



Beach Monitoring Data User Guide for v1.2

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Modification History

The April, 2004 version of this document has been modified from the May, 2003 version to include mappings from the XML Schema Data Elements to the Monitoring Access Database , and a more accurate description of the VisitIdentifier tag and its use. Information on this tag can be found in section 3.2.3 “Station Visit Information”.

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1 Introduction

The purpose of this document is to introduce representatives from state beach programs to the STOrage and RETrieval (STORET) database. All state beach program monitoring data will be stored in STORET. In particular, this guide is intended for officials from State beach programs and any database administrators (DBAs) in charge of the various state databases.

This document explains beach data submissions to EPA using STORET via a flat file or using EPA's Central Data eXchange (CDX) via either a flat file or an XML file:

- How To Submit Data—an explanation of how data is transferred from the originator (in most cases State Beach programs) to the EPA. User's have two transmission options: data can be transferred through either local versions of the STORET application or through CDX:
 - Transmission using STORET occurs via a flat file and utilizes existing local STORET architecture. Submission using this method is described in Chapter 2.1.
 - Transmission using CDX occurs via either flat file or XML file and utilizes the WebSIM architecture. Submission using this method is described in Chapter 2.2.
- How to Prepare Data—an explanation of the name, characteristics, and descriptions of the various data elements in the data submission. Each section of the XML schema is explained in detail in Chapter 3.2. The traits and qualities of the data in this chapter also apply to data elements contained in flat file submissions.

1.1 Reference Materials

The *Beach Monitoring Data User Guide* uses text and refers to terms and concepts described in other EPA documents. When reading this guide, you may want to review the following related materials for more information:

- STORET Version 2.0 Data Entry Module User Guide (can be downloaded at <ftp://ftp.epa.gov/storet/>)
- Data Structure List with definitions (can be downloaded at <ftp://ftp.epa.gov/storet/>)
- STORET Homepage on the Internet—Accessible from the EPA Office of Water homepage, the STORET homepage is the source of the latest information about STORET. You will find documents and articles of interest to the monitoring public at large. The homepage will also be the source of system updates (can be found at <http://www.epa.gov/STORET/>).

2 How To Submit Data

States submitting monitoring data to EPA can use either flat files via STORET or they can use XML files and flat files via EPA's Central Data eXchange (CDX).

The following steps must be followed by submitting states, regardless of the submission method utilized:

- Contact EPA to attain a list of valid Beach Identifiers for your state.
- Register user information with CDX.
- Register methods, stations, projects, and organization information using existing STORET registration pages. The STORET Web Registration User Guide will be made readily available at www.epa.gov/CDX or via the beaches web page at <http://epa.gov/waterscience/beaches/grants/2003/> as soon as possible.
- Submit XML or flat files as described in this document (for an example of a minimum submission with no extra parameters, please see Appendix C).

2.1 Submit Data Via STORET

Data submission via STORET utilizes the decentralized nature of the STORET database. Each STORET user has access to a customized and local copy of the STORET database, within which only their own data resides, and over which they exercise complete control. The STORET software, designed to make local manipulation of this data manageable for the user, is installed on top of each user's customized database.

Submitting data via this local copy of STORET to the master STORET database occurs via an upload of data produced using the "EXPORT DUMP" utility as supplied in the OracleTM product. This STORET Data Entry Module software noted above will only allow data submission while attached to a specific client-controlled STORET database (either on your PC or on an OracleTM server you control). Files created in this way are then electronically shipped to EPA. From these files, STORET database administrators (DBAs) can take the submitted data and merge it into the master version of STORET. Uploads of client data to the master version of STORET are performed at intervals determined by the end users, taking into account any administrative requirements imposed by EPA through its business relationships with the client organizations.

2.2 Submit Data Via CDX

The Central Data eXchange (CDX) is an Office of Environmental Information (OEI) initiative to provide a single point of entry for incoming data into EPA. CDX will maintain a set of web pages where, once registered, States can log in and upload data files to EPA.

The following table notes the six steps involved in the submission of data from a State database to EPA's STORET database via CDX and WebSIM. Submitting states need to follow this process in order to submit data via CDX. Exhibits 2-2 and 2-3 show this process in graphic form.

State Steps	CDX Automated Steps	WebSIM Automated Steps
1. Register with CDX via CDX's registration pages.		
2. Register with STORET via STORET's registration pages.		
3a. Create an XML document containing the appropriate data (see Chapter 3.2 for the data to be included) using a local copy of the schema.		
3b. Create a flat file containing the appropriate data using a local copy of STORET.		
4. Upload the data document from a local State computer to CDX via CDX's web site. If submitting an XML file, proceed to step 5. If submitting a flat file, proceed to step 8.		
	5. Archive the file and validate an XML document against the schema. If errors are found, send a CDX error log to the State user; otherwise, skip to Step 7.	
6. If a CDX error log is received, go back to Step 3 and fix the errors.		
	7. If the document is XML, add the header information. Transfer the data document to STORET's WebSIM application.	

State Steps	CDX Automated Steps	WebSIM Automated Steps
		8. Validate the data in the document against the business rules. If errors are found, create an error log and send it back to CDX; otherwise, skip to Step 11.
	9. If a STORET error log is created, pass it along to the State.	
10. If a STORET error log is received, go back to Step 3 and fix the errors.		
		11. When the data file is received that passes the business rules, parse the data into the database and create a success log.
	12. If a STORET success log is created, pass it along to the State.	

The diagrams on Pages 2-4 and 2-5, Exhibits 2.1 and 2-2, respectively, track the flow of data from State Databases to the Master STORET database via Local State Computers, CDX and WebSIM for both XML and flat file submissions.

Exhibit 2-2 XML Data Transfer Diagram via CDX and WebSIM

Begin on the upper left side, labeled "State Database", and follow the flow of arrows through the "Master STORET Database".

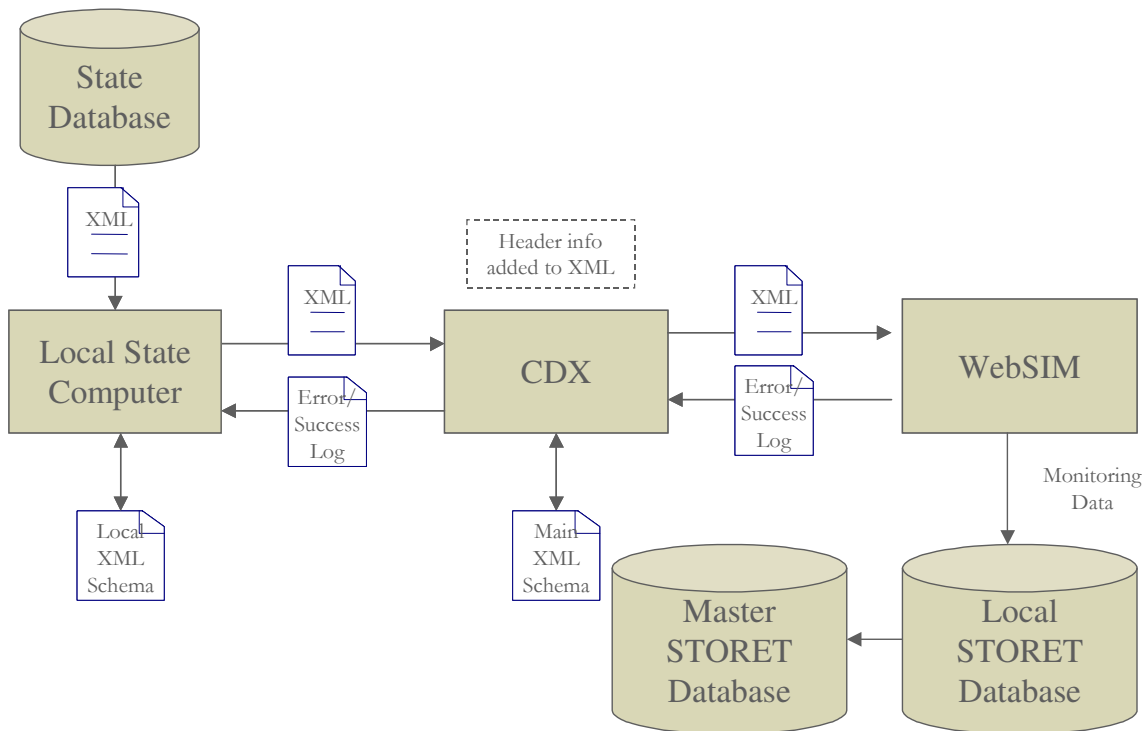
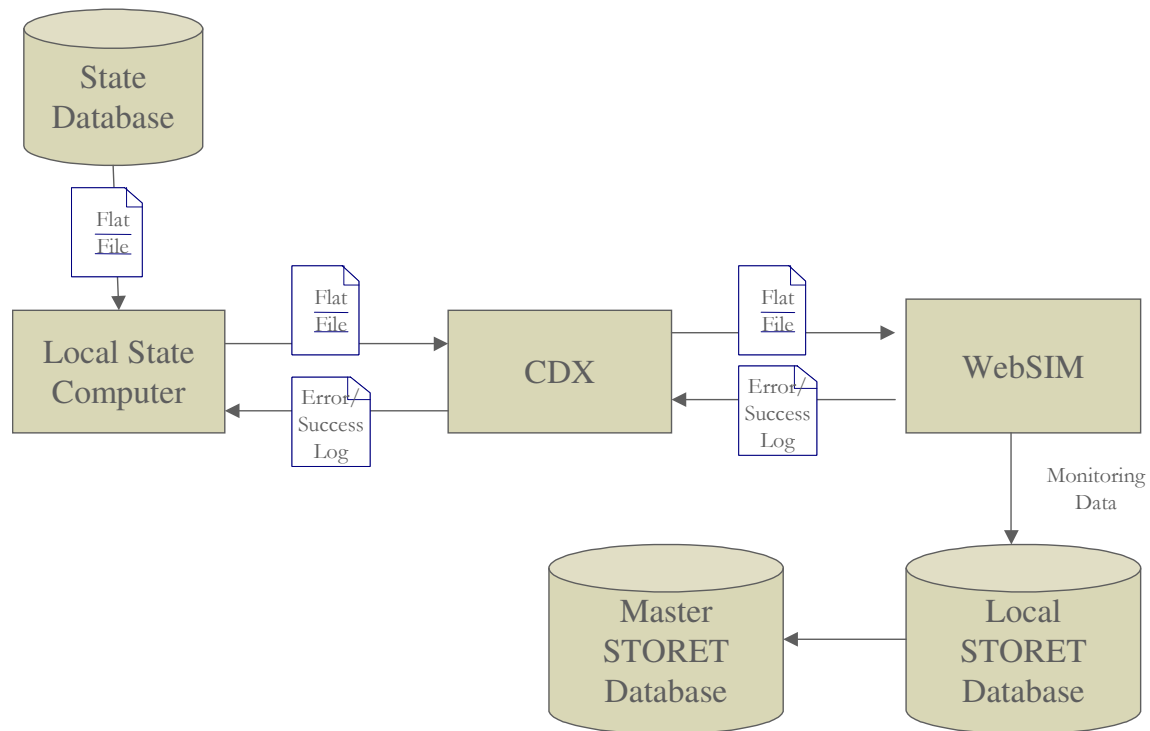


Exhibit 2-3 Flat File Data Transfer Diagram via CDX and WebSIM

Begin on the upper left side, labeled "State Database", and follow the flow of arrows through the "Master STORET Database".



3 How to Prepare Data

This chapter describes the name, characteristics, and descriptions of the various data elements in the data submission.

States submitting monitoring data to EPA can use either flat files via STORET or they can use XML files and flat files via EPA's Central Data eXchange (CDX).

The following steps must be followed by submitting states, regardless of the submission method utilized:

- Contact EPA to attain a list of valid Beach Identifiers for your state.
- Register user information with CDX.
- Register methods, stations, projects, and organization information using existing STORET registration pages The STORET Web Registration User Guide will be made readily available at www.epa.gov/CDX or via the beaches web page at <http://epa.gov/waterscience/beaches/grants/2003/> as soon as possible.
- Submit XML or flat files as described in this document (for an example of a minimum submission with no extra parameters, please see Appendix C).

3.1 Elements in Flat Files

Before states can submit data, they will need to register their methods, stations, projects, and organization information. The STORET Web Registration User Guide will be made readily available at www.epa.gov/CDX or via the beaches web page as soon as possible.

To load your data into STORET using WebSIM, you must first organize your data into delimited text files. Allowed delimiters are Tab, Pipe (|), Tilde(~), or Comma(.). If any of these characters appears in your data, you should NOT use that character as a delimiter since there is no way for WebSIM to tell which is the delimiter and which is simply part of the data. Be sure to not include a header row in the delimited text files that you create.

States submitting data to CDX via flat files can create these delimited text files using common software products such as Excel, Access or Lotus1-2-3. Excel templates that will help you organize your data will be made available shortly.

The same elements that are described in Chapter 3.2 of this document must also be included in flat files (for an example of a minimum submission with no extra parameters, please see Appendix C).

States submitting data to STORET via flat files can use the "EXPORT DUMP" utility as supplied in the OracleTM product and noted in Chapter 2.1.

3.2 Elements in the XML Schema and XML Files

The XML schema for the data submissions to STORET provides a template for the XML files to be submitted. This schema describes the data elements to be included in the XML document and is used to validate it as well. Files are accepted or rejected based on their conformity to the schema.

A graphical version of this schema is provided in Appendix A and a full example XML document is provided in Appendix B. In addition, a minimum example XML document is provided in Appendix C of this document. Please refer to these appendices when creating an XML document.

Before states can submit data, they will need to register their methods, stations, projects, and organization information. The STORET Web Registration User Guide will be made available at www.epa.gov/CDX or via the beaches web page at <http://epa.gov/waterscience/beaches/grants/2003/>.

This section contains descriptions of the data elements in the STORET XML Schema. For each table in the following sections, the following information is provided:

- **Data Element:** The name of the data element stored in the XML data file.
- **XML Tag Name:** The XML key associated with the data element.
- **XML Data Type:** The XML data type for this element.
- **Length:** The maximum length for the data element for character and numeric datatypes.
- **Req'd (Y/N):** This value indicates if the column is required in the XML data file. Please note that empty tags such as <TripIdentifier></TripIdentifier> or <TripIdentifier/> will not be accepted when the element is not required.
- **Comments:** Additional comments related to the XML data element.

For questions on the conventions and formats used in the schema, reference the EPA XML Design Rules and Conventions (March 2002).

In addition, if the XML submission passes the validation routine, information about the submission will be inserted into the following four XML tags: SubmissionIdentifier, SubmittingAgencyIdentifier, SubmittingUserIdentifier, and SubmissionDate. These four tags are enclosed in a tag labeled HeaderDetail. The HeaderDetail tag must appear before any other data in the file other than the FieldActivitiesResultsSubmission tag.

3.2.1 Organization Information

The organization information section of the XML submission contains data related to the organization from the submitting State. This data element will always be included in the XML file.

All XML elements in this section are located in the following position on the XML element hierarchy—"FieldActivitiesResultsSubmission".

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
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Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
STORET Organization Identifier <i>Example: 21FLEECO</i>	STORETOrganizationIdentifier	STRING	Y	8	TRIP.STORET_ORG_ID	Submitting organizations will need to obtain this identifier during the STORET registration process. EPA maintains a list of valid Identifiers for all organizations that are registered and stored in the STORET database. These identifiers are unique for each organization, as they will be used to update organization-level data. (For example, there can only be one STORET Organization identified as "21FLEECO")

3.2.2 Trip Information

A trip is a monitoring outing overseen by the submitting State. The trip information section of the XML submission contains data related to the monitoring trip overseen by the submitting State, such as the trip identifier code, start date, and stop date. In the XML schema, multiple trips may be reported. Each trip may include multiple station visits.

All XML elements in this section are located in the following position on the XML element hierarchy—"FieldActivitiesResultsSubmission/TripDetail/".

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Trip Identifier <i>Example: 03-1991-1</i>	TripIdentifier	STRING	Y	15	TRIP.ID, STATION_VISIT.FK_TRIP_ID, FIELD_ACTIVITY.FK_TRIP_ID	The Trip Identifier is used to distinguish between different monitoring outings. Submitting organizations will need to create and maintain a list of valid Trip Identifiers for all trips stored in the STORET database. These identifiers must be unique within each organization, as they will be used to create organization-level data. (For example, within an organization, there can only be one trip identified as "03-1991-1", but there could be another trip identified as "03-1991-1" in another organization.)

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Trip Start Date <i>Example:</i> 1991-03-03	TripStartDate	DATE	N		TRIP.START_DATE	The date should be entered in the XML file in the following format: YYYY-MM-DD This field is required if data submission is the first using a particular Trip Identifier. If the Trip Identifier associated with this field has been used in a previous data submission, the contents of this field are not passed on to STORET.
Trip Stop Date <i>Example:</i> 1991-03-03	TripStopDate	DATE	N		TRIP.STOP_DATE	The date should be entered in the XML file in the following format: YYYY-MM-DD This field is required if data submission is the first using a particular Trip Identifier. If the Trip Identifier associated with this field has been used in a previous data submission, the contents of this field are not passed on to STORET.
Trip Name <i>Example:</i> Weekly Charles River – March Monthly Sampling	TripName	STRING	N	60	TRIP.NAME	This is the name that submitting agencies may choose to assign to a Trip. This field is required if data submission is the first using a particular Trip Identifier. If the Trip Identifier associated with this field has been used in a previous data submission, the contents of this field are not passed on to STORET.

3.2.3 Station Visit Information

A station visit is a stop on a trip for the purposes of taking measurements, making observations, or collecting samples. The station visit information section of the XML submission contains data related to a visit to a particular monitoring station for the purpose of collecting field activity information. In the XML schema, multiple station visits are part of a single trip. Each station visit may include multiple field activities.

All XML elements in this section are located in the following position on the XML element hierarchy—“FieldActivitiesResultsSubmission/TripDetail/StationVisitDetail”.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Station Identifier <i>Example:</i> <i>CBC-005</i>	StationIdentifier	STRING	Y	15	STATION_VISIT.STATION_ID	<p>Submitting organizations will need to register a list of valid Station Identifiers for all stations stored in the STORET database.</p> <p>These identifiers must be unique within each organization, as they will be used to create organization-level data. (For example, within an organization, there can only be one station identified as "CBC-005", but there could be another station identified as "CBC-005" in another organization.)</p>
Visit Identifier <i>Example: 12</i>	VisitIdentifier	STRING	Y	3	STATION_VISIT.ID, FIELD_ACTIVITY.FK_VISIT_ID	<p>The Visit Identifier is used to distinguish between different monitoring visits to a single monitoring station for the purpose of collecting field activity information.</p> <p>Submitting organizations will need to create and maintain a list of valid Visit Identifiers for all visits stored in the STORET database.</p> <p>These identifiers must be unique within each <i>trip</i>, as they will be used to update organization-level data. (For example, within a single trip, there can only be one visit identified as "12", but there could be another visit identified as "12" during another trip within the same organization.)</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Visit Arrival Date <i>Example:</i> 1991-03-03	VisitArrivalDate	DATE	N		STATION_VISIT.ARRIVAL_DATE	The date should be entered in the XML file in the following format: YYYY-MM-DD This field is required if data submission is the first using a particular Visit Identifier. If the Visit Identifier associated with this field has been used in a previous data submission, the contents of this field are not passed on to STORET.
Visit Comment Station Condition Text <i>Example: It was a dark and stormy day, many white caps, strong winds.</i>	VisitCommentStationConditionText	STRING	N	4000	STATION_VISIT.COMMENT_STATION_CONDITION	

3.2.4 Field Activity Information

A field activity is a happening related to the collection of samples and the creation of results. The field activity section of the XML submission contains data related to these happenings, such as activity identifiers and medium codes. In the XML schema, multiple field activities are part of a single station visit, and each field activity may have many results.

All XML elements in this section are located in the following position on the XML element hierarchy—“FieldActivitiesResultsSubmission/TripDetail/StationVisitDetail/FieldActivityDetail”.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
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Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Activity Identifier <i>Example:</i> <i>Batch07</i>	ActivityIdentifier	STRING	Y	12	FIELD_ACTIVITY.ID, RESULT.FK_FIELD_ACTIVITY_ID, PROJECT.FK_FIELD_ACTIVITY_ID	Submitting organizations will need to create and maintain a list of valid Activity Identifiers for all activities stored in the STORET database. These identifiers must be unique within each organization, as they will be used to update organization-level data. (For example, within an organization, there can only be one activity identified as "Batch07", but there could be another trip identified as "Batch07" in another organization.)
Project Identifier <i>Example2:</i> <i>CBCP-001</i>	ProjectIdentifier	STRING	Y	8	PROJECT.BEACH_ID	States will use the Project Identifier field to report the specific Beach Identifiers and Project Identifiers that apply to this field activity. Both Identifiers are created during the STORET registration process and should be included. EPA maintains a list of valid identifiers for all beaches and projects that are registered and stored in the STORET database. These identifiers are unique for each beach. An unlimited number of Beach Identifiers and Project Identifiers created during STORET registration may be included in the XML submission.
Activity QC Indicator <i>Example: Y</i>	ActivityQCIndicator	STRING	Y	1	FIELD_ACTIVITY.QC_INDICATOR	This value must be set to "Y" or "N". If this value is set to "Y", the activity is a QC activity If this value is set to "N", the activity is a monitoring event, not a QC activity.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Activity Category Code <i>Example:</i> <i>Routine Sample</i>	ActivityCategoryCode	STRING	Y	30	FIELD_ACTIVITY.CATEGORY_CODE	<p>A description used to distinguish different kinds of samples from different kinds of measurements and observations. This code must come from a list of permitted values:</p> <p>Routine Sample Field Replicate/Duplicate Depletion Replicate Integrated Time Series Integrated Flow Proportioned Integrated Horizontal Profile Integrated Vertical Profile Composite w/o Parents Field Spike Field Equipment Rinsate Blank Field Blank Field Subsample Field Split Field Surrogate Spike Field Ambient Conditions Blank Routine Msr/Obs Replicate Msr/Obs</p>
Activity Medium Code <i>Example:</i> <i>Other</i>	ActivityMediumCode	STRING	Y	20	FIELD_ACTIVITY.MEDIUM_CODE	<p>This code refers to the specific media in which an activity is conducted. It must come from a list of permitted values:</p> <p>Air Sediment Water Soil Other</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Sampled Matrix Name <i>Example: SL</i>	SampledMatrixName	STRING	N	25	FIELD_ACTIVITY.SAMPLED_MATRIX_NAME	The Sampled Matrix Name field is used to denote the code name of the medium or matrix (substance) that was sampled in the Field Activity. Please see Appendix D Sampled Matrix Names for a list of permitted values.
Activity Replicate Number Value <i>Example: 476</i>	ActivityReplicateNumber	STRING	N	3	FIELD_ACTIVITY.REPLICATE_NUMBER_VALUE	This value is required only if the Activity Category Code denotes a retest of a previous sample, a 'Replicate' (e.g. Replicate Msr/Obs or Field Replicate/Duplicate). Do not include this field in the Field Activity Information section of the data submission if Activity Category Code is not set to a 'Replicate' in that particular Field Activity Information section of the data submission.
Activity Start Date <i>Example: 1991-03-03</i>	ActivityStartDateDetail/Date	DATE	Y		FIELD_ACTIVITY.START_DATE	This date is the start date of the activity utilized to obtain the specific sample and not the start date of the entire visit. The date should be entered in the XML file in the following format: YYYY-MM-DD
Activity Start Time <i>Example: 07:10:00</i>	ActivityStartDateDetail/TimeDetail/Time	TIME	N		FIELD_ACTIVITY.START_TIME	The time should be entered in the XML file in the following format: HH:MI:SS If this element is included in the XML submission, the Activity Start Time Zone Code must be included as well.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Activity Start Time Zone Code <i>Example:</i> <i>EDT</i>	ActivityStartDateTimeDetail/TimeDetail/TimeZoneCode	STRING	N	3	FIELD_ACTIVITY.START_TIME_ZONE	<p>If the Activity Start Time is included in the XML submission, this element must be included as well and set to one of the following:</p> <ul style="list-style-type: none"> ■ AST (Atlantic Standard Time) ■ ADT (Atlantic Daylight Savings Time) ■ EST (Eastern Standard Time) ■ EDT (Eastern Daylight Savings Time) ■ CST (Central Standard Time) ■ CDT (Central Daylight Savings Time) ■ MST (Mountain Standard Time) ■ MDT (Mountain Daylight Savings Time) ■ PST (Pacific Standard Time) ■ PMT (Pacific Daylight Savings Time) ■ AK (Alaskan Standard Time) ■ HI (Hawaii Standard Time) ■ GU (Guam Standard Time)
Activity End Date <i>Example:</i> <i>1991-03-03</i>	ActivityEndDateTimeDetail/Date	DATE	N		FIELD_ACTIVITY.END_DATE	<p>The date should be entered in the XML file in the following format: YYYY-MM-DD</p> <p>If an Activity End Date Time Detail is included in the XML submission, the Activity End Date must be included as well.</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Activity End Time <i>Example:</i> 07:20:00	ActivityEndTimeDetail/TimeDetail/Time	TIME	N		FIELD_ACTIVITY.END_TIME	The time should be entered in the XML file in the following format: HH:MI:SS If this element is included in the XML submission, the Activity End Time Zone Code must be included as well.
Activity End Time Zone Code <i>Example:</i> EDT	ActivityEndTimeDetail/TimeDetail/TimeZoneCode	STRING	N	3	FIELD_ACTIVITY.END_TIME_ZONE	If the Activity End Time is included in the XML submission, this element must be included as well and set to one of the following: <ul style="list-style-type: none"> ■ AST (Atlantic Standard Time) ■ ADT (Atlantic Daylight Savings Time) ■ EST (Eastern Standard Time) ■ EDT (Eastern Daylight Savings Time) ■ CST (Central Standard Time) ■ CDT (Central Daylight Savings Time) ■ MST (Mountain Standard Time) ■ MDT (Mountain Daylight Savings Time) ■ PST (Pacific Standard Time) ■ PMT (Pacific Daylight Savings Time) ■ AK (Alaskan Standard Time) ■ HI (Hawaii Standard Time) ■ GU (Guam Standard Time)
Activity Comment Text <i>Example:</i> Windy	ActivityCommentText	STRING	N	254	FIELD_ACTIVITY.COMMENT_TEXT	

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Sample Collection Procedure Identifier <i>Example: sp-007</i>	SampleCollectionProcedureIdentifier	STRING	N	10	FIELD_ACTIVITY.COLLECTION_PROCEDURE_ID	Submitting organizations will need to obtain this identifier during the STORET registration process. EPA maintains a list of valid Sample Collection Procedure Identifiers for all activities that are registered and stored in the STORET database. These identifiers are unique for each organization, as they will be used to update organization-level data. (For example, within an organization, there can only be one Sample Collection Procedure identified as "sp-007", but there could be another Sample Collection Procedure identified as "sp-007" in another organization.) This field is required if either the Activity Category Code is set to a 'Replicate' or if the particular Field Activity Detail section includes a Sample Transport Storage Identifier.
Sample Collection Procedure Comment Text <i>Example: See the New Jersey Department of Environmental Quality Assurance Program Plan</i>	SampleCollectionProcedureCommentText	STRING	N	1999	FIELD_ACTIVITY.COLLECTION_PROCEDURE_COMMENT	

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Sample Transport Storage Identifier <i>Example:</i> <i>STS-004</i>	SampleTransportStorageIdentifier	STRING	N	10	FIELD_ACTIVITY.TRANSPORT_STORAGE_ID	Submitting organizations will need to obtain this identifier during the STORET registration process. EPA maintains a list of valid Sample Transport Storage Identifiers for all activities that are registered and stored in the STORET database. These identifiers are unique for each organization, as they will be used to update organization-level data. (For example, within an organization, there can only be one Sample Transport Storage process identified as "STS-004", but there could be another Sample Transport Storage identified as "STS-004" in another organization.)
Sample Transport Storage Comment Text <i>Example:</i> <i>Placed bottle in the ship's chem. Lab on the sample rack.</i>	SampleTransportStorageCommentText	STRING	N	1999	FIELD_ACTIVITY.TRANSPORT_STORAGE_COMMENT	
Activity Depth Measure <i>Example: 1</i>	ActivityDepthMeasure	STRING	Y	8	FIELD_ACTIVITY.DEPTH_MEASURE	This field refers to the depth of the substance from which the sample was obtained. This is a numeric stored in textual form.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Activity Depth Unit Code <i>Example: mt</i>	ActivityDepthUnitCode	STRING	Y	3	FIELD_ACTIVITY.DEPTH_UNIT_CODE	This code must come from a list of permitted values: If this value is set to "ft", the activity depth measure is in feet. If this value is set to "m", the activity depth measure is in meters. This data element is used in conjunction with the Activity Depth Measure data element.
Relative Depth Indicator Code <i>Example: Midwater</i>	RelativeDepthIndicatorCode	STRING	N	15	FIELD_ACTIVITY.RELATIVE_DEPTH_INDICATOR_CODE	This field refers to the depth relative to the water body from which the sample was obtained. The value must come from a list of permitted values: Bottom Midwater Surface Near Bottom Subbottom
Depth Measure Reference Point Text <i>Example: High surf</i>	DepthMeasureReferencePointText	STRING	N	30	FIELD_ACTIVITY.DEPTH_MEASURE_REF_POINT	

3.2.5 Result Information

The result section of the XML submission contains data related to the estimated, measured, or calculated values resulting from a field activity. This section includes data elements such as characteristic name and result value. In the XML schema, multiple results are part of a single field activity. Each result may also be associated with a single laboratory detail.

All XML elements in this section are located in the following position on the XML element hierarchy—"FieldActivitiesResultsSubmission/TripDetail/StationVisitDetail/FieldActivityDetail/ResultDetail".

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Name <i>Example:</i> <i>Enterococcus Group</i> <i>Bacteria</i>	CharacteristicName	STRING	Y	60	RESULT.CHARACTERISTICNAME	<p>This field refers to the name of the pollutant or stressor measured or computed in the result.</p> <p>Acceptable values for Characteristic Result Value Text and Characteristic Result Value Unit Code are dependant on the Characteristic Name.</p> <p>Please see the document titled 'Characteristics with pre-defined Result Values' for information regarding these dependencies.</p>
Characteristic Result Value Text <i>Example: 35</i>	CharacteristicResultValueText	STRING	Y	4000	RESULT.RESULT_VALUE	<p>This field refers to the numeric or textual value of the Characteristic Name. It does not include the units of measure. The units of measure should be noted in the Characteristic Result Value Unit Code field.</p> <p>Please see the document titled 'Characteristics with pre-defined Result Values' for information regarding these dependencies.</p> <p>Some result values can be free text; others must be numerical; while others must come from a defined list. (i.e., Non_detect, Present, PAQ, or PBQ).</p> <p>Use of '<' and '>' is not permitted when submitting data via XML. This is why submitting states should use 'PAQ' for 'Present Above Quantification limit' and 'PBQ' for 'Present Below Quantification limit'.</p>
Characteristic Result Value Unit Code <i>Example:</i> <i>#/m3</i>	CharacteristicResultValueUnitCode	STRING	Y	10	RESULT.RESULT_VALUE_UNIT_CODE	<p>This field refers to the code that represents the units in which the Characteristic Result Value Text is expressed.</p> <p>Acceptable values for Characteristic Result Value</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
						<p>Unit Code are dependant on the Characteristic Name. Certain characteristics may only be reported using a predefined list of units of measure:</p> <p>% Cover</p> <p>count</p> <p>cfu/100ml</p> <p>#/500 ml</p> <p>#/100 gal</p> <p>MPN</p> <p>CFU</p> <p>#/ml</p> <p>#/dl</p> <p>#/l</p> <p>Plate cnt</p> <p>#/mi2</p> <p>#/acre</p> <p>#/yd2</p> <p>#/ft2</p> <p>#/in2</p> <p>#/ha</p> <p>#/km2</p> <p>#/m2</p> <p>#/100ml</p> <p>#/cm3</p> <p>#/m3</p> <p>#/cm2</p> <p>Please see the document titled 'Characteristic Types with allowed Units of Measure' for information regarding these dependencies.</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Result Sample Fraction Code <i>Example:</i> <i>Volatile</i>	CharacteristicResultSampleFractionCode	STRING	N	15	RESULT.SAMPLE_FRACTION	<p>The text name of the portion of the sample obtained from physically partitioned sample.</p> <p>This code must come from a list of permitted values:</p> <p>Total</p> <p>Dissolved</p> <p>Suspended</p> <p>Settleable</p> <p>Non_settleable</p> <p>Filterable</p> <p>Non_filterable</p> <p>Volatile</p> <p>Non_volatile</p> <p>Acid Soluble</p> <p>Vapor</p> <p>Supernate</p> <p>Fixed</p> <p>Total Recoverable</p> <p>Comb Available</p> <p>Total Residual</p> <p>Free Available</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Result Statistic Type Code <i>Example:</i> <i>Maximum</i>	CharacteristicResultStatisticTypeCode	STRING	N	18	RESULT.STATISTIC_TYPE	<p>This field is used to describe the relative amount of the particular pollutant or stressor. This code must come from a list of permitted values:</p> <ul style="list-style-type: none"> ■ Mean ■ Median ■ Mode ■ Maximum ■ Minimum ■ Standard Deviation ■ MPN (Most Probably No.) ■ 5 pctl (percentile) ■ 10 pctl ■ 15 pctl ■ 20 pctl ■ 25 pctl ■ 75 pctl ■ 80 pctl ■ 85 pctl ■ 90 pctl ■ 95 pctl
Characteristic Result Value Type Code <i>Example:</i> <i>Actual</i>	CharacteristicResultValueTypeCode	STRING	N	10	RESULT.VALUE_TYPE	<p>The field contains data denoting the method of data measurement. This code must come from a list of permitted values:</p> <p>Actual</p> <p>Estimated</p> <p>Calculated</p>
Characteristic Result Temperature Basis Code <i>Example: 25</i> <i>Deg C</i>	CharacteristicResultTemperatureBasisCode	STRING	N	8	RESULT.TEMPERATURE	<p>This field denotes the temperature of the result. This code must come from a list of permitted values:</p> <p>05 Deg C</p> <p>10 Deg C</p> <p>.</p> <p>. (every 5 Deg)</p> <p>.</p> <p>90 Deg C</p> <p>95 Deg C</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Result Duration Basis Code <i>Example: 1 Day</i>	CharacteristicResultDurationBasisCode	STRING	N	10	RESULT.DURATION_BASIS	<p>The period of time over which a measurement was made. In some cases, it indicates an analytical procedure that has a prescribed duration, while in other cases it indicates a period of time within which a certain effect or result might occur. This qualifier may also indicate a period of time over which a cumulative or averaged measurement occurs.</p> <p>This code must come from a list of permitted values:</p> <p>24 Hours 96 Hours 1 Day 3 Day . .(every 1 Day) . 29 Day 30 Day 60 Day 90 Day 120 Day 6 Month 1 Year</p>
Characteristic Result Weight Basis Code <i>Example: Wet</i>	CharacteristicResultWeightBasisCode	STRING	N	12	RESULT.WEIGHT_BASIS	<p>This field denotes the relative wetness/dryness of a result at the time of measurement. This code must come from a list of permitted values:</p> <p>Wet Dry Ash-Free Dry</p>

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Result Comment Text <i>Example: Late result reported from lab.</i>	CharacteristicResultCommentText	STRING	N	4000	RESULT.COMMENT_TEXT	
Characteristic Result Field Lab Analytical Source Acronym <i>Example: USEPA</i>	CharacteristicResultFieldLabAnalyticalSourceAcronym	STRING	N	12	RESULT.ANALYTICAL_SOURCE_ACRONYM	Refers to the type of analytical employed during sample analysis to obtain the results. If this element is included in the XML submission, the Characteristic Result Field Lab Analytical Procedure Identifier must be included as well.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Characteristic Result Field Lab Analytical Procedure Identifier <i>Example:</i> <i>200.1</i>	CharacteristicResultFieldLabAnalyticalDetail/CharacteristicResultFieldLabAnalyticalProcedureIdentifier	STRING	N	15	RESULT.ANALYTICAL_PROC_ID	Refers to the analytical procedure employed during sample analysis to obtain the results. Acceptable values for Characteristic Result Field Lab Analytical Procedure Identifiers are dependant on the Characteristic Name. Submitting organizations will need to obtain this identifier during the STORET registration process. EPA maintains a list of valid Characteristic Result Field Lab Analytical Procedure Identifiers that are registered and stored in the STORET database. These identifiers are unique for each organization, as they will be used to update organization-level data. (For example, within an organization, there can only be one Characteristic Result Field Lab Analytical Procedure identified as "87U23", but there could be another Characteristic Result Field Lab Analytical Procedure identified as "87U23" in another organization).

3.2.6 Laboratory Information

The laboratory information section of the XML submission contains data related to the laboratories used by beaches to extract result information. This section includes data elements such as laboratory identifier and laboratory batch identifier. In the XML schema, laboratory information may be reported for each result.

All XML elements in this section are located in the following position on the XML element hierarchy—"FieldActivitesResultsSubmission/TripDetail/StationVisitDetail/FieldActivityDetail/ResultDetail/LaboratoryDetail/".

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Laboratory Identifier <i>Example:</i> <i>ED-001</i>	LaboratoryIdentifier	STRING	Y	8	RESULT.LAB_ID	Submitting organizations will need to obtain this identifier during the STORET registration process. EPA maintains a list of valid Laboratory Identifiers for all laboratories that are registered and stored in the STORET database. These identifiers are unique for each organization, as they will be used to update organization-level data. (For example, within an organization, there can only be one Laboratory identified as "ED-001", but there could be another Laboratory identified as "ED-001" in another organization.)
Laboratory Batch Identifier <i>Example:</i> <i>98UIXW2</i>	LaboratoryBatchIdentifier	STRING	N	12	RESULT.LAB_BATCH_ID	A code to identify a group of laboratory results.
Laboratory Certification Indicator <i>Example:</i> <i>Y</i>	LaboratoryCertificationIndicator	STRING	N	1	RESULT.LAB_CERT_ID	This field indicates whether or not the lab is an EPA certified lab. This value must be set to one of the following: Y If this value is set to "Y", the lab is an EPA certified lab. N If this value is set to "N", the lab is not an EPA certified lab.
Laboratory Analysis Date <i>Example:</i> <i>1991-05-25</i>	LaboratoryAnalysisDateTimeDetail/Date	DATE	N		RESULT.LAB_ANALYSIS_DATE	The date should be entered in the XML file in the following format: YYYY-MM-DD If a Laboratory Analysis Time Date Detail is included in the XML submission, the Laboratory Analysis Date must be included as well.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Laboratory Analysis Time <i>Example:</i> <i>00:45:59</i>	LaboratoryAnalysisDateTi meDetail/TimeDetail/Tim e	TIME	N		RESULT.LAB_ANALYSIS_TIME	The time should be entered in the XML file in the following format: HH:MI:SS If this element is included in the XML submission, the Laboratory Analysis Time Zone Code must be included as well.
Laboratory Analysis Time Zone Code <i>Example:</i> <i>EDT</i>	LaboratoryAnalysisDateTi meDetail/TimeDetail/Tim eZoneCode	STRIN G	N	3	RESULT.LAB_ANALYSIS_TIME_ZONE	If the Laboratory Analysis Time is included in the XML submission, this element must be included as well and set to one of the following: <ul style="list-style-type: none"> ■ AST (Atlantic Standard Time) ■ ADT (Atlantic Daylight Savings Time) ■ EST (Eastern Standard Time) ■ EDT (Eastern Daylight Savings Time) ■ CST (Central Standard Time) ■ CDT (Central Daylight Savings Time) ■ MST (Mountain Standard Time) ■ MDT (Mountain Daylight Savings Time) ■ PST (Pacific Standard Time) ■ PMT (Pacific Daylight Savings Time) ■ AK (Alaskan Standard Time) ■ HI (Hawaii Standard Time) ■ GU (Guam Standard Time)

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Laboratory Result Detection Limit Text <i>Example: 20</i>	LaboratoryResultDetectionLimitDetail/LaboratoryResultDetectionLimitText	STRING	N	12	RESULT.LAB_RESULT_DETECTION_LIMIT	The detection limit of the laboratory result. If this element is included in the XML submission, the Laboratory Result Detection Limit Unit Code must be included as well.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Laboratory Result Detection Limit Unit Code <i>Example: ppm</i>	LaboratoryResultDetectionLimitDetail/LaboratoryResultDetectionLimitUnitCode	STRING	N	10	RESULT.LAB_RESULT_DETECTION_LIMIT_UNIT_CODE	<p>This code denotes the units of measure to which the Laboratory Detection Limit Text Refers. This code must come from a list of permitted values:</p> <p>% Cover count cfu/100ml #/500 ml #/100 gal MPN CFU #/ml #/dl #/l Plate cnt #/mi2 #/acre #/yd2 #/ft2 #/in2 #/ha #/km2 #/m2 #/100ml #/cm3 #/m3 #/cm2</p> <p>The use of other units of measure will require registration of those units of measure during STORET registration.</p> <p>If this element is included in the XML submission, the Laboratory Result Detection Limit Text must be included as well.</p>

3.2.7 Header Information

The header information section of the XML file contains information regarding the data submission, such as submission date, submitting user, and submitting agency. **These keys should not be included in the XML file submitted by the submitting agency.** Instead, once an XML file has been successfully submitted to CDX, these XML keys will be added to the file by the CDX web application.

All XML elements in this section are located in the following position on the XML element hierarchy—“FieldActivitiesResultsSubmission/HeaderDetail/”.

Data Element	XML Tag Name	XML Data Type	Req'd (Y/N)	Length	Access Table Mapping	Comment
Submitting Agency Identifier <i>Example:</i> <i>NJDEP</i>	SubmittingAgencyIdentifier	STRING	Y	12		This key will be inserted into the file by the CDX web application. The list of valid Submitting Agency Identifiers will be maintained as part of the CDX registration process.
Submitting User Identifier <i>Example:</i> <i>BSMITH</i>	SubmittingUserIdentifier	STRING	Y	12		This key will be inserted into the file by the CDX web application. The list of valid Submitting User Identifiers will be maintained as part of the CDX registration process.
Submission Identifier <i>Example:</i> <i>111111111111</i>	SubmissionIdentifier	STRING	Y	12		This key will be inserted into the file by the CDX web application. This value will uniquely identify each submission and will be generated by the CDX web application.
Submission Date <i>Example: 2003-01-01T00:00:00</i>	SubmissionDate	DATE/TIME	Y			This key will be inserted into the file by the CDX web application. The date should be entered in the XML file in the following format: YYYY-MM-DDTHH:MI:SS

4 Appendix A Schema Graphics

This appendix provides a graphical decomposition of the STORET XML Schema. The figures that follow offer an expanded view of each of the seven detail sections that comprise a Field Activities Results Submission (Header Detail, STORET Organization Identifier, Trip Detail, Station Visit Detail, Field Activity Detail, Result Detail, and Laboratory Detail). A figure displaying the full Field Activities Results Submission is also included.

- Dashed lines represented optional elements, solid lines represent mandatory elements.
 - Please note: Empty tags (e.g., `<TripIdentifier></TripIdentifier>`) for optional elements cannot appear in the XML file.
- The figures 0..∞ and 1..∞ mean that the field may be repeated, as long as the repetitions are next to each other, as many times as the user wishes.
 - For example, a user may submit as many TripDetail sections as necessary in a single file.
- A + sign at the end of the box means more elements exist behind that element.

Exhibit 4-1 Header Detail

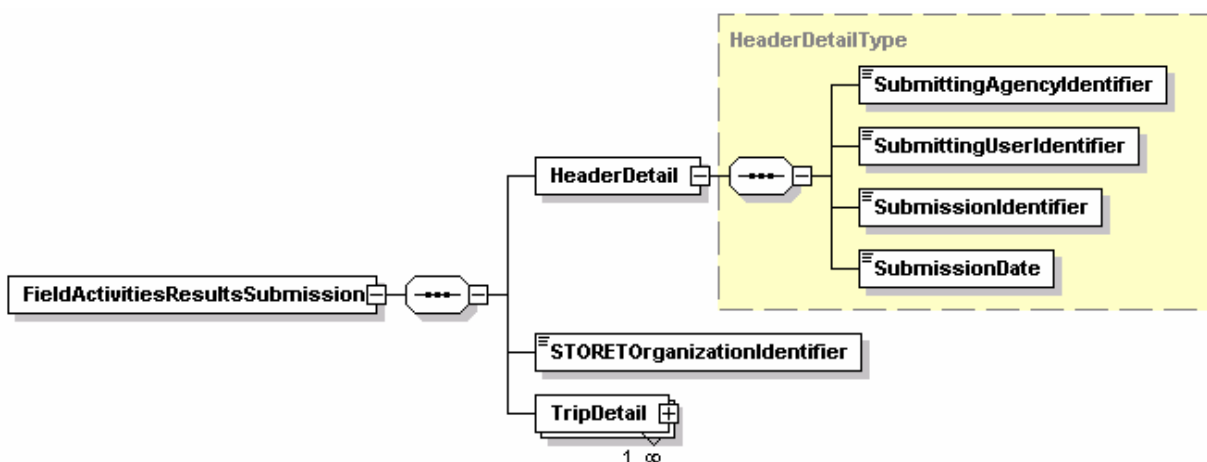


Exhibit 4-2 STORET Organization Identifier

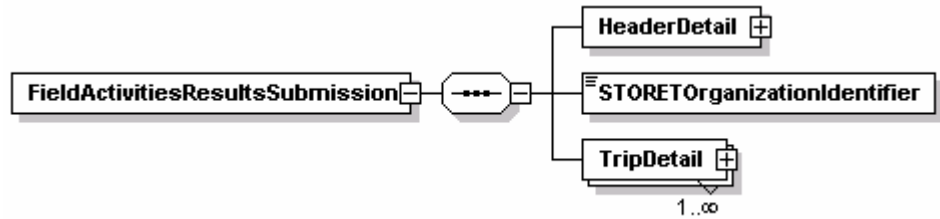


Exhibit 4-3 Trip Detail

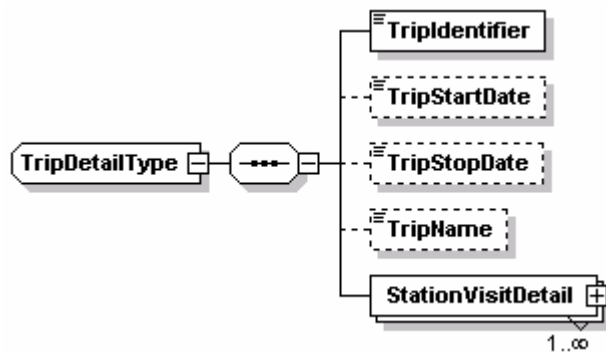


Exhibit 4-4 Station Visit Detail

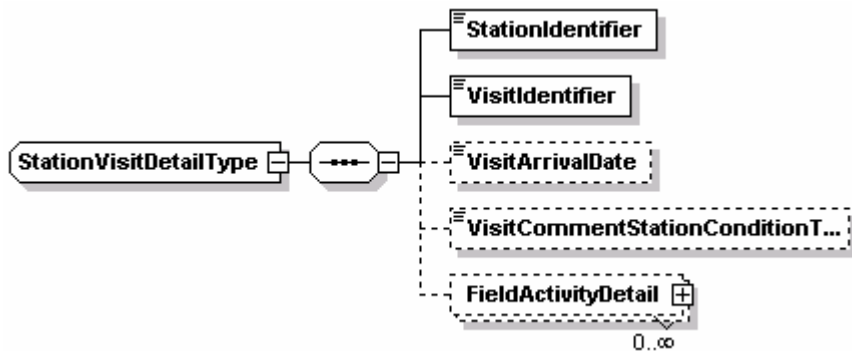


Exhibit 4-5 Field Activity Detail

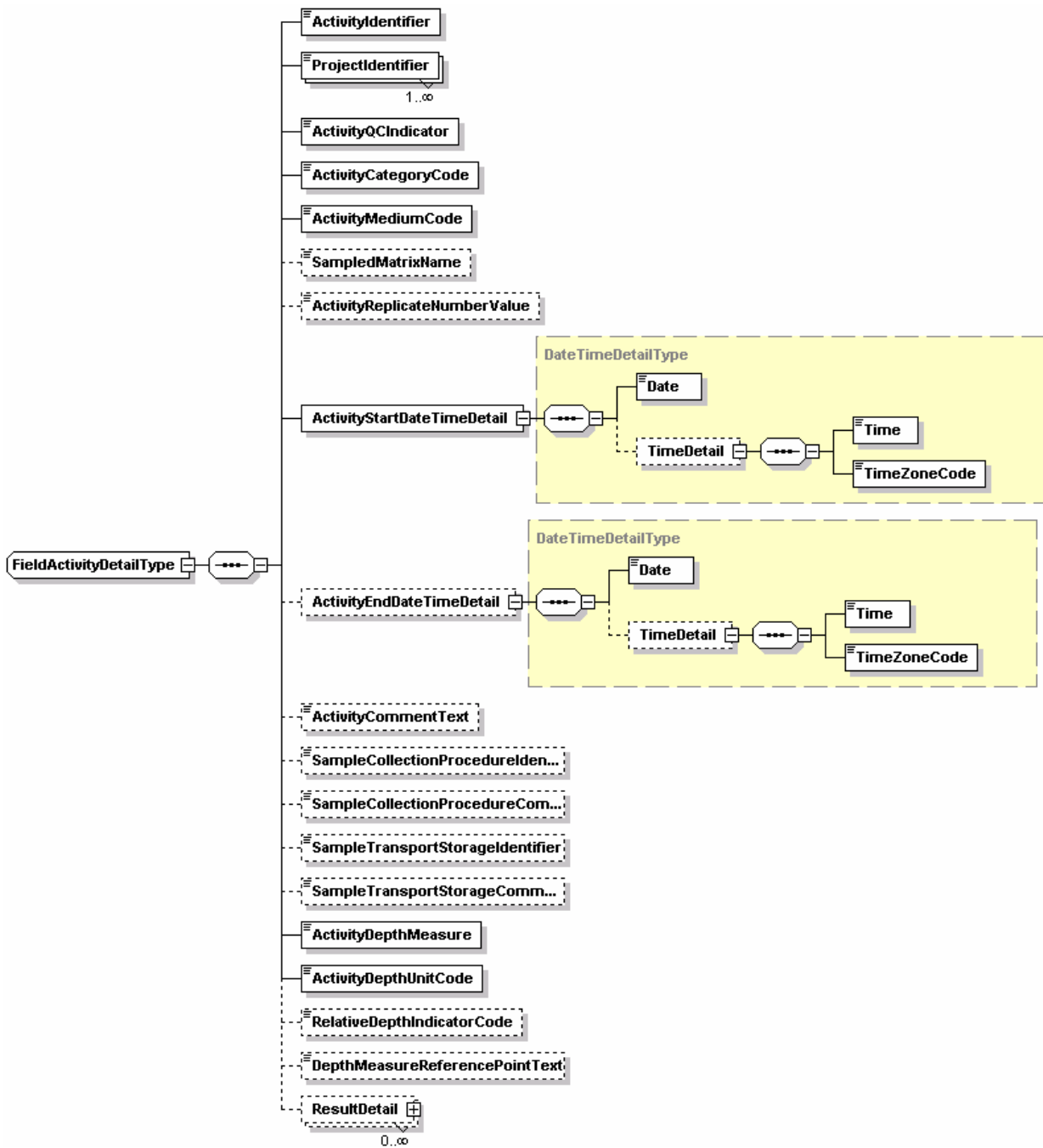


Exhibit 4-6 Result Detail



Exhibit 4-7 Laboratory Detail

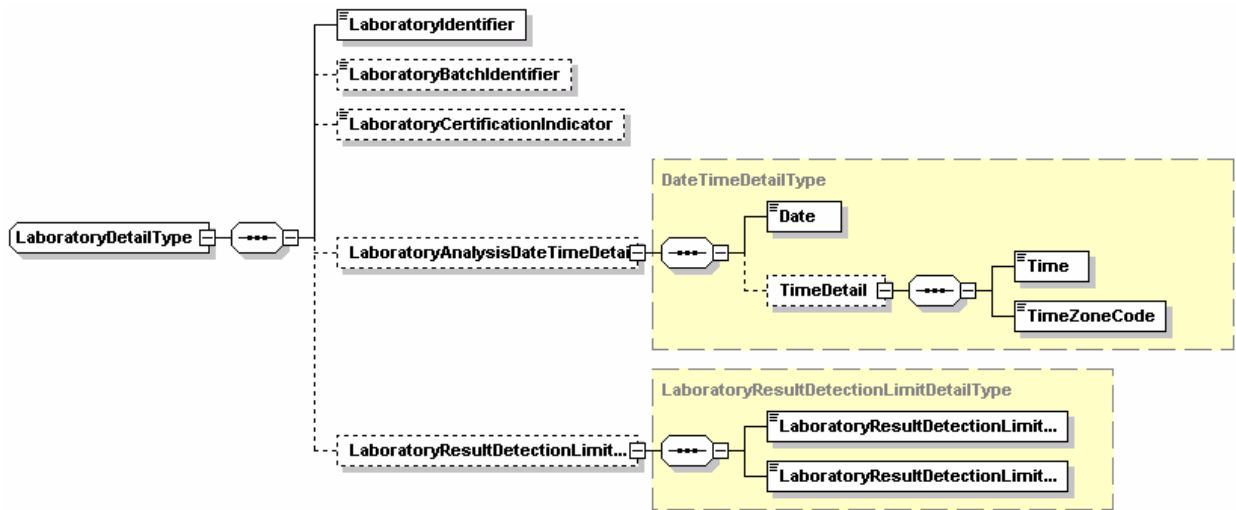
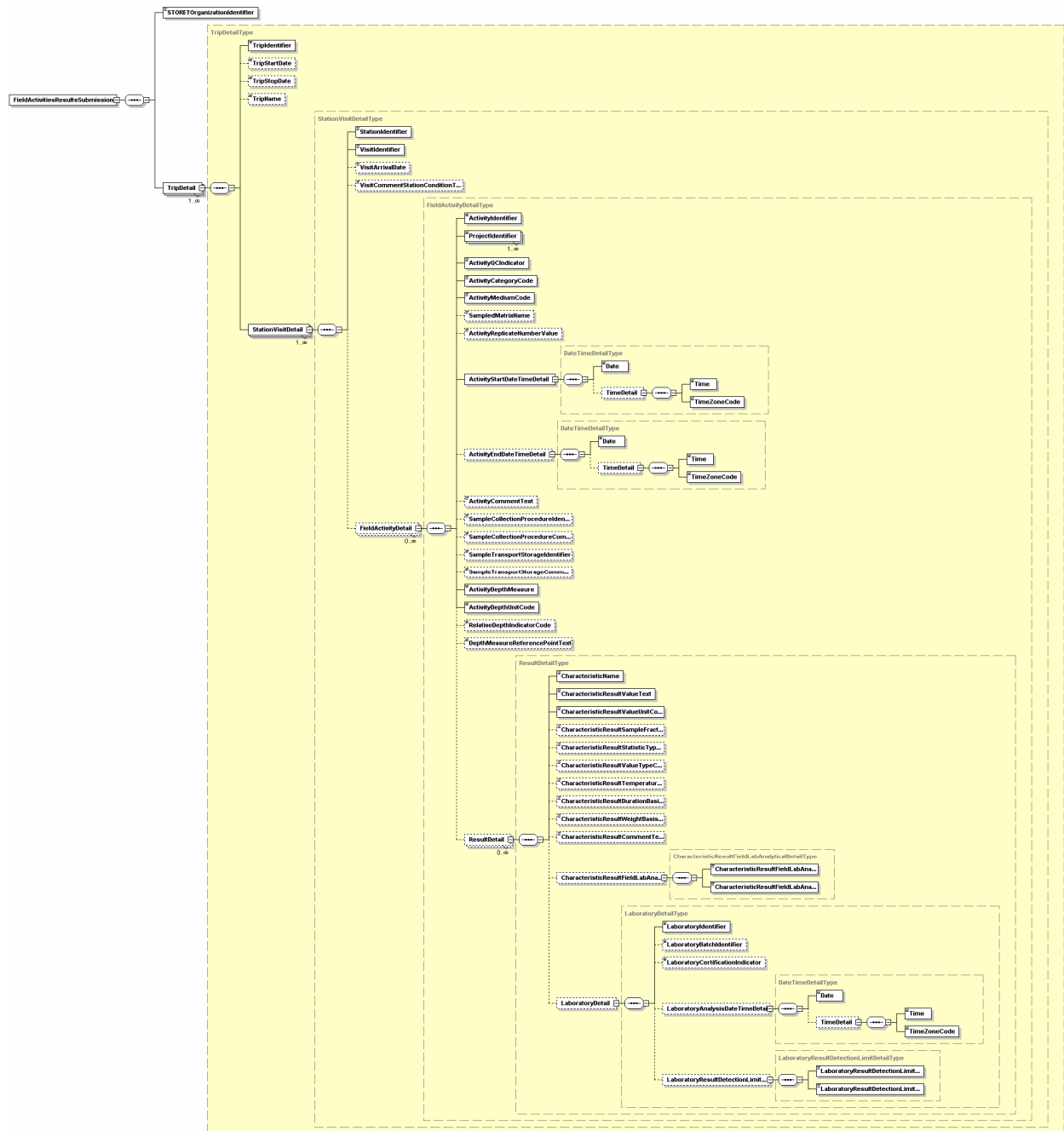


Exhibit 4-8 Field Activities Results Submission



5 Appendix B Example Complete XML File

The following is text from an example XML file that would be sent to STORET from a State. The file appears with spacing to provide a more clear view of the data. The spacing is not required or standard.

Exhibit 5-1 Sample Complete XML File

```
<FieldActivitiesResultsSubmission xmlns:xsi="notificationdata_schema.xsd">
  <STORETOrganizationIdentifier>21FLEECO</STORETOrganizationIdentifier>
  <TripDetail>
    <TripIdentifier>03-1991-1</TripIdentifier>
    <TripStartDate>1991-03-03</TripStartDate>
    <TripStopDate>1991-03-03</TripStopDate>
    <TripName>Weekly Charles River - March Monthly Sampling</TripName>
    <StationVisitDetail>
      <StationIdentifier>CBC-005</StationIdentifier>
      <VisitIdentifier>12</VisitIdentifier>
      <VisitArrivalDate>1991-03-03</VisitArrivalDate>
      <VisitCommentStationConditionText>It was a dark and stormy day, many white
caps, strong winds.</VisitCommentStationConditionText>
    <FieldActivityDetail>
      <ActivityIdentifier>Batch07</ActivityIdentifier>
      <ProjectIdentifier>CBCP-001</ProjectIdentifier>
      <ActivityQCIndicator>Y</ActivityQCIndicator>
      <ActivityCategoryCode>Routine Sample</ActivityCategoryCode>
      <ActivityMediumCode>Other</ActivityMediumCode>
      <SampledMatrixName>SL</SampledMatrixName>
      <ActivityStartDateTimeDetail>
        <Date>1991-03-03</Date>
        <TimeDetail>
          <Time>07:10:00</Time>
          <TimeZoneCode>EDT</TimeZoneCode>
        </TimeDetail>
      </ActivityStartDateTimeDetail>
      <ActivityEndDateTimeDetail>
        <Date>1991-03-03</Date>
        <TimeDetail>
          <Time>07:20:00</Time>
          <TimeZoneCode>EDT</TimeZoneCode>
        </TimeDetail>
      </ActivityEndDateTimeDetail>
    </FieldActivityDetail>
  </TripDetail>
</FieldActivitiesResultsSubmission>
```

```

        <ActivityCommentText>Windy</ActivityCommentText>
        <SampleCollectionProcedureIdentifier>sp-
007</SampleCollectionProcedureIdentifier>
        <SampleCollectionProcedureCommentText>See the New Jersey
Department of Environmental Quality Assurance Program
Plan</SampleCollectionProcedureCommentText>
        <SampleTransportStorageIdentifier>STS-
004</SampleTransportStorageIdentifier>
        <SampleTransportStorageCommentText>Placed bottle in the ship's chem
lab on the sample rack.</SampleTransportStorageCommentText>
        <ActivityDepthMeasure>1</ActivityDepthMeasure>
        <ActivityDepthUnitCode>m</ActivityDepthUnitCode>
        <RelativeDepthIndicatorCode>Midwater</RelativeDepthIndicatorCode>
        <DepthMeasureReferencePointText>High
surf</DepthMeasureReferencePointText>
        <ResultDetail>
            <CharacteristicName>Enterococcus Group
Bacteria</CharacteristicName>

            <CharacteristicResultValueText>35</CharacteristicResultValueText>

            <CharacteristicResultValueUnitCode>#/m3</CharacteristicResultValueUnitCode>

            <CharacteristicResultSampleFractionCode>Volatile</CharacteristicResultSampleFractionCode>

            <CharacteristicResultStatisticTypeCode>Maximum</CharacteristicResultStatisticTypeCode>

            <CharacteristicResultValueTypeCode>Actual</CharacteristicResultValueTypeCode>
            <CharacteristicResultTemperatureBasisCode>25 Deg
C</CharacteristicResultTemperatureBasisCode>
            <CharacteristicResultDurationBasisCode>1
Day</CharacteristicResultDurationBasisCode>

            <CharacteristicResultWeightBasisCode>Wet</CharacteristicResultWeightBasisCode>
            <CharacteristicResultCommentText>Late result reported from
lab.</CharacteristicResultCommentText>
            <CharacteristicResultFieldLabAnalyticalDetail>

                <CharacteristicResultFieldLabAnalyticalSourceAcronym>USEPA</CharacteristicResultFieldLa
bAnalyticalSourceAcronym>

                <CharacteristicResultFieldLabAnalyticalProcedureIdentifier>200.1</CharacteristicResultFieldLa
bAnalyticalProcedureIdentifier>

            </CharacteristicResultFieldLabAnalyticalDetail>
            <LaboratoryDetail>

```

```

<LaboratoryIdentifier>ED-001</LaboratoryIdentifier>

<LaboratoryBatchIdentifier>98UIXW2</LaboratoryBatchIdentifier>

<LaboratoryCertificationIndicator>Y</LaboratoryCertificationIndicator>
  <LaboratoryAnalysisDateTimeDetail>
    <Date>1991-05-25</Date>
    <TimeDetail>
      <Time>00:45:59</Time>

<TimeZoneCode>EDT</TimeZoneCode>
  </TimeDetail>
  </LaboratoryAnalysisDateTimeDetail>
  <LaboratoryResultDetectionLimitDetail>

<LaboratoryResultDetectionLimitText>20</LaboratoryResultDetectionLimitText>

<LaboratoryResultDetectionLimitUnitCode>ppm</LaboratoryResultDetectionLimitUnitCode>
  </LaboratoryResultDetectionLimitDetail>
  </LaboratoryDetail>
  </ResultDetail>
  </FieldActivityDetail>
  </StationVisitDetail>
  </TripDetail>
</FieldActivitiesResultsSubmission>

```

6 Appendix C Example Minimum XML File

The following is text from an example XML file that would be sent to STORET from a State. The file appears with spacing to provide a more clear view of the data. The spacing is not required or standard.

Exhibit 6-1 Sample Minimum XML File

```
<FieldActivitiesResultsSubmission xmlns:xsi="notificationdata_schema.xsd">
  <STORETOrganizationIdentifier>21FLEECO</STORETOrganizationIdentifier>
  <TripDetail>
    <TripIdentifier>03-1991-1</TripIdentifier>
    <StationVisitDetail>
      <StationIdentifier>CBC-005</StationIdentifier>
      <VisitIdentifier>12</VisitIdentifier>
      <FieldActivityDetail>
        <ActivityIdentifier>Batch07</ActivityIdentifier>
        <ProjectIdentifier>CBCP-001</ProjectIdentifier>
        <ActivityQCIndicator>Y</ActivityQCIndicator>
        <ActivityCategoryCode>Routine Sample</ActivityCategoryCode>
        <ActivityMediumCode>Other</ActivityMediumCode>
        <ActivityStartDateTimeDetail>
          <Date>1991-03-03</Date>
        </ActivityStartDateTimeDetail>
        <ActivityDepthMeasure>1</ActivityDepthMeasure>
        <ActivityDepthUnitCode>m</ActivityDepthUnitCode>
        <ResultDetail>
          <CharacteristicName>Enterococcus Group
Bacteria</CharacteristicName>

          <CharacteristicResultValueText>35</CharacteristicResultValueText>

          <CharacteristicResultValueUnitCode>#/m3</CharacteristicResultValueUnitCode>
        </ResultDetail>
      </FieldActivityDetail>
    </StationVisitDetail>
  </TripDetail>
</FieldActivitiesResultsSubmission>
```

7 Appendix D Sampled Matrix Names

Due to the large number of Sampled Matrix Names, this appendix provides a separate table to explain the acceptable codes. See Section 3.2.5 Field Activity Information for a description of when to use these codes in the XML schema.

Exhibit 7-1 Sampled Matrix Names

Name	Description
AA	Ambient Air
AD	Drilling Air
AE	Air, Vapor Extraction Well Effluent
AQ	Air Quality Control Matrix
CA	Cinder-Ash
CF	Fly Ash Cinder
DC	Drill Cutting
DG	Dredged Material
GE	Gaseous Effluent (Stack Gas)
GL	Headspace of Liquid Sample
GS	Soil Gas
LA	Aqueous Phase of a Multiple Phase Liquid or Solid Sample
LC	Liquid Condensate
LD	Drilling Fluid
LE	Liquid Emulsion
LF	Floating/Free Product on Groundwater Table
LH	Free-Flowing, or Liquid Waste Containing Less Than 0.5% Dry Solids
LM	Multiple Phase Liquid Waste Sample
LO	Organic Liquid
LV	Liquid from Vadose Zone
MH	Hazardous Multiple Phase Waste
OIL	Oil

SB	Bentonite
SC	Cement
SD	Drill Cuttings, Solid Matrix
SE	Sediment (Associated with Surface Water)
SF	Filter Sandpack
SH	Solid Waste Containing greater than or equal to 0.5% Dry Solids
SL	Sludge
SM	Water Filter (Solid Materials used to filter Water)
SN	Miscellaneous Solid Materials—Building Materials
SO	Soil
SP	Casing (PVC, Stainless Steel, Cast Iron, Iron Piping, etc.)
SQ	Soil/Solid Quality Control Matrix
SR	Water Filter Residue (Solid that gets filtered out of Water)
SS	Scrapings
ST	Solid Waste
SW	Swab or Wipe
LU	Elutriate Extracted from Porous Materials
U	Unknown
WA	Drill Cuttings, Aqueous Matrix
WC	Drilling Water (Used for Well Construction)
WD	Well Development Water
WE	Estuary
WG	Ground Water
WH	Equipment Wash Water, i.e., Water used for Washing
WL	Leachate
WO	Ocean Water
WP	Drinking Water
WQ	Water Quality Control Matrix

WS	Surface Water
WV	Water from Vadose Zone
WW	Waste Water
WZ	Special Water Quality Control Matrix
RW	Stormwater, Runoff, or Collected Precipitation
