

DRAFT

**Guidance on
Water Quality, Contaminants, and Aquatic Biology
Vital Signs Monitoring Under the Natural Resource Challenge
Long-Term Water Quality Monitoring Program**

PART E

**Draft Guidance on Data Reporting
and Archiving in STORET**

**(Work in Progress)
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(Send Suggestions to Dean_Tucker@NPS.GOV)**

By

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INTRODUCTION

**“Always do the right thing. This will gratify some people and astonish the rest.”
Mark Twain**

**Tucker’s Corollary
“But how will they remember that you did the right thing?”**

The preceding sections (Parts A through D) of this document provide guidance on how Vital Signs Networks can “do the right thing” in designing and implementing long-term water quality monitoring programs. This section is intended to help posterity remember that your Network did the right thing by ensuring the results of your monitoring efforts are appropriately reported and archived. Only by implementing an appropriate data management program can we be sure to both preserve and amplify the investment of public resources that have been expended on water quality Vital Signs monitoring.

Data management is not as glamorous as planning or designing a water quality monitoring program. Nor is data management as fun as venturing afield to collect the samples or make measurements and observations. As a result, data management is often relegated to one of the last steps in the water quality monitoring process. But without adequate data management, an otherwise successfully designed and implemented water quality monitoring program could founder. If the results of the monitoring program are not readily available in easily accessible (popular) formats or not properly documented with adequate metadata, the entire effort could be considered for naught. Data management sets the stage for data analysis and interpretation, which, in turn, provides feedback to the monitoring effort. Consequently, data management should be considered an integral part of a water quality monitoring program.

The art and science of data management is well documented. For a sampling of prominent data management-related texts, refer to the bibliography maintained by the Data Management Association at <http://www.dama.org/public/pages/index.cfm?pageid=204>. For an NPS perspective on data management, visit the Servicewide Inventory & Monitoring Program’s Data Management website at <http://science.nature.nps.gov/im/datamgmt/index.cfm>. Rather than focusing on the basics of data management, the purpose of this document is simply to provide draft guidance for data reporting and archiving in support of the NPS Vital Signs Water Quality Monitoring Program.

BACKGROUND

Vital Signs Monitoring Networks will be collecting a wide variety of physical, chemical, biological, habitat, and other data in support of monitoring impaired, pristine, and other high-priority waters. The Implementation Plan for the Water Quality Monitoring Component of the National Park Service Vital Signs Monitoring Program states that all water quality data collected by Vital Signs Monitoring Networks will be funneled through the NPS Water Resources

Division into the Environmental Protection Agency's (EPA) modernized STORET (STOrage and RETrieval) database where the data will be available to parks, Networks, Regions, and the public on the Internet at <http://www.epa.gov/storet>.

STORET is the EPA's oldest and largest data system. The Legacy Data Center (LDC) (<http://www.epa.gov/storpubl/legacy/gateway.htm>) portion of STORET was billed as the world's largest repository of ambient water quality data. The LDC contains water quality data collected from all 50 states, tribal lands, U.S. Territories, and Canada collected by Federal, State, and other governmental entities prior to 1999. The NPS Water Resources Division was an active contributor to the old mainframe legacy STORET database, entering more than 2.5 million observations collected from 1900 to 1998 from 17,477 monitoring stations in or near 191 national park units.



More germane to the Vital Signs Monitoring Networks, however, is the new or modernized STORET (Version 2.02). Modernized STORET adopts a distributed database model that relies on government agencies and other entities to operate local copies of STORET and Oracle. Periodically these local STORET implementations replicate their entire database on the web-accessible STORET National Data Warehouse (http://www.epa.gov/storet/dw_home.html). Modernized STORET is a full-featured database that allows users to enter nearly any type of environmental monitoring data and thoroughly document the results of monitoring with complete metadata. All data in modernized STORET must include the required metadata. Data collected through 1998 and entered into the mainframe legacy version of STORET can be migrated to modernized STORET provided the responsible organization includes all the new metadata required by modernized STORET. Since all organizations didn't perform this migration, a query of STORET for all available water quality data must access both the LDC and the STORET National Data Warehouse. The NPS Water Resources Division did migrate the 2.5 million observations it entered into legacy STORET to modernized STORET; so if you are searching for only NPS-entered data, you need only search modernized STORET.

Why STORET?

The NPS has elected to use STORET as its Servicewide archive for water quality data for several reasons:

- States are responsible for promulgating and enforcing water quality standards under the Clean Water Act (<http://www4.law.cornell.edu/uscode/33/ch26.html> and <http://www.ncseonline.org/NLE/CRSreports/water/h2o-32.cfm>) with oversight by the EPA. This includes ensuring water quality standards are met in national park units. STORET is the water quality database employed by many states and the EPA. The ready accessibility of NPS data in STORET increases the probability that our data will be used by states in determining compliance with water quality standards (including impairment status, outstanding national or state resource waters designation, etc.), developing Total Maximum Daily Loads, and for other regulatory, enforcement, or assessment activities.

- STORET is a robust, full-featured, relational database that the EPA spends millions of dollars developing and supporting every year. In fact, the annual EPA budget for developing and supporting STORET exceeds the amount of money the NPS expends annually on collecting water quality data under the Water Quality Vital Signs Monitoring Program. Developing a database with similar capabilities in-house would be a waste of tax dollars. The scant NPS resources are better spent actually collecting the data.
- Although developed and supported by the EPA, STORET will be the NPS' Servicewide water quality archive. The NPS' STORET database will physically reside on an Oracle server at the NPS Natural Resource Program Center in Fort Collins, Colorado.
- The public can search, examine, and retrieve NPS-entered and other data from the STORET National Data Warehouse (http://www.epa.gov/storet/dw_home.html) on the Internet. The STORET National Data Warehouse will contain a complete backup copy of the NPS's STORET database.
- The enhanced metadata recommendations of the Interagency Task Force on Monitoring Water Quality (<http://water.usgs.gov/wicp/itfm.html>) and its successor, the National Water Quality Monitoring Council (<http://water.usgs.gov/wicp/acwi/monitoring>), are supported by modernized STORET. This allows water quality monitoring programs to thoroughly document the content, quality, condition, and other characteristics of data to allow users to ascertain the quality and appropriateness of the data for other applications.
- The Natural Resources Management Guideline (NPS-77) states that the NPS should provide water quality monitoring data to STORET as the national water quality repository (<http://www1.nature.nps.gov/rm77/freshwater/WaterResources.htm>).
- The NPS made a substantial investment in STORET, entering over 2.5 million observations at 17,477 stations for 191 parks.

VITAL SIGNS DATA REPORTING

All Vital Signs Monitoring Networks will submit their water quality monitoring results to the Water Resources Division on at least an annual basis for upload into the NPS' STORET database. If desired, Networks can provide their data more frequently. At minimum, the results provided must include the recommended water quality data elements developed by the Methods and Data Comparability Board of the National Water Quality Monitoring Council (NWQMC) (<http://wi.water.usgs.gov/methods/tools/wqde/index.htm>). These data elements document the “Who, What, Where, When, Why, and How” of the monitoring effort. Networks can record/provide additional metadata as desired; but the NWQMC data elements should be considered the key pieces of metadata that must be provided for every result as applicable. The water quality data element categories (the 5Ws and the big H) will be discussed in general terms below followed by more specifics about how these data should be transmitted to WRD for upload to STORET.

Who:

This is the contact information, including formal name, organizational name, mailing address, phone number, and e-mail address for: (1) the data owner; (2) the sampling entity; and (3) the lab that analyzed the sample. Basically, this information allows anyone to contact the sample collector, lab analyzer, and whoever is ultimately responsible for the data. As the sampling entity and lab analyzer will likely change overtime, it is important that these data get tagged/stored with each sample that is collected.

What:

This is the physical, chemical, biological or habitat characteristic, analyte, parameter, or generically the “thing” that was measured, observed, or sampled while monitoring. This would include the core parameters (i.e. conductivity, dissolved oxygen, pH, and temperature). Providing this information also entails specifying the analyte name; filtered fraction (total, dissolved, suspended, etc.); sample medium (water, sediment, biological, air, etc.); sample identification number; field or lab measured; measurement units (mg/l, °C, µg/l, etc.); detection and quantification limits; Chemical Abstracts Service Registry Number (for chemicals); and Biological Systematic Name and ITIS Taxonomic Serial Number (for biological data). Details about composite, replicate, and QC samples are also specified here.

Where:

This is the location where the measurement/observation occurred or the sample was collected. The location identification should include the name of the water body (Use the Geographic Names Information System: <http://geonames.usgs.gov/gnishome.html> as appropriate.); sampling location type (eg. river, canal, spring, estuary, etc.); latitude and longitude coordinates; datum, source, source scale, and accuracy for latitude and longitude coordinates; location elevation; datum, source, source scale, and units for elevation; water depth (to the bottom at the station and at which the sample was collected); and depth units.

When:

This element documents when a particular measurement or observation was made or sample collected. It includes the start date and time and, optionally, end date and time. This element also includes the date and, optionally, time the lab analyzed the sample. Time zone is a required element whenever a time is entered.

Why:

In a general sense, this data element should include a basic statement of the purpose of the monitoring effort. More specifically, this element attempts to document why a particular sample was collected (e.g. reconnaissance/occurrence survey, trend analysis, permit compliance, pollution event, etc.). This concept can be extended to the station level to include why a particular station was included in the sample design.

How:

This is the capstone of the metadata – documenting collection, gear configurations, preservation/treatment, and analysis of each sample and the protocol and equipment employed to make measurements and observations. Ideally, this information is contained in an approved Quality Assurance Project Plan (QAPP) or sampling plan. Otherwise, the data collectors and lab that analyzed the samples must be queried regarding the detailed protocol used to collect, preserve/treat, transport, and analyze samples and make measurements and observations.

GETTING STARTED

The best source for the latest information, tools, and tips on entering Vital Signs water quality data in STORET is the NPS WRD's Vital Signs Water Quality Data Management and Archiving website at <http://www.nature.nps.gov/water/infoanddata/index.cfm>. What follows below are more technical details about the processes and procedures networks should follow to transmit and archive their water quality data in STORET.

TECHNICAL DETAILS

There are two mechanisms that networks can use to transmit physical, chemical, biological, and habitat-related water quality data to the NPS WRD for upload into the NPS' modernized STORET database: NPSTORET and NPSEDD. NPSTORET is a full-featured Microsoft Access-based water quality database management system designed to output data in a STORET-compatible format. NPSEDD is a set of electronic data deliverable file format specifications for STORET. Both NPSTORET and NPSEDD yield files that can be imported into modernized STORET by the STORET Import Module (SIM v.2.02). The primary difference between NPSTORET and NPSEDD is that NPSTORET is an actual water quality database management system with input, storage, retrieval, reporting, and analytical capabilities while NPSEDD relies on a user's existing database management system to export SIM-compatible import files.

SIM is a data entry and validation tool, designed by Gold Systems, Inc., to load data into the STORET database, bypassing tedious data entry screens and STORET's own built-in batch input system. SIM is a series of Oracle forms that interact with a group of specially designed Oracle tables called the SIM database. These specially designed data tables reside in the same Oracle instance as STORET and interface directly with the STORET database. SIM can read delimited text files generated by Microsoft Access, Excel, or any other application. SIM validates the input against the STORET database, identifying any errors in the incoming data.

Vital Signs Networks must decide whether to use NPSTORET as their water quality database management system or some other water quality database which they adapt to output SIM-compatible import files as specified by the NPSEDD. NPSTORET includes only a subset of the fields supported by SIM (which includes only a subset of the fields supported by STORET). NPSEDD includes all the fields supported by SIM. Below are



separate discourses on NPSTORET and NPSEDD designed to help Vital Signs Networks decide which route they should select for transmitting water quality data to NPS WRD in a STORET (SIM) compatible format. Regardless of which route is selected, Networks should consult <http://www.nature.nps.gov/water/infoanddata/index.cfm> for the latest updates and additional background material. Also, read the ‘Additional Resources’ section before the ‘References’ for other handy resources, tutorials, and documentation.

NPSTORET

NPSTORET (v.1.00) is a full-featured Microsoft Access-based water quality database management system based on the EPA’s STORET database. It does not contain all the functionality of STORET. In developing NPSTORET, the intent was to include only the most common/germane fields with the first release. Other fields can and will be supported at a later date. NPSTORET is designed around a series of templates that allow users to enter data about their projects, stations, metadata, and results. A reports and statistics template is also included that permits users to report, export, analyze, or graph any subset of their data. Import utilities exist to enable users to load existing digital data into NPSTORET from their own Access, Excel, or text files or even data from the national water quality databases (LDC, STORET Data Warehouse, and the USGS National Water Information System).

In NPSTORET, project, station, and metadata information are only entered once (unless a new project is started, new stations are added, or procedures change). Before SIM can be used to import delimited text files, however, the receiving copy of STORET must have been appropriately configured with metadata about the characteristics measured or observed; sample collection and creation procedures; gear/equipment configurations; sample preservation, transport, and storage procedures; lab sample preparation and analytical procedures; and other information. This information is entered in the metadata template of NPSTORET.

What follows below is an overview of NPSTORET’s four main templates: Projects (Why, Who); Stations (Where); Metadata (How); and Results (What, When).

Project Information:

This is one component of the “Why” part of the metadata. Why was the effort undertaken? All monitoring results collected at stations are assigned to projects. Vital Signs Monitoring Networks may wish to establish multiple projects in STORET or they may lump everything into one project, depending on what makes the most sense for organizing stations and monitoring. For Project ID, enter your four-character Vital Signs Network alpha-code followed by WQ to indicate that it is a water quality project and then a sequence number (e.g. the first project in the Northern Colorado Plateau Network would be NOCOWQ01). Most of the information entered about the Project on the Main and Additional Info tabs should be readily available in network planning documents. You can paste in relevant information directly from a QAPP, monitoring plan, or other document. Additionally, the entire document can be stored as an Adobe Acrobat PDF file in the database (Documents screen) to permanently associate important reference

material directly with the data. Other references (entered in the Metadata template) can be associated with the project on the Citations tab. Additionally, stations, characteristics, and personnel can be explicitly assigned to the project on their respective tabs.

Below are screen captures showing the Project Template for a park-based Level I Survey.

Figure 1. Main Project Screen for a Level I Survey conducted by Grand Portage NM

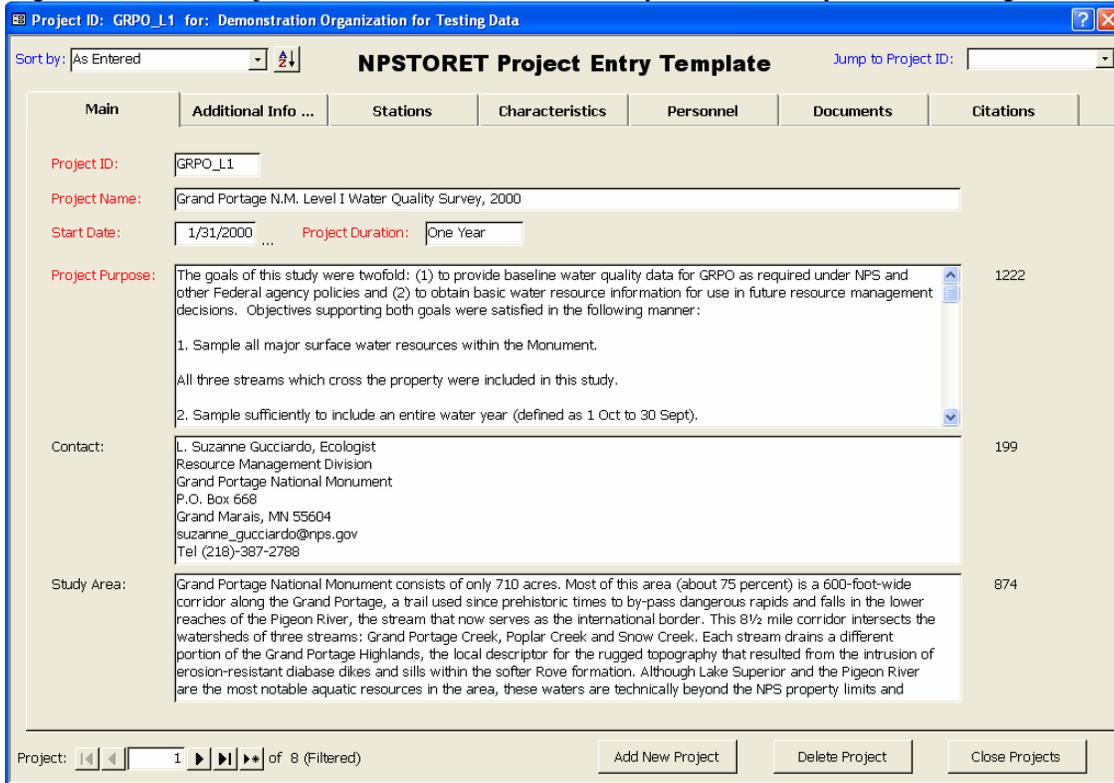


Figure 2. Additional Project Info Screen

Project ID: GRPO_L1 for: Demonstration Organization for Testing Data

Sort by: As Entered

NPSTORE Project Entry Template

Jump to Project ID: []

Main	Additional Info ...	Stations	Characteristics	Personnel	Documents	Citations
GRPO_L1: Grand Portage N.M. Level I Water Quality Survey, 2000						
Design and Sampling Summary:	Standard physical and chemical characteristics were determined with portable field equipment and test kits. A cloth meter tape and meter rule were used to determine stream width and depth, from which an estimate of cross-sectional area was calculated. When stream width exceeded one meter, depth was determined every meter; the area of each subsection was calculated then summed for the stream cross-sectional area. When stream flow was sufficient, a General Oceanics digital flow meter was used to determine flow rate, and an estimated discharge rate calculated, based on the estimated stream cross-sectional area. Water clarity was determined with a 130-cm transparency tube which had a 'Secchi' design in the bottom. An Extech Oyster combined pH, temperature and conductivity meter and Hanna TDS meter were calibrated before each sample period. LaMotte direct titration test kits were used for determination of total alkalinity and carbon dioxide in the field, and for stabilizing samples for dissolved oxygen analysis. LaMotte pollution					1633
Quality Assurance Project Plan Summary:	Sample collection and on-site test performance for the physical and chemical features of the three streams was carried out by GRPO staff, under the direction of the Resource Assistant. Staff were trained in the proper handling of specimens in accordance with NPS WRD guidance (NPS-WRD, 1998) and the guidance provided by Lake Superior Laboratories (LSL), a division of Midwest Analytical Services. LSL is certified by the State of Minnesota and assumes responsibility for proper performance of EPA approved analytical methods, and for appropriate quality assurance/quality control for tests performed in the lab.					612
Measurement Quality Objectives:	The sensitivities of the test kits were adequate for the level of monitoring desired in this program, because none of the water resources are used as public drinking water sources.					180

Project: 1 of 8 (Filtered) [Add New Project] [Delete Project] [Close Projects]

Figure 3. Stations Explicitly Assigned to the Project

Project ID: GRPO_L1 for: Demonstration Organization for Testing Data

Sort by: As Entered

NPSTORE Project Entry Template

Jump to Project ID: []

Main	Additional Info ...	Stations	Characteristics	Personnel	Documents	Citations
GRPO_L1: Grand Portage N.M. Level I Water Quality Survey, 2000						
Stations Assigned to this Project: 5						
StationID	Station Name	Primary Type	Secondary			
GRPO_L1_GRPO	Grand Portage Creek 0.7mi NW of MN Hwy61 and GRPO Trail	River/Stream				
GRPO_L1_POPL2	Poplar Creek at Footbridge on Grand Portage Trail	Estuary				
ROMO_FR_12	Fall River in Rocky Mountain National Park	Great Lake				
FOCO_WQ_1	Fort Collins Cooperative Monitoring Station	Estuary				
GRPO_L1_SNOW2	Snow Creek 150 m above Confluence with Pigeon River	Facility	Private			
Available Stations: 6						
StationID	Station Name	Primary Type	Secondary			
WEST_WEST01	A dummy station	Ocean				
FLMS_0001	Somewhere in the Keys	Ocean				
BICA_SHR1	Shoshone River at Kane	Wetland				
EWRTWWE						
AGFON110						

Project: 1 of 8 (Filtered) [Add New Station ...] [Double-click on a station to edit it]

Figure 4. Characteristics Explicitly Assigned to the Project

The screenshot shows the 'NPSTORET Project Entry Template' window for Project ID: GRPO_L1. The 'Characteristics' tab is active, displaying a table of assigned characteristics for the project 'GRPO_L1: Grand Portage N.M. Level I Water Quality Survey, 2000'. Below this, there is a section for 'Available Characteristics: 39' with a scrollable list of potential characteristics.

Characteristics Assigned to this Project: 6

OK	Characteristic	Short Name	SeqNum	Fraction	Units	Field/Lab	Medium	Value Type
Y	RBP Bank Stability, Right	RBP Bank Stab Right	3					
Y	Potassium	Potassium2	4		mg/l	Field	Water	Actual
Y	General Observation (text)	GenObs(text)	9			Field		
Y	2,3,6-Trichlorophlorophenol	2,3,6-Trichloropholo	10		µg/l	Lab	Water	Actual
Y	Relative humidity	RelHumidity	11		%	Field	Air	Actual

Available Characteristics: 39

OK	Characteristic	Short Name	SeqNum	Fraction	Units	Field/Lab	Medium	Value Type
N	Gold	Gold	1	Dissolved		Lab	Water	Actual
Y	Cloud cover (choice list)	Cloud Cover	2		None			
Y	Endothall	Endothall	5		µg/l	Lab	Water	Actual
Y	Picloram	Picloram	6	Total	µg/l	Lab	Water	Actual
Y	Virus	Virus	7		#/100 gal	Lab	Water	Actual
N	Acenaphthene	Acenaphthene	8	Total		Field	Water	Actual
Y	Barometric pressure	BarPressure	12		mm/Hg	Field	Air	Actual
Y	RBP Bank Vegetative Protection, Left	RBP Bank Pr. Left	13					
Y	pH	pH	14	Total	None	Field	Water	Actual
Y	lithium	Li	15	Total	µg/l	Lab	Water	Actual
Y	4-Fluoro-2-nitrophenol	Fluoro	16	Volatile	µg/l	Lab	Water	Actual
Y	2,5-Dimethylpenta...	2,5-Dimethyl...	17		µg/l	Lab	Water	Actual

Figure 5. Personnel and their Roles on the Project

Project ID: GRPO_L1 for: Demonstration Organization for Testing Data

Sort by: As Entered

NPSTORE Project Entry Template

Jump to Project ID: []

Main | Additional Info ... | Stations | Characteristics | Personnel | Documents | Citations

GRPO_L1: Grand Portage N.M. Level I Water Quality Survey, 2000

Organizational Staff:

Project Roles:

<input checked="" type="checkbox"/> Project Manager	<input type="checkbox"/> Senior Scientist	<input type="checkbox"/> Data Administrator	<input type="checkbox"/> Hydrologist
<input type="checkbox"/> Assistant Project Manager	<input type="checkbox"/> Staff Scientist	<input type="checkbox"/> Biochemist	<input checked="" type="checkbox"/> Limnologist
<input type="checkbox"/> Sample Collector	<input type="checkbox"/> Staff/Employee	<input type="checkbox"/> Biologist	<input type="checkbox"/> Meteorologist
<input type="checkbox"/> Taxonomic Identifier	<input type="checkbox"/> Staff/Contract	<input checked="" type="checkbox"/> Chemist	<input type="checkbox"/> Taxonomist
<input checked="" type="checkbox"/> Quality Assurance Lead	<input type="checkbox"/> Staff/Volunteer	<input type="checkbox"/> Engineer	
	<input checked="" type="checkbox"/> Technician	<input type="checkbox"/> Geologist	

Staff Roles in the Organization: (For reference only. To change, use the Metadata Template.)

<input checked="" type="checkbox"/> Director	<input type="checkbox"/> Senior Scientist	<input type="checkbox"/> Data Administrator	<input type="checkbox"/> Hydrologist
<input type="checkbox"/> Deputy Director	<input type="checkbox"/> Staff Scientist	<input type="checkbox"/> Biochemist	<input type="checkbox"/> Limnologist
<input type="checkbox"/> Department Manager	<input type="checkbox"/> Staff/Employee	<input type="checkbox"/> Biologist	<input type="checkbox"/> Meteorologist
<input type="checkbox"/> STORET Primary Contact	<input type="checkbox"/> Staff/Contract	<input checked="" type="checkbox"/> Chemist	<input type="checkbox"/> Taxonomist
<input type="checkbox"/> Quality Assurance Officer	<input type="checkbox"/> Staff/Volunteer	<input type="checkbox"/> Engineer	
<input type="checkbox"/> 305B Coordinator	<input checked="" type="checkbox"/> Technician	<input type="checkbox"/> Geologist	

Project: [] of 8 (Filtered)

Figure 6. Project-Related Documents Screen

Project ID: GRPO_L1 for: Demonstration Organization for Testing Data

Sort by: As Entered

NPSTORE Project Entry Template

Jump to Project ID: []

Main | Additional Info ... | Stations | Characteristics | Personnel | Documents | Citations

Link One or More Documents to this Project:

GRPO_L1: Grand Portage N.M. Level I Water Quality Survey, 2000

File Name:

Document Date: ...

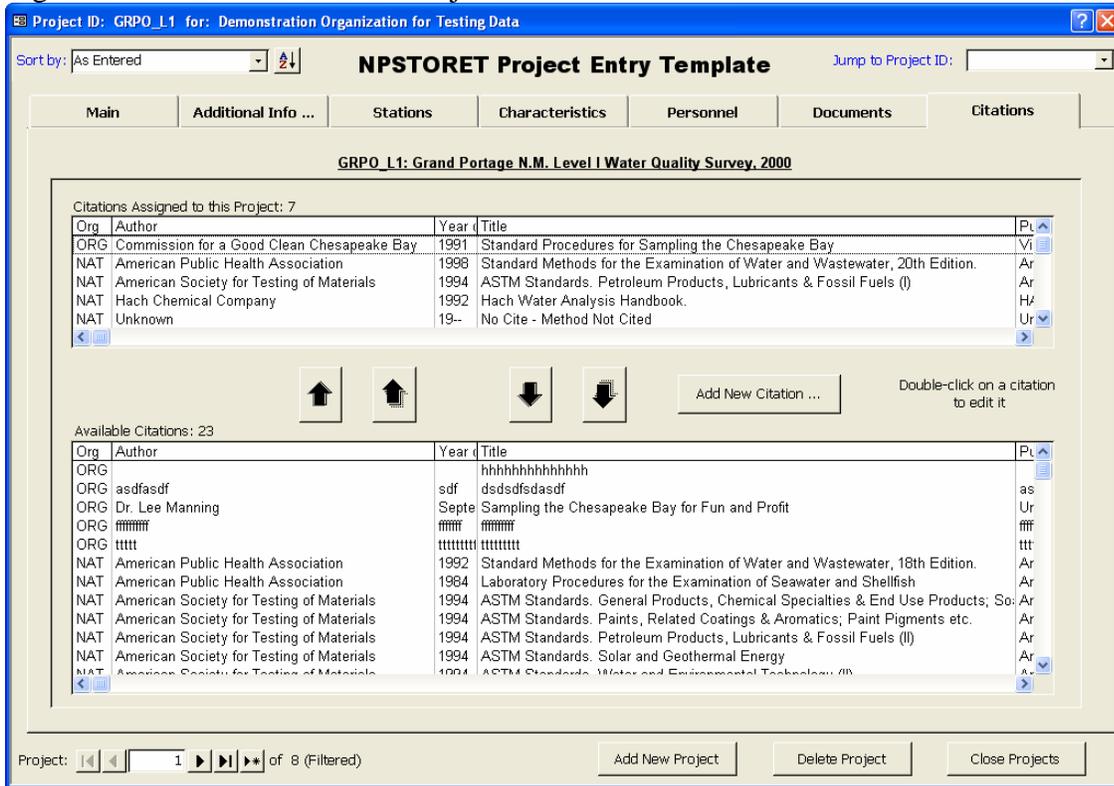
Description:

Document Citation:

Record: [] of 4 (Filtered)

Project: [] of 8 (Filtered)

Figure 7. Link Citations to the Project Screen



The primary tables that house NPSTORE project-related information are tblProjects and tblProjectDocuments. Project information is generally entered once at the onset of a project. Subsequent edits to project information might include additional assignment of new stations, characteristics, personnel, documents, and/or citations to the project. The data dictionary for each project-related table follows:

tblProjects

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblProjects						
1	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Project Index Number	Primary Key	
2	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSMPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
4	TSMPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	ProjectID	Text	8	Not Null	Enter a unique code for the Project beginning with the 4 character park (e.g. YELLO006) or network alpha code		
6	ProjectName	Text	60	Not Null	Enter a name for the Project		
7	Start Date	Date/Time	8	Not Null	Enter the Date on which the Project began (MM-DD-YYYY)		
8	Duration	Text	15	Not Null	Enter the planned duration of the Project (i.e. 2 years, Ongoing)		
9	Purpose	Memo		Not Null	Enter a description of the Project	4000 characters maximum	
10	Contact	Memo		Null	Enter contact information for the Project	4000 characters maximum	
11	StudyArea	Memo		Null	Enter Study Area description for the Project	4000 characters maximum	
12	DesignSummary	Memo		Null	Enter a summary of the Project Design and Sampling Frequency	4000 characters maximum	
13	QAPPSummary	Memo		Null	Enter Quality Assurance Project Plan summary	4000 characters maximum	
14	MeasurementQO	Memo		Null	Enter Measurement Specific Quality Objectives for each characteristic	4000 characters maximum	
15	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
16	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
17	Complete	Yes/No	1	Null	Project OK to write out after passing through QA Checks (not used in v1.0)		
18	Last QA_QC	Date/Time	8	Null	Date of Last QA/QC Check (not used in v1.0)		
19	File Name	Text	255	Null	Exported project file name (not used in v1.0)		
20	Last Exported	Date/Time	8	Null	Date project last exported (not used in v1.0)		

tblLocationProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocationProjectAssignment				This is the Location (Station) Project Assignment table that tracks which Stations have been assigned to which projects.		
1	LocSIPrAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Project Assignment Index Number	Primary Key	
2	LocSIPrAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LocSTATN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
6	LocSTATN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	TSMPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSMSTATN_IS_NUMBER	Number, Long Integer	4	Null	STORET Station Index Number (optional use)		
10	TSMSTATN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblCharacteristicProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicProjectAssignment				This is the Characteristic Project Assignment table that tracks which characteristics have been assigned to which projects.		
1	LocChPrAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Project Assignment Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocChPrAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPSTORET Project Organization Code	Foreign Key	
5	LocCHDEF_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - must pre-exist	Foreign Key	
6	LocCHDEF_ORG_ID	Text	8	Not Null	NPSTORET Local Characteristic Definition Organization Code	Foreign Key	
7	TSMPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCHDEF_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Index Number (optional use)		
10	TSRCHDEF_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblPeopleRoleAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
	tblPeopleRoleAssignment						
	This is the People Role Assignment. One Person can be assigned one or more Project or Organization roles.						
1	LocARole_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Person Role Assignment Index Number	Primary Key	
2	LocARole_Org_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocPERSN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Person Index Number - must pre-exist	Foreign Key	
4	LocPERSN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
5	TSMPEPERSN_IS_NUMBER	Number, Long Integer	4	Null	STORET Person Index Number (optional use)		
6	TSMPEPERSN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
7	TSMPPROLE_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Role Index Number	tblDef_TSMPPROLE	
8	TSMPPROLE_ORG_ID	Text	8	Not Null	STORET Org ID/Code for Role Index Number		
9	LocPROJ_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Project Index Number - must pre-exist		If the role assignment is for a Project, which Project
10	LocPROJ_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)		
11	ORG_PROJ	Text	4	Not Null	Whether the assignment is an Organizational or Project Role	ORG_PROJ	Note: Some roles are both Organization Roles and Project Roles; some aren't.
12	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
13	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblProjectDocuments

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
	tblProjectDocuments						
	This is the Project Documents table. It contains information about Project Documents. The actual Documents are not stored in the database. The records in this table are pointers to the Documents which are stored in a subdirectory.						
1	LocDoc_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Document Index Number	Primary Key	
2	LocDOC_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocProj_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	FilePath	Text	255	Not Null	File Path to the Picture		
6	FileName	Text	255	Not Null	File Name of the Picture		
7	DocumentDate	Date/Time	8	Null	Date Picture Taken		
8	DocumentDescription	Memo		Null	Description of Document	4000 characters maximum	
9	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
10	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
11	LocCITN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Citation Index Number - must pre-exist	Foreign Key	
12	LocCITN_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	

tblCitationProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
	tblCitationProjectAssignment						
	This is the Citation Project Assignment table that tracks which citations have been assigned to which projects.						
1	LocCitrAss_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Citation Project Assignment Index Number	Primary Key	
2	LocCitrAss_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LocCITN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Citation Index Number - must pre-exist	Foreign Key	
6	LocCITN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	TSMPPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMPPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (optional use)		
10	TSRCITN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Another project-related table that you'll see in NPSTORET is found in the linked database named C:\NPSTORET\LINKTABS\NPSTORET_defLeg.mdb. The table is named tblLegacy_STORET_Projects. It contains the project IDs that have been previously entered in EPA STORET by NPS WRD. Since data entered in NPSTORET are generally intended for upload to EPA STORET, this table is used by NPSTORET to warn the user if they enter a project ID that has already been used in STORET by the NPS WRD.

Station Information:

Station information concerns the location of where samples were collected or observations/measurements were made. Station information comprises the bulk of the “Where” part of the metadata. Once a project has been established in STORET, stations can be assigned to it. STORET supports a large variety of descriptive fields of data to document information about the location of each monitoring site. NPSTORET supports a subset of these fields as displayed in the figures and tables below. There are many approaches to assigning station IDs. One approach is to enter your four-character Vital Signs Network Code followed by an underscore, the park alpha-code followed by an underscore, and then a 5-character or less code for the specific location (e.g. a station located at the Yampa River crossing of Dinosaur National Monument’s eastern boundary could be NOCO_DINO_YRBDY, NOCO_DINO_00001, or anything else that is logical and/or consistent with the network’s desired naming convention). For consistency with NPS WRD’s use of STORET, the Station ID should start with either the park or network four character alpha-code followed by an underscore. Another content-rich approach to assigning station IDs would be to start the station ID with the four character park or network alpha-code, followed by an underscore and a code for the project followed by an underscore and a code for the station location (e.g. a station located at the Yampa River crossing of Dinosaur National Monument’s eastern boundary for a project to monitor coal-bed methane impacts could be DINO_CBM_YRBDY).

Figure 8. Main Station Screen

StationID: GRPO_L1_GRPO for: Demonstration Organization for Testing Data

Sort by: **NPSTORET Station Entry Template**

Main | Additional Info ... | Pictures | Station Groups

Station ID: Name:

Primary Type: Est. Date:

Latitude: Longitude: Geo. Method:

- OR - - OR - Geo. Datum:

Decimal Degrees: Map Scale:

Elevation: Units: Method: Datum:

County: State: HUC: NRCS ID: NHD:

Water Depth: Units:

Station Description: 414

Travel Directions: 150

Station: of 11 (Filtered)

Figure 9. Additional Station Info Screen

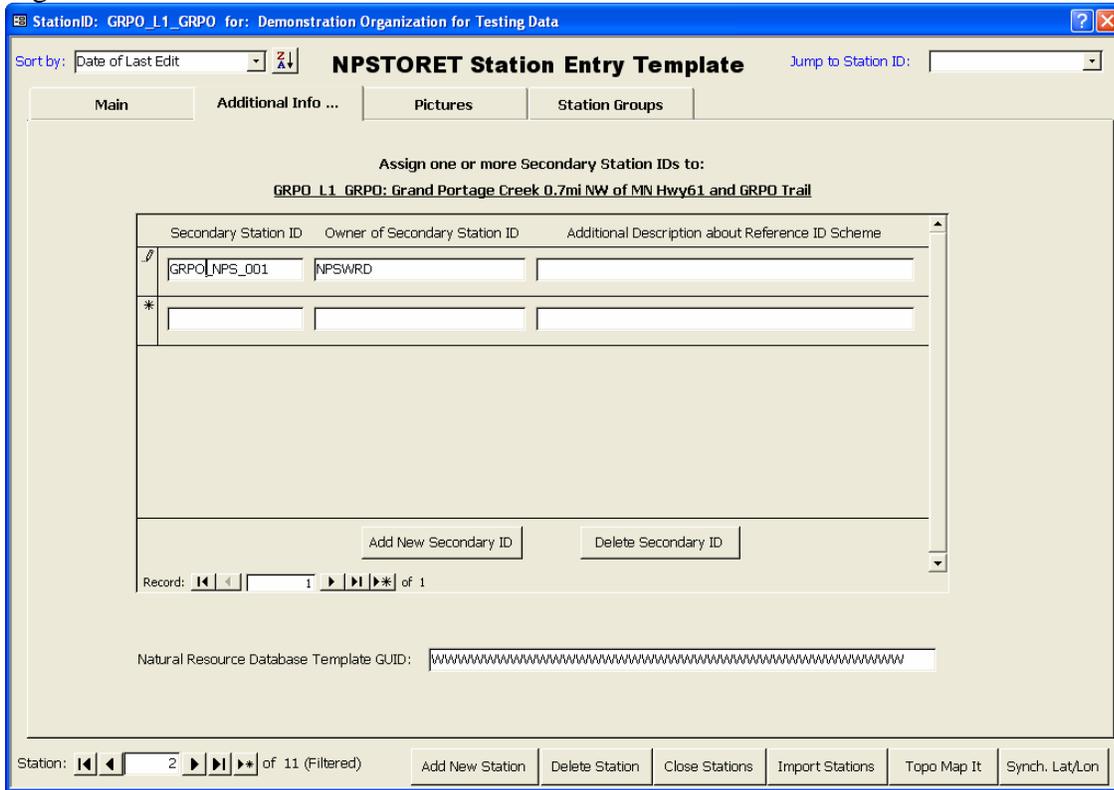


Figure 10. Station Pictures Screen

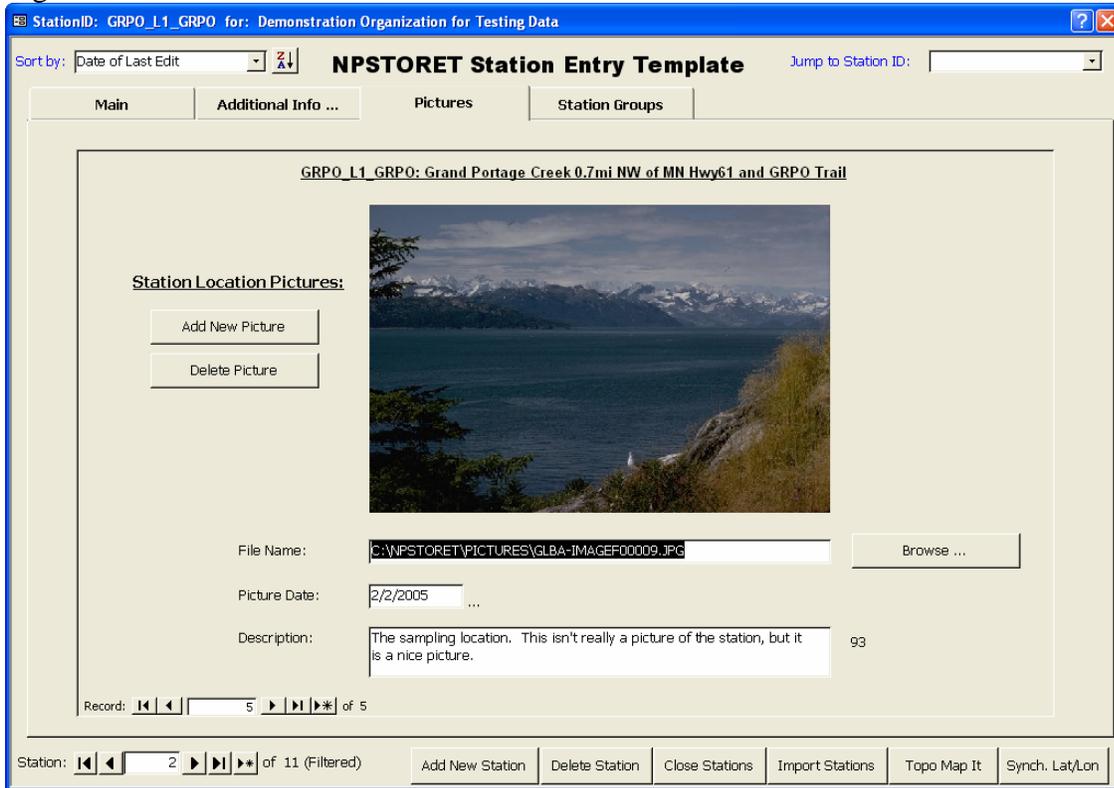
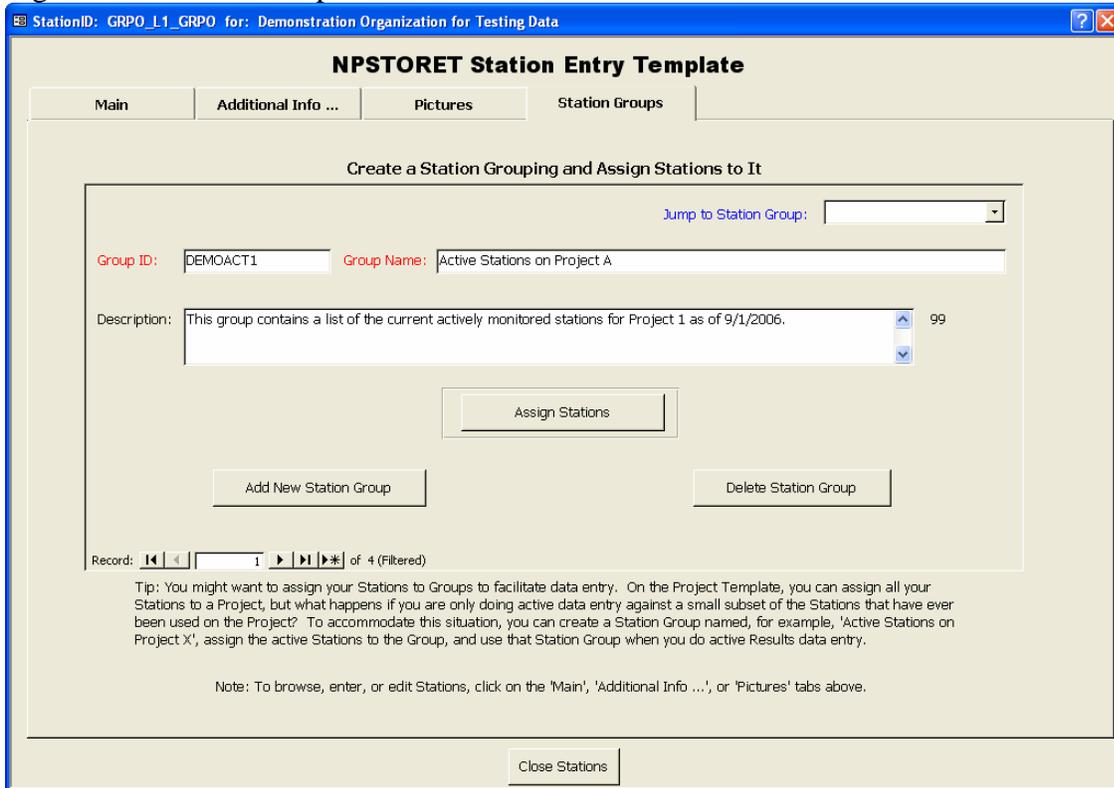


Figure 11. Station Group Screen



The primary tables that house NPSTORET station-related information are tblLocations and tblLocations_Pics. Station information is generally entered once at the onset of a project. A handy way to enter station location data is to import the station data from your GIS or GPS unit so you don't have to re-enter the latitude and longitude coordinates. You can import stations from the 'Import' button on the Stations Template or using the 'Import ...' command from the NPSTORET Main Switchboard. Your station import file must be in Access, Excel, or text format and contain, at least, a station ID field. Note: NPSTORET doesn't support the STORET concept of sampling points, boundary points, transects, or cross sections. All data are assigned to a point-of-record. The data dictionary for each station-related table follows:

tblLocations

Seq	Field Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocations				This is the Stations/Locations table. It contains the point of record information for sampling locations/stations.		
1	LocSTATN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number	Primary Key	
2	LocSTATN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSMSTATN_IS_NUMBER	Number, Long Integer	4	Null	STORET Station Index Number (optional use)		
4	TSMSTATN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	StationID	Text	15	Not Null	Unique and user defined code for the Station		
6	SourceStationID	Text	15	Null	System entered field to preserve source StationID when a StationID gets a new ID upon import when a station already exists with the SourceStationID		
7	NRDLocationID	Text	36	Null	Natural Resource Database Template Location GUID		
8	State Name	Text	60	Null	Unique and user defined name for the Station		
9	Primary Type	Text	20	Null	Station's primary classification	PRIMARY_TYPE_CD in tblDef_TSMVSTC	
10	Secondary Type	Text	30	Conditional	Station's secondary type classification. Required if Primary Type = Canal, Facility, or Wetland	SECONDARY_TYPE_CD in tblDef_TSMVSTC	
11	Establishment Date	Date/Time	8	Null	Date on which Station was established (MM-DD-YYYY)		
12	Latitude Degrees	Number, Integer	2	Conditional	Latitude degrees reported as DD		DMS or decimal degrees of lat/lon required for each station
13	Latitude Minutes	Number, Integer	2	Conditional	Latitude minutes reported as MM		DMS or decimal degrees of lat/lon required for each station
14	Latitude Seconds	Number, Double	8	Conditional	Latitude seconds reported as SS.SSSS		DMS or decimal degrees of lat/lon required for each station
15	Latitude Direction	Text	5	Conditional	Latitude direction. Defaults to N		DMS or decimal degrees of lat/lon required for each station
16	Longitude Degrees	Number, Integer	2	Conditional	Longitude degrees reported as DDD		DMS or decimal degrees of lat/lon required for each station
17	Longitude Minutes	Number, Integer	2	Conditional	Longitude minutes reported as MM		DMS or decimal degrees of lat/lon required for each station
18	Longitude Seconds	Number, Double	8	Conditional	Longitude seconds reported as SS.SSSS		DMS or decimal degrees of lat/lon required for each station
19	Longitude Direction	Text	4	Conditional	Longitude direction. Defaults to W		DMS or decimal degrees of lat/lon required for each station
20	LatLon Date	Date/Time	8	Null	Date lat/lon determined (not used in v1.0)		
21	State	Text	2	Not Null	Two-digit postal abbreviation of Station's primary State	STATE_POSTAL_CODE in tblDef_TSMGEOPA	
22	County	Text	50	Not Null	Name of Station's primary County reported in all capital letters	COUNTY_NAME in tblDef_TSMGEOPA	
23	HUC	Text	8	Null	Station's 8-digit Hydrologic Unit Code	HYDROLOGIC_UNIT_CD in tblDef_TSMFHU	
24	NHD Reach ID	Text	14	Null	NHD 14-digit Reach ID	http://nhd.usgs.gov/ CATEGORY='HORIZONTAL', SUBCATEGORY='METHOD' in tblDef_TSMHAD	
25	GM_TSMHAD_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Index Number for Geopositioning Method	CATEGORY='HORIZONTAL', SUBCATEGORY='METHOD' in tblDef_TSMHAD	
26	GM_TSMHAD_ORG_ID	Text	8	Not Null	STORET Org ID for Geopositioning Method	CATEGORY='HORIZONTAL', SUBCATEGORY='METHOD' in tblDef_TSMHAD	
27	GD_TSMHAD_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Index Number for Geopositioning Datum	CATEGORY='HORIZONTAL', SUBCATEGORY='DATUM' in tblDef_TSMHAD	
28	GD_TSMHAD_ORG_ID	Text	8	Not Null	STORET Org ID for Geopositioning Datum	CATEGORY='HORIZONTAL', SUBCATEGORY='DATUM' in tblDef_TSMHAD	
29	Scale	Text	20	Conditional	Map scale used for locating Station		Required if Geopositioning Method is "Interpolation-Map"
30	NRCS Watershed ID	Text	12	Null	Valid NRCS Watershed ID for Station		
31	Elevation	Number, Double	8	Null	Station's elevation (XXXXX.XXX)		
32	Elevation Units	Text	2	Conditional	Elevation units of measure	ft, m	Required if Elevation is given
33	EM_TSMHAD_IS_NUMBER	Number, Long Integer	4	Conditional	STORET Index Number for Elevation Method	CATEGORY='VERTICAL', SUBCATEGORY='METHOD' in tblDef_TSMHAD	Required if Elevation is given
34	EM_TSMHAD_ORG_ID	Text	8	Conditional	STORET Org ID for Elevation Method	CATEGORY='VERTICAL', SUBCATEGORY='METHOD' in tblDef_TSMHAD	Required if Elevation is given
35	ED_TSMHAD_IS_NUMBER	Number, Long Integer	4	Conditional	STORET Index Number for Elevation Datum	CATEGORY='VERTICAL', SUBCATEGORY='DATUM' in tblDef_TSMHAD	Required if Elevation is given
36	ED_TSMHAD_ORG_ID	Text	8	Conditional	STORET Org ID for Elevation Datum	CATEGORY='VERTICAL', SUBCATEGORY='DATUM' in tblDef_TSMHAD	Required if Elevation is given
37	Elevation Date	Date/Time	8	Null	Date elevation was determined (not used in v1.0)		
38	Water Depth	Number, Double	8	Null	Typical Depth of Water at sampling location		
39	Depth Units	Text	2	Conditional	Depth units of measure	cm, m, mi, km, in, ft	Required if Water Depth is given
40	Description	Memo	Null	Null	Information specific to the station	4000 characters maximum	
41	Travel Directions	Memo	Null	Null	Travel directions (by route, track, path, waterway, etc.) to reach the station	2000 characters maximum	
42	Decimal Degrees Latitude	Number, Double	8	Conditional	Decimal Degrees Latitude		DMS or decimal degrees of lat/lon required for each station
43	Decimal Degrees Longitude	Number, Double	8	Conditional	Decimal Degrees Longitude		DMS or decimal degrees of lat/lon required for each station
44	Latitude Degrees2	Number, Integer	2	Null	System calculated Latitude degrees reported as DD with decimal minutes		Calculated by NPSTORET from DMS or decimal degrees entry. Only appears in the table
45	Latitude Minutes2	Number, Double	8	Null	System calculated Latitude minutes reported as MM.MMMM		Calculated by NPSTORET from DMS or decimal degrees entry. Only appears in the table
46	Longitude Degrees2	Number, Integer	2	Null	System calculated Longitude degrees reported as DD with decimal minutes		Calculated by NPSTORET from DMS or decimal degrees entry. Only appears in the table
47	Longitude Minutes2	Number, Double	8	Null	System calculated Longitude minutes reported as MM.MMMM		Calculated by NPSTORET from DMS or decimal degrees entry. Only appears in the table
48	OceanName	Text	14	Conditional	Ocean Name for Ocean Stations	Atlantic Ocean, Pacific Ocean, Arctic Ocean, Caribbean Sea, Gulf of Mexico	Required if Primary Type is 'Ocean'
49	OceanShoreRelation	Text	10	Conditional	Station's location in relation to the shore: Near Shore (<12 miles) or Far Shore (>12 miles)	Near Shore, Far Shore	Required if Primary Type is 'Ocean'
50	GreatLakeName	Text	15	Conditional	Great Lake Name for stations in a Great Lake	Lake Superior, Lake Michigan, Lake Erie, Lake Ontario, Lake Huron	Required if Primary Type is 'Great Lake'
51	TSMESTRY_IS_NUMBER	Number, Long Integer	4	Conditional	STORET Index Number for Estuary	tblDef_TSMESTRY	
52	TSMESTRY_ORG_ID	Text	8	Conditional	STORET Org ID for Estuary	tblDef_TSMESTRY	
53	OtherEstuaryName	Text	30	Null	Other Name (e.g. local name) for the Estuary		
54	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
55	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
56	Complete	Yes/No	1	Null	Station OK to write out after passing through OA Checks (not used in v1.0)		
57	Last OA_OC	Date/Time	8	Null	Date of last OA/OC Check (not used in v1.0)		
58	STORET Copy	Yes/No	1	Null	Does this Station already exist in STORET (i.e. was it downloaded from legacy or modern STORET)		
59	File Name	Text	255	Null	Exported station file name (not used in v1.0)		
60	Last Exported	Date/Time	8	Null	Date station last exported (not used in v1.0)		
61	DataSource	Text	1	Null	System entered source of data	N for NWS, M for Modern STORET, L for Legacy STORET, or U for user	
62	SourceOrgID	Text	8	Null	System entered OrgID from source database		

tblLocations_OtherNames

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocations_OtherNames				This is the Other Names table. It contains Other Names (StationIDs) for the monitoring Station. This can include other StationIDs used in the past or present by any Organization.		
1	LocRFLBL_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Reference Label Index Number	Primary Key	
2	LocRFLBL_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocStatn_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
4	LocStatn_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LABEL_CODE	Text	20	Not Null	Other Secondary Station ID		
6	NAME	Text	60	Null	Name of the Organization Using that Secondary ID		
7	DESCRIPTION_TEXT	Text	254	Null	Other Info about Secondary ID or the Organization's External Reference Scheme	254 characters maximum	
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblLocations_Pics

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocations_Pics				This is the Locations Pictures table. It contains information about Station/Location Pictures. The actual Pictures are not stored in the database. The records in this table are pointers to the Pictures which are stored in a subdirectory.		
1	LocPic_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Picture Index Number	Primary Key	
2	LocPic_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocStatn_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
4	LocStatn_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	FilePath	Text	255	Not Null	File Path to the Picture		
6	FileName	Text	255	Not Null	File Name of the Picture		
7	PictureDate	Date/Time	8	Null	Date Picture Taken		
8	Description	Memo		Null	Description of Picture	4000 characters maximum	
9	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
10	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblLocationProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocationProjectAssignment				This is the Location (Station) Project Assignment table that tracks which Stations have been assigned to which projects.		
1	LocSIPrAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Project Assignment Index Number	Primary Key	
2	LocSIPrAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LocStatn_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
6	LocStatn_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	TSMProj_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMProj_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSMStatn_IS_NUMBER	Number, Long Integer	4	Null	STORET Station Index Number (optional use)		
10	TSMStatn_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblLocationStationGroups

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocationStationGroups				This is the Location Station Groups table. Stations can be assigned to Station Groups to limit which Stations appear when entering Station Visit information on the Results Template.		
1	LocStatnGrp_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Group Index Number	Primary Key	
2	LocStatnGrp_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	ID_CODE	Text	8	Not Null	Unique Code Identifying this Station Group within the Organization		
4	NAME	Text	30	Not Null	Name of the Station Group		
5	DESCRIPTION_TEXT	Memo		Null	Description of Station Group	4000 characters maximum	
6	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
7	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblLocationStationGroupAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLocationStationGroupAssignment				This is the Location Station Group Assignment table that tracks which Stations/Locations have been assigned to which Station Groups.		
1	LocStatnGrpAss_IS_NUMBER	Number, Long Integer	4	Not Null	Local Station Group Assignment Index Number	Primary Key	
2	LocStatnGrpAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocStatnGrp_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Group Index Number - must pre-exist	Foreign Key	
4	LocStatnGrp_ORG_ID	Text	8	Not Null	NPSTORET Station Group Organization Code	Foreign Key	
5	LocStatn_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
6	LocStatn_ORG_ID	Text	8	Not Null	NPSTORET Station Organization Code	Foreign Key	
7	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
8	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Another station-related table that you'll see in NPSTORET is found in the linked database named C:\NPSTORET\LINKTABS\NPSTORET_defLeg.mdb. The table is named tblLegacy_STORET_Stations. It contains the station IDs that have been previously entered in EPA STORET by NPS WRD. Since data entered in NPSTORET are generally intended for upload to EPA STORET, this table is used by NPSTORET to warn the user if they enter a station

ID that has already been used in STORET by the NPS WRD. If you want to reuse a station ID that already exists in STORET, you can instruct NPSTORET to ignore tblLegacy_STORET_Stations by setting an option (NPSTORET Main Switchboard, Options, Station tab). This will allow you to use the same station ID in your copy of NPSTORET.

Metadata Information:

Metadata (which typically answers the question of “How” something was done) is the most critical improvement to modernized STORET. At a time when states are increasingly passing “Credible Data” statutes and ignoring improperly documented data, it behooves the NPS to ensure that metadata about sample collection, preservation, transport, and storage; lab preparation and analytical methodology; quantification and detection limits; and other metadata that help users judge the usefulness of data are stored with the data. In short, poorly documented data are a waste of money and effort.

STORET allows users to document the entire monitoring procedure, from field data collection to final result generation. In fact, before any results can be entered into the system, both NPSTORET and STORET must be prepped with the appropriate metadata documenting the field sampling/measurement procedure; gear configurations; sample preservation, transport, and storage; field/lab analytical procedure; lab sample preparation; complete detail about the characteristics measured; laboratory information; staff and their roles; and any literature citations pertinent to the monitoring effort. This metadata, which should exist in your network’s QAPP or monitoring plan, only needs to be entered once, prior to entering results. The most important metadata are your characteristic definitions which explain what you measured. The characteristic definitions are in tblCharacteristics. The other metadata forms and tables allow you to define additional attributes about the characteristics which are referenced/assigned on the characteristics form. Below are the primary NPSTORET metadata screens and their supporting tables for documenting these aspects of the monitoring process in a STORET-compatible format.

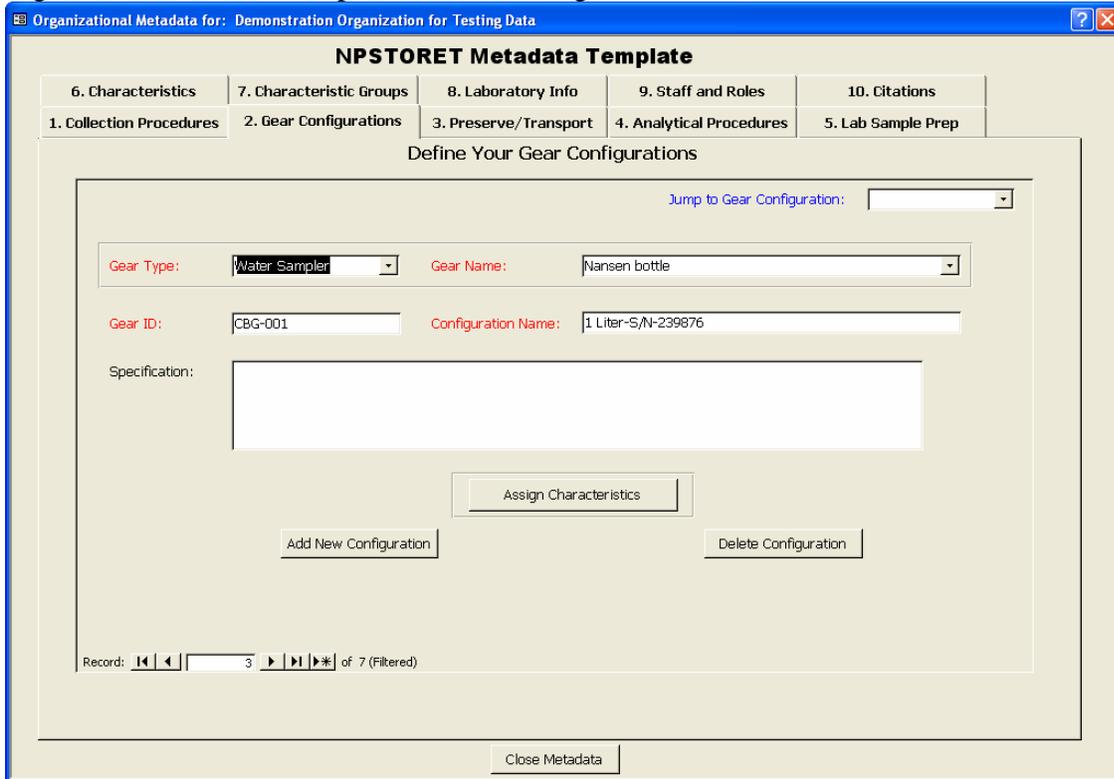
Figure 12. Metadata Template – Field Sampling/Collection Procedures

tblFieldProcedures

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblFieldProcedures				This is the Field Collection Procedures table. Whenever a sample is extracted from the environment and transported to the lab, STORET requires a Field Collection Procedure be assigned.		
1	LocFLDPR_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Field Procedure Index Number	Primary Key	
2	LocFLDPR_Org_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSRFLDPR_IS_NUMBER	Number, Long Integer	4	Null	STORET Field Procedure Index Number (optional use)		
4	TSRFLDPR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	ID_CODE	Text	10	Not Null	Short Name or Code for Field Sampling Procedure		
6	NAME	Text	60	Not Null	Full name of the sampling procedure		
7	FLD_GEAR_TYPE_NAME	Text	25	Null	Category of field gear used to extract sample	Water Sampler, Benthic Corer, Benthic Dredge, Benthic Grab, Trap/Substrate, Diatometer, Net/Horizontal Tow, Net/Vertical Tow, Net/Non-Tow, Electroshock, Miscellaneous/Other	
8	DESCRIPTION_TEXT	Memo		Null	Descriptive text that provides more information about the field sampling procedure	4000 character maximum	
9	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
10	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
11	LocCITN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Citation Index Number	Foreign Key	
12	LocCITN_Org_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
13	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	

Field collection procedures are only required in STORET when a sample is extracted from the environment. In situ monitoring with instruments or probes or field observations don't have field sample collection procedures because samples aren't being extracted for laboratory analysis. You can create one for field measurements and observations, but it isn't necessary.

Figure 13. Metadata Template – Gear Configurations



tblGearConfigurations

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblGearConfigurations				This is the Gear Configuration table. It contains organization-specific configurations that define modifications to or variations of a standard field sampling gear.		
1	LocGrCfg_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Gear Configuration Index Number	Primary Key	
2	LocGrCfg_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRGRCFG_IS_NUMBER	Number, Long Integer	4	Null	STORET Gear Configuration Index Number (optional use)		
4	TSRGRCFG_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	ID_CODE	Text	10	Not Null	Code Identifying Gear Configuration within the Organization		
6	NAME	Text	30	Not Null	Name of the Gear Configuration		
7	DESCRIPTION_TEXT	Memo		Null	Specification/Details About the Gear Configuration	4000 characters maximum	
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
10	TSRFLDGR_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Gear Index Number	tblDef_TSRFLDGR	
11	TSRFLDGR_ORG_ID	Text	8	Not Null	STORET Gear Org ID	tblDef_TSRFLDGR	
12	DataSource	Text	1	Null	System entered source of data	N for NWHIS, M for Modern STORET, L for Legacy STORET, or U for user	

Gear configurations are only required in STORET when a sample is extracted from the environment and the field sample collection procedure specifies a gear type. In situ monitoring with instruments or probes or field observations don't have gear configurations because samples aren't being extracted for laboratory analysis. If you want to define gear configurations for in-situ measurements/observations, create them as field/lab analytical procedures (e.g. create NPS_YSI55 as an analytical procedure ID that you then assign as the field/lab analytical procedure for the characteristic Dissolved oxygen (DO)).

Figure 14. Metadata Template – Preservation, Transport, and Storage Procedures

tblPreserveTransportStore

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblPreserveTransportStore				This is the sample Preservation, Transport, and Storage (sometimes referred to as 'Handling') table. It contains sample Handling procedures created by Organizations.		
1	LocSDP_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Sample Preservation, Transport, and Storage Index Number	Primary Key	
2	LocSDP_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSRSDP_IS_NUMBER	Number, Long Integer	4	Null	STORET Sample Preservation, Transport, and Storage Index Number (optional use)		
4	TSRSDP_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	ID_CODE	Text	10	Not Null	Short Name or Code for Sample Preservation, Transport, and Storage Procedure		
6	NAME	Text	30	Not Null	Full name of the Sample Preservation, Transport, and Storage Procedure		
7	CONTAINER_TYPE_NM	Text	32	Null	Type of container used to collect and transport the sample	where FIELD_NAME='CONTAINER_TYPE_NM' in tblDef_TSMPRMVL	
8	CONTAINER_COLOR	Text	10	Null	Color of container used to collect and transport the sample	where FIELD_NAME='CONTAINER_COLOR' in tblDef_TSMPRMVL	
9	CONTAINER_SIZE_MSR	Number, Single	4	Null	Size of container used to collect and transport the sample		
10	CONTAINER_SIZE_UN	Text	3	Conditional	Units of Container Size	gal, l, ml, oz, pt, qt	Required if CONTAINER_SIZE_MSR entered
11	TEMP_PRESRV_TYPE	Text	25	Null	Name of the type of physical preservation	where FIELD_NAME='TEMP_PRESRV_TYPE' in tblDef_TSMPRMVL	
12	PRESRV_STRGE_PRCDR	Memo		Null	Chemical preservation and storage procedure description	2000 characters maximum	
13	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
14	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Preservation, transport, and storage (“handling”) procedures are not required in STORET. They should only be used when a sample is extracted from the environment and the field sample is preserved, treated, and stored in a specific manner prior to analysis in the lab. In situ monitoring with instruments or probes or field observations don’t have sample handling procedures because samples aren’t being extracted for laboratory analysis.

Figure 15. Metadata Template – Field/Lab Analytical Procedures

tblAnalyticalProcedures

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblAnalyticalProcedures				This is the Analytical Procedures table. Analytical Procedures may be National or Organization specific; both types must have a Citation. Results for Chemical Characteristics must be assigned to an Analytical Procedure that has Analytical Equipment. Analytical Procedures are done either in the lab or in the field. This includes the methodology/equipment used to obtain a Result.		
1	LocANLPR_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Analytical Procedure Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocANLPR_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRANLPR_IS_NUMBER	Number, Long Integer	4	Null	STORET Analytical Procedure Index Number (optional use)		
4	TSRANLPR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	OWNER_TYPE_CODE	Text	3	Not Null	Analytical Procedure Owner (Org or Nat - Org can be edited, Nat can't)	Org, Nat	
6	PROCEDURE_ID	Text	15	Not Null	Abbreviated name or identifying code for the analytical procedure		
7	NAME	Text	120	Not Null	Full Title of Analytical Procedure		
8	SOURCE_NAME	Text	65	Not Null	Full Name of Analytical Procedure Owner		
9	SOURCE_ACR	Text	12	Null	Source Acronym (Org Code if Org, otherwise comes from tblDef_TSRANLPR)		
10	DESCRIPTION_TEXT	Memo		Null	Analytical Procedure Description Text	4000 characters maximum	
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of Last Update - automatically stamp today's date/time in before update event		
13	LocCITN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORE Citation Index Number - must pre-exist	Foreign Key	
14	LocCITN_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
15	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number	tblDef_TSRCITN	
16	TSRCITN_ORG_ID	Text	8	Null	STORET Org Code		
17	TSRANLPROIS_NUMBER	Number, Long Integer	4	Null	STORET National Analytical Procedure Index Number	tblDef_TSRANLPR	
18	TSRANLPROIS_ID	Text	8	Null	STORET Org Code		
19	TSRANLEQ_IS_NUMBER	Number, Long Integer	4	Null	STORET Equipment Index Number	tblDef_TSRANLEQ	
20	TSRANLEQ_ORG_ID	Text	8	Null	STORET Org Code	Foreign Key	
21	DataSource	Text	1	Null	System entered source of data	N for NWSIS, M for Modern STORET, L for Legacy STORET, or U for user	

Field/lab analytical procedures must be entered for characteristics that require them in STORET; otherwise they are optional (although highly recommended). Adopt national analytical procedures, cite EPA or Standard Method numbers, or create your own field/lab analytical procedures (e.g. NPS_YSI55 for Dissolved oxygen (DO)).

Figure 16. Metadata Template – Lab Sample Preparation Procedures

tblLabSamplePrep

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLabSamplePrep				This is the Lab Sample Preparation Procedure table. It contains the formal procedures performed in the lab preparatory to an actual analytical run. A Lab Sample Preparation Procedure can be assigned to each Characteristic.		
1	LocLSPP_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Lab Sample Preparation Procedure Index Number	Primary Key	
2	LocLSPP_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSRLSPP_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Sample Preparation Procedure Index Number (for national citations)	tblDef_TSRLSPP	
4	TSRLSPP_ORG_ID	Text	8	Null	STORET Org Code		
5	OWNER_TYPE_CODE	Text	3	Not Null	System entered field to indicate whether the Lab Sample Preparation Procedure is an Organizational or National (provided by STORET) Procedure. Abbreviated name or identifying code for the Lab Sample Preparation Procedure	Org, Nat	
6	PREPARATION_ID	Text	15	Not Null	Full Title for the Lab Sample Preparation Procedure		
7	NAME	Text	120	Not Null	Full Name of Lab Sample Preparation Procedure Owner		
8	SOURCE_NAME	Text	65	Not Null	Full Name of Lab Sample Preparation Procedure Owner		
9	SOURCE_ACR	Text	12	Not Null	Source Acronym	Org Code if 'Org'; from tblDef_TSRLSPP in 'Nat'	
10	DESCRIPTION_TEXT	Memo		Null	Lab Sample Preparation Procedure Description Text	4000 character maximum	
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of Last Update - automatically stamp today's date/time in before update event		
13	LocCITN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Citation Index Number	Foreign Key	
14	LocCITN_Org_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
15	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (for national citations)	tblDef_TSRCITN	
16	TSRCITN_ORG_ID	Text	8	Null	STORET Org Code		

Lab sample preparation procedures are not required in STORET. They should only be used when a sample is extracted from the environment and the sample is treated or prepared prior to analysis in the lab. In situ monitoring with instruments or probes or field observations don't have lab sample preparation procedures because samples aren't being extracted for laboratory analysis.

Figure 17. Metadata Template – Define Your Characteristics

Characteristic definitions are the most important metadata users will enter. They are contained in tblCharacteristics. Previously entered sample collection procedures, gear configurations, handling procedures, analytical procedures, lab sample preparation procedures, and labs are assigned to characteristic definitions as appropriate. The key is to enter, at minimum, the red fields in order to get the OK field to say ‘Y’ indicating that the characteristic definition is minimally complete. The first step in entering characteristic definitions is to match what you are sampling, measuring, or observing to a specific EPA STORET characteristic name. All STORET characteristics are contained in the tblDef_TSRCHAR table. Use the ‘...’ button to search for particular characteristic names. The most common characteristic names are: (1) pH; (2) Dissolved oxygen (DO); (3) Specific conductance; (4) Temperature, water; (5) Flow; (6) Flow, severity (choice list); (7) Turbidity; (8) Fecal coliform; and (9) All IT IS taxa. If you can’t find a particular characteristic, please contact Dean Tucker (970-225-3516, Dean_Tucker@NPS.GOV) so he can request EPA add the characteristic to STORET. This standardizes what everyone is measuring. You can name the characteristic whatever you want in the local name field.

tblCharacteristics

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristics				This is the Characteristic Definition table. Characteristics are the parameters or things that are sampled, measured, or observed. Results are produced by characteristics. This is a key metadata table. A characteristic definition is assigned to every result.		
1	LocCHDEF_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocCHDEF_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRCHDEF_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Definition Index Number (optional use)		
4	TSRCHDEF_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	DISPLAY_NAME	Text	60	Not Null	Official EPA Characteristic Display Name	tblDef_TSRCHAR	
6	LocCharNameCode	Text	60	Not Null	Organization's Local Name for the Characteristic Definition		
7	TSRCHAR_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Characteristic Index Number	Foreign Key	
8	TSRCHAR_ORG_ID	Text	8	Not Null	STORET Org Code	Foreign Key	
9	SEQUENCE_NUMBER	Number, Single	4	Not Null	Sequence number used for ordering characteristics on the results form. Characteristics are ordered in ascending order by sequence number.		
10	SMPL_FRAC_TYPE_NM	Text	20	Null	Sample Fraction or filtered fraction for a physically partitioned sample	Total, Dissolved, Suspended, Settleable, Non-settleable, Filterable, Non-filterable, Volatile, Non-volatile, Acid Soluble, Vapor, Supernate, Fixed, Total Recoverable, Comb Available, Total Residual, Free Available	
11	TSRUOM_IS_NUMBER	Number, Long Integer	4	Null	STORET Unit of Measure Index Number	tblDef_TSRUOM	
12	FIELD_LABEL	Text	13	Null	Where was the characteristic was measured	Field, Lab	
13	MEDIUM	Text	50	Null	Medium in which the characteristic is measured	Water, Air, Biological, Sediment, Soil, Individual, Tissue, Other	
14	DUR_BASIS_TYPE_NM	Text	10	Null	Time period over which a measurement was made	24 Hours, 96 Hours, 1 Day, 2 Day, 3 Day, 4 Day, 5 Day, 6 Day, 7 Day, 8 Day, 9 Day, 10 Day, 11 Day, 12 Day, 13 Day, 14 Day, 15 Day, 16 Day, 17 Day, 18 Day, 19 Day, 20 Day, 21 Day, 22 Day, 23 Day, 24 Day, 25 Day, 26 Day, 27 Day, 29 Day, 30 Day, 60 Day, 90 Day, 120 Day, 6 Month, 1 Year	
15	STATISTIC_TYPE_NM	Text	18	Null	What type of statistic is the reported result value	Maximum, Mean, Median, Minimum, Mode, MPN, Standard Deviation, 5 pctl, 10 pctl, 15 pctl, 20 pctl, 25 pctl, 75 pctl, 80 pctl, 85 pctl, 90 pctl, 95 pctl	
16	VALUE_TYPE_NAME	Text	10	Null	What type of value is the reported result	Actual, Calculated, Estimated	
17	WT_BASIS_TYPE_NM	Text	12	Null	What is the form of the sample (or portion of the sample) that is associated with the result value	Wet, Dry, Ash-free Dry	
18	TEMP_BASIS_LVL_NM	Text	8	Null	What is the controlled temperature at which the sample was maintained during analysis	05 Deg C, 10 Deg C, 15 Deg C, 20 Deg C, 25 Deg C, 30 Deg C, 35 Deg C, 40 Deg C, 45 Deg C, 50 Deg C, 55 Deg C, 60 Deg C, 65 Deg C, 70 Deg C, 75 Deg C, 80 Deg C, 85 Deg C, 90 Deg C, 95 Deg C	
19	PARTICLE_SIZE_BASIS	Text	40	Null	Particle size basis for physical characteristic result - applies primarily to sediment, substrate, or soil analysis		
20	DETECTION_LIMIT	Number, Double	8	Null	Least amount of the target substance that could be detected by the instrument or analytical process that was used to determine the result. Above this value, the target substance is presumed to be present.		
21	LOWER_QUANT_LIMIT	Number, Double	8	Null	Lower Quantification Limit (often referred to as the Practical Quantitation Limit - PQL) represents the smallest amount of the target substance or characteristic that could be quantified by the instrument or analytical process.		
22	UPPER_QUANT_LIMIT	Number, Double	8	Null	Largest amount of the target substance that could be quantified by the instrument or analytical process. Values above the lower and below the upper quantification limits are reported as valid numeric results in STORET.	254 characters maximum	
23	DET_QUANT_DESCRIPTION	Text	254	Null	Describe the meaning of the detection and/or quantification limits		
24	LOWER_RANGE_VALUE	Number, Double	8	Null	Lowest expected value likely to be measured		
25	UPPER_RANGE_VALUE	Number, Double	8	Null	Highest expected value likely to be measured		
26	CHAR_DESCRIPTION	Memo		Null	Describe or define more completely the characteristic definition	4000 characters maximum	
27	COMP_IND_CD	Text	1	Null	Has the characteristic has been adequately defined (minimally required fields entered) for data entry		
28	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
29	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
30	LocANLPR_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Analytical Procedure Index Number - must pre-exist	Foreign Key	
31	LocANLPR_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
32	TSRANLPR_IS_NUMBER	Number, Long Integer	4	Null	STORET Analytical Procedure Index Number (optional use)		
33	TSRANLPR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
34	LocLSPP_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Lab Sample Preparation Procedure Index Number - must pre-exist	Foreign Key	
35	LocLSPP_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
36	TSRSLPP_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Sample Preparation Procedure Index Number (optional use)		
37	TSRSLPP_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
38	LocFLDPR_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Field Collection Procedure Index Number - must pre-exist	Foreign Key	
39	LocFLDPR_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
40	TSRFLDPR_IS_NUMBER	Number, Long Integer	4	Null	STORET Field Collection Procedure Index Number (optional use)		
41	TSRFLDPR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
42	LocGrCfg_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Gear Configuration Index Number - must pre-exist	Foreign Key	
43	LocGrCfg_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
44	TSRGrCfg_IS_NUMBER	Number, Long Integer	4	Null	STORET Gear Configuration Index Number (optional use)		
45	TSRGrCfg_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
46	LocSDP_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Sample Handling Procedure Index Number - must pre-exist	Foreign Key	
47	LocSDP_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
48	TSRSDP_IS_NUMBER	Number, Long Integer	4	Null	STORET Sample Handling Procedure Index Number (optional use)		
49	TSRSDP_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
50	LocLab_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Lab Index Number - must pre-exist	Foreign Key	
51	LocLab_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
52	LabCertified4Char	Yes/No	1	Null	Is the lab EPA certified for the characteristic	Boolean	
53	TSRLab_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Index Number (optional use)		
54	TSRLab_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
55	TSRSubTax_IS_NUMBER	Number, Long Integer	4	Null	STORET Taxa Index Number - TSRCHAR_IS_NUMBER	tblDef_TSRCHAR	
56	TSRSubTax_ORG_ID	Text	8	Null	STORET Org Code		
57	TSRBioPt_IS_NUMBER	Number, Long Integer	4	Null	STORET Biopart Index Number	tblDef_TSRBIOPT	
58	TSRBioPt_ORG_ID	Text	8	Null	STORET Org Code		
59	UDCharSpeciesNumber	Text	4	Null	User defined Characteristic Species Number	sp.1, sp.2, sp.3, sp.4, sp.5, sp.6, sp.7, sp.8, sp.9	
60	UDSubSpeciesNumber	Text	4	Null	User defined Subject Taxon Species Number	sp.1, sp.2, sp.3, sp.4, sp.5, sp.6, sp.7, sp.8, sp.9	
61	ShowFilteredUnits	Yes/No	1	Null	Flag for whether to display all possible STORET units or filter the units based on the characteristic	Boolean	
62	D_SCR_TYPE_CD	Text	4	Not Null	System entered field for Characteristic screen type code in STORET	CHEM, PHYS, PV, TAXA, TEXT, VAR N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	
63	DataSource	Text	1	Null	System entered source of data	SourceOrgID is a memo field here because a modern or legacy STORET data import into NPSTORET could contain the exact characteristic definition for multiple organizations	
64	SourceOrgID	Memo		Null	System entered OrgID from source database		

tblCharacteristicProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicProjectAssignment				This is the Characteristic Project Assignment table that tracks which characteristics have been assigned to which projects.		
1	LocChPrAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Project Assignment Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocChPrAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPSTORET Project Organization Code	Foreign Key	
5	LocCHDEF_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - must pre-exist	Foreign Key	
6	LocCHDEF_ORG_ID	Text	8	Not Null	NPSTORET Local Characteristic Definition Organization Code	Foreign Key	
7	TSMPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCHDEF_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Index Number (optional use)		
10	TSRCHDEF_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblCharacteristicGroups

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicGroups				This is the Characteristic Groups table that contains user-defined groupings of characteristics that facilitate data entry.		
1	LocCHGRP_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Group Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocCHGRP_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRCHGRP_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Group Index Number (optional use)		
4	TSRCHGRP_ORG_ID	Text	8	Null	STORET Org ID (optional use)		
5	ID_CODE	Text	8	Not Null	Unique Code Identifying this Characteristic Group within the Organization		
6	NAME	Text	30	Not Null	Name of the Characteristic Group		
7	DESCRIPTION_TEXT	Memo		Null	Description of Characteristic Group	4000 characters maximum	
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
10	LocCITN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Citation Index Number	Foreign Key	
11	LocCITN_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
12	TSRCHITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (optional use)		
13	TSRCHITN_ORG_ID	Text	8	Null	STORET Org ID/Code (optional use)		

tblCharacteristicGroupAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicGroupAssignment				This is the Characteristic Group Assignment table that tracks which characteristics have been assigned to which groups. Characteristics can be assigned to groups to facilitate data entry.		
1	LocChGrpAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Group Assignment Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocChGrpAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocChGrp_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Group Index Number - must pre-exist	Foreign Key	
4	LocChGrp_ORG_ID	Text	8	Not Null	NPSTORET Characteristic Group Organization Code	Foreign Key	
5	LocCHDEF_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - must pre-exist	Foreign Key	
6	LocCHDEF_ORG_ID	Text	8	Not Null	NPSTORET Local Characteristic Definition Organization Code	Foreign Key	
7	TSMChGrp_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Group Index Number (optional use)		
8	TSMChGrp_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCHDEF_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Index Number (optional use)		
10	TSRCHDEF_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Figure 18. Metadata Template – Characteristic Groups

tblCharacteristicGroups

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicGroups				This is the Characteristic Groups table that contains user-defined groupings of characteristics that facilitate data entry.		
1	LocCHGRP_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Characteristic Group Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocCHGRP_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRCHGRP_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Group Index Number (optional use)		
4	TSRCHGRP_ORG_ID	Text	8	Null	STORET Org ID (optional use)		
5	ID_CODE	Text	8	Not Null	Unique Code Identifying this Characteristic Group within the Organization		
6	NAME	Text	30	Not Null	Name of the Characteristic Group		
7	DESCRIPTION_TEXT	Memo		Null	Description of Characteristic Group	4000 characters maximum	
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
10	LocCITN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORE Citation Index Number	Foreign Key	
11	LocCITN_ORG_ID	Text	8	Null	NPS Organizational ID or Alpha Code	Foreign Key	
12	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (optional use)		
13	TSRCITN_ORG_ID	Text	8	Null	STORET Org ID/Code (optional use)		

Characteristic groups are a data entry construct. By grouping previously entered characteristics you can pre-populate the Results Template with just the specific characteristics contained in a selected characteristic group. You might want to group all your field characteristic definitions together or, perhaps, all the characteristics reported by a particular lab. When it comes time to enter the data, you can limit the list of characteristics appearing on the form to just those in the selected group.

tblCharacteristicGroupAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCharacteristicGroupAssignment				This is the Characteristic Group Assignment table that tracks which characteristics have been assigned to which groups. Characteristics can be assigned to groups to facilitate data entry.		
1	LocChGrpAss_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Group Assignment Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocChGrpAss_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocChGrp_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Group Index Number - must pre-exist	Foreign Key	
4	LocChGrp_ORG_ID	Text	8	Not Null	NPSTORET Characteristic Group Organization Code	Foreign Key	
5	LocCHDEF_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - must pre-exist	Foreign Key	
6	LocCHDEF_ORG_ID	Text	8	Not Null	NPSTORET Local Characteristic Definition Organization Code	Foreign Key	
7	TSMChGrp_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Group Index Number (optional use)		
8	TSMChGrp_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCHDEF_IS_NUMBER	Number, Long Integer	4	Null	STORET Characteristic Index Number (optional use)		
10	TSRCHDEF_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Figure 19. Metadata Template - Laboratory Info

tblLabs

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblLabs				This is the Labs table. Labs are facilities which employ Analytical Procedures to perform analysis of Characteristics to obtain Results.		
1	LocLAB_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Lab Index Number	Primary Key	
2	LocLAB_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSRLAB_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Index Number (optional use)		
4	TSRLAB_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	NAME	Text	60	Not Null	Lab Name		
6	ID_CODE	Text	8	Not Null	Lab ID Code		
7	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
8	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
9	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	

This table contains the contact information for the lab that reported results that were measured in a lab. Labs are not required in STORET. They should only be assigned to characteristic

definitions where a sample is extracted from the environment and the sample is analyzed for that characteristic in the lab. In situ monitoring with instruments or probes or field observations don't have labs assigned because samples aren't being extracted for laboratory analysis.

tblAddresses

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblAddresses						
1	LocADDR_IS_NUMBER	Number, Long Integer	4	Not Null	This is the Address table. In NPSTORET laboratories can have up to 3 different addresses (Located At, Shipping, and Mailing). NPSTORET Address Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocADDR_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSMADDR_IS_NUMBER	Number, Long Integer	4	Null	STORET Address Index Number (optional use)		
4	TSMADDR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	TYPE_CODE	Text	10	Not Null	Type of Address	Located at, Shipping, Mailing	
6	LINE_ONE_TEXT	Text	40	Null	First line of Address which usually denotes the company or individual name		
7	LINE_TWO_TEXT	Text	40	Null	Second line of Address usually denotes the mail routing code, p.o. box number, or suite but can also contain company name in addition		
8	LINE_THREE_TEXT	Text	40	Null	Third line of Address usually denotes the street address including street name and type, house/office number, or sector designation		
9	LINE_FOUR_TEXT	Text	40	Null	Fourth line of Address containing the name of the city, state, and zip code in an Address.		
10	COUNTRY_CODE	Text	2	Null	Country Code	US, CN, MX	
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
13	LocLAB_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Lab Index Number - must pre-exist because Labs own Addresses	Foreign Key	
14	LocLAB_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
15	TSRLAB_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Index Number (optional use)		
16	TSRLAB_ORG_ID	Text	8	Null	STORET Org Code (optional use)		

tblElectronicAddresses

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblElectronicAddresses						
1	LocEADDR_IS_NUMBER	Number, Long Integer	4	Not Null	This is the Electronic Address table. Labs and personnel/staff can have phone numbers, fax numbers, and E-MAIL, and other electronic addresses. NPSTORET Electronic Address Index Number	Primary Key	
2	LocEADDR_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSMEADDR_IS_NUMBER	Number, Long Integer	4	Null	STORET Electronic Address Index Number (optional use)		
4	TSMEADDR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	TYPE_CODE	Text	18	Not Null	Type of Electronic Address	Phone, Fax, Internet, Commercial Network, Other	
6	ADDRESS_TEXT	Text	60	Not Null	Text of the Electronic Address		
7	COMMENT_TEXT	Text	40	Null	Comment further describing the electronic address		
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
10	LocLAB_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Lab Index Number	Foreign Key	
11	LocLAB_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
12	TSRLAB_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Index Number (optional use)		
13	TSRLAB_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
14	LocPERSN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Person Index Number	Foreign Key	
15	LocPERSN_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
16	TSPERSN_IS_NUMBER	Number, Long Integer	4	Null	STORET Person Index Number (optional use)		
17	TSPERSN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		

Figure 20. Metadata Template - Organizational Staff and Their Roles

NPSTORE Metadata Template

1. Collection Procedures 2. Gear Configurations 3. Preserve/Transport 4. Analytical Procedures 5. Lab Sample Prep
 6. Characteristics 7. Characteristic Groups 8. Laboratory Info 9. Staff and Roles 10. Citations

Enter Your Organizational Staff and Their Roles

First Name: Test Last Name: Log In Log In ID: ZZDEMO Jump to Person: [dropdown]

Affiliation: [text] Active

Organizational Roles:

<input checked="" type="checkbox"/> Director	<input type="checkbox"/> Senior Scientist	<input type="checkbox"/> Data Administrator	<input type="checkbox"/> Hydrologist
<input type="checkbox"/> Deputy Director	<input type="checkbox"/> Staff Scientist	<input type="checkbox"/> Biochemist	<input type="checkbox"/> Limnologist
<input type="checkbox"/> Department Manager	<input type="checkbox"/> Staff/Employee	<input type="checkbox"/> Biologist	<input type="checkbox"/> Meteorologist
<input type="checkbox"/> STORET Primary Contact	<input type="checkbox"/> Staff/Contract	<input checked="" type="checkbox"/> Chemist	<input type="checkbox"/> Taxonomist
<input type="checkbox"/> Quality Assurance Officer	<input type="checkbox"/> Staff/Volunteer	<input type="checkbox"/> Engineer	
<input type="checkbox"/> 305B Coordinator	<input checked="" type="checkbox"/> Technician	<input type="checkbox"/> Geologist	

Select All Deselect All Toggle All

Electronic Addresses:

Electronic Address Type: Phone [dropdown]

Electronic Address: 970-225-3516 Add New Electronic Address

Comment: Office Phone Delete Address

Record: 1 of 2

Add Person Delete Person

Record: 1 of 5 (Filtered)

Close Metadata

tblPeople

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblPeople				This is the People/staff table. It contains the information about People who have been created as NPSTORET users (can log in) as well as those People who can be assigned to Activities.		
1	LocPERSON_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Person Index Number	Primary Key	
2	LocPERSON_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSMPERSON_IS_NUMBER	Number, Long Integer	4	Null	STORET Person Index Number (optional use)		
4	TSMPERSON_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	FIRST_NAME	Text	30	Not Null	First Name of Person		
6	LAST_NAME	Text	40	Not Null	Last Name of Person		
7	ACTIVE_INDICATR_CD	Yes/No	1	Null	Whether the Person is Active in the Organization		
8	AFFILIATION_TEXT	Text	60	Null	Person's organization, cooperating organization, or other affiliation		
9	LOG_IN_ID	Text	8	Null	Log In ID for this person - used to stamp each record they create/edit		
10	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
11	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Use this form and table to enter staff and/or people involved in the water monitoring effort and their contact information. These people can then be assigned organizational (and project) roles, be assigned to activities, and/or allowed to enter data in NPSTORET.

tblPeopleRoleAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblPeopleRoleAssignment						
1	LocARole_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Person Role Assignment Index Number	Primary Key	
2	LocARole_Org_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocPERSN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Person Index Number - must pre-exist	Foreign Key	
4	LocPERSN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
5	TSPERSN_IS_NUMBER	Number, Long Integer	4	Null	STORET Person Index Number (optional use)		
6	TSPERSN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
7	TSMPROLE_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Role Index Number	tblDef_TSMPROLE	
8	TSMPROLE_ORG_ID	Text	8	Not Null	STORET Org ID/Code for Role Index Number		
9	LocPROJ_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Project Index Number - must pre-exist		If the role assignment is for a Project, which Project
10	LocPROJ_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)		
11	ORG_PROJ	Text	4	Not Null	Whether the assignment is an Organizational or Project Role	ORG, PROJ	Note: Some roles are both Organization Roles and Project Roles; some aren't.
12	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
13	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

tblElectronicAddresses

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblElectronicAddresses						
1	LocEADDR_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Electronic Address Index Number	Primary Key	
2	LocEADDR_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	TSMEADDR_IS_NUMBER	Number, Long Integer	4	Null	STORET Electronic Address Index Number (optional use)		
4	TSMEADDR_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	TYPE_CODE	Text	18	Not Null	Type of Electronic Address	Phone, Fax, Internet, Commercial Network, Other	
6	ADDRESS_TEXT	Text	60	Not Null	Text of the Electronic Address		
7	COMMENT_TEXT	Text	40	Null	Comment further describing the electronic address		
8	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
9	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
10	LocLAB_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Lab Index Number	Foreign Key	
11	LocLAB_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
12	TSRLAB_IS_NUMBER	Number, Long Integer	4	Null	STORET Lab Index Number (optional use)		
13	TSRLAB_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
14	LocPERSN_IS_NUMBER	Number, Long Integer	4	Null	NPSTORET Person Index Number	Foreign Key	
15	LocPERSN_ORG_ID	Text	8	Null	NPS Organizational ID or Code (park or network alphacode)	Foreign Key	
16	TSPERSN_IS_NUMBER	Number, Long Integer	4	Null	STORET Person Index Number (optional use)		
17	TSPERSN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		

Figure 21. Metadata Template - Organizational Citations

tblCitations

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCitations				This is the Citations table. Citations are assigned to products, documents, collection procedure, handling procedure, analytical procedure, lab sample prep procedure, and characteristic group. An organization's citations can include both organizational citations and adopted national citations.		
1	LocCITN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Citation Index Number	Primary Key	
2	LocCITN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (for national citations)	tblDef_TSRCITN	
4	TSRCITN_ORG_ID	Text	8	Null	STORET Org Code		
5	ORG_TYPE_CODE	Text	3	Not Null	System entered field to indicate whether the citation is an Organizational or National (provided by STORET) Citation	Org, Nat	
6	ORG_REF_ID_NUM	Text	20	Null	Unique reference/citation identifier in the organization		
7	AUTHOR_NAME	Text	120	Not Null	Author(s) Name(s)		
8	PUBLICATION_YEAR	Text	18	Not Null	Copyright year or date of the publication being cited		
9	TITLE_NAME	Memo		Not Null	Unique publication name within the organization	2000 characters maximum	
10	JRNL_OR_PBLSHR_NM	Text	120	Not Null	Organization that issued the publication		
11	VOL_AND_PG_NUM	Text	20	Not Null	Volume and Page Numbers		
12	COMMENT_TEXT	Text	254	Null	Comments about the citation		
13	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
14	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
15	TSMORGAN_IS_NUMBER	Number, Long Integer	4	Null	STORET Organizational Index Number - System entered for National Citations only		
16	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for unknown	

Organizational and national (adopted) citations can be assigned to projects, project documents, sample collection procedures, analytical procedures, lab sample preparation procedures, and characteristic groups. The 'Unknown' national citation is a good one to add to your organization for those procedures that require a citation and for which you don't have one.

tblCitationProjectAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblCitationProjectAssignment				This is the Citation Project Assignment table that tracks which citations have been assigned to which projects.		
1	LocCtPrAss_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Citation Project Assignment Index Number	Primary Key	
2	LocCtPrAss_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
4	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LocCITN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Citation Index Number - must pre-exist	Foreign Key	
6	LocCITN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	TSMFPROJ_IS_NUMBER	Number, Long Integer	4	Null	STORET Project Index Number (optional use)		
8	TSMFPROJ_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
9	TSRCITN_IS_NUMBER	Number, Long Integer	4	Null	STORET Citation Index Number (optional use)		
10	TSRCITN_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Other Metadata

A wide variety of other metadata is supported by STORET. Please consult with your STORET contact if you require storage of metadata other than what is displayed here and supported in NPSTORET. NPS WRD staff will QA/QC and then enter each networks' monitoring metadata in the NPS' copy of STORET prior to uploading the results to the STORET National Data Warehouse (http://www.epa.gov/storet/dw_home.html).

Result Information:

Result information encompasses the visits, activities, and results of analyses or measurements/observations made while conducting monitoring activities at stations in support of projects. This is a combination of the 'What', 'When', and 'How' parts of metadata. The NPSTORET Result Template is comprised of three subforms: station visit, activities, and results. A station visit is defined as a stop at a previously defined/entered station (on the Station Template) to conduct one or more monitoring activities. A monitoring activity can correspond to a characteristic group or contain a mixture of characteristics and/or groups. A monitoring activity produces one or more results for characteristic(s). Results are what the user will enter most frequently in NPSTORET. *Prior to entering results, a project, one or more stations, and one or more complete characteristic definitions must have been entered.*

The primary result tables are tblVisits, tblActivities, and tblResults. These are the tables that will get the largest in a user's back-end database. Because of the one-to-many relationship between these tables, the tblResults table is the one that will grow the largest as more and more results are added. The structure of each of these tables is displayed below.

The first step in entering results is to enter the visit information. When the required red fields (Station ID and Start Date) are entered, the activities subform will appear. The Station IDs that appear in the combo box are those that are part of the station group (i.e. Stations Assigned to the Selected Project, All the Organization's Stations, or a user-defined station group) selected by the user immediately after starting the Results Template. Time zone is a required field if a time is entered. You can assign one or more pictures to a station visit.

The Start Date, Start Time Zone, End Date, End Time Zone, and Visit Comment can be automatically entered by NPSTORET from your previous visit entry based on the settings you choose from the NPSTORET Main Switchboard using the ‘Options ...’ button and Results tab.

Figure 22. Results Template – Station Visit Entry

The screenshot shows a software interface for entering station visit data. The window title is "Visits, Activities, and Results for Project: YYYYYY". The main area is titled "NPSTORET Result Entry Template". It includes a "Jump to Station Visit:" dropdown menu, a "Station ID:" dropdown menu, and input fields for "Start Date:", "Start Time:", "Zone:", "End Date:", and "End Time:". There are also "Add New Visit" and "Delete Visit" buttons, and a "Visit Comment:" text area. At the bottom, there are "Import" and "Close Results" buttons. The interface also shows "Vis# 001" and "Pictures: 0".

tblVisits

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
	This is the Visits table. Visits are made to stations to conduct Activities which record Results. A Visit is made to one Station on a certain date at a certain time. A Visit can have one or more Activities.						
0	tblVisits						
1	LocStVst_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Visit Index Number	Primary Key	
2	LocStVst_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRSTVST_IS_NUMBER	Number, Long Integer	4	Null	STORET Station Visit Index Number (optional use)		
4	TSRSTVST_ORG_ID	Text	8	Null	STORET Org ID (optional use)		
5	LocProj_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Project Index Number - must pre-exist	Foreign Key	
6	LocProj_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	LocSTATN_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
8	LocSTATN_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
9	Visit_Number	Text	3	Not Null	Station Visit Number		
10	START_DATE	Date/Time	8	Not Null	Date Visit Started		
11	START_TIME	Date/Time	8	Null	Time Visit Started (Military)		
12	START_TIME_ZONE	Text	4	Conditional	Start Time Zone for Visit		Required if START_TIME entered
13	END_DATE	Date/Time	8	Null	Date Visit Ended		
14	END_TIME	Date/Time	8	Null	Time Visit Ended (Military)		
15	END_TIME_ZONE	Text	4	Conditional	End Time Zone for Visit (needed because a Visit could extend across Daylight Savings/Standard Times)		Required if END_TIME entered
16	VISIT_COMMENT	Memo		Null	Station visit comment/description	4000 characters maximum	
17	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
18	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
19	COMPLETE	Yes/No	1	Null	Visit OK to write out after passing through QA checks (not used in v1.0)		
20	LAST_QA_OC	Date/Time	8	Null	Date of last QA/QC check (not used in v1.0)		
21	FILE_NAME	Text	255	Null	Exported Visit file name (not used in v1.0)		
22	LAST_EXPORTED	Date/Time	8	Null	Date Visit last exported (not used in v1.0)		
23	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	
24	SourceOrgID	Text	8	Null	System entered OrgID from source database		

Figure 23. Results Template – Station Visit Picture Entry

Station Visit Pictures

GRPO_L1 GRPO: Grand Portage Creek 0.7mi NW of MN Hwy61 and GRPO Trail



Station Visit Pictures:

Add New Picture

Delete Picture

Close Pictures

File Name: C:\NPSTORET\PICTURES\HALE-IMAGEF00004.JPG

Picture Date: ...

Description:

Record: 1 of 1

tblVisits_Pics

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
					This is the Station Visit Pictures table. It contains information about Station Visit Pictures. The actual Pictures are not stored in the database. The records in this table are pointers to the Pictures which are stored in a subdirectory.		
0	tblVisits_Pics						
1	LocPic_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Picture Index Number	Primary Key	
2	LocPic_ORG_ID	Text	8	Not Null	NPS Organizational ID or Code (park or network alphacode)	Primary Key	
3	LocStaln_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Station Index Number - must pre-exist	Foreign Key	
4	LocStaln_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
5	LocSIVst_IS_Number	Number, Long Integer	4	Not Null	NPSTORET Station Visit Index Number - must pre-exist	Foreign Key	
6	LocSIVst_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	FilePath	Text	255	Not Null	File Path to the Picture		
8	FileName	Text	255	Not Null	File Name of the Picture	4000 characters maximum	
9	PictureDate	Date/Time	8	Null	Date Picture Taken		
10	Description	Memo		Null	Description of Picture		
11	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
12	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

Once the required station visit fields have been entered, NPSTORET will display the activity subform on the Results Template.

Figure 24. Results Template – Activity Entry

tblActivities

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblActivities				This is the Activity table. One or more Activities can be performed during a Station Visit to evaluate conditions in the environment. Activities consist of sample collection or measurements and observations made on-site. Sample collection involves extracting something from its environmental setting using some type of equipment. Measurements involve something measured in its environmental setting usually using some type of equipment. Observations involve something observed in its environmental setting usually without using some type of equipment. In NPSTORE you can group results (e.g. all sample/lab data, all field observations, just metals, etc.) as desired using Activities. A Station Visit can have many Activities; an Activity can have many results.		
1	LocFdAct_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Activity Index Number - a system-generated value used to uniquely identify an occurrence of this table.	Primary Key	
2	LocFdAct_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRFDact_IS_NUMBER	Number, Long Integer	4	Null	STORET Activity Index Number (optional use)		
4	TSRFDact_ORG_ID	Text	8	Null	STORET Org ID (optional use)		
5	LocStVst_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORE Station Visit Index Number - must pre-exist because Visits own Activities	Foreign Key	
6	LocStVst_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	TSRSTVST_IS_NUMBER	Number, Long Integer	4	Null	STORET Station Visit Index Number (optional use)		
8	TSRSTVST_ORG_ID	Text	8	Null	STORET Org ID (optional use)		
9	ID_CODE	Text	12	Not Null	Alphanumeric code that identifies an Activity, sometimes called Sample ID or Event ID. The combination of Activity/Sample ID and Replicate Number must be unique among all samples collected during a Station Visits.	Can be autogenerated by NPSTORE	
10	DEPTH_TO_ACTIVITY	Number, Double	8	Null	Distance/depth from surface to the point in water column at which the activity is conducted	ft, m	
11	DEPTH_TO_ACT_UN_CD	Text	2	Null	Units in which the depth to activity is expressed	Bottom, Midwater, Surface, Subbottom, Near Bottom	
12	RELV_DEPTH_NAME	Text	15	Null	Approximate relative depth at which the activity occurred		
13	REPLICATE_NUM	Number, Integer	2	Null	Replicate Number - User-assigned number applied to samples of the same type, medium, etc. to differentiate between them (e.g., Water Replicate 1 and Water Replicate 2, etc.)		
14	ACTIVITY_COMMENT	Memo	1	Null	Activity comment/description	Maximum of 254 characters	
15	QAQC_SAMPLE	Yes/No	1	Null	Is this a QA/QC Sample?	Boolean	
16	CHAIN_OF_CUSTODY_ID	Text	30	Null	Code which may be used to identify a record kept elsewhere describing the chain of custody for a sample and its associated results		
17	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
18	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
19	COMPLETE	Yes/No	1	Null	Activity OK to write out after passing through QA checks (not used in v1.0)		
20	LAST_QA_QC	Date/Time	8	Null	Date of last QA/QC check (not used in v1.0)		
21	FILE_NAME	Text	255	Null	Exported activity file name (not used in v1.0)		
22	LAST_EXPORTED	Date/Time	8	Null	Date activity last exported (not used in v1.0)		
23	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	
24	SourceOrgID	Text	8	Null	System entered OrgID from source database		

You can enter as many activities for the station visit as desired. Although STORET restricts what results can be included on an activity, NPSTORET allows the user to enter whatever individual results or characteristic groups are desired on a particular activity – although it makes more sense to use activities to organize your data during a station visit (i.e. all field measurements as one activity/characteristic group, lab measurements as another, habitat observations as another, etc.).

Activities must be uniquely identified with an Activity ID and Replicate # on the station visit. NPSTORET can automatically generate an Activity ID, Depth, Units, Relative Depth, Person(s), and Activity Comment based on the settings you choose from the NPSTORET Main Switchboard using the ‘Options ...’ button and Results tab.

Once the required red fields have been entered, NPSTORET will display the results subform at the bottom of the Results Template based on the settings you choose from the NPSTORET Main Switchboard using the ‘Options ...’ button and Results tab.

Figure 25. Results Template – Result Entry

NPSTORET Result Entry Template

Station ID: GRPO_L1_GRPO

Start Date: 1/10/2007 Start Time: Zone: Vis# 001

End Date: End Time: Zone:

Visit Comment:

Activity ID: 20070110_A1 Replicate #: 0 QA/QC Sample:

Depth: 23 Units: ft Custody ID:

Relative Depth: Person(s): Test Log In\test person\zzzzzz

Activity Comment:

Visit: 1 of 1 (Filtered) Pictures: 1

Activity: 1 of 1

Double-click a record to pop up an alternate data editing form Change Status to all: Clean Activity Auto Fill

Local Name	Detection Condition	Result Value	Units	Value Status	Value Type	Lab Remarks	C
Gold	Detected and Quantified		µg/l	Final	Actual		
Cloud Cover	Detected and Quantified		None	Final	Actual		
RBP Bank Stab Right	Detected and Quantified			Final	Actual		
Potassium2	Detected and Quantified		mg/l	Final	Actual		
Endothall	Detected and Quantified		µg/l	Final	Actual		
Picloram	Detected and Quantified		µg/l	Final	Actual		
Virus	Detected and Quantified		#/100 gal	Final	Actual		
GenObs(text)	Detected and Quantified			Final	Actual		
2,3,6-Trichloropholo	Detected and Quantified		µg/l	Final	Actual		
RelHumidity	Detected and Quantified		%	Final	Actual		
BarPressure	Detected and Quantified		mm/Hg	Final	Actual		
RBP Bank Pr. Left	Detected and Quantified			Final	Actual		
pH	Detected and Quantified		None	Final	Actual		
Li	Detected and Quantified		µg/l	Final	Actual		
Fluoro	Detected and Quantified		µg/l	Final	Actual		
2,3,5-Trimethyl	Detected and Quantified		µg/l	Final	Actual		
clypeata	Detected and Quantified		count	Final	Actual		

Record: 17 of 42

Import Close Results

NPSTORET pre-populated the results subform with all of our organization’s defined characteristics due to the setting chosen from the NPSTORET Main Switchboard using the ‘Options ...’ button and Results tab to ‘Create empty Characteristic Results for all defined Input Group Characteristics after an Activity has been entered’. If you don’t want the form pre-

populated with the default Input Group Characteristics, turn that option off and you'll be presented with a blank subform from which you can pick whichever characteristics you'd like to add. You can remove all the empty result records by clicking 'Clean Activity'. You can also have NPSTORET remove empty result records based on a setting chosen from the NPSTORET Main Switchboard using the 'Options ...' button and Results tab to 'Remove Empty Characteristic Results'. Note: You will only be able to add characteristics to the current activity based on the currently selected Characteristic Input Group. If you can't find a defined characteristic, try changing the Characteristic Input Group.

When a characteristic is added to the result subform it brings along its characteristic definition. The detection condition is automatically set to 'Detected and Quantified' and the value status to 'Final'. These can all be changed now on the result subform. For example, you can change value status to 'Preliminary' or indicate that a characteristic was not detected. If a detection or quantification limit was different than what you entered in the default characteristic definition (perhaps due to a dilution), you can scroll out to the right and enter new detection or quantification limits. Whatever you enter on the result form overrides the characteristic definition.

The primary task on the result subform is to enter the result value cell for each characteristic. You can use the AutoFill button to automatically enter a result value for all empty characteristics (perhaps a suite of metals that were all not detected). Be sure to enter any remark codes or result comments that apply.

When you are done entering the result values for all the characteristics on the activity you should either: (1) add a new activity to the station visit; (2) add a new station visit; or (3) close the Result Template. As can be seen, data entry basically involves first entering a station visit followed by its activities and each activity's results.

Note: NPSTORET includes a robust suite of import routines (NPSTORET Main Switchboard, 'Import ...') that enable you to import previously entered water quality results from other Access databases, Excel spreadsheets, and text files or from the national water quality databases (legacy and modern STORET and the USGS NWIS database). If you elect to import data from something other than the national water quality databases, you must already have entered at least one project, one or more station, and the metadata that documents the data to be imported. Refer to the NPSTORET documentation (DataImportInstructions.doc) and on-line help for detailed guidance on how to import results.

tblResults

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblResults						
1	LocRSULT_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Result Index Number	Primary Key	
2	LocRSULT_ORG_ID	Text	50	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRRSULT_IS_NUMBER	Number, Long Integer	4	Null	STORET Result Index Number (optional use)		
4	TSRRSULT_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	LocFdAct_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Activity Index Number - must pre-exist	Foreign Key	
6	LocFdAct_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
7	LocChDef_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Characteristic Definition Index Number - must pre-exist	Foreign Key	
8	LocChDef_Org_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Foreign Key	
9	DETECTION_CONDITION	Text	23	Not Null	Result Detection Condition from STORET	Detected and Quantified, *Non-detect, *Present, *Present >QL, *Present <QL, *Not Reported	
10	RESULT_TEXT	Memo		Not Null	Result Value/Text		
11	VALUE_STATUS	Text	1	Null	Value Status (F=Final; P=Preliminary)	F, P	
12	VALUE_TYPE	Text	10	Not Null	Result Value Type	Actual, Estimated, Calculated	
13	LAB_REMARKS	Memo		Null	Lab Remarks for Result Separated by \		(Note: This is due Access datasheet limitations. Result Lab Remarks are also in tblResultLabRemarkAssignment)
14	RESULT_COMMENT	Memo		Null	Result Comment or Description	4000 characters maximum	
15	DETECTION_LIMIT	Number, Double		Conditional	Represents the least amount of the target substance which could be detected by the instrument/analytical process employed to determine the result. Above this value the target substance is presumed to be present.		
16	LOWER_QUANT_LIMIT	Number, Double		Conditional	Represents the least amount of the target substance which could be quantified by the instrument/analytical process employed to determine the result. Values above the minimum and below the maximum quantitation limits are reported as valid numeric results.		
17	UPPER_QUANT_LIMIT	Number, Double		Conditional	Represents the largest amount of the target substance which could be quantified by the instrument/analytical process employed to determine the result. Values > Min and < Max quantitation limits are assumed valid values.		
18	DET_QUANT_DESCRIPTION	Text	254	Null	Text providing further description and comment on the detection and/or quantitation limits, for example "Instrument Detection Limit"	254 characters maximum	
19	PRECISION	Text	12	Null	Estimate of the maximum possible error in the result. (e.g., Counting error in determining radiological beta particle counts.)		
20	CONFIDENCE_LEVEL	Text	8	Null	When a result has a confidence interval (Precision) this is the confidence level associated with the Precision interval. Example: +/- .004, 95% confidence interval. Only applicable when there is a Precision Value Text.	67, 75, 80, 85, 90, 95, 97.5, 99, 99.9	
21	BIAS	Text	12	Null	A consistent deviation of measured values from the true value, caused by systematic errors in a procedure, as determined by applying identical procedures to a specimen of known properties.		
22	BIAS_CORRECTED	Text	1	Null	A code (Y/N) indicating whether the confidence level has been corrected for Bias.	Y, N	
23	REPL_ANALYSIS_NUM	Number, Byte	1	Null	Number of replicate analyses conducted to determine the result value.		
24	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
25	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		
26	DataSource	Text	1	Null	System entered source of data	N for NWIS, M for Modern STORET, L for Legacy STORET, or U for user	
27	SourceOrgID	Text	8	Null	System entered OrgID from source database		

tblResultLabRemarkAssignment

Seq	Field/Column Name	Format	Length	Optionality	Description	Domain/Permitted Values	Comment
0	tblResultLabRemarkAssignment						
1	LocRSULT_IS_NUMBER	Number, Long Integer	4	Not Null	NPSTORET Result Index Number	Primary Key	
2	LocRSULT_ORG_ID	Text	8	Not Null	NPS Organizational ID or Alpha Code	Primary Key	
3	TSRRSULT_IS_NUMBER	Number, Long Integer	4	Null	STORET Result Index Number (optional use)		
4	TSRRSULT_ORG_ID	Text	8	Null	STORET Org Code (optional use)		
5	TSRLBRMK_IS_NUMBER	Number, Long Integer	4	Not Null	STORET Lab Remark Index Number	tblDef_TSRLBRMK	
6	TSRLBRMK_ORG_ID	Text	8	Not Null	STORET Lab Remark Organization		
7	D_USERID_CODE	Text	8	Not Null	Who last updated the record - automatically filled in by whoever logged on the system		
8	D_LAST_UPDATE_TS	Date/Time	8	Not Null	Date/Time of last update - automatically stamp today's date/time in before update event		

NPSEDD

The NPS Electronic Data Deliverable (NPSEDD) file specifications is the alternative method for Networks to fulfill the requirement that all physical, chemical, biological, and habitat data collected with Water Quality Natural Resource Challenge funding be archived in STORET. NPSEDD is ideally suited for those Networks wishing to use an existing water quality database or develop a new one rather than use NPSTORET. *Networks electing this path are responsible for developing the interface between their chosen water quality database management system and the NPSEDD file format specifications.*

NPSEDD is a set of Excel spreadsheets that contains required and supplemental data fields that can be processed by the STORET Import Module (SIM v.2.02). Like NPSTORET, NPSEDD seeks to acquire an array of project, station, and result metadata that documents the quality and increases the overall utility of monitoring efforts. WRD encourages Networks and others to take advantage of the potential for STORET to house the details of their water quality monitoring efforts beyond the minimum reporting requirements. WRD will need certain metadata in order to set up the proper defaults and preferences in STORET. After data providers populate the spreadsheets and send them to their NPS WRD contact, WRD will quality assure the files and upload the data to WRD's STORET database with SIM.

Other federal and state agencies may have different versions of STORET data deliverable specifications that have been used to transfer data from field offices, labs, and other data sources to STORET. We have attempted to adopt the best aspects of these other agencies' specifications into the NPS' own customized Electronic Data Deliverable format specifications. This version of NPSEDD is presently designed to accept field and laboratory results determined from water, sediment, soil, and air media. Some biological (multi-taxon population census) results can also be entered into STORET with the NPSEDD format. Support for other types of biological monitoring data will be included in future versions of NPSEDD.

NPSEDD is organized somewhat similarly to NPSTORET in that information must be provided about projects, stations, metadata, and results. Whereas NPSTORET has templates for entering this information into a STORET-compatible database format, NPSEDD is comprised of Excel spreadsheets that users must populate through exports from their own data systems. NPSEDD Excel spreadsheets exist for projects, stations, and results. There are two results spreadsheets – one for physical, chemical, and habitat (i.e. non-biological) results and the other for biological results. Metadata is dealt with by tabs in the two results spreadsheets where personnel, sample collection, analytical procedures, sample preparation, and other aspects of the data and monitoring process are documented.

Below is an overview of using NPSEDD to report data to WRD for inclusion in STORET. For more details on the subject, refer to the documentation that accompanies NPSEDD (<http://www.nature.nps.gov/water/infoanddata/index.cfm#NPSEDD>) or the example, already filled-out spreadsheets that are also included. Two things to keep in mind is that a straight export from your existing database will not likely be sufficient due to the need to edit project IDs, station IDs, and other metadata to be consistent with WRD STORET naming conventions. This can be handled by means of mapping or lookup tables in your export routines and only need to

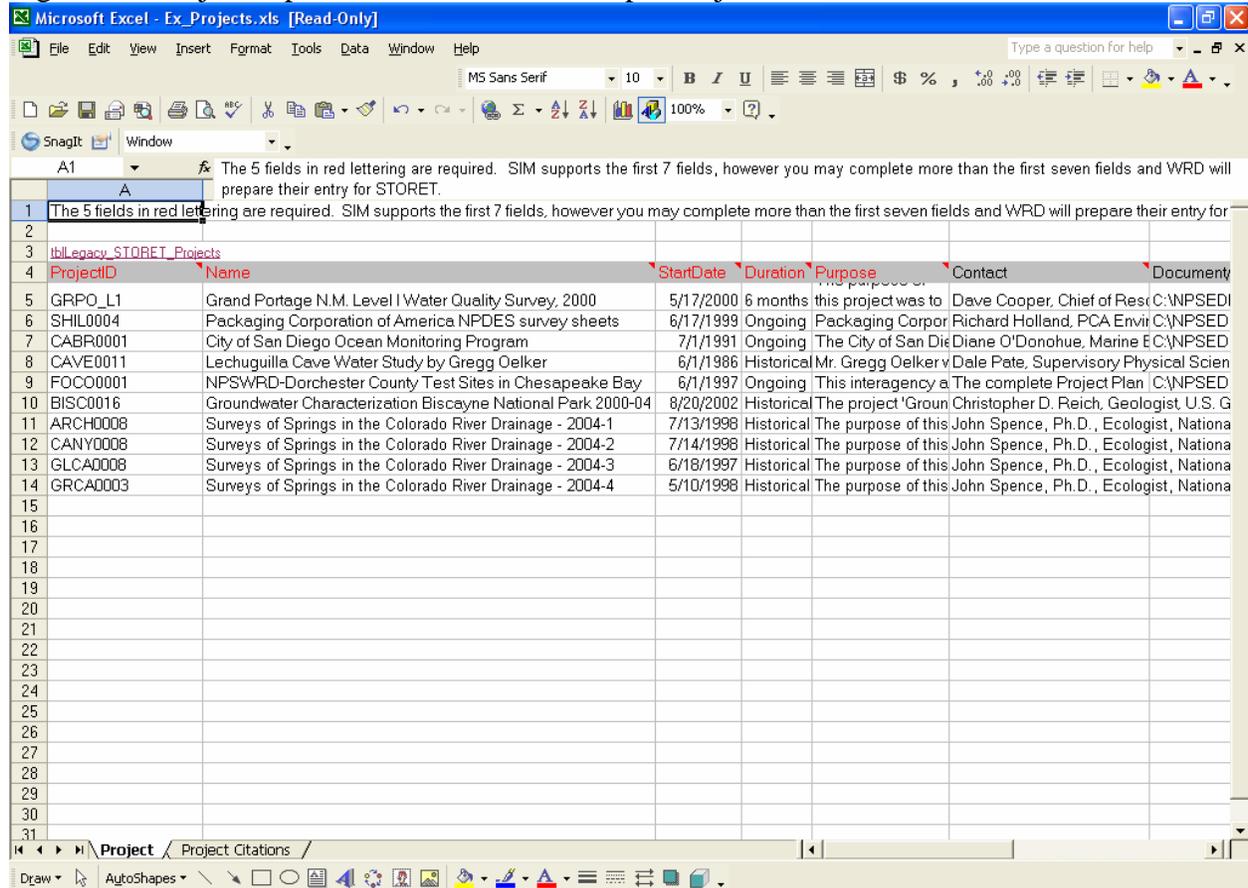
be done once. Subsequent exports will typically be of just additional visits, activities, and results unless metadata changes or more stations or projects are added.

NPSEDD Projects

The first step in using NPSEDD is to populate the \NPSEDD\Projects\Projects.xls spreadsheet with, at least, the five fields in red (ProjectID, Name, StartDate, Duration, and Purpose). WRD recommends populating as many of the other fields as possible. For an explanation of the content of each field, place the mouse cursor over the little triangle in the upper right corner of any cell in the column header row and a comment describing the field/column will appear. Hyperlinked entries above the column header row provide additional information such as pick lists for the specified column. For projects, the hyperlinked file, 'tblLegacy_STORET_Projects', contains a list of project IDs that have already been used by WRD to upload data to STORET.

Give some thought to how you want to set up projects. You could have all the data collection at a park (regardless of theme or purpose) as a project or you could have crosscutting projects based on themes (e.g. regulatory monitoring; groundwater monitoring, etc.). In any regard, be sure to start the project ID with either the park code (especially if you are setting up your parks as projects) or network code (for crosscutting projects).

Figure 26. Projects Spreadsheet with Ten Example Project Entries



ProjectID	Name	StartDate	Duration	Purpose	Contact	Document
GRPO_L1	Grand Portage N.M. Level I Water Quality Survey, 2000	5/17/2000	6 months	this project was to	Dave Cooper, Chief of Res	C:\NPSEDD
SHIL0004	Packaging Corporation of America NPDES survey sheets	6/17/1999	Ongoing	Packaging Corpor	Richard Holland, PCA Envir	C:\NPSEDD
CABR0001	City of San Diego Ocean Monitoring Program	7/1/1991	Ongoing	The City of San Die	Diane O'Donohue, Marine EC	C:\NPSEDD
CAVE0011	Lechuguilla Cave Water Study by Gregg Oelker	6/1/1986	Historical	Mr. Gregg Oelker v	Dale Pate, Supervisory Physical Scien	
FOCO0001	NPSWRD-Dorchester County Test Sites in Chesapeake Bay	6/1/1997	Ongoing	This interagency a	The complete Project Plan	C:\NPSEDD
BISC0016	Groundwater Characterization Biscayne National Park 2000-04	8/20/2002	Historical	The project 'Groun	Christopher D. Reich, Geologist, U.S. G	
ARCH0008	Surveys of Springs in the Colorado River Drainage - 2004-1	7/13/1998	Historical	The purpose of this	John Spence, Ph.D., Ecologist, Nationa	
CANY0008	Surveys of Springs in the Colorado River Drainage - 2004-2	7/14/1998	Historical	The purpose of this	John Spence, Ph.D., Ecologist, Nationa	
GLCA0008	Surveys of Springs in the Colorado River Drainage - 2004-3	6/18/1997	Historical	The purpose of this	John Spence, Ph.D., Ecologist, Nationa	
GRCAD003	Surveys of Springs in the Colorado River Drainage - 2004-4	5/10/1998	Historical	The purpose of this	John Spence, Ph.D., Ecologist, Nationa	

Project File Field Definitions Supported by SIM

Field Name	Required in STORET	Format	Field Length
1. Project ID	Yes	Free Text	8
2 Name	Yes	Free Text	60
3. Start Date	Yes	Defined	MM/DD/YYYY
4. Duration	Yes	Free Text	15
5. Purpose	Yes	Free Text	1999
6. Contact	No	Free Text	1999
7. Document/Graphic File Name	No	Free Text	256

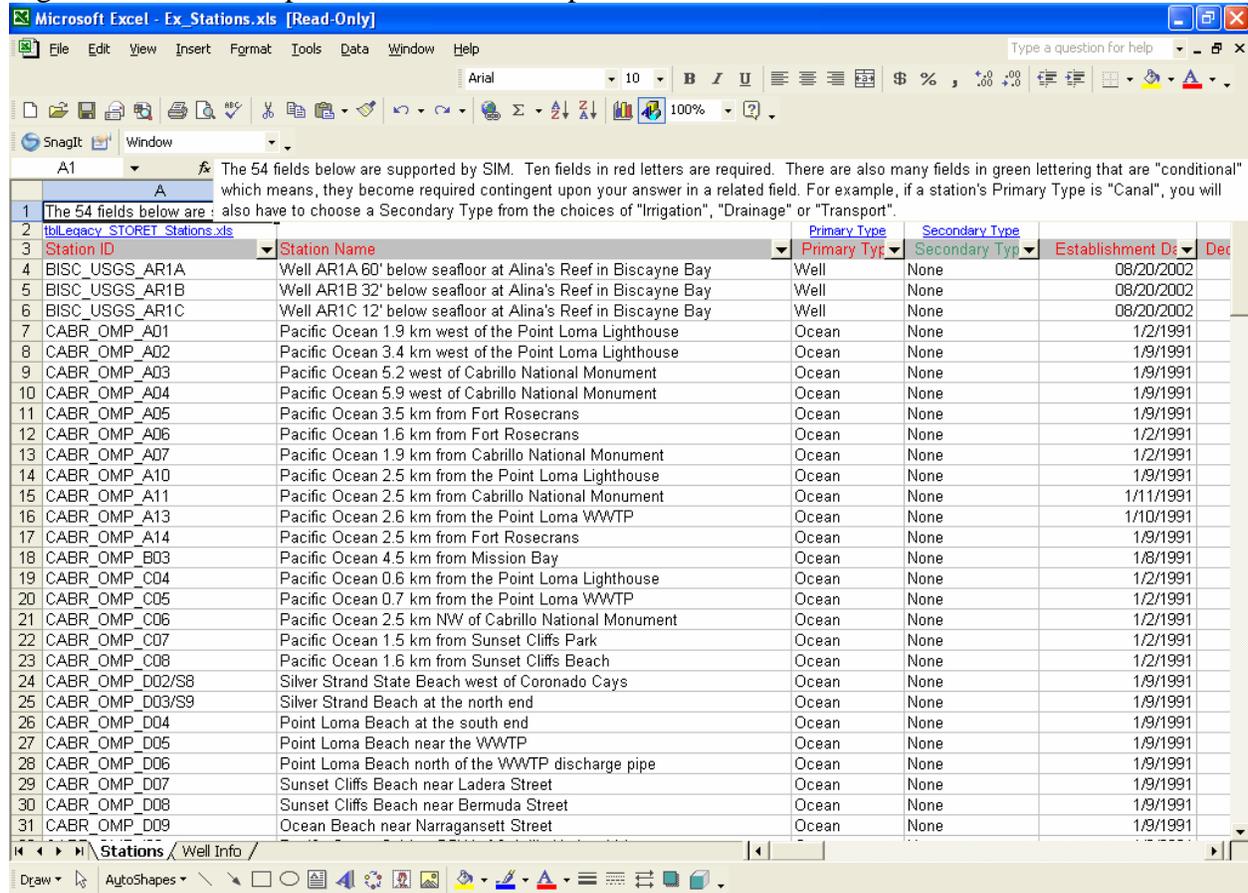
NPSEDD Stations

Use the \NPSEDD\Stations\Stations.xls spreadsheet to provide station data in NPSEDD format. The required fields are indicated in red. Conditionally required fields are in green. WRD recommends populating as many of the non-required fields as possible. For an explanation of the content of each field, place the mouse cursor over the little triangle in the upper right corner of any cell in the column header row and a comment describing the field/column will appear. Hyperlinked entries above the column header row provide additional information such as pick lists for the specified column. For stations, the hyperlinked file, 'tblLegacy_STORET_Stations', contains a list of station IDs that have already been used by WRD to upload data to STORET. The hyperlink 'Primary Type' takes you to a list of the valid STORET primary station types.

WRD recommends using content rich station IDs. The servicewide STORET standard is to preface each station ID with the four character park ID where the sample is located followed by an underscore. The remaining 10 characters (STORET station IDs are 15 characters or less) can be used as desired. A good form to follow, however, would be to have the next four characters point back to the project followed by an underscore. The last five characters would then be the unique station code. For example, a station located at the Yampa River crossing of Dinosaur National Monument's eastern boundary for a project to monitor coal-bed methane impacts could be DINO_CBM_YRBDY. Since these station IDs will likely be different from whatever station IDs or codes you are using in your existing system, you'll want to develop a mapping table between your existing codes/IDs and the STORET station IDs so you can reuse them in subsequent years and be sure your results are output with the same STORET station ID.

To help ensure acceptance of your NPSEDD files by SIM and STORET, be sure to review the hyperlinks above each field/column for permitted entries. You may need to develop mappings between your station attributes and STORET station attributes. NPSEDD does not check what you enter in the cells. Validation actually occurs when WRD loads the file into STORET with SIM. Files failing validation will be returned to the Network for correction and resubmittal; so be sure to consult the hyperlinks and build those constraints/mappings into your export protocol.

Figure 27. Stations Spreadsheet with Example Entries



Station File Field Definitions Supported by SIM

Field Name	Required in STORET	Format	Field Length
1. Station ID	Yes	Free Text	15
2. Station Name	Yes	Free Text	60
3. Primary Type	Yes	Allowed Values	n/a
4. Secondary Type	Conditional	Allowed Values	n/a
5. Establishment Date	Yes	Defined	MM/DD/YYYY
6. Decimal Degrees Latitude	Yes	Number	9,7
7. Latitude Direction	No	Allowed Values	n/a
8. Decimal Degrees Longitude	Yes	Number	10,7
9. Longitude Direction	No	Allowed Values	n/a
10. Geopositioning Method	Yes	Allowed Values	n/a
11. Geopositioning Datum	Yes	Allowed Values	n/a
12. Scale	Conditional	Free Text	20
13. Lat/Long Measurement Date	No	Defined	MM/DD/YYYY
14. State	Yes	Allowed Values	n/a
15. County	Yes	Allowed Values	n/a

Field Name	Required in STORET	Format	Field Length
16. HUC	No	Allowed Values	n/a
17. NRCS Watershed ID	No	Allowed Values	n/a
18. Elevation	No	Number	9,4
19. Elevation Units	Conditional	Allowed Values	n/a
20. Elevation Method	Conditional	Allowed Values	n/a
21. Elevation Datum	Conditional	Allowed Values	n/a
22. Elevation Measurement Date	No	Defined	MM/DD/YYYY
23. Water Depth	No	Number	8,3
24. Water Depth Units	Conditional	Allowed Values	n/a
25. Station Description	No	Free Text	4000
26. Travel Directions	No	Free Text	1999
27. Ocean Name	Conditional	Allowed Values	n/a
28. Shore Relation	Conditional	Allowed Values	n/a
29. Additional Ocean Name	No	Free Text	30
30. Ocean Station Dist to Shore	No	Number	6,2
31. Ocean Station Dist to Shore Units	Conditional	Allowed Values	n/a
32. Ocean Station Ref Point	No	Free Text	30
33. Ocean Station Bottom Topography	No	Free Text	254
34. Great Lake Name	Conditional	Allowed Values	n/a
35. Additional Great Lake Name	No	Free Text	30
36. Great Lake Dist to Shore	No	Number	6,2
37. Great Lake Dist to Shore Units	Conditional	Allowed Values	n/a
38. Great Lake Reference Point	No	Free Text	30
39. Primary Estuary	Conditional	Allowed Values	n/a
40. Primary Estuary State	Conditional	Allowed Values	n/a
41. Secondary Estuary	Conditional	Allowed Values	n/a
42. Other Estuary Name	No	Free Text	30
43. Additional Estuary Location Name	No	Free Text	30
44. Estuary Distance to Shore	No	Number	6,2
45. Estuary Dist to Shore Units	Conditional	Allowed Values	n/a
46. Estuary Reference Point	No	Free Text	30
47. Native American Land Name	No	Allowed Values	n/a
48. Native American Land State	No	Allowed Values	n/a
49. Document/Graphic	No	Free Text	256
50. EPA Key Identifier	No	Free Text	36
51. Place Holder	No	Free Text	30
52. Ecoregion Name	No	Free Text	60
53. Influence Area	No	Free Text	120
54. ZID Relation	No	Allowed Values	n/a

NPSEDD Results

NPSEDD formatted results for physical, chemical, and habitat (i.e. non-biological) data are entered in the \NPSEDD\Results\NonBioResults.xls spreadsheet. Results for multi-taxon population census data are entered in the \NPSEDD\Results\NonBioResults.xls spreadsheet. Both spreadsheets contain additional tabs for documenting personnel, sample collection, field/lab analytical procedures, lab sample preparation, and other attributes of the result. The required fields are indicated in red. Conditionally required fields are in green. WRD recommends populating as many of the non-required fields as possible. For an explanation of the content of each field, place the mouse cursor over the little triangle in the upper right corner of any cell in the column header row and a comment describing the field/column will appear. Hyperlinked entries above the column header row provide additional information such as pick lists for the specified column. For results, the hyperlinked file, 'Non Taxa Characteristics' located above the Characteristic Name column, contains a list of the official non-taxa STORET characteristic names to which you need to match what you sampled/measured/observed. This is another good candidate for a mapping/lookup table between your database and NPSEDD.

Figure 28. Non-Biological Results Spreadsheet with Example Entries

The screenshot shows a Microsoft Excel spreadsheet titled 'Ex_NonBioResults.xls [Read-Only]'. The spreadsheet contains a table with the following columns: Trip ID, Trip Start Date, Trip Stop Date, Trip Name, Trip QC Type, Station ID, Station Visit Arr, Visit Comments, Visit Document/Graphic, and Place Holder. The data rows show groundwater characterization trips from 2002 to 2003. A tooltip is visible over cell A1, stating: 'This Results Worksheet contains eight required fields in red lettering. There are also many fields in green lettering that are "conditional" which means, they become required contingent upon your answer in a related field. For example, if you choose an Activity Category of "Replicate Msr/Obs" then you must also enter a value in the adjacent "Replicate Number" Field.'

Trip ID	Trip Start Date	Trip Stop Date	Trip Name	Trip QC Type	Station ID	Station Visit Arr	Visit Comments	Visit Document/Graphic	Place Holder
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		08/20/2002			
BISC0016-2002	1/1/2002		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		08/20/2002			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1A		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1B		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		12/17/2003			
BISC0016-2003	1/1/2003		Groundwater Characterization in Biscayne National F	BISC_USGS_AR1C		12/17/2003			

The results spreadsheets are the trickiest part of NPSEDD because of the amount of detail required. To help ensure acceptance of your NPSEDD files by SIM and STORET, be sure to review the hyperlinks above each field/column for permitted entries. You may need to develop mappings between your result attributes and STORET result attributes. NPSEDD does not check what you enter in the cells. Validation actually occurs when WRD loads the file into STORET with SIM. Files failing validation will be returned to the Network for correction and resubmittal; so be sure to consult the hyperlinks and build those constraints/mappings into your export protocol.

Result File Field Definitions Supported by SIM

Field Name	Required in STORET	Format	Field Length
1. Trip ID	Yes	Free Text	15
2. Trip Start Date	Conditional	Defined	MM/DD/YYYY
3. Trip Stop Date	No	Defined	MM/DD/YYYY
4. Trip Name	No	Free Text	60
5. Trip QC Type	No	Allowed Values	n/a
6. Station ID	Yes	Entered previously in STORET	n/a
7. Station Visit Arrival Date	No	Defined	MM/DD/YYYY
8. Visit Comments	No	Free Text	4000
9. Visit Document/Graphic	No	Free Text	256
10. Place Holder1	No	Free Text	16
11. Sequence Number	Conditional	Number	4
12. Place Holder2	No	Free Text	254
13. Well or Pipe ID	Conditional	Free Text	15
14. Project ID	Yes	Entered previously in STORET	n/a
15. Medium	Yes	Allowed Values	n/a
16. Sample Matrix	No	Allowed Values	n/a
17. Chain of Custody ID	No	Free Text	30
18. Activity ID	Yes	Free Text	12
19. Activity Type	Yes	Allowed Values	n/a
20. Activity Category	Yes	Allowed Values	n/a
21. Replicate Number	Conditional	Number	3
22. Parent Activity ID	Conditional	Entered previously in STORET	n/a
23. Intent	Yes	Allowed Values	n/a
24. Community	Conditional	Allowed Values	n/a
25. Bio Results Type	Conditional	Allowed Values	n/a
26. Bio Results Group ID	Conditional	Free Text	8
27. Bio Results Group Description	No	Free Text	254
28. QC Indicator	No	Allowed Values	n/a
29. Activity Start Date	Yes	Defined	MM/DD/YYYY

Field Name	Required in STORET	Format	Field Length
30. Activity Start Time	No	Defined	HH:MM
31. Activity Start Time Zone	Conditional	Allowed Values	n/a
32. Activity End Date	No	Defined	MM/DD/YYYY
33. Activity End Time	No	Defined	HH:MM
34. Activity End Time Zone	Conditional	Allowed Values	n/a
35. Activity Comments	No	Free Text	254
36. Activity Document/Graphic	No	Free Text	256
37. Total Sample Weight	No	Number	7,2
38. Total Sample Weight Units	Conditional	Allowed Values	n/a
39. Depth to Activity	No	Number	7,2
40. Depth to Activity Units	Conditional	Allowed Values	n/a
41. Relative Depth	No	Allowed Values	n/a
42. Depth Measured From	No	Free Text	30
43. Lower Depth	Conditional	Number	7,2
44. Upper Depth	Conditional	Number	7,2
45. Upper/Lower Depth Units	Conditional	Allowed Values	n/a
46. Depth Zone Type	No	Allowed Values	n/a
47. Thermocline	No	Allowed Values	n/a
48. Pycnocline	No	Allowed Values	n/a
49. Halocline	No	Allowed Values	n/a
50. Personnel	No	Entered previously in STORET	n/a
51. Sample Collection Procedure ID	Conditional	Entered previously in STORET	n/a
52. Gear ID	Conditional	Allowed Values	n/a
53. Gear Configuration ID	No	Entered previously in STORET	n/a
54. Gear Deployment Comments	No	Free Text	1999
55. Sample Preservation Transport and Storage ID	No	Entered previously in STORET	n/a
56. Sample Transport and Storage Comments	No	Free Text	1999
57. Characteristic Name	Conditional	Allowed Values	n/a
58. Detection Condition	Conditional	Allowed Values	n/a
59. Result Value	Conditional	Allowed Values, text, and Numbers	254 (characters) 13,5 (num)
60. Result Value Units	Conditional	Allowed Values	n/a
61. Result Status	No	Allowed Values	n/a
62. Sample Fraction	Conditional	Allowed Values	n/a
63. Statistic Type	No	Allowed Values	n/a
64. Value Type	Conditional	Allowed Values	n/a
65. Precision	No	Free Text	12

Field Name	Required in STORET	Format	Field Length
66. Confidence Level	No	Allowed Values	n/a
67. Bias	No	Free Text	12
68. CL Corrected for Bias	No	Allowed Values	n/a
69. Duration Basis	No	Allowed Values	n/a
70. Temperature Basis	No	Allowed Values	n/a
71. Weight Basis	No	Allowed Values	n/a
72. Particle Size Basis	No	Free Text	40
73. Result Comment	No	Free Text	4000
74. Laboratory ID	No	Entered previously in STORET	n/a
75. Field/Lab Procedure Source	Conditional	Entered previously in STORET	n/a
76. Field/Lab Procedure ID	Conditional	Entered previously in STORET	n/a
77. Laboratory Certified	No	Allowed Values	n/a
78. Laboratory Batch ID	No	Free Text	12
79. Analysis Date	No	Defined	MM/DD/YYYY
80. Analysis Time	No	Defined	HH:MM
81. Analysis Time Zone	Conditional	Allowed Values	n/a
82. Lab Sample Prep Procedure Source	Conditional	Entered previously in STORET	n/a
83. Lab Sample Prep Procedure ID	No	Entered previously in STORET	n/a
84. Lower Quantification Limit	Conditional	Free Text	12
85. Upper Quantification Limit	Conditional	Free Text	12
86. Detection Limit	Conditional	Free Text	12
87. DL/QL Unit	Conditional	Allowed Values	n/a
88. Detection Limit Comment	No	Free Text	254
89. Lab Remark Codes	No	Allowed Values	n/a
90. Result Document/Graphic	No	Free Text	256
91. Cooperating Organization	No	Entered previously in STORET	n/a

For additional guidance and tips on how to use NPSEDD, refer to the NPSEDD documentation. Be sure to scrutinize how result values, detection limits, and remarks are handled. These will all necessitate developing mappings between how your database handles and defines these constructs and how STORET does it.

ADDITIONAL RESOURCES:

NPSTORET:

Documentation contained in the NPSTORET Setup.exe file includes the following:

1. First Time User's Guide (FirstTimeUser.doc)

This file provides a quick introduction to the major NPSTORET functionality.

2. Workshop Guide (Workshop.doc)

This file elaborates on what is contained in the First Time User's Guide and is suitable for workshop or training situations.

3. NPSTORET Help (NPSTORET.chm)

Context-sensitive help is embedded in NPSTORET. Simply press 'F1' while within a field or click the '?' and then click on a field or form for additional information.

4. Data Import Instructions (DataImportInstructions.doc)

This file provides detailed instructions on how to import stations, results, and some metadata from your own databases, spreadsheets, or text files or from the national water quality databases.

5. NPSTORET Data Dictionary (NPSTORET Data Dictionary.xls)

This file provides a listing of all the user's NPSTORET tables and associated fields.

Screen-capture videos of NPSTORET usage organized by Template and other functionality can be downloaded from <http://nrdata.nps.gov/programs/water/NPSTORET/Video%20Demos/> in both .AVI and .EXE formats.

NPSEDD:

Documentation contained in the NPSEDD.zip file includes the following:

1. NPS STORET Electronic Data Deliverable File Specifications (NPSEDD.doc)

This file is a must-read for anyone prior to embarking on mapping their existing database to NPSEDD.

2. Example Spreadsheets

NPSEDD contains an example subdirectory with pre-populated example spreadsheets for projects, stations, and results (non-bio and multi-taxon population census).

CONTACTS:

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REFERENCES:

STORET Web Site: <http://www.epa.gov/storet>.

STORET National Data Warehouse: http://www.epa.gov/storet/dw_home.html

STORET Legacy Database: <http://www.epa.gov/storpubl/legacy/gateway.htm>

STORET FTP Site: <ftp://ftp.epa.gov/storet>.

National STORET Alliance: <ftp://ftp.epa.gov/storet/alliance>.

USGS National Water Information System: <http://waterdata.usgs.gov/nwis/qw>.

Water Quality Data Elements: <http://wi.water.usgs.gov/methods/tools/wqde/index.htm>.

Interagency Task Force on Monitoring Water Quality: <http://water.usgs.gov/wicp/itfm.html>.

National Water Quality Monitoring Council: <http://water.usgs.gov/wicp/acwi/monitoring>.

Data Management Association: <http://www.dama.org/public/pages/index.cfm?pageid=204>.

I&M Data Management Website: <http://science.nature.nps.gov/im/datamgmt/index.cfm>.

Clean Water Act: <http://www4.law.cornell.edu/uscode/33/ch26.html> and
<http://www.ncseonline.org/NLE/CRSreports/water/h2o-32.cfm>.

Natural Resources Management Guideline (NPS-77):
<http://www1.nature.nps.gov/rm77/freshwater/WaterResources.htm>.

Geographic Names Information System: <http://geonames.usgs.gov/gnishome.html>.