

STATEMENT OF WORK

TECHNICAL ASSISTANCE IN CONDUCTING SURVEY RESEARCH AND PROVIDING OPTIONS FOR WATER RESOURCES DATA EXCHANGE (METADATA) STANDARDS FOR THE STATE OF FLORIDA

1.0 INTRODUCTION

This is a 6-month work order (September 1, 2007 – February 29, 2008) in accordance with Contract XXX, between the South Florida Water Management District (District) and XXX (Contractor) providing technical services and support to assist with the development of water resources data exchange (metadata) standards for use by all state of Florida agencies. Specifically, services will include (1) conducting two simultaneous surveys, one of existing metadata standards (or practices) at the international, federal, state of Florida, local Florida government levels, NGOs, and the other current metadata element usage by Florida generators of water resource data, (2) arranging the data to simplify comparison of the metadata element usage to the metadata standards for each water resource data type, (3) and drafting a report containing options for comprehensive metadata standards for each water resource data type for all state of Florida data generators. Definitions are provided below.

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1.1 Background

Many organizations and agencies in Florida produce water resource data that is required to be submitted to others or is simply released for use by others, including the general public. Even if interested parties are aware of the existence of such data, they often cannot make use of it due either to insufficient documentation as to exactly what the data represents or incompatibility (different naming conventions, formats, etc.) of the metadata elements with their own data. Uniform, concise, and comprehensive metadata standards are required to allow clean and easy portability of water resource data between providers and users in the state of Florida.

For purposes of establishing metadata standards, the following definitions will be used.

Water Resource Data

It is intended that the universe of data to be considered is as broad as possible and includes physical, chemical, and biological categories of data collected for the purpose of water resource monitoring. As examples, consider the following list, where the categories are represented by B = Biological, C = Chemical, P = Physical, and O = Other.

<u>Data Type</u>	<u>Category(ies)</u>
1. Water Chemical	C
2. Biological	B
3. Taxonomic	B
4. Physical	P
5. Microbiological	B
6. Sediment	P, C
7. Soil	P, C
8. Air	P, C
9. Spatial Info	All
10. Temporal Info	All
11. Meteorological	P
12. Lithology	P
13. Hydrology	P
14. QC	All
15. Other?	O

The Contractor is encouraged to refine/enlarge the entries in Table 1, but must ensure that the ultimate list includes but is not limited to all the items currently in the above list.

Datum

A specific item of information.

Data Record

A collection of data.

Metadata Element

The specific attribute about individual components of a data record.

Metadata Standard

The technical specification used to create a data record.

2.0 OBJECTIVES

The objective of this Statement of Work (SOW) is to conduct two simultaneous surveys, one of metadata standards and the other of metadata element usage, and perform associated analysis and reporting. The result of this effort should allow the Florida Water Resources Monitoring Council to assess what level of effort would be required of any organization to be compliant with any adopted standard.

1 **3.0 SCOPE OF WORK**

2 The Contractor shall provide scientific professional services to conduct a survey of existing
3 metadata standards at the international, federal, state of Florida, and local Florida government
4 levels, and concurrently conduct another survey of current metadata element usage by Florida
5 generators of water resource data, then arrange a comparison of the metadata element usage
6 against the existing metadata standards, and prepare a report listing options for establishing
7 metadata standards for each water resource data type.

8 Detailed tasks and deliverables are set forth in the following sections.

9 **4.0 WORK BREAKDOWN STRUCTURE**

10 The following describes the anticipated tasks and deliverables necessary for completion of this
11 work. All work products shall be submitted to the District in both written and electronic format,
12 unless other special arrangements are agreed upon. The Contractor shall document all technical
13 references used in completing the work. All deliverables shall be submitted in electronic format
14 (i.e., MS Word or Excel) along with 5 hard copies. Deliverables should include final
15 bookmarked PDF files of all work for posting on the Internet (Acrobat 7.0 or higher).

16 The Contractor shall perform the following tasks:

17 **Task 1 – Meetings and Progress Reports**

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19 Subtask 1.1: The Contractor shall attend one project kick-off meeting at District
20 headquarters to discuss project scope, schedules and required deliverables.

21
22 Subtask 1.2: Over the course of the contract, the Contractor shall attend at least two (2)
23 meetings at District headquarters to discuss project progress and needs, if necessary as
24 determined by the District.

25
26 Subtask 1.3: Over the course of the contract, the Contractor shall attend at least one (1)
27 meeting of the Florida Water Resources Monitoring Council to discuss project progress and
28 issues.

29
30 Subtask 1.4: The Contractor shall prepare weekly e-mail progress reports and submit to
31 Project Manager and Council Member, Linda Lindstrom. While the surveys are being
32 conducted, the report shall include at a minimum a list of the organizations that have been
33 contacted, the number that have indicated that they will respond, and the number that have
34 responded for each water resource data type. Also, the Contractor shall include an updated
35 spreadsheet/database (or other application format) that contains the compiled survey
36 information

Task 2: Prepare a Work Plan with a Specific Timeline

Subtask 2.1: The Contractor shall prepare a Work Plan in accordance with adopted Council timeline that details how they will conduct the two metadata surveys and how long each survey will take, the type of analyses they will use to compare the two surveys and how long this step will take, and how much time is required to produce a report containing options for setting comprehensive metadata standards for each water resource data type.

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Task 3 – Conduct a Survey of Existing Metadata Standards and Associated Data Elements

Subtask 3.1: Metadata Standards related to the collection, management, and analysis of water resource monitoring data exist for at least several organizations. The purpose of this task is to identify and summarize existing standards and those in the process of development (e.g., The Water Quality Exchange (WQX) Version 1.0 at the U.S. Environmental Protection Agency and the Water Integrated Database (WID) at the Florida Department of Environmental Protection). The Contractor shall conduct a survey of existing metadata standards for water resource data collected at all levels of organization: international, federal, state of Florida, and local Florida governments. The focus of this effort should be on well-documented standards, whether in the public domain or within a specific organization.

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The type of information required may include but is not limited to

1. Standard-Setting Organization Name
2. Standard-Setting Organization Location
3. Standard-Setting Organization Contact
4. Date Contacted
5. Willing to Respond to Survey?
6. Date Responded
7. Water Resource Data Types Covered (Water, Groundwater, Biological, etc.)
8. Metadata Standard Name
9. Estimated number and/or a list of organizations who use the standard
10. URL (or other source) Documenting the Specification

Subtask 3.2: The standards identified in Subtask 2.1 should include information about individual metadata elements. The information required may include but is not limited to

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1. Metadata Element Name
2. Description
3. Short Name (8 characters or less)
4. Type (alphanumeric characters [text], date, number)
5. Size (number of characters or digits)
6. Required? (Yes/Unique, Yes/Not Unique, No)

7. Source (User entered, System generated)
8. Default Value
9. Value List (also called Domain; list of approved valid values and their meaning, if any)
10. Validation Rules (any requirement to be a valid entry)
11. Format (also called Form; specific format for dates, as in MMDDYYYY, etc., where applicable)

Task 4– Conduct a Survey of Existing Metadata Element Usage in Florida

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Subtask 4.1: Most data generators collect and manage specific metadata elements whether or not they follow externally established metadata standards. The purpose of this task is to catalog the data elements used within the state of Florida. Concurrently with Task 2, the Contractor shall conduct a survey of existing metadata element usage by all water resource data generators at all levels of organization within Florida: federal, state, university, and local government.

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The type of information required may include but is not limited to

1. Data Generator Name
2. Data Generator Location
3. Data Generator Contact
4. Date Contacted
5. Willing to Respond to Survey?
6. Date Responded
7. Water Resource Data Types Covered (Water, Groundwater, Biological, etc.)
8. Adopted Metadata Standard Name per Water Resource Data Type
9. Adopted Metadata Standard Organization per Water Resource Data Type
10. Data Storage Format (spreadsheet, database, etc.)

Subtask 4.2: If the data generator has not adopted any standard for a particular water resource data type, then the type of information required may include but is not limited to

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1. Metadata Element Name
2. Description
3. Short Name (8 characters or less)
4. Type (alphanumeric characters [text], date, number)
5. Size (number of characters or digits)
6. Required? (Yes/Unique, Yes/Not Unique, No)
7. Source (User entered, System generated)

8. Default Value
9. Value List (also called Domain; list of approved valid values and their meaning, if any)
10. Validation Rules (any requirement to be a valid entry)
11. Format (also called Form; specific format for date, as in MMDDYYYY, etc., where applicable)

Task 5 – Compare Existing Metadata Element Usage against the Standards

Subtask 5.1: The Contractor shall prepare a comparison of the existing metadata element usage discovered in Task 4 against the metadata standard elements from Task 3 by water resource data type. Part of this comparison should include a frequency distribution of the occurrence of metadata element usage for each metadata standard for each water resource data type. This will include an estimation of the relative compliance burden that a set of data generators may incur if a metadata standard were adopted with which the generator did not currently comply. (See Task 6)

This comparison must also demonstrate whether and how standards for different water resource data types are linked/coordinated. This will help generate a unique set of metadata standards.

Another component of this subtask shall include a comparison of information from individual respondents with the metadata standards from Task 3.

Task 6 - Draft a Report of the Comparison Performed in Task 5 Containing Options for Adoption of Metadata Standards for the State of Florida

Subtask 6.1: The Contractor shall prepare a report detailing options for setting uniform and comprehensive metadata standards for each water resource data type for the state of Florida. The options should take into account the potential burden on data generators who currently do not comply with all the proposed metadata standards for a given data type. The Contractor shall provide a measure to estimate the potential burden to be imposed on data generators in Florida by adopting a specific option.

One option should be the set of metadata standards that would comply with all metadata standards at all levels (international, federal, state, etc.) for each water resource data type. Other options would scale back the levels one-by-one, i.e. removing international standards for one set, removing both international and federal for another, and so on.

The Contractor shall add other options identified with the goal of maximizing compliance with existing standards while minimizing the compliance burden for data generators.

Subtask 6.2: The Contractor will participate in meetings to present the results of the draft report with the Expert Panel and subsequently participate with the FWRMC.

Task 7- Prepare Report for Oceans Council through FDEP Secretary

Deleted: Task 4 – Prepare Weekly Progress Reports¶

Subtask 4.1: The Contractor shall prepare weekly e-mail progress reports. While the surveys are being conducted, the report shall include at a minimum a list of the organizations that have been contacted, the number that will respond, and the number that have responded for each water resource data type. Also, the Contractor shall submit the spreadsheet/database (or other application format) that contains the compiled survey information.¶

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Subtask 7.1: After review/revision of the results in the report from Task 5 first by the Metadata Standards Expert Panel and then by the Florida Water Resources Monitoring Council, the Contractor shall prepare a formal interim report of options for water resource metadata standards for the state of Florida to be presented to the Florida Oceans Council through the FDEP Secretary.

5.0 PAYMENT AND DELIVERABLE SCHEDULE

Update pursuant to new timeline and tasks that were done on strategy table

Deliverables and due dates shown below may be revised upon mutual agreement between the District and Contractor if the District's priorities change during the course of the work resulting in the need to revise the content and timing of the deliverables. The Contractor may invoice the District no later than 21 days after the end of the month in which the work was accomplished, with a final fiscal year invoice due by ??? for all work accomplished in September, and/or all previously unbilled work completed through the fiscal year ending September 30, 2008.

Payment and Deliverable Schedule

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Task	Deliverable	Due Date	Amount
TASK 1	PREPARE WORK PLAN WITH A SPECIFIC TIMELINE: Provide a Work Plan with a specific timeline for accomplishing Tasks 2 - 7	9/8/2007	
TASK 2	Deliver template SURVEY OF EXISTING METADATA STANDARDS AND ASSOCIATED DATA ELEMENTS for review by Expert Panel before implementation	9/22/2007	
	Deliver SURVEY OF EXISTING METADATA STANDARDS AND ASSOCIATED DATA ELEMENTS	11/15/2007	
TASK 3	Deliver template SURVEY OF EXISTING METADATA ELEMENT USAGE IN FLORIDA for review by Expert Panel before implementation	9/22/2007	
	Deliver SURVEY OF EXISTING METADATA ELEMENT USAGE IN FLORIDA	11/15/2007	
TASK 4	Deliver WEEKLY PROGRESS REPORTS.	Weekly beginning 9/14/2007 and ending 2/22/2008	
TASK 6	Deliver REPORT OF THE COMPARISON PERFORMED IN TASK 5 CONTAINING OPTIONS FOR ADOPTION OF METADATA STANDARDS FOR THE STATE OF FLORIDA	12/15/2007	
TASK 7	Deliver REPORT FOR OCEANS COUNCIL THROUGH FDEP SECRETARY. All collected, copied, and acquired documents shall be property of the SFWMD	1/15/2008	
	Total Not-to-Exceed		

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Task 9 – Meetings and Project Coordination¶

Subtask 9.1: The Contractor shall attend one project kick-off meeting at District headquarters to discuss project scope, schedules and required deliverables.¶

Subtask 9.2: Over the course of the contract, the Contractor shall attend at least two (2) meetings at District headquarters to discuss project progress and needs.¶

Subtask 9.3: The Contractor shall participate in biweekly (every 2 two weeks) telephone meetings with the Project Manager except for weeks when a project meeting has been scheduled.¶

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6.0 CONTRACTOR PERFORMANCE

- 1 | The Contractor's performance for the term of this Work Order will be evaluated by the Project
2 | manager at the following frequencies following contract execution:
3 | 1. 30 Days
4 | 2. 90 Days
5 | 3. Final Evaluation

6 | A running average score of ≥ 3.0 is required to maintain active status.

7 |

8 |

9 | Adoption of the SOW as modified by the Council

<u>5</u>	<u>4</u>	<u>3</u>	<u>2</u>	<u>1</u>
<u>3</u>	<u>6</u>	<u>1</u>	<u>0</u>	<u>0</u>

10 | Adopted by consensus