	Chromium, Hexavalent (Chelation/Extraction)	SW7197	Chromium, Hexavalent (Chelation/Extraction)
		SW7198	Chromium, Hexavalent (Differential Pulse Polarography)	SW7198	Chromium, Hexavalent (Differential Pulse Polarography)
		SW7200	Cobalt (AA, Direct Aspiration)	SW7200	Cobalt (AA, Direct Aspiration)
		SW7201	Cobalt (AA, Furnace Technique)	SW7201	Cobalt (AA, Furnace Technique)
		SW7210	Copper (Flame)	SW7210	Copper (AA, Direct Aspiration)
		SW7211	Copper (Furnace)	SW7211	Copper (AA, Furnace Technique)
		SW7380	Iron (AA, Direct Aspiration)	SW7380	Iron (AA, Direct Aspiration)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW7420	Lead (AA, Direct Aspiration)	SW7420	Lead (AA, Direct Aspiration)
		SW7421	Lead (Furnace)	SW7421	Lead (AA, Furnace Technique)
		SW7450	Magnesium (AA, Direct Aspiration)	SW7450	Magnesium (AA, Direct Aspiration)
		SW7460	Maganese (AA, Direct Aspiration)	SW7460	Manganese (AA, Direct Aspiration)
		SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)	SW7470	Mercury in Liquid Waste (Manual Cold-Vapor Technique)
		SW7471	Mercury in Solid or Semisolid Waste(Manual Cold-Vapor Technique)	SW7471	Mercury in Solid or Semisolid Waste (Manual Cold-Vapor Technique)
		SW7480	Molybdenum (AA, Direct Aspiration)	SW7480	Molybdenum (AA, Direct Aspiration)
		SW7481	Molybdenum (AA, Furnace Technique)	SW7481	Molybdenum (AA, Furnace Technique)
		SW7520	Nicket (Flame)	SW7520	Nickel (AA, Direct Aspiration)
		SW7550	Osmium (AA, Direct Aspiration)	SW7550	Osmium (AA, Direct Aspiration)
		SW7610	Potassium (AA, Direct Aspiration)	SW7610	Potassium (AA, Direct Aspiration)
		SW7740	Selenium (AA, Furance Technique)	SW7740	Selenium (AA, Furnace Technique)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW7741	Selenium (AA, Gaseous Hydride)	SW7741	Selenium (AA, Gaseous Hydride)
		SW7760	Silver (Flame)	SW7760	Silver,(AA, Direct Aspiration)
		SW7770	Sodium (AA, Direct Aspiration)	SW7770	Sodium (AA, Direct Aspiration)
		SW7840	Thallium (AA, Direct Aspiration)	SW7840	Thallium (AA, Direct Aspiration)
		SW7841	Thallium (AA, Furnace Technique)	SW7841	Thallium (AA, furnace Technique)
		SW7870	TIN (AA, Direct Aspiration)	SW7870	Tin (AA, Direct Aspiration)
		SW7910	Vanadium (AA, Direct Aspiration)	SW7910	Vanadium (AA, Direct Aspiration)
		SW7911	Vanadium (AA, Furnace Technique)	SW7911	Vanadium (AA, Furnace Technique)
		SW7950	Zinc (Flame)	SW7950	Zinc (AA, Direct Aspiration)
		SW8010	Halogenated Volatile Organics	SW8010	Halogenated Volatile Organics by Gas Chromatography
		SW8015	Nonhalogenated Volatile Organics	SW8015	Non-halogenated Volatile Organics
		SW8020	Aromatic Volatile Organics	SW8020	Aromatic Volatile Organics
		SW8030	Acrolein, Acrylonitrile, Acetonitrile	None	N/A
		SW8040	**Phenols**	**SW8040A**	**Phenols by Gas Chromatography**

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW8060	Phthalate Esters	None	N/A
		SW8080	Organochlorine Pesticides and PCBS	SW8080	Organochlorine Pesticides and PCBs
		SW8090	Nitroaromatics and Cyclic Ketones	None	N/A
		SW8100	Polynuclear Aromatic Hydrocarbons	SW8100	Polynuclear Aromatic Hydrocarbons
		SW8120	Chlorinated Hydrocarbons	None	N/A
		SW8140	Organophosphorus Pesticides	SW8140	Organophosphorus Pesticides
		SW8150	Chlorinated Herbicides	SW8150	Chlorinated Herbicides by GC
		SW8240	GC/MS Method for Volatile Organics	SW8240	GC/MS for Volatile Organics
		SW8270	Extractable Priority Pollutants (Base/Neutral and Acid)Capillary	SW8270	Semivolatile Organics by GC/MS
		SW8280	Polychlorinated Debenzo-p Dioxins and Dibenzofurans	SW8280	Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans
		SW8310	Olynuclear Aromatic Hydrocarbons	SW8310	Polynuclear Aromatic Hydrocarbons
		SW9010	Total and Amendable Cyanide (Colorimetric, Manual)	SW9010	Total and Amenable Cyanide

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW9012	Total and Amendable Cyanide (Colorimetric Automated UV)	SW9012	Total and Amenable Cyanide (Colorimetric, Automated UV)
		SW9020	Total Organic Halides (TOX)	SW9020	Total Organic Halides (TOX)
		SW9022	Total Organic Halides (TOX) by Neutron Activation Analysis	None	N/A
		SW9030	Sulfides	None	N/A
		SW9035	Sulfate (Colorimetric, Automated, Chloranilate)	None	N/A
		SW9036	Sulfate (Colorimetric, Automated, Methylthymol Blue,AA I)	None	N/A
		SW9038	Sulfate (Turbidimetric)	None	N/A
		SW9040	pH Electrometric Measurement	None	N/A
		SW9041	pH Paper Method	None	N/A
		SW9045	Soil pH	None	N/A
		SW9050	Specific Conductance	None	N/A
		SW9060	Total Organic Carbon	SW9060	Total Organic Carbon (TOC)
		SW9065	Phenolics (Spectrophotometric, Manual 4-AAP with Distillation)	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW9066	Phenolics (Colorimetric, Automated 4-AAP with Distrillation)	None	N/A
		SW9067	Phenolics (Spectrophotometric, MBTH with Distillation)	None	N/A
		SW9070	Total Recoverable Oil & Grease(Gravimetric,Separatory Funnel Ex)	None	N/A
		SW9071	Oil & Grease Extraction Method for Fludge Samples	SW9071	Oil and Grease Extraction Method for Sludge Samples
		SW9080	Cation-Exchange Capacity of Soils (Ammonium Acetate)	None	N/A
		SW9081	Cation-Exchange Capacity of Soils (Sodium Acetate)	None	N/A
		SW9090	Compatibility Test for Wastes and Membrane Liners	None	N/A
		SW9095	Paint Filter Liquids Test	None	N/A
		SW9100	Saturated Hydr Cond. Sat. Leachate Cond. and Intrinsic Perm	None	N/A
		SW9131	Total Coliform, Multiple Tube Fermentation Technique	None	N/A

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ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		SW9132	Total Coliform, Membrane Filter Technique	None	N/A
		SW9200	Nitrate	None	N/A
		SW9250	Chloride (Colorimetric, Automated Ferricyanide AA I)	None	N/A
		SW9251	Chloride (Colorimetric, Automated Ferricyanide AA II)	None	N/A
		SW9252	Chloride (Titrimetric, Mercuric Nitrate)	None	N/A
		SW9310	Gross Alpha & Gross Beta	None	N/A
		SW9315	Alpha-Emitting Radium Isotopes	None	N/A
		SW9320	Radium-228	None	N/A
		USA4B	Usathama Explosives Method (Soil)	None	N/A
		USAD1	Usathama Explosives Method (Water)	None	N/A
		None	N/A	AK101	Gasoline Range Organics, Alaska Dept. of Environment. Conserv.
		None	N/A	AK102	Diesel Range Organics, Alaska Dept. of Environment. Conserv.
		None	N/A	AKD	State of Alaska Method for Diesel

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	AKG	State of Alaska Method for Gasoline
		None	N/A	CENPD	Fuel Identification and Quantification-COE
		None	N/A	E130.1	Hardness, Total (Colorimetric, Automated EDTA)
		None	N/A	E160.4	Residue, Volatile (Gravimetric, Ignition at 550 Degrees)
		None	N/A	E180.1	Turbidity (Nephelometric)
		None	N/A	E200.8	Inductively Coupled Plasma/Mass Spectroscopy
		None	N/A	E200.9	Atomic Absorption, Platform
		None	N/A	E202.2	Aluminum (AA, Furnace Technique)
		None	N/A	E206.4	Spectrophotometric, SDDC
		None	N/A	E210.2	Beryllium (AA, Furnace Technique)
		None	N/A	E212.3	Boron (Colorimetric, Curcumin)
		None	N/A	E215.2	Calcium, (Titrimetric, EDTA)
		None	N/A	E218.3	Chromium by Chelation - Extraction

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ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	E218.4	Chromium Hexavalent (AA, Chelation-Extraction)
		None	N/A	E219.1	Cobalt (AA, Direct Aspiration)
		None	N/A	E231.1	Gold, (A A, Direct Aspiration)
		None	N/A	E231.2	Gold, (AA, Furnace)
		None	N/A	E235.1	Iridium, (AA, Direct Aspiration)
		None	N/A	E235.2	Iridium, (AA, Furnace)
		None	N/A	E236.2	Iron (AA, Furnace Technique)
		None	N/A	E243.2	Manganese (AA, Furnace Technique)
		None	N/A	E246.1	Molybdenum (AA, Direct Aspiration)
		None	N/A	E252.1	Osmium, (AA, Direct Aspiration)
		None	N/A	E252.2	Osmium, (A A Furnace)
		None	N/A	E253.1	Palladium, (A A, Direct Aspiration)
		None	N/A	E253.2	Palladium, (A A, Furnace)
		None	N/A	E255.1	Platinum, (AA, Direct Aspiration)
		None	N/A	E255.2	Platinum, (A A, Furnace)
		None	N/A	E265.1	Rhodium,(AA, Direct Aspiration)

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ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	E265.2	Rhodium, (AA, Furnace)
		None	N/A	E267.1	Ruthenium, (AA, Direct Aspiration)
		None	N/A	E267.2	Ruthenium, (A A, Furnace)
		None	N/A	E273.2	Sodium (AA, Furnace Technique)
		None	N/A	E282.1	Tin (AA, Direct Aspiration)
		None	N/A	E282.2	Atomic Absorption, Furnace
		None	N/A	E283.1	Titanium (AA, Direct Aspiration)
		None	N/A	E283.2	Titanium (AA, Furnace Technique)
		None	N/A	E286.1	Vanadium (AA, Direct Aspiration)
		None	N/A	E286.2	Vanadium (AA, Furnace Technique)
		None	N/A	E305.1	Acidity , Total
		None	N/A	E305.2	Acidity , Total
		None	N/A	E320.1	Bromide
		None	N/A	E325.1	Chloride (as Cl)
		None	N/A	E335.1	Cynanides, Amenable to Chlorination
		None	N/A	E340.3	Fluoride
		None	N/A	E345.1	Iodide (as I)
		None	N/A	E350.2	Nitrogen, Ammonia (as N)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	E351.1	Nitrogen , Kjeldahl, Total
		None	N/A	E351.3	Nitrogen , Kjeldahl, Total
		None	N/A	E360.2	Oxygen, Dissolved
		None	N/A	E370.1	Silica
		None	N/A	E376.1	Sulfide
		None	N/A	E376.2	Sulfide
		None	N/A	E377.1	Sulfite
		None	N/A	E610	Polynuclear Aromatic Hydrocarbons
		None	N/A	M8100	Determination of Diesel Range Organics
		None	N/A	ME418.1	Modified E418.1 TRPH (Alaska)
		None	N/A	SW1020	Setaflash Closed-Cup Method For Determining Ignitability
		None	N/A	SW1020A	Setaflash Closed-Cup Method for Determining Ignitability
		None	N/A	SW6010	Inductively Coupled Plasma-Emission
		None	N/A	SW7061	Arsenic by Hydride Generation
		None	N/A	SW7081	Barium (AA, Furnace Technique)
		None	N/A	SW7196A	Chromium, Hexavalent (Colorimetric)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	SW7381	Iron (AA, Furnace Technique)
		None	N/A	SW7430	Lithium (AA, Direct Aspiration)
		None	N/A	SW7461	Manganese (AA, Furnace Technique)
		None	N/A	SW7760A	Silver (AA, Direct Aspiration)
		None	N/A	SW7761	Silver (AA, Furnace Technique)
		None	N/A	SW7780	Strontium (AA, Direct Aspiration)
		None	N/A	SW7951	Zinc (AA, Furnace Technique)
		None	N/A	SW8010A	Halogenated Volatile Organics by Gas Chromatography
		None	N/A	SW8141	Organophosphorus Compounds by Gas Chromatography
		None	N/A	SW8150A	Chlorinated Herbicides by Gas Chromatography
		None	N/A	SW8260	Volatile Organic Compounds by GC/MS
		None	N/A	SW8270A	Semivolatile Organic Compounds by GC/MS

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Analysis Method / env-analytical method code (continued)		None	N/A	SW8290D	Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans
		None	N/A	SW9010A	Total and Amenable Cyanide
		None	N/A	SW9013	Cyanide Extraction Procedure for Solids and Oils
		None	N/A	SW9020A	Total Organic Halides (TOX)
		None	N/A	SW9076D	Total Chlorine in Petroleum Products by Oxidative Combustion
Analysis Basis / env-analytical result basis	13209	D	Dry	DRY	Dry
		W	Wet	WET	Wet
		None	N/A	LF	Laboratory Filtered
		None	N/A	FF	Field Filtered
		None	N/A	NA	not applicable
Extraction Method / env extraction method code	13210	A412B	Total Cyanide after Distillation	None	N/A
		A503D	Sludge Samples (Soil, Sediment, Sludge)	None	N/A

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Extraction Method / env extraction method code (continued)		DISWAT	Leaching of Analyte from Soil Samples using Distilled Water	None	N/A
		EXPTOX	Toxicant Extraction Procedure	None	N/A
		FDAO1	Food & Drug Admin. Prep. Method for Tissue Prior to Organic Analysis	None	N/A
		FLDFLT	Field Filtering for Dissolved Metals	FLDFLT	Field Filtering For Dissolved Metals
		FLT	Filtered Sample (0.45 micron)	FLT	Filtered Sample (0.45 Micron)
		FLTRES	Residue after Filtering (0.45 micron)	FLTRES	Residue After Filtering (0.45 Micron)
		METHOD	Extraction Method Specified in Analytical Method	METHOD	Extraction Method Specified in Analytical Method
		NONE	No Extraction Required for this Method	NONE	No Extraction Required For This Method
		REACT	Reactivity	REACT	Reactivity
		SW1210	Extraction Procedure (EP) TOX Method & Structural[...]	SW1310	Extraction Procedure (EP) Toxicity Test Method and [...]
		SW1320	Multiple Extraction Procedure	SW1320	Multiple Extraction Procedure
		SW1330	Extraction Procedure for Oily Wastes	SW1330	Extraction Procedure for Oily Wastes

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Extraction Method / env extraction method code (continued)		SW3005	Digestion for Total Recoverable Metals for Flame for Flame AA and ICP	SW3005	Digestion for Total Recoverable Metals for Flame
		SW3010	Digestion for Total Metals	SW3010	Digestion for Total Metals for Flame AA and ICP
		SW3020	Digestion for Total Metals for Furnace AA	SW3020	Digestion for Total Metals for Furnace AA
		SW3040	Dissolution Procedure for Oils, Greases, or Waxes	SW3040	Dissolution Procedure for Oils, Greases, or Waxes
		SW3050	Acid Digestion of Sediments, Sludges, and Soils	SW3050	Acid Digestion of Sediments, Sludges, and Soils
		SW3500	Organic Extraction and Sample Preparation	SW3500	Organic Extraction and Sample Preparation
		SW3510	Separatory Funnel Liquid-Liquid Extraction	SW3510	Separatory Funnel Liquid-Liquid Extraction
		SW3520	Continuous Liquid-Liquid Extraction	SW3520	Continuous Liquid-Liquid Extraction
		SW3540	Soxhlet Extraction	SW3540	Soxhlet Extraction
		SW3550	Sonication Extraction	SW3550	Sonication Extraction
		SW3580	Waste Dilution	SW3580	Waste Dilution
		SW3610	Alumina Column Cleanup	SW3610	Alumina Column Cleanup
		SW3611	Alumina Column Cleanup and Separation of Petroleum Wastes	SW3611	Alumina Column Cleanup And Separation Of Petroleum
		SW3620	Florisil Column Cleanup	SW3620	Florisil Column Cleanup

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Extraction Method / env-extraction method code (continued)		SW3630	Silica Gel Cleanup	SW3630	Silica Gel Cleanup
		SW3640	Gel-permeation Cleanup	SW3640	Gel-Permeation Cleanup
		SW3650	Acid-base Partition Cleanup	SW3650	Acid-Base Partition Cleanup
		SW3660	Sulfur Cleanup	SW3660	Sulfur Cleanup
		SW5030	Purge and Trap	SW5030	Purge-and-Trap
		SW5040	Protocol for Analysis of Sorbent Cartridges from Volumne Organics	SW5040	Protocol for Analysis of Sorbent Cartridges from Volatile Organic
		SW9071	Oil and Grease Extraction Method for Sludge Samples	SW9071	Oil & Grease Extraction Method for Sludge Samples
		TOTAL	HN03 Digestion of Unfiltered Waters for Total Metals	TOTAL	HNO3 Digestation of Unfiltered Waters for Total Metals
		TOTREC	Total Recoverable Digestion of Unfiltered Sample for Metals	TOTREC	Total Recoverable Digestion of Unfiltered Sample
		None	N/A	DI	Direct Injection
		None	N/A	FLDFLTA	Acid Digestion of Water for Dissolved Metals for Analysis by FAA
		None	N/A	FLTRESA	Acid Digestion of Water for Suspended Metals for Analysis by FAA

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Extraction Method / env extraction method code (continued)		None	N/A	SW1311	Toxicity Characteristic Leaching Procedure (TCLP)
		None	N/A	SW3010A	Acid Digestion of Aqueous Samples and Extracts for Tot Met FAAICP
		None	N/A	SW3015	Microwave Assisted Acid Digestion of Aqueous Sampl
		None	N/A	SW3020A	Acid Digestion of Aqueous Samples and Extracts for Tot Met GFAA
		None	N/A	SW3050A	Acid Digestion of Sediments, Sludges, and Soils
		None	N/A	SW3051	Microwave Assisted Acid Digestion of Soils, Sediments
		None	N/A	SW3060	Alkaline Digestion of Soil and Solid Waste
		None	N/A	SW3500A	Organic Extraction and Sample Preparation
		None	N/A	SW3510A	Separatory Funnel Liquid-Liquid Extraction
		None	N/A	SW3520A	Continuous Liquid-Liquid Extraction
		None	N/A	SW3540A	Soxhlet Extraction

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Extraction Method / env-extraction method code (continued)		None	N/A	SW3580A	Waste Dilution
		None	N/A	SW3600A	Cleanup
		None	N/A	SW3610A	Alumina Column Cleanup
		None	N/A	SW3611A	Alumina Column Cleanup and Separation of Petroleum Wastes
		None	N/A	SW3620A	Florisil Column Cleanup
		None	N/A	SW3630A	Silica Gel Cleanup
		None	N/A	SW3650A	Acid-Base Partition Cleanup
		None	N/A	SW3660A	Sulfur Cleanup
		None	N/A	SW5030A	Purge-and-Trap
		None	N/A	SW824D	SW8240(B) Direct Injection Technique
		None	N/A	TOTRECA	Acid Digestion of Waters for Total Recoverable Metals for FAA,ICP
		None	N/A	WET	Waste Extraction Test (WET)
		None	N/A	WOS	Water Extraction of Soils
Column Type / None	13211	CAP	Capillary	None	N/A
		PACK	Packed	None	N/A
Value Name / env-parameter label code	13212	ACAMFL2	2-Acetylaminofluorene	ACAMFL2	2-Acetylaminofluorene
		ACCN	Acetonitrile	None	N/A
		ACE	Acetone	ACE	Acetone
		ACETHYDE	Acetaldehyde	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		ACID	Acidity, Total	ACID	Acidity , Total
		ACNP	Acenapthene	ACNP	Acenaphthene
		ACNPD10	Acenapthene-d10	None	N/A
		ACNPY	Acenapthylene	ACNPY	Acenaphthylene
		ACPHN	Acetophenone	ACPHN	Acetophenone
		ACRAMD	Acrylamide	None	N/A
		ACRL	Acrolein	ACRL	Acrolein
		ACRN	Acrylonitrile	ACRN	Acrylonitrile
		AG-110M	Silver-110M (Metastable)	None	N/A
		AG	Silver	AG	Silver
		AL	Aluminum	AL	Aluminum
		ALACL	Alachlor	None	N/A
		ALDICARB	Aldicarb (Sulfide, Sulfoxide and Sulfone)	None	N/A
		ALDRIN	Aldrin	ALDRIN	Aldrin
		ALK	Alkalinity, Total (as CAC03)	ALK	Alkalinity , Total
		ALKB	Alkalinity, Bicarbonate (as CACO3)	None	N/A
		ALKC	Alkalinity, Carbonate (as CACO3)	None	N/A
		ALKH	Alkalinity, Hydroxide (as CACO3)	None	N/A
		ALKP	Alkalinity, Phenolphthalein	None	N/A
		ALPHA	ALPHA, Gross	None	N/A
		ALPHAU	Alpha (as U)	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		AMINOAPH2	2-Aminonaphthalene (Beta Naphthylamine)	AMINONAPH2	2-Naphthylamine
		AMINOBPH4	4-Aminobiphentl (4-Biphenylamine)	AMINOBPH4	4-Aminobiphenyl
		AMINONAPH1	1-Naphthylamine	AMINONAPH1	1-Naphthylamine
		AMOSITE	Amosite	None	N/A
		ANILINE	Aniline (Phenylamine Aminobenzene)	ANILINE	Aniline
		ANLNAM2	o-Phenylenediamine	None	N/A
		ANLNAM3	m-Phenylenediamine	None	N/A
		ANLNAM4	p-Phenylenediamine	ANLNAM4	1,4-Phenylenediamine
		ANTH	Anthracene	ANTH	Anthracene
		ARAMITE	Aramite	ARAMITE	Aramite
		AS	Arsenic	AS	Arsenic
		ASBESTOS	Asbestos	None	N/A
		ATRAZINE	Atrazine	None	N/A
		ASPON	O,O,O,O-Tetra-n-Propyl Dithiopyrophosphate	None	N/A
		AU	Gold	AU	Gold
		AZIPM	Azinphos, Methyl (Guthion)	AZIPM	Azinphos methyl
		AZOBENZENE	Azobenzene	None	N/A
		B	BORON	B	Boron
		BA/LA-140	Barium/Lanthanum-140	None	N/A
		BA-140	Barium-140	None	N/A
		BA	Barium	BA	Barium
		BBP	Benzyl Butyl Phthalate	BBP	Benzyl butyl phthalate

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		BDCME	Bromodichloromethane	BDCME	Bromodichloromethane
		BE	Beryllium	BE	Beryllium
		BECEM	bis(2-Chloroethoxy) Methane	BECEM	Bis(2-chloroethoxy)methane
		BETA	Beta, Gross	None	N/A
		BETACS	Beta, Gross (as CS-137)	None	N/A
		BETASR	Beta, Gross (as SR-90)	None	N/A
		BFU23	2.3-Benzofuran	None	N/A
		BHC	BHC (Hexachlorocyclohexane) Isomers	None	N/A
		BHCALPHA	Alpha BHC (Alpha Hexachlorocyclohexane)	BHCALPHA	alpha-BHC
		BHCBETA	Beta BHC (Beta Hexachlorocyclohexane)	BHCBETA	beta-BHC
		BHCDELTA	Delta BHC (Delta Hexachlorocyclohexane)	BHCDELTA	delta-BHC
		BHCGAMMA	Gamma BHC (Lindane)	BHCGAMMA	gamma-BHC (Lindane)
		BI	Bismuth	None	N/A
		BIPHENYL	Biphenyl (Diphenyl)	None	N/A
		BIS2CEE	bis(2-Chloroethyl) Ether (2-Chloroethyl Ether)	BIS2CEE	Bis(2-chloroethyl) ether
		BIS2CIE	bis(2-Chloroisopropyl) Ether	BIS2CIE	Bis(2-chloroisopropyl)ether
		BIS2EHP	bis(2-Ethylhexyl) Phthalate	BIS2EHP	Bis(2-ethylhexyl) phthalate
		BOD5	Biologic Oxygen Demand, Five Day	None	N/A

APPENDIX A.2
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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		BPPE4	4-Bromophenyl phenyl Ether	BPPE4	4-Bromophenyl phenyl ether
		BR	Bromide	BR	Bromide
		BR4FBZ	4-Bromofluorobenzene (1-Bromo-4-Flourobenzene)	BR4FBZ	4-Bromofluorobenzene (surr.)
		BRBZ	Bromobenzene	BRBZ	Bromobenzene
		BRCLME	Bromochloromethane	BRCLME	Bromochloromethane
		BRICL2EA	1-Bromo-2-Chloroethane	None	N/A
		BRME	Bromomethane	BRME	Bromomethane
		BTACET	n-Butyl Acetate	None	N/A
		BTACR	n-Butyl Acrylate	None	N/A
		BTBZN	n-Butylbenzene	BTBZN	n-Butylbenzene
		BTBZS	SEC-Butylbenzene	BTBZS	sec-Butylbenzene
		BTBZT	t-Butylbenzene	BTBZT	tert-Butylbenzene
		BTCL	n-Butyl Chloride	BTCL	1-Chlorobutane
		BTE	n-Butyl Ether	None	N/A
		BTHYDE	n-Butyraldehyde	None	N/A
		BTOH	n-Butanol	None	N/A
		BTOXETACET	2-(2-Butoxy) Ethoxyethyl Acetate	None	N/A
		BU2OH	sec-Butyl Alcohol	None	N/A
		BZ	Benzene	BZ	Benzene
		BZAA	Benzo(A)Anthracene	BZAA	Benzo(a)anthracene
		BZACID	Benzoic Acid	BZACID	Benzoic acid
		BZAP	Benzo(A)Pyrene	BZAP	Benzo(a)pyrene
		BZBF	Benzo(B)Fluoranthene	BZBF	Benzo(b)fluoranthene
		BZD	Benzidine	BZD	Benzidine

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		BZGHIP	Benzo(G.H.)Perylene	BZGHIP	Benzo(g,h,i)perylene
		BZKF	Benzo(K)Fluoranthene	BZKF	Benzo(k)fluoranthene
		BZLAL	Benzyl Alcohol	BZLAL	Benzyl alcohol
		BZLCL	Benzyl Chloride	None	N/A
		BZLDCL	Benzal Chloride	None	N/A
		BZME	Toluene	BZME	Toluene
		BZMED8	Toluene-d8	BZMED8	Toluene-d8 (surr.)
		BZOTCL	Benzotrichloride	None	N/A
		C-14	Carbon-14	None	N/A
		C10N	n-Decane	None	N/A
		C11N	n-Undecane	None	N/A
		C12N	n-Dodecane	None	N/A
		C14N	n-Tetradecane	None	N/A
		C16N	n-Hexadecane	None	N/A
		C18N	n-Octadecane	None	N/A
		C22N	n-Docosane	None	N/A
		C24N	n-Tetracosane	None	N/A
		C26N	n-Hexacosane	None	N/A
		C28N	n-Octacosane	None	N/A
		C2M5PH	2-Chloro-5-Methyphenol	None	N/A
		C2ON	n-Eicosane	None	N/A
		C3ON	n-Triacontane	None	N/A
		C4BZ1234	1,2,3,4-Tetrachlorobenzene	None	N/A
		C4BZ1235	1,2,3,5-Tetrachlorobenzene	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		C4BZ1245	1,2,3,5-Tetrachlorobenzene	C4BZ1245	1,2,4,5-Tetrachlorobenzene
		C4M2PH	4-Chloro-2-Methylphenol	None	N/A
		C4M3PH	4-Chloro-3-Methylphenol	C4M3PH	4-Chloro-3-methyl phenol
		C5N	n-Pentane	None	N/A
		C6N	n-Hexane	None	N/A
		C7N	n-Heptane	None	N/A
		C8N	n-Octane	None	N/A
		C9N	n-Nonane	None	N/A
		CA	Calcium	CA	Calcium
		CAPTAN	Captan	CAPTAN	Captan
		CARBAZOLE	Carbazole	CARBAZOLE	Carbazole
		CARBOPHENOTH	Carbophenothion (Trithion)	CARBOPHENOTH	Carbophenothion
		CATION-EX	Cation-Exchange Capacity	None	N/A
		CD	Cadmium	CD	Cadmium
		CDS	Carbon Disulfide	CDS	Carbon disulfide
		CE	Cerium	None	N/A
		CE/PR-144	Cerium/Praseodymium-144	None	N/A
		CE-141	Cerium-141	None	N/A
		CELLFIBER	Cellulose Fiber	None	N/A
		CEVETH	2-Chloroethyl Vinyl Ether	CEVETH	2-Chloroethyl vinyl ether
		CGI	Combustible Gas Index	None	N/A
		CH4	Methane	None	N/A
		CHEXANEME	Methylcyclohexane	None	N/A
		CHLORDANE	Chlordane	CHLORDANE	Chlordane
		CHLORDANEA	Alpha-Chlordane	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		CHLORDANEB	Beta-Chlordane	None	N/A
		CHLORDANEG	Gamma-Chlordane	None	N/A
		CHLRL	Chloral	None	N/A
		CHRYSENE	Cyrysene	CHRYSENE	Chrysene
		CHRYSENED12	CHRYSENE-d12	None	N/A
		CHRYSO	Chrysottle	None	N/A
		CL	Chloride (as CL)	CL	Chloride
		CL2	Free Chlorine	None	N/A
		CL21SOPRE	Dichloro Isopropyl Ether	None	N/A
		CL2ETE	Dichloroethyl Ether	None	N/A
		CL2ETOH	Ethylene Chlorohydrin	None	N/A
		CL3NATE	Trichloronate	CL3NATE	Trichloronate
		CLACTH	Chloroacetaldehyde	CLACTH	Chloroacetaldehyde
		CLAE	Chloroalkylethers	None	N/A
		CLANIL4	4-Chloroaniline	CLANIL4	4-Chloroaniline
		CLBZ	Chlorobenzene	CLBZ	Chlorobenzene
		CLBZD5	Chlorobenzene-d5	None	N/A
		CLBZLATE	Chlorobenzilate	CLBZLATE	Chlorobenzilate
		CLBZME2	2-Chlorotoluene	CLBZME2	2-Chlorotoluene
		CLBZME4	4-Chlorotoluene	CLBZME4	4-Chlorotoluene
		CLBZS	Chlorinated Benzenes	None	N/A
		CLE	Chloroethene	None	N/A
		CLEA	Chloroethane	CLEA	Chloroethane
		CLHX1	1-Chlorohexane	CLHX1	1-Chlorohexane
		CLI0BZ2	Decachlorobiphenyl	CL10BZ2	Decachlorobiphenyl (surr.)
		CLME	Chloromethane	CLME	Chloromethane
		CLMME	Chloromethyl Methyl Ether	CLMME	Chloromethylmethyl ether

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		CLNAPHS	Chlorinated Naphthalenes	None	N/A
		CLNPH1	1-Chloronaphthalene	CLNPH1	1-Chloronaphthalene
		CLPE3	Allyl Chloride (3-Chloropropene)	CLPE3	Allyl chloride
		CLPH2	2-Chlorophenol	CLPH2	2-Chlorophenol
		CLPH3	3-Chlorophenol	None	N/A
		CLPH4	4-Chlorophenol	None	N/A
		CLPYRIFOS	Chlorpyrifos	CLPYRIFOS	Chlorpyrifos
		CMETHB	bis-Chloromethylether		
		CN	Cyanide	CN	Cyanide
		CNA	Cyanide, Amenable to Chlorination	CNA	Amenable Cyanide
		CNPH2	2-Chloronaphthalene	CNPH2	2-Chloronaphthalene
		CO-58	Cobalt-58	None	N/A
		CO-57	Cobalt-57	None	N/A
		CO	Cobalt	CO	Cobalt
		CO-60	Cobalt-60	None	N/A
		CO2	Carbon Dioxide Free	None	N/A
		CO3	Carbonate (as CO3)	None	N/A
		COD	COD-Chemical Oxygen Demand	COD	Chemical Oxygen Demand
		COLIF	Coliform	None	N/A
		COLOR	Color	None	N/A
		COUMAPHOS	Coumaphos	COUMAPHOS	Coumaphos
		CPDAYSNOW	Precipitation, Percent Days Measurable Snowfall	None	N/A
		CPENTANEME	Methylcyclopentane	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		CPHOSPH	Cyclophosphamide	None	N/A
		CPPE4	4-Chlorophenyl Phenyl Ether	CPPE4	4-Chlorophenyl phenyl ether
		CR	Chromium, Total	CR	Chromium
		CR-51	Chromium-51	None	N/A
		CR3	chromium (III)	None	N/A
		CR6	Chromium, Hexavalent	CR6	Chromium, Hexavalent
		CRBFN	Carbofuran	CRBFN	Carbofuran
		CROCID	Crocidolite	None	N/A
		CROTHYDE	Cotonaldehyde	None	N/A
		CS-134	Cesium-134	None	N/A
		CS-137	Cesium-137	None	N/A
		CTCL	Carbon Tetrachloride	CTCL	Carbon tetrachloride
		CU	Copper	CU	Copper
		CYHEKET	Cyclohexanone	CYHEKET	Cyclohexanone
		CYHEOH	Cyclohexanol	None	N/A
		CYHEXENE	Cyclohexene	None	N/A
		CYMP	P-Cymene (P-Isopropyltoluene)	CYMP	p-Isopropyltoluene
		24D	2,4-D (Dichlorophenoxyacetic Acid)	None	N/A
		D11M3N	N-(1,1-Dimethylethyl)-3-Methylbenzamide	None	N/A
		DALAPON	Dalapon	DALAPON	Dalapon
		24DB	2,4-DB	None	N/A
		DBAHA	Dibenz(a.h)Anthracene	DBAHA	Dibenzo(a,h)anthracene

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		DBAJACR	Dibenz(a.j)Acridine	DBAJACR	Dibenz(a,j)acridine
		DBCME	Dibromochloromethane	DBCME	Dibromochloromethane
		DBCP	1,2-Dibromo-3-Chloropropane	DBCP	1,2-Dibromo-3-chloropropan
		DBF	Dibenzofuran	DBF	Dibenzofuran
		DBMA	Dibromomethane	DBMA	Dibromomethane
		DBT	Dibenzothiophene (Synfuel)	None	N/A
		DBUTYLC	Dibutylchlorendate	None	N/A
		DBZ1214	1,2 & 1,4-Dichlorobenzene	None	N/A
		DBZD33	3,3-Dichlorobenzidine	None	N/A
		DCA	Dichloroethanes	None	N/A
		DCA11	1,1-Dichloroethane	DCA11	1,1-Dichloroethane
		DCA12	1,2-Dichloroethane	DCA12	1,2-Dichloroethane
		DCA12d4	1,2-Dichloroethane-d4	DCA12D4	1,2-Dichloroethane-d4 (surr.)
		DCBE14C	cis-1,4-Dichloro-2-Butene	None	N/A
		DCBE14T	trans-1,4-Dichloro-2-Butene	DCBE14T	trans-1,4-Dichloro-2-butene
		DCBETPT	Total 1,4-Dichloro-2-Butene	None	N/A
		DCBTA14	1,4-Dichlorobutane	DCBTA14	1,4-Dichloro-2-butane
		DCBZ12	1,2-Dichlorobenzene	DCBZ12	1,2-Dichlorobenzene
		DCBZ13	1,3-Dichlorobenzene	DCBZ13	1,3-Dichlorobenzene
		DCBZ14	1,4-Dichlorobenzene	DCBZ14	1,4-Dichlorobenzene
		DCBZ14D4	1,4-Dichlorobenzene-d4	None	N/A
		DCE11	1,1-Dichloroethene	DCE11	1,1-Dichloroethene

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		DCE12C	cis-1,2-Dichloroethene	DCE12C	cis-1,2-Dichloroethene
		DCE12T	trans-1,2-Dichloroethene	DCE12T	trans-1,2-Dichloroethene
		DCE12TOT	1,2-Dichloroethene, Total	DCE12TOT	1,2-Dichloroethene, Total
		DCP11	1,1-Dichloropropene	DCP11	1,1-Dichloropropene
		DCP12	1,2-Dichloropropene	None	N/A
		DCP13	1,3-Dichloropropene	None	N/A
		DCP13C	cis-1,3-Dichloropropene	DCP13C	cis-1,3-Dichloropropene
		DCP13T	trans-1,3-Dichloropropene	DCP13T	trans-1,3-Dichloropropene
		DCP23	2,3-Dichlorophenol	None	N/A
		DCP24	2,4-Dichlorophenol	DCP24	2,4-Dichlorophenol
		DCP25	2,5-Dichlorophenol	None	N/A
		DCP26	2,6-Dichlorophenol	DCP26	2,6-Dichlorophenol
		DCP34	3,4-Dichlorophenol	None	N/A
		DCPA12	1,2-Dichloropropane	DCPA12	1,2-Dichloropropane
		DCPA13	1,3-Dichloropropane	DCPA13	1,3-Dichloropropane
		DCPA22	2,2-Dichloropropane	DCPA22	2,2-Dichloropropane
		DCPROP	Dichloroprop	DCPROP	Dichlorprop
		DD1234678C13	1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin-C13	DD1234678C13	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin-C13
		DD123678C13	1,2,3,6,7,8-Hexachlorodibenzo-p-Dioxin C13	DD123678C13	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin C13
		DD12378C13	1,2,3,7,8-Pentachlorodibenzo-p-Dioxin-C13	DD12378C13	1,2,3,7,8-Pentachlorodibenzo-p-dioxin-C13

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		DDD	DDD (1,1-BIS(Chlorophenyl 2,2-Dichloroethane)	None	N/A
		DDD24	o.p"-DDD	None	N/A
		DDD44	P.P"-DDD	DDD44	4,4'-DDD
		DDE	DDE(1,1-BIS(Chlorophenyl) 2,2-Dichloroethene)	None	N/A
		DDE24	o.p"-DDE	None	N/A
		DDE44	o,p"-DDE	DDE44	4,4'-DDE
		DDT	DDT(1,1-BIS(Chlorophenyl)-2,2.2-Trichloroethane	None	N/A
		DDT24	o,p"-DDT	None	N/A
		DDT44	p,p"-DDT	DDT44	4,4'-DDT
		DDTS	DDT Total	None	N/A
		DECOH	n-Decyl Alcohol "Bhcdelta" Delta BHC	None	N/A
		DEMETON	Demeton	DEMETON	Demeton, -O and -S
		DEMETONO	Demeton-O	DEMETONO	Demeton-O
		DEMETONS	Demeton-S	DEMETONS	Demeton-S
		DEPH	Diethyl Phthalate	DEPH	Diethyl phthalate
		DEWPOINT	Average Dew Point (Degrees F)	None	N/A
		DFBZ14	1,4-Difluorobenzene	DFBZ14	1,4-Difluorobenzene
		DIACOH	Diacetone Alcohol	None	N/A
		DIALLATE	Diallate	DIALLATE	Diallate (cis or trans)
		DIAZ	Diazinon	DIAZ	Diazinon

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		DICAMBA	Dicamba	DICAMBA	Dicamba
		DICHLORAN	Dichloran	None	N/A
		DICHLORVOS	Dichlorvos	DICHLORVOS	Dichlorovos
		DICOFOL	Dicofol	None	N/A
		DIELDRIN	Dieldrin	DIELDRIN	Dieldrin
		DIESELCOMP	Diesel Components	None	N/A
		DIETBZ	Diethyl Benzene (Mixed Isomers)	None	N/A
		DIISOBTKET	Diisobutyl Ketone	None	N/A
		DIISOBTOL	Diisobutyl Carbinol	None	N/A
		DIMETHAT	Dimethoate	DIMETHAT	Dimethoate
		DINOSEB	Dinoseb	DINOSEB	Dinoseb
		DIOXANE14	1,4-Dioxane (P-Dioxane)	None	N/A
		DIOXOLANE	Dioxolane	None	N/A
		DISUL	Disulfoton	DISUL	Disulfoton
		DMBZA712	7,12-Dimethybenz(a)Anthracene	DMBZA712	7,12-Dimethylbenz(a)anthracene
		DMBZD33	3,3''-Dimethylbenzidine	DMBZD33	3,3'-Dimethylbenzidine
		DMOBZD33	3,3''-Dimethoxybenzidine	DMOBZD33	3,3'-Dimethoxybenzidine
		DMP24	2,4-Dimethylphenol	DMP24	2,4-Dimethylphenol
		DMPH	Dimethylk Phthalate	DMPH	Dimethyl phthalate
		DN46M	4,6-Dinitro-2-Methylphenol	DN46M	2-Methyl-4,6-dinitrophenol
		DNB13	1,3-Dinitrobenzene	DNB13	1,3-Dinitrobenzene
		DNBP	DI-n-Butyl Phthalate	DNBP	Di-n-butyl phthalate
		DNBZ14	1,4-Dinitrobenzene	DNBZ14	1,4-Dinitrobenzene
		DNOP	DI-n-Octyl Phthalate	DNOP	Di-n-octyl phthalate

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		DNP24	2,4-Dinitrophenol	DNP24	2,4-Dinitrophenol
		DNT24	2,4-Dinitrotoluene	DNT24	2,4-Dinitrotoluene
		DNT26	2,6-Dinitrotoluene	DNT26	2,6-Dinitrotoluene
		DO	Dissolved Oxygen	DO	Oxygen, Dissolved
		DOC	Dissolved Organic Carbon	None	N/A
		DPA	Diphenylamine	DPA	Diphenylamine
		DPHE	Diphenyl Ether (Phenyl Ether)	None	N/A
		DPHY12	1,2-Diphenylhydrazine	DPHY12	1,2-Diphenylhydrazine
		DPHY24	2,4-Diphenylhydrazine	None	N/A
		DS	Sulfide, Dissolved	None	N/A
		DXYA12	DXYA12	None	N/A
		EBZ	Ethylbenzene	EBZ	Ethylbenzene
		EDB	1,2-Dibromoethane (Ethylene Dibromide)	EDB	1,2-Dibromoethane
		EE	Diethyl Ether (Ethyl Ether)	EE	Diethyl ether
		EMETHACRY	Ethyl Methacrylate	EMETHACRY	Ethyl methacrylate
		EMSULFN	Ethyl Methanesulfonate	EMSULFN	Ethyl methanesulfonate
		ENDO	Endosulfan	None	N/A
		ENDOSULFANA	Alpha Endosulfan	ENDOSULFANA	Endosulfan I
		ENDOSULFANB	Beta Endosulfan	ENDOSULFANB	Endosulfan II
		ENDOSULFANS	Endosulfan Sulfate	ENDOSULFANS	Endosulfan sulfate
		ENDRIN	Endrin	ENDRIN	Endrin
		ENDRINALD	Endrin Aldehyde	ENDRINALD	Endrin aldehyde
		ENDRINKET	Endrin Ketone	ENDRINKET	Endrin ketone
		EPICLHDRN	Epichlorohydrin	None	N/A
		EPN	EPN (ENT)	EPN	EPN

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		ET2BTHYDE	2-Ethylbutyraldehyde	None	N/A
		ET2BTOH	2-Ethyl-I-Butanol	None	N/A
		ET2HEACET	Ethylhexyl Acetate	None	N/A
		ET2HEACR	Ethylhexyl Acrylate	None	N/A
		ET2HEHYDE	Ethylhexyl Aldehyde	None	N/A
		ET2HEOH	2-Ethyl-I-Hexanol	None	N/A
		ET2MAL	Diethyl Maleate	None	N/A
		ET2SUC	Diethyl Succinate	None	N/A
		ETACACET	Ethyl Acetoacetate	None	N/A
		ETACET	Ethyl Acetate	None	N/A
		ETACR	Ethyl Acrylate	None	N/A
		ETEGLY	Ethylene Glycol	None	N/A
		ETHANOL	Ethanol	ETHANOL	Ethanol
		ETHION	Ethion	ETHION	Ethion
		ETHOPROP	Ethoprop	ETHOPROP	Ethoprop
		ETIKET	Ethylidene Acetone	None	N/A
		ETMORP	N-Ethylmorpholine	None	N/A
		ETOX	Ethylene Oxide	None	N/A
		ETOX113BT	1,1,3-Triethoxybutane	None	N/A
		ETRALIN	Tetralin	None	N/A
		EVAPTRANS	Average Evapotranspiration	None	N/A
		F	Fluoride	F	Fluoride
		F10BPH	Decafluorobiphenyl	None	N/A
		F2ANIL	o-Fluoroaniline	None	N/A
		FAMPHUR	Famphur	FAMPHUR	Famphur
		FC11	Trichlorofluoromethane	FC11	Trichlorofluoromethane

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		FC113	1,1,2-Trichloro-2,2,2-Trifluoroethane	FC113	1,1,2-trichloro-1,2,2-trifluoroethane
		FC12	Dichlorodifluoromethane	FC12	Dichlorodifluoromethane
		FC21	Dichlorofluoromethane	FC21	Dichlorofluoromethane
		FE	Iron	FE	Iron
		FE-59	Iron-59	None	N/A
		FECCOLIFORM	Fecal Coliform, 0.7 Micron Filter	None	N/A
		FECSTREP	Fecal Streptococci, KF Agar	None	N/A
		FENSTHION	Fensulfothion	FENSTHION	Fensulfothion
		FENTHION	Fenthion	FENTHION	Fenthion
		FL	Fluorene	FL	Fluorene
		FLA	Fluoranthene	FLA	Fluoranthene
		FLASHPT	Flash Point	FLASHPT	Flash Point
		FLOWRATE	Flow Rate	None	N/A
		FOIL	Fuel Oils	FOIL	Fuel Oils
		FUEL	Fuels	FUE	Fuels
		FURAL	Furfuryl Alcohol	None	N/A
		GAMMA-GELI	Gamma Spectralanalysis, Ge(LI)	None	N/A
		GAMMA	Gamma, Gross	None	N/A
		GASCOMP	Gasoline Components	GASCOMP	Gasoline Components
		GLYACET2	Glycol Diacetate (Ethlene Glycol Diacetate)	None	N/A
		H-3	Tritium (Hydrogen-3)	None	N/A
		H2SO4	Sulfuric Acid	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		H3PO4	Phosphoric Acid	None	N/A
		HARD	Hardness (as CACO3)	HARD	Hardness (As CaCO3)
		HARDC	Hardness (as CO3), Carbonate	HARDC	Hardness (As CO3), Carbonate
		HARDNC	Hardness (as CACO3), Noncarbonate	HARDNC	Hardness (As CaCO3), Noncarbonate
		HBR	Hydrobromic Acid	None	N/A
		HCBU	Hexachlorobutadiene	HCBU	Hexachlorobutadiene
		HCCP	Hexachlorocyclopentadiene	HCCP	Hexachlorocyclopentadiene
		HCL	Hydrochloric Acid	None	N/A
		HCLBZ	Hexachlorobenzene	HCLBZ	Hexachlorobenzene
		HCLEA	Hexachloroethane	HCLEA	Hexachloroethane
		HCO3	Bicarbonate	None	N/A
		HCPR	Hexachloropropene	HCPR	Hexachloropropene
		HEE	n-Hexyl Ether	None	N/A
		HEOH	l-Hexanol	None	N/A
		HEPT-EPOX	Heptachlor Epoxide	HEPT-EPOX	Heptachlor epoxide
		HEPTACHLOR	Heptachlor	HEPTACHLOR	Heptachlor
		HEPTANE3ME	3-Methylheptane	None	N/A
		HEXANE3ME	3-Methylhexane	None	N/A
		HF	Hydrofluoric Acid	None	N/A
		HG	Mercury	HG	Mercury
		HMX	Hctahydro-1,3,5,7-Tetranitro 1,3,5,7-Tetrazocine	None	N/A
		HNO3	Nitric Acid	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		HNU	HNuReadings	None	N/A
		HPCDD	Heptachlorinated Dibenzo-p Dioxins, (Total)	HPCDD	Total Heptachlorodibenzo-p-dioxins (HpCDD)
		HPCDD1234678	1,2,3,4,6,7,8-Heptachlorodibenzo-p-Dioxin	HPCDD1234678	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin
		HPCDF	Heptachlorinated Dibenzofurans, (Total)	HPCDF	Total Heptachlorodibenzofurans (HpCDF)
		HSD	Hydrogen Sulfide Detector	None	N/A
		HUMIDAVAM	Morning Average Relative Humidity	None	N/A
		HUMIDAVG	Average Relative Humidity	None	N/A
		HUMIDAVHI	Mean High Humidity	None	N/A
		HUMIDAVLO	Mean Low Humidity	None	N/A
		HUMIDAVPM	Midday Average Relative Humidity	None	N/A
		HUMIDITY	Humidity, Relative	None	N/A
		HXCDD	Hexachlorinated Dibenzo-p-Dioxins, (Total)	HXCDD	Total Hexachlorodibenzo-p-dioxins (HxCDD)
		HXCDD123478	1,2,3,4,7,8-Hexachlorodibenzo-p-Dioxin	HXCDD123478	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin
		HXCDF	Hexachlorinated Dibenzofurans, (Total)	HXCDF	Total Hexachlorodibenzofurans (HxCDF)

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		HXCDF123478	1,2,3,4,7,8-Hexachlorodibenzofuran	HXCDF123478	1,2,3,4,7,8-Hexachlorodibenzofuran
		HXCP	Hexachlorophene	HXCP	Hexachlorophene
		HXO2	2-Hexanone	HXO2	2-Hexanone
		HYDFGR	Hydrocarbon Fingerprint	None	N/A
		HYDRAZINE	Hydrazine	None	N/A
		I	Iodine (as I)	I	Iodide (As I)
		I-131	Iodine-131	None	N/A
		IGNITB	Ignitability	IGNITB	Ignitability
		IME	Iodomethane (Methyl Iodine)	IME	Methyl iodide
		INP123	Indeno(1,2,3-C,D)Pyrene	INP123	Indeno(1,2,3-cd)pyrene
		IN	Indium	None	N/A
		IPBZ	Isopropylbenzene	IPBZ	Isopropylbenzene
		ISOBTACET	Isobutyl Acetate	None	N/A
		ISOBTOH	Isobutanol	None	N/A
		ISODRIN	Isodrin	ISODRIN	Isodrin
		ISOOCTOH	Isooctanol (Isomers)	None	N/A
		ISOP	Isophorone	ISOP	Isophorone
		ISOPRACET	Isopropyl Acetate	None	N/A
		PROPHAM	Isopropl Carbanilate	None	N/A
		ISOPRE	Isopropyl Ether	None	N/A
		CHLORPROPHAM	Ispropyl m-Chlorocarbanilate	None	N/A
		ISOPROH	Isopropanol	None	N/A
		ISOPRYACET	Isopropenyl Acetate	None	N/A
		ISOSAFR	Isosafrole	ISOSAFR	Isosafrole

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		K-40	Potassium-40	None	N/A
		K	Potassium	K	Potassium
		KEP	Kepone	KEP	Kepone
		KN	Nitrogen, Kjeldahl, Total	KN	Nitrogen , Kjeldahl, Total
		LA-140	Lanthium-140	None	N/A
		LAI	Langselier Index (at 25 C)	None	N/A
		LA	Lanthanum	None	N/A
		LEL	Lower Explosive Limit	None	N/A
		LI	Lithium	LI	Lithium
		MALA	Malathion	MALA	Malathion
		MB2CAN44	4,4"-Methylene-bis (2-Chloroaniline)	MB2CAN44	4,4'-Methylenebis(2-chloraniline)
		MBAS	Methylene Blue Active Substances	None	N/A
		MBSC2	2-Methylbenzenesulfonylchloride	None	N/A
		MBSC4	4-Methylbenzenesulfonylchloride	None	N/A
		MBSN2	2-Methybenzenesulfonamide	None	N/A
		MBT213	2-Methyl-1,3-Butadiene	None	N/A
		MCPA	MCPA	MCPA	MCPA
		MCPP	MCPP	MCPP	MCPP
		ME2ET5PYR	2-Methyl-5-Ethyl Pyridine	None	N/A
		ME2PEHYDE	2-Methylpentaldehyde	None	N/A

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		ME4PE2OH	Methyl Amyl Alcohol	None	N/A
		MEACACET	Methyl Acetoacetate	None	N/A
		MEACET	Methyl Acetate	None	N/A
		MEBZOH	Methylbenzyl Alcohol	None	N/A
		MECHLAN3	3-Methylcholanthrene	MECHLAN3	3-Methylcholanthrene
		MEISOPEKET	Methyl Isoamyl Ketone	None	N/A
		MEK	Methyl Ethyl Ketone (2-Butanone)	MEK	2-Butanone
		MEMORP	N-Methylmorpholene	None	N/A
		MEOH	Methanol	None	N/A
		MEPH1314	m/p-Cresol (Cresols, m & p)	None	N/A
		MEPH2	2-Methylphenol (o-Cresol)	MEPH2	2-Methylphenol (o-cresol)
		MEPH3	3-Methylphenol	MEPH3	3-Methylphenol
		MEPH4	4-Methylphenol (p-Cresol)	MEPH4	4-Methylphenol (p-cresol)
		MEPHS	Cresols, Total	MEPHS	Cresols (methyl phenols)
		MEPRKET	Methyl n-Propyl Ketone	None	N/A
		SWEP	Methyl-N-(3,4-Di-Chlorophenyl) Carbamate	None	N/A
		METHACRN	Methylacryonitrile	METHACRN	Methacrylonitrile
		MERPHOS	Merphos	MERPHOS	Merphos
		MESOX	Mesityl Oxide	None	N/A
		METHIDATHION	O,O-Dimethyl Phosphorodithioate	None	N/A
		METHOMYL	S-Methyl-N-(Methylcarbamoyl)-Oxy)-Thioacetimidate	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		MEVACET	Methyl Vinyl Acetate	None	N/A
		MEVINPHOS	Mevinphos	MEVINPHOS	Mevinphos
		MG	Magnesium	MG	Magnesium
		MIBK	Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	MIBK	4-Methyl-2-pentanone
		MIREX	Mirex	MIREX	Mirex
		MMETHACRY	Methyl Methacrylate	MMETHACRY	Methylmethacrylate
		MMSULFN	Methyl Methanesulfonate	MMSULFN	Methyl methanesulfonate
		MN	Manganese	MN	Manganese
		MN-54	Manganese-54	None	N/A
		MO-99	Molybdenum-99	None	N/A
		MO	Molybdenum	MO	Molybdenum
		MOIL	Motor Oils	None	N/A
		MOIST	Moisture, Percent	MOIST	Percent Moisture
		MONOCROPHOS	Dimethyl-(E)-1-Methyl-2-Methylcarbamoylvinyl	MONOCROPHOS	Monocrotophos
		MPEA11	Alpha, Alpha Dimethylphenethylamine	MPEA11	alpha,alpha-Dimethylphenethylamine
		MTLNCL	Methylene Chloride	MTLNCL	Methylene chloride
		MTNPH1	1-Methylnaphthalene	None	N/A
		MTNPH2	2-Methylnaphthalene	MTNPH2	2-Methylnaphthalene
		MTPYRLN	Methapyrilene	MTPYRLN	Methapyrilene
		MTXYCL	Methoxychlor	MTXYCL	Methoxychlor
		N20	Nitrous Oxide	None	N/A
		NA	Sodium	NA	Sodium
		NALED	Naled	NALED	Naled
		NAPH	Naphthalene	NAPH	Naphthalene

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		NAPHD8	Naphthalene-d8	None	N/A
		NAPHQ14	1,4-Naphthoquinone	NAPHQ14	1,4-Naphthoquinone
		NASBFIB	Non-Asbestos Fiber	None	N/A
		NASBNFC	Non-Asbestos Non-Fibrous Constituents	None	N/A
		NB-94	Niobium-94	None	N/A
		NB-95	Niobium-95	None	N/A
		NDOC	Nondissolved Organic Carbon	None	N/A
		NH3N	Nitrogen, Ammonia (as N)	NH3N	Nitrogen, Ammonia (as N)
		NI	Nickel	NI	Nickel
		NNSBU	N-Nitroso-di-n-Butylamine	NNSBU	N-Nitroso-di-n-butylamine
		NNSE	N-Nitrosodiethylamine	NNSE	N-Nitrosodiethylamine
		NNSM	N-Nitrosodimethylamine	NNSM	N-Nitrosodimethylamine
		NNSME	Nitrosomethylethylamine	NNSME	N-Nitrosomethylethylamine
		NNSMRPH	N-Nitrosomorpholine	NNSMRPH	N-Nitrosomorpholine
		NNSPH	N-Nitrosodiphenylamine	NNSPH	N-Nitrosodiphenylamine
		NNSPPRD	N-Nitrosopiperidine	NNSPPRD	N-Nitrosopiperidine
		NNSPR	N-Nitrosodi-n-Propylamine	NNSPR	N-Nitrosodi-n-propylamine
		NNSPYRL	N-Nitrosopyrrolidine	NNSPYRL	N-Nitrosopyrrolidine
		NO2ANIL2	2-Nitroaniline	NO2ANIL2	2-Nitroaniline
		NO2ANIL3	3-Nitroaniline	NO2ANIL3	3-Nitroaniline
		NO2ANIL4	4-Nitroaniline	NO2ANIL4	4-Nitroaniline
		NO2BZ	Nitrobenzene	NO2BZ	Nitrobenzene
		NO2BZD5	Nitrobenzene-D5	NO2BZD5	Nitrobenzene-d5 (surr.)
		NO2N	Nitrogen, Nitrite	NO2N	Nitrogen, Nitrite

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		NO3N	Nitrogen, Nitrate (as N)	NO3N	Nitrogen, Nitrate (as N)
		NO3NO2N	Nitrogen, Nitrate-Nitrite	NO3NO2N	Nitrogen, Nitrate-Nitrite
		NPOC	Nonpurgeable Organic Carbon	None	N/A
		NTPH2	2-Nitrophenol	NTPH2	2-Nitrophenol
		NTPH4	4-Nitrophenol	NTPH4	4-Nitrophenol
		OCDD	Octachlorodibenzo-p-Dioxin	OCDD	Octachlorodibenzo-p-dioxin
		OCDDC13	Octachlorodibenzo-p-Dioxin C13	OCDDC13	Octachlorodibenzo-p-dioxin-C13
		OCDF	Octachlorodibenzofuran	OCDF	Octachlorodibenzofuran
		OCTENE1	Octene-1	None	N/A
		OCTOH	n-Octanol	None	N/A
		OIL	Oil	None	N/A
		OILGREASE	Oil & Grease, Total Rec	OILGREASE	Oil and Grease
		OS	Osmium	OS	Osmium
		OVA	Organic Vapor	None	N/A
		OXAMYL	Methyl N",N"-Dimethyl-N-{(Methylcarbmoyl)oxy}-1-	None	N/A
		OXYGEN	Oxygen	None	N/A
		P	Phosphorus, Total (as P)	P	Phosphorus, Total (as P)
		PACN	Propane Nitrile (Propionitrile)	PACN	Propionitrile
		PARAE	Parathion, Ethyl	PARAE	Parathion ethyl
		PARALD	Paraldehyde	None	N/A
		PARAM	Parathion, Methyl	PARAM	Parathion methyl
		PB	Lead	PB	Lead

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		PBTE	Lead, Tetraethyl	None	N/A
		PBZN	n-Propylbenzene	PBZN	n-Propylbenzene
		PCA	1,1,2,2-Tetrachloroethane	PCA	1,1,2,2-Tetrachloroethane
		PCB	PCB, Total	None	N/A
		PCB1016	PCB-1016 (Arochlor 1016)	PCB1016	PCB-1016
		PCB1221	PCB-1221 (Arochlor 1221)	PCB1221	PCB-1221
		PCB1224	PCB-1224 (Arochlor 1224)	None	N/A
		PCB1232	PCB-1232 (Arochlor 1232)	PCB1232	PCB-1232
		PCB1242	PCB-1242 (Arochlor 1242)	PCB1242	PCB-1242
		PCB1248	PCB-1248 (Arochlor 1248)	PCB1248	PCB-1248
		PCB1254	PCB-1254 (Arochlor 1254)	PCB1254	PCB-1254
		PCB1260	PCB-1260 (Arochlor 1260)	PCB1260	PCB-1260
		PCB1262	PCB-1262 (Arochlor 1262)	None	N/A
		PCE	Tetrachloroethene (PCE)	PCE	Tetrachloroethene
		PCLEA	Pentachloroethane	PCLEA	Pentachloroethane
		PCMC	4-Chlororesorcinol	None	N/A
		PCP	Pentachlorophenol	PCP	Pentachlorophenol
		PCSNWGWGT1.5	Precipitation, Days Snowfall > 1.5 Inches	None	N/A
		PD	Phosphorus, Dissolved (as P)	None	N/A
		PDHYDRO	Phosphorus, Dissolved Hydrolyzable (as P)	None	N/A
		PDMAABZ	p-Dimethylaminoazobenzene	PDMAABZ	p-Dimethylaminoazobenzene
		PDORG	Phosphorus, Dissolved Organic (as P)	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		PDORTHO	Phosphorus, Dissolved Orthophosphate (as P)	None	N/A
		PE23	2,3-Pentanedione	None	N/A
		PEACET	Amyl Acetate (Mixed Isomers)	None	N/A
		PECDD	Pentachlorinated Dibenzo-p Dioxins, (Total)	PECDD	Total Pentachlorodibenzo-p-dioxin (PeCDD)
		PECDD12347	1,2,3,4,7-Pentachlorodibenzo-p-Dioxin	None	N/A
		PECDD12378	1,2,3,7,8-Pentachlorodibenzo-p-Dioxin	PECDD12378	1,2,3,7,8-Pentachlorodibenzo-p-dioxin
		PECDF	Pentachlorinated Dibenzofurans, (Total)	PECDF	Total Pentachlorodibenzofurans (PeCDF)
		PECDF12378	1,2,3,7,8-Pentachlorodibenzofuran	PECDF12378	1,2,3,7,8-Pentachlorodibenzofuran
		PENCLBZ	Pentachlorobenzene	PECLBZ	Pentachlorobenzene
		PECLNO2BZ	Pentachloronitrobenzene	PECLNO2BZ	Pentachloronitrobenzene
		PENTANE3ME	3-Methylpentane	None	N/A
		PEOH	Amyl Alcohol	None	N/A
		PEOH2	2-Pentanol	None	N/A
		PERDAY1000FT	Percent of Days Ceiling Below 1000Ft	None	N/A
		PERDAY500FT	Percent of Days Ceiling Below 500Ft	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		PERTHANE	Perthane	None	N/A
		PERYD12	Perylene-d12	None	N/A
		PFP	Pentafluorophenol	None	N/A
		PH	pH	None	N/A
		PH246BR	2,4,6-Tribromophenol	PH246BR	2,4,6-Tribromophenol (surr.)
		PH2F	2-Fluorophenol	PH2F	2-Fluorophenol (surr.)
		PHAN	Phenanthrene	PHAN	Phenanthrene
		PHAND10	Phenanthrene-d10	None	N/A
		PHC	Petroleum Hydrocarbons	PHC	Petroleum Hydrocarbons
		PHD5	Phenol-d5	PHD5	Phenol-d5 (surr.)
		PHEN2BR246	2,4,6-Tribromobiphenyl	None	N/A
		PHEN2F	2-Fluorobiphenyl	PHEN2F	2-Fluorobiphenyl (surr.)
		PHEND14	Terphenyl-D14	PHEND14	Terphenyl-d14 (surr.)
		PHENOL	Phenol	PHENOL	Phenol
		PHENOLD6	Phenol-d6	PHENOLD6	Phenol-d6 (surr.)
		PHNACTN	Phenacetin	PHNACTN	Phenacetin
		PHORATE	Phorate	PHORATE	Phorate
		PHYDRO	Phosphorus, Total Hydrolyzable (as P)	None	N/A
		PICOLINE2	2-Picoline (Alpha-Picoline)	PICOLINE2	2-Picoline
		PICOLINE3	3-Picoline	None	N/A
		PICOLINE4	4-Picoline	None	N/A
		PO4	Phosphorus, Total Orthophosphate (as PO4)	None	N/A
		POC	Purgeable Organic Carbons	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		PORG	Phosphorus, Total Organic (as P)	None	N/A
		PORTHO	Phosphorus, Total Orthophosphate (as P)	None	N/A
		PR2BRCL	2-Bromo-1-Chloropropane	PR2BRCL	2-Bromo-1-Chloropropane
		PRACET	Propyl Acetate	None	N/A
		PREC1MONMAX	Precipitation, 1 Month Maximum	None	N/A
		PRECAVG	Average Precipitation	None	N/A
		PRECDAY	Precipitation, Days	None	N/A
		PRECDAYSTORM	Precipitation, Days with Thunderstorms	None	N/A
		PRECGT.01	Precipitation > .01 Inches	None	N/A
		PRECGT.5	Precipitation > .5 Inches	None	N/A
		PRECMAX	Precipitation, Record Maximum	None	N/A
		PRECMEAN	Precipitation Mean	None	N/A
		PRECMIN	Precipitation, Record Minimum	None	N/A
		PRECMX24	Precipitation, 24 Hour Maximum	None	N/A
		PRECYR	Precipitation, Yearly Total	None	N/A
		PROH	n-Propanol	None	N/A
		PRONAMD	Pronamide	PRONAMD	Pronamide
		PROPOX	Propylene Oxide	None	N/A
		PTHZ	Phthalazinone	None	N/A
		PYR	Pyrene	PYR	Pyrene

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		PYRDN	Pyrindine	PYRDN	Pyridine
		PYRENED10	Pyrene-d10	None	N/A
		RA-224	Radium-224	None	N/A
		RA-228	Radium-228	None	N/A
		RA-226	Radium-226	None	N/A
		RA-223	Radium-223	None	N/A
		RA	Radium	None	N/A
		RAD	Radiation	None	N/A
		RB	Rubidium	None	N/A
		RDX	Hexahydro-1,3,5-tRINITRO-1,3,5,7-Tetrazocine	None	N/A
		RE	Rhenium	None	N/A
		RESTOT	Residue, Total	None	N/A
		RN	Radon	None	N/A
		RONNEL	Ronnel	RONNEL	Ronnel
		RU-103	Ruthenium-103	None	N/A
		RU-106	Ruthenium-106	None	N/A
		RU/RH-106	Ruthenium/Rhodium-106	None	N/A
		S	Sulfide	S	Sulfide
		SAE1020	SAE Type 1020 Steel, Corrosivity	None	N/A
		SAFROLE	Safrole	SAFROLE	Safrole
		SAR	Sodium Absorption Ratio	None	N/A
		SB-125	Antimony-125	None	N/A
		SB-124	Antimony-124	None	N/A
		SB	Antimony	SB	Antimony
		SC	Specific Conductance	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		SE	Selenium	SE	Selenium
		SALFPOT	Self (Spontaneous) Potential	None	N/A
		SEVIN	Sevin (Carbaryl)	SEVIN	Carbaryl
		SI	Silicon	SI	Silicon
		SIEVE10	Sieve No. 10, Percent Passing	None	N/A
		SIEVE200	Sieve No. 100, Percent Passing	None	N/A
		SIEVE4	Sieve No. 4, Percent Passing	None	N/A
		SIEVE40	Sieve No. 40, Percent Passing	None	N/A
		SIEVE80	Sieve No. 80, Percent Passing	None	N/A
		SIL	Silica	SIL	Silica
		Silvex	Silvex (2,4,5-TP)	SILVEX	2,4,5-TP (Silvex)
		SN	Tin	SN	Tin
		SNOWAVG	Average Snowfall	None	N/A
		SNOWDAYS	Days with Snow	None	N/A
		SNOWMAX	Maximum Snowfall	None	N/A
		SNOWMAX24	Snowfall, 24 hour Maximum	None	N/A
		SO4	Sulfate (as SO4)	SO4	Sulfate
		SOLID	Solids, Percent	SOLID	Solids, Percent
		SR	Strontium	SR	Strontium
		SR-90	Strontium-90	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		SS	Suspended Solids (residue.non.filterable)	SS	Suspended Solids
		STIROFOS	Stirofos (Tetrachlorvinphos)	STIROFOS	Tetrachlorvinphos (Stirophos)
		STROBANE	Strobane	None	N/A
		STY	Styrene	STY	Styrene
		STYOX	Styrene Oxide	None	N/A
		SULFOTEP	Thiodiphosphoric Acid Tetraethyl Ester	SULFOTEP	Sulfotep
		SULPROFOS	Bolstar	SULPROFOS	Bolstar (Sulprofos)
		SURFACT	Sirfactants	None	N/A
		SYNFIBER	Synthetic Fiber	None	N/A
		TBME	Bromoform	TBME	Bromoform
		TBUTMEE	tert-Butyl Methyl Ether	TBUTMEE	Methyl-t-butyl ether
		TC1112	1,1,1,2-Tetrachloroethane	TC1112	1,1,1,2-Tetrachloroethane
		TCA	Trichloroethane	None	N/A
		TCA111	1,1,1-Trichloroethane	TCA111	1,1,1-Trichloroethane
		TCA112	1,1,2-Trichloroethane	TCA112	1,1,2-Trichloroethane
		TCB123	1,2,3-Trichloroethane	TCB123	1,2,3-Trichlorobenzene
		TCB124	1,2,4-Trichloroethane	TCB124	1,2,4-Trichlorobenzene
		TCB135	1,3,5-Trichloroethane	None	N/A
		TCDD	Tetrachlorinated Dibenzo-p-Dioxins, (Total)	TCDD	Total Tetrachlorodibenzo-p-dioxins (TCDD)
		TCDD1234	1,2,3,4-Tetrachlorodibenzo-p-Dioxin	None	N/A
		TCDD1278	1,2,7,8-Tetrachlorodibenzo-p-Dioxin	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		TCDD1289	1,2,8,9-Tetrachlorodibenzo-p-Dioxin	None	N/A
		TCDD1368	1,3,6,8-Tetrachlorodibenzo-p-Dioxin	None	N/A
		TCDD1378	1,3,7,8-Tetrachlorodibenzo-p-Dioxin	None	N/A
		TCDD1379	1,3,7,9-Tetrachlorodibenzo-p-Dioxin	None	N/A
		TCDD2378	2,3,7,8-Tetrachlorodibenzo-p-Dioxin	TCDD2378	2,3,7,8-Tetrachlorodibenzo-p-dioxin
		TCDD2378C13	2,3,7,8-Tetrachlorodibenzo-p-Dioxin-C13	None	N/A
		TCDF	Tetrachlorinated Dibenzofurans, (Total)	TCDF	Total Tetrachlorodibenzofurans (TCDF)
		TCDF1278	1,2,7,8-Tetrachlorodibenzofuran	None	N/A
		TCDF2378C13	2,3,7,8-Tetrachlorodibenzofuran-C13	None	N/A
		TCE	Trichloroethylene (TCE)	TCE	Trichloroethene
		TCEHP	Trichloroethanol Phosphate	None	N/A
		TCLME	Chloroform	TCLME	Chloroform
		TCP2346	2,3,4,6-Tetrachlorophenol	TCP2346	2,3,4,6-Tetrachlorophenol
		TCP2356	2,3,5,6-Tetrachlorophenol	None	N/A
		TCP236	2,3,6-Trichlorophenol	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		TCP245	2,4,5-Trichlorophenol	TCP245	2,4,5-Trichlorophenol
		245T	2,4,5-T (Trichlorophenoxyacetic Acid)	None	N/A
		TCP246	2,4,6-Trichlorophenol	TCP246	2,4,6-Trichlorophenol
		TCPR	Trichloropropane	TCPR	Trichloropropane
		TCPR123	1,2,3-Trichloropropane	TCPR123	1,2,3-Trichloropropane
		TDS	Total Dissolved Solids (Residue Filterable)	TDS	Total Dissolved Solids
		TE	Tellurium	None	N/A
		TECLPHS	Tetrachlorophenols, Total	TECLPHS	Tetrachlorophenols
		TEMP	Temperature	None	N/A
		TEMPAVG	Average Temperature	None	N/A
		TEMPAVGMAX	Average Maximum Temperature	None	N/A
		TEMPAVGMIN	Average Minimum Temperature	None	N/A
		TEMPDAYMAX	Average Daily Maximum Temperature	None	N/A
		TEMPDAYMIN	Average Daily Minimum Temperature	None	N/A
		TEMPHIGH	Temperature, Record High	None	N/A
		TEMPLOW	Teperature Record Low	None	N/A
		TEMPMAXGT100	Average Number of Days > 100 Deg F	None	N/A
		TEMPMAXGT110	Average Number of Days > 110 Deg F	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		TEMPMAXGT65	Days with Maximum Temperature > 65 Deg F	None	N/A
		TEMPMAXGT80	Days with Maximum Temperature > 80 Deg F	None	N/A
		TEMPMAXFT85	Days with Maximum Temperature > 85 Deg F	None	N/A
		TEMPMEANMAX	Mean Maximum Monthly Temperature	None	N/A
		TEMPMEANMIN	Mean Minimum Monthly Temperature	None	N/A
		TEMPMINGT65	Days with Minimum Temperature > 65 Deg F	None	N/A
		TEMPMINLT0	Days with Minimum Temperature < 0 Deg F	None	N/A
		TEMPMINLT25	Average Number of Days < 25 Deg F	None	N/A
		TEMPMINLT32	Average Number of Days < 32 Deg F	None	N/A
		TEPP	Tetraethyl Diphosphat	TEPP	Tetraethyl pyrophosphate
		TERPINEOL	Alpha-Terpineol	None	N/A
		TETCLA	Tetrachloroethanes	None	N/A
		TETRALIN	Tetralin	None	N/A
		TETRYL	Tetryl	None	N/A
		TFBZME	Trifluorotoluene	None	N/A
		TH-228	Thorium-228	None	N/A
		TH230	Thorium-230	None	N/A
		TH	Thorium	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		TH-232	Thorium-232	None	N/A
		THM	Total Trihalomethanes	None	N/A
		TI	Titanium	TI	Titanium
		TL	Thallium	TL	Thallium
		TLDNOHCL	o-Toluidine Hydrochloride	None	N/A
		TLDNONT5	5-Nitro-O-Toluidine	TLDNONT5	5-Nitro-o-toluidine
		TMB124	1,2,4-Trimethylbenzene	TMB124	1,2,4-Trimethylbenzene
		TMB135	1,3,5-Trimethylbenzene	TMB135	1,3,5-Trimethylbenzene
		TNB135	1,3,5-Trinitrobenzene	TNB135	1,3,5-Trinitrobenzene
		TNP246	Picric Acid	None	N/A
		TNT	2,4,6-Trinitrotoluene	None	N/A
		TOC	Total Organic Carbon	TOC	Total Organic Carbon
		TOKUTHION	Tokuthion (Prothiofos)	TOKUTHION	Tokuthion (Prothiofos)
		TOTPHEN	Phenolics, Total Recoverable	None	N/A
		TOX	Total Organic Halides (TOX)	TOX	Total Organic Halides
		TOX-BR	Total Organic Halides (TOX) - Brominated	None	N/A
		TOX-CL	Total Organic Halides (TOX) - Chlorinated	None	N/A
		TOX-I	Total Organic Halides (TOX) - Iodinated	None	N/A
		TOXAP	Toxaphere	TOXAP	Toxaphene
		TPHENA	Phenol (Acid Fraction)	None	N/A
		TRANAVG	Transmissivity	None	N/A
		TREMO	Tremolite	None	N/A

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Value Name / env-parameter label code (continued)		TRICLPHS	Tricholorophenos, Total	TRICLPHS	Trichlorophenols
		TRIFLURALIN	Trifluralin	TRIFLURALIN	Trifluralin
		TS	Sulfide Total	None	N/A
		TURB	Turbidity	TURB	Turbidity
		TVS	Total Volatile Solids	TVS	Total Volatile Solids
		U-234	Uranium-234	None	N/A
		U-238	Uranium-238	None	N/A
		U-235	Uranium-235	None	N/A
		UTOT	Uranium, Total	None	N/A
		V	Vanadium	V	Vanadium
		VA	Vinyl Acetate	VA	Vinyl acetate
		VAPRESSAVG	Average Vapor Pressure	None	N/A
		VBTE	Vinyl n-Butyl Ether	None	N/A
		VC	Vinyl Chloride	VC	Vinyl chloride
		VETE	Vinyl Ethyl Ether	None	N/A
		ISOBTE	Vinyl Isobutyl Ether	None	N/A
		VSBY1500	Average Percent of Time with Cloud Ceiling <1500"	None	N/A
		VSBY200	Average Percent of Time with Cloud Ceiling <200"	None	N/A
		VSBY5000	Average Percent of Time with Cloud Ceiling <5000"	None	N/A
		VSS	Volatile Suspended Solids	None	N/A
		VTDS	Volatile Total Dissolved Solids	None	N/A
		W	Tungten	None	N/A
		WINDAVG	Average Wind Speed	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		WINDDIR	Wind Direction	None	N/A
		WINDGT10	Time with Winds > 10 Knots	None	N/A
		WINDGT21	Time with Winds > 21 Knots	None	N/A
		WINDMAX	Peak Recorded with Speed	None	N/A
		XME	Halomethanes	None	N/A
		XYLENES1213	Xylenes, o & m	None	N/A
		XYLENES1214	Xylenes, o & p	None	N/A
		XYLM	M-Xylene (1.3-Dimethylbenzene)	XYLM	m-Xylene
		XYLMP	M.P-Xylene(Sum of Isomers)	XYLMP	m,p-Xylene (Sum of Isomers)
		XYLO	o-Xylene (1.2-Dimethylbenzene)	XYLO	o-Xylene
		XYLP	p-Xylene (1.4-Dimethylbenzene)	XYLP	p-Xylene
		ZINOPHOS	Zinophos	ZINOPHOS	Thionazine
		ZN	Zinc	ZN	Zinc
		ZN-65	Zinc-65	None	N/A
		ZR-95	Zirconium-95	None	N/A
		ZR	Zirconium	None	N/A
		C2HCl3	Trichloroethylene	None	N/A
		CCl4	Carbon Tetrachloride	None	N/A
		C2Cl4	Tetrachloroethylene	None	N/A
		CHCl3	Chloroform	None	N/A

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Value Name / env-parameter label code (continued)		C56	Hexachlorocyclopentadiene	None	N/A
		None	N/A	11DCPROPN	1,1-Dichloropropanone
		None	N/A	13BZDIOL	Resorcinol
		None	N/A	14BZDIOL	1,4-Benzenediol
		None	N/A	1CLOCT	1-Chloro-octane
		None	N/A	245T	2,4,5-T
		None	N/A	24D	2,4-D
		None	N/A	24DB	2,4-DB
		None	N/A	24DCPHYAA	2,4-Dichlorophenylacetic acid
		None	N/A	4N2PHEN	4-Nitrobiphenyl
		None	N/A	4NQO	Nitroquinoline-1-oxide
		None	N/A	9PHENAN	9-Phenylanthracene
		None	N/A	AC2T	1-Acetyl-2-Thiourea
		None	N/A	AMAQ2	2-Aminoanthraquinone
		None	N/A	AMAZOBENZ	Aminoazobenzene
		None	N/A	ANSD2	o-Anisidine
		None	N/A	ANZIN	Anilazine
		None	N/A	BARBAN	Barban
		None	N/A	BIDRIN	Dicrotophos
		None	N/A	BROXL	Bromoxynil
		None	N/A	BTA	Butanoic acid
		None	N/A	BZALD	Benzaldehyde
		None	N/A	BZJF	Benzo(j)fluoranthene
		None	N/A	BZLCL	Chlorotoluene
		None	N/A	BZS	Thiophenol (Benzenethiol)

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Value Name / env-parameter label code (continued)		None	N/A	CAFFEINE	Caffeine
		None	N/A	CAPT	Captafol
		None	N/A	CL5MANIL2	5-Chloro-2-Methylaniline
		None	N/A	CLAN	Chloroacetonitrile
		None	N/A	CLHYD	Chlorinated Hydrocarbon
		None	N/A	CLM3CPYRDN	3-(Chloromethyl)pyridine hydrochloride
		None	N/A	CORROS	Corrosivity Toward Steel
		None	N/A	CRESP	p-Cresidine
		None	N/A	CROTOX	Crotoxyphos
		None	N/A	CVP	Chlorfenvinphos
		None	N/A	CYC5N	Cyclopentane
		None	N/A	CYHEX2DNP46	2-Cyclohexyl-4,6-dinitrophenol
		None	N/A	CYHEXANE	Cyclohexane
		None	N/A	DB7HCGCBZ	7H-Dibenzo(c,g)carbazole
		None	N/A	DBAHACR	Dibenz(a,h)acridine
		None	N/A	DBFM	Dibromofluoromethane (surr.)
		None	N/A	DBZAEP	Dibenzo(a,e)pyrene
		None	N/A	DBZAHP	Dibenzo(a,h)pyrene
		None	N/A	DBZAIP	Dibenzo(a,i)pyrene
		None	N/A	DBZD33	3,3'-Dichlorobenzidine
		None	N/A	DCLN	Dichlone
		None	N/A	DD123478C13	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin C13

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Value Name / env-parameter label code (continued)		None	N/A	DES	Diethylstilbestrol
		None	N/A	DESO4	Diethyl sulfate
		None	N/A	DF1234789C13	1,2,3,4,7,8,9-Heptachlorodibenzofuran-C13
		None	N/A	DF123478C13	1,2,3,4,7,8-Hexachlorodibenzofuran-C13
		None	N/A	DF123678C13	1,2,3,6,7,8-Hexachlorodibenzofuran-C13
		None	N/A	DF123789C13	1,2,3,7,8,9-Hexachlorodibenzofuran-C13
		None	N/A	DF12378C13	1,2,3,7,8-Pentachlorodibenzofuran-C13
		None	N/A	DF234678C13	2,3,4,6,7,8-Hexachlorodibenzofuran-C13
		None	N/A	DF23478C13	2,3,4,7,8-Pentachlorodibenzofuran-C13
		None	N/A	DM13NBZ2	1,3-Dimethyl-2-nitrobenzene
		None	N/A	DMC10N	Dimethyl decane
		None	N/A	DNBZ12	1,2-Dinitrobenzene

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	DNOCP	Dinocap
		None	N/A	ECARB	Ethyl Carbamate
		None	N/A	F3BZME	Trifluorotoluene
		None	N/A	FLUCHLOR	Fluchloralin
		None	N/A	GASC4C12	Gasoline C4-C12
		None	N/A	HMPA	Hexamethylphosphoramide
		None	N/A	HPCDF1234678	1,2,3,4,6,7,8-Heptachlorodibenzofuran
		None	N/A	HPCDF1234789	1,2,3,4,7,8,9-Heptachlorodibenzofuran
		None	N/A	HQUINONE	Hydroquinone
		None	N/A	HXALD	Hexanal
		None	N/A	HXCDD123678	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin
		None	N/A	HXCDD123789	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin
		None	N/A	HXCDF123678	1,2,3,6,7,8-Hexachlorodibenzofuran
		None	N/A	HXCDF123789	1,2,3,7,8,9-Hexachlorodibenzofuran
		None	N/A	HXCDF234678	2,3,4,6,7,8-Hexachlorodibenzofuran
		None	N/A	IR	Iridium
		None	N/A	ISC10H12	C10H12 isomer
		None	N/A	ISC11H120	C11H120 isomer

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	ISC8H803	C8H803 isomer
		None	N/A	JP4	Jet Fuel #4
		None	N/A	JP5	Jet Fuel #5
		None	N/A	JP8	Jet Fuel #8
		None	N/A	KEROSENE	Kerosene
		None	N/A	LEPTO	Leptophos
		None	N/A	MACRYLATE	Methyl acrylate
		None	N/A	MALANH	Maleic Anhydride
		None	N/A	MEXACARBATE	Mexacarbate
		None	N/A	MSNL	Mestranol
		None	N/A	MTD	2,4-Diaminotoluene
		None	N/A	N2ANSD5	5-Nitro-o-Anisidine
		None	N/A	NACN5	5-Nitroacenaphthene
		None	N/A	NICOTINE	Nicotine
		None	N/A	NITROFEN	Nitrofen
		None	N/A	NPR2	2-Nitropropane
		None	N/A	OCDFC13	Octachlorodibenzofuran-C13
		None	N/A	OCDNA	Octadecanoic Acid
		None	N/A	ODA	4,4'-Oxydianiline
		None	N/A	OMCYTSX	Octamethylcyclotetrasiloxane
		None	N/A	OMPA	Octamethyl pyprophosphoramide
		None	N/A	PALMA	Hexadecanoic acid
		None	N/A	PBZQUINONE	p-Benzoquinone

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	PECDF23478	2,3,4,7,8-Pentachlorodibenzofuran
		None	N/A	PHANHY	Phthalic anhydride
		None	N/A	PHCD	PHC as Diesel Fuel
		None	N/A	PHCFO	PHC as Fuel Oils
		None	N/A	PHCG	PHC as Gasoline
		None	N/A	PHCHFO	PHC as Heavy/Residual Fuel Oils #4,#5,#6
		None	N/A	PHCHPD1	PHC as #1 Fuel Oils C9-C16 #1 Diesel #1Fuel Oil
		None	N/A	PHCHPD2	PHC as #2 Fuel Oils C10-C23 #2 Diesel #2Fuel Oil
		None	N/A	PHCJ	PHC as Jet Fuels
		None	N/A	PHCJP4	PHC as Jet Fuel #4
		None	N/A	PHCK	PHC as Kerosene
		None	N/A	PHCLUB	PHC as Lube Oil
		None	N/A	PHCMH	PHC as Unknown /Waste Product, Heavy Range C9-C23
		None	N/A	PHCML	PHC as Unknown /Waste Product, Light Range C4-C12
		None	N/A	PHCMM	PHC as Unknown/Waste Product, Medium Range C8-C112

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	PHCMPD	PHCas Med. Petroleum Dist. C8-C12 Naphtha/Minsprt
		None	N/A	PHCWASTE	PHC as Waste Oils C25+
		None	N/A	PHENO	o-Terphenyl
		None	N/A	PHENOBAL	Phenobarbital
		None	N/A	PHENYTOIN	5,5-Diphenylhydantoin
		None	N/A	PHOSAL	Phosalone
		None	N/A	PHOSMET	Phosmet
		None	N/A	PHOSPHAM	Phosphamidon
		None	N/A	PL	Palladium
		None	N/A	PROPYCIL	Propylthiouracil
		None	N/A	PT	Platinum
		None	N/A	RH	Rhodium
		None	N/A	RU	Ruthenium
		None	N/A	S03	Sulfite
		None	N/A	SOLIDVOA	Solids, Percent Volatile Components
		None	N/A	STRYCHNINE	Strychnine
		None	N/A	SUB2MEPA3	Substituted Propanoic acid
		None	N/A	SUB2MOTENE	Substituted Dimethyl Octene
		None	N/A	SUBACEAC	Substituted Acetic Acid
		None	N/A	SUBALKANE	Substituted Alkane
		None	N/A	SUBALKENE	Substituted Alkene
		None	N/A	SUBBZ	Substituted Benzene
		None	N/A	SUBBZACID	Substituted Benzoic Acid

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Value Name / env-parameter label code (continued)		None	N/A	SUBBZALD	Substituted Benzaldehyde
		None	N/A	SUBBZAMIDE	Substituted Benzamide
		None	N/A	SUBBZPA	Substituted Benzenepropanoic acid
		None	N/A	SUBBZSAMIDE	Substituted Benzenesulfonamide
		None	N/A	SUBCBT	Substituted Cyclobutane
		None	N/A	SUBCHXN	Substituted Cyclohexane
		None	N/A	SUBCHYD	Substituted Cyclic Hydrocarbon
		None	N/A	SUBCPT	Substituted Cyclopentane
		None	N/A	SUBCPTO	Substituted Cyclopentanone
		None	N/A	SUBDIOXIN	Substituted Dioxin
		None	N/A	SUBDIOXLANE	Substituted Dioxolane Compound
		None	N/A	SUBDS	Substituted Disulfide
		None	N/A	SUBETHANOL	Substituted Ethanol
		None	N/A	SUBETHONE	Substituted Ethanone
		None	N/A	SUBH3PO4	Substituted Phosphonic acid
		None	N/A	SUBHDIOIC	Substituted Hexanedioic acid
		None	N/A	SUBHEPTANONE	Substituted Heptanone
		None	N/A	SUBINDENE	Substituted Indene
		None	N/A	SUBINDENONE	Substituted Indenone
		None	N/A	SUBMALKANE	Methyl Substituted Alkane

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	SUBMCHX	Methyl Substituted Cyclohexane
		None	N/A	SUBNAPH	Substituted Naphthalene
		None	N/A	SUBOCTENE	Substituted Octene
		None	N/A	SUBOXIRANE	Substituted Oxirane
		None	N/A	SUBPAH	Substituted PAH
		None	N/A	SUBPENTENE	Substituted Pentene
		None	N/A	SUBPHAN	Substituted Phenanthrene
		None	N/A	SUBPHENOL	Substituted Phenol
		None	N/A	SUBPLENE	Substituted Pentalene
		None	N/A	SUBPROPANOL	Substituted Propanol
		None	N/A	SUBPYR	Substituted Pyrene
		None	N/A	SULFAL	Sulfallate
		None	N/A	SULFX	Piperonyl Sulfoxide
		None	N/A	T23P	Tris(2,3-dibromopropyl) phosphate
		None	N/A	TBP	Tributyl Phosphate (surr.)
		None	N/A	TCDF2378	2,3,7,8-Tetrachlorodibenzofuran
		None	N/A	TDI	Toluene diisocyanate
		None	N/A	TEPTH	O,O,O-Triethyl phosphorothioate
		None	N/A	TERBUFOS	Terbufos
		None	N/A	THF	Tetrahydrofuran
		None	N/A	TLDNO	o-Toluidine
		None	N/A	TMANIL245	2,4,5-Trimethylaniline
		None	N/A	TMCYHX	Trimethyl Cyclohexane

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	TMEHX	Trimethyl Hexane
		None	N/A	TMEP	Trimethyl phosphate
		None	N/A	TOTX	Total Halogens
		None	N/A	TPHP	Triphenyl Phosphate (surr.)
		None	N/A	TSO	Total Solids
		None	N/A	TT4P	Tri-p-tolyl phosphate
		None	N/A	TVO	Total Volatile Organics
		None	N/A	UNKNOWN	Unknown
		None	N/A	UNK1	Unknown#1
		None	N/A	UNK10	Unknown#10
		None	N/A	UNK11	Unknown#11
		None	N/A	UNK12	Unknown#12
		None	N/A	UNK13	Unknown#13
		None	N/A	UNK14	Unknown#14
		None	N/A	UNK15	Unknown#15
		None	N/A	UNK16	Unknown#16
		None	N/A	UNK17	Unknown#17
		None	N/A	UNK18	Unknown#18
		None	N/A	UNK19	Unknown#19
		None	N/A	UNK2	Unknown#2
		None	N/A	UNK20	Unknown#20
		None	N/A	UNK3	Unknown#3
		None	N/A	UNK4	Unknown#4
		None	N/A	UNK5	Unknown#5
		None	N/A	UNK6	Unknown#6
		None	N/A	UNK7	Unknown#7
		None	N/A	UNK8	Unknown#8

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	UNK9	Unknown#9
		None	N/A	UNKAH	Unknown Aromatic Hydrocarbon
		None	N/A	UNKALCOHOL	Unknown Alcohol
		None	N/A	UNKALDEHYDE	Unknown Aldehyde
		None	N/A	UNKALIPHY	Unknown Aliphatic Hydrocarbon
		None	N/A	UNKALKANE	Unknown Alkane
		None	N/A	UNKALKANE1	Unknown Alkane#1
		None	N/A	UNKALKANE10	Unknown Alkane#10
		None	N/A	UNKALKANE11	Unknown Alkane#11
		None	N/A	UNKALKANE12	Unknown Alkane#12
		None	N/A	UNKALKANE13	Unknown Alkane#13
		None	N/A	UNKALKANE14	Unknown Alkane#14
		None	N/A	UNKALKANE15	Unknown Alkane#15
		None	N/A	UNKALKANE16	Unknown Alkane#16
		None	N/A	UNKALKANE17	Unknown Alkane#17
		None	N/A	UNKALKANE18	Unknown Alkane#18
		None	N/A	UNKALKANE19	Unknown Alkane#19
		None	N/A	UNKALKANE2	Unknown Alkane#2
		None	N/A	UNKALKANE20	Unknown Alkane#20
		None	N/A	UNKALKANE3	Unknown Alkane#3
		None	N/A	UNKALKANE4	Unknown Alkane#4
		None	N/A	UNKALKANE5	Unknown Alkane#5
		None	N/A	UNKALKANE6	Unknown Alkane#6
		None	N/A	UNKALKANE7	Unknown Alkane#7
		None	N/A	UNKALKANE8	Unknown Alkane#8

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	UNKALKANE9	Unknown Alkane#9
		None	N/A	UNKALKENE	Unknown Alkene
		None	N/A	UNKALKYNE	Unknown Alkyne
		None	N/A	UNKAMIDE	Unknown Amide
		None	N/A	UNKAMINE	Unknown Amine
		None	N/A	UNKARO	Unknown Aromatic
		None	N/A	UNKAROKET	Unknown Aromatic Ketone
		None	N/A	UNKBICYCLIC	Unknown Bicyclic
		None	N/A	UNKBRTRIENOL	Unknown Branched Trienol
		None	N/A	UNKBZALD	Unknown Benzaldehyde
		None	N/A	UNKCALKANE	Unknown Cyclic Alkane
		None	N/A	UNKCARBOXA	Unknown Carboxylic Acid
		None	N/A	UNKCHYD	Unknown Cyclic Hydrocarbon
		None	N/A	UNKCKETONE	Unknown Cyclic Ketone
		None	N/A	UNKCPYRDN	Unknown Chlorinated Pyridine
		None	N/A	UNKESTER	Unknown Ester
		None	N/A	UNKFATACID	Unknown Fatty Acid
		None	N/A	UNKHYD	Unknown Hydrocarbon
		None	N/A	UNKINDOLE	Unknown Indole
		None	N/A	UNKKETONE	Unknown Ketone
		None	N/A	UNKPAH	Unknown Polynuclear Aromatic Hydrocarbon
		None	N/A	UNKPCB	Unknown Polychloronated biphenyl
		None	N/A	UNKPHLATE	Unknown Phthalate

APPENDIX A.2
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Name / env-parameter label code (continued)		None	N/A	UNKSILOXANE	Unknown Siloxane
		None	N/A	UNKSTEROL	Unknown Sterol
		None	N/A	UNKSUBPHENOL	Unknown Substituted Phenol
		None	N/A	UNKTHIAZOLE	Unknown Thiazole
		None	N/A	XYL246CLM	2,4,5,6-Tetrachloro-meta-xylene (surr.)
		None	N/A	XYLENES	Xylenes
CAS Number / None	13213	100-01-6	4-NITROANILINE	None	N/A
		100-02-7	4-NITROPHENOL	None	N/A
		100-25-4	1,4-DINITROBENZENE	None	N/A
		100-41-4	ETHYLBENZENE	None	N/A
		100-42-5	STYRENE	None	N/A
		100-44-7	BENZYL CHLORIDE	None	N/A
		100-51-6	BENZYL ALCOHOL	None	N/A
		100-74-3	N-ETHYLMORPHOLINE	None	N/A
		100-75-4	N-NITROSOPIPERIDINE	None	N/A
		10024-97-2	NITROUS OXIDE	None	N/A
		10035-10-6	HYDROBROMIC ACID	None	N/A
		10061-01-5	cis-1,3-DICHLOROPROPENE	None	N/A
		10061-02-6	trans-1,3-DICHLOROPROPENE	None	N/A
		10098-97-2	STRONTIUM-90	None	N/A
		101-14-4	4,4"-METHYLENE-bis(2-CHLOROANILINE)	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		101-21-3	ISOPROPYL m-CHLOROCARBANILATE	None	N/A
		101-27-9	4-CHLORO-2-BUTYNYL m-CHLOROCARBANILATE	None	N/A
		101-42-8	3-PHENYL-1,1-DIMETHYLUREA	None	N/A
		101-55-3	4-BROMOPHENYL PHENYL ETHER	None	N/A
		101-84-8	DIPHENYL ETHER (PHENYLETHER)	None	N/A
		1024-57-3	HEPTACHLOR EPOXIDE	None	N/A
		103-05-1	ALLYL CHLORIDE (3-CHLOROPROPENE)	None	N/A
		103-09-3	2-ETHYLHEXYL ACETATE	None	N/A
		103-11-7	2-ETHYLHEXYL ACRYLATE	None	N/A
		103-33-3	AZOBENZENE	None	N/A
		103-65-1	n-PROPYLBENZENE	None	N/A
		1031-07-8	ENDOSULFAN SULFATE	None	N/A
		104-51-8	n-BUTYLBENZENE	None	N/A
		104-74-7	2-ETHYL-1-HEXANOL	None	N/A
		104-90-5	2-METHYL-5-ETHYL PYRIDINE	None	N/A
		105-45-3	METHYL ACETOACETATE	None	N/A
		105-67-9	2,4-DIMETHYLPHENOL	None	N/A

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		10595-95-6	NITROSOMETHYLETHYLAMINE	None	N/A
		106-42-3	P-XYLENE (1,4-DIMETHYLBENZENE)	None	N/A
		106-43-4	4-CHLOROTOLUENE	None	N/A
		106-44-5	4-METHYLPHENOL (p-CRESOL)	None	N/A
		106-46-7	1,4-DICHLOROBENZENE	None	N/A
		106-47-8	4-CHLOROANILINE	None	N/A
		106-48-9	4-CHLOROPHENOL	None	N/A
		106-50-3	p-PHENYLENEDIAMINE	None	N/A
		106-89-8	EPICHLOROHYDRIN	None	N/A
		106-93-4	1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	None	N/A
		107-02-8	ACROLEIN	None	N/A
		107-04-0	1-BROMO-2-CHLOROETHANE	None	N/A
		107-06-2	1,2-DICHLOROETHANE	None	N/A
		107-07-3	ETHYLENE CHLOROHYDRIN	None	N/A
		107-12-0	PROPANE NITRILE (PROPIONITRILE)	None	N/A
		107-13-1	ACRYLONITRILE	None	N/A
		107-20-0	CHLOROACETALDEHYDE	None	N/A
		107-21-1	ETHYLENE GLYCOL	None	N/A
		107-25-5	METHYL VINYL ACETATE	None	N/A

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ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		107-30-2	CHLOROMETHYL METHYL ETHER	None	N/A
		107-49-3	TETRAETHYL DIPHOSPHATE	None	N/A
		107-87-9	METHYL n-PROPYL KETONE	None	N/A
		108-05-4	VINYL ACETATE	None	N/A
		108-10-1	METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANONE)	None	N/A
		108-11-2	METHYL AMYL ALCOHOL	None	N/A
		108-20-3	ISOPROPYL ETHER	None	N/A
		108-21-4	ISOPROPYL ACETATE	None	N/A
		108-22-5	ISOPROPENYL ACETATE	None	N/A
		108-38-3	M-XYLENE (1,3-DIMETHYLBENZENE)	None	N/A
		108-39-4	3-METHYLPHENOL	None	N/A
		108-41-8	3-CHLOROTOLUENE	None	N/A
		108-43-0	3-CHLOROPHENOL	None	N/A
		108-67-8	1,3,5-TRIMETHYLBENZENE (MESITYLENE)	None	N/A
		108-70-3	1,3,5-TRICHLOROBENZENE	None	N/A
		108-82-7	DIISOBUTYL CARBINOL	None	N/A
		108-83-8	DIISOBUTYL KETONE	None	N/A

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		108-86-1	BROMOBENZENE	None	N/A
		108-87-2	METHYLCYCLOHEXANE	None	N/A
		108-88-3	TOLUENE	None	N/A
		108-89-4	4-PICOLINE	None	N/A
		108-90-7	CHLOROBENZENE	None	N/A
		108-93-0	CYCLOHEXANOL	None	N/A
		108-94-1	CYCLOHEXANONE	None	N/A
		108-95-2	PHENOL	None	N/A
		108-99-6	3-PICOLINE	None	N/A
		109-02-4	N-METHYLMORPHOLINE	None	N/A
		109-06-8	2-PICOLINE (ALPHA-PICOLINE)	None	N/A
		109-53-5	VINYL ISOBUTYL ETHER	None	N/A
		109-60-4	PROPYL ACETATE	None	N/A
		109-66-0	n-PENTANE	None	N/A
		109-69-3	n-BUTYL CHLORIDE	None	N/A
		109-92-2	VINYL ETHYL ETHER	None	N/A
		110-12-3	METHYL ISOAMYL KETONE	None	N/A
		110-19-0	ISOBUTYL ACETATE	None	N/A
		110-54-3	n-HEXANE	None	N/A
		110-56-5	1,4-DICHLOROBUTANE	None	N/A
		110-57-6	trans-1,4-DICHLORO-2-BUTENE	None	N/A
		110-75-8	2-CHLOROETHYL VINYL ETHER	None	N/A
		110-82-7	CYCLOHEXENE	None	N/A

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		110-86-1	PYRIDINE	None	N/A
		11096-82-5	PCB-1260 (AROCHLOR 1260)	None	N/A
		11097-69-1	PCB-1254 (AROCHLOR 1254)	None	N/A
		111-27-3	1-HEXANOL	None	N/A
		111-34-2	VINYL n-BUTYL ETHER	None	N/A
		111-44-4	bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHER)	None	N/A
		111-55-7	GLYCOL DIACETATE (ETHYLENE GLYCOL DIACETATE)	None	N/A
		111-65-9	n-OCTANE	None	N/A
		111-66-0	OCTENE-1	None	N/A
		111-84-2	n-NONANE	None	N/A
		111-87-5	n-OCTANOL	None	N/A
		111-91-1	bis(2-CHLOROETHOXY) METHANE	None	N/A
		11104-28-2	PCB-1221 (AROCHLOR 1221)	None	N/A
		11141-16-5	PCB-1232 (AROCHLOR 1232)	None	N/A
		112-30-1	n-DECYL ALCOHOL	None	N/A
		112-40-3	n-DODECANE	None	N/A
		112-58-3	n-HEXYL ETHER	None	N/A
		112-95-8	n-EICOSANE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		1120-21-4	n-UNDECANE	None	N/A
		114-26-1	2-(1-METHYLETHOXY) PHENOL METHYLCARBAMATE	None	N/A
		1146-65-2	NAPHTHALENE-d8	None	N/A
		115-29-7	ENDOSULFAN	None	N/A
		115-32-2	DICOFOL	None	N/A
		115-90-2	FENSULFOTHION	None	N/A
		116-06-3	ALDICARB (SULFIDE, SULFOXIDE, AND SULFONE)	None	N/A
		117-81-7	bis(2-ETHYLHEXYL) PHTHALATE	None	N/A
		117-84-0	DI-n-OCTYL PHTHALATE	None	N/A
		118-74-1	HEXACHLOROBENZENE	None	N/A
		118-79-6	2,4,6-TRIBROMOPHENOL	None	N/A
		118-96-7	2,4,6-TRINITROTOLUENE	None	N/A
		119-39-1	PHTHALAZINONE	None	N/A
		119-64-2	TETRALIN	None	N/A
		119-90-4	3,3"-DIMETHOXYBENZIDINE	None	N/A
		119-93-7	3,3"-DIMETHYLBENZIDINE	None	N/A
		120-12-7	ANTHRACENE	None	N/A
		120-36-5	DICHLOROPROP	None	N/A
		120-58-1	ISOSAFROLE	None	N/A

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ENVIRONMENTAL DOMAIN VALUE COMPARISON
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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		120-82-1	1,2,4-TRICHLOROBENZENE	None	N/A
		120-83-2	2,4-DICHLOROPHENOL	None	N/A
		12001-29-5	CHRYSOTILE	None	N/A
		121-14-2	2,4-DINITROTOLUENE	None	N/A
		121-75-5	MALATHION	None	N/A
		121-82-4	HEXAHYDRO-1,3,5-TRINITRO-1,3,5,7-TETRAZOCINE	None	N/A
		12172-73-5	AMOSITE	None	N/A
		122-09-8	ALPHA, ALPHA DIMETHYLPHENETHYLAMINE	None	N/A
		122-49-9	ISOPROPYL CARBANILATE	None	N/A
		122-66-7	1,2-DIPHENYLHYDRAZINE	None	N/A
		122-67-7	2,4-DIPHENYLHYDRAZINE	None	N/A
		123-05-7	2-ETHYLHEXYL ALDEHYDE	None	N/A
		123-15-9	2-METHYLPENTALDEHYDE	None	N/A
		123-25-1	DIETHYL SUCCINATE	None	N/A
		123-39-4	DIPHENYLAMINE	None	N/A
		123-42-2	DIACETONE ALCOHOL	None	N/A
		123-63-7	PARALDEHYDE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		123-72-8	n-BUTYRALDEHYDE	None	N/A
		123-73-9	CROTONALDEHYDE	None	N/A
		123-86-4	n-BUTYL ACETATE	None	N/A
		123-91-1	1,4-DIOXANE (P-DIOXANE)	None	N/A
		124-17-4	2-(2-BUTOXY)ETHOXYETHYL ACETATE	None	N/A
		124-18-5	n-DECANE	None	N/A
		124-38-9	CARBON DIOXIDE FREE	None	N/A
		124-48-1	DIBROMOCHLOROMETHANE	None	N/A
		126-75-0	DEMETON-S	None	N/A
		126-98-7	METHYLACRYLONITRILE	None	N/A
		126-99-8	2-CHLORO-1,3-BUTADIENE	None	N/A
		12672-29-6	PCB-1248 (AROCHLOR 1248)	None	N/A
		12674-11-2	PCB-1016 (AROCHLOR 1016)	None	N/A
		127-18-4	TETRACHLOROETHYLENE(PCE)	None	N/A
		127-20-8	DALAPON	None	N/A
		12725-36-9	SAE TYPE 1020 STEEL CORROSIVITY	None	N/A
		129-00-0	PYRENE	None	N/A
		130-15-4	1,4-NAPHTHOQUINONE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		131-11-3	DIMETHYL PHTHALATE	None	N/A
		131-89-5	2-CYCLOHEXYL-4,6-DINITROPHENOL	None	N/A
		13127-88-3	PHENOL-D5	None	N/A
		1319-77-3	CRESOLS, TOTAL	None	N/A
		13194-48-4	ETHOPROP	None	N/A
		132-64-9	DIBENZOFURAN	None	N/A
		132-65-0	DIBENZOTHIOPHENE (SYNFUEL)	None	N/A
		133-06-2	CAPTAN	None	N/A
		133-59-5	2-METHYLBENZENESULFONYLCHLORIDE	None	N/A
		1332-21-4	ASBESTOS	None	N/A
		1333-74-0	TRITIUM (HYDROGEN-3)	None	N/A
		1336-36-3	PCB, TOTAL	None	N/A
		134-32-7	1-NAPHTHYLAMINE	None	N/A
		13494-80-9	TELLURIUM	None	N/A
		135-98-8	SEC-BUTYLBENZENE	None	N/A
		13966-29-5	URANIUM-234	None	N/A
		140-41-0	3-(p-CHLOROPHENYL)-1-1 DIMETHYLUREA	None	N/A
		140-57-8	ARAMITE	None	N/A
		140-88-5	ETHYL ACRYLATE	None	N/A
		141-05-9	DIETHYL MALEATE	None	N/A
		141-32-2	n-BUTYL ACRYLATE	None	N/A
		141-78-6	ETHYL ACETATE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		141-79-7	MESITYL OXIDE	None	N/A
		141-97-9	ETHYL ACETOACETATE	None	N/A
		142-28-9	1,3-DICHLOROPROPANE	None	N/A
		142-82-5	n-HEPTANE	None	N/A
		142-96-1	n-BUTYL ETHER	None	N/A
		143-50-0	KEPONE	None	N/A
		14567-73-8	TREMOLITE	None	N/A
		1476-11-5	cis-1,4-DICHLORO-2-BUTENE	None	N/A
		14998-63-1	RHENIUM	None	N/A
		150-50-5	MERPHOS	None	N/A
		150-68-5	3-(p-CHLOROPHENYL)-1,1 DIMETHYLUREA	None	N/A
		156-59-2	DICHLOROETHYLENES	None	N/A
		156-60-5	1,1-DICHLOROETHENE	None	N/A
		1563-66-2	CARBOFURAN	None	N/A
		1570-64-5	4-CHLORO-2-METHYLPHENOL	None	N/A
		1582-09-8	TRIFLURALIN	None	N/A
		15892-23-6	sec-BUTYL ALCOHOL	None	N/A
		15972-60-8	ALACHLOR	None	N/A
		16065-83-1	CHROMIUM III	None	N/A
		1634-04-4	tert-BUTYL METHYL ETHER	None	N/A
		1653-40-3	ISOOCTANOL (ISOMERS)	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		16752-77-5	S-METHYL-N-((METHYLCARBAMOYL)-OXY)-THIOACETIMIDATE	None	N/A
		16887-00-6	CHLORIDE (AS CL)	None	N/A
		16984-48-8	FLUORIDE	None	N/A
		17060-07-0	1,2-DICHLOROETHANE-D4	None	N/A
		1718-51-0	TERPHENYL-D14	None	N/A
		1746-01-6	2,3,7,8-TETRACHLORODIBENZO-p-DIOXIN	None	N/A
		1770-80-5	DIBUTYLCHLORENDATE	None	N/A
		18540-29-9	CHROMIUM, HEXAVALENT	None	N/A
		1888-71-7	HEXACHLOROPROPENE	None	N/A
		191-24-2	BENZO(g,h,i)PERYLENE	None	N/A
		1912-24-9	ATRAZINE	None	N/A
		1918-00-9	DICAMBA	None	N/A
		1918-18-9	METHYL-N-(3,4-DI-CHLOROPHENYL) CARBAMATE	None	N/A
		193-39-5	INDENO(1,2,3-c,d)PYRENE	None	N/A
		1982-49-6	1-(2-METHYLCYCLOHEXYL)-3-PHENYLUREA	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		2032-59-9	4-(DIMETHYLAMINO)-3-METHYLPHENOLMETHYL-CARBAMATE	None	N/A
		2032-65-7	3,5-DIMETHYL-4-(METHYLTHIO) PHENYL	None	N/A
		2037-26-5	TOLUENE-D8	None	N/A
		205-99-2	BENZO(b)FLUORANTHENE	None	N/A
		206-44-0	FLUORANTHENE	None	N/A
		207-08-9	BENZO(k)FLUORANTHENE	None	N/A
		208-96-8	ACENAPTHYLENE	None	N/A
		2104-64-5	EPN (ENT)	None	N/A
		2164-17-2	1,1-DIMETHYL-3-(a,a,a-TRIFLUORO-m-TOLYL)UREA	None	N/A
		218-01-9	CHRYSENE	None	N/A
		22248-79-9	STIROFOS (TETRACHLORVINPHOS)	None	N/A
		224-42-0	DIBENZ(a,j)ACRIDINE	None	N/A
		2303-16-4	DIALLATE	None	N/A
		23135-22-0	METHYL N",N"-DIMETHYL-N-{(METHYLCARBAMOYL)OXY}-1-	None	N/A
		2385-85-5	MIREX	None	N/A
		23950-58-5	PRONAMIDE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		24959-67-9	BROMIDE	None	N/A
		25340-17-4	DIETHYL BENZENE (MIXED ISOMERS)	None	N/A
		2691-41-0	OCTAHYDRO-1,3,5,7-TETRANITRO-1,3,5,7-TETRAZOCINE	None	N/A
		271-89-6	2,3-BENZOFURAN	None	N/A
		2921-88-2	CHLORPYRIFOS	None	N/A
		297-97-2	ZINOPHOS	None	N/A
		298-00-0	PARATHION, METHYL	None	N/A
		298-02-2	PHORATE	None	N/A
		298-03-3	DEMETON-O	None	N/A
		298-04-4	DISULFOTON	None	N/A
		299-84-3	RONNEL	None	N/A
		300-76-5	NALED	None	N/A
		3017-95-6	2-BROMO-1-CHLOROPROPANE	None	N/A
		302-01-2	HYDRAZINE	None	N/A
		30402-14-3	TETRACHLORINATED DIBENZOFURANS, (TOTAL)	None	N/A
		30402-15-4	PENTACHLORINATED DIBENZOFURANS, (TOTAL)	None	N/A
		306-52-5	TRICHLOROETHANOL PHOSPHATE	None	N/A

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VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		30746-58-8	1,2,3,4-TETRACHLORODIBENZO-p-DIOXIN	None	N/A
		309-00-2	ALDRIN	None	N/A
		3114-55-4	CHLOROBENZENE-d5	None	N/A
		315-18-4	4-DIMETHYLAMINO-3,5-XYLYL N-METHYLCARBAMATE	None	N/A
		3188-13-4	bis-CHLOROMETHYLETHER	None	N/A
		319-84-6	ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	None	N/A
		319-85-7	BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	None	N/A
		319-86-8	DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	None	N/A
		321-60-8	2-FLUOROBIPHENYL	None	N/A
		3244-90-4	O,O,O,O-TETRA-n-PROPYL DITHIOPYROPHOSPHATE	None	N/A
		3268-87-9	OCTACHLORODIBENZO-p DIOXIN	None	N/A
		327-98-0	TRICHLORONATE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		330-54-1	3-(3,4-DICHLOROPHENYL) 1,1-DIMETHYLUREA	None	N/A
		330-55-2	3-(3,4-DICHLOROPHENYL) 1-METHOXY-1-METHYLUREA	None	N/A
		33213-65-9	BETA ENDOSULFAN	None	N/A
		333-41-5	DIAZINON	None	N/A
		3424-82-6	o,p"-DDE	None	N/A
		34643-46-4	TOKUTHION (PROTHIOFOS)	None	N/A
		35400-43-2	BOLSTAR	None	N/A
		36088-22-9	PENTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	None	N/A
		367-12-4	2-FLUOROPHENOL	None	N/A
		3689-24-5	THIODIPHOSPHORIC ACID TETRAETHYL ESTER	None	N/A
		3787-00-4	HEPTACHLORINATED DIBENZO-p-DIOXINS, (TOTAL)	None	N/A
		3812-32-6	CARBONATE (AS CO3)	None	N/A
		3855-82-1	1,4-DICHLOROBENZENE-d4	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		38998-75-3	HEPTACHLORINATED DIBENZOFURANS, (TOTAL)	None	N/A
		39001-02-0	OCTACHLORODIBENZOFURAN	None	N/A
		39638-32-9	bis(2-CHLOROISOPROPYL) ETHER	None	N/A
		4165-60-0	NITROBENZENE-D5	None	N/A
		434-90-2	DECAFLUOROBIPHENYL	None	N/A
		4482-55-7	1,1-DIMETHYL-3-PHENYLUREA TRICHLOROACETATE	None	N/A
		460-00-4	1-BROMO-4-FLUOROBENZENE (4-BROMOFLUOROBENZENE)	None	N/A
		465-73-6	ISODRIN	None	N/A
		471-34-1	HARDNESS (AS CaCO3)	None	N/A
		479-45-8	TETRYL	None	N/A
		50-18-0	CYCLOPHOSPHAMIDE	None	N/A
		50-29-3	DDT (1,1-bis(CHLOROPHENYL)-2,2,2-TRICHLOROETHANE)	None	N/A
		50-32-8	BENZO(a)PYRENE	None	N/A
		51-28-5	2,4-DINITROPHENOL	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		51-36-5	3,5-DICHLOROBENZOIC ACID	None	N/A
		510-15-6	CHLOROBENZILATE	None	N/A
		5103-71-9	ALPHA-CHLORDANE	None	N/A
		5103-74-2	BETA-CHLORDANE	None	N/A
		52-85-7	FAMPHUR	None	N/A
		53-19-0	o,p''-DDD	None	N/A
		53-70-3	DIBENZ(a,h)ANTHRACENE	None	N/A
		53-96-3	2-ACETYLAMINOFLUORENE	None	N/A
		534-52-1	4,6-DINITRO-2-METHYLPHENOL	None	N/A
		53469-21-9	PCB-1242 (AROCHLOR 1242)	None	N/A
		53494-70-5	ENDRIN KETONE	None	N/A
		540-36-3	1,4-DIFLUOROBENZENE	None	N/A
		540-59-0	TOTAL 1,2-DICHLOROETHENE	None	N/A
		541-73-1	1,3-DICHLOROBENZENE	None	N/A
		542-75-6	1,3-DICHLOROPROPYLENE (1,3-DICHLOROPROPENE	None	N/A
		544-10-5	1-CHLOROHEXANE	None	N/A
		544-76-3	n-HEXADECANE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		55-18-5	N-NITROSODIETHYLAMINE	None	N/A
		55-38-9	FENTHION	None	N/A
		555-37-3	1-n-BUTYL-3-(3,4-DICHLOROPHENYL)-1-METHYLUREA	None	N/A
		5566-34-7	GAMMA-CHLORDANE	None	N/A
		55684-94-1	HEXACHLORINATED DIBENZOFURANS, (TOTAL)	None	N/A
		56-23-5	CARBON TETRACHLORIDE	None	N/A
		56-38-2	PARATHION, ETHYL	None	N/A
		56-49-5	3-METHYLCHOLANTHRENE	None	N/A
		56-55-3	BENZO(a)ANTHRACENE	None	N/A
		56-57-5	4-NITROQUINOLINE-N-OXIDE	None	N/A
		56-72-4	COUMAPHOS	None	N/A
		563-12-2	ETHION	None	N/A
		563-54-2	1,2-DICHLOROPROPYLENE	None	N/A
		563-58-6	1,1-DICHLOROPROPENE	None	N/A
		57-12-5	CYANIDE (SOLUABLE CYANIDE SALTS)	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		57-14-7	1,1-DIMETHYLHYDRAZINE	None	N/A
		57-74-9	CHLORDANE	None	N/A
		57-97-6	7,12-DIMETHYLBENZ(a)ANTHRACENE	None	N/A
		576-24-9	2,3-DICHLOROPHENOL	None	N/A
		58-89-9	BHC (HEXACHLOROCYCLOHEXANE) ISOMERS	None	N/A
		58-90-2	2,3,4,6-TETRACHLOROPHENOL	None	N/A
		583-78-8	2,5-DICHLOROPHENOL	None	N/A
		589-34-4	3-METHYLHEXANE	None	N/A
		589-81-1	3-METHYLHEPTANE	None	N/A
		59-50-7	4-CHLORO-3-METHYLPHENOL	None	N/A
		59-89-2	N-NITROSOMORPHOLINE	None	N/A
		591-78-6	2-HEXANONE	None	N/A
		593-45-3	n-OCTADECANE	None	N/A
		594-20-7	2,2-DICHLOROPROPANE	None	N/A
		60-11-7	p-DIMETHYLAMINOAZOBENZENE	None	N/A
		60-29-7	DIETHYL ETHER (ETHYL ETHER)	None	N/A
		60-51-5	DIMETHOATE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		60-57-1	DIELDRIN	None	N/A
		600-14-6	2,3-PENTANEDIONE	None	N/A
		6032-29-7	2-PENTANOL	None	N/A
		606-20-2	2,6-DINITROTOLUENE	None	N/A
		608-93-5	PENTACHLOROBENZENE	None	N/A
		615-74-7	2-CHLORO-5-METHYLPHENOL	None	N/A
		62-44-2	PHENACETIN	None	N/A
		62-50-0	ETHYL METHANESULFONATE	None	N/A
		62-53-3	ANILINE (PHENYLAMINE, AMINOBENZENE)	None	N/A
		62-73-7	DICHLORVOS	None	N/A
		62-75-9	N-NITROSODIMETHYLAMINE	None	N/A
		621-64-7	N-NITROSODI-n-PROPYLAMINE	None	N/A
		625-33-2	ETHYLIDENE ACETONE	None	N/A
		628-63-7	AMYL ACETATE (MIXED ISOMERS)	None	N/A
		629-59-4	n-TETRADECANE	None	N/A
		629-97-0	n-DOCOSANE	None	N/A
		63-25-2	SEVIN (CARBARYL)	None	N/A
		630-01-3	n-HEXACOSANE	None	N/A
		630-02-4	n-OCTACOSANE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		630-20-6	1,1,1,2-TETRACHLOROETHANE	None	N/A
		634-66-2	1,2,3,4-TETRACHLOROBENZENE	None	N/A
		634-90-2	1,2,3,5-TETRACHLOROBENZENE	None	N/A
		636-21-5	o-TOLUIDINE HYDROCHLORIDE	None	N/A
		638-68-6	n-TRIACONTANE	None	N/A
		64-17-5	ETHANOL	None	N/A
		646-06-0	DIOXOLANE	None	N/A
		646-31-1	n-TETRACOSANE	None	N/A
		65-85-0	BENZOIC ACID	None	N/A
		66-27-3	METHYL METHANESULFONATE	None	N/A
		67-56-1	METHANOL	None	N/A
		67-63-0	ISOPROPANOL	None	N/A
		67-64-1	ACETONE	None	N/A
		67-66-3	CHLOROFORM	None	N/A
		67-72-1	HEXACHLOROETHANE	None	N/A
		70-30-4	HEXACHLOROPHENE	None	N/A
		7005-72-3	4-CHLOROPHENYL PHENYL ETHER	None	N/A
		7085-19-0	MCPP	None	N/A
		71-36-3	n-BUTANOL	None	N/A
		71-41-0	AMYL ALCOHOL	None	N/A
		71-43-2	BENZENE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		71-52-3	BICARBONATE	None	N/A
		71-55-6	1,1,1-TRICHLOROETHANE	None	N/A
		72-20-8	ENDRIN	None	N/A
		72-54-8	DDD (1,1-bis(CHLOROPHENYL)-2,2-DICHLOROETHANE)	None	N/A
		72-55-9	DDE (1,1-bis(CHLOROPHENYL)-2,2-DICHLOROETHENE)	None	N/A
		72-56-0	PERTHANE	None	N/A
		74-23-8	n-PROPANOL	None	N/A
		74-43-5	METHOXYCHLOR	None	N/A
		74-82-8	METHANE	None	N/A
		74-83-9	BROMOMETHANE	None	N/A
		74-87-3	CHLOROMETHANE	None	N/A
		74-88-4	IODOMETHANE (METHYL IODIDE)	None	N/A
		74-95-3	DIBROMOMETHANE	None	N/A
		74-97-5	BROMOCHLOROMETHANE	None	N/A
		7421-93-4	ENDRIN ALDEHYDE	None	N/A
		7429-90-5	ALUMINUM	None	N/A
		7429-93-2	LITHIUM	None	N/A
		7439-89-6	IRON	None	N/A
		7439-91-0	LANTHANUM	None	N/A
		7439-92-1	LEAD	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		7439-95-4	MAGNESIUM	None	N/A
		7439-96-5	MANGANESE	None	N/A
		7439-97-6	MERCURY	None	N/A
		7439-98-7	MOLYBDENUM	None	N/A
		744-22-4	SILVER	None	N/A
		7440-02-0	NICKEL	None	N/A
		7440-04-2	OSMIUM	None	N/A
		7440-09-7	POTASSIUM	None	N/A
		7440-14-4	RADIUM	None	N/A
		7440-17-7	RUBIDIUM	None	N/A
		7440-21-3	SILICON	None	N/A
		7440-23-5	SODIUM	None	N/A
		7440-24-6	STRONTIUM	None	N/A
		7440-28-0	THALLIUM	None	N/A
		7440-29-1	THORIUM	None	N/A
		7440-31-5	TIN	None	N/A
		7440-32-6	TITANIUM	None	N/A
		7440-33-7	TUNGTEN	None	N/A
		7440-36-0	ANTIMONY	None	N/A
		7440-38-2	ARSENIC	None	N/A
		7440-39-3	BARIUM	None	N/A
		7440-41-7	BERYLLIUM	None	N/A
		7440-42-8	BORON	None	N/A
		7440-43-9	CADMIUM	None	N/A
		7440-44-0	ORGANIC CARBON	None	N/A
		7440-45-1	CERIUM	None	N/A
		7440-47-3	CHROMIUM, TOTAL	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		7440-48-4	COBALT	None	N/A
		7440-50-8	COPPER	None	N/A
		7440-57-5	GOLD	None	N/A
		7440-61-1	URANIUM	None	N/A
		7440-62-2	VANADIUM	None	N/A
		7440-66-6	ZINC	None	N/A
		7440-67-7	ZIRCONIUM	None	N/A
		7440-69-9	BISMUTH	None	N/A
		7440-70-2	CALCIUM	None	N/A
		7440-74-6	INDIUM	None	N/A
		75-00-3	CHLOROETHANE	None	N/A
		75-01-4	VINYL CHLORIDE	None	N/A
		75-05-8	ACETONITRILE	None	N/A
		75-07-0	ACETALDEHYDE	None	N/A
		75-09-2	METHYLENE CHLORIDE	None	N/A
		75-15-0	CARBON DISULFIDE	None	N/A
		75-21-8	ETHYLENE OXIDE	None	N/A
		75-25-2	BROMOFORM	None	N/A
		75-27-4	BROMODICHLOROMETHANE	None	N/A
		75-34-3	1,1-DICHLOROETHANE	None	N/A
		75-35-4	DICHLOROBENZENES	None	N/A
		75-43-4	DICHLOROFLUOROMETHANE	None	N/A
		75-56-9	PROPYLENE OXIDE	None	N/A
		75-69-4	TRICHLOROFLUOROMETHANE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		75-71-8	DICHLORODIFLUOROMETHANE	None	N/A
		75-87-6	CHLORAL	None	N/A
		76-01-7	PENTACHLOROETHANE	None	N/A
		76-13-1	1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	None	N/A
		76-44-8	HEPTACHLOR	None	N/A
		7631-86-9	SILICA	None	N/A
		764-41-0	TOTAL 1,4-DICHLORO-2-BUTENE	None	N/A
		7647-01-0	HYDROCHLORIC ACID	None	N/A
		7664-38-2	PHOSPHORIC ACID	None	N/A
		7664-39-3	HYDROFLUORIC ACID	None	N/A
		7664-93-9	SULFURIC ACID	None	N/A
		7697-37-2	NITRIC ACID	None	N/A
		77-47-4	HEXACHLOROCYCLOPENTADIENE	None	N/A
		7723-14-0	PHOSPHORUS	None	N/A
		7727-37-9	NITROGEN	None	N/A
		7782-44-7	OXYGEN	None	N/A
		7782-49-2	SELENIUM	None	N/A
		7782-50-5	FREE CHLORINE	None	N/A
		7786-34-7	MEVINPHOS	None	N/A
		78-00-2	LEAD, TETRAETHYL	None	N/A
		78-57-9	O,O-DIMETHYL PHOSPHORODITHIOATE	None	N/A
		78-59-1	ISOPHORONE	None	N/A

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ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		78-79-5	2-METHYL-1,3-BUTADIENE (ISOPRENE)	None	N/A
		78-83-1	ISOBUTANOL	None	N/A
		78-87-5	1,2-DICHLOROPROPANE	None	N/A
		78-93-3	METHYL ETHYL KETONE (2-BUTANONE)	None	N/A
		786-19-6	CARBOPHENOTHION (TRITHION)	None	N/A
		789-02-6	o,p"-DDT	None	N/A
		79-00-5	1,1,2-TRICHLOROETHANE	None	N/A
		79-01-06	TRICHLOROETHYLENE (TCE)	None	N/A
		79-01-6	TRICHLOROETHANE	None	N/A
		79-06-1	ACRYLAMIDE	None	N/A
		79-20-9	METHYL ACETATE	None	N/A
		79-34-5	1,1,2,2-TETRACHLOROETHANE	None	N/A
		80-62-6	METHYL METHACRYLATE	None	N/A
		8001-35-2	TOXAPHENE	None	N/A
		8065-48-3	DEMETON	None	N/A
		82-68-8	PENTACHLORONITROBENZENE	None	N/A
		83-32-9	ACENAPHTHENE	None	N/A
		84-66-2	DIETHYL PHTHALATE	None	N/A
		84-74-2	DI-n-BUTYL PHTHALATE	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		85-01-08	PHENANTHRENE	None	N/A
		85-68-7	BENZYL BUTYL PHTHALATE	None	N/A
		86-30-6	N-NITROSODIPHENYLAMINE	None	N/A
		86-50-0	AZINPHOS, METHYL (GUTHION)	None	N/A
		86-73-7	FLUORENE	None	N/A
		86-74-8	CARBAZOLE	None	N/A
		87-61-6	1,2,3-TRICHLOROBENZENE	None	N/A
		87-65-0	2,6-DICHLOROPHENOL	None	N/A
		87-68-3	HEXACHLOROBUTADIENE	None	N/A
		87-86-5	PENTACHLOROPHENOL	None	N/A
		87-86-7	PENTAFLUOROPHENOL	None	N/A
		88-06-2	2,4,6-TRICHLOROPHENOL	None	N/A
		88-19-7	2-METHYLBENZENESULFONAMIDE	None	N/A
		88-74-4	2-NITROANILINE	None	N/A
		88-75-5	2-NITROPHENOL	None	N/A
		88-85-7	DINOSEB	None	N/A
		88-89-1	PICRIC ACID	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		90-12-0	1-METHYLNAPHTHALENE	None	N/A
		90-13-1	1-CHLORONAPHTHALENE	None	N/A
		91-20-3	NAPHTHALENE	None	N/A
		91-57-6	2-METHYLNAPHTHALENE	None	N/A
		91-58-7	2-CHLORONAPHTHALENE	None	N/A
		91-59-8	2-AMINONAPHTHALENE (BETA NAPHTHYLAMINE)	None	N/A
		91-80-5	METHAPYRILENE	None	N/A
		91-94-1	1,2 AND 1,4-DICHLOROBENZENE	None	N/A
		92-52-4	BIPHENYL (DIPHENYL)	None	N/A
		92-67-1	4-AMINOBIPHENYL (4-BIPHENYLAMINE)	None	N/A
		92-87-5	BENZIDINE	None	N/A
		924-16-3	N-NITROSO-DI-N-BUTYLAMINE	None	N/A
		93-72-1	SILVEX (2,4,5-TP)	None	N/A
		93-76-5	2,4,5-T (TRICHLOROPHENOXYACETIC ACID)	None	N/A
		930-55-2	N-NITROSOPYRROLIDINE	None	N/A
		933-75-5	2,3,6-TRICHLOROPHENOL	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		935-95-5	2,3,5,6-TETRACHLOROPHENOL	None	N/A
		94-59-7	SAFROLE	None	N/A
		94-74-6	MCPA	None	N/A
		94-75-7	2,4-D (DICHLOROPHENOXYACETIC ACID)	None	N/A
		94-82-6	2,4 DB	None	N/A
		95-47-6	O-XYLENE (1,2-DIMETHYLBENZENE)	None	N/A
		95-49-8	2-CHLOROTOLUENE	None	N/A
		95-50-1	1,2-DICHLOROBENZENE	None	N/A
		95-53-4	O-TOLUIDINE	None	N/A
		95-54-5	o-PHENYLENEDIAMINE	None	N/A
		95-57-8	2-CHLOROPHENOL	None	N/A
		95-63-6	1,2,4-TRIMETHYLBENZENE	None	N/A
		95-65-0	1,3-DINITROBENZENE	None	N/A
		95-77-2	3,4-DICHLOROPHENOL	None	N/A
		95-88-5	4-CHLORORESORCINOL	None	N/A
		95-94-3	1,2,4,5-TETRACHLOROBENZENE	None	N/A
		95-95-4	2,4,5-TRICHLOROPHENOL	None	N/A
		959-98-8	ALPHA ENDOSULFAN	None	N/A
		96-09-3	STYRENE OXIDE	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	None	N/A
		96-14-0	3-METHYLPENTANE	None	N/A
		96-18-4	1,2,3-TRICHLOROPROPANE	None	N/A
		96-37-7	METHYLCYCLOPENTANE	None	N/A
		96-48-7	2-METHYLPHENOL (o-CRESOL)	None	N/A
		97-63-2	ETHYL METHACRYLATE	None	N/A
		97-95-0	2-ETHYL-1-BUTANOL	None	N/A
		97-96-1	2-ETHYLBUTYRALDEHYDE	None	N/A
		98-00-0	FURFURYL ALCOHOL	None	N/A
		98-06-6	t-BUTYLBENZENE	None	N/A
		98-07-7	BENZOTRICHLORIDE	None	N/A
		98-08-08	TRIFLUOROTOLUENE	None	N/A
		98-55-5	ALPHA-TERPINEOL	None	N/A
		98-59-9	4-METHYLBENZENESULFONYLCHLORIDE	None	N/A
		98-82-8	ISOPROPYLBENZENE (CUMENE)	None	N/A
		98-85-1	METHYLBENZYL ALCOHOL	None	N/A
		98-86-2	ACETOPHENONE	None	N/A
		98-87-3	BENZAL CHLORIDE	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
CAS Number / None (continued)		98-95-3	NITROBENZENE	None	N/A
		99-09-2	3-NITROANILINE	None	N/A
		99-30-9	DICHLORAN	None	N/A
		99-35-4	1,3,5-TRINITROBENZENE	None	N/A
		99-55-8	5-NITRO-O-TOLUIDINE	None	N/A
		99-87-6	P-CYMENE (p-ISOPROPYLTOLUENE)	None	N/A
Value Qualifier / env-parameter value qualifier	13214	<	Reported data is less than the contractual detection limit	LT	Less Than
		=	Equal to	ET	Equal to
		>	Reported data is greater than the contractual detection limit but not quantifiable above some upper limit	GT	Greater Than
		#	Reported data is less than the contractual detection limit but still quantifiable	None	N/A
		I	Interference of co-elution	I	Interference present
		J	Value is an estimated quantity	EQ	Estimated quantification - Not Primary Result, Test was not performed
		L	Radiological data results are less than or equal to the counting error	None	N/A
		ND	Not Detected	ND	Not Detected

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Value Qualifier / env-parameter value qualifier (continued)		TR	Trace; between the contract detection recorded limit (CDRL) and the instrument detection limit (IDL)	TR	Trace - Above MDL below PQL
		None	N/A	CE	Co-elution
		None	N/A	IV	Indeterminate - Significant differences between runs
		None	N/A	NA	Not Available - result not available
		None	N/A	UR	Unresolved Peaks Due to Matrix Interference or Impurities
QA Qualifier / env-laboratory note	13215	BI	For inorganic samples, the reported value is less than the instrument detection limit	None	N/A
		BJ	The reported value is less than the instrument standardization but is greater than the instrument detection limit	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		BO	For organic samples, the analyte is found in the associated blank as well as in the sample. This indicates possible contamination of the blank.	B	EPA Flag - Analyte present in the blank and the sample **(NOTE: this definition is not limited to organic compounds)**
		D	Analysis was performed at a secondary dilution factor	D	EPA Flag - Analytes analyzed at a secondary dilution
		E	Identifies compounds that occur in concentrations that exceed the calibration range of the GC/MS for that specific analysis	E	EPA Flag - Analyte exceeded the concentration range of the GC/MS
		JI	For inorganics, the analyte was tested for and detected. The associated numerical value is an estimated quantity usable for decision making.	J	EPA Flag - Estimated Value **(NOTE: No distinction made between estimated organic or inorganic values).**

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		JO	For organics, the result is an estimated quantity. The mass-spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the contract-required quantitation limit and greater than zero.		
		N	Spike sample recovery is outside control limits. Presumptive evidence of the presence of the analyte.	N	EPA Flag - Presumptive evidence of a compound
		NJ	Presumptive evidence of the presence of the material at an estimated quantity	None	N/A
		R	The data are unusable	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		UI	For inorganics, the analyte is below the detection limits of the methods and instruments used. The associated numerical value is the calculated contract-required quantitation limit based on wet weight of the soil sample. The contract-required quantitati	U	EPA Flag - Compound was analyzed for but was not detected
		UJ	The material was analyzed for but was not detected. The contract-required quantitation limit is estimated.	None	N/A
		UO	For organics, the analysis did not detect the material. The associated numerical value is the contract-required quantitation limit corrected for dilution and percent moisture.	U	EPA Flag - Compound was analyzed for but was not detected
		None	N/A	A	EPA Flag - TIC is a suspected aldol-condensation product

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		None	N/A	AA	Kerosene range was not reported due to the overlap of hydrocarbo
		None	N/A	AB	Diesel range was not reported due to overlap of hydrocarbon range
		None	N/A	AC	Heavier hydrocarbons contributing to diesel range quantitation.
		None	N/A	AD	Typical pattern for Diesel
		None	N/A	AE	Unknown Hydrocarbon with a single peak
		None	N/A	AF	Hydrocarbon response is in the C7-C12 range
		None	N/A	AG	Hydrocarbon response is in the C9-C12 range
		None	N/A	AH	Hydrocarbon response is in excess of C22
		None	N/A	AJ	Heavier hydrocarbon than Diesel
		None	N/A	AK	Lighter hydrocarbon than Diesel
		None	N/A	AL	Hydrocarbon response is in the C8-C12 range
		None	N/A	AM	Hydrocarbon response is in the C12-C22 range

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		None	N/A	AN	Unknown Hydrocabon with several peaks
		None	N/A	AO	Typical pattern for Gasoline
		None	N/A	AP	Hydrocarbon response is in the C7-C14 range
		None	N/A	AQ	Hydrocarbon response is in the C9-C14 range
		None	N/A	AR	Hydrocarbon response is in excess of C10
		None	N/A	AS	Heavier hydrocarbon than Gasoline
		None	N/A	AT	Lighter hydrocarbon than Gasoline.
		None	N/A	AU	Inj. precision not met
		None	N/A	AW	Detection limit increased due to dilition factor
		None	N/A	AX	Sample too dilute to quantify surrogate.
		None	N/A	AY	Matrix interference suspected
		None	N/A	AZ	Surr recoveries outside of acceptable range due to matrix interf.
		None	N/A	BA	Relative percent differnce out of control

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		None	N/A	BB	Sample > 4x spike concentration
		None	N/A	BC	Matrix spike out of control, lab control sample within limits
		None	N/A	BD	Concentration value greater than 25% Difference between columns
		None	N/A	BE	Low surrogate recovery. Analyzed Twice.
		None	N/A	BF	Reporting limit raised due to high hydrocarbon background
		None	N/A	BG	Reporting limits raised due to interelement interference
		None	N/A	BH	Reporting limits raised due to high level of non-target analytes.
		None	N/A	BI	Sample does not resemble standard.
		None	N/A	BJ	Analyte detected in blank and sample
		None	N/A	BK	Hexavalent Chromiun not available. Total Chromium analyzed.
		None	N/A	BL	Compound unidentified at a second dilution.

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		None	N/A	BM	Sustains Ignition
		None	N/A	BN	Ignites but does not sustain ignition
		None	N/A	BO	Foaming during purge cycle
		None	N/A	BP	Sample Type i, a millable solid
		None	N/A	BQ	Sample Type ii, a liquid solid mixture
		None	N/A	BR	Sample Type iii, a non-filterable, non-millable sludge
		None	N/A	BS	Insufficient sample available to follow standard QC procedures
		None	N/A	BT	Insufficient sample to perform the analysis
		None	N/A	BU	Sample analyzed after holding time expired
		None	N/A	BV	Sample received after holding time expired.
		None	N/A	BW	Sample extract analyzed after holding time expired
		None	N/A	BX	Sample stored at improper temperature
		None	N/A	BY	Samle received at improper temperature

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
QA Qualifier / env-laboratory note (continued)		None	N/A	BZ	Sample preserved improperly
		None	N/A	C	EPA Flag - Pesticide result confirmed using GC/MS
		None	N/A	CA	Sample contains white precipitate
		None	N/A	CB	Sample contains floculant materiel
		None	N/A	CC	Sample contains free product
		None	N/A	CD	Sample contains multiple phases
		None	N/A	CE	Sample not homgeneous
		None	N/A	CF	Sample releases strong sulfur odor
		None	N/A	CG	Sample releases strong solvent odor
		None	N/A	CH	Sample releases strong petroleum odor
		None	N/A	CI	See Narrative
		None	N/A	P	EPA Flag - > 25% D for detected concentrations between 2 columns

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Sampling Location Status / None	13216	A	Station has been inspected in last 5 years and meets study objectives	None	N/A
		B	Station was constructed in accordance with regulating agency guidelines	None	N/A
		C	Station is inadequate in some manner	None	N/A
Well Status / well - well status	13401	CLO	Closed	None	N/A
		COL	Collapsed	None	N/A
		DAM	Damaged	None	N/A
		DRY	Dry	None	N/A
		NUS	Not usable	None	N/A
		OBS	Obstructed	None	N/A
		OTH	Other	None	N/A
		PLG	Plugged	None	N/A
		SCH	Scheduled	None	N/A
		UNK	Unkown	None	N/A
		USE	In use	None	N/A
		None	N/A	ABANDONED	abandoned (vacant)
		None	N/A	ABANDONTECH	abandoned for technical reasons
		None	N/A	ACCEPTEDLOC	accepted location (potential well)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Well Type / well - well type classification	13402	ABN	Abandoned well	None	N/A
		BCK	Background well	None	N/A
		EXW	Extraction well	EXTRACT	Extraction Well
		IJW	Injection well	INJECTION	Injection Well
		IRR	Irrigation well	IRRIGATE	Irrigation Well
		LEA	Leachate well	LEACHATE	Leachate Well
		MNW	Monitoring well	MONITOR	Monitoring Well
		OBS	Observation well	OBSERVE	Observation Well
		OFF	Off-site well	None	N/A
		PRG	Purge well	PURGE	Purge Well
		PRW	Production well (public water supply)	PUBWATER	Production Well (Public Water Supply)
		PVT	Private water-supply well	PRIVWATER	Water Supply Well (Private Water Supply)
		PZ	Piezometer	PIEZOMETER	Piezometer
		QC	Quality control	None	N/A
		SB	Soil/Geologic boring	None	N/A
		SS	Soil-sample location	None	N/A
		SSH	Seismic shot hole	None	N/A
		TST	Test well	TEST	Test Well
		VAP	Vapor well	VAPOR	Vapor Well
		VW	Vadose well	None	N/A
		None	N/A	LYSIMETER	Lysimeter
		None	N/A	WELLPOINT	Well Points
		None	N/A	VAPOREXTRACT	Vapor extraction well

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Completion Method / well - construction type	13403	C	Concrete, porous	None	N/A
		GP	Gravel pack with perforations	None	N/A
		GS	Gravel pack with screen	None	N/A
		H	Horizontal gallery/collector	None	N/A
		NP	Natural fiber pack	None	N/A
		OE	Open-end	None	N/A
		OP	Open	None	N/A
		OTH	Other	None	N/A
		P	Perforated or slotted	BRIDGESLOT	Bridge Slot
		S	Screen	None	N/A
		SP	Sand point	None	N/A
		UNK	Unknown	UNKNOWN	Unknown
		W	Walled or shored	None	N/A
		None	N/A	TBD	to be determined
Drilling Method / geology - drill / excavation meth	13404	AH	Air hammer	None	N/A
		AP	Air percussion	P	Air-Percussion
		AR	Air rotary	AR	Air-Rotary
		CO	Coring	CO	Coring
		CT	Cable tool	C	Cable-Tool
		HA	Hollow-stem auger	HS	Hollow Stem Auger
		JT	Jetting	J	Jetted
		MR	Mud rotary	MR	Direct Circulation Rotary, Mud

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Drilling Method / geology - drill / excavation meth (continued)				RM	Reverse Circulation Rotary, Mud
		OTH	Other	Z	Other
		RR	Reverse rotary	None	N/A
		SA	Solid-stem auger	SS	Solid Stem Auger
		UNK	Unkown	None	N/A
		WC	Wireline coring	None	N/A
		WR	Water rotary	WR	Direct Circulation Rotary, Water
				RW	Reverse Circulation Rotary, Water
		None	N/A	NA	Not Applicable; Not a Bore Hole, Well, Test Pit
		None	N/A	PJ	Pnuematic Jack Hammer
		None	N/A	RD	Rotosonic Drill
		None	N/A	T	Trenching (Backhoe, etc.)
		None	N/A	V	Driven
		None	N/A	W	Drive and Wash
		None	N/A	SN	Sonication
		None	N/A	AM	Air-Rotary, Mud Rotary
		None	N/A	AW	Air-Rotary, Water Rotary
		None	N/A	CP	Cone Penetrometer
		None	N/A	CS	Chilled Shot
		None	N/A	D	Dug
		None	N/A	DH	Down the Hole Hammer
		None	N/A	DT	Dual Tube Air
		None	N/A	HA	Hand Augered

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
(continued)		None	N/A	B	Bored or Augered
Casing Status / None	13405	O	Other	None	N/A
		P	Permanent	None	N/A
		R	Removed	None	N/A
		S	Surface	None	N/A
		T	Temporary	None	N/A
		U	Unknown	None	N/A
Casing or Screen Material / geology - casing material type **OR** well - protective casing mat*	13406	ABS	Acrylonitrile butadiene styrene	ABS	Acrylonitrile Butadiene Styrene (ABS)
		BRK	Brick	BRK	Brick
		CBS	Carbon steel	CBS	Carbon Steel
		CNC	Concrete	CNC	Concrete
		COP	Copper	COP	Copper
		COS	Coated steel	COS	Coated Steel
		FBG	Fiberglass	FBG	Fiberglass
		GLS	Galvanized steel	GLS	Galvanized Steel
		LCS	Low carbon steel	LCS	Low Carbon Steel
		MET	Other metal	M	Other Metal
		OTH	Other	Z	Other
		P40	PVC schedule 40	None	N/A
		P80	PVC schedule 80	None	N/A
		PLA	Other plastics	P	Other Plastic
		PLY	Polypropylene	PLY	Polypropylene
		PVC	Polyvinyl chloride (PVC)	PVC	Polyvinyl Chloride (PVC)

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Casing or Screen Material / geology - casing material type **OR** well - protective casing mat* (continued)		RST	Rock or stone	RST	Rock or Stone
		S30	Stainless steel 304	None	N/A
		S31	Stainless steel 3161	None	N/A
		SLS	Stainless steel	SLS	Stainless Steel
		STL	Steel	STL	Steel
				STEEL	steel*
		TFL	Teflon	TFL	Teflon
		TIL	Tile	TIL	Tile
		UNK	Unknown	None	N/A
		WD	Wood	WD	Wood
		WRI	Wrought iron	WRI	Wrought Iron
		None	N/A	PVS	PVC Upper/Stainless Steel Lower
		None	N/A	LSS	Low Carbon Steel Upper/Stainless Lower
		None	N/A	NAO	Not Applicable; Open Well
		None	N/A	CASTIRON	cast iron*
Fill or Seal Type / geology - constr/fill mat code	13407	BF	Backfill	None	N/A
		BP	Bentonite pellets	BPE	bentonite pellets
		BS	Bentonite slurry	BSL	bentonite slurry
		CG	Cement grout	CEM	cement
		CH	Chemical grout	None	N/A
		CO	Concrete	CON	concrete
		GB	Granular bentonite	None	N/A
		GP	Gravel pack	GRA	gravel

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Fill or Seal Type / geology - constr/fill mat code (continued)		OT	Other	None	N/A
		SP	Sand pack	SS	silica sand
				CSS	colorado silica sand
				PRS	propent sand (man-made sand)
				FSN	fine sand
				NSP	natural sand pack
		UN	Unknown	None	N/A
		VG	Volclay grout	VCG	vol-clay grout
		None	N/A	BPO	bentonite powder (dry grouting)
		None	N/A	BCH	bentonite chips
		None	N/A	NAT	natural formation
		None	N/A	NCE	neat cement
		None	N/A	PGR	pea gravel
		None	N/A	PPS	pre-packed screens
		None	N/A	BEN	bentonite
Screen Type / None	13408	BS	Bridge slot	None	N/A
		CS	Continuous-slot wire-wound	None	N/A
		MS	Machine slotted casing	None	N/A
		NS	No screen	None	N/A
		OT	Other	None	N/A
		PP	Perforated pipe	None	N/A
		PB	Pipe base	None	N/A
		ST	Shutter type	None	N/A
		UN	Unknown	None	N/A

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Pump Type / env - sampling equipment	13409	B	Bailer	B	Bailer
		C	Combination	None	N/A
		H	Hydrostar	None	N/A
		O	Organic/bladder	BP	Gas Operated Bladder Pump
		S	Submersible	SP	Submersible Pump
		U	Unknown	None	N/A
		None	N/A	HX	High-Volume Air Sampler with XAD Resin
		None	N/A	HA	Hand Auger
		None	N/A	NQ	NQ Wireline Rock Coring/ASTM-D2113
		None	N/A	NC	Nickel Coated Brass Bomb Sampler
		None	N/A	NA	not applicable
		None	N/A	LY	Lysimeter
		None	N/A	PI	Piston Pump
		None	N/A	KS	Kemmerer Sampler
		None	N/A	PP	Peristaltic Pump
		None	N/A	HV	High Volume Air Sampler
		None	N/A	HU	High-Volume Air Sampler with Puf Resin
		None	N/A	HR	Electrical Submersible Pump (Helical Rotor)
		None	N/A	HP	Hydropunch

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Pump Type / env - sampling equipment (continued)		None	N/A	LV	Low Volume Continuous Air Sampler
		None	N/A	H	Hollow Stem Auger
		None	N/A	PR	Stainless Steel Soil Gas Probe with a Retractable
		None	N/A	RS	Hollow Glass Sampling Rod
		None	N/A	S	Drive Sample - 2 inch/ASTM D1586
		None	N/A	SC	Scraped From Exposed Surface
		None	N/A	SL	Suction Lift Pump
		None	N/A	SS	Split Spoon
		None	N/A	ST	Submersible Turbine Pump
		None	N/A	T	Shelby Tube/ASTM-D1587
		None	N/A	U	Tube Sampler - 3 inch/ASTM-D3550
		None	N/A	VS	Van Dorn Sampler
		None	N/A	W	Swab Or Wipe
		None	N/A	WF	Wellhead Faucet (Grab Sample From)
		None	N/A	NX	NX Rock Coring/ASTM-D2113
		None	N/A	CL	Clover Leaf Dredge Sampler
		None	N/A	HB	Hand Bucket Auger
		None	N/A	CF	Flow Weighted Composite

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Pump Type / env - sampling equipment (continued)		None	N/A	CC	5 Foot Continuous Core Sampler
		None	N/A	TS	Thief Sampler and/or Thief Type Sampler
		None	N/A	BR	Brass (California) Ring
		None	N/A	CN	Cone Penetrometer
		None	N/A	BL	Undisturbed Bulk Sample
		None	N/A	AT	Sampling Train
		None	N/A	AS	Ashing
		None	N/A	AP	Air Lift Pump
		None	N/A	AL	Air-Lift Sampler
		None	N/A	AC	Air Canister
		None	N/A	C	Continuous Flight Auger
		None	N/A	E1	Electrical Submersible Pump (Pre-1982)
		None	N/A	GP	Gas-operated, double acting Piston Pump
		None	N/A	GD	Electrical Submersible Pump (Gear-Driven)
		None	N/A	G	Grab
		None	N/A	FC	Cassette Filter
		None	N/A	CH	Charcoal Sampling Tube
		None	N/A	E2	Electrical Submersible Pump (1982+)
		None	N/A	CP	Centrifugal Pump
		None	N/A	DT	Driven Tube

APPENDIX A.2
ENVIRONMENTAL DOMAIN VALUE COMPARISON
VALUE TO VALUE MAP

ERMA DOMAIN / TSSDS COUNTERPART	ERMA MSLINK VALUE	ERMA DOMAIN VALUE	ERMA DEFINITION	CORRESPONDING TSSDS DOMAIN VALUE	TSSDS DEFINITION
Pump Type / env - sampling equipment (continued)		None	N/A	DS	Dredge Sampler (Brass, Etc.)
		None	N/A	D	Disturbed Bulk Sample
		None	N/A	CY	Cyclone Method of Sampling Drill Cuttings
		None	N/A	CT	Time Weighted Composite
		None	N/A	CS	Composite Sample
		None	N/A	CR	Cutting Returns
		None	N/A	EK	Eckman Dredge Sampler
		None	N/A	SY	Syringe

Notes:
Shaded areas represent domain values that are different between TSSDS and ERMA.
Bold text represent values which are outdated (in ERMA)

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
sample_location	**ehchaspt**	creation_date	**NONE**	This attribute is common to all ERMA tables, and therefore will not be repeated henceforth.
		revision_date	**NONE**	This attribute is common to all ERMA tables, and therefore will not be repeated henceforth.
		mslink	datalink	This attribute is common to all ERMA tables, and therefore will not be repeated henceforth.
		mapid	map_id	**NONE**
		fcode	**NONE**	**NONE**
		location_name	sam_pt_id	**NONE**
		location_status	dispostn_d	**NONE**
		location_type	spt_d	**NONE**
		reference_elev	**NONE**	this attribute is synonymous with *datum_elev* in TSSDS table **ehchasam**.
		ref_elev_descrp	**NONE**	this attribute is synonymous with *datum_desc* in the TSSDS table **ehchasam**.
		longitude	**NONE**	**NONE**
		latitude	**NONE**	**NONE**
		easting	ecoord	**NONE**
		northing	ncoord	**NONE**
		NONE	meta_id	Common to all TSSDS tables - will not be repeated for subsequent tables.
		NONE	media_id	Common to all TSSDS tables - will not be repeated for subsequent tables.

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
sample_location (continued)	**ehchaspt (continued)**	**NONE**	coord_id	Common to all TSSDS tables - will not be repeated for subsequent tables.
		NONE	hazsite_id	Common to all TSSDS tables - will not be repeated for subsequent tables.
		NONE	instin_id	Common to all TSSDS tables - will not be repeated for subsequent tables.
		NONE	hasproj_id	**NONE**
		NONE	user_flag	**NONE**
		NONE	ltccode_d	**NONE**
		NONE	lprcode_d	**NONE**
		NONE	locdesc	**NONE**
		NONE	localias	**NONE**
		NONE	locid	**NONE**
		NONE	estdate	**NONE**
		NONE	loc_method	**NONE**
		NONE	contr_id	**NONE**
		NONE	do_id	**NONE**
		NONE	estcomp_id	**NONE**
		NONE	owner_d	**NONE**
		NONE	own_stus_d	**NONE**
		NONE	owner_ty_d	**NONE**
		NONE	cond_d	**NONE**
		NONE	date_last	**NONE**
		NONE	comments	**NONE**
sample_data	**ehchasam** Note: soil samples may also be recorded in TSSDS table **sogensmp.** Table **ehchasam** may also be used for the ERMA table **well_sample_data.**	sample_id	chasam_id	**NONE**
		location_name	sam_pt_id	**NONE**
		samp_event_grp	**NONE**	**NONE**
		collection_date	s_date	**NONE**
		collection_time	s_time	**NONE**
		collection_meth	sammet_d	**NONE**
		sampling_equip	sameqp_d	**NONE**
		sample_type	s_type_d	**NONE**
		sample_matrix	s_matrix_d	**NONE**
		remarks	comments	**NONE**
		NONE	ltccode_d	The attribute *ltccode_d* already appears in TSSDS table **ehchaspt.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
sample_data (continued)	**ehchasam (continued)**	**NONE**	locdesc	The attribute *locdesc* already appears in TSSDS table **ehchaspt.**
		NONE	elev_uom	**NONE**
		reference_elev	datum_elev	The attribute *reference_elev* is in the ERMA table **well_sample_data.**
		ref_elev_descrp	datum_desc	The attribute *ref_elev_descrp* is in the ERMA table **well_sample_data.**
		top_depth	s_depth	The attribute *top_depth* is in the ERMA table **well_sample_data.**
		bottom_depth	e_depth	The attribute *bottom_depth* is in the ERMA table **well_sample_data.**
		NONE	depth_uom	**NONE**
		NONE	lotctlnum	The attribute *lotctlnum* already appears in TSSDS table **ehchalab.**
		NONE	samclas_d	**NONE**
		NONE	weather_d	**NONE**
		NONE	preserv_d	**NONE**
analytic_methods	**ehchalab**	sample_id	chasam_id	**NONE**
		lot_control_num	lotctlnum	**NONE**
		lab_name	lab_id	**NONE**
		lab_sample_id	chalab_id	**NONE**
		lab_recd_date	**NONE**	**NONE**
		case_number	**NONE**	**NONE**
		sdg_number	rept_num	**NONE**
		lab_rpt_name	**NONE**	**NONE**
		analysis_protocol	rsqccod_d	**NONE**
		analysis_class	**NONE**	**NONE**
		analysis_method	anmcode_d	**NONE**
		analysis_basis	basis_d	**NONE**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
analytic_methods (continued)	**ehchalab (continued)**	extract_method	exmcode_d	**NONE**
		extraction_date	extdate	**NONE**
		extraction_time	**NONE**	**NONE**
		analysis_date	anadate	**NONE**
		analysis_time	anatime	**NONE**
		column_type	**NONE**	**NONE**
		NONE	labcode	**NONE**
		NONE	parval	The corresponding ERMA attribute for the TSSDS attribute *parval* resides in the ERMA table **analytic_results.**
		NONE	pval_uom_d	The corresponding ERMA attribute for the TSSDS attribute *pval_uom_d* resides in the ERMA table **analytic_results.**
		NONE	parlabel_d	The corresponding ERMA attribute for the TSSDS attribute *parlabel_d* resides in the ERMA table **analytic_results.**
		NONE	s_matrix_d	The attribute *locdesc* already appears in TSSDS table **ehchaspt.**
		NONE	s_type_d	The attribute *locdesc* already appears in TSSDS table **ehchaspt.**
		NONE	parun	The corresponding ERMA attribute for the TSSDS attribute *parun* resides in the ERMA table **analytic_results.**
		NONE	expected	**NONE**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
		NONE	labdl	The corresponding ERMA attribute for the TSSDS attribute *labdl* resides in the ERMA table **analytic_results.**
analytic_methods (continued)	**ehchalab (continued)**	**NONE**	parvq_d	The corresponding ERMA attribute for the TSSDS attribute *parvq_d* resides in the ERMA table **analytic_results.**
		NONE	epaflags	The corresponding ERMA attribute for the TSSDS attribute *epaflags* resides in the ERMA table **analytic_results.**
		NONE	paratyp_d	**NONE**
		NONE	controll_d	**NONE**
		NONE	pvccod_d	**NONE**
		NONE	rldlqual_d	**NONE**
		NONE	lab_note_d	**NONE**
		NONE	comments	**NONE**
analytic_results	**ehchares**	sample_id	chasam_id	**NONE**
		sample_partition	**NONE**	**NONE**
		measured_value	parval	**NONE**
		value_units	pval_uom_d	**NONE**
		value_name	parlabel_d	**NONE**
		cas_number	**NONE**	CAS Numbers are a valuable tool in the identification of a chemical compound or element. It is recommended that CAS Numbers be incorporated into the TSSDS.
		detection_limit	labdl	**NONE**
		total_error	parun	**NONE**
		value_qualifier	parvq_d	**NONE**
		qa_qualifier	epaflags	**NONE**
		NONE	chares_id	**NONE**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
		NONE	chalab_id	The attribute *chalab_id* already appears in TSSDS table **ehchalab.**
		NONE	labcode	The attribute *labcode* already appears in TSSDS table **ehchalab.**
analytic_results (continued)	**ehchares (continued)**	**NONE**	anadate	The attribute *anadate* already appears in TSSDS table **ehchalab.**
		NONE	rept_num	The attribute *rept_num* already appears in TSSDS table **ehchalab.**
		NONE	s_matrix_d	The attribute *s_matrix_d* already appears in TSSDS table **ehchasam.**
		NONE	s_type_d	The attribute *s_type_d* already appears in TSSDS table **ehchasam.**
		NONE	lotctlnum	The attribute *lotctlnum* already appears in TSSDS table **ehchalab.**
		NONE	sam_pt_id	The corresponding ERMA attribute (*location_name*) for the TSSDS attribute *sam_pt_id* resides as a key column in other tables.
		NONE	ltccode_d	The attribute *ltccode_d* already appears in TSSDS table **ehchaspt.**
		NONE	s_date	The attribute *s_date* already appears in TSSDS table **ehchasam.**
		NONE	validate_d	**NONE**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
		NONE	locdesc	The attribute *locdesc* already appears in TSSDS table **ehchasam.**
well	**ehchamwl**	official_name	chamwl_id	**NONE**
		ref_elevation	datum_elev	**NONE**
		total_depth	totdepth	**NONE**
		longitude	**NONE**	**NONE**
		latitude	**NONE**	**NONE**
		easting	**NONE**	**NONE**
		northing	**NONE**	**NONE**
well (continued)	**ehchamwl (continued)**	angle	**NONE**	**NONE**
		azimuth	**NONE**	**NONE**
		well_status	mwlstat_d	**NONE**
	Note: Some information may also be maintained in the TSSDS table **gesubbhl**, which stores geologic borehole data. ERMA maintains a separate table for detailed well construction data called **well_completion.**	well_type	**NONE**	**NONE**
		well_owner	**NONE**	**NONE**
		completion_methd	**NONE**	**NONE**
		NONE	r_state_id	**NONE**
		NONE	start_date	This attribute corresponds to the attribute *drill_start_date* in the ERMA table **well_completion.**
		NONE	comp_date	This attribute corresponds to the attribute *drill_compl_date* in the ERMA table **well_completion.**
		NONE	datum_desc	**NONE**
		NONE	elev_u_d	**NONE**
		NONE	gsurf_elev	**NONE**
		NONE	startdep	**NONE**
		NONE	cas_sdepth	This attribute corresponds to the attribute *casing_top_elev* in the ERMA table **well_completion.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
well (continued)	**ehchamwl (continued)**	**NONE**	cas_edepth	This attribute corresponds to the attribute *casing_bot_depth* in the ERMA table **well_completion.**
		NONE	depth_u_d	**NONE**
		NONE	casdiam	This attribute corresponds to the attribute *casing_inner_dia* in the ERMA table **well_completion.**
		NONE	diam_u_d	**NONE**
		NONE	well_desc	**NONE**
		NONE	dcontr_id	This attribute corresponds to the attribute *contractor* in the ERMA table **well_completion.**
		NONE	sbdepth	This attribute corresponds to the attribute *screen_top_depth* in the ERMA table **well_completion.**
		NONE	scrlength	This attribute corresponds to the attribute *screen_length* in the ERMA table **well_completion.**
		NONE	cmccode_d	This attribute corresponds to the attribute *drilling_method* in the ERMA table **well_completion.**
		NONE	scrn_u_d	**NONE**
		NONE	scrdiam	This attribute corresponds to the attribute *screen_diameter* in the ERMA table **well_completion.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
well (continued)	**ehchamwl (continued)**	**NONE**	soua	**NONE**
		NONE	pcontr_id	**NONE**
		NONE	contractid	**NONE**
		NONE	pctopen	**NONE**
		NONE	subbhl_id	**NONE**
		NONE	geozone_d	This attribute corresponds to the attribute *strat_comp_zone* in the ERMA table **well_completion.**
		NONE	casemat_d	This attribute corresponds to the attribute *casing_type* in the ERMA table **well_completion.**
		NONE	locprox_d	**NONE**
		NONE	geohydcl_d	**NONE**
		NONE	pcasingm_d	**NONE**
		NONE	sam_pt_id	
		NONE	comments	This attribute corresponds to the attribute *remarks* in the ERMA table **well_completion.**
		NONE	coord_id	The attribute *coord_id* links the table **ehchamwl** to the appropriate coordinate information in the table **ehchaspt.**
down_hole_test	**NO CORRESPONDING TSSDS TABLE.**			
well_completion	**NO CORRESPONDING TSSDS TABLE.**	well_name	**NONE**	The ERMA attribute *well_name* corresponds with the TSSDS attribute *chamwl_id* in table **ehchamwl.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
	Note: Much of the attribute information contained in the **well_completion** table is maintained in the TSSDS table **ehchamwl.**	hole_diameter	**NONE**	The ERMA attribute *hole_diameter* corresponds with the TSSDS attribute *bhdiam* in table **gesubbhl.**
		drill_start_date	**NONE**	The ERMA attribute *drill_start_date* corresponds with the TSSDS attribute *start_date* in table **ehchamwl.**
		drill_compl_date	**NONE**	The ERMA attribute *drill_compl_date* corresponds with the TSSDS attribute *comp_date* in table **ehchamwl.**
well_completion	**NO CORRESPONDING TSSDS TABLE.**	drilling_method	**NONE**	The ERMA attribute *drilling_method* corresponds with the TSSDS attribute *cmccode_d* in table **ehchamwl.**
		contractor	**NONE**	The ERMA attribute *contractor* corresponds with the TSSDS attribute *dcontr_id* in table **ehchamwl.**
		driller_name	**NONE**	**NONE**
		strat_comp_zone	**NONE**	The ERMA attribute *strat_comp_zone* corresponds with the TSSDS attribute *geozone_d* in table **ehchamwl.**
		casing_top_elev	**NONE**	The ERMA attribute *casing_top_elev* corresponds with the TSSDS attribute *cas_sdepth* in table **ehchamwl.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

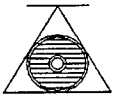
ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
well_completion	**NO CORRESPONDING TSSDS TABLE.**	casing_bot_depth	**NONE**	The ERMA attribute *casing_bot_elev* corresponds with the TSSDS attribute *cas_edepth* in table **ehchamwl.**
		casing_inner_dia	**NONE**	The ERMA attribute *casing_inner_dia* corresponds with the TSSDS attribute *casdiam* in table **ehchamwl.**
		casing_outer_dia	**NONE**	**NONE**
		casing_status	**NONE**	**NONE**
		casing_type	**NONE**	The ERMA attribute *casing_type* corresponds with the TSSDS attribute *casemat_d* in table **ehchamwl.**
		seal_type	**NONE**	**NONE**
		seal_top_depth	**NONE**	**NONE**
		seal_bot_depth	**NONE**	**NONE**
		fill_type	**NONE**	**NONE**
		fill_top_depth	**NONE**	**NONE**
		fill_bot_depth	**NONE**	**NONE**
		screen_type	**NONE**	**NONE**
		screen_material	**NONE**	**NONE**
		screen_diameter	**NONE**	The ERMA attribute *screen_diameter* corresponds with the TSSDS attribute *scrdiam* in table **ehchamwl.**
		screen_slot_size	**NONE**	**NONE**
		screen_length	**NONE**	The ERMA attribute *screen_length* corresponds with the TSSDS attribute *scrlength* in table **ehchamwl.**

APPENDIX A.3
TABLE TO TABLE / ATTRIBUTE TO ATTRIBUTE COMPARISON MATRIX

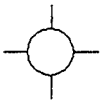
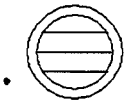
ERMA TABLE	CORRESPONDING TSSDS TABLE	ERMA ATTRIBUTE*	CORRESPONDING TSSDS ATTRIBUTE	COMMENTS
		screen_top_depth	**NONE**	The ERMA attribute *screen_top_depth* corresponds with the TSSDS attribute *sbdepth* in table **ehchamwl.**
		screen_bot_depth	**NONE**	**NONE**
		pump_type	**NONE**	**NONE**
		pump_depth	**NONE**	**NONE**
		pump_instal_date	**NONE**	**NONE**
		pump_id	**NONE**	**NONE**
		remarks	**NONE**	The ERMA attribute *remarks* corresponds with the TSSDS attribute *comments* in table **ehchamwl.**
lithology	**NO CORRESPONDING TSSDS TABLE.**			
strat_pen	**NO CORRESPONDING TSSDS TABLE.**			
fluid_pen	**NO CORRESPONDING TSSDS TABLE.**			
strat_unit	**NO CORRESPONDING TSSDS TABLE.**			
fluid	**NO CORRESPONDING TSSDS TABLE.**			
sect_line	**NO CORRESPONDING TSSDS TABLE.**			
sect_vert	**NO CORRESPONDING TSSDS TABLE.**			

NOTES: * indicates that detailed definitions of ERMA attributes appear in the attached data dictionary.

APPENDIX A.4
ENVIRONMENTAL SYMBOLOGY COMPARISON: COMMON FEATURES

FEATURE	ERMA SYMBOL	TSSDS SYMBOL
Water Supply Well	 fcode: E0028 font: 101 symbol: T	 symbol: WTWELL library: utwat notes: none
Water Level / Date	 fcode: E0010 font: 101 symbol: j	 symbol: gtwldl library: sogen notes: none
Angle Core	 fcode: E0005 font: 101 symbol: e	 symbol: gtacad library: gelth notes: none
Core Penetrometer	 fcode: E0008 font: 101 symbol: h	 symbol: gtcnh library: soget notes: none
Undisturbed Sample	 fcode: E0009 font:101 symbol: i	 symbol: gtceus library: sogen notes: exploratory boring.
Piezometer Location	 fcode: E0004 font: 101 symbol: d	 symbol: gtcebp library: sogen notes: exploratory boring/piezometer

APPENDIX A.4
ENVIRONMENTAL SYMBOLOGY COMPARISON: COMMON FEATURES

FEATURE	ERMA SYMBOL	TSSDS SYMBOL
Dry Hole/Abandoned Well*	 fcode: N/A font:101 symbol: B	 symbol: gtdhaw library: sogen notes: none
Oil Well*	 fcode: N/A font: 101 symbol: C	 symbol: gtoiwl library: getec notes: none
Gas Well*	 fcode: N/A font: 101 symbol: E	 symbol: gtgswl library: getec notes: none
Proposed Exploration	 fcode: E0003 font: 101 symbol: c	 symbol: gtpesb library: sogen notes: none
Washboring	 fcode: E0001 font: 101 symbol: a	**No Symbol** symbol: library: notes:
Vertical Core	 fcode: E0002 font: 101 symbol: b	**No Symbol** symbol: library: notes:

APPENDIX A.4
ENVIRONMENTAL SYMBOLOGY COMPARISON: COMMON FEATURES

FEATURE	ERMA SYMBOL	TSSDS SYMBOL
Standard Penetration Test Hole	 fcode: E0006 font: 101 symbol: f	**No Symbol** symbol: library: notes:
Standard Penetration Test Core	 fcode: E0007 font: 101 symbol:g	**No Symbol** symbol: library: notes:
Water Well	 fcode: E0012 font: 101 symbol: l	**No Symbol** symbol: library: notes:
Dual Completion Well	 fcode: E0013 font: 101 symbol: m	**No Symbol** symbol: library: notes:
Purge Well	 fcode: E0014 font: 101 symbol: n	**No Symbol** symbol: library: notes:
Prime Well	 fcode: E0015 font: 101 symbol: o	**No Symbol** symbol: library: notes:

APPENDIX A.4
ENVIRONMENTAL SYMBOLOGY COMPARISON: COMMON FEATURES

FEATURE	ERMA SYMBOL	TSSDS SYMBOL
Water Monitor Well	 fcode: E0016 font: 101 symbol: p	**No Symbol** symbol: library: notes:
Surface Samples	 fcode: E0017 font: 101 symbol: q	**No Symbol** symbol: library: notes:
Location	 fcode: E0018 font: 101 symbol: r	**No Symbol** symbol: library: notes:
Sampling Well	 fcode: E0019 font: 101 symbol: s	**No Symbol** symbol: library: notes:
Stab Well	 fcode: E0020 font: 101 symbol: t	**No Symbol** symbol: library: notes:
Location	 fcode: E0021 font: 101 symbol: u	**No Symbol** symbol: library: notes:

APPENDIX A.4
ENVIRONMENTAL SYMBOLOGY COMPARISON: COMMON FEATURES

FEATURE	ERMA SYMBOL	TSSDS SYMBOL
Location	 fcode: E0022 font: 101 symbol: v	**No Symbol** symbol: library: notes:
Location	 fcode: E0023 font: 101 symbol: w	**No Symbol** symbol: library: notes:

Introducing the ERMA Data Dictionary

This document contains detailed information about the project schemas, domains, and features delivered with ERMA Data Manager. The project schemas are defined in this section. The delivered domain values are listed and defined in "Basic Environmental/Geology Domains." The feature information is provided in "Feature Information." All of this information is useful for understanding the schema structures, planning project customization, and creating joins and views.

Schema Definitions

The Data Manager project schemas provide database tables, columns, and domains that are useful for environmental/geology projects. You can use any one of these schemas when creating an ERMA project, or you can use an existing project schema provided it conforms to the default configuration of the ERMA schemas.

Each schema definition includes a table/join-column diagram, descriptions of the database tables in that schema, and definitions of the data types/values that can be stored in each column. Required columns, key columns, index columns, and the columns for which Data Manager delivers default domain values are also noted.

Note: Required columns must not be deleted from the schema definition, or else the software may not function properly. You can, however, supply null values for many columns, except where indicated by "not null." *(Not null* means that you must supply a data value, not a null value.)

Key columns are columns that have a unique combination of values. Key columns prevent the creation of duplicate records during project database upgrades.

Data Manager uses *index columns* to create a *lookup* index for each database table. Lookup indexes improve the speed at which records are retrieved during database query operations.

Minimum Database Schema

The Minimum Database schema contains one table (**mscatalog**) that MicroStation requires, twelve core Geographic Information System (GIS) tables (**attribute_catalog**, **category**, **domain_catalog**, **feature**, **join_catalog**, **label**, **list_domain**, **maps**, **range_domain**, **view_catalog**, **view_content**, and **view_join**) that MGE requires, two tables (**dbrelations** and **db_report**) that Data Manager requires, and a set of feature extensions required by the mapping software. This schema is the minimum schema required for successful operation of the basic

GIS components that underly the ERMA software. These tables, which are also included in the rest of the ERMA project schemas, are required for an ERMA project to function properly. (For information on defining attributes for MGE tables, see *MGE Getting Started.*)

Basic Environmental Schema

The Basic Environmental schema contains all of the tables in the Minimum Database schema, four additional tables (**sample_data**, **sample_location**, **analytic_methods**, and **analytic_results**) for storing basic sampling information and analytical results, and three tables (**list_an_mthd**, **list_val_name**, and **list_cas_num)** that store optional domain values. (For information on the optional domains, see "Basic Environmental/Geology Domains.")

The Basic Environmental schema is designed to store and manage basic environmental sample data, regardless of where and how the samples are obtained. Therefore, a project created using this schema can be used to study air, surface water, shallow ground, or ambient environments. If a more comprehensive database structure is necessary, you can use the Minimum Geology schema or the Basic Environmental/Geology schema. You can also expand your project using any or all of the optional tables and columns delivered with the Basic Environmental/Geology schema. (For more information, see "Optional Database Tables and Columns.")

The four additional data tables (**sample_location**, **sample_data**, **analytic_methods**, and **analytic_results)** provide a structure for storing generic locations of samples or observations and the corresponding analytical results. These tables are suggested for effective management of sample data, but are not required by the software. If you have existing data structures that contain the same basic data, you can use a preexisting design. However, the table that stores the sample locations (for example, the easting/northing coordinate values) must have two specific attributes or table columns in order for the software to provide a graphic linkage with the database. These columns, *mslink* and *mapid*, are defined in Table 1.1, Sample Location Table Data Dictionary.

The data model in Figure 1.1 shows the table relationships in the Basic Environmental schema. A record in the **sample_location**

table may be associated with several records in the **sample_data** table. For example, if you have a monitoring station set up at a specific location, you will obtain numerous samples over time, all having the same location. Each record in the **sample_location** table must be uniquely identified by a 20-character name in the *location_name* column, which links the **sample_location** table to the **sample_data** table. And each record in the **sample_data** table must be uniquely identified by a 12-character identification in the *sample_id* column in that table. These linkages are called *joins*.

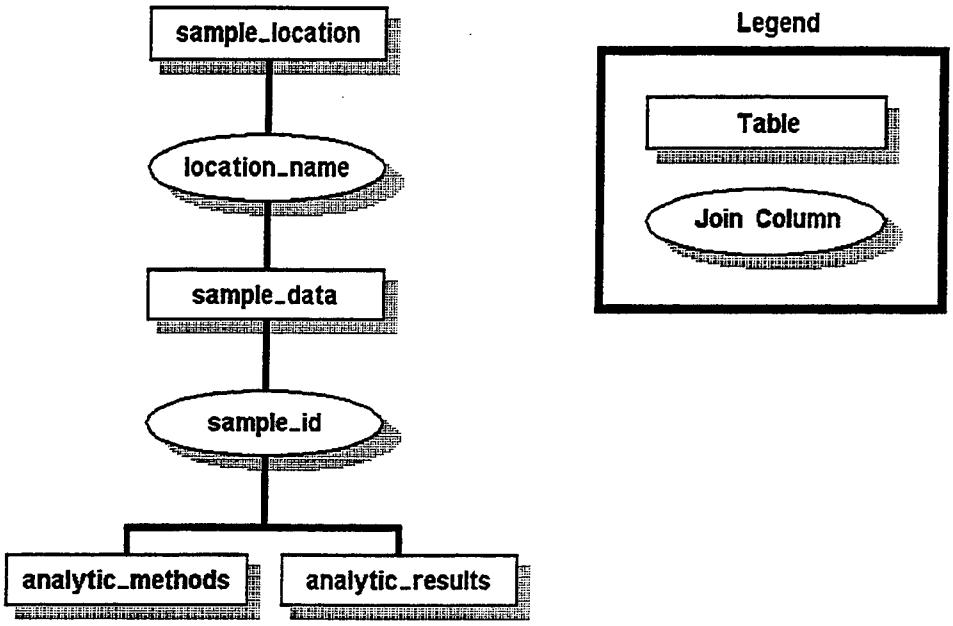


Figure 1.1 Data Model for the Basic Environmental Schema

As shown in the data model, the **sample_data** table may be associated with several records in the **analytic_methods** table and/or in the **analytic_results** table. The **analytic_methods** table stores information about how the samples were actually analyzed in the laboratory. As a result, you may have multiple records for each of the sample partitions, such as volatile organics, inorganics, and filtered metals, that were subjected to different procedures. The **analytic_methods** table and the **sample_data** table share the same 12-character unique *sample_id* column (and thus are joined

by this column) that lets you find all the tests to which a specific sample was subjected.

The **analytic_results** table stores each analytical result generated by some type of testing procedure. There will be a unique record for every different component that was analyzed. The **analytic_results** table also has the 12-character unique *sample_id* column that joins the results to the **sample_data** table, in addition to a unique 12-character *value_name* that describes the chemical component that was analyzed.

Table 1.1 Sample Location Table Data Dictionary

(ERMA Database Table Name: **sample_location**)

Description: This table is used to store general information about the locations from which samples were taken at the project site. Each record must contain a unique location name.

Column	Required	Type (Size)	Definition
creation_date[1]	yes	integer	The date (in the format YYYYMMDD) that the record is entered into the database. (This column is automatically filled by Data Manager.)
revision_date[1]	yes	integer	The last date (in the format YYYYMMDD) that the record was modified. (This column is automatically filled by Data Manager.)
mslink[1]	yes, not null	integer	An integer that uniquely identifies a row. MicroStation uses this value to specify the row to which a graphic element is linked. MGE also requires this column for any attribute tables that are associated with features. (This column is automatically filled by Data Manager.)
mapid	yes	integer	An integer that represents a linkage to a specific drawing file. This column is required by MGE in order for the table to be associated with a feature. (This column, which is automatically filled when using GeoIndex, occurs with the same specifications in the **sample_location**, **sample_data**, **well**, and **well_sample_data** tables.)

[1] This column occurs in all the tables in this and other ERMA schemas. This column's specifications are the same wherever it occurs. To conserve space in this document, the specification is not repeated.

fcode	yes	character (12)	A code that joins this table to the MGE **feature** table. This code may be used to provide the proper graphical symbology when generating maps and posting information that is stored in this table. (This column occurs with the same specifications in the **sample_location**, **sample_data**, **analytic_results**, **fluid**, **fluid_pen**, **lithology**, **sect_line**, **sect_vert**, **strat_pen**, **strat_unit**, **well**, **well_completion**, and **well_sample_data** tables.) It is recommended that you use a different fcode for each location type defined in the *location_type* column.
location_name (key column, index column)	yes, not null	character (16)	A unique name for the physical location where a sample is collected. Examples are an NPDES discharge point and a meteorological tower. Each sample collection point must have a unique name in the database. (This column joins this table to the **sample_data** table.)
location_status	no	character (3)	A value that represents the operational status and relative quality of the sampling location. The default domain set was derived from the EPA's GRITS (GRoundwater Information Tracking System) schema that relates to QA of the sampling station.[2]
location_type	no	character (3)	A value that represents the type of sampling location. Examples are ambient air, cone penetrometer, sediment, and surface water.[2]
reference_elev	no	double	The elevation of the sample location. (This value is required if you want the data to appear in its proper location in a 3-D graphics file.)[3]
ref_elev_descrp	no	character (15)	A brief narrative description of the *reference_elev* column value. Examples are top of casing and ground surface.
longitude	no	double	An optional numerical value that represents the sample location's longitude coordinate. (If the projection system is known, this value can be calculated by the system from the easting value.)
latitude	no	double	An optional numerical value that represents the sample location's latitude coordinate. (If the projection system is known, this value can be calculated by the system from the northing value.)

[2] For default values, see the appropriate domain set in this document. You can supplement default domains with your own values.

[3] The units must be consistent with the units specified during project creation.

easting	no	double	An optional numerical value that represents the sample location's easting coordinate, which may apply to many different projection systems. However, the system expects all eastings in this table to be from the coordinate system specified during project creation. (If necessary, easting coordinates can be converted during data translation or during data loading. For information on **Data Loader**, see "Loading, Reviewing, and Retrieving Data" in *Working with ERMA Data Manager*.) (This value is required if you want to use any of the Data Manager database posting processes.)
northing	no	double	An optional numerical value that represents the sample location's northing coordinate, which may apply to many different projection systems. However, the system expects all northings in this table to be from the coordinate system specified during project creation. (If necessary, northing coordinates can be converted during data translation or during data loading. For information on **Data Loader**, see "Loading, Reviewing, and Retrieving Data" in *Working with ERMA Data Manager*.) (This value is required if you want to use any of the Data Manager database posting processes.)

Table 1.2 Sample Data Table Data Dictionary
(ERMA Database Table Name: **sample_data**)

Description: This table is used to store information that identifies and describes the samples collected at a particular location. Each record must contain a unique sample identification and a unique location name (the name of the location at which the sample was taken).

Column	Required	Type (Size)	Definition
sample_id (key column, index column)	yes, not null	character (12)	A unique character string that identifies a specific sample specimen. (This column joins this table to the **analytic_methods** and **analytic_results** tables.)

location_name	yes, not null	character (20)	A unique name for the physical location where a sample was collected. Examples are an NPDES discharge point and a meteorological tower. Each sample collection point must have a unique name within the project database. (This column joins this table to the **sample_location** table.)
samp_event_grp	no	character (20)	An optional description that indicates the sampling event date or grouping for which this sample was collected. Examples are Q1-94 (first quarter of 1994) and FEB94 (monthly sampling plan for February 1994). (This column facilitates database searches based on qualitative time constraints.)
collection_date	no	integer	The date (in the format YYYYMMDD) that the sample was collected.
collection_time	no	integer	The time (based on the 24-hour clock in the format HHMM) that the sample was collected.
collection_meth	no	character (2)	A value that represents a sample collection method. Examples are undisturbed bulk sample, time-weighted composite, and grab samples.[2]
sampling_equip	no	character (2)	A value that represents a type of sampling equipment. Examples are air canister, bailer, hand auger, split spoon, and swab.[2]
sample_type	no	character (2)	A value that represents (from a QA perspective) a type of collected sample. Examples are equipment blank, column duplicate, and normal environmental sample.[2]
sample_matrix	no	character (2)	A value that represents a medium for sample specimens. Examples are soil gas, purge water, animal tissue, filtered water, and equipment wash water.[2]
remarks	no	character (40)	Descriptive comments related to this sample record.

[2] For default values, see the appropriate domain set in this document. You can supplement default domains with your own values.

Table 1.3 Analytical Methods Table Data Dictionary

(ERMA Database Table Name: **analytic_methods**)

Description: This table is used to store information that describes the laboratory where the samples were analyzed, when the samples were analyzed, and how they were analyzed. Each record must contain a unique sample identification.

Column	Required	Type (Size)	Definition
sample_id (key column, index column)	yes, not null	character (12)	A unique character string that identifies a specific sample specimen. (This column joins this table to the **sample_data** table.)
lot_control_num	no	character (4)	A value that designates a set of samples that comprise an autonomous group of field samples and field QC. This column is defined consistently with the Air Force's IRPIMS (Installation Restoration Program Information Management System) database.
lab_name	no	character (20)	The analytical laboratory that performed the analysis of a sample. This can optionally be made into a domain set.
lab_sample_id (key column, index column)	yes	character (12)	A unique identifier assigned to the sample by the laboratory and included in the reporting of the results.
lab_recd_date	no	integer	The date (in the format YYYYMMDD) that the sample was received by the laboratory.
case_number	no	character (5)	A label assigned by the laboratory to a group of samples collected from a particular site over a given time period.
sdg_number	no	character (6)	The SDG (Sample Delivery Group) number. This number is the first sample number that accompanies a group of samples.
lab_rpt_name	no	character (20)	A laboratory report name that corresponds to the analytical methods and/or results.
analysis_protocl	no	character (4)	A value that represents a laboratory protocol for testing methodologies. Examples are ASTM and CLP.[2]
analysis_class	no	character (5)	A value that represents a major analysis grouping based on the characteristics of the compounds in the sample. Examples are FMET (filtered metals) and SVOA (semi-volatile organics).[2]
analysis_method	no	character (6)	A value that represents a standard method of analysis associated with a specific parameter or analyte. Examples are A403 (alkalinity) and CLP390 (Contractor Lab Program).[2]

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

analysis_basis	no	character (1)	A value that represents the basis under which the laboratory's results are reported. Examples are W (wet) and D (dry).[2]
extract_method	no	character (6)	A value that represents the standard laboratory method used to extract/prepare a sample for a particular analysis. Examples are A412B (total cyanide after distillation) and SW3010 (digestion for total metals).[2]
extraction_date	no	integer	The date (in the format YYYYMMDD) that the sample was extracted by the laboratory.
extraction_time	no	integer	The time (based on a 24-hour clock in the format HHMM) that a laboratory extraction was performed.
analysis_date	no	integer	The date (in the format YYYYMMDD) that the sample was analyzed by the laboratory.
analysis_time	no	integer	The time (based on a 24-hour clock in the format HHMM) that a laboratory analysis was performed.
column_type	no	character (4)	A value that represents the column used in the laboratory procedure. Examples include CAP for capillary and PACK for packed fields.[2]

Table 1.4 Analytical Results Table Data Dictionary
(ERMA Database Table Name: **analytic_results**)

Description: This table is used to store information that identifies the samples that were analyzed and describes the results of the analyses. Each record must contain a unique sample identification and the name of the chemical or analyte found in the sample.

Column	Required	Type (Size)	Definition
sample_id (key column, index column)	yes, not null	character (12)	A unique character string that identifies a specific sample specimen. (This column joins this table to the **sample_data** table.)
sample_partition	no	character (5)	A value that identifies a subset of the containers in a sample that is required for a particular analysis. Examples are FMET (filtered metals) and SVOA (semi-volatile organics).[2]
measured_value	no	double	The reported result associated with the analysis for this constituent.
value_units	no	character (8)	The reported units of measure associated with the analysis result in the *measured_value* column. You can define a domain set for this column.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

value_name (key column, index column)	yes, not null	character (12)	A value that represents an abbreviated commonly used name of a constituent or analyte. Examples are PCE (tetrachloroethene) and TCE (trichloroethylene).[2]
cas_number	no	character (12)	A value that contains a Chemical Abstract Services number for a constituent or analyte. Examples are 79-34-5 (tetrachloroethane) and 79-01-6 (trichloroethylene).[2]
detection_limit	no	double	The laboratory-supplied minimum detectable quantity of a parameter based on laboratory conditions, analytical method, or field conditions.
total_error	no	double	The estimated total error from any source of error in the reported value.
value_qualifier	no	character (2)	A qualifier that applies to the analytical result. (EPA or CLP flags can be entered.) Examples are < (less than) and J (the value is an estimated quantity).[2]
qa_qualifier	no	character (2)	A qualifier that applies when the quality of the result is suspect. An example is BO (organic samples, the analyte is found in the associated blank as well as in the sample indicating possible contamination of the blank).[2]

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

Minimum Geology Schema

The Minimum Geology schema contains all of the tables in the Minimum Database and Basic Environmental schemas, and eight additional tables (**well**, **strat_pen**, **strat_unit**, **fluid_pen**, **fluid**, **lithology**, **sect_line**, and **sect_vert**) for storing well and geologic data. This schema also includes additions to the MGE **feature** table.

The eight additional tables are the minimum table requirements for ERMA Site Geologist. These tables let you expand the database into more detailed subsurface investigations. The **well**, **strat_pen**, **strat_unit**, **fluid_pen**, **fluid**, and **lithology** tables are used to store data obtained during well drilling and construction, including stratigraphic, lithologic, and hydrologic data. The **sect_line** and **sect_vert** tables are used to manage cross sections.

Note: You cannot use an existing schema with Site Geologist unless the schema conforms to the default configuration of the Minimum Geology schema.

The data model in Figure 1.2 shows the table relationships in the Minimum Geology schema. The **well** table can also be used to store information on soil and/or rock borings. A record in the **well** table may have several records in each of the **strat_pen**, **fluid_pen**, and **lithology** tables. The **strat_unit** table manages the geologic column for the site by letting you define the stratigraphic formations, members, beds, and so forth, in the site. When a stratigraphic unit is encountered in a well, the elevation is stored in the **strat_pen** table, which is joined to a record in the **well** table (by the *well_name* column) and to a record in the **strat_unit** table (by the *strat_name* column).

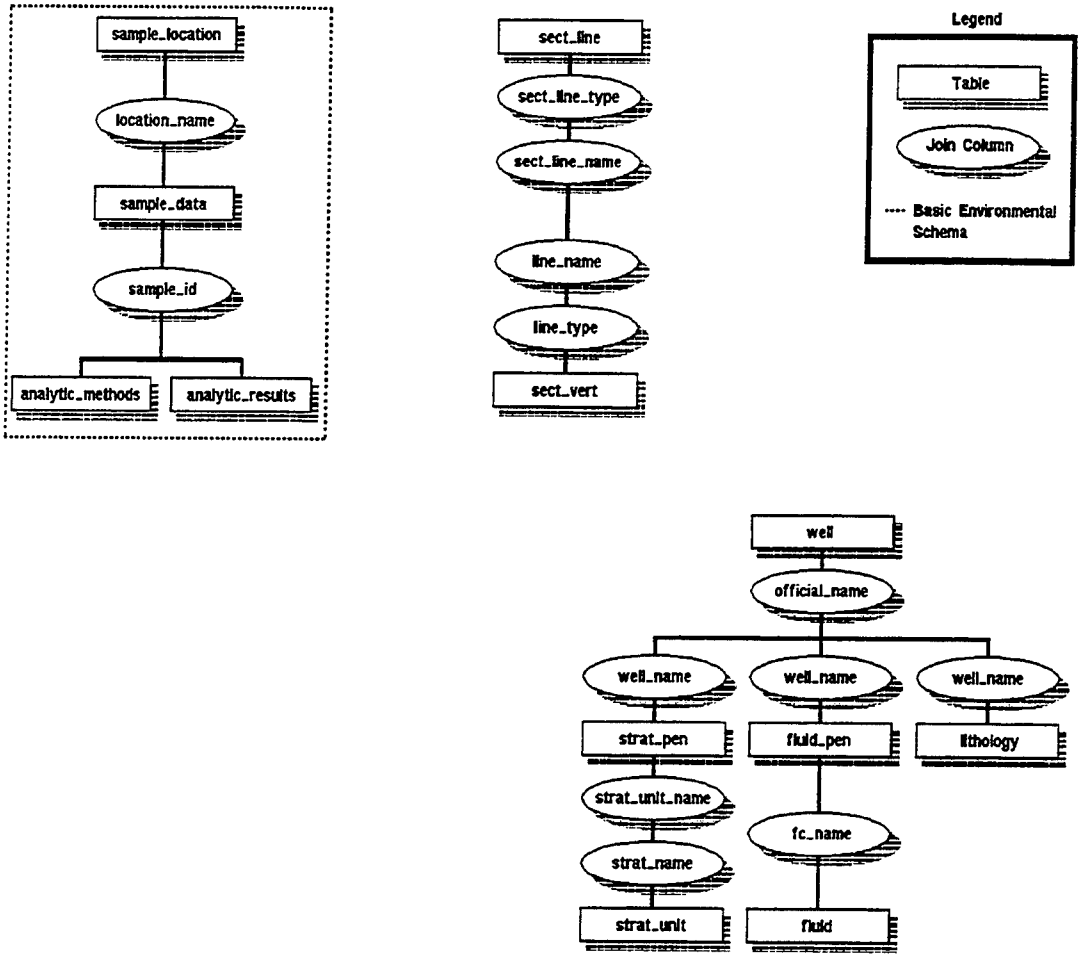


Figure 1.2 Data Model for the Minimum Geology Schema

The **fluid** table is used to store information about different types of fluids that may be encountered in the subsurface. When a fluid is encountered in a well, the water level is stored in the **fluid_pen** table, which is joined to a record in the **well** table (by the *well_name* column) and to a record in the **fluid** table (by the *fc_name* column). The impact of the **fluid** and **strat_pen** tables is found if you try to load a stratigraphic penetration without having defined the name of the geologic unit. You will not be able to load any fluid penetrations or stratigraphic units unless you have first defined the names of the fluids and stratigraphic units in the **fluid** and **strat_unit** tables, respectively.

Alternatively, the **lithology** table is more independent. You may use this table to store any changes in lithology that occur in the well. This table can also be used to store soil horizons, which are joined to the **well** table by the *well_name* column.

The **sect_line** and **sect_vert** tables are system tables and are used by the software to manage cross sections within ERMA Site Geologist. You do not have to have any direct interaction with these tables.

Table 1.5 Well Table Data Dictionary
(ERMA Database Table Name: **well**)

Description: This table is used to store location information for any type of data collection point having a range of depths associated with it, such as exploration well, monitoring well, soil boring, and so on. Each record must contain an official well name.

Column	Required	Type (Size)	Definition
official_name (key column, index column)	yes, not null	character (20)	A unique well name. (This column joins this table to the **strat_pen**, **fluid_pen**, and **lithology** tables.)
reference_elev	yes	double	The elevation of the location at which the well was drilled. (This value is required in order to establish the datum for all subsurface measurements coming from this well.)
total_depth	yes	double	The numerical value that represents the along-hole depth (AHD) to the bottom of the well.[3]
longitude	yes	double	A numerical value that represents the well's longitude coordinate. (This value can be calculated by the system from the easting value if the projection system is known.)
latitude	yes	double	A numerical value that represents the well's latitude coordinate. (This value can be calculated by the system from the northing value if the projection system is known.)

[3] The units must be consistent with the units specified during project creation.

easting	yes	double	A numerical value that represents the well's easting coordinate, which may apply to many different projection systems. However, the system expects all eastings in this table to be from the coordinate system specified during project creation. (If necessary, easting coordinates can be converted during data translation or during data loading. For information on **Data Loader**, see "Loading, Reviewing, and Retrieving Data" in *Working with ERMA Data Manager*.) (This value is required if you want to use any of the Data Manager or Site Geologist database posting processes.)
northing	yes	double	A numerical value that represents the well's northing coordinate, which may apply to many different projection systems. However, the system expects all northings in this table to be from the coordinate system specified during project creation. (If necessary, northing coordinates can be converted during data translation or during data loading. For information on **Data Loader**, see "Loading, Retrieving, and Reviewing Data" in *Working with ERMA Data Manager*.) (This value is required if you want to use any of the Data Manager or Site Geologist database posting processes.)
angle	yes	double	The angle of inclination (where 0 represents vertical and 90 represents horizontal) of the drill hole of a non-vertical well or borehole.
azimuth	yes	double	The azimuth angle that the hole (of a non-vertical well or borehole) is pointing toward. That is, you are standing at the collar of the well and looking in the direction of the bottom of the well. This direction is the azimuth. (0 represents north; 90 represents east; 180 represents south; and 270 represents west.)

Table 1.6 Stratigraphic Penetrations Data Dictionary

(ERMA Database Table Name: **strat_pen**)

Description: This table is used to store information that describes the penetrations of stratigraphic units (rock and soil units) by wells. Each record must contain a unique well name, a unique stratigraphic unit name, and the top along-hole depth (AHD) of the stratigraphic unit penetrated by the well.

Column	Required	Type (Size)	Definition
well_name (key column, index column)	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the **well** table and tells the software the easting/northing coordinates related to this subsurface data.)
strat_unit_name (key column, index column)	yes, not null	character (8)	A unique abbreviated name for the stratigraphic unit that was penetrated by the well. This value is not valid unless the same name has been entered in the *strat_name* column in the **strat_unit** table. (A more lengthy description can be entered in the *full_name* column in the **strat_unit** table.)
top_depth	yes, not null	double	The top AHD of the stratigraphic unit abbreviated in the *strat_unit_name* column (and specified in the *strat_name* column in the **strat_unit** table.) This value is used to post stratigraphic penetrations on boring logs, cross sections, and horizon maps.[3]
bottom_depth	yes	double	The bottom AHD of the stratigraphic unit abbreviated in the *strat_unit_name* column (and specified in the *strat_name* column in the **strat_unit** table). This value can be used to generate thickness maps for a specified stratigraphic unit.[3]
descript	no	character (80)	A description related to this stratigraphic penetration. This text can be posted to boring logs, cross sections, maps, and reports.

[3] The units must be consistent with the units specified during project creation.

Table 1.7 Fluid Penetrations Data Dictionary

(ERMA Database Table Name: **fluid_pen**)

Description: This table is used to store information that describes the penetrations of fluids by wells (fluid contacts). This includes the potentiometric surfaces of aquifers, immiscible fluids, or combinations of both. A fluid contact is a surface (in a reservoir) that separates two regions characterized by predominant differences in fluid saturations. Each record must contain a unique well name, a unique fluid name, and the top along-hole depth (AHD) of the fluid penetrated by the well.

Column	Required	Type (Size)	Definition
well_name (key column)	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the **well** table and tells the software the easting/northing coordinates related to this subsurface data.)
fc_name (key column, index column)	yes, not null	character (8)	A unique abbreviated name for the fluid that was penetrated by the well. Examples are static water and free product. This value is not valid unless the same name has also been entered in the *fc_name* column in the **fluid** table. (A more lengthy description can be entered in the *full_name* column in the **fluid** table.)
depth	yes, not null	double	A value that represents the AHD of the fluid specified in the *fc_name* column. This value is used in posting fluid contacts on boring logs, cross sections, and horizon maps.[3]
fc_date	no	integer	The date (in the format YYYYMMDD) that the fluid was measured. This optional value can be used to generate hydrographs.

[3] The units must be consistent with the units specified during project creation.

Table 1.8 Lithology Table Data Dictionary

(ERMA Database Table Name: **lithology**)

Description: This table is used to store lithological descriptions and qualifiers related to a well as determined from log analyses, core samples, and other means. Each record must contain a unique well name and the top along-hole depth (AHD) of the stratigraphic unit that contains this lithology.

Column	Required	Type (Size)	Definition
well_name (key column, index column)	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the **well** table and tells the software the easting/northing coordinates related to this subsurface lithology data.)
top_depth (key column)	yes, not null	double	The top AHD of the lithologic unit specified in the *lith_type* column. This value is used to post stratigraphic penetrations on boring logs, cross sections, and horizon maps.[3]
bottom_depth	yes	double	The bottom AHD of the lithologic unit specified in the *lith_type* column. This value can be used to generate thickness maps for a specified lithologic unit.[3]
strat_unit_name	no	character (8)	An optional specification of the stratigraphic unit that contains this lithologic unit.
lith_type (key column)	yes	character (2)	A value that represents a specific lithologic type. The default values include both the USCS (Unified Soil Classification System) and the USGS rock unit classes. Examples are GW (well-graded gravels) and SS (sandstone).[2] For each default value, Data Manager delivers a lithologic pattern feature and a pattern cell for geologic feature patterning in Site Geologist. (For more information, see *Working with ERMA Site Geologist*.)
descript	no	character (80)	A description related to this lithologic unit. This text can be posted to boring logs, cross sections, maps, and reports.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

[3] The units must be consistent with the units specified during project creation.

Table 1.9 Stratigraphic Units Table Data Dictionary
(ERMA Database Table Name: **strat_unit**)

Description: This table is used to store information about stratigraphic units (rock and soil) of significance to the characterization of the project site. Each record must contain a unique stratigraphic name.

Column	Required	Type (Size)	Definition
strat_name (key column, index column)	yes, not null	character (8)	A unique abbreviated name for a stratigraphic unit that exists in a project area. This value is required to load *strat_pen* entries for this geologic unit.
full_name	yes	character (30)	A more lengthy description of the stratigraphic unit name. This value is optional.
main_litho_type	no	character (2)	An optional value that represents the main lithologic type in this stratigraphic unit. The default values include both the USCS (Unified Soil Classification System) and the USGS rock unit classes. Examples are GW (well-graded gravels) and SS (sandstone).[2] For each default value, Data Manager delivers a lithologic pattern feature and a pattern cell for geologic feature patterning in Site Geologist. (For more information, see *Working with ERMA Site Geologist*.)
descript	no	character (80)	An optional description related to this stratigraphic unit.

Table 1.10 Fluid Table Data Dictionary
(ERMA Database Table Name: **fluid**)

Description: This table is used to store information about fluids present in the project area. Each record must contain a unique fluid name and a unique fluid type.

Column	Required	Type (Size)	Definition
fc_name (key column, index column)	yes, not null	character (8)	A unique abbreviated name for a fluid encountered in the project area. (This name is required for storing an associated depth value.) Examples are SW (static water) and FP (free product).
full_name	yes	character (30)	A more lengthy description of a fluid in the project area. For example, you might have specific names for water levels corresponding to each aquifer in the project.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

fc_type	yes, not null	character (4)	A value that classifies the fluid type. Examples are WAT (water) and FLP (floating product).
descript	no	character (40)	An optional description related to this fluid.

Table 1.11 Section Lines Table Data Dictionary
(ERMA Database Table Name: **sect_line**)

Description: This table is used to store information that describes cross-section lines. Each record must contain a unique cross-section line name. (This table is managed by the software; do not modify this table.)

Column	Required	Type (Size)	Definition
sect_line_name (key column, index column)	yes, not null	character (20)	A unique name for a cross-section line. You are prompted for this name when defining a cross-section line. The software also uses this column to present a list of section lines that you have created. (This column joins this table to the **sect_vert** table.)
sect_line_type (key column, index column)	yes	character (2)	A code that identifies the section line type. This column is automatically filled when you define a section line. (This column joins this table to the **sect_vert** table.)
descript	yes	character (80)	A description related to this section line. You are prompted for this information when defining a section line.

Table 1.12 Section Line Vertex Table Data Dictionary
(ERMA Database Table Name: **sect_vert**)

Description: This table is used to store information that describes section-line vertices. Each record must contain a unique line name and a unique cross-section hinge point or vertex. (This table is managed by the software; do not modify this table.)

Column	Required	Type (Size)	Definition
line_name (key column, index column)	yes, not null	character (20)	A unique name for a vertical cross-section. (This column joins this table to the **sect_line** table.)
line_type (key column, index column)	yes	character (2)	A code that identifies the section line type. (Site Geologist supports only datum-based sections.) (This column joins this table to the **sect_line** table.)
vert_number (key column)	yes, not null	real	A unique number that identifies a section-line hinge point or vertex.
vert_type	yes	character (4)	The vertex type (not used).
vert_label	yes	character (20)	A label for the vertex (not used).

longitude	yes	double	The longitude coordinate of the vertex specified in *vert_number*.
latitude	yes	double	The latitude coordinate of the vertex specified in *vert_number*.
easting	yes	double	The easting coordinate of the vertex (in project projection).
northing	yes	double	The northing coordinate of the vertex (in project projection).

Basic Environmental/Geology Schema

The Basic Environmental/Geology schema contains all of the tables in the Minimum Database, Basic Environmental, and Minimum Geology schemas, and three additional tables (**well_completion**, **well_sample_data**, and **down_hole_test**) for storing well-completion data, sample data, and other down-hole test data. It also includes four additional columns in the **well** table. This schema provides a functional database design for projects that involve subsurface site investigations.

The **well_sample_data** table contains the same information as the **sample_data** table in the Basic Environmental schema, and it can be joined in the same way to the **analytic_methods** and **analytic_results** tables. The **well_sample_data** table also contains columns for the well name and the depths at which the samples were taken. The **well_completion** table and the additional columns in the **well** table, provide a structure for storing information about the screening and back-filling methods used in well completion at various depths. The **down_hole_test** table provides a structure for storing information about down-hole tests, such as pressure tests.

The data model in Figure 1.3 shows the table relationships in the Basic Environmental/Geology schema. Note that the three additional tables (**well_completion**, **down_hole_test**, and **well_sample_data**) tie the tables in the Basic Environmental schema to the tables in the Minimum Geology schema. These additional tables are joined to the **well** table by the *well_name* column. There may be multiple records in each of these tables for one well record.

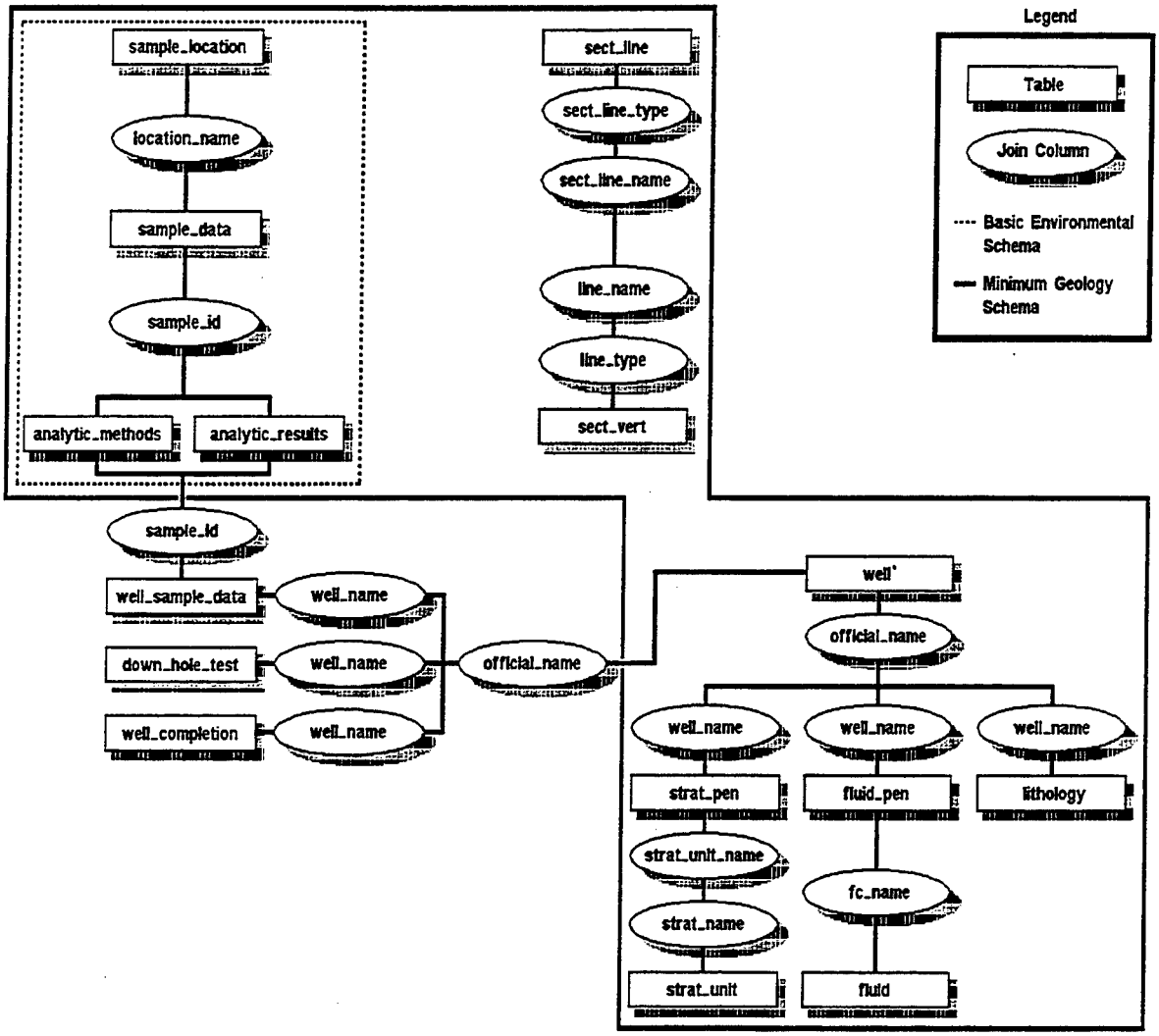


Figure 1.3 Data Model for the Basic Environmental/Geology Schema

Table 1.13 Well Table (extensions) Data Dictionary
(ERMA Database Table Name: **well**)

Column	Required	Type (Size)	Definition
well_status	no	character (3)	A value that represents the status of the well. Examples are Dry, Plugged, and In Use.[2]
well_type	no	character (3)	A value that represents the well type. Examples are Geologic Boring, Monitoring Well, and Soil Sample Location. (If you want different types of wells to have unique symbology when posting well locations, use **Post Bubble Map** to post well locations.)[2]
well_owner	no	character (25)	The name of the owner of the well or of a point of contact. Additional columns can be added for phone numbers and addresses.
completion_methd	no	character (3)	A value that represents the type of method used to complete the well installation. Examples are Gravel pack with screen, Natural fiber pack, and Open end.[2]

Table 1.14 Well Completion Table Data Dictionary
(ERMA Database Table Name: **well_completion**)

Description: This table is used to store information relating to the completion of wells when installation (and other purposes for which the well was drilled) is complete. This includes screening material, fill type, and pumping equipment that was used in the well. Each record must contain a unique well name.

Column	Required	Type (Size)	Definition
well_name (key column, index column)	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the **well** table and tells the software the easting/northing coordinates related to this completion data.)
hole_diameter	no	double	The diameter of the drilled hole in inches.
drill_start_date	no	integer	The date (in the format YYYYMMDD) that well drilling started
drill_compl_date	no	integer	The date (in the format YYYYMMDD) that well drilling is completed.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

drilling_method	no	character (3)	A value that represents the method used to drill the well. Examples are air hammer, hollow stem auger, and wireline coring.[2]
contractor	no	character (20)	The company that contracted the well drilling. You can define a domain set for this column.
driller_name	no	character (20)	The individual who supervised the well drilling.
strat_comp_zone	no	character (8)	The stratigraphic unit in which the well is completed. This name should be the same as the name in the *strat_name* column in the **strat_unit** table.
casing_top_elev	no	double	The elevation of the top of the casing upon completion of installation.[3]
casing_bot_depth	no	double	The total along-hole depth (AHD) to the bottom of the casing. (This value is a depth, not an elevation.) Rather than measured, the total AHD can be estimated by the amount of casing installed in the hole.[3]
casing_inner_dia	no	double	The inside diameter (in inches) of the well structure.
casing_outer_dia	no	double	The outer diameter (in inches) of the well casing.
casing_status	no	character (1)	A value that represents the status of the well casing. Examples are permanent, surface, and removed.[2]
casing_type	no	character (3)	A brief description of the casing material. Examples are carbon steel and stainless steel.[2]
seal_type	no	character (2)	A brief description of the type of seal used in the well. Examples are bentonite slurry and cement grout.[2]
seal_top_depth	no	double	The AHD of the seal top below the datum specified in the *ref_elevation* column in the **well** table.[3]
seal_bot_depth	no	double	The AHD of the seal bottom below the datum specified in the *ref_elevation* column in the **well** table.[3]
fill_type	no	character (2)	A brief description of the fill material used in the well. Examples are sand pack and gravel pack.[2]
fill_top_depth	no	double	The AHD of the top of the fill below the datum specified in the *ref_elevation* column in the **well** table.[3]
fill_bot_depth	no	double	The AHD of the bottom of the fill below the datum specified in the *ref_elevation* column in the **well** table.[3]

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

[3] The units must be consistent with the units specified during project creation.

screen_type	no	character (2)	A brief description of the type of screen used in the well. Examples are bridge slot and perforated pipe.[2]
screen_material	no	character (3)	A brief description of the screen material. Examples are carbon steel and PVC.[2]
screen_diameter	no	double	The diameter (in inches) of the screen.
screen_slot_size	no	double	The well-screen slot size in thousandths of an inch. An example is 10 (10/1000).
screen_length	no	double	The length of the interval that has been screened inside the well.
screen_top_depth	no	double	The along-hole depth (AHD) of the top of the screen below the datum specified in the *ref_elevation* column in the **well** table.[3]
screen_bot_depth	no	double	The AHD of the bottom of the screen below the datum specified in the *ref_elevation* column in the **well** table.[3]
pump_type	no	character (1)	A brief description of the pump installed in the well. Examples are organic/bladder and submersible.[2]
pump_depth	no	double	The AHD of the pump below the datum specified in the *ref_elevation* column in the **well** table.[3]
pump_instal_date	no	integer	The date (in the format YYYYMMDD) that the pump was installed in the well.
pump_id	no	character (10)	An equipment tracking number that provides a unique identifier or inventory control number for the equipment in the well.
remarks	no	character (80)	Descriptive comments related to this well-completion record.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.
[3] The units must be consistent with the units specified during project creation.

Table 1.15 Well Sample Data Table Data Dictionary

(ERMA Database Table Name: **well_sample_data**)

Description: This table stores information that identifies the samples collected, the sampling methods, and the locations along the well path at which the samples were taken. Each record must contain a unique sample identification, a unique well name, and the top along-hole depth (AHD) at which the sample was taken relative to the elevation of the location at which the well was drilled.

Column	Required	Type (Size)	Definition
sample_id (key column, index column)	yes, not null	character (8)	A unique character string that identifies a specific sample specimen.

well_name	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the **well** table and tells the software the easting/northing coordinates related to this subsurface data.)
top_depth	yes, not null	double	The top AHD of the sample specified in the *sample_id* column above. (Top depth is relative to the *ref_elevation* column value stored in the corresponding **well** table.) This value is used to post sample locations on boring logs, cross sections, and horizon maps.[3]
bottom_depth	no	double	The bottom AHD of the sample specified in the *sample_id* column above. (Bottom depth is relative to the *ref_elevation* column value stored in the corresponding **well** table.) This value is optional.[3]
samp_event_grp	no	integer	An optional description that identifies the sampling event date or grouping for which this sample was collected. Examples are Q1-94 (first quarter of 1994) and FEB94 (monthly sampling plan for February 1994). (This value facilitates database searches based on qualitative time constraints.)
collection_date	no	integer	The date (in the format YYYYMMDD) that the well sample was collected.
collection_time	no	integer	The time (based on a 24-hour clock in the format HHMM) that the well sample was collected.
collection_meth	no	character (2)	A value that represents the method used to collect the sample. Examples are undisturbed bulk sample, time-weighted composite, and grab samples.[2]
sampling_equip	no	character (2)	A value that represents the type of equipment used to collect the sample specimen. Examples are air canister, bailer, hand auger, split spoon, and swab.
sample_type	no	character (2)	A value that represents the type of sample collected from a QA perspective. Examples are equipment blank, column duplicate, and normal environmental sample.
sample_matrix	no	character (2)	A value that represents the medium for a sample specimen. Examples are soil gas, purge water, animal tissue, filtered water, and equipment wash water.
remarks	no	character (40)	Descriptive comments related to this well sample record.

[2] For default domain values, see "Domain Definitions" in this document. You can supplement default values with your own values.

[3] The units must be consistent with the units specified during project creation.

Table 1.16 Down-Hole Well Tests Table Data Dictionary
(ERMA Database Table Name: **down_hole_test**)

Description: This table stores information that describes the tests that were conducted in the wells. Each record must contain a unique well name, a unique test number, and the top along-hole depth (AHD) at which the test was performed relative to the elevation of the location at which the well was drilled.

Column	Required	Type (Size)	Definition
well_name (key column, index column)	yes, not null	character (20)	A unique name that identifies the well. (This column joins this table to the well table, and tells the software the e/n coordinates related to this subsurface data.)
test_number (key column)	yes, not null	small integer	A unique value that identifies a testing exercise conducted in the well.
contractor	no	character (20)	The company that contracted the well drilling. You can define a domain set for this column.
test_method	no	character (4)	The type of test conducted in the well. Examples are SPT (Standard Penetration Test), CPT (Cone Penetrometer Test), and VST (Vein Shear Test).
top_depth (index column)	yes	double	The top along-hole depth (AHD) of the section of the well that is being tested. (Top depth is relative to the *ref_elevation* column value stored in the corresponding well table.)[3]
bottom_depth	no	double	The bottom AHD of the test section. (Bottom depth is relative to the *ref_elevation* column value stored in the corresponding well table.)[3]
test_date	no	integer	The date (in the format YYYYMMDD) that the well was tested.
test_duration	no	real	The elapsed time (in the format HHMMSS) for the test results reported in the *measured_value* column.
measured_value	no	real	The result associated with the test.
value_name	no	character (20)	A value resulting from a test (either water or soil) conducted in the well. Examples are water: PCE (tetrachloroethene) and TCE (trichloroethylene); soil: permeability, core length, and natural gamma.
value_units	no	character (4)	The units of measure associated with the test results in the *measured_value* column. You can define a domain set for this column.
descript	no	character (80)	A description related to this down-hole test. This text can be posted to boring logs, cross sections, maps, and reports.

[3] The units must be consistent with the units specified during project creation.

Database Table Indexes

Minimum Database Schema

Table	Index Name	Unique (yes/no)	Index Column
attribute_catalog	ad_unique	yes	*tablename, columnname*
list_domain	ld_unique	yes	*ldomain, domainvalue*

Basic Environmental Schema

Table	Index Name	Unique (yes/no)	Index Column
sample_data	samp_id	yes	*sample_id*
sample_location	samp_ln	yes	*location_name*
analytic_methods	amth_isl	yes	*sample_id, lab_sample_id*
analytic_results	ares_idv	yes	*sample_id, value_name*
list_an_mthd	an_unique	yes	*domainvalue*
list_val_name	vn_unique	yes	*domainvalue*
list_cas_num	cn_unique	yes	*domainvalue*

Minimum Geology Schema

Table	Index Name	Unique (yes/no)	Index Column
fluid	fc_uname	yes	*fc_name*
fluid_pen	fdp_fcname	no	*fc_name*
lithology	lith_wname	no	*well_name*
sect_line	xsl_mslink	yes	*mslink*
sect_line	xsl_nametp	yes	*sect_line_name, sect_line_type*
sect_vert	xsv_line_nmtp	no	*line_name, line_type*
sect_vert	xsv_mslink	yes	*mslink*
strat_pen	stp_suname	no	*strat_unit_name*
strat_pen	stp_wname	no	*well_name*
strat_unit	st_sname	yes	*strat_name*
well	wl_oname	yes	*official_name*

Basic Environmental/Geology Schema

Table	Index Name	Unique (yes/no)	Index Column
down_hole_test	dh_tdep	no	*well_name, top_depth*
well_completion	wcomp_wn	yes	*well_name*
well_sample_data	wsamp_id	yes	*sample_id*

Optional Database Tables and Columns

Data Manager provides a set of optional database tables and columns that you can use to supplement or expand your ERMA project database. The optional tables and columns are delivered with the Basic Environmental/Geology schema.

You can examine the optional tables and columns by opening the *\ermadm\cfg\optional.cd* file using the editor of your choice through **File Manager**. (For information on incorporating some or all of these tables and columns into your project database, see "Optional Data Definition Files" in *ERMA Data Manager Help.)*

Basic Environmental/Geology Domains

This section provides definitions of each of the values in the default domain sets delivered with Data Manager. The domain set numbers are provided for reference when using **DDF Editor** to modify and/or supplement the delivered domains with your own values.

Note: To access **DDF Editor**, select **Tools > ERMA Data Manager** from the MGE window to open the **ERMA Data Manager Tools** dialog box. Then select **DDF Editor** and click **OK** to open the **DDF Table Editor** dialog box. For more information and an exercise on using **DDF Editor**, see "Creating, Customizing, and Upgrading an ERMA Project" in *Working with ERMA Data Manager*.

Delivered Domain Definitions

Table	Column	Domain #	Value	Definition
sample_location	*location_status*	13216	A	Station has been inspected in last 5 years and meets study objectives
			B	Station was constructed in accordance with regulating agency guidelines
			C	Station is inadequate in some manner
sample_location	*location_type*	13203	AA	Ambient air
			BR	Nonfixed location receptable, including barrels and containers
			CP	Cone penetrometer/hydropunch
			FW	Faucet/tap
			OC	Outcrop
			QC	Field QC sample
			SA	Screened water
			SB	Soil boring
			SD	Sediment
			SS	Surface survey
			SSGP	Geophysics
			SSSG	Soil gas
			SSMG	Methane gas
			SW	Surface water
			SWCH	Channel/ditch
			SWLK	Lake/pond
			SWRV	River/stream
			SWSE	Seep
			SWSP	Spring
			TK	Fixed-location receptable, including tanks, containers, vats
			TP	Test pit
			TR	Trenching
			UN	Unknown
sample_data, well_sample_data	*collection_meth*	13201	BL	Undisturbed bulk sample
			CF	Flow-weighted composite
			CS	Composite sample
			CT	Time-weighted composite
			DB	Disturbed bulk sample
			GR	Grab
			NA	Not applicable
			OT	Other
			QC	Quality-control samples

			UN	Unknown
sample_data, well_sample_data	*sampling_equip*	13202	AC	Air canister
			AL	Air lift sampler
			AP	Air lift pump
			AS	Ashing
			BA	Bailer
			BR	Brass (California) ring
			BP	Gas-operated bladder pump
			CF	Continuous-flight auger
			CH	Charcoal sampling tube
			CL	Clover-leaf dredge sampler
			CP	Centrifugal pump
			CR	Cutting returns
			DS	Drive sample (2-inch/ASTM-D1586)
			E1	Electrical submersible pump (pre-1982)
			E2	Electrical submersible pump (1982+)
			EK	Eckman dredge sampler
			GD	Electrical submersible pump (gear-driven)
			GP	Gas-operated, double-acting piston pump
			HA	Hand auger
			HB	Hand-bucket auger
			HR	Electrical submersible pump (helical rotor)
			HS	Hollow-stem auger
			HV	High-volume air sample
			KS	Kemmeter sampler
			LY	Lysimeter
			NA	Not applicable
			NQ	NQ wireline rock coring (ASTM-D2113)
			NX	NX rock coring (ASTM-D2113)
			PI	Piston pump
			PP	Peristaltic pump
			SC	Scraped from exposed surface
			SH	Shelby tube (ASTM-D1587)
			SL	Suction-lift pump
			SP	Submersible pump
			SS	Split spoon
			ST	Submersible turbine pump
			SW	Swab or wipe
			SY	Syringe
			TS	Thief sample and/or thief type sampler
			TU	Tube sampler (3"/ASTM-D3550)

			UN	Unknown
			VD	VanDorn sampler
			WF	Wellhead faucet (grab sample from)
sample_data, well_sample_data	*sample_type*	13204	AB	Ambient conditions blank
			AV	Average of QA duplicates
			BD	Blank-spike duplicate
			BS	Blank spike
			EB	Equipment blank
			FD	Field duplicate
			FR	Field replicate/duplicate
			FS	Field spike
			KD	Known (external reference material) duplicate
			LB	Lab blank
			LR	Lab replicate
			MB	Material blank
			MS	Lab-matrix spike
			NE	Normal environment sample
			RB	Material rinse blank
			RD	Regulatory duplicate
			RM	Known (external reference material)
			SD	Lab-matrix spike duplicate
			TB	Trip blank
sample_data, well_sample_data	*sample_matrix*	13205	AB	Ambient air
			AQ	Air quality-control matrix
			DC	Drill cuttings
			DW	Development water
			LD	Drilling fluid
			LF	Floating/free product on groundwater table
			LO	Oil, all types
			PW	Purge water
			SE	Sediment (assoc. w/surface H_20)
			SG	Soil gas
			SL	Sludge
			SO	Soil
			SQ	Soil quality-control matrix
			SS	Scrapings
			SW	Swab or wipe
			TA	Animal tissue
			TP	Plant tissue
			TQ	Tissue quality-control matrix
			WD	Well development water
			WE	Estuary

			WF	Filtered water
			WG	Ground water
			WH	Equipment wash water
			WL	Leachate
			WM	Special water-quality-control matrix
			WO	Ocean water
			WP	Drinking water
			WQ	Water quality control matrix
			WR	Filtered residue water
			WS	Surface water
			WU	Unfiltered water
			WW	Waste water
analytic_methods	*analysis_protocl*	13206	ASTM	ASTM standard procedures
			CLP	U.S. EPA's Contract Lab Program, CLP
			OTH	Other
			SW	U.S. EPA's Test Methods for Evaluating Solid Waste, SW-846
			UNK	Unknown
analytic_methods	*analysis_class*	13207	FMET	Filtered metals
			INORG	Inorganics
			ORG	Organics
			OTH	Other
			SVOA	Semi-volatile organics
			VOA	Volatile organics
analytic_methods	*analysis_method*	13208		For domain values and definitions, see *\ermadm\cfg\an_mthd.txt*
analytic_methods	*analysis_basis*	13209	D	Dry
			W	Wet
analytic_methods	*extract_method*	13210	A412B	Total Cyanide after Distillation
			A503D	Sludge Samples (Soil, Sediment, Sludge)
			DISWAT	Leaching of Analyte from Soil Samples using Distilled Water
			EXPTOX	Toxicant Extraction Procedure
			FDA01	Food & Drug Admin. Prep. Method for Tissue Prior to Organic Analysis
			FLDFLT	Field Filtering for Dissolved Metals
			FLT	Filtered Sample (0.45 micron)
			FLTRES	Residue after Filtering (0.45 micron)
			METHOD	Extraction Method Specified in Analytical Method

			NONE	No Extraction Required for this Method
			REACT	Reactivity
			SW1210	Extraction Procedure (EP) TOX Method & Structural
			SW1320	Multiple Extraction Procedure
			SW1330	Extraction Procedure for Oily Wastes
			SW3005	Digestion for Total Recoverable Metals for Flame for Flame AA and ICP
			SW3010	Digestion for Total Metals
			SW3020	Digestion for Total Metals for Furnace AA
			SW3040	Dissolution Procedure for Oils, Greases, or Waxes
			SW3050	Acid Digestion of Sediments, Sludges, and Soils
			SW3500	Organic Extraction and Sample Preparation
			SW3510	Separatory Funnel Liquid-Liquid Extraction
			SW3520	Continuous Liquid-Liquid Extraction
			SW3540	Soxhlet Extraction
			SW3550	Sonication Extraction
			SW3580	Waste Dilution
			SW3610	Alumina Column Cleanup
			SW3611	Alumina Column Cleanup and Separation of Petroleum Wastes
			SW3620	Florisil Column Cleanup
			SW3630	Silica Gel Cleanup
			SW3640	Gel-permeation Cleanup
			SW3650	Acid-base Partition Cleanup
			SW3660	Sulfur Cleanup
			SW5030	Purge and Trap
			SW5040	Protocol for Analysis of Sorbent Cartridges from Volumne Organics
			SW9071	Oil and Grease Extraction Method for Sludge Samples
			TOTAL	$HN0_3$ Digestion of Unfiltered Waters for Total Metals
			TOTREC	Total Recoverable Digestion of Unfiltered Sample for Metals
analytic_methods	*column_type*	13211	CAP	Capillary
			PACK	Packed
analytic_results	*sample_partition*	13207	FMET	Filtered metals
			INORG	Inorganics

			ORG OTH SVOA VOA	Organics Other Semi-volatile organics Volatile organics
analytic_results	*value_name*	13212		For domain values and definitions, see *\ermadm\cfg\val_name.txt*
analytic_results	*cas_number*	13213		For domain values and definitions, see *\ermadm\cfg\cas_num.txt*
analytic_results	*value_qualifier*	13214	< = > # I J L ND TR	Reported data is less than the contractual detection limit Equal to Reported data is greater than the contractual detection limit but not quantifiable above some upper limit Reported data is less than the contractual detection limit but still quantifiable Interference of co-elution Value is an estimated quantity Radiological data results are less than or equal to the counting error Not Detected Trace; between the contract detection recorded limit (CDRL) and the instrument detection limit (IDL)
analytic_results	*qa_qualifier*	13215	BI BJ BO D E	For inorganic samples, the reported value is less than the instrument detection limit The reported value is less than the instrument standardization but is greater than the instrument detection limit For organic samples, the analyte is found in the associated blank as well as in the sample. This indicates possible contamination of the blank. Analysis was performed at a secondary dilution factor Identifies compounds that occur in concentrations that exceed th calibration range of the GC/MS for that specific analysis

			JI	For inorganics, the analyte was tested for and detected. The associated numerical value is an estimated quantity usable for decision making.
			JO	For organics, the result is an estimated quantity. The mass-spectral data indicate the presence of a compound that meets the identification criteria, but the result is less than the contract-required quantitation limit and greater than zero.
			N	Spike sample recovery is outside control limits. Presumptive evidence of the presence of the analyte.
			NJ	Presumptive evidence of the presence of the material at an estimated quantity
			R	The data are unusable
			UI	For inorganics, the analyte is below the detection limits of the methods and instruments used. The associated numerical value is the calculated contract-required quantitation limit based on wet weight of the soil sample The contract-required quantitation limit based on dry weight is higher.
			UJ	The material was analyzed for but was not detected. The contract-required quantitation limit is estimated.
			UO	For organics, the analysis did not detect the material. The associated numerical value is th contract-required quantitation limit corrected for dilution and percent moisture.
lithology, strat_unit	*lith_type, main_litho_type*	10250	AH	Anhydrite
			AK	Arkose
			AL	Argillaceous limestone
			BR	Breccia
			CG	Conglomerate
			CH	Inorganic clays of high plasticity, fat clays
			CK	Chalk

CL	Inorganic clays of low to medium plasticity
CO	General coal (carbonaceous)
CY	Clay
DL	Dolomitic limestone
DM	Dolomite
DY	Dykes
EX	Extrusive (volcanic) rocks
GC	Clayey gravels, poorly graded gravel-sand-clay mixtures
GK	Greywacke
GM	Silty gravels, poorly graded gravel-sand-silt mixtures
GP	Poorly graded gravels, gravel-sand mixtures; little or no fines
GV	Gravel
GW	Well-graded gravels, gravel-sand mixtures; little or no fines
IG	Igneous rocks in general
IN	General intrusives (plutonics)
KM	Potassium and magnesium salts
LC	Limestone (calcareous)
LG	Lignite (brown coal)
LS	Sandy limestone
MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts
ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands with slight plasticity
MM	Metamorphics in general
MR	Marl
MS	Mudstone
NA	Halite
NP	No ASTM classification, problems in sampling
NU	No ASTM classification, reasons unknown
OH	Organic clays of medium to hig plasticity
OL	Organic silts and organic silt-clays of low plasticity
PT	Peat and other highly organic soils
QT	Quartzite
SA	Sand
SC	Clayey sands, poorly graded sand-clay mixtures
SH	Shale

			SJ	Silt
			SL	General salt (saliferous)
			SM	Silty sands, poorly graded sand-silt mixtures
			SP	Poorly graded sands, gravely sands; little or no fines
			SS	Sandstone
			ST	Siltstone
			SW	Well-graded sands, gravely sands; little or no fines
			TF	Tuff
			TI	Tillite diamictite
			VA	Volcanic agglomerate/breccia
			Z	Other
fluid	*fc_type*	10245	FLP	Floating Product
			OTH	Other
			WAT	Water
well	*well_status*	13401	CLO	Closed
			COL	Collapsed
			DAM	Damaged
			DRY	Dry
			NUS	Not usable
			OBS	Obstructed
			OTH	Other
			PLG	Plugged
			SCH	Scheduled
			UNK	Unkown
			USE	In use
well	*well_type*	13402	ABN	Abandoned well
			BCK	Background well
			EXW	Extraction well
			IJW	Injection well
			IRR	Irrigation well
			LEA	Leachate well
			MNW	Monitoring well
			OBS	Observation well
			OFF	Off-site well
			PRG	Purge well
			PRW	Production well (public water supply)
			PVT	Private water-supply well
			PZ	Piezometer
			QC	Quality control
			SB	Soil/Geologic boring
			SS	Soil-sample location
			SSH	Seismic shot hole
			TST	Test well

			VAP	Vapor well
			VW	Vadose well
well	*completion_ methd*	13403	C	Concrete, porous
			GP	Gravel pack with perforations
			GS	Gravel pack with screen
			H	Horizontal gallery/collector
			NP	Natural fiber pack
			OE	Open-end
			OP	Open
			OTH	Other
			P	Perforated or slotted
			S	Screen
			SP	Sand point
			UNK	Unknown
			W	Walled or shored
well_completion	*drilling_method*	13404	AH	Air hammer
			AP	Air percussion
			AR	Air rotary
			CO	Coring
			CT	Cable tool
			HA	Hollow-stem auger
			JT	Jetting
			MR	Mud rotary
			OTH	Other
			RR	Reverse rotary
			SA	Solid-stem auger
			UNK	Unkown
			WC	Wireline coring
			WR	Water rotary
well_completion	*casing_status*	13405	O	Other
			P	Permanent
			R	Removed
			S	Surface
			T	Temporary
			U	Unknown
well_completion	*casing_status screen_material*	13406	ABS	Acrylonitrile butadiene styrene
			BRK	Brick
			CBS	Carbon steel
			CNC	Concrete
			COP	Copper
			COS	Coated steel
			FBG	Fiberglass
			GLS	Galvanized steel
			LCS	Low carbon steel
			MET	Other metal
			OTH	Other

			P40	PVC schedule 40
			P80	PVC schedule 80
			PLA	Other plastics
			PLY	Polypropylene
			PVC	Polyvinyl chloride (PVC)
			RST	Rock or stone
			S30	Stainless steel 304
			S31	Stainless steel 3161
			SLS	Stainless steel
			STL	Steel
			TFL	Teflon
			TIL	Tile
			UNK	Unknown
			WD	Wood
			WRI	Wrought iron
well_completion	*seal_type*	13407	BF	Backfill
	fill_type		BP	Bentonite pellets
			BS	Bentonite slurry
			CG	Cement grout
			CH	Chemical grout
			CO	Concrete
			GB	Granular bentonite
			GP	Gravel pack
			OT	Other
			SP	Sand pack
			UN	Unknown
			VG	Volclay grout
well_completion	*screen_type*	13408	BS	Bridge slot
			CS	Continuous-slot wire-wound
			MS	Machine slotted casing
			NS	No screen
			OT	Other
			PP	Perforated pipe
			PB	Pipe base
			ST	Shutter type
			UN	Unknown
well_completion	*pump_type*	13409	B	Bailer
			C	Combination
			H	Hydrostar
			O	Organic/bladder
			S	Submersible
			U	Unknown

Optional Domain Sets

In addition to the default domain sets, three very large optional domain sets are delivered in text files in the *\ermadm\cfg* directory. If your project was created using at least the ERMA Basic Environmental schema, or if your existing schema includes the **analytic_methods** and **analytic_results** tables, you can use these domains to supplement the columns in these tables as follows:

- *an_mthd.txt* --- Contains values for the *analysis_method* column in the **analytic_methods** table; domain number 13208.
- *val_name.txt* --- Contains values for the *value_name* column in the **analytic_results** table; domain number 13212.
- *cas_num.txt* --- Contains values for the *cas_number* column in the **analytic_results** table; domain number 13213.

You can review the contents of these files using **Notepad** (or your editor). Each line in each optional file has the following format:

Domain #|Domain Value|Domain Description

Domain Tables

Three domain tables corresponding to the optional *.txt* files are also delivered (the **list_domain** table normally contains all domain definitions). The data definitions in each of these tables are as follows:

List Analytic Methods Table Data Dictionary
(ERMA Database Table Name: **list_an_mthd**)

Column	Required	Type (Size)	Definition
ldomain	yes	integer	
domainvalue	yes	character (8)	The optional domain values (delivered in the *an_mthd.txt* file) for analytic methods.
domaindesc	yes	character (64)	The descriptions of each domain value.

List Value Name Table Data Dictionary
(ERMA Database Table Name: **list_val_name**)

Column	Required	Type (Size)	Definition
ldomain	yes	integer	
domainvalue	yes	character (12)	The optional domain values (delivered in the *val_name.txt* file) for value names.
domaindesc	yes	character (64)	The descriptions of each domain value.

List CAS Number Table Data Dictionary
(ERMA Database Table Name: **list_cas_num**)

Column	Required	Type (Size)	Definition
ldomain	yes	integer	
domainvalue	yes	character (12)	The optional domain values (delivered in the *cas_num.txt* file) for CAS numbers.
domaindesc	yes	character (64)	The descriptions of each domain value.

Using the Optional Domain Files

If you decide to use one of the optional *.txt* domain files, you can edit the file using **Notepad** (or your own editor) to delete unwanted values. This lets you add only those analysis values and CAS values that are appropriate for your project. You can also add new values to the existing set of values and/or edit the existing values. Then use **Data Loader** to load the *.txt* file as a pipe-delimited ASCII input file to the corresponding table; for example, load the *an_mthd.txt* file to the **list_an_mthd** table. Once this is done, you can access the optional domains as you would other delivered domains using **DDF Editor.**

Note: To access **Data Loader,** select **Tools > ERMA Data Manager** from the MGE window to open the **ERMA Data Manager Tools** dialog box. Then select **Data Loader** and click **OK** to open the **Data Loader** dialog box. For more information and an exercise on using **Data Loader,** see "Loading, Reviewing, and Retrieving Data" in *Working with ERMA Data Manager*.

Note: If you do not want to use the optional domains delivered in the *\ermadm\cfg* directory, you can delete the domain definitions and the corresponding tables using **DDF Editor**.

Feature Information

This section provides detailed information, such as code, type, category, level (**Lev**), style (**Sty**), weight (**Wt**), and color (**Clr**), about each feature delivered in the ERMA project schemas (except the Minimum Database schema). This information is useful when planning to modify existing features or add new features to the database using **Feature Table Editor**. (For information and an exercise on using **Feature Table Editor**, see "Editing the Feature Table" in *Working with ERMA Data Manager*.)

General Mapping Features

Name (32-character limit)	Code (12-char)	Type	Category	Lev 1-63	Sty 0-7	Wt 0-31	Clr 0-256	Table
Contour Annotation	GC_ANN	Label	Map Attributes	39	0	0	0	
Major Contour	GC_CMJ	Line	Map Attributes	39	0	2	0	
Minor Contour	GC_CMN	Line	Map Attributes	40	2	0	0	
Digitizing Control Symbol	MPPSUDCTRL	Point	Map Attributes	28		0	0	well
Digitizing Control Z Value	MPPSUDZVAL	Label	Map Attributes	29		0	0	well

Basic Environmental Features

Name (32-character limit)	Code (12-char)	Type	Category	Lev 1-63	Sty 0-7	Wt 0-31	Clr 0-256	Table
Analytical Methods	ANYT_METH		Uncategorized					analytic_methods
Analytical Results	ANYT_RES		Uncategorized					analytical_results
Sample Data	SAMPLE_DATA		Uncategorized					sample_data
Sample Location	SAMPLE_LOC		Uncategorized					sample_location
Washboring	E0001	Point	Environmental Samples	11	0	0	0	well
Vertical Core	E0002	Point	Environmental Samples	11	0	0	0	well
Prop. Expel.	E0003	Point	Environmental Samples	11	0	0	0	well
Piezometer Observation	E0004	Point	Environmental Samples	11	0	0	0	well
Angle Core	E0005	Point	Environmental Samples	11	0	0	0	well
Spt Hole	E0006	Point	Environmental Samples	11	0	0	0	well
Spt Core	E0007	Point	Environmental Samples	11	0	0	0	well
Core Penetrometer	E0008	Point	Environmental Samples	11	0	0	0	well
Undisturbed Sample	E0009	Point	Environmental Samples	11	0	0	0	well
Water Level & Date	E00010	Point	Environmental Samples	11	0	0	0	well
Private Well	E00011	Point	Environmental Samples	11	0	0	0	well
Water Well	E00012	Point	Environmental Samples	11	0	0	0	well
Dual Completion Well	E00013	Point	Environmental Samples	11	0	0	0	well
Purge Well	E00014	Point	Environmental Samples	11	0	0	0	well
Prime Well	E00015	Point	Environmental	11	0	0	0	well

			Samples					
Water Monitor Well	E00016	Point	Environmental Samples	11	0	0	0	well
Surface Samples	E00017	Point	Environmental Samples	11	0	0	0	well
Location	E00018	Point	Environmental Samples	11	0	0	0	well
Sampling Well	E00019	Point	Environmental Samples	11	0	0	0	well
Stab Well	E00020	Point	Environmental Samples	11	0	0	0	well
Location	E00021	Point	Environmental Samples	11	0	0	0	well
Location	E00022	Point	Environmental Samples	11	0	0	0	well
Location	E00023	Point	Environmental Samples	11	0	0	0	well
Location	E00024	Point	Environmental Samples	11	0	0	0	well
Monitor Well Confine	E00025	Point	Environmental Samples	11	0	0	0	well
Production Well	E00026	Point	Environmental Samples	11	0	0	0	well
Domestic Well	E00027	Point	Environmental Samples	11	0	0	0	well
Public Well	E00028	Point	Environmental Samples	11	0	0	0	well
Irrigation Well	E00029	Point	Environmental Samples	11	0	0	0	well
Map Frame Annotation	MPMAPANNO	Label	GENERAL	4		0	0	
Map Frame	MPMAPFRAME	Line	GENERAL	4	0	1	0	
Map Tic Marks	MPMAPTICS	Point	GENERAL	4		0	0	
Restricted Area Label Symbology	RSAREALABEL	Label	GENERAL	41		0	4	
Restricted Area Line Symbology	RSAREALINE	Line	GENERAL	40	0	1	4	
Default Bottom Symbol	BOTTOM_SYM	Point	Well	10	0	0	0	well
Non-Intersecting Well Symbol	MPNONIWELS	Point	Well	10		0	0	well
Well Name Position	MPWELLNAME	Label	Well	14		0	0	well
Default Well Symbol	MPWELLSYM	Point	Well	11	0	0	0	well
Well Track	MPWELLTRAK	Point	Well	13	0	0	0	well
Over Post Symbol	POST_SYM	Point	Well	53	0	0	2	well
Default Top Symbol	TOP_SYM	Point	Well	10	0	0	13	well

Minimum Geology Features --- Geologic Map Attributes

(Additions to the features delivered in the Basic Environmental schema.)

Name (32-character limit)	Code (12-char)	Type	Category	Lev 1-63	Sty 0-7	Wt 0-31	Clr 0-256	Table
Section Horizon Control	MPHORZCTRL	Point	Geologic Map Attributes	19	0	0	0	well
Section Horizon Control Value	MPHORZVAL	Label	Geologic Map Attributes	12				

Minimum Geology Features --- Geologic Section Graphics (GSG)

Name (32-character limit)	Code (12-char)	Type	Category	Lev 1-63	Sty 0-7	Wt 0-31	Clr 0-256	Table
Fluid	FLUID		Uncategorized					**fluid**
Fluid Penetration	FLUID_PEN		Uncategorized					**fluid_pene-tration**
Stratigraphic Penetration	STRAT_PEN		Uncategorized					**strat_pen**
Stratigraphic Unit	STRAT_UNIT		Uncategorized					**strat_unit**
Section-Line Default Symbology	MPSECTLINE	Line	GSG	50	0	1	4	**sect_line**
Section-Line Name	MPSECTNAME	Label	GSG	50	0	1	4	**sect_line**
Fluid Name	XSBN	Label	GSG	45	0	0	4	**fluid**
Fluid-Penetration Annotation	XSCA	Label	GSG	25	0	0	4	**fluid_pen**
Fluid Penetration	XSCP	Line	GSG	25	0	1	6	**fluid_pen**
Cross-Section Description	XSDESC	Label	GSG	5		0	0	
Depth Label	XSDPLB	Label	GSG	12	0	0	3	
Depth Line	XSDPLN	Line	GSG	12	0	1	2	
Minor Depth Line	XSDPLNMIN	Line	GSG	7	0	0	2	
Cross-Section Datum Line	XSDTLN	Line	GSG	9	0	1	3	
Fluid	XSFB	Line	GSG	45	0	1	6	**fluid**
Cross-Section Frame	XSFRME	Line	GSG	5	0	1	0	
Cross-Section Hinge Line	XSHGLN	Line	GSG	10	5	0	0	
Hinge-Line Azimuth Arrows	XSHGLNAZARRW	Point	GSG	11	0	1	0	
Hinge-Line Az. Values	XSHGLNAZIM	Label	GSG	11	0	0	0	
Hinge-Line Coordinates	XSHGLNCOORD	Label	GSG	11	0	0	0	
Hinge-Line Distances	XSHGLNDIST	Label	GSG	11	0	0	0	
Hinge-Line Markers	XSHGLNMRK	Line	GSG	11	0	0	0	

Stratigraphic Unit Penetration Annotation	XSSA	Label	GSG	26	0	0	2	strat_pen
Strat. Unit Bottom	XSSB	Line	GSG	46	1	1	2	strat_unit
Strat. Unit Name	XSSN	Label	GSG	46		0	2	strat_unit
Strat. Unit Penetration	XSSP	Line	GSG	26	0	1	2	strat_pen
Stratigraphic Unit Top	XSST	Line	GSG	46	0	1	2	strat_unit
Cross Section Title	XSTITL	Label	GSG	5		0	0	
Major Vertical Grid Line	XSVGLNMAJ	Line	GSG	6	0	1	1	
Minor Vertical Grid Line	XSVGLNMIN	Line	GSG	6	0	0	1	
Section Well Path	XSWPTH	Line	GSG	22	0	0	0	well
Section Well-Path Bot. Well Name	XSWPTHBWLNAM	Label	GSG	22	0	0	0	well
Section Well-Path Elevation	XSWPTHELEV	Label	GSG	22	0	0	93	well
Section Well-Path Total Depth	XSWPTHTDPTH	Label	GSG	22	0	0	0	well
Section Well-Path Top Well Name	XSWPTHTWLNAM	Label	GSG	22	0	0	0	well

Minimum Geology Features --- Patterns

Name (32-character limit)	Code (12-char)	Type	Category (10006)	Lev 1-63	Fill Clr	Cell	Table
Anhydrite or gypsum	10250AH	Pattern	Pattern Feature	51	8	WPAH	
Arkose	10250AK	Pattern	Pattern Feature	51	0	WPAK	
Argillaceous limestone	10250AL	Pattern	Pattern Feature	51	0	WPAL	
Breccia	10250BR	Pattern	Pattern Feature	51	0	WPBR	
Conglomerate	10250CG	Pattern	Pattern Feature	51	7	WPCG	
Chalk	10250CK	Pattern	Pattern Feature	51	0	WPCK	
Inorganic clays high elasticity	10250CH	Pattern	Pattern Feature	51	0	CH	
Inorganic clay	10250CL	Pattern	Pattern Feature	51	7	WPCL	
Coal (carbonaceous)	10250CO	Pattern	Pattern Feature	51	7	WPCO	
Clay	10250CY	Pattern	Pattern Feature	51		CY	
Dolomitic limestone	10250DL	Pattern	Pattern Feature	51	0	WPDL	
Dolomite	10250DM	Pattern	Pattern Feature	51	10	WPDM	
Dykes	10250DY	Pattern	Pattern Feature	51	0	WPDY	
Extrusive (volcanic) rocks	10250EX	Pattern	Pattern Feature	51	6	WPEX	
Clayey gravels	10250GC	Pattern	Pattern Feature	51	0	GC	
Greywacke	10250GK	Pattern	Pattern Feature	51	0	WPGK	
Silty gravels	10250GM	Pattern	Pattern Feature	51	0	GM	
Poorly graded gravels	10250GP	Pattern	Pattern Feature	51	0	GP	

Gravel	10250GV	Pattern	Pattern Feature	51	0	WPGV	
Well-graded gravels	10250GW	Pattern	Pattern Feature	51	0	GW	
Igneous rocks (general)	10250IG	Pattern	Pattern Feature	51	0	WPIG	
Intrusives (plutonics)	10250IN	Pattern	Pattern Feature	51	6	WPIN	
K and Mg salts	10250KM	Pattern	Pattern Feature	51	5	WPKM	
Limestone (calcareous)	10250LC	Pattern	Pattern Feature	51		LC	
Lignite (brown coal)	10250LG	Pattern	Pattern Feature	51	9	WPLG	
Sandy limestone	10250LS	Pattern	Pattern Feature	51	3	WPLS	
Inorganic silts, fine sands	10250MH	Pattern	Pattern Feature	51	0	MH	
Inorganic silts, very fine sands	10250ML	Pattern	Pattern Feature	51	0	ML	
Metamorphics (general)	10250MM	Pattern	Pattern Feature	51	0	WPMM	
Marl	10250MR	Pattern	Pattern Feature	51	0	WPMR	
Mudstone	10250MS	Pattern	Pattern Feature	51	0	WPMS	
Halite	10250NA	Pattern	Pattern Feature	51	9	WPNA	
Organic clays	10250OH	Pattern	Pattern Feature	51	0	OH	
Organic silts	10250OL	Pattern	Pattern Feature	51	0	OL	
Peat	10250PT	Pattern	Pattern Feature	51	0	PT	
Quartzite	10250QT	Pattern	Pattern Feature	51	0	WPQT	
Sand	10250SA	Pattern	Pattern Feature	51	0	WPSA	
Clayey sands	10250SC	Pattern	Pattern Feature	51	0	WPSC	
Shale	10250SH	Pattern	Pattern Feature	51	7	WPSH	
Silt	10250SJ	Pattern	Pattern Feature	51	0	WPSJ	
General salt (saliferous)	10250SL	Pattern	Pattern Feature	51	0	WPSL	
Silty sands	10250SM	Pattern	Pattern Feature	51	0	SM	
Poorly graded sands	10250SP	Pattern	Pattern Feature	51	0	SP	
Sandstone	10250SS	Pattern	Pattern Feature	51	4	WPSS	
Siltstone	10250ST	Pattern	Pattern Feature	51	2	WPST	
Well-graded sands	10250SW	Pattern	Pattern Feature	51	0	SW	
Tuff	10250TF	Pattern	Pattern Feature	51	0	WPTF	
Tillite, diamictite	10250TI	Pattern	Pattern Feature	51	0	WPTI	
Volcanic agglomerate/breccia	10250VA	Pattern	Pattern Feature	51	0	WPVA	

Basic Environmental/Geology Features

(Additions to the features in the Basic Environmental schema and in the Minimum Pattern Feature schema.)

Name (32-character limit)	Code (12-char)	Type	Category	Lev 1-63	Sty 0-7	Wt 0-31	Clr 0-256	Table
Well completion	WELL_COMP		Uncategorized					well_completion
Well sample data	WELL_SAMP		Uncategorized					well_sample_data
Down-hole test	DOWNHL_TEST		Uncategorized					down_hole_test

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13. ABSTRACT ***(Maximum 200 words)***

This report compares the environmental portion of the Tri-Service Spatial Data Standards (TSSDS) to the default data structure provided with Intergraph Corporation's Environmental Resource Management Application (ERMA) software. The purpose of this comparison was to evaluate the ability of the ERMA product to support the data structures, attributes, and domains required by the TSSDS. This report was prepared to provide guidance to Department of Defense personnel and their contractors who may be implementing the TSSDS and may be using the ERMA suite of products. The information in this report will be used by the Tri-Service Computer Aided Drafting and Design (CADD)/Geographic Information System (GIS) Technology Center to help determine areas for further development of the TSSDS, and it will be provided to Intergraph Corporation for use in developing a TSSDS-compliant ERMA package.

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