

**Addendum to the Pre-Assessment Phase Water Sampling Plan: Pre-Assessment Phase Sediment Sampling for NRDA Purposes in Louisiana**

**Deepwater Horizon/Mississippi Canyon 252 Incident**

*"Approval of this work plan is for the purposes of obtaining data for the Natural Resource Damage Assessment. Parties each reserve its right to produce its own independent interpretation and analysis of any data collected pursuant to this work plan."*

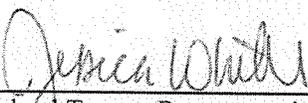
*"All samples will be sent to laboratories agreed upon by the trustees and BP."*

*"Each laboratory shall simultaneously deliver raw data, including all necessary metadata, generated as part of this work plan as a Laboratory Analytical Data Package (LADP) to the trustee Data Management Team (DMT), the Louisiana Oil Spill Coordinator's Office (LOSCO) on behalf of the State of Louisiana and to BP (or ENTRIX on behalf of BP). The electronic data deliverable (EDD) spreadsheet with pre-validated analytical results, which is a component of the complete LADP, will also be delivered to the secure FTP drop box maintained by the trustees' Data Management Team (DMT). Any preliminary data distributed to the DMT shall also be distributed to LOSCO and to BP (or ENTRIX on behalf of BP). Thereafter, the DMT will validate and perform quality assurance/quality control (QA/QC) procedures on the LADP consistent with the authorized Quality Assurance Project Plan, after which time the validated/QA/QC'd data shall be made available simultaneously to all trustees and BP (or ENTRIX on behalf of BP). Any questions raised on the validated/QA/QC results shall be handled per the procedures in the Quality Assurance Project Plan and the issue and results shall be distributed to all parties. In the interest of maintaining one consistent data set for use by all parties, only the validated/QA/QC'd data set released by the DMT shall be considered the consensus data set. In order to assure reliability of the consensus data and full review by the parties, no party shall publish consensus data until 7 days after such data has been made available to the parties. Also, the LADP shall not be released by the DMT, LOSCO, BP or ENTRIX prior to validation/QA/QC absent a showing of critical operational need. Should any party show a critical operational need for data prior to validation/QA/QC, any released data will be clearly marked "preliminary/unvalidated" and will be made available equally to all trustees and to BP (or ENTRIX on behalf of BP)."*

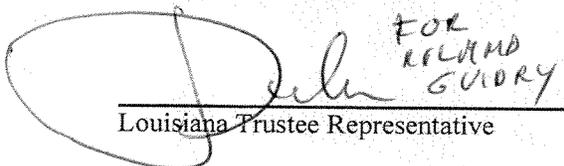
**APPROVED:**

  
BP Representative

10-29-10  
Date

  
Federal Trustee Representative

10/29/2010  
Date

 FOR ROLAND GUIDRY  
Louisiana Trustee Representative

11/9/2010  
Date

## **Addendum to the Pre-Assessment Phase Water Sampling Plan:**

### **Pre-Assessment Phase Sediment Sampling for NRDA Purposes in Louisiana**

**October 27, 2010**

#### **Overview**

The Louisiana Department of Environmental Quality (LDEQ), as lead of the Nearshore Sediment and Water Sampling Technical Working Group (TWG), is conducting sediment sampling in the nearshore area in interior coastal marshes within the state of Louisiana for the purposes of Natural Resource Damage Assessment (NRDA) to evaluate exposure of nearshore sediment habitat to MC 252 oil and identify potential injury pathways. This plan serves as an addendum to the Pre-Assessment Phase Water Sampling Plan (LA Pre-assessment Water Plan) in order to address sediment sample collection. Sediment samples will be collected concurrently at each of the water sampling locations and the pre-assessment sediment sample collection will conclude at the same time as the water sampling. The process for selecting sampling locations and sample numbers are described in the LA Pre-Assessment Water Plan.

#### **1. Purpose and objective**

Sediment provides habitat for aquatic organisms including benthic fauna and substrate for aquatic vegetation. Exposure to oil may result in degradation of sediment habitat and its ability to support benthic fauna and may serve as a pathway of exposure to aquatic organisms and vegetation.

The objective is to collect sediment samples from nearshore coastal areas in order to assess the potential exposure of sediments to MC252 oil at areas of potential oil impact. Sediment samples will be analyzed for the presence and concentration of saturated hydrocarbons/total extractable hydrocarbons (SHC/TEH), polycyclic aromatic hydrocarbons (PAH), total organic carbon (TOC), and grain size.

#### **2. Equipment and materials**

The equipment and materials needed to conduct sediment sampling by each sampling crew (in addition to that outlined in the LA Pre-Assessment Water Plan) includes:

- Sampling equipment (ice chests, dredges, pans, etc.)
  - Including cleaning and decontamination supplies
- Sample bottles for sediment samples (obtained from a Sample Intake Center (SIC))

### **3. Budget and resources**

The LA Pre-assessment Water Plan budget is based on sampling up to four sites per crew per day to collect a total of approximately 30 samples in each of four oiling categories over the study period, for a total estimated cost of \$557,161. Combining sediment sampling with water sampling will result in a decrease in the number of sites sampled per day; it is expected that two sites per crew per day will be sampled which will potentially extend the sample collection duration approximately another 45 days beyond the duration projected for the water sample collection alone. As a result the budget could be expected to increase up to 100%. Therefore the total estimated cost to add sampling sediment to the water sampling is \$557,161.

### **4. Safety**

All lead personnel will be 40 hr HAZWOPER trained and will have completed any other training modules required by Incident Command (IC). All other personnel will be at least 24 hr HAZWOPER trained and will have completed any other training modules as required by IC. Float plans will be filed with the IC for each day's activities on the water. Vessel operators and passengers must be trained according to LDEQ requirements. All necessary PPE will be used. Non-LDEQ personnel wishing to participate will be required to undergo safety training and sign an indemnity waiver prior to boarding any State of Louisiana vessels.

### **5. Sediment sampling guidelines**

The following section outlines the sediment sampling guidelines.

#### ***5.1 Sampling Objectives***

- Site Locations
  - To collect sediment samples at sites representative of various levels of oiling (baseline sediment samples will be used to represent conditions in areas associated with no oil observations).
- Sample Collection
  - To document the presence or absence of oil.
  - To determine the concentration and source ("fingerprinting") of any oil compounds in the nearshore sediment samples collected.
  - To measure the sediment characteristics for interpreting chemical and biological results.
- Sample Integrity
  - To maintain custody and integrity of the sample(s) during sampling, transport, and storage.

#### ***5.2 Standard Guidelines for Collection of NRDA Samples***

- The LDEQ NRDA sediment sampling teams will be trained in and will use the NRDA Research Planning FTP website to generate all field data forms.

- The NOAA documentation can be located at the Research Planning FTP website located at [REDACTED]
  - The username and login will be provided to the sample collectors.
  - The following directory contains the sample guidance /Home/Trustee Private Communications/Sample\_Data/0\_Instructions\_and\_Forms.
- All sampling will follow the NOAA Guidelines For Collecting NRDA Samples, which include the following documents:
  - NRDA Field Sampler Data Management Protocol
  - NOAA Field Forms, Printouts and User Guide
    - NOAA Field Sampling Form User Guide
    - NOAA Field Sample Information and Chain of Custody (COC) Forms to generate the following:
      - NRDA Chain of Custody Form
      - NRDA Sample Collection Form Soil/Sediment
  - Field Validation Documents
    - Basic GPS Skills and Management
    - NRDA Field Photography Guidance
    - NOAA NRDA Trustees Photo Logger Form
  - Shipping and Sample Intake Logistics
- Any deviation from these methods must be recorded in the field notes.
- It is the sample collectors' responsibility to monitor the Research Planning FTP website to ensure current guidelines are being followed.
- The NOAA NRDA guidelines referenced above will be followed in order to ensure that quality data is collected in the field.

### ***5.3 Sediment Sample Collection Guidelines***

- Sediment samples will be taken in the nearshore area.
- Sediment samples will be collected using an Ekman dredge, Ponar, or other appropriate equipment depending on the depth of the water at the sample site.
- Each sediment sample will be a composite of at least 2 grab samples. The top 2 cm of sediment from each grab will be collected. The composite sample will be mixed thoroughly into a homogeneous mixture before placement into the sample containers
- For each site, three (3) sediment samples (see Section 5.4 for list of bottles for sample collection) will be collected to represent a wider area than a single point, that is, an area 100 feet around the sample site and along the same vertical horizon to represent the same zone:
  - Collect the 1<sup>st</sup> sediment sample at approximately the central point
  - Collect the 2<sup>nd</sup> sediment sample at a location approximately 50 ft from that point along the shoreline
  - Collect the 3<sup>rd</sup> sediment sample at a location approximately 100 ft in the opposite direction along the shoreline (which is equivalent 50 ft from the central point)
- Refer to the NOAA guideline documents on collecting sediment samples, located at the following directory (/Home/Trustee Private Communications/Sample\_Data/0\_Sample\_Guidance).

- NRDA Sediments
- Any deviations from these protocols must be noted in the field notes.

***5.4 Sediment Sample Parameter and Analytical Method, Sample Volume, Container, and Preservation***

Refer to the most recent version of the MC 252 Analytical Quality Assurance Plan (QAP) for more details.

<b>Parameter and Analytical Method</b>	<b>Sample Quantity and Volume</b>	<b>Container</b>	<b>Preservation</b>
Saturated Hydrocarbons/Total Extractable Hydrocarbons (SHC/TEH)* by GC/FID	250ml or 8oz Wide mouth; ¾ full	Glass containers, certified-clean organic-free (solvent rinsed), with teflon- or aluminum foil-lined lids (Wide-mouthed for sediments)	Refrigerate 4°C to lab Archive frozen -20°C
Polycyclic Aromatic Hydrocarbons (PAH) by GC/MS-SIM, including biomarker analysis on a minimum of 10% of samples and 100% of visibly oiled samples	250ml or 8oz Wide mouth; ¾ full	Glass containers, certified-clean organic-free (solvent rinsed), with teflon- or aluminum foil-lined lids (Wide-mouthed for sediments)	Refrigerate 4°C to lab Archive frozen -20°C
Total Organic Carbon (TOC)	10 g	Taken from SHC/TEH bottle	Refrigerate 4°C to lab Archive frozen -20°C
Grain size	250ml or 8oz Wide mouth; ¾ full	Plastic or glass; does not require a certified-clean bottle but no issue using the same type of bottle as for SHC/TEH and PAH	Refrigerate 4°C Do not freeze

*\*SHC/TEH listed as THC in the Nearshore Sediment and Water TWG Baseline Sampling Plan.*

## **6. Data management and data deliverables**

The NOAA Data Management Mobile Teams will upload data from all field activities and ship the samples to the appropriate laboratory(ies). All sampling data; including GPS files, photos, field collection forms, and Chain of Custody (COC) information; are to be uploaded by the end of the day in which they were sampled. Sample and analytical data will be managed by the Data Management Team throughout the NRDA process.

The laboratory will deliver sample results within NOAA directed timeframes and follow all NOAA Analytical Quality Assurance Plan (QAP) directives. All data will be captured in NOAA approved forms and formats and all data uploads will be synchronized and follow NOAA requirements. LDEQ will utilize the Louisiana-retained Information Technology (IT) contractor to ensure compatibility of all databases, NRDA formats/guidelines, and to expedite data transfer.