

**Water Column Injury Ephemeral Data Collections:  
ADCP-Measured Currents Monitoring Plan  
Deepwater Horizon Oil Spill (DWHOS)  
May 26, 2010**

Originated as a requirement by:

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**Objectives (Tier 1-3 of Ephemeral Data Plan)**

The overall objective of this sampling plan is to monitor currents at all depths of the water column in the vicinity of the Wellhead oil release area to: (a) improve NRDA water sampling location selections and, (b) refine data inputs into the SIMAP and CSIM models. For the second objective, we will need a time series of current vectors, as a function of depth in the water column, for all water depths (near surface to seabed) in order to model hind-casts of the spill for injury assessment activities. Availability of ADCP data in the area of the Wellhead has been evaluated and BP will provide ADCP data from ROV's, the DDIH and Enterprise. In addition, BP will provide data from a 75 kHz ADCP mounted on the seafloor which will measure currents at the site from 5000ft to at least 4000ft. It has been determined that these data sets cover the majority of the water column, but that none of the ADCPs provide adequate surface current above 207ft to approximately 10ft. The surface current data is required to refine the inputs of the SIMAP model.

To fulfill the overall objectives of this plan, one moored ADCP will be installed near the wellhead site (> 2km) to measure surface water currents from near surface 10ft to ~328ft as a vertical profile. Deployment of this ADCP will be made as soon as possible following Cruise 2. The near-surface ADCP will have real-time acoustic telemetry capability. This will provide data to address modeling objectives as well as needed information for later sampling cruises.

**Methodology for Field Deployments**

*Equipment*

Instruments specifications required: Acoustic Doppler Current Profiler (ADCP). The operational frequency will be 300 kHz with depth ranges from approximately 300ft to 10ft below the surface of the water column.

*Deployment of ADCP for Measuring Surface Waters Above ~300 ft*

An ADCP set up for measuring currents above 300 feet will be deployed outside the 2 kilometer buffer of the Wellhead site, the exact position (latitude and longitude) of the mooring will be determined following the Cruise 2 water sampling survey and coordinated with BP Simops. The exact latitude and longitude of the ADCP mooring will be provided to BP Simops following deployment. The surface ADCP should target < 300 feet but cover somewhat deeper waters to overlap the ADCP now deployed at the site (where the shallowest measurement is a 210ft). The near-surface measuring ADCP will be deployed at the bottom of the measured depth range (i.e., ~300ft), looking upward to cover from the deployed depth to the surface. The ADCP will

have the capability to record data and also contain a real-time acoustic telemetry capability. Following the survey/deployment period, the ADCP units and mooring will be retrieved by the MV Jack Fitz or other water quality research vessel in coordination with future water column sampling plans. BP Simops will be notified when the mooring and units are removed.

#### *Data Collection*

The recorded current data will be retrieved by the MV Jack Fitz at the beginning of any future water sampling cruises, or if possible by a passing vessel in coordination with future study plans (without impact to the overall study plan mission).

#### *Vessel*

The M/V Bunny Bordelon is planned to be used to deploy the instrumentation. An additional winch and A-Frame will be added to augment the vessels present capabilities. The vessel can accommodate 10 scientific/technical staff.

#### **Schedule**

The cruise is planned for June 1st to 3rd, 2010, following Cruise 2 and prior to any further water sampling cruises. The stationary ADCP units and mooring will remain in place for 60 days.

#### **Costs**

##### *Mooring and System Integration*

Mooring and system integration includes the cost of mooring supplies, including anchors, wire rope, syntactic foam buoys, and support frames for the ADCP and telemetry package. System integration includes, mooring design, integration of the telemetry and ADCP components, as well as travel and shipping costs for equipment.

Total Estimated Price \$ 94,079

##### *Vessel Preparation and Mobilization*

Mobilization includes preparation of the MV Bunny Bordelon w/ A-Frame, winch, Survey and Sample Containers, chest refrigerators, travel for mooring installation personnel as well as labor for the survey.

Total Estimated Price \$ 77,233

##### *Vessel Cost*

The vessel costs are an estimate for 3 days at \$ 20,454/ day. This includes vessel crew, survey personnel and equipment. Estimates include fuel and accommodations on board the vessel. (3 days – 1 day out, 1 day deployment, 1 day in).

Total Estimated Price \$ 70,565

##### *Monthly*

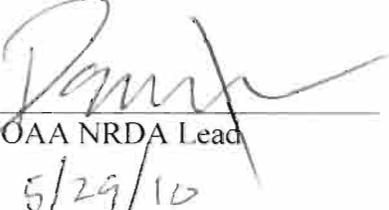
Following installation there will be monthly charges for leasing the ADCP/Telemetry instrumentation and data processing. The deployment is estimated at 2 months @ \$15,968k/month).

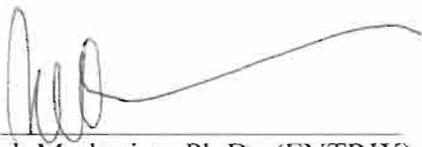
Total Cost Estimate for ADCP Rental and Processing for 60 days: \$36,726  
(@ \$15,968/mo)

**Total Estimated Costs \$ 278,604**

**Approvals:**

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.

  
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NOAA NRDA Lead  
5/29/10  
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Date

  
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Ralph Markarian, Ph.D. (ENTRIX)  
29 May 2010  
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Date