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ENVIRONMENTAL RESTORATION PROGRAM

Technical Specification for Transferring National Pollutant Discharge Elimination System Water Data to the Oak Ridge Environmental Information System

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**Technical Specification for Transferring
National Pollutant Discharge Elimination
System Water Data to the Oak Ridge
Environmental Information System**

Environmental Restoration Division
P.O. Box 2003
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LOCKHEED MARTIN ENERGY SYSTEMS, INC.
managing the
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Oak Ridge Y-12 Plant Portsmouth Gaseous Diffusion Plant
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Technical Specification for Transferring
NPDES Surface Water Data to OREIS
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EXECUTIVE SUMMARY

In May 1994, a team was formed to develop, document, and implement technical specifications for transmitting National Pollutant Discharge Elimination System (NPDES) environmental compliance and monitoring surface water data to the Oak Ridge Environmental Information System (OREIS). The approach used to transmit this data is documented in the Plan for Integrating Environmental Compliance and Monitoring Data into OREIS. This plan addresses the consolidated data requirements defined by the Federal Facility Agreement (FFA) and the Tennessee Oversight Agreement (TOA) as they pertain to environmental compliance and monitoring data maintained by Energy Systems' Oak Ridge Environmental Management organizations.

This document describes the requirements, responsibilities, criteria and format for transmitting NPDES compliance and monitoring surface water data to the OREIS.

1.0 INTRODUCTION

1.1 PURPOSE

The primary goal of this technical specification is to meet the consolidated environmental data requirements defined by the Federal Facility (FFA) and the Tennessee Oversight Agreement (TOA) as they pertain to NPDES surface water data maintained in Oak Ridge, Tennessee, by the Department of Energy's Maintenance and Operations (M&O) contractor Martin Marietta Energy Systems and prime contractors to DOE.

This technical specification describes the organizational responsibilities for getting NPDES data into OREIS, describes the logical data transfer file required from NPDES, addresses business rules and submission rules, describes the physical data transfer file, addresses configuration control of this technical specification, and addresses required changes to the current OREIS data base structure due to the requirements of NPDES.

1.2 SCOPE

The scope of this technical specification is to provide NPDES surface water data, which resulted from sampling at the Y-12, K-25, and ORNL sites in Oak Ridge, to OREIS. The data to be integrated into OREIS are primarily the analytical lab and field measurements data and their associated context (e.g., the location, time, and method of the sample or characteristic of the sample structured). All three sites create a monthly Discharge Monitoring Report (DMR) which is sent to DOE and the State of Tennessee. All data reported in or used in creating this monthly report will be sent to OREIS in an electronic file.

NPDES was chosen as the first of several sets of environmental compliance and monitoring data to be placed into OREIS, due to the fact that they are generated on a regular basis, the data requirements are consistent between sites, and the three Oak Ridge sites currently correspond with each other in doing the NPDES work. Each site will collect and transfer the following types of NPDES surface water data to the OREIS: project, location, permit, station, field event, field sample, lab sample, field measurement, and lab measurement.

1.3 PARTICIPANTS

The team consists of site environmental compliance and monitoring representatives, OREIS staff members, and Computing and Telecommunications Services (C&TS) technical staff. The initial activities require environmental compliance and monitoring representatives who can determine the availability of data for loading into OREIS and who are empowered to alter data management activities as required to conform to a common data transfer specification. Follow-on activities will require computing personnel who can modify, test, and implement application systems to transfer the data via the technical specification.

1.4 FREQUENCY OF SUBMISSION

When fully implemented, all three sites will submit NPDES surface water data from the previous reporting period by the last day of the month following the completion of the reporting period.

2.0 ROLES AND RESPONSIBILITIES

2.1 SITE COMPLIANCE AND MONITORING ORGANIZATION

The site compliance and monitoring organizations collect environmental measurement data associated with compliance and surveillance and are responsible for overseeing the data activities and for transmitting data to the State of Tennessee, the Department of Energy, and to OREIS. Other responsibilities include compiling data into a database; quality assuring data and metadata; creating the data transfer file; transmitting data to the OREIS as defined in this specification; and, using valid values listings for codes, parameters, units of measure, analysis methods, etc.. Each site is responsible for data verification and harmonization prior to transmitting data to OREIS.

2.2 OREIS

OREIS is the consolidated environmental data base that provides consistent and well-documented environmental data and data products to support the planning, decision-making and reporting activities of DOE, DOE's M&O contractor, DOE's prime contractors, and sub-contractors. OREIS will receive and process NPDES surface water data from the sites as defined in this specification. OREIS' responsibilities include: 1) obtaining a completed data transmittal form that identifies the site and the individual transmitting the data, 2) processing the data received, 3) conducting data base integrity checks, 4) loading the data into OREIS, 5) providing a processing summary for review by data generators (to obtain authorization to release the data to the public), 6) providing the

data and metadata to DOE, EPA, and the State of Tennessee, 7) providing users a user-friendly and integrated means of accessing the data contained in the OREIS data base, 8) maintaining and validating the use of valid values listings for codes, parameters, units of measure, analysis methods, etc., 9) maintaining a data dictionary which defines all OREIS data base tables, field names, field definitions, field formats, field optionality, etc., 10) communicating changes of standard code tables to users through the OREIS User Services group, 11) providing a way for updates to be easily communicated and implemented using the Submitting, Reviewing, and Approving Changes to the Oak Ridge Environmental Information System (OREIS) (ERWM/C-P2703, Rev. 1) and, 12) making every possible and reasonable effort to ensure that the NPDES data are not manipulated nor misrepresented such that invalid conclusions may be drawn from the use of the data.

3.0 OREIS DATA MODEL

Reference the Data Management Plan for the Oak Ridge Environmental Information System, ES/ER-TM-39/R1, for a description of the data management objectives, the information system (computer hardware and software), the data base structure, system maintenance, data processing, and data access information. This document addresses the requirements and references the procedures for meeting the data management objectives.

Reference the Data Dictionary for the Oak Ridge Environmental Information System, ES/ER-TM-116, for a definition of the measurement data base structure, descriptions of the data base tables, and listings of valid values for codes, parameters, and methods.

Reference the Transmitting Data to the Oak Ridge Environmental Information System (OREIS), ER/C-P2701, Rev.0, procedure for requirements, responsibilities, and actions steps for (1) transmitting data to the OREIS, including specific data and data processing requirements, and (2) the subsequent review process used by OREIS and site personnel to prepare the data for release to regulators and other OREIS users.

Appendix A contains the OREIS Entity Relationship Diagram.

4.0 LOGICAL FILE LAYOUT AND BUSINESS RULES

This section is a logical representation of the OREIS entity names and fields which will be populated with NPDES surface water data. This section represents a subset of the complete OREIS model that pertains to the compliance data. The entity name definition, field names, field lengths, and some comment/example data are shown for each entity. The NPDES requirement for each field is shown under the Req. (requirement) column. The codes M-mandatory, R-recommended, C-conditional, or O-optional are discussed (refer to Transmitting Data to the Oak Ridge Environmental Information System (OREIS), ER/C-P2701, Rev.0).

Field name definitions are in Appendix B.

How the data are physically transmitted to OREIS and associated submission rules are in section 7.0.

4.1 LAB MEASUREMENT DATA

The following entities contain fields associated with transferring Lab Measurement data to OREIS. For each entity, the entity name, entity description, field names, and the field lengths/data types, and comment/example data are shown.

Entity Name: PROJECT - The PROJECT table contains data about specific projects. A project is an environmental program responsible for collecting samples and creating regulatory reports. A project is defined by its site (or facility), sponsor, and project domain (either the geographic domain of the project within a site or its thematic domain).

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
PROJ_SITE	M	10 CHAR	K-25, ORNL, Y-12
PROJ_CODE	M	10 CHAR	NPDES, BMAP
PROJ_UNIT	M	15 CHAR	Surface Water, Ambient Air
PROJ_DESCRIPTION	O	LONG	
PROJ_NAME	O	100 CHAR	(PROJ_CODE spelled out)
PROJ_PROGRAM	O	8 CHAR	(CWA= Clean Water Act)
SITE_NAME	O	50 CHAR	(PROJ_SITE spelled out)
SPONSOR	O	50 CHAR	Y-12 Env. Management
PROJ_CONTACT	R	20 CHAR	KG HANZELKA
D_INITIATED	O	9 CHAR	(DDMONYYYY)
D_COMPLETED	O	9 CHAR	(DDMONYYYY)

Entity Name: **PERMIT** - The effluent limitations and monitoring requirements under which stations are monitored.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
NUM_PERMIT	M	10 CHAR	
D_INIT_PERMIT	M	9 CHAR	(DDMONYYYYY)
D_EXP_PERMIT	M	9 CHAR	(DDMONYYYYY)
DESC_PERMIT	O	200 CHAR	
D_COMPLETE_PERMIT	O	9 CHAR	(DDMONYYYYY)

Business Rules:

1. For NPDES, population of the PERMIT entity is mandatory.
2. The permit initiation date (D_INIT_PERMIT) is the date the permit was initiated and can possibly change over the life of a permit. The combination of PERMIT_NUM and D_INIT_PERMIT uniquely identifies an entry for the PERMIT table. Using these two fields a user can find all data associated with a particular version of a permit.
3. In the first transmission of data, the permit expiration date (D_EXP_PERMIT) must be populated which indicates when the permit is scheduled to expire. If the permit is renewed a new record is added to the data base for the permit with the new expiration date. This will facilitate tracking history about a permit.
4. The date completed (D_COMPLETE_PERMIT) is only populated when the permit is completely closed or expires.

Entity Name: STATION - The STATION table contains data about sampling points associated with a project. There could be several stations identified with a project over time.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
STA_NAME	M	15 CHAR	201
STA_TYPE	M	2 CHAR	(CB=CATCH BASIN, TF=TREATMENT FACILITY)
STA_STATUS	M	2 CHAR	(A=ACTIVE, I=INACTIVE)
STA_GROUP	O	30 CHAR	CATEGORY II
STA_DESC	O	200 CHAR	(the physical description)
INIT_DESTINATION	O	50 CHAR	POPLAR CREEK
D_DISCONTINUED	C	9 CHAR	(DDMONYYYY)
D_ESTABLISHED	R	9 CHAR	(DDMONYYYY)
COMMENTS	O	200 CHAR	

Business Rules:

1. The STA_NAME + STA_TYPE must be a unique combination within a site.
2. The category code must be stored in the STA_GROUP field. STA_GROUP is a grouping of stations. The category code is a grouping of outfalls. The format must be CATEGORY I, CATEGORY II, CATEGORY III, or CATEGORY IV.
3. The field INIT_DESTINATION must be used to track the initial destination of the sampled media. For the purposes of NPDES, this is usually a stream name (e.g., Poplar Creek). For example, Poplar Creek may receive water from an outfall, however, this might not be the final destination of the water. This field would not apply to all project units. For example, the INIT_DESTINATION for Ambient Air would be Not Applicable (NA).
4. A Station must be assigned to an authorized permit if the Station is in an active status when the PERMIT entity is populated. A Station can be inactive and still be assigned to an authorized permit.

Entity Name:

LOCATION - The LOCATION table contains data about unique sampling points. Each point has an OREIS-assigned identifier that is unique for a specific project. Most locations are points described by x, y coordinates, but a location could be a line or a polygon where measuring events occur.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
EASTING	M	10,2	(see Business Rule 1)
NORTHING	M	10,2	(see Business Rule 1)
GRID_SYS	M	10 CHAR	(see Business Rule 1)
LATITUDE	M	12,6 DEG	(see Business Rule 1)
LONGITUDE	M	12,6 DEG	(see Business Rule 1)
SITE	M	10 CHAR	K-25
ELV_ERROR	R	8,2	
ELV_METHOD	R	10 CHAR	
GRND_ELV	R	8,2 FT	
LOC_DESC	O	200 CHAR	
LOC_ERROR	R	10 CHAR	
LOC_METHOD	R	10 CHAR	
COMMENTS	O	200 CHAR	

Business Rules:

1. It is mandatory that one of the following sets of coordinates be populated for the LOCATION entity:

LATITUDE/LONGITUDE - must be sent as decimal degrees (e.g., LATITUDE = 36.2875, LONGITUDE = 83.9452).

-or-

EASTING/NORTHING - must be sent with a GRID_SYS also (e.g., EASTING = 154910.8923, NORTHING = 76485.3214, GRID_SYS = "ADMIN").

OREIS will do any necessary conversions to support OREIS's Geographic Information System.

Entity Name:

FLD_SMP - The FLD_SMP table contains data about a sampling event. A sampling event is an occasion on which field samples are collected for analysis. A field sample is an environmental sample that is collected in the field. It may be analyzed in the field, and it may be bottled/bagged for shipment to a laboratory for analysis. There are separate field samples for each combination of filtered/unfiltered, original/duplicate, splitting/compositing, depth, and medium. The term sampling event is used to group these combinations for reporting and analysis.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
MED_TYPE	M	2 CHAR	WS
SMP_TYPE	M	10 CHAR	(REG = Regular)
D_COLLECTED	M	9 CHAR	(DDMONYYYYY)
SAMPLE_ID	R	15 CHAR	
SMP_METHOD	R	10 CHAR	GRAB, COMPOSITE
T_COLLECTED	R	4 CHAR	(HHMM)
COMMENTS	O	200 CHAR	

Business Rules:

1. Only regular NPDES sample results are tracked in OREIS. NPDES field QC sample results will not be tracked.
2. Currently, only the Y-12 NPDES group has a need to populate the SAMPLE_ID field.

Entity Name: LAB_SMP - The LAB_SMP table describes samples that are submitted for laboratory analysis. There must be an entry in the FLD_SMP for each sample processed by the laboratory. A laboratory sample is an environmental sample that is collected in the field and sent to the laboratory for analysis. Each laboratory assigns a sequence number to the sample as it is received. A lab sample is tied to a field sample.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
LAB_CODE	M	6 CHAR	ASO
LAB_SAMPLE_ID	M	15 CHAR	
MATRIX	M	6 CHAR	WATER, SOIL
COMMENTS	O	200 CHAR	

Business Rules:

1. The LAB_SAMPLE_ID must be unique.

Entity Name: LAB_MEAS - The LAB_MEAS table contains the measurement data for a sample. A laboratory sample is an environmental sample that is collected in the field and sent to a laboratory for analysis.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
PARAMTR	M	9 CHAR	(CAS_ID)
RCVD_RSLT	M	38,10	
RCVD_UNIT	M	10 CHAR	
SIG_DIGIT	C	1 CHAR	
RSLTQUAL	R	4 CHAR	
RSLT_PREFIX_QUALIFIER	O	1 CHAR	<, >
ANA_TYPE	R	6 CHAR	RADS, VOA
ANA_METHOD	R	18 CHAR	(CLP list)
LAB_METHOD	C	80 CHAR	
RAD_ERR	R	8,2	
NON_COMPLI_CODE	C	30 CHAR	
COMMENTS	O	200 CHAR	

Business Rules:

1. Valid parameter codes (PARAMTR) must be used. The site can obtain parameter codes from the OREIS staff if necessary. If an invalid parameter code is transferred OREIS will reject the entire data transfer file.
2. For NPDES, the significant digit field (SIG_DIGIT) must be populated when a RCVD_RSLT field requires more explanation.
3. The NON_COMPLI_CODE is populated to indicate a RCVD_RSLT value that was part of a non-compliance average. Multiple non-compliance codes are possible for each RCVD_RSLT value and will be concatenated into the 30 character field (NON_COMPLI_CODE). The following is a list of reasons for a non-compliance:

<u>CODE</u>	<u>DESCRIPTION</u>
A	result exceeds daily maximum permit limit
B	result does not meet daily minimum permit limit
C	mass loading based on this result exceeds daily maximum mass loading limit
D	result was included in a monthly average that exceeded the monthly average maximum permit limit
E	result was included in a weekly average that exceeded the weekly average maximum permit limit
F	mass loading based on this result was included in a monthly average that

- G exceeded the monthly average mass loading limit
mass loading based on this result was included in a weekly average that
exceeded the weekly average mass loading limit
- H protocol deviation

4. OREIS will store the received result (RCVD_RSLT) and received unit (RCVD_UNIT) as sent by the site. In addition, OREIS will store the standard result (RESULTS) and unit (UNITS) for the received result and received unit. The site is not required to transfer data for the RESULTS and UNITS.

4.2 FIELD MEASUREMENT DATA

The following entities contain fields associated with transferring field measurement data to OREIS. Entities PROJECT, STATION, and LOCATION also apply to field measurement data (see section 4.1).

Entity Name: FLD_EVENT - The FLD_EVENT table contains data about a measurement event. A measurement event is an occasion where environmental parameters are measured without collecting a sample (see FLD_MEAS).

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
MED_TYPE	M	2 CHAR	WS
SMP_TYPE	M	10 CHAR	(REG=Regular)
SMP_COND	C	3 CHAR	(NF=No Flow)
D_COLLECTED	M	9 CHAR	(DDMONYYYY)
COMMENTS	O	200 CHAR	

Business Rules:

1. For flow rate data, sample condition (SMP_COND) must be populated to indicate the condition at the Station (e.g., NF = NO FLOW, DW = DRY WELL) at sample collection time.
2. The SMP_COND is mandatory for flow rate data and is not required for normal field sample data.

Entity Name: FLD_MEAS - The FLD_MEAS table contains the measurement data for the environmental parameters collected in a measurement event (see FLD_EVENT). Examples are flow rate, depth, temperature.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>	<u>(Comments)/Example Data</u>
PARAMTR	M	9 CHAR	
RCVD_RSLT	M	38,10	
RCVD_UNIT	M	10 CHAR	
SIG_DIGIT	C	1 CHAR	
RSLTQUAL	R	4 CHAR	
RSLT_PREFIX_QUALIFIER	O	1 CHAR	<, >
SUM_METHOD	C	6 CHAR	(min/max)
NON_COMPLI_CODE	C	30 CHAR	
T_COLLECTED	R	4 CHAR	(HHMM)
COMMENTS	O	200 CHAR	

Business Rules:

1. Valid parameter codes (PARAMTR) must be used. The site can obtain parameter codes from the OREIS staff if necessary. If an invalid parameter code is transferred OREIS will reject the entire data transfer file.
2. For NPDES, the significant digit field (SIG_DIGIT) must be populated when a RCVD_RSLT field requires more explanation.
3. The NON_COMPLI_CODE is populated to indicate a RCVD_RSLT value that was part of a non-compliance average. Multiple non-compliance codes are possible for each RCVD_RSLT value and will be concatenated into the 30 character field (NON_COMPLI_CODE). The following is a list of reasons for a non-compliance:

<u>CODE</u>	<u>DESCRIPTION</u>
A	result exceeds daily maximum permit limit
B	result does not meet daily minimum permit limit
C	mass loading based on this result exceeds daily maximum mass loading limit
D	result was included in a monthly average that exceeded the monthly average maximum permit limit
E	result was included in a weekly average that exceeded the weekly average maximum permit limit
F	mass loading based on this result was included in a monthly average that exceeded the monthly average mass loading limit

- G mass loading based on this result was included in a weekly average that exceeded the weekly average mass loading limit
- H protocol deviation

4. OREIS will store the received result (RCVD_RSLT) and received unit (RCVD_UNIT) as sent by the site. In addition, OREIS will store the standard result (RESULTS) and unit (UNITS) for the received result and received unit. The site is not required to transfer data for the RESULTS and UNITS.

5.0 CHANGES TO OREIS DATABASE STRUCTURE

This section describes changes made to the OREIS data base structure to support NPDES surface water data.

Entity Name: PROJECT

Replaced one field: PROJ_UNIT replaces OU 15 characters

Added one new field: PROJ_CONTACT 20 characters

Entity Name: PERMIT (Added a new entity type)

Added five new fields:

NUM_PERMIT	10 characters
D_INIT_PERMIT	DDMONYYYYY
D_EXP_PERMIT	DDMONYYYYY
DESC_PERMIT	200 characters
D_COMPLETE_PERMIT	DDMONYYYYY

Entity Name: STATION

Added two new fields:

STA_DESC	200 characters
INIT_DESTINATION	50 characters

Entity Name: LOCATION

Rename STA_DESC to LOC_DESC 200 characters

Entity Name: LAB_MEAS

Added five new fields:

RCVD_RSLT	38,10
RCVD_UNIT	10 characters
RSLT_PREFIX_QUALIFIER	1 character
NON_COMPLI_CODE	30 characters
SIG_DIGIT	1 character

Entity Name: FLD_MEAS

Added five new fields:

RCVD_RSLT	38,10
RCVD_UNIT	10 characters
RSLT_PREFIX_QUALIFIER	1 character
NON_COMPLI_CODE	30 characters
SIG_DIGIT	1 character

Entity Name: FLD_EVENT

Added one new field:

SMP_COND	3 characters
----------	--------------

6.0 CHANGES TO OREIS CODE TABLES

This section describes changes made to the OREIS code tables to support NPDES surface water data.

CODE_TYPE: LAB_CODE
(added one new code)

ASO Analytical Services Organization

CODE_TYPE: NON_COMPLI_CODE
(added a new CODE_TYPE with 8 new codes)

- A result exceeds daily maximum permit limit
- B result does not meet daily minimum permit limit
- C mass loading based on this result exceeds daily maximum mass loading limit
- D result was included in a monthly average that exceeded the monthly average maximum permit limit
- E result was included in a weekly average that exceeded the weekly average

- maximum permit limit
- F mass loading based on this result was included in a monthly average that exceeded the monthly average mass loading limit
- G mass loading based on this result was included in a weekly average that exceeded the weekly average mass loading limit
- H protocol deviation

CODE_TYPE: PERMIT_STATUS
 (added a new CODE_TYPE with two new codes)

- PR Permitted
- NP Not Permitted

CODE_TYPE: RSLT_PREFIX_QUALIFIER
 (added a new CODE_TYPE with three new codes)

- blank (a null is a valid value)
- < The actual value is below the given range limit.
- > The actual value is above the given range limit

CODE_TYPE: RSLTQUAL
 (added two new codes)

- ** Refer to RSLT_PREFIX_QUALIFIER for more information
 blank (a null is a valid value)

CODE_TYPE: SMP_COND
 (added a new CODE_TYPE with five new codes)

- Normal Sample (a null is a valid value)
- DW Dry Well
- NF No Flow
- NRS Non Representative Sample
- UW Under Water

CODE_TYPE: Rename SMP_METHOD to SMP_DEVICE_TYPE

CODE_TYPE: Add codes from SMP_DEVICE to SMP_DEVICE_TYPE

CODE_TYPE: Delete SMP_DEVICE

CODE_TYPE: SMP_METHOD
 (added a new CODE_TYPE with three new codes)

ES	Estimate
FPC	Flow Proportional Composite
GR	Grab
SC	Spatial Composite
SPLT	Split
TC	Temporal Composite
?	Other, defined in COMMENTS column

CODE_TYPE: SMP_TYPE
 (deleted one code, added four new codes)

Removed GR - Grab from this code table.

CB	Catch Basin
DK	Dike
PP	Pipe
TF	Treatment Facility

CODE_TYPE: UNITS
 (if not in ORIES; added 70 codes)

%	unspecified percent
% passing	percent that passed through previous sieve
cc	cubic centimeters
ci	curie
cm	centimeter
col/100ml	coliform per 100 milliliter
deg C	degrees Celcius
deg F	degrees Fahrenheit
drops	drops (eye dropper)
ft	feet
ft2	square feet
ft3	cubic feet
ft3/min	cubic feet per minute
ft/s	feet second
ft3/s	cubic feet per second
g	gram
gal	gallon
gal/day	gallons per day
gal/min	gallons per minute
gal/s	gallons per second

CODE_TYPE:**UNITS (continued)**

g/gal	grams per gallon
g/cc	grams per cc
g/g	gram per gram
g/L	grams per liter
g/mL	gram per milliliter
gpd	gallons per day
gpm	gallons per minute
hr	hour
in	inch
kg	kilogram
kg/day	kilograms per day
L	liter
L/min	liters per minute
L/s	liters per second
lb	pound
lbs/day	pounds per day
m	meter
m ²	square meters
mg	milligram
mgal	millions of gallons
mgd	millions of gallons per day
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
ml	milliliter
ml/L	milliliter per liter
mm	millimeter
ng/mL	nanograms per milliliter
pCi/filter	picocuries per filter
pCi/g	picocuries per gram
pCi/kg	picocuries per kilogram
pCi/L	picocuries per liter
pCi/mg	picocuries per milligram
pCi/mL	picocuries per milliliter
pCi/ug	picocuries per microgram
percent	percent
ppm	parts per million
rsd	rel std deviation
su	standard units
ton/yr	ton per year
tons/yr	tons per year

CODE_TYPE: UNITS (continued)

tot_g	total grams
ug	microgram
ug/g	micrograms per gram
ug/L	micrograms per liter
ug/mL	micrograms per milliliter
um	micrometer
umhos/cm	umhos/cm- conductivity
vol %	volume percent
wt %	weight percent
wtppm	weight ppm

7.0 DATA TRANSFER SPECIFICATIONS

Data can be transferred to OREIS using any of the data base export file formats specified in Transmitting Data to the Oak Ridge Environmental Information System (OREIS), ER/C-P2701, Rev.0. Data that are transmitted to OREIS will be evaluated by OREIS staff to ensure that the transmitted data are consistent, complete, qualified, and documented. This specification introduces a special ASCII comma delimited file format designed to meet the needs of the NPDES data.

7.1 GENERAL SUBMISSION RULES

The ASCII comma-delimited data transfer file contains definition records and data records.

One definition record must precede each set of data records. The definition record contains each field name (upper or lower case) for which data will be supplied. A comma must separate each field name. Some field names are optional and will not be populated by some sites. Section 4.0 provides details concerning field requirements. Names of fields not populated should be excluded from the definition record.

All mandatory fields must be populated with data, else the entire data transfer file will be returned to the site for correction and resubmission.

The associated data records which follow the definition record must contain a piece of data for each field name in the definition record. A comma must separate each piece of data. Character fields must be enclosed by double quotes.

To indicate a character field or numeric field is empty/ null, use two commas together (e.g., ,).

A blank (' ') is written to the data base as a blank.

No blank lines must exist between definition records and data records.

No blank spaces must exist between delimiter commas in the definition record and in the data record.

All dates must be in the format DDMONYYYY (9 CHARACTERS). All times must be in 24 hour, HHMM (4 CHARACTERS), format.

The data transfer file must follow the submission rules listed in this section. The entire data transfer file will be rejected with a minimum of one error found with the file. The entire data transfer file will be returned to the site with an explanation of why the file was rejected. The site should correct the problem and re-submit the data transfer file.

The complete data transfer file will contain the following record types. A one-character record type code is used to identify the record type. The # sign following a one-character record-type code denotes a definition record. Only one definition record should exist for each record type. One exception is in section 7.8 concerning flow data.

Header/trailer records:

H = header record

T = trailer record

Data records:

P = project record

R = permit record

L = location/station record

M = lab measurement record

F = field measurement record

7.2 HEADER AND TRAILER RECORD FORMATS AND SUBMISSION RULES

General format of the header and trailer definition records. Example header and trailer data records follow the definition records.

<u>Field Name</u>	<u>Req.</u>	<u>Length</u>
DATE_SENT_OREIS	M	9 CHAR
SENT_BY_SITE	M	10 CHAR
NUM_RECORDS	M	4 NUMBER

H#,DATE_SENT_OREIS,SENT_BY_SITE
H,"06JUN1994","Y-12"

T#,NUM_RECORDS
T,200

Submission Rules:

1. It is mandatory that each data transfer file contain one header definition record followed by one header data record.
2. It is mandatory that each data transfer file contain one trailer definition record followed by one trailer data record.
3. NUM_RECORDS is a total count of every line-feed in the data transfer file.

7.3 PROJECT RECORD FORMATS AND SUBMISSION RULES

General format of the project data definition record. An example project data record follows the definition record.

P#,PROJ_SITE,PROJ_CODE,PROJ_UNIT,PROJ_DESCRIPTION,PROJ_NAME,
PROJ_PROGRAM,SITE_NAME,SPONSOR,PROJ_CONTACT,D_INITIATED,
D_COMPLETED

P,"Y-12","NPDES","SURFACE WATER","THE PURPOSE OF THIS PROJECT IS
TO...","NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM",
"CWA","Y-12","Y-12 ENVIRONMENTAL MANAGEMENT","KG
HANZELKA","05APR1993","04MAR1994"

Submission Rules:

1. PROJ_SITE, PROJ_CODE, PROJ_UNIT must be sent with each transmission of data to OREIS to help identify the set of data transmitted.
2. PROJ_DESCRIPTION, PROJ_NAME, PROJ_PROGRAM, SITE_NAME, SPONSOR, PROJ_CONTACT, D_INITIATED, and D_COMPLETED are provided with the first data transmission to OREIS and as the information changes.
3. Each data transfer file must contain one project definition record with the minimum field requirements of PROJ_SITE, PROJ_CODE, and PROJ_UNIT, followed by one project data record.

7.4 PERMIT RECORD FORMATS AND SUBMISSION RULES

General format of the permit data definition record. An example permit data record follows the definition record.

R#,NUM_PERMIT,D_INIT_PERMIT,D_EXP_PERMIT,DESC_PERMIT,
D_COMPLETE_PERMIT

R,"1234567890","05MAY1993","05MAY1994","THE PERMIT DESCRIPTION",
"02FEB1994"

Submission Rules:

1. The NUM_PERMIT and the D_INIT_PERMIT must be populated to ensure uniqueness of permit data records. The submission of PERMIT data is one time unless there is a change to the permit information.

7.5 LOCATION AND STATION RECORD FORMATS AND SUBMISSION RULES

General format of the location/station data definition record. An example location/station data record follows the definition record.

For initial submission of NPDES location/station records, one of the following definition records must be used.

If sending EASTING/NORTHING/GRID_SYS coordinates use the following definition record. Remember all mandatory fields must be populated (see section 4.0). All other fields are populated when data are available. This information is only sent again if there has been a change in the location/station information (i.e., the location of a station has changed, the addition of a new station, etc.).

```
L#,EASTING,NORTHING,GRID_SYS, SITE,ELV_ERROR, ELV_METHOD,  
GRND_ELV, LOC_DESC,LOC_ERROR, LOC_METHOD, COM_LOCATION,  
STA_NAME, STA_TYPE, STA_STATUS,STA_GROUP, STA_DESC,  
INIT_DESTINATION, D_DISCONTINUED, D_ESTABLISHED,  
COM_STATION
```

```
L,154910.8923,76485.3214,"ADMIN","K-25",15.0,"SURVEY",787.56,"THIS IS  
THE LOCATION DESCRIPTION","100 FT.,""STA METHOD", "LOCATION  
COMMENTS","201","PP","A","CATEGORY II","THE STATION IS 6 FEET  
LONG AND 3 FEET WIDE","POPLAR CREEK","04JAN1992","05MAY1994",  
"THESE ARE COMMENTS ABOUT THE STATION"
```

If sending LATITUDE/LONGITUDE coordinates use the following definition record. Remember all mandatory fields must be populated (see section 4.0). All other fields are populated when data are available. This information is only sent again if there has been a change in the location/station information (i.e., the location of a station has changed, the addition of a new station, etc.).

```
L#,LATITUDE, LONGITUDE,SITE,ELV_ERROR, ELV_METHOD,  
GRND_ELV,LOC_DESC, LOC_ERROR, LOC_METHOD, COM_LOCATION,  
STA_NAME, STA_TYPE, STA_STATUS,STA_GROUP,STA_DESC,  
INIT_DESTINATION, D_DISCONTINUED, D_ESTABLISHED,  
COM_STATION
```

L,36.2875,83.9452,"K-25",15.0,"SURVEY",787.56,"THIS IS THE LOCATION DESCRIPTION","100 FT.", "STA METHOD", "LOCATION COMMENTS", "201", "PP", "A", "CATEGORY II", "THE STATION IS 6 FEET LONG AND 3 FEET WIDE", "POPLAR CREEK", "04JAN1992", "05MAY1994", "THESE ARE COMMENTS ABOUT THE STATION"

Submission Rules:

1. It is mandatory that the location and station data be sent to OREIS in the first data transfer file submission. This is a one time submission unless there is a change in a location/station information.
2. It is mandatory that one set of coordinates be sent to OREIS (NORTHING/EASTING/GRID_SYS or LATITUDE/LONGITUDE). OREIS will do the necessary conversions to support OREIS's Geographic Information System.
3. It is mandatory that the STA_NAME + STA_TYPE be unique within a site.
4. The COMMENTS field in the LOCATION entity is called COM_LOCATION in the data transfer file definition record.

The COMMENTS field in the STATION entity is called COM_STATION in the data transfer file definition record.

7.6 LAB MEASUREMENT RECORD FORMATS AND SUBMISSION RULES

General format of the lab measurements data definition record. An example lab measurement data record follows the definition record. The definition record contains fields from FLD_SMP, LAB_SMP, and LAB_MEAS tables.

M#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,D_COLLECTED,
SAMPLE_ID,SMP_METHOD,T_COLLECTED,COM_FLD_SMP,LAB_CODE,
LAB_SAMPLE_ID,MATRIX,COM_LAB_SMP,PARAMTR,RESULTS,UNITS,
SIG_DIGIT,RSLTQUAL,RSLT_PREFIX_QUALIFIER,ANA_TYPE,ANA_METHOD,
LAB_METHOD,RAD_ERR,NON_COMPLI_CODE,COM_LAB_MEAS

M,"201","PP","WS","REG","05JUN1993","123456789000000","GRAB","1023","THIS
IS A FIELD SAMPLE COMMENT....","ASO","1212121212121","WATER","THIS
IS A LAB SAMPLE COMMENT...","123456789",0.001,"MDG","3","Q","<","
"OTHER","ANA METHOD","LABORTARY METHOD GOES HERE",2,"A","THIS IS
A LAB MEAS COMMENT"

Submission Rules:

1. For all submissions of lab measurement data, fields from the FLD_SMP, LAB_SMP, and LAB_MEAS tables are combined into a definition record.
2. It is mandatory that the STA_NAME + STA_TYPE be the first fields in the lab measurement records (the M# records).
3. At a minimum, STA_NAME, STA_TYPE, MED_TYPE, SMP_TYPE, D_COLLECTED, LAB_CODE, LAB_SAMPLE_ID, MATRIX, PARAMTR, RCVD_RSLT, and RCVD_UNIT must be transmitted with each set of data sent to OREIS.
4. The COMMENTS in the FLD_SMP entity is called COM_FLD_SMP in the data transfer file definition record.

The COMMENTS in the LAB_SMP entity is called COM_LAB_SMP in the data transfer file definition record.

The COMMENTS in the LAB_MEAS entity is called COM_LAB_MEAS in the data transfer file definition record.

5. The SAMPLE_ID, SMP_METHOD, T_COLLECTED, COM_FLD_SMP, COM_LAB_SMP, SIG_DIGIT, RSLTQUAL, ANA_TYPE, ANA_METHOD, LAB_METHOD, RAD_ERR, NON_COMPLI_CODE, and COM_LAB_MEAS should be sent when data are available.

7.7 FIELD MEASUREMENT RECORD FORMATS AND SUBMISSION RULES

General format of the field measurement data definition record. An example field measurement data record follows the definition record. The definition record contains fields from FLD_EVENT and FLD_MEAS tables.

For normal samples use the following format:

F#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,SMP_COND,
D_COLLECTED,COM_FLD_EVENT,PARAMTR,RCVD_RSLT,RCVD_UNIT,
SIG_DIGIT,RSLTQUAL,RSLT_PREFIX_QUALIFIER,SUM_METHOD,NON_
COMPLI_CODE,T_COLLECTED,COM_FLD_MEAS

F,"201","PP","WS","REG"," ", "04JUN1994","THIS IS A FIELD EVENT
COMMENT","743992189",0.05,"MGD","2","Q","<","0.005","ABCD","1023","T
HIS IS A FIELD MEASUREMENT COMMENT"

For 'no flows' use the following format:

F#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,SMP_COND,
D_COLLECTED,COM_FLD_EVENT

F,"201","PP","WS","REG","NF","04JUN1994","THIS IS A FIELD EVENT
COMMENT"

Submission Rules:

1. For all submissions of field measurement data, fields from the FLD_EVENT, and FLD_MEAS tables are combined into a definition record.
2. It is mandatory that the STA_NAME + STA_TYPE be the first fields in the field measurement records (the F# records).
3. There are two definition record formats used to transfer field measurement data. Follow rules above to determine the appropriate format. All flow rate field sample data must be sent with a separate definition record from normal field sample data. The SMP_COND is mandatory for flow rate field sample data and is not required for normal field sample data.
4. At a minimum, STA_NAME, STA_TYPE, MED_TYPE, SMP_TYPE, SMP_COND, D_COLLECTED, PARAMTR, RCVD_RSLT and RCVD_UNIT must be populated with each transmission of normal field sample data to OREIS.

5. At a minimum, STA_NAME, STA_TYPE, MED_TYPE, SMP_TYPE, SMP_COND, D_COLLECTED must be populated with each transmission of flow rate field sample data to OREIS.
6. The COMMENTS in the FLD_EVENT entity is called COM_FLD_EVENT in the data transfer file definition record.

The COMMENTS in the FLD_MEAS entity is called COM_FLD_MEAS in the data transfer file definition record.
5. The COM_FLD_EVENT, RSLTQUAL, SUM_METHOD, NON_COMPLI_CODE, T_COLLECTED, and COM_FLD_MEAS should be sent when data are available.

7.8 EXAMPLE DATA TRANSFER FILE

Initial submission of data must include the following records. Refer to Section 5.0 for the business rules on submissions of data.

```
H#,DATE_SENT_OREIS,SENT_BY_SITE
H,"06JUN1994","Y-12"
P#,PROJ_SITE,PROJ_CODE,PROJ_UNIT,PROJ_DESCRIPTION,PROJ_NAME,PROJ_PROGRAM,SITE_NAME,SPONSOR,PROJ_CONTACT,
D_INITIATED,D_COMPLETED
P,"Y-12","NPDES","SURFACE WATER","THE PURPOSE OF THIS
PROJECT IS TO...","NATIONAL POLLUTANT DISCHARGE ELIMINATION
SYSTEM","CWA","Y-12","Y-12 ENVIRONMENTAL MANAGEMENT","KG
HANZELKA","05APR1993","04MAR1994"
L#,EASTING,NORTHING,GRID_SYS,SITE,ELV_ERROR,ELV_METHOD,
GRND_ELV,LOC_DESC,LOC_ERROR,LOC_METHOD,COM_LOCATION,
STA_NAME,STA_TYPE,STA_STATUS,STA_GROUP,STA_DESC,
INIT_DESTINATION,D_DISCONTINUED,D_ESTABLISHED,
COM_STATION
L,154910.8923,76485.3214,"ADMIN","K-25",15.0,"SURVEY",787.56,"THIS IS
THE LOCATION DESCRIPTION","100 FT.,"STA METHOD", "LOCATION
COMMENTS","201","PP","A","CATEGORY II","THE STATION IS 6 FEET
LONG AND 3 FEET WIDE","POPLAR CREEK","04JAN1992",
"05MAY1994","THESE ARE COMMENTS ABOUT THE STATION"
```

L#,LATITUDE, LONGITUDE,SITE,ELV_ERROR, ELV_METHOD,
GRND_ELV,LOC_DESC, LOC_ERROR, LOC_METHOD, COM_LOCATION,
STA_NAME, STA_TYPE, STA_STATUS,STA_GROUP,STA_DESC,
INIT_DESTINATION, D_DISCONTINUED, D_ESTABLISHED,
COM_STATION

L,36.2875,83.9452,"K-25",15.0,"SURVEY",787.56,"THIS IS THE LOCATION
DESCRIPTION","100 FT. ","STA METHOD","LOCATION COMMENTS",
"201","PP","A","CATEGORY II","THE STATION IS 6 FEET LONG AND 3
FEET WIDE","POPLAR CREEK","04JAN1992","05MAY1994",
"THESE ARE COMMENTS ABOUT THE STATION"

R#,NUM_PERMIT,D_INIT_PERMIT,D_EXP_PERMIT,DESC_PERMIT,
D_COMPLETE_PERMIT

R,"1234567890","05MAY1993","05MAY1994","THE PERMIT
DESCRIPTION","02FEB1994"

M#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,D_COLLECTED,
SAMPLE_ID,SMP_METHOD,T_COLLECTED,COM_FLD_SMP,LAB_CODE,
LAB_SAMPLE_ID,MATRIX,COM_LAB_SMP,PARAMTR,RESULTS,UNITS,
SIG_DIGIT,RSLTQUAL,RSLT_PREFIX_QUALIFIER,ANA_TYPE,ANA_ME
THOD,LAB_METHOD,RAD_ERR,NON_COMPLI_CODE,COM_LAB_MEAS
M,"201","PP","WS","REG","05JUN1993","123456789000000","GRAB","1023",
"THIS IS A FIELD SAMPLE COMMENT....","ASO","1212121212121",
"WATER","THIS IS A LAB SAMPLE COMMENT...","123456789",
0.001,"MDG","3","Q","<","OTHER","ANA METHOD",
"LABORTARY METHOD GOES HERE",2,"A",
"THIS IS A LAB MEAS COMMENT"

F#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,SMP_COND,
D_COLLECTED,COM_FLD_EVENT,PARAMTR,RCVD_RSLT,RCVD_UNIT,
SIG_DIGIT,RSLTQUAL,RSLT_PREFIX_QUALIFIER,SUM_METHOD,NON_
COMPLI_CODE,T_COLLECTED,COM_FLD_MEAS

F,"201","PP","WS","REG"," ","04JUN1994","THIS IS A FIELD EVENT
COMMENT","743992189",0.05,"MGD","2","Q","<","0.005","ABCD","1023","T
HIS IS A FIELD MEASUREMENT COMMENT"

F#,STA_NAME,STA_TYPE,MED_TYPE,SMP_TYPE,SMP_COND,
D_COLLECTED,COM_FLD_EVENT

F,"201","PP","WS","REG","NF","04JUN1994","THIS IS A FIELD EVENT
COMMENT"

[insert more records]

T#,NUM_RECORDS

T,200

8.0 SIGNIFICANT DIGITS

The measurement result field is used by many different types of media and therefore dictates that the field accommodate measurement results with varying amounts of digits. A new field called SIG_DIGIT has been added to OREIS which indicates the number of significant digits per each measurement result value. The user of the data must know the number of significant digits to determine accurately the precision of the measurement result value.

The number of significant digits helps define the precision of the measurement. For instance, a measurement of 51 mL is assumed to be accurate to 1mL since this is the smallest digit. A 51.11 mL measurement has 4 significant digits and may be assumed to be accurate to .01mL. Zeros to the left of a decimal place, but before digits (1-9) are not significant. If the number is less than one, all zeros to the right of a decimal place, but to the left of digits (1-9) are not significant. Zeros to the right or left of the decimal place and to the right of digits (1-9) are significant.

Examples.

<u>Value</u>	<u># of significant digits</u>
1234	4
1234.5	5
1234.50	6
1004.06	6
.0006	1
.00060	2

9.0 OREIS DATA INTEGRITY CHECKS

Data that are transmitted to OREIS will be evaluated by OREIS staff to ensure that the transmitted data are consistent, complete, qualified and documented. The data base integrity checking process will confirm that 1) the number of records received matches the number of records provided in the trailer record; 2) the locations are appropriate; 3) all provided codes are in the code tables; and 4) will initially provide a summary to the users of what was loaded.

Reviews for data consistency and completeness may include (1) range checks, elementary statistics, or scatter plots of numeric and date fields to check for missing data, reasonable values, and outliers; (2) frequency tabulations and sorted lists of units, qualifiers, codes, and other selected character fields to check for missing data, miscoded data, and inconsistencies; (3) comparison of new and existing data check for errors and wrong units

of measure; (4) maps of station locations to verify coordinates; (5) checks to confirm that related records can be linked, i.e., that laboratory measurement results match with records that define the field sampling date and the coordinates of the sampling location, and, if appropriate, the well construction data; and (6) other checks based on the data, e.g., check for samples from dry wells.

10.0 REQUESTING CHANGES TO NPDES DATA IN OREIS

A request for a change to NPDES surface water data stored in OREIS will be handled according to the Submitting, Reviewing, and Approving Changes to the Oak Ridge Environmental Information System (OREIS) (ERWM/C-P2703, Rev. 1) procedure.

11.0 CONFIGURATION CONTROL

Configuration control of this technical specification will be handled by the Submitting, Reviewing, and Approving Changes to the Oak Ridge Environmental Information System (OREIS) (ERWM/C-P2703, Rev. 1) procedure. Users should request changes to this specification as specified in this procedure. The change request will be documented, reviewed and agreed upon by all compliance groups and the OREIS staff.

12.0 REFERENCES

Federal Facility Agreement for the Oak Ridge Reservation, DOE/OR-104, U.S. Environmental Protection Agency Region IV, U.S. Department of Energy, Tennessee Department of Environment and Conservation, Atlanta, Georgia, January 1, 1992.

Tennessee Oversight Agreement between the United States Department of Energy and the State of Tennessee, May 13, 1991.

"Data Dictionary for the Oak Ridge Environmental Information System, Version 2.0" ES/ER/TM-116, Environmental Restoration Division, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee.

"Data Management Plan for the Oak Ridge Environmental Information System, Version 2.0" ES/ER/TM-39/R1, Environmental Restoration Division, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee.

"Transmitting Data to the Oak Ridge Environmental Information System," Environmental Restoration (ER) Division Procedure ERWM/ER-P2701, Rev. 0, Martin Marietta Energy Systems, Inc., Oak Ridge, Tennessee, April 26, 1994.

APPENDIX A
OREIS ENTITY RELATIONSHIP DIAGRAM

Model :OREIS2

Subset:ALL

Time: 12:00

OREIS

APPENDIX B
OREIS FIELD DEFINITIONS

OREIS FIELD DEFINITIONS

ANA_METHOD - The number of the method used to analyze the sample according to the ORNL Common Lab Practices Committee.

ANA_TYPE - The coded value of the chemical group to which the analyte belongs (e.g., RADS = Radiochemical analysis, VOA = Volatile Organics). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the ANA_TYPE code table values.

COMMENTS - Each entity contains a field called COMMENTS which contains descriptive information about the entities purpose.

D_COLLECTED - The date the sample was collected. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_COMPLETED - The date the project was completed. This field is not populated until the project actually is completed or does expires. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_COMPLETE_PERMIT - The date the permit was completed. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_DISCONTINUED - The date the station was discontinued in the field. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_ESTABLISHED - The date the station was established in the field. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_EXP_PERMIT - The date the permit is scheduled to expire. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_EXPIRED - The date the project expires. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_INITIATED - The date the project was initiated. The date format is DDMONYYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

D_INIT_PERMIT - The date the permit was initiated. The date format is DDMONYYYY, where DD is the 2 digit day, MON is the 3 character month, and YYYY is the 4 digit year.

DESC_PERMIT - Key information which describes the purpose of the permit.

EASTING - The x-value (East-West) of the distance in feet of a sampling or measuring location from the reference location. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

ELV_ERROR - The elevation measurement error in feet.

ELV_METHOD - The coded value that represents the elevation measurement method (e.g., ECM = Estimated from Contour Map, GPS = Global Positioning Satellite, etc.). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the ELV_METHOD code table values.

GRID_SYS - The coordinate grid system defines units used for EASTING and NORTHING (e.g., ADMIN = Administrative Grid, K-25 = K-25 Grid, ORNL = ORNL Grid, Y-12 = Y-12 Grid, NAD27 = State Plane Grid-NAD27, etc.). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the GRID_SYS code table values.

GRND_ELV - The elevation of ground surface (for groundwater, soil, or sediment sampling) at a sampling or measuring location in feet above mean sea level (msl).

INIT_DESTINATION - The initial destination of the sampled media (i.e., the receiving water's initial destination was POPLAR CREEK). This would also apply to soils.

LAB_CODE - The coded value assigned by the project that represents the analytical laboratory that performed the analysis of the sample (e.g., K-25 = MMES K-25 Plant, ASO = Analytical Services Organization). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the LAB_CODE code table values.

LAB_METHOD - The name of the laboratory method used to perform the analysis if not a standard method defined by ANA_METHOD.

LATITUDE - The geographic position of a station in degrees north of the equator. Must be in the format DDD.XXXXXX where DDD represents degrees, and XXXXXX represents decimal degrees. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

LOC_DESC - The description of the location of the station.

LOC_ERROR - The location error in feet (the estimate of precision of the location coordinates).

LOC_METHOD - The method used for locating the station.

LONGITUDE - The geographic position of a station in degrees west of the Prime Meridian. Must be in the format DDD.XXXXXX where DDD represents degrees, and XXXXXX represents decimal degrees. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

MATRIX - The sample medium being analyzed (i.e., soil or water). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the MATRIX code table values.

MED_TYPE - The coded value that represents the sample medium (e.g., WS = Surface Water, AA = Ambient Air, etc.). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the MED_TYPE code table values.

NON_COMPLI_CODE - The coded value indicating the type of non-compliance. If this field is null it is not a non-compliance. Each occurrence of this code does not necessarily represent a unique non-compliance. Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the NON_COMPLI_CODE code table values.

NORTHING - The y-value (North-South) of the distance in feet of a sampling or measuring location from the reference location. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

NUM_PERMIT - The permit number(s) under which the station is monitored.

PARAMTR - The Chemical Abstract Services (CAS) number, without dashes if it is contained in the OREIS PARAMETER table. If not, it is a non-CAS number assigned by the Common Lab Practices Committee, or a non-standard number assigned by OREIS staff representing a parameter/analyte/measurement.

PROJ_CODE - Acronym for the project, for example "FCAP" for Filled Coal Ash Pond, "NPDES" for National Pollutant Discharge Elimination System.

PROJ_CONTACT - The site person responsible for reporting data to DOE, the State of Tennessee, or a regulatory agency (e.g., format = JB SMITH).

PROJ_DESCRIPTION - The description of the project, often taken from ORR Site Management Plan of the ER Program.

PROJ_NAME - The name of the project assigned by the project staff (i.e., National Pollutant Discharge Elimination System = NPDES).

PROJ_PROGRAM - The environmental program, legislation, or DOE order that initiated the project (e.g., the Clean Water Act (CWA)).

PROJ_SITE - The acronym for site initiating the work (e.g., ORNL, Y-12, K-25, Paducah, Portsmouth, or Offsite).

PROJ_UNIT - The acronym of the geographic unit associated with the project (e.g., Surface Water, Ground Water, Ambient Air, WAG1, etc.).

RAD_ERR - The counting error for a specific radionuclide expressed as two standard deviations, for RAD data.

RCVD_RSLT - The measurement for a given parameter, reported in units consistent with the OREIS Data Management Plan. The National Pollutant Discharge Elimination System (NPDES) populates this field.

RCVD_UNIT - The coded value that represents the units of measure used to report the parameter value. See CODE table where CODE_TYPE = UNITS for a list of valid values and their descriptions. Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the UNITS code table values.

RSLT_PREFIX_QUALIFIER - A qualifier indicating whether the result is below, within, or above range limits. Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the RSLT_PREFIX_QUALIFIER code table values. Permitted values include:

- < The actual value is below the given range limit.
- > The actual value is above the given range limit.

RSLTQUAL - The coded value that documents any conditions associated with the results of the analysis (e.g., A, B, >, <, etc.). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the RSLTQUAL code table values.

SAMPLE_ID - The unique sample id assigned by the project.

SIG_DIGIT - The number of significant digits in an answer helps define the precision of the measurement. For instance, a measurement of 51 mL is assumed to be accurate to 1 mL since this is the smallest digit. A 51.11 mL measurement has 4 significant digits and may be assumed to be accurate to .01 mL. Zeros to the left of a decimal place, but before digits (1-9) are not significant. If the number is less than zero, all zeros to the right of a decimal place, but to the left of digits (1-9) are not significant. Zeros to the right of the decimal place and to the right of digits (1-9) are significant.

Examples:

<u>Value</u>	<u># of significant digits</u>
1234	4
1234.5	5
1234.50	6
1004.06	6
.000.	1
.00060	2

SITE - The acronym for the site within which the station is located (K-25, ORNL, Paducah, Portsmouth, Y-12, Offsite).

SITE_NAME - The name of the site associated with this data (i.e., the PROJ_SITE spelled out where applicable).

SMP_COND - The coded value that represents conditions at the station at collection time (e.g., NF = No flow, DW = Dry well). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the SMP_COND code table values.

SMP_DEVICE_TYPE - The coded value that represents the name of the equipment used to collect the sample (e.g., bailer, centrifugal pump). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the SMP_DEVICE_TYPE code table values.

SMP_METHOD - The coded value that represents the sampling method used to collect the sample (e.g., GR=Grab, CM=Composite, ES=Estimate). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the SMP_METHOD code table values.

SMP_TYPE - The coded value that represents the type of sample collected (e.g., REG = Regular, FB = Field blank, REP = Replicate, TB = Trip blank). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the SMP_TYPE code table values.

SPONSOR - The organization responsible for data generation (e.g., Y-12 Environmental Management).

STA_DESC - The description of the specific sampling or measuring location.

STA_GROUP - The station group indicates the grouping of stations designated by the project based sampling design or other criteria (e.g., general category of discharge). For NPDES data, this field will contain one of the following outfall categories (e.g., CATEGORY I, CATEGORY II, CATEGORY III, CATEGORY IV). A category is a grouping of outfalls for NPDES data.

STA_NAME - The unique station name assigned by the individual projects.

STA_STATUS - The coded status of the station (e.g., A = Active station, I = Inactive station). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the STA_STATUS code table values.

STA_TYPE - The coded type of station (e.g., PP=Pipe, DK=Dike, CB=Catch Basin, RV=River/Stream). Refer to the Data Dictionary for the Oak Ridge Environmental Information System (ES/ER-TM-116) for the STA_TYPE code table values.

SUM_METHOD - The summation method used to aggregate data, such as maximum or mean.

T_COLLECTED - The time the measurement or sample was collected. The time format is HHMM, 24 hour notation, where HH is the 2 digit hours, and MM is the 2 digit minutes).

Addendum to the Technical Specification for Transferring
National Pollutant Discharge Elimination System (NPDES)
Surface Water Data to the
Oak Ridge Environmental Information System (OREIS)

Environmental Restoration Program
P. O. Box 2003
Oak Ridge, Tennessee 37831-7298

Date Issued

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Oak Ridge National Laboratory

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Addendum to the Technical Specification for Transferring National Pollutant Discharge Elimination System (NPDES) Surface Water Data to the Oak Ridge Environmental Informaiton System (OREIS).

Due to changes in the OREIS data base structure and data dictionary it is necessary to create this addendum to document those changes which affect this specification.

1. Section 4.1 - Increase the length of ANA_TYPE to 6 characters and ANA_METHOD to 30 characters in the LAB_MEAS table.
2. Section 6.0 - Delete the 'blank' options for CODE_TYPE = RSLTQUAL and CODE_TYPE = RSLT_PREFIX_QUALIFIER. The general submission rule (section 7.0) of "To indicate a character field or numeric field is empty/null use two commas together (e.g., ,,)" will provide a way to indicate that no data will be supplied for a particular field for a particular data record.
3. Section 6.0 - Correct the ** code in CODE_TYPE = RSLTQUAL to a !. This is a one character code and the * was already being used.
4. Section 6.0 - Add 'NS' as the code for Normal Sample in the CODE_TYPE = SMP_COND code table.
5. Section 6.0 - Correct the CODE_TYPE = SMP_TYP. It should be STA_TYPE.
6. Section 6.0 - Correct the spelling of OREIS in the CODE_TYPE = UNITS part of this section.
7. Section 7.0 - Correct the numbering to include 7.6.
8. Section 7.1 - Delete the submission rule of "A blank (' ') is written to the data base as a blank". The submission rule "To indicate a character field or numeric field is empty/null use two commas together (e.g., ,,)" will provide a way to indicate that no data will be supplied for a particular field for a particular record.
9. Appendix B - Correct the spelling of 'environment' in the definition of PROJ_PROGRAM.
10. The following is a current listing of OREIS table definitions:

FLD_EVENT	The FLD_EVENT table contains data about a measurement event. A measurement event is an occasion where environmental parameters are measured in the field with or without collecting a sample (see FLD_MEAS). The table includes the measurement method and type, the date of the measurement, etc.
FLD_MEAS	The FLD_MEAS table contains the measurement data for the environmental parameters collected in a

measurement event (see **FLD_EVENT**). Examples are flow rate, depth, and temperature. It includes results, QA qualifiers, etc.

FLD_SMP	The FLD_SMP table contains data about a sampling event. A sampling event is an occasion where field samples are collected for analysis. A field sample is an environmental sample that is collected in the field. It may be analyzed in a field laboratory or it may be packaged for shipment to an analytical laboratory. The table includes the sample method, sample type, depth, date, and time collected, etc.
LAB_MEAS	The LAB_MEAS table contains the measurement data for a laboratory sample. A laboratory sample is an environmental sample that is collected in the field and sent to a laboratory for analysis. The table includes the measurement, parameter, analysis method, units, QA detection limit, etc.
LAB_SMP	The LAB_SMP table describes samples that are submitted for laboratory analysis. There must be an entry in the FLD_SMP for each sample processed by the laboratory. A laboratory sample is an environmental sample that is collected in the field and sent to the laboratory for analysis. There may be more than one lab sample for a given field sample. A lab sample is tied to a field sample.
LOCATION	The LOCATION table contains data about unique sampling points. Each point has an OREIS-assigned identifier that is unique. Most locations are points described by x, y coordinates, but a location could be a line or a polygon where measuring events occur. The table includes geographic coordinates, elevation, etc.
PERMIT	The effluent limitations and monitoring requirements under which stations are monitored.
PROJECT	The PROJECT table contains data about specific projects. A project is an environmental program responsible for collecting samples or taking measurements and creating regulatory reports. A project is defined by its site (or facility), sponsor, and project domain (either the geographic domain of the project within a site or its thematic domain). The table includes the project name and description, the site name, activity data set names and numbers, etc.
STATION	The STATION table contains data about sampling points associated with a project. Each point has distinct station names within a project. The table includes OREIS identifiers and the OREIS-assigned station id.
STAT_PERMIT	The STAT_PERMIT table is an associative entity used to establish the relationship of multiple stations assigned multiple permits and the relationship of multiple permits assigned multiple stations.

11. The following is a current listing of OREIS field definitions:

Table: **FLD_EVENT**

MED_TYPE	Coded value that represents the measurement medium. See CODE table where CODE_TYPE = MED_TYPE for a list of valid values and their descriptions.
SMP_TYPE	Coded value that represents the type of measurement collected. See CODE table where CODE_TYPE = SMP_TYPE for a list of valid values and their descriptions.
COMMENTS	Comments about the field events.
D_COLLECTED	Date measurement was taken. This may not exist for historical data.
SMP_COND	Coded value that represents conditions at the station at collection time (e.g., NF = No flow, DW = Dry well). See CODE table where CODE_TYPE = SMP_COND for a list of valid values and their descriptions. Required for National Pollutant Discharge Elimination System (NPDES).

**Table: FLD_MEAS
PARAMTR**

Chemical Abstract Services number without dashes if it is contained in the OREIS PARAMETER table. If not, it is a non-CAS number assigned by the Common Lab Practices Committee, or a non-standard number assigned by OREIS staff representing a parameter/analyte/measurement.

COMMENTS

Comments about the measurement.

NON_COMPLI_CODE

Coded value indicating the type of non-compliance. A null field signifies compliance. One or more results may be part of a single non-compliance event, i.e., the number of results with a non-compliance code does not equal the number of non-compliance events. Required for National Pollutant Discharge Elimination System (NPDES). See CODE table where CODE_TYPE = NON_COMPLI_CODE for a list of valid values and their descriptions.

RCVD_RSLT

Measurement for a given parameter, reported in units consistent with the OREIS Data Management Plan. Required for National Pollutant Discharge Elimination System (NPDES).

RCVD_UNIT

Coded value that represents the units of measure used to report the parameter value. See CODE table where CODE_TYPE = UNITS for a list of valid values and their descriptions. Required for National Pollutant Discharge Elimination System (NPDES).

RSLTQUAL

Coded value that documents any conditions associated with the results of the analysis. See CODE table where CODE_TYPE = RSLTQUAL for a list of valid values and their descriptions.

RSLT_PREFIX_QUALIFIER

A qualifier indicating whether the result is below, within, or above range limits. See CODE table where CODE_TYPE = RSLT_PREFIX_QUALIFIER for a list of valid values and their descriptions. Required for National Pollutant Discharge Elimination System (NPDES) and Ambient Air.

SIG_DIGIT

Required for National Pollutant Discharge Elimination System (NPDES). The number of significant digits in an answer helps define the precision of the measurement. For instance, a measurement of 51 ml is assumed to be accurate to 1 ml since this is the smallest digit. A 51.11 ml measurement has 4 significant digits and may be assumed to be accurate to .01 ml. Zeros to the left of a decimal place, but before digits (1-9) are not significant. If the number is less than zero, all zeros to the right of a decimal place, but to the left of digits (1-9), are not significant. Zeros to the right of the decimal place and to the right of digits (1-9) are significant. Examples:

Value	# of Significant Digits
1234	4
12345	5
123450	6
123406	6
0006	1
00060	2

SUM_METHOD

Summation method used to aggregate data, such as maximum or mean, if one is used.

T_COLLECTED

Time of measurement in 24 hour time.

**Table: FLD_SMP
MED_TYPE**

Coded value that represents the sample medium. See CODE table where CODE_TYPE = MED_TYPE for a list of valid values and their descriptions.

SMP_TYPE	Coded value that represents the type of sample collected. See CODE table where CODE_TYPE = SMP_TYPE for a list of valid values and their descriptions.
COMMENTS	Comments about the field sample.
D_COLLECTED	Date sample was collected. This may not exist for historical data.
SAMPLE_ID	Unique sample identifier assigned by the project, if available.
SMP_METHOD	Coded value that represents the sampling method. See CODE table where CODE_TYPE = SMP_METHOD for a list of valid values and their descriptions.
T_COLLECTED	Time sample was collected in 24 hour time.
Table: LAB_MEAS	
ANA_METHOD	Method number assigned by the Common Lab Practices Committee to identify a standard analysis method.
ANA_TYPE	Coded value of the chemical group to which the analyte belongs. See CODE table where CODE_TYPE = ANA_TYPE for a list of valid values and their descriptions.
PARAMTR	Chemical Abstract Services number without dashes if it is contained in the OREIS PARAMETER table. If not, it is a non-CAS number assigned by the Common Lab Practices Committee, or a non-standard number assigned by OREIS staff representing a parameter/analyte/measurement.
COMMENTS	Comments about the individual sample.
LAB_METHOD	Name of the laboratory method used to perform the analysis if not a standard method defined by ANA_METHOD.
NON_COMPLI_CODE	Coded value indicating the type of non-compliance. A null field signifies compliance. One or more results may be part of a single non-compliance event, i.e., the number of results with a non-compliance code does not equal the number of non-compliance events. Required for National Pollutant Discharge Elimination System (NPDES). See CODE table where CODE_TYPE = NON_COMPLI_CODE for a list of valid values and their descriptions.
RAD_ERR	The counting error for a specific radionuclide expressed as 2 standard deviations, for RAD data.
RCVD_RSLT	Measurement for a given parameter, reported in units consistent with the OREIS Data Management Plan. Required for National Pollutant Discharge Elimination System (NPDES).
RCVD_UNIT	Coded value that represents the units of measure used to report the parameter value. See CODE table where CODE_TYPE = UNITS for a list of valid values and their descriptions. Required for National Pollutant Discharge Elimination System (NPDES).
RSLTQUAL	Coded value that documents any conditions associated with the results of the analysis. See CODE table where CODE_TYPE = RSLTQUAL for a list of valid values and their descriptions.
RSLT_PREFIX_QUALIFIER	A qualifier indicating whether the result is below, within, or above range limits. See CODE table where CODE_TYPE = RSLT_PREFIX_QUALIFIER for a list of valid values and their descriptions. Required for National Pollutant Discharge Elimination System (NPDES) and Ambient Air.

SIG_DIGIT

Required for National Pollutant Discharge Elimination System (NPDES). The number of significant digits in an answer helps define the precision of the measurement. For instance, a measurement of 51 ml is assumed to be accurate to 1 ml since this is the smallest digit. A 51.11 ml measurement has 4 significant digits and may be assumed to be accurate to .01 ml. Zeros to the left of a decimal place, but before digits (1-9) are not significant. If the number is less than zero, all zeros to the right of a decimal place, but to the left of digits (1-9), are not significant. Zeros to the right of the decimal place and to the right of digits (1-9) are significant. Examples:

Value	# of Significant Digits
1234	4
12345	5
123450	6
123406	6
0006	1
00060	2

Table: LAB_SMP
LAB_CODE

Coded value assigned by the project that represents the analytical laboratory that performed the analysis of the sample. See the CODE table where CODE_TYPE = LAB_CODE for a list of valid values and their descriptions.

MATRIX

Sample medium being analyzed (i.e., soil or water). See CODE table where CODE_TYPE = MATRIX for a list of valid values and their descriptions.

COMMENTS

Comments about the sample.

LAB_SAMPLE_ID

Unique value assigned by the analytical laboratory to identify the sample, if a SAMPLE_ID exists.

Table: LOCATION
GRND_ELV

Elevation of ground surface (for groundwater, soil, or sediment sampling) at a sampling or measuring location in feet above mean sea level (msl).

SITE

Acronym for the site within which the station is located (K-25, ORNL, Paducah, Portsmouth, Y-12, Offsite).

COMMENTS

Comments about the location.

EASTING

X-value (East-West) of the distance in feet of a sampling or measuring location from the reference location. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

ELV_ERROR

Elevation measurement error in feet.

ELV_METHOD

Coded value that represents the elevation measurement method. See CODE table where CODE_TYPE = ELV_METHOD for a list of valid values and their descriptions.

GRID_SYS

Coordinate grid system, defines units used for EASTING and NORTHING. See CODE table where CODE_TYPE = GRID_SYS for a list of valid values and their descriptions. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

LATITUDE

Geographic position of a station in degrees north of the equator. Must be in the format DDD.XXXXXX where DDD represents degrees and XXXXXX represents decimal degrees. Must have either GRID_SYS, EASTING, and NORTHING, or LATITUDE and LONGITUDE.

LOC_DESC	The description of the location of the station.
LOC_ERROR	Location error in feet.
LOC_METHOD	Method used for locating the station.
LONGITUDE	Geographic position of a station in degrees west of the Prime Meridian. Must be in the format DDD.XXXXXXX, where DDD represents degrees and XXXXXX represents decimal degrees. Must have either GRID_SYS, EASTING, and NORTHING; or LATITUDE and LONGITUDE.
NORTHING	Y-value (North-South) of the distance in feet of a sampling or measuring location from the reference location. Must have either GRID_SYS, EASTING, and NORTHING; or LATITUDE and LONGITUDE.

Table: PERMIT
D_EXP_PERMIT

D_EXP_PERMIT	Date the permit is scheduled to expire.
D_INIT_PERMIT	Date the permit was initiated.
NUM_PERMIT	The permit number(s) under which the station is monitored.
DESC_PERMIT	Key information which describes the purpose of the permit.
D_COMPLETE_PERMIT	Date the permit was completed.

Table: PROJECT
PROJ_SITE

PROJ_SITE	Acronym for site initiating the work (e.g., ORNL, Y-12, K-25, Paducah, Portsmouth, or Offsite).
PROJ_UNIT	Acronym of the geographic unit associated with the project (e.g., Surface Water, Ground Water, Ambient Air, WAG1).
D_COMPLETED	Date the project was completed, if applicable.
D_INITIATED	Date that the project was initiated.
PROJ_CODE	Acronym assigned by the project (e.g., "FCAP" for Filled Coal Ash Pond, "NPDES" for National Pollutant Discharge Elimination System).
PROJ_CONTACT	The person at the site responsible for reporting data to DOE, the State of Tennessee, or a regulatory agency (e.g., format = JB SMITH).
PROJ_DESCRIPTION	Description of the project, often taken from the ORR Site Management Plan of the ER Program.
PROJ_NAME	Name of the project assigned by the project staff.
PROJ_PROGRAM	The environmental program, legislation, or DOE order that initiated the project (e.g., the Clean Water Act [CWA]).
SITE_NAME	Name of the site associated with this data.
SPONSOR	The organization responsible for data generation (e.g., Y-12 Environmental Management).

Table: STATION

STA_NAME	Unique station name assigned by the individual projects.
STA_TYPE	Type of station. See CODE table where CODE_TYPE = STA_TYPE for a list of valid values and their descriptions.
COMMENTS	Comments about the station.
D_DISCONTINUED	Date the station was discontinued in the field, if applicable.
D_ESTABLISHED	Date the station was established in the field.
INIT_DESTINATION	The initial destination of the sampled media (e.g., the receiving water's initial destination was POPLAR CREEK). This also would apply to soils.
STA_DESC	Description of the specific sampling or measuring location.
STA_GROUP	The station group indicates the grouping of stations designated by the project-based sampling design or other criteria (e.g., general category of discharge). For NPDES data, this field will contain one of the following outfall categories: CATEGORY I, CATEGORY II, CATEGORY III, and CATEGORY IV. A category is a grouping of outfalls for NPDES data.
STA_STATUS	Status of the station. See CODE table where CODE_TYPE = STA_STATUS for a list of valid values and their descriptions.

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**Environmental Restoration Program
P. O. Box 2003
Oak Ridge, Tennessee 37831-7298**

Date Issued

December 8, 1994

**Prepared by
Oak Ridge Environmental Information System (OREIS)
Oak Ridge National Laboratory**

**Prepared for
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**OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37831-6285
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MARTIN MARIETTA ENERGY SYSTEMS, INC.
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Due to changes in the OREIS data base structure and data dictionary it is necessary to create this addendum to document changes which affect this specification.

1. OREIS now has a mandatory requirement that the NPDES program must supply data for the ANA_METHOD and ANA_TYPE fields. These fields are part of the LAB_MEAS table.

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