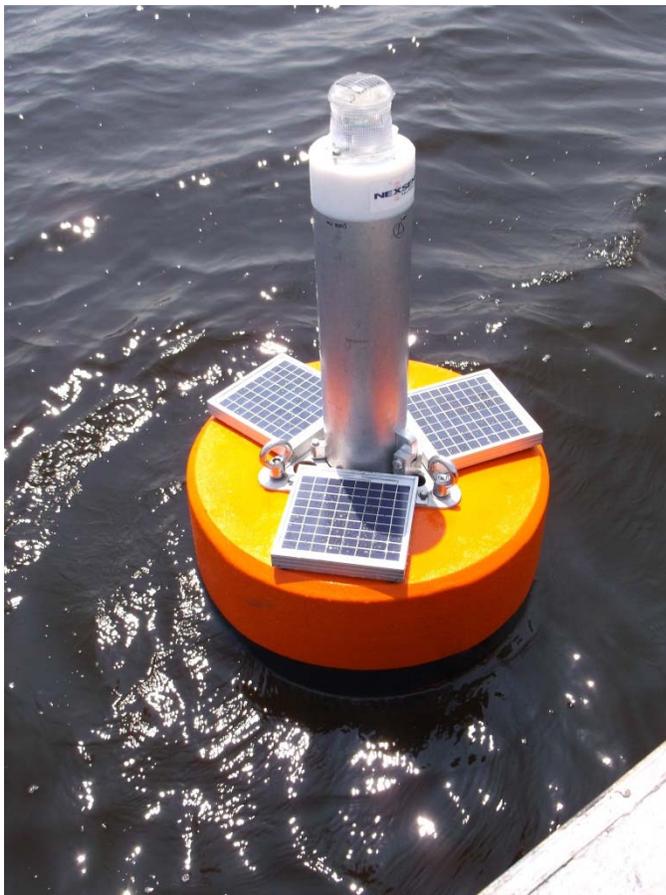


**FINAL  
WATER QUALITY MONITORING SUMMARY REPORT  
2013 REMEDIAL DREDGING  
NEW BEDFORD HARBOR SUPERFUND SITE, OU #1**

**Contract No. W912WJ-09-D-0001-0010-13**



**Prepared For:**  
United States Army Corps of Engineers  
New England District  
696 Virginia Road  
Concord, MA 01742

**Prepared By:**  
Woods Hole Group, Inc.  
81 Technology Park Drive  
East Falmouth, MA 02536

**August 2014**

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WATER QUALITY MONITORING SUMMARY REPORT  
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NEW BEDFORD HARBOR SUPERFUND SITE  
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## Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>ES-i</b>
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 SITE LOCATION AND DESCRIPTION .....	1
1.2 PROJECT OBJECTIVES .....	3
1.3 WATER QUALITY MONITORING PROGRAM .....	3
<b>2.0 METHODS.....</b>	<b>9</b>
2.1 MONITORING APPROACH .....	9
2.1.1 Boat-Based Water Quality Monitoring.....	10
2.1.2 Fixed Station Water Quality Monitoring .....	11
2.1.3 Discrete Water Samples.....	14
2.2 LABORATORY ANALYSIS .....	19
2.2.1 Total Suspended Solids and Turbidity.....	19
2.2.2 Polychlorinated Biphenyl Congeners (NOAA-18).....	19
2.2.3 Total Organic Carbon .....	20
2.3.4 Metals.....	20
2.2.5 Toxicity.....	21
<b>3.0 CHRONOLOGY OF BOAT-BASED OBSERVATIONS .....</b>	<b>23</b>
<b>4.0 DREDGING SUMMARY .....</b>	<b>43</b>
<b>5.0 RESULTS .....</b>	<b>45</b>
5.1 FIELD MONITORING SUMMARY .....	45
5.2 BOAT-BASED MONITORING.....	45
5.2.1 Turbidity Summary.....	45
5.2.2 Dissolved Oxygen Summary .....	46
5.3 FIXED-STATION CONTINUOUS MONITORING .....	46
5.3.1 High Turbidity Readings.....	47
5.3.2 Dissolved Oxygen Readings.....	47
5.3.3 Temperature Readings .....	48
5.4 COLLECTION OF DISCRETE WATER SAMPLES .....	48
5.4.1 Level II – Baseline Water Quality Samples.....	48
5.4.2 Level I – Startup Water Quality Samples .....	48

5.5 LABORATORY TESTING SUMMARY ..... 49

    5.5.1 Total Suspended Solids and Turbidity ..... 49

    5.5.2 Total Organic Carbon ..... 53

    5.5.3 Polychlorinated Biphenyl Congeners (NOAA-18)..... 53

    5.5.4 Quality Control ..... 57

**6.0 DISCUSSION..... 59**

    6.1 FISHERY AND WILDLIFE OBSERVATIONS..... 59

    6.2 SUSPENDED SEDIMENT PLUMES AND ELEVATED TURBIDITY EVENTS ..... 59

    6.3 TURBIDITY SPIKES FROM IN-SITU DATASETS ..... 60

    6.4 RAPID CHANGES IN DISSOLVED OXYGEN ..... 61

    6.5 DATA COMPARISON BETWEEN SONDES ..... 61

    6.6 RECOMMENDATIONS FOR FUTURE SAMPLING EVENTS ..... 62

**7.0 REFERENCES..... 65**

**APPENDIX A. WATER QUALITY MONITORING FIELD LOGS AND  
DAILY REPORTS..... A-1**

**APPENDIX B. CONTINUOUS IN-SITU FIXED STATION WATER QUALITY  
TIME SERIES DATA ..... B-1**

**APPENDIX C. ALPHA ANALYTICAL LABORATORY REPORTS ..... C-1**

**APPENDIX D. NEW ENVIRONMENTAL HORIZONS, INC. DATA  
VALIDATION REPORTS..... D-1**

### **List of Figures**

Figure 1.	Basemap of New Bedford Harbor Superfund Site in Southeastern, MA ....	1
Figure 2.	Basemap of 2013 Remedial Dredging Areas.....	5
Figure 3.	Decision Sequence for 2013 Water Quality Monitoring .....	6
Figure 4.	Decision Sequence for Level III Water Quality Sample Analysis .....	7
Figure 5.	Diagram of Initial Fixed Station Water Quality Moorings (non-telemetry).	13
Figure 6.	Remote Monitoring Telemetry System Buoy.....	13
Figure 7.	Mud Cat™ hydraulic dredge .....	43
Figure 8.	Debris removal excavator and debris storage scow .....	44
Figure 9.	Correlation between TSS and Turbidity. ....	50
Figure 10.	Correlation between Total Organic Carbon and PCBs (Total & Dissolved).	53
Figure 11.	Correlation between Turbidity and total NOAA-18 PCB congeners, and dissolved NOAA-18 PCB congeners.....	54
Figure 12.	Rapid changes in dissolved oxygen, July 5-6, 2013 .....	61

### **List of Tables**

Table 1.	Fixed-station IDs and positions for in-situ sondes.....	14
Table 2.	Sample collection requirements and participating laboratories .....	17
Table 3.	Summary of discrete water sampling events .....	49
Table 4.	Summary of TSS, Turbidity and TOC Results .....	51
Table 5.	Summary of total and dissolved PCB (NOAA-18 Congeners) results .....	55
Table 6.	Summary statistics of comparison readings between sondes. ....	62

## ACRONYMS

1500N	Mooring located 1500' north of the northern boundary of Area L
300N	Mooring located 300' north of the northern boundary of Area L
300S	Mooring located 300' south of the southern boundary of Area P
1000S	Mooring located 1000' south of the southern boundary of Area P
AAL	Alpha Analytical Laboratory
CDF	Confined Disposal Facility
CETIS	Comprehensive Environmental Toxicity Information System
CSO	Combined Sewer Overflow
DMU	Dredge Management Unit
DO	Dissolved Oxygen
DR	Debris Removal
DRG	Dredge/dredging
EDD	Electronic Data Deliverable
EMIS	New Bedford Environmental Management Information System
EPA	US Environmental Protection Agency
ESI	EnviroSystems, Inc.
FSP	Field Sampling Plan
JE	Jacobs Engineering
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDL	Method Detection Limit
MS	Matrix Spike sample
MSD	Matrix Spike Duplicate sample
NOAA	National Oceanic and Atmospheric Administration
NTU	Nephelometric Turbidity Unit
PAL	Project Action Limit
PCB	Polychlorinated Biphenyls
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SES	Sevenson Environmental Services, Inc.
SOP	Standard Operating Procedure
TOC	Total Organic Carbon
TSS	Total Suspended Solids
VOC	Volatile Organic Compound
USACE NAE	US Army Corps of Engineers, New England District
WHG	Woods Hole Group, Inc.
YSI	Yellow Springs Instruments
6920-V2	Water quality sonde used for boat-based monitoring
EXO2	Water quality sonde used on in-situ moorings

## **EXECUTIVE SUMMARY**

In 2013, remediation activities at the New Bedford Harbor Superfund Site included hydraulic dredging and excavation of contaminated sediments from the upper harbor. Water quality monitoring was performed during remediation activities as part of an environmental monitoring program with the goal to minimize potential ecological impacts that could be caused by the resuspension of contaminated sediment into the water column during operations. Data and observations resulting from the water quality monitoring were used to document background conditions and identify the extent of impacts potentially resulting from remediation operations. The water quality monitoring program helped to ensure that dredging activities were conducted in a manner that did not produce extensive turbidity plumes or cause unacceptable impacts to water quality, such as contaminant transport or hindrance of the seasonal migrations of anadromous fish within the Acushnet River. This report presents the scope, monitoring methods, decision criteria used, field and analytical results and key findings from the water quality monitoring performed during the 2013 dredge season.

Dredging, debris removal, and other support operations were performed between June and September 2013, and resulted in the removal of 18,995 cubic yards of contaminated sediments. The water quality monitoring program included: 1) boat-based monitoring of in-situ turbidity and dissolved oxygen, and observation of the active work zone for sediment plumes, as well as fish and wildlife passage, 2) fixed-station water quality moorings installed to record in-situ data that supplemented the boat-based monitoring, and 3) collection of discrete water samples for physical and chemical analysis for assessment of the ecological protectiveness of the project-specific turbidity criterion. Boat based monitoring was performed over five days during the first week of dredging to reaffirm the ecological protectiveness of the project-based turbidity criterion, and to establish ambient water quality conditions of the harbor during remediation activities. Following the first week, boat-based monitoring occurred one day per week.

Boat-based in-situ measurements were evaluated against the established site-specific turbidity criterion, which is defined as 100 Nephelometric Turbidity Units (NTU) above background or ambient turbidity. Consistent with previous years, a turbidity criterion was defined to ensure ecological protectiveness at the dredge operations, and was used to determine whether discrete water samples would be collected and analyzed to assess impacts. During the 2013 environmental monitoring season, turbidity was monitored between 250–1500 feet down-current of the active remediation work. The turbidity criterion was not exceeded during boat-based monitoring or in-situ mooring-based monitoring.

Boat-based monitoring and the fixed-station in-situ turbidity data from the water quality moorings revealed that dredge operations did, at times, have an effect on the turbidity in the immediate vicinity ( $\leq 300$  feet) of the remediation activity. The fixed-station in-situ data also demonstrated that weather events, tidal activity, and natural influences affect water quality throughout the harbor. There were few plumes of high turbidity observed during boat-based monitoring, and these plumes tended to be ephemeral and dissipated

within 150–200 feet of origin. One plume, with turbidity levels between 60–100 NTU, extended approximately 800 feet from its origin and prompted special investigation during boat-based monitoring. Although at lesser turbidity levels (15–20 NTU), this plume was tracked beyond the northern 300' compliance transect, but did not require sampling since it was not in exceedance of the turbidity criterion. Remediation work was paused as a precautionary measure, and the plume had dissipated with 30-minutes of the initial observation.

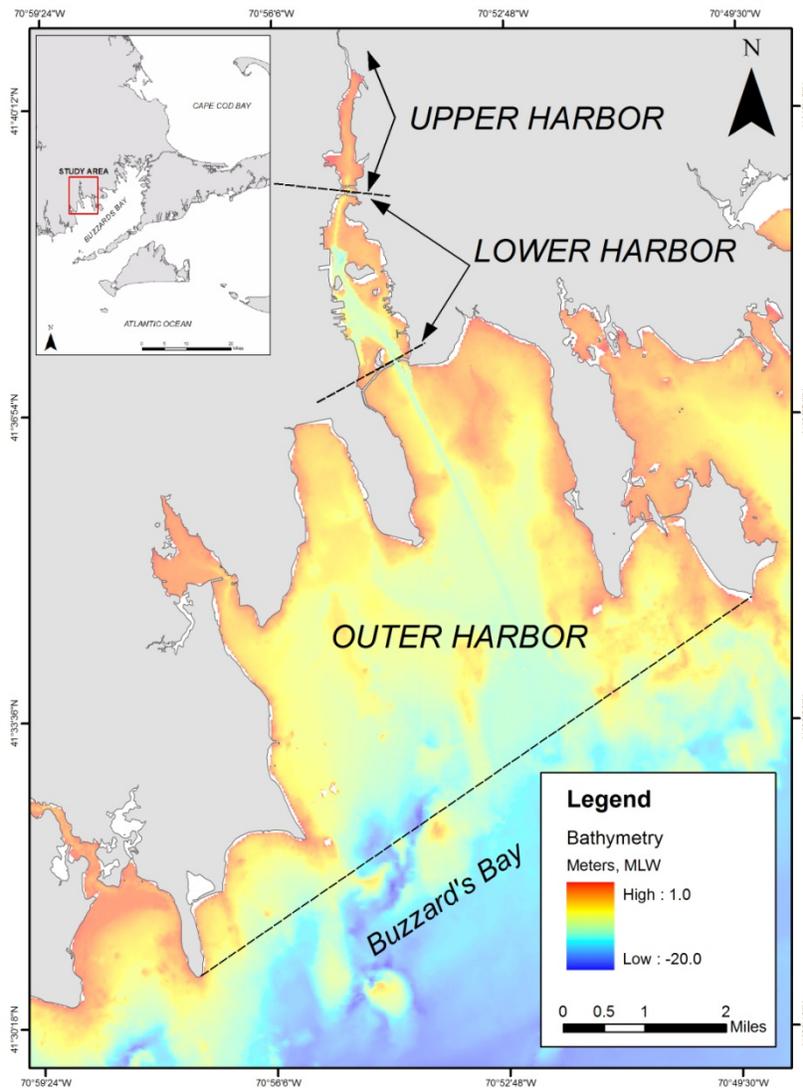
Throughout the 2013 dredge season, large numbers of water fowl were observed in the project area. Birds, such as great blue herons, green herons, gulls, swans, cormorants, osprey, and other water fowl were observed feeding along the shoreline and in the river. Unlike previous years, upper and lower trophic level fish were not observed in abundance until late August. Throughout the dredge season, hypoxic conditions were observed in the active dredge areas as well as the in-situ mooring locations, where DO concentrations routinely decreased below 1 mg/L, most often at night. Hypoxic conditions are a naturally occurring phenomenon in estuarine systems like the Acushnet River and occur more often during the mid to late summer timeframe when water temperatures are high. These conditions occurred regardless of remediation activities. No fish kills of any kind were observed, and during the active dredge season there appeared to be no restriction of fish movement through the active work zone based on visual observations of the monitoring field crew.

The combination of boat-based monitoring, fixed-station in-situ water quality data, and discrete water samples demonstrated that the remediation operations at the New Bedford Harbor Superfund Site have a measurable, but low impact on water quality. These impacts, most notably demonstrated by elevated turbidities and suspended sediment concentration, were limited to near-field areas, contained within the active dredge zone, and generally decreased with increasing distance from the active operations. Overall, the polychlorinated biphenyls (PCB) data, along with the in-situ water quality measurements, confirmed the project compliance criteria are ecologically protective, while allowing remediation efforts to progress.

## 1.0 INTRODUCTION

### 1.1 SITE LOCATION AND DESCRIPTION

The New Bedford Harbor Superfund Site, located in Bristol County, Massachusetts, extends from the shallow northern reaches of the Acushnet River estuary south through the commercial harbors of New Bedford and Fairhaven and into 17,000 adjacent acres of Buzzards Bay (Figure 1). The City of New Bedford, located along the western shore of the Site, is approximately 55 miles south of Boston. New Bedford is currently home port to a large offshore fishing fleet and is a densely populated manufacturing and commercial center. By comparison, the eastern shore of New Bedford Harbor is predominantly residential, light commercial, or salt marsh.



**Figure 1. Basemap of New Bedford Harbor Superfund Site in Southeastern, MA**

The Acushnet River's 16.5 square mile drainage basin discharges to New Bedford Harbor in the northern reaches of the Site, contributing relatively minor volumes of fresh water to the tidally influenced harbor. Numerous storm drains, combined sewer overflows (CSOs), industrial discharges, as well as smaller brooks and creeks also discharge directly to the Site. The upper and lower harbors are believed to be areas of net groundwater discharge. The estuary can be characterized as a shallow, well-mixed system.

Industrial and urban development surrounding the harbor has resulted in sediments becoming contaminated with high concentrations of many pollutants, notably polychlorinated biphenyls (PCBs) and heavy metals. Contaminant gradients within harbor sediments decrease from north to south. The source of the contamination has been attributed to two electrical capacitor manufacturing facilities that operated between the 1940s and the 1970s. One facility, the former Aerovox Corporation, was located near the northern boundary of the Site, and the other, Cornell-Dubilier Electronics, Inc. is located just south of the New Bedford Harbor hurricane barrier. The two facilities are known to have discharged PCB-laden wastes either directly into the harbor or indirectly via discharges to the City's sewerage system.

Based on human health concerns and ecological risk assessments, the United States Environmental Protection Agency (USEPA) added New Bedford Harbor to the National Priorities List in 1983 as a designated Superfund Site. Through Interagency Agreements between the USEPA and the United States Army Corps of Engineers, New England District (USACE NAE), the USACE is responsible for carrying out the design and implementation of remedial measures at the Site.

The Site has been divided into three geographic areas: the upper, lower and outer harbors, which are consistent with geographic features, basin morphology, and gradients of contamination (Figure 1). The Site is also defined by three state-sanctioned fishing closure areas extending approximately 6.8 miles north to south and encompassing approximately 18,000 acres in total. The upper harbor comprises approximately 187 acres, with present sediment PCB levels ranging from below detection to approximately 4,000 parts per million (ppm). Prior to the removal of the most contaminated hot spot sediments in 1994 and 1995 as part of USEPA's first cleanup phase, sediment PCB levels were reported higher than 100,000 ppm in the upper harbor. The boundary between the upper and lower harbor is the Coggeshall Street Bridge; at this point the harbor is constricted to a width of approximately 100 feet. The lower harbor comprises approximately 750 acres, with present sediment PCB levels ranging from below detection to over 100 ppm. The boundary between the lower and outer harbor is the 150 foot wide opening of the New Bedford hurricane barrier. The hurricane barrier was constructed in the mid-1960s. Sediment PCB levels in the outer harbor are generally low, with only localized areas of PCBs in the 50–100 ppm range near the Cornell-Dubilier plant and the New Bedford sewage treatment plant's outfall pipes. The southern extent of the outer harbor is a line mapped from Rock Point (the southern tip of West Island in Fairhaven), southwesterly to Negro Ledge, and then southwesterly to Mishaum Point in Dartmouth (Figure 1).

## **1.2 PROJECT OBJECTIVES**

The primary objective of the 2013 water quality monitoring program was to conduct boat-based and fixed-station in-situ monitoring during dredging activity in order to limit impacts to water quality. The remediation of the Site involves the excavation and dredging of approximately 900,000 cubic yards of PCB-contaminated sediment. The majority of the contaminated material is being removed by a hydraulic dredge that pumps a spoils-slurry to the project's Sawyer Street facility where it is mechanically processed to remove all sand, gravel, and debris. The remaining silt and clay slurry is then pumped to the Area D Dewatering Facility, located on Herman Melville Boulevard, where it is mechanically dewatered and transported off-site for disposal.

The field reconnaissance information, collected as part of this effort, was made available to the USACE, USEPA, and dredge operators, and used to help limit the extent of water quality impacts resulting from dredging operations. This information was also used to make operational adjustments as may be necessary to limit the transport of suspended sediments and their associated contaminants, and any biological impacts to the water column. An additional objective of the monitoring program was to ensure that anadromous fish are able to successfully navigate through or around dredging operations on their natural migratory paths. Close observation of fisheries and wildlife behavior was pertinent to the goals of the project as defined in the 2013 Fish Migration Plan (Jacobs Engineering, 2013). Dredging activities and water quality monitoring were coordinated to minimize any potentially negative impacts to migratory fish. Such methods included avoiding pipelines crossing the channel when possible and keeping a minimum of 6 inches of clearance between the river bottom and the dredge pipeline to allow for fish passage even during low tide when channel crossing was unavoidable.

The Site is divided into a series of Dredge Management Units (DMU) based primarily on contamination levels and topography. Each year, specific Dredge Areas are established based on DMU boundaries, removal volume, and dredging operations logistics. In 2013, remediation activities at the Site included hydraulic dredging and debris removal in two Dredge Areas: L and P (Figure 2). The southwest boundary of Area L and the northwest boundary of Area P are adjacent to the Manomet Street CSO. Hydraulic dredging removed 18,995 cubic yards of contaminated sediment from these locations in 2013.

During dredging and dredging-related activities, such as debris removal, resuspended sediments and associated contaminants could be transported by currents away from the dredge area. Contaminated sediments suspended in the water column present a concern for toxicity to aquatic organisms in the area. The water quality monitoring program presented herein was developed to assess the near-field water column impacts, as well as the extent of sediment resuspension and transport away from the remedial dredging operation.

## **1.3 WATER QUALITY MONITORING PROGRAM**

The water quality monitoring program was developed to meet the objectives described above; this was accomplished by employing a tiered monitoring approach. The approach was consistent with previous years' monitoring and incorporated field measurements of

turbidity and water quality parameters along with discrete water samples for physical, chemical, and biological testing within the active work zone, as needed. The active work zone is a generic term defined as the area between the northern boundary of Area L and the southern boundary of Area P (Figure 2).

During boat-based monitoring, a background turbidity was quantified each day from observations at reference stations 1500 feet north of Area L (ebb reference) and 1000 feet south of Area P (flood reference) based on the tidal phase. The *turbidity criterion* for 2013 was defined as 100 Nephelometric Turbidity Units (NTU) above background turbidity levels measured at the *compliance transects* 300 feet down-current of the active work-zone (Figure 2). For example, if background turbidity of the native harbor water during flood tide was quantified as 10 NTU, then the exceedance criterion was defined as 110 NTU until the tide switched.

The compliance transects (Figure 2) were transects across the river at two locations: 300' south of Area P and 300' north of Area L. If values of  $\geq 100$  NTU above background were observed 300 feet down-current of the active work zone (*threshold exceedance* at the *compliance transect*), and were attributable to dredging related activities, the resident USACE NAE Project Engineer (Mr. Paul L'Heureux) would be notified to implement corrective actions as determined necessary to abate the condition while WHG would proceed to collect water samples for potential analysis to assess impacts per the established protocol. Factors used in determining the cause of a threshold exceedance included an assessment of remediation activity, location, weather, tides, and ambient water quality conditions. Following water sample collection at the 300-foot down-current compliance transect location, WHG would continue to monitor water quality parameters before collecting water samples at the background reference location, up-current of all activity. Figure 3 depicts the decision sequence for the 2013 water quality monitoring program.

If there was a threshold exceedance of the turbidity criterion, a full suite of water samples would be collected and submitted for conditional analysis of parameters including toxicity, dissolved PCBs, total PCBs (sum of NOAA-18 congeners), metals (Cd, Cr, Cu, Pb), turbidity, TSS, and TOC. An initial toxicity analysis would be performed using the *Arbacia punctulata* (sea urchin) 1-hour sperm immobilization/fertilization bioassay. Results from this initial toxicity screening and information regarding the intensity and duration of the plume would be delivered to appropriate USACE personnel to determine, in conjunction with USEPA, whether subsequent analytical chemistry testing should be performed. Figure 4 illustrates the tiered decision sequence for water sample analyses.

A threshold exceedance was not the same as a "high turbidity event," which occurred if turbidity levels reached 100 NTU above background, but still within the compliance transects, i.e., less than 300' feet from the active dredge. Although this condition may necessitate certain adjustments to active dredging operations in the area, it did not constitute a project-specific threshold exceedance and therefore did not require collection of water quality samples. There were no threshold exceedances observed during boat-based monitoring in 2013. There was one "high turbidity event" during boat-based monitoring on July 3 that required investigation, but no samples were collected. Fixed-

station mooring instrumentation occasionally recorded turbidity peaks over 100 NTU. This is discussed in greater detail in Section 5.3.

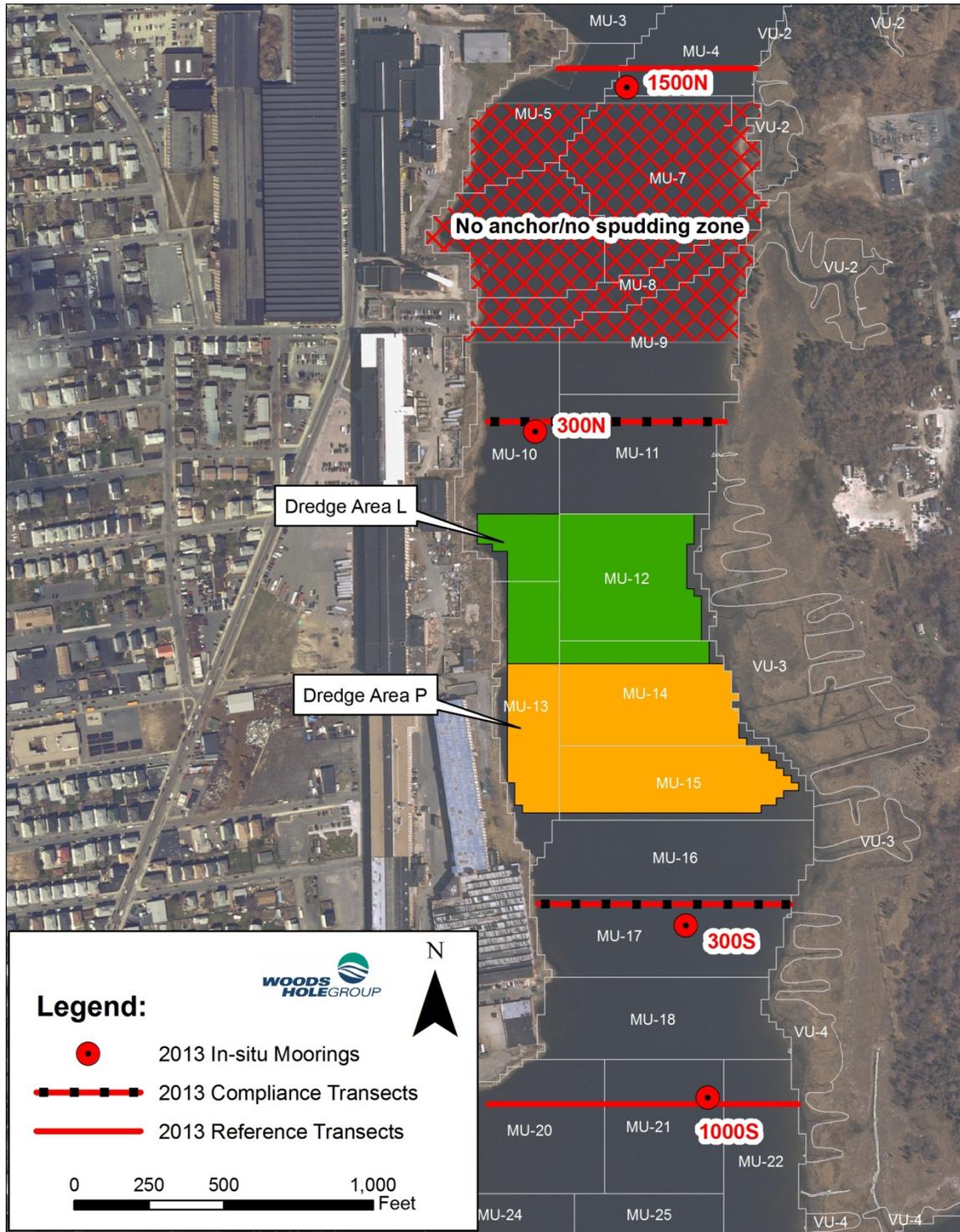


Figure 2. Basemap of 2013 Remedial Dredging Areas.

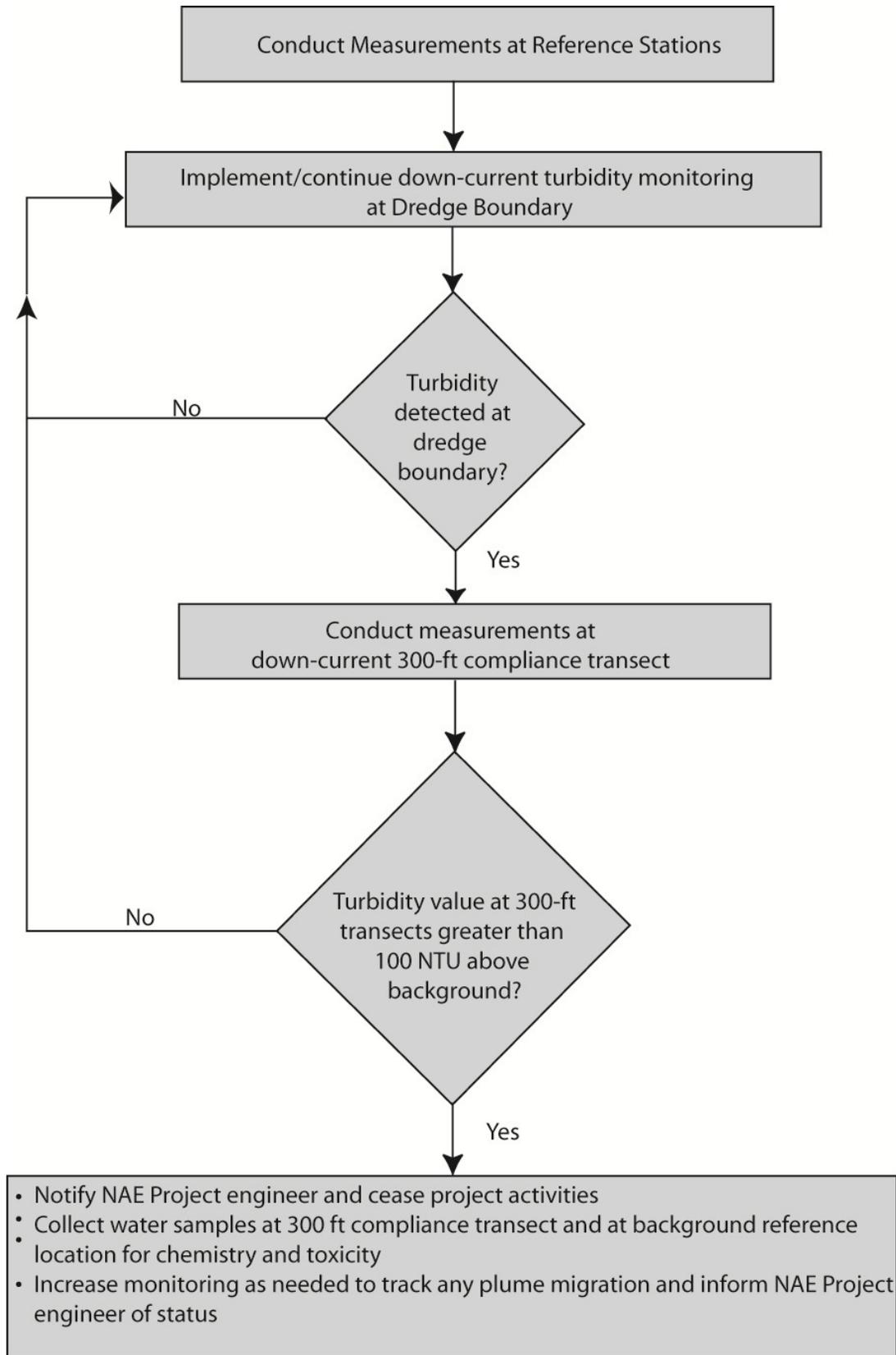
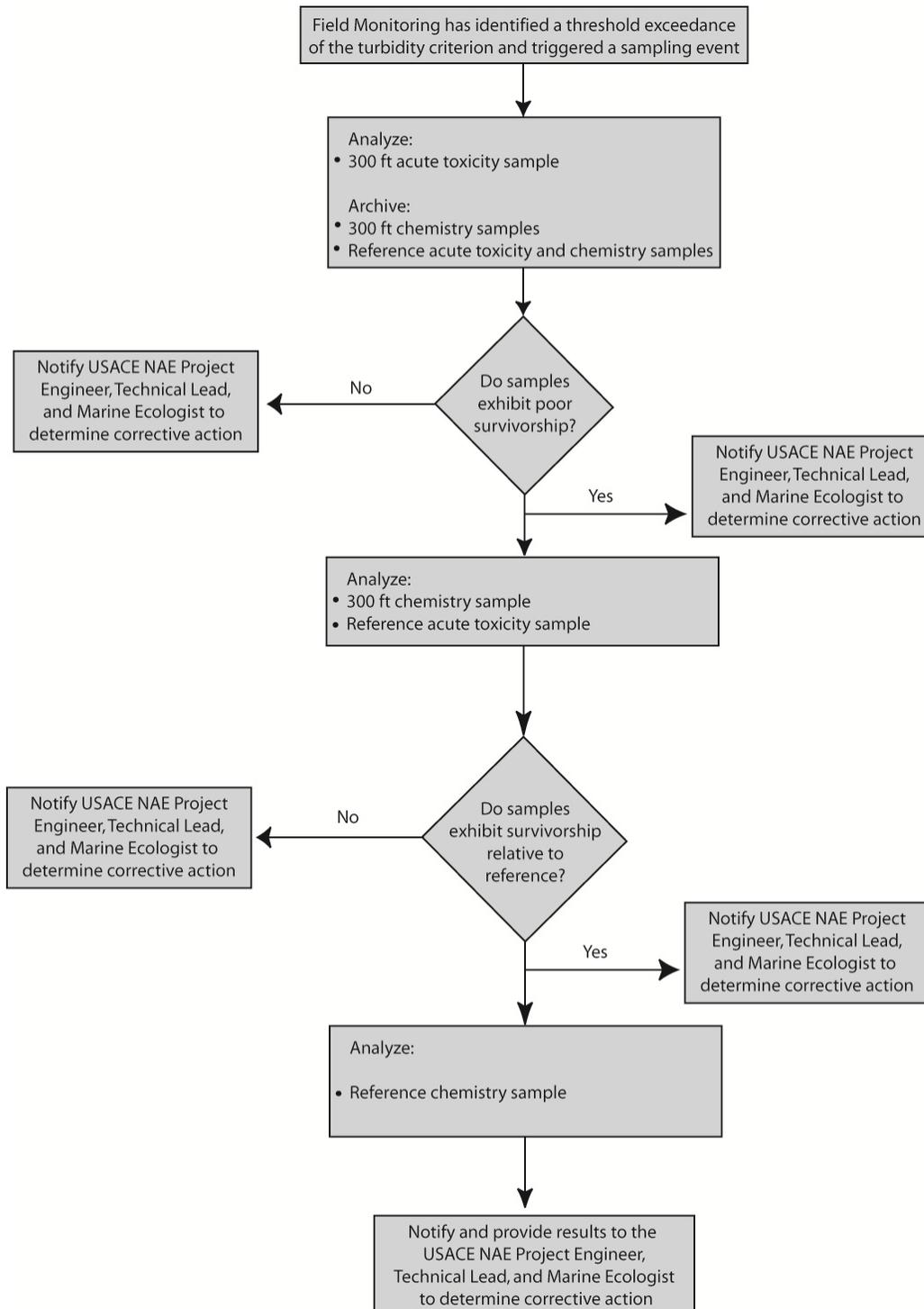


Figure 3. Decision Sequence for 2013 Water Quality Monitoring



\*Notes: "Threshold exceedance" is defined as 100 NTU above background turbidity level if observed 300 feet down-current of compliance transects

**Figure 4. Decision Sequence for Level III Water Quality Sample Analysis**

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## 2.0 METHODS

Methods employed to monitor water quality and collect water quality samples are summarized below and described in detail in the project Field Sampling Plan (FSP) (Woods Hole Group, 2013a) and Quality Assurance Project Plan (QAPP) (Woods Hole Group, 2013b).

### 2.1 MONITORING APPROACH

The established sampling approach for this program employed a variety of methods to characterize sediment suspension in the water column and its potential impact on water quality. The overall approach utilizes an adaptive, criteria-based, sampling scheme to monitor project-related water quality parameters and impacts. Boat-based water quality monitoring was performed along transects immediately adjacent to, and at defined distances down-current of, dredging operations and at up-current reference stations as described in Section 1.3. Daily boat-based monitoring data was supplemented with fixed station moorings that recorded a near-continuous time series of the pertinent water quality parameters in the estuary before, during, and after the dredging season.

As with previous years' efforts, a tiered monitoring approach was employed that used varying levels of monitoring intensity to assess dredging related water quality impacts; the levels of monitoring are described below. The three levels of monitoring are defined as follows:

- **Level I:**  
Level I represents the highest level of monitoring and required collection of discrete water samples, independent of *in-situ* observations. Level I sampling was conducted at the start of the season, requiring the collection of discrete water samples at four designated stations: two reference (1 ebb, 1 flood) and 300 feet down-current (1 ebb, 1 flood). Water samples were collected for all test parameters except toxicity from the depth of highest turbidity, based on in-situ readings.
- **Level II:**  
Level II represents a lower level of monitoring intensity compared to Level I, and is performed to identify any project-related water quality impacts, as warranted or requested by the USACE. An example of Level II sampling includes the collection of samples for TSS, turbidity, total PCBs and TOC to be used to characterize ambient conditions. Sampling typically occurs at two reference and two activity locations.
- **Level III:**  
Level III occurs when boat-based monitoring identifies a situation during dredging activities which requires sample collection in order to evaluate a threshold exceedance of the project-specific turbidity criterion. Collection of Level III discrete water samples for laboratory analysis is conditional upon in-situ turbidity monitoring and occurs if there is an exceedance of the turbidity criterion.

Level III sample collection occurs at one reference site and in the active turbidity plume. Samples are collected for all test parameters: turbidity, TSS, PCBs (total & dissolved), TOC, metals, and toxicity.

Intensive daily monitoring occurred during the initial week of dredging to verify the effectiveness of the project-specific turbidity criterion, and to track sediment plume dispersion and potential for contaminant transport down-current of the dredge. As directed by the scope of work, Level 1 monitoring took place for the first two days of dredging, and Level III monitoring was performed for days 3-5. Following the first week of dredging, Level III boat-based monitoring was performed once weekly. Flexibility in the monitoring program and the operational program was necessary throughout the dredging process.

Complete details of these sampling methods are provided in the Field Sampling Plan (Woods Hole Group, 2013a) and Quality Assurance Project Plan (Woods Hole Group, 2013b).

### *2.1.1 Boat-Based Water Quality Monitoring*

Boat-based monitoring was performed aboard the R/V George Hampson, a 24-foot pontoon boat, which provided access to all areas of the harbor during most tides. Except for the Level I and Level II monitoring events implemented at the beginning of the dredge season, Level III monitoring occurred once weekly throughout the active dredge season from June to September. A YSI 6920-V2 sonde was used to collect in-situ measurements of depth, temperature, salinity, turbidity, and dissolved oxygen (optically) along monitoring transects. A handheld YSI 650, which was connected to the sonde cable, was used to display real-time data during monitoring transects. The sonde was lowered into the water slowly, allowing parameters to slowly stabilize, and was ultimately lowered to the depth of highest turbidity according to the optical turbidity sensor. This depth was then monitored for several minutes, at which time the sonde was raised and lowered in the water column to see if a new depth of highest turbidity was present. In this way, WHG field crews would constantly search for the depth at which turbidity was highest and monitor for compliance. Data were recorded on field log sheets and summarized in a daily report, all of which were delivered to the USACE at the end of each monitoring day. The daily water quality summary reports are compiled chronologically in Appendix A.

At the start of each monitoring day, the vessel transited to the appropriate reference station, at least 1000 feet up-current of the active work zone, to collect the background water quality observations needed to establish baseline conditions for the present tidal phase. During an ebb tide this station was located 1500 feet North of Area L, and during a flood tide it was 1000 feet south of the southern boundary of Area P. These background reference observations were used to characterize the ambient conditions in the estuary, and to serve as the basis for comparison with the monitoring data from the active work zone on a given day and tide. Background turbidity values were re-established as necessary given changes in weather and tidal conditions. The terms “background” and “reference” are used interchangeably in this report.

Figure 2 depicts the compliance transects for the 2013 water quality monitoring efforts. These transects were developed as the result of a site-specific water quality monitoring plan developed by the USACE and USEPA. The ebb reference could not be placed at 1000 feet north of Area L as proposed due to the no anchor/no spudding zone and instead was moved 500 feet farther north. The no anchor/no spudding zone defines an area where buried high voltage cables run across the width of the estuary and no buoys, anchors, boat spuds or bottom trawls can be deployed there.

Once background values were established, the WHG team would initiate boat-based monitoring per required protocols. Water quality parameters (dissolved oxygen, turbidity, water temperature, salinity) were monitored at transects 300 feet down-current from the active work zone, or more typically, at transects 300 feet down-current of the actual remediation work (e.g., dredging or debris removal).

If turbidity values were observed in excess of the turbidity criterion (100 NTU above background) at either of the compliance transects, a threshold exceedance would occur, the resident Project Engineer Mr. Paul L'Heureux would be notified and a Level III sampling event would occur. If turbidity readings remained elevated above the turbidity criterion, all dredge-related operations would be shut down until the condition abated. An ephemeral (short-lived) spike in turbidity did not warrant sample collection, but was noted as a high turbidity reading.

#### *2.1.2 Fixed Station Water Quality Monitoring*

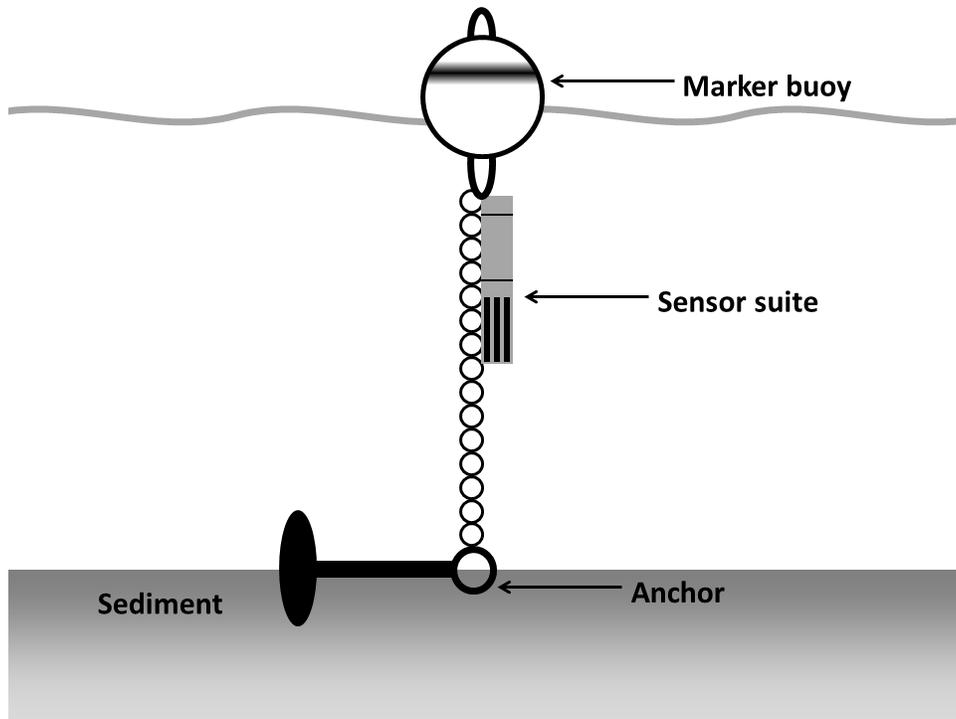
In addition to the active boat-based monitoring, fixed station water quality moorings were installed at four locations throughout the upper portion of the estuary (Figure 2). The data from the fixed stations supplemented the field monitoring to provide coverage on a 24-hour cycle. Mooring locations included: 1) 1500 feet north of Area L (1500N), 300 feet north of Area L (300N), 300 feet south of Area P (300P) and 1000 feet south of Area P (1000P). The mooring locations were strategically selected in order to best supplement the boat-based water quality monitoring data, while also minimizing influence on vessel traffic.

Historically in-situ moorings were equipped with YSI 6920-V2 sondes, but in 2013 the newest YSI sonde, the EXO2, was used. Like sondes used in prior years, EXO2 sondes recorded depth, temperature, salinity, turbidity, and dissolved oxygen measurements in 15-minute intervals. In addition to having state-of-the-art water quality sensors, these new sondes had the ability to automatically increase sampling frequency in the event that a user-defined threshold for turbidity or DO was exceeded. Sondes were programmed to enter this “burst mode” and increase sampling frequency from one sample every 15 minutes to one sample every 10 seconds for 1 minute, and set to repeat if values had not returned to acceptable limits after the 1-minute window had elapsed. Sondes entered burst mode if turbidity was greater than 100 NTU or if DO was less than 2 mg/L. This EXO2 feature was used to determine if an observed spike in turbidity or DO was actually present/sustained, or a false reading. In the past, the 6920-V2 sondes had occasionally detected a spike in turbidity, but since the instruments only took a measurement every 15 minutes, it was difficult to absolutely determine if the measurement was an ephemeral plume, or an outlier in the dataset. Also in comparison to the 6920-V2, the EXO2 sondes

also had more efficient battery life, increased internal memory capacity, and a more robust wiper for keeping sensor faces clear of biofouling. The EXO2 is clearly the better instrument for extended autonomous deployments on the moorings.

All data were logged internally by the sondes. During pre- and post-season monitoring the sondes were deployed using a simple mooring technique, but during the dredge season each sonde was coupled to a remote monitoring telemetry system that transmitted data to the Woods Hole Group at 15 minute intervals. The telemetry software sent automatic email alerts to WHG team members in the event that certain parameters (turbidity, SO or sonde battery) were out of range and worthy of further investigation.

As indicated above, from 6/18 to 6/25, sondes were initially deployed mounted under 14” sphere buoys fixed to a mushroom anchor via a length of chain (Figure 5). Each sonde was positioned vertically, with the sensors facing downward, approximately 3 feet below the water surface. On 6/25, the sphere buoys were replaced with remote monitoring telemetry buoy systems at the same locations (Figure 6). These systems contained cellular IP modems connected to the sonde which provided WHG with near real-time updates of water quality parameters every 15 minutes. Data from these systems were delivered wirelessly to a dedicated computer terminal at the WHG office to monitor water quality during periods when boat-based monitoring was inactive. Burst mode data were not transmitted via this telemetry system, but were stored internally by each sonde. Automatic email notifications were sent to WHG when a buoy recorded three consecutive turbidity readings above 100 NTU or three consecutive DO readings of hypoxic conditions, defined as  $DO < 2$  mg/L (ESA, no date). In addition to internal batteries, solar cells provided power to the buoy data logger, cellular modem and sonde.



**Figure 5. Diagram of Initial Fixed Station Water Quality Moorings (non-telemetry).**



**Figure 6. Remote Monitoring Telemetry System Buoy.**

Telemetry systems were removed from the harbor on September 6, 2013 following the end of remediation activity. Water quality sondes were removed from the telemetry systems and remained in the water at the same locations using the original sphere buoy moorings until September 16, 2013.

Fixed-station IDs and locations are summarized in Table 1.

**Table 1. Fixed-station IDs and positions for in-situ sondes**

<b>Station Name</b>	<b>Latitude N Longitude W</b>	<b>Approximate Location / Description</b>
1500N	41° 40.284' 70° 55.030'	1500 feet north of Area L
300N	41° 40.093' 70° 55.097'	300 feet north of Area L
300S	41° 39.820' 70° 54.989'	300 feet south of Area P
1000S	41° 39.727' 70° 54.987'	1000 feet south of Area P

Telemetry data from all water quality moorings were downloaded every 15 minutes and a weekly summary report was delivered to the USACE every week. The data were provided in the weekly summary report as one-week time series plots of the turbidity, dissolved oxygen and temperature at each station. Information regarding dredge related activities was provided by the dredge contractor and was included on these figures. The complete time series of turbidity and dissolved oxygen concentration data (excluding burst mode data) are provided for each station in Appendix B.

The EXO2 sondes were cleaned and calibrated, data files were downloaded and new files were started every other week (14 days) at the on-site laboratory trailer at the Sawyer Street facility. Telemetry buoy systems were inspected for damage, biofouling and cable connections at the same time as sonde cleaning, but could not be removed from the water for total cleaning due to their size and weight. Sondes were redeployed after routine maintenance was performed and data was downloaded.

### *2.1.3 Discrete Water Samples*

Discrete water samples were collected during boat-based monitoring using a diaphragm pump connected to 20 feet of C-Flex tubing. Prior to collecting samples at a given location, approximately 0.5 gallons of 1% Liquinox-DI solution was pumped through the tubing, followed by site water for approximately two minutes to flush the equipment. This process purged the pumping system in order to reduce the potential for site-to-site cross-contamination. The tubing was attached to the boat-based monitoring sonde with the tubing inlet positioned adjacent to the depth sensor during collection to ensure that the sensor measurements and the analytical results were representative of the parcel of water being tracked.

Following the purging procedure, water sampled from the pump tube outlet was collected into the appropriate sample containers for laboratory testing (Table 2). The geographic coordinates of the sample collection location and other ancillary information were recorded in the WHG field logbook and later entered into electronic data deliverable (EDD) file for inclusion in the project database. Following collection, samples were stored on ice in coolers until delivery to Alpha Analytical Laboratory (AAL) for analysis (Table 2). A routine set of field-based quality control (QC) samples were collected to monitor data quality during the Baseline – Level II and first day of Level I – Startup sampling events. QC samples included one equipment blank and one field replicate sample for each set of 20 or fewer field samples. QC samples were collected for all test parameters. Unlike previous monitoring years, toxicity samples were not collected in 2013.

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**Table 2. Sample collection requirements and participating laboratories**

Parameter	Sample Container Type and Volume	Number of Containers per Field Sample	Preservation	Storage Condition	Hold Time	Analytical Laboratory
TSS	1 L HDPE Bottle	1	Ice	4 ± 2 °C	7 Days	<b>Alpha Analytical</b> 320 Forbes Blvd Mansfield, MA 02767 Ph: 508-822-9300
Turbidity	1 L HDPE Bottle	1	Ice	4 ± 2 °C	48 Hours	
Total PCBs	1 L Amber Glass Bottle	2	Ice	4 ± 2 °C	7 Days to extraction; 40 Days to analysis	
Dissolved PCBs	1 L Amber Glass Bottle	2	Ice	4 ± 2 °C filter 0.45 µm at lab	24 hours to filtration, 7 Days to extraction; 40 Days to analysis	
Metals	500 ml HDPE Bottle	1	HNO <sub>3</sub> *, Ice	4 ± 2 °C pH <2	6 Months	
TOC	40 mL VOA vial	2	H <sub>2</sub> SO <sub>4</sub> *, Ice	4 ± 2 °C pH <2	28 days	

\*Preservation with HNO<sub>3</sub> (nitric acid) and H<sub>2</sub>SO<sub>4</sub> (sulfuric acid) was performed at Alpha Analytical.  
 Note: toxicity (TOX) samples were not collected in 2013.

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## 2.2 LABORATORY ANALYSIS

Laboratory testing was performed only on preplanned discrete water samples. Contingency based samples (Level III) were not collected during the 2013 season because no threshold exceedances of the turbidity criterion were observed during boat-based monitoring. At the direction of USACE, samples were submitted for total suspended solids (TSS), turbidity, PCB (total and dissolved phases), and total organic carbon (TOC). Additional samples were collected and archived in the event that heavy metals analysis was later requested; however, metals analysis was not needed and the samples were eventually discarded.

In addition to the discrete water samples, a routine set of laboratory-based QC samples were prepared from the sample bottles submitted to the laboratory to monitor data quality in terms of laboratory accuracy and precision. Depending on the analysis, QC samples included a procedural blank, laboratory control sample (LCS), laboratory control sample duplicate (LCSD), matrix spike (MS), and matrix spike duplicate (MSD). Specific QC samples and the associated measurement quality objectives are discussed in the QAPP (Woods Hole Group, 2013b).

### 2.2.1 Total Suspended Solids and Turbidity

In addition to real-time in-situ turbidity monitoring, discrete water samples were submitted for TSS and turbidity analyses at Alpha Analytical Laboratories (AAL). Water samples were analyzed for TSS following AAL Standard Operating Procedure (SOP) “Total Suspended Solids (TSS) Non-Filterable Residue, Rev. 6.1” (WHG, 2013b), USEPA Method 160.2. In brief, a well-mixed sample was filtered through a 0.45 µm membrane filter and the residual retained on the filter was dried and weighed. Results were reported on a milligram dry-weight basis per volume of water filtered (mg/L). Water samples were analyzed for turbidity following AAL SOP “Turbidity 180.1 Rev. 3” (Woods Hole Group, 2013b), which is based on USEPA Method 180.1. Sample results were reported as NTU.

TSS and Turbidity samples were collected on June 11 (Level II – Baseline), July 1 (Level I – Startup), and July 2 (Level I – Startup). Samples were sent to AAL for analysis.

### 2.2.2 Polychlorinated Biphenyl Congeners (NOAA-18)

Polychlorinated biphenyl (PCB) analysis for the National Oceanic and Atmospheric Administration (NOAA) 18 congeners was conducted by AAL, using both unfiltered (total) and filtered (dissolved) water samples. Dissolved phase samples required filtering using Gelman AE glass fiber filters (0.45 µm pore size) and the filtrate captured for analysis. Samples for *total* PCB analysis were collected during the scheduled Level II - Baseline event (June 11), and during Level I – Startup activities (July 1 and July 2), but samples for *dissolved* PCBs were only collected during Level I activities.

Polychlorinated biphenyl samples (total and dissolved) were extracted following USEPA Method 3510C, AAL SOP “Extraction of Water Samples by Separatory Funnel” (Woods Hole Group, 2013b). An aliquot of a well-mixed, homogeneous aqueous sample is

accurately measured for sample preparation. Generally, 1L of a water sample is extracted. The sample is spiked with surrogate compounds and then extracted using methylene chloride. The extract is dried using anhydrous sodium sulfate and solvent exchanged to hexane during sample concentration. After extraction and concentration, the SW-846 3600-series methods for extract clean-up techniques are applied as necessary. The extract may be treated with Florisil (3620B) or GPC (3640A) for hydrocarbon and lipid removal, and copper (3660B) for sulfur removal. The extract is solvent exchanged into hexane and concentrated to the appropriate volume, generally 10mL, and transferred for analysis. Prior to analysis, the extract is cleaned with sulfuric acid (3665A). Alternatively, this method can be employed for lower detection limits by decreasing the final volume to 1–5 mL.

After clean-up and re-concentration, the extracts are analyzed on a gas chromatograph (GC) which is fitted with two capillary columns of differing polarities each employing separate ECD detectors. This process follows USEPA Method 8082 (Woods Hole Group, 2013b). The extracts of PCB Congeners are spiked with internal standards (IS) prior to analysis. The target analytes are resolved on each column and detected using an electron capture detector (ECD). Analytes are introduced into the GC/ECD by injecting a known volume of the calibration standards, quality control samples, and sample extracts into the GC which is temperature and flow programmed to separate the analytes. Identification of the target analytes is accomplished by confirming a target hit on two dissimilar columns using Retention Time (RT) and Pattern Recognition (PR). Concentrations are calculated from the ECD response using internal standard techniques. Sample results were reported in micrograms per liter ( $\mu\text{g/L}$ ) for the individual eighteen congeners.

For each batch of 20 or fewer samples per event, a laboratory method blank, LCS/LCSD, MS and MSD was processed and analyzed with the field samples.

### *2.2.3 Total Organic Carbon*

Samples for total organic carbon were collected during all sampling events. Organic carbon is oxidized to carbon dioxide ( $\text{CO}_2$ ) by persulfate in the presence of ultraviolet light. The  $\text{CO}_2$  produced may be measured by a nondispersive infrared analyzer. The TOC Analyzer utilizes an ultraviolet lamp submerged in a continuously gas-purged reactor that is filled with a constant-feed persulfate solution. The samples are introduced serially into the reactor by an autosampler. The  $\text{CO}_2$  produced is sparged continuously from the solution and is carried in the gas stream to an infrared analyzer that is specifically tuned to the absorptive wavelength of  $\text{CO}_2$ . The instrument's microprocessor calculates the area of the peaks produced by the analyzer, compares them to the peak area of the calibration standard stored in its memory, and prints out a calibrated organic value in milligrams per liter ( $\text{mg/L}$ ).

### *2.3.4 Metals*

Samples for metals analysis (Cd, Cr, Cu, Pb) were collected only during Level 1 – Startup events on July 1 and July 2, 2013. Samples were kept in frozen archive at AAL

until they were discarded after USACE NAE and USEPA decided not to have the samples analyzed.

### *2.2.5 Toxicity*

Toxicity samples were not collected during the 2013 monitoring season. *Arbacia punctulata* (sea urchin) 1-hour sperm immobilization/fertilization bioassay analysis was planned in the event of Level III discrete water sample collection. Collection of Level III water samples for laboratory analysis was conditional upon in-situ turbidity monitoring and would have occurred if there was an exceedance of the turbidity criterion.

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### 3.0 CHRONOLOGY OF BOAT-BASED OBSERVATIONS

Water quality monitoring of the Acushnet River and Upper New Bedford Harbor started with the Level II – Baseline sampling event on June 11, 2013, approximately 2 weeks prior to the onset of the dredging season, and continued through the dredge season until the completion of dredging activities on August 30, 2013. Monitoring with the fixed-station moorings began on June 18, 2013 and ended on September 16, 2013, approximately two weeks after the dredging season was completed. Remedial dredging began on June 26, 2013.

The following section provides a weekly summary of boat-based water quality monitoring observations and activities. The text was summarized from the daily field logs and weekly summary reports submitted to the USACE throughout the 2013 dredge season. Background levels were recorded each day and were used as a basis of comparison for readings recorded each day. With the exception of reference sites, all values were recorded within the compliance transects of 300 feet north of Area L and 300 feet south of Area P. Most monitoring was done within the active work zone, 300 feet down current of active work to monitor near-field impacts.

Field logs and daily summary reports, as well as figures depicting the complete time series from in-situ fixed-station sondes are included in Appendices A and B, respectively. Tide level data are included on the field logs (Appendix A). The abbreviations REF, DR and DRG stand for “reference site”, “debris removal”, and “dredge”, respectively.

#### **Week 1: June 18 – June 28, 2013**

- A) Areas of activity: Dredging in Areas L & P, debris removal in Area P.
- B) Days monitored: N/A. Mooring data only.
- C) Exceedances: None observed
- D) Turbidity summary: N/A
- E) Samples:
  - a. None collected.
- F) Wildlife: N/A.
- G) Notes: Pre-dredging mooring data and initial startup of dredging.

#### ***In-situ Mooring Data:***

In-situ moorings were installed on 6/18 and ran unattended until cellular telemetry systems were installed at the same locations on 6/25.

Prior to the start of remediation activities in the upper harbor (6/26 debris removal, 6/27 dredging), turbidity readings at all four moorings were low, with a range between 1–28 NTU and an average of 2.4 NTU. The maximum turbidity reading during this period was 27.8 NTU and occurred at mooring 300S on 6/25 at 13:45. There did not appear to be a relationship between remediation activity and increased turbidity.

Dissolved oxygen readings were between 0.7 and 19.5 mg/L during the deployment period. The minimum reading (0.67 mg/L) was at 300N on 6/18 at 20:01, and the

maximum reading (19.5 mg/L) was at 1500N on 6/21 at 15:00. DO peak measurements exceeded 10 mg/L at moorings 1500N and 300N daily from 6/20 to 6/26, with system-wide readings over 10 mg/L at all four moorings on 6/23, 6/24, and 6/25.

**Boat-Based Water Quality Monitoring:**

Boat-based monitoring was performed on 6/28.

**Week 2: June 28 – July 7, 2013**

- A) Areas of activity: Dredging in Area P, Debris removal in Area P.
- B) Days monitored: Friday 6/28, Monday 7/1, Tuesday 7/2, Wednesday 7/3
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
6/28/2013	Flood Ref - 1000' south of Area P	Flood	2.5–5.6
	Ebb Ref - 1500' north of Area L	Ebb	3.6–6.5
	300' north of Area P DRG + DR	Flood	5.6–36.8
	300' south of Area P DR	Ebb	6.5–57.9
7/1/2013	Flood Ref - 1000' south of Area P	Flood	1.0–4.1
	Ebb Ref - 1500' north of Area L	Ebb	1.5–4.3
	300' south of Area P DRG + DR	Ebb	3.6–14.1
	250' north of Area P DRG	Flood	4.6–81
7/2/2013	Flood Ref - 1000' south of Area P	Flood	1.4–10.3
	Ebb Ref - 1500' north of Area L	Ebb	2.7–3.1
	300' south of Area P DRG + DR	Ebb	6.4–29.5
	300' north of Area P DRG + DR (two locations)	Flood	4.3–47.8, 6.1–87
7/3/2013	Flood Ref - 1000' south of Area P	Flood	1.7–3.5
	Ebb Ref - 1500' north of Area L	Ebb	1.0–3.0
	200' south of Area P DRG + DR	Ebb	1.5–58
	250' south of Area P DRG + DR (two locations)	Ebb	6.3–56.8, 5.4–37.3
	300' north of Area P DRG + DR	Flood	3.7–84.9
	Manomet Street CSO	Flood	60–80
	50-100' north of Area P DRG + DR	Flood	70–100
	~600' north of Area P DRG + DR (in plume)	Flood	30–70
	~600' north of Area P DRG + DR (ambient)	Flood	7–19
	350' north of Area P DRG + DR	Flood	5.0–28.8

E) Samples:

- a. Scheduled Level I samples were collected on 7/1 for total PCBs (TPC), dissolved PCBs (DPC), turbidity (TUR), total suspended solids (TSS), total organic carbon (TOC), and metals (MET, archived). In addition to the field samples, 1 REP, 1 MS, 1 MSD and 1 equipment blank (EB) were collected.
- b. Scheduled Level I samples were collected on 7/2 for total PCBs (TPC), dissolved PCBs (DPC), turbidity (TUR), total suspended solids (TSS), total organic carbon (TOC), and metals (MET, archived).

F) Wildlife: Moon jellies, cormorants, gulls, ducks, swans, crabs.

G) Notes: Initial startup of dredging. Light to moderate sheen was observed many times in the work zone, often originating from the debris removal work at the west side of Area P. Several days of precipitation caused runoff from the Manomet Street CSO on 7/3, which combined with the effects of remediation to create a plume of high turbidity which extended outside the work zone. A surface sheen was also observed during the plume on 7/3.

***In-situ Mooring Data:***

In-situ moorings were originally installed on 6/18. On 6/25 the telemetry systems were installed at the locations of original deployment.

Turbidity readings at all four moorings were low, averaging 2.9 to 5.8 NTU. Moorings 1500N and 300N recorded elevated turbidity on flood tide during work hours in Area P on 7/1, 7/2, and 7/3. However, the effects of runoff from several days of precipitation, especially from the Manomet Street CSO, may have been an additional source of turbidity to the harbor. During this time, turbidity reached a maximum of 43.8 NTU at 16:45 on 7/2 at mooring 300N. Neither 300S nor 1000S exceeded 15 NTU during this deployment period.

The natural diel cycle of increasing DO during daylight hours and decreasing DO at night was observed in the moorings data. DO was typically 4 mg/L during the day, but often reached hypoxia at night. The lowest reading for DO was 0 mg/L, recorded several times by moorings 1500N and 300N between 7/2–7/4. Low DO readings did not appear to be correlated to remediation work within the harbor. Hypoxic readings for DO have been recorded in the New Bedford upper harbor in the past, but often only near the bottom. Depth was as little as 4.5 feet at low tide at mooring locations 300N and 1500N (the sonde takes readings at 3 foot depth), indicating that effects of low DO may have occupied a significant portion of the water column at some shallow sites. Rainfall and runoff may have indirectly contributed to the low DO readings, but ultimately the reason was unknown. Beginning on 7/5, DO increased rapidly at all stations to a maximum of 17.7 mg/L at 300N at 17:30. A similar large peak in DO occurred the following night with a maximum value of 20 mg/L at 1500N at 15:15. During these periods of rapidly changing DO, readings increased by as much as 15 mg/L in 2 hours.

***Boat-Based Water Quality Monitoring:***

The first day of boat-based monitoring was 6/28. Work was performed in Area P only, with debris removal and dredging occurring in close proximity to one another. A very light sheen was observed north of the debris removal barge during flood tide, but it was

contained within the oil boom. Turbidity was low in most places, but reached as high as 57.9 NTU at 3.5 ft depth while monitoring 300ft south of the Area P debris removal barge. DO readings approached hypoxia (< 2 mg/L) near the bottom, but were often between 3.5–5 mg/L at other depths. Dredge pipelines appeared to be kept off the harbor bottom by floats. However, as dredging continued the floating pipelines moved with the dredge in an area at least 150 x 150 ft, which limited the total area that was accessible to boat-based monitoring.

On Monday 7/1, planned Level I – Startup water quality samples were collected at four locations, plus 1 REP and 1 set of QA samples (MS, MSD, EB). Samples were stored on ice after immediately after collection and were delivered to the laboratory by WHG in the late afternoon. Heavy winds and rain prevented effective note-taking for part of the day. Periods of variable turbidity (4.6–80 NTU) were recorded while monitoring 250ft north of the Area P dredge. The nearby Manomet Street CSO may have contributed to the elevated turbidity readings during flood tide. DO readings were hypoxic below 2 foot depth at all monitoring locations during ebb tide. DO readings increased during flood tide, but were still hypoxic near the bottom (1.6 mg/L at 7.1 ft depth while monitoring 250ft north of Area P dredge). A moderate sheen was observed coming from the debris removal barge, and it partially escaped the oil booms due to the high winds.

Another round of Level I – Startup sampling occurred on Tuesday 7/2. Samples were collected from four locations only, immediately stored on ice and delivered to the laboratory via courier in the afternoon. Monitoring locations were similar to the ones on 7/1 since remediation occurred in the same areas. Turbidity readings were highest near the surface while monitoring debris removal activities, reaching a maximum of 87 NTU at 15:10. DO was low (~0.8–2 mg/L) again during ebb tide, but increased during flood to 2.5–8.8 mg/L in the afternoon.

Level III monitoring on 7/3 occurred in the same locations as previous monitoring days. Turbidity readings in the morning ranged between 1 NTU at the ebb reference to 58 NTU at 250ft south of the Area P dredge. During the afternoon flood tide, a sustained (> 20 minute) period of high turbidity (72.5–84.9 NTU) prompted investigation of its source. Turbidity at the mouth of the Manomet Street CSO was 60–80 NTU, and upstream of the CSO (50–100ft downstream of remediation activity) readings were 70–100 NTU. WHG began tracking the extent of the plume at the same time a 15-minute work shutdown was ordered by the dredging contractor. Several transects down-current showed turbidity slowly decreasing with distance away from its source, eventually returning to background levels after approximately 600–800 ft. A surface sheen continued beyond 600ft, eventually terminating on the eastern shore of the no anchor/no spud zone.

Based on readings taken down-current of the debris removal barge, the bottom sediment in the western part of Area P was mobilized very easily. Support boat traffic was observed to disturb bottom sediment even at high tide. At low tide the water column was reduced to approximately 2–3 feet in some places, and the water passing underneath the WHG monitoring boat was enough to disturb bottom sediments at times. The debris removal crews were informed of this, and they adjusted the pace of their activity to compensate.

There were no exceedances observed. Level I – startup samples were collected (as planned).

**Week 3: July 7 – July 14, 2013**

- A) Areas of activity: Dredging in Area P, debris removal in Area P.
- B) Days monitored: Monday 7/8.
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
7/8/2013	Flood Ref - 1000' south of Area P	Flood	1.8–3.0 (AM) 0.8–5.1 (PM)
	Ebb Ref - 1500' north of Area L	Ebb	0.6–5.0
	300' north of Area P DRG + DR	Flood	1.3–7.3 (AM) 1.9–21.6 (PM)
	250' south of Area P DRG + DR (2 locations)	Ebb	3.5–94.7 1.4–16.6

- E) Samples:
  - a. None collected.
- F) Wildlife: Cormorants, gulls, minnows, swans.
- G) Notes: light sheen originating from Area P debris removal. Very high (> 16mg/L) readings for dissolved oxygen were recorded on 7/7 and 7/8 at moorings 1500N and 300N. A single spike in turbidity at 1000S on 7/12 was not a result of remediation activity.

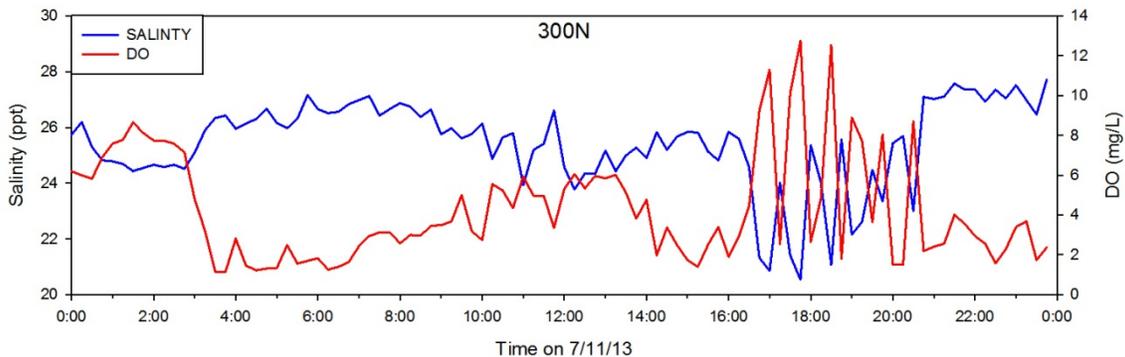
***In-situ Mooring Data:***

During this deployment period turbidity was low, with an average reading of approximately 4 NTU. The gap in data on 7/12 was the result of mooring maintenance, during which all four sondes were pulled from the water for cleaning and calibration (Appendix B). A single-point spike of 58.4 NTU was recorded at mooring 300S on 7/10 at 16:00, but turbidity readings before and after were <10 NTU. The tide was flooding at that time, indicating that the source could not have been remediation activity. A spike in turbidity > 100 NTU was recorded at 1000S on 7/12 at 06:45, which triggered the sonde to enter burst mode. The following table shows the values recorded directly from the sonde before, during, and after the spike:

Time on 7/12/13	Turbidity (NTU) at 1000S
06:15:00	5.49
06:30:00	5.24
06:45:00	550.19
06:45:10	394
06:45:20	1052.39
06:45:30	3876.05
06:46:04	5.13
07:00:00	5.29
07:15:00	5.57

The 1000S sonde did not continue sampling at the higher sampling rate (1 reading every 10 seconds) for the full minute like it was programmed. The sonde manufacturer (YSI) determined this was caused by an internal software error. This was the only occurrence of this error in all sonde data sets. The reading at 06:46:04 was 5.13 NTU and subsequent readings are also <10 NTU. Two reasons why this spike was not caused by remediation: 1) it occurred during flood tide and the mooring was located to the south of the 2013 work zones; 2) it occurred prior to the start of remediation activity that day according to activity logs provided by the dredging contractor. There did not appear to be relationship between remediation activity and increased turbidity.

DO concentrations were high and changed rapidly at the northern moorings 300N and 1500N. At 1500N on 7/7, DO concentration increased from 4.4 mg/L at 15:00 to 17.5 mg/L at 16:00, and continued increasing to a peak concentration of 21.2 mg/L at 16:45. All four moorings recorded an increase in DO on 7/7 and again on 7/8. DO concentrations at 300N were highly variable on the evening of 7/11. Concentrations changed by as much as 11 mg/L between consecutive readings (15 minutes). It was believed the interface between two dissimilar water masses was located at the same depth where the sonde takes readings (3 feet). The figure below illustrates how changes in salinity corresponded to changes in DO at 300N.



**Boat-Based Water Quality Monitoring:**

Level III monitoring was conducted on Monday July 8. Turbidity was between 0.6 – 94.7 NTU during monitoring. Turbidity readings > 50 NTU were recorded 250ft south of the Area P debris removal and dredge during ebb tide, but only lasted a few minutes before returning to values < 40 NTU. DO readings were high near the surface (0–2ft), reaching a maximum of 21.97 mg/L at 1.6ft depth at the 1000S flood reference station. These high readings for DO were also recorded by the in-situ moorings.

A light sheen originated from the debris removal barge that moved south/southeast within the work area but was contained within the booms. The air had an odor like sewage for most of the day, and probably emanated from the CSO located south of the work zone because the wind was from the west and south.

There were no exceedances or surface sheens observed and no samples were collected.

**Week 4: July 14 – July 21, 2013**

- A) Areas of activity: Dredging in Area P, debris removal in Area P.
- B) Days monitored: Tuesday 7/16.
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
7/16/2013	Flood Ref - 1000' south of Area P	Flood	1.6–4.5
	Ebb Ref - 1500' north of Area L	Ebb	6.3–11.4
	300' north of Area P DRG (2 locations)	Flood	3.3–22.6 9.9–55.8
	300' south of Area P DR	Ebb	1.6–5.5

- E) Samples:
  - a. None collected.
- F) Wildlife: None observed.
- G) Notes: No sheens observed during boat-based monitoring. Debris removal crew was consciously attempting to avoid high turbidity by taking breaks and working slowly. Hypoxic conditions were observed in the lower depths of the water column, typically below 5ft depth.

**In-situ Mooring Data:**

Turbidity data showed small increases during working hours, most notably at moorings 300N and 300S. Turbidity gradually increased from background levels to approximately 20 NTU, with a maximum of 58.1 NTU occurring at 300S on 7/19 at 10:00. There was a single-point spike of 76.6 NTU at 1000S on 7/16 at 7:00, which was the time when remediation activity began, according to activity logs provided by the dredging contractor. This was the largest turbidity reading during this deployment period and all subsequent readings were < 5 NTU.

Dissolved oxygen data showed the characteristic diel cycle, where maximums occurred at midday or in the afternoon, and minimums occurred at night or in the early morning. The largest DO concentration was 17.1 mg/L and occurred at 1500N on 7/18 at 17:45. There was a system-wide decrease in DO in the mornings of 7/17 and 7/18, and concentrations reached hypoxia several times during the deployment period. The minimum DO concentration was 0.0 mg/L at 300N on 7/14 at 5:00. There did not appear to be a correlation to trends in DO and remediation activity.

**Boat-Based Water Quality Monitoring:**

Boat-based monitoring occurred almost entirely during flood tide on 7/16. Dredging and debris removal were underway in Area P during monitoring. The maximum turbidity reading during monitoring was 55.8 NTU at 300ft north of the Area P dredge (depth = 11 ft), taken during flood tide. Dissolved oxygen readings were hypoxic or near-hypoxic at depths below 5 feet at most locations in the morning. The lowest DO reading was 1.10 mg/L and was recorded at 300 ft north of Area P dredge (depth = 9.1 feet). DO readings in the top 0–2 feet of the water column were between 4.4–10 mg/L.

There were no exceedances observed and no samples were collected.

**Week 5: July 21 – July 28, 2013**

- A) Areas of activity: Dredging in Areas L and P, debris removal in Area P.
- B) Days monitored: Friday 7/26.
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
7/26/2013	Flood Ref - 1000' south of Area P	Flood	4.5–16.5
	Ebb Ref - 1500' north of Area L	Ebb	6.2–28.3
	300' north of Area P DRG + DR (2 locations)	Flood	7.2–20.2
			13.5–15.4
	300' north of Area L DRG	Flood	7.4–8.7
300' south of Area P DRG + DR	Ebb	12.3–44.4	

- E) Samples:
  - a. None collected.
- F) Wildlife: Terns, gulls.
- G) Notes: Boat-based monitoring observed no sheens or exceedances of the turbidity criterion during monitoring. A spike in turbidity at mooring 1500N was likely caused by the sonde interacting with the muddy bottom during spring low tide on 7/25. The spike occurred from 3:30 to 4:57, so it could not be caused by remediation. Minimum DO concentrations were above hypoxia. Water temperature decreased by ~6°C system-wide from 7/24 to 7/27.

***In-situ Mooring Data:***

The gap in plotted data on 7/25 occurred when the sondes were removed from the water for cleaning and calibration.

The average turbidity from this deployment period was 5.7 NTU. Mooring 300S had two increases in turbidity during working hours. The first occurred on 7/22 at 12:30, when turbidity reached a maximum of 41.6 NTU; the second was on 7/24 at 16:30 when turbidity reached a maximum of 34.6 NTU. Mooring 300N recorded similar increases during work hours every day from 7/22 to 7/26, but the maximum reading during this time was 31.4 NTU on 7/24 at 08:30. Mooring 1500N recorded a sustained spike in turbidity on 7/25 which reached a maximum of 949 NTU at 4:55:20. Readings exceeded 100 NTU from 03:30 to 04:57:10, which means remediation was not the source of the high readings. The most likely reason was that the sonde was near the bottom, since these observations coincided with low tide at 04:05 (-0.7ft), and the monthly spring low tide was the day before (7/24).

DO measurements followed the natural diel cycle during this deployment period. There was a system-wide increase in DO on 7/24, when mooring 1500N recorded a maximum DO concentration of 16.8 mg/L at 18:30. There was a second system-wide increase in DO on 7/27 when the maximum DO concentration (14.3 mg/L) was recorded at mooring 300S. DO concentrations were at a minimum on 7/21, when the lowest concentration of 0.42 mg/L was recorded at mooring 300N at 01:00. Daily minimum concentrations in DO after 7/21 were near-hypoxic between 2–3 mg/L.

Water temperature decreased at all moorings from 7/24 to 7/27 at a rate of approximately 2.5°C/day. There were no similar trends in salinity during this time, and the cause was unknown.

***Boat-Based Water Quality Monitoring:***

Boat-based monitoring was conducted on Friday, July 26. Despite strong NNE winds (10–20 mph), dredging continued in Areas P and L, and debris removal continued in Area P only. Turbidity readings during monitoring were within range of values typically observed, 4.5–44.4 NTU. Dissolved oxygen concentrations were above the hypoxic threshold even near the bottom, ranging from 4.2–8.9 mg/l. The WHG monitoring crew observed a few shore birds, a gull and a tern, in the marsh grass.

Note: on the daily report for 7/26, monitoring locations are listed as 300N<sub>1</sub>, 300N<sub>2</sub>, 300N<sub>3</sub>, and 300S. These are not the moorings 300N and 300S, but are distances north or south of remediation activity. For example, 300N<sub>1</sub> = 300ft north of remediation activity.

There were no surface sheens observed during monitoring. There were no exceedances observed and no samples were collected.

**Week 6: July 28 – August 4, 2013**

- A) Areas of activity: Dredging in Areas L and P, debris removal in Area P.
- B) Days monitored: Tuesday, July 30.

- C) Exceedances: None observed  
 D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
7/30/2013	Flood Ref - 1000' south of Area P	Flood	2.3–9.9
	300' north of Area P DRG + DR (2 locations)	Flood	2.8–36.6
			4.7–9.3
	300' north of Area L DRG	Flood	5.1–10.9

- E) Samples:  
 a. None collected.  
 F) Wildlife: osprey, cormorants, gulls, and bait fish by Area C dock.  
 G) Notes: Remediation crews have continued to show diligence and interest in keeping turbidity low. Dissolved oxygen minimums were hypoxic during the deployment period, but maximums were greater than 10 mg/L. There did not appear to be a relationship in either turbidity or dissolved oxygen when compared to remediation activity.

***In-situ Mooring Data:***

Turbidity readings from this deployment period remained at or below background levels (< 10 NTU) at all four moorings. The turbidity average was 4.5 NTU, with only a few instances of readings greater than 20 NTU. The first instance occurred on 7/30 at mooring 300N during flood tide between 09:30 and 15:15 while work was underway in Areas L and P. Turbidity increased from background to 15-20 NTU, with a peak of 29.9 NTU at 12:15. The turbidity average was 14.6 NTU during the event, compared to 5.7 NTU for the entire deployment period. The second occurred on 8/1 at mooring 300S when a single-point spike of 36.6 NTU was recorded at 10:00. Excluding the increase at 300N on 7/30, there appeared to be no relationship between remediation activity and increased turbidity readings.

Dissolved oxygen concentrations followed the natural diel cycle during this deployment period: the largest concentrations were recorded in the early evening, and the lowest were recorded at night or in the early morning. The maximum DO concentration was 15.1 mg/L recorded at mooring 300N on 7/28 at 16:15. The lowest DO concentrations were hypoxic and the minimum (0.1 mg/L) was recorded at mooring 1500N on 8/3 at 08:15. There appeared to be no relationship between remediation activity and trends in DO concentration.

***Boat-Based Water Quality Monitoring:***

Boat-based monitoring was conducted on Tuesday, July 30. Monitoring was conducted at three locations plus the reference station 1000S during flood tide. Turbidity readings were between 2.3–36.6 NTU. The largest reading was recorded 300ft north of the Area P debris removal and dredging. Dissolved oxygen concentrations were greater than 3 mg/L at all locations and depths, and the minimum concentration was 3.39 mg/L at 5 ft depth

while monitoring 300ft north of Area P debris removal and dredging. DO concentrations in the top 3 ft were between 4.95–11.73 mg/L.

Note: on the daily report for 7/30, monitoring locations are listed as 300N<sub>1</sub>, 300N<sub>2</sub>, and 300N<sub>3</sub>. These are not the mooring 300N, but are distances north of remediation activity. For example, 300N<sub>1</sub> = 300ft north of remediation activity.

There were no surface sheens observed during monitoring. There were no exceedances observed and no samples were collected.

**Week 7: August 4 – August 11, 2013**

- A) Areas of activity: Dredging in Area P, debris removal in Area P.
- B) Days monitored: Monday, August 5.
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

<b>Date</b>	<b>Area/Station</b>	<b>Tide</b>	<b>Turbidity range (NTU)</b>
8/5/2013	Flood Ref - 1000' south of Area P	Flood	4.6–11.2
	Ebb Ref - 1500' north of Area L	Ebb	1.1–3.1
	300N mooring (comparison)	Ebb	1.7–1.8
	300' south of Area P DR + DRG	Ebb	2.1–6.0
	300S mooring (comparison)	Flood	8.8
	300' North of Area L DR + DRG	Flood	4.0–17.0

- E) Samples:
  - a. None collected.
- F) Wildlife: Great blue heron, gulls.
- G) Notes: Three simultaneous remediation activities were underway in the work zone, yet turbidity remained less than 30 NTU.

***In-situ Mooring Data:***

Turbidity data from in-situ moorings were between 0–20 NTU (average = 4.9 NTU), with only a few exceptions. Turbidity at 300S reached 28 NTU during work hours on 8/6 at 11:15. Readings at 1000S increased during work hours on 8/6 and 8/7, increasing from background to a maximum 24.9 NTU. On 8/9 there was a spike of 487 NTU at mooring 1000S, which triggered a series of burst mode readings. High turbidity readings were sustained for only two consecutive readings and occurred after remediation activities were complete. The turbidity readings from the burst mode sampling are listed in the following table:

<b>Time on 8/9/13</b>	<b>Turbidity (NTU) at 1000S</b>
20:45:00	487.15
20:45:10	421.52
20:45:20	4.99
20:45:30	4.52
20:45:40	4.31
20:45:50	4.04
20:46:00	4.37
20:46:10	4.42

There did not appear to be a relationship between trends in turbidity data and remediation work.

Dissolved oxygen readings followed the natural diel cycle, increasing to a maximum at midday and decreasing to a minimum at night. The maximum DO readings on 8/9 were between 6–8 mg/L, which were much less than the maximum readings earlier in the week (12–14 mg/L). DO averaged 6.02 mg/L for all moorings during this deployment period. The maximum DO reading was 18.7 mg/L, recorded at 300S on 8/10 at 17:15. The minimum DO reading was 0.12 mg/L, recorded at 300N on 8/4 at 1:15. There did not appear to be a relationship between trends in DO and remediation activity.

***Boat-Based Water Quality Monitoring:***

Boat-based monitoring was performed on Monday 8/5. Remediation crews were operating both dredges and two debris removal barges throughout the day. Even with three simultaneous remediation activities underway, turbidity readings were between 1.1–17.0 NTU when monitoring 300 ft downstream. DO concentrations were between 1.9–8.8 mg/L. The lowest DO readings were recorded near the bottom at reference station 1500N in the morning.

There were no surface sheens observed during monitoring. There were no exceedances observed and no samples were collected.

**Week 8: August 11 – August 18, 2013**

- A) Areas of activity: Dredging in Area P, debris removal in Area P (2 crews).
- B) Days monitored: Tuesday, 8/13/13
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
8/13/2013	Flood Ref - 1000' south of Area P	Flood	2.4–7.7
	Ebb Ref - 1500' north of Area L	Ebb	3.6–10.8
	300N mooring (comparison)	Ebb	7
	200' North of Area P DR, 400' NW of Area P DR	Flood	5.9–33.7
	200' North of Area P DRG	Flood	2.9–6.8
	300' NW of Area P DR	Flood	4.5–7.9
	300S mooring (comparison)	Ebb	4.8
	300' south of Area P DR (east)	Ebb	4.1–22.4

- E) Samples:
  - a. None collected.
- F) Wildlife: osprey, gulls, crabs, cormorants.
- G) Notes: Remediation work during monitoring was stop-and-go, but turbidity remained low (2.5–33.7 NTU) even 200 ft downstream from work. In-situ mooring turbidity data rarely exceeded 20 NTU, and DO concentrations were well above hypoxia.

***In-situ Mooring Data:***

The gap in data on 8/15 was due to scheduled maintenance and calibration.

Turbidity was very low during the deployment period (average = 4.5 NTU), and did not exceed 15 NTU at moorings 1500N or 300N. Most readings from all four moorings were at or near background, even during working hours. Mooring 300S had two small increases in turbidity during work hours on 8/12 and 8/13, but the maximum value was only 29.4 NTU. Mooring 1000S recorded a single-point spike of 44.3 NTU on 8/16 at 08:00, but subsequently returned to background levels. There appeared to be no relationship between remediation activity and trends in turbidity.

Dissolved oxygen readings demonstrated the natural diel cycle during the deployment period. Maximum readings occurred during the day or early evening, and minimums during the evening or early morning. Daily maximums during this deployment period reached super-saturation, and the maximum reading from all four moorings was 19.2 mg/L recorded at 1500N at 16:00 on 8/17. DO values reached hypoxia only at the start of this deployment period on 8/11, and again briefly on 8/14. However, the daily minimum values were often between 4–6 mg/L. The minimum DO concentration was 1.2 mg/L, recorded at 1500N at 06:30 on 8/11. Variance between the daily high and low DO values was greatest at mooring 1500N and least at mooring 1000S. There appeared to be no relationship between remediation activity and trends in dissolved oxygen.

Water temperatures were between 22–26°C and had no relationship with remediation activity.

**Boat-Based Water Quality Monitoring:**

Boat-based monitoring was performed at several locations in and around the work zone. Monitoring was focused around the dredge and the west/north debris removal crew, both in Area P. Turbidity was between 2.4–33.7 NTU and was consistently below 15 NTU all day. Dissolved oxygen readings were greater than 3.8 mg/L at all times, with a peak of 12.6 mg/L at 1.5 foot depth while monitoring at the 1500N ebb reference. Work was stop-and-go for most of the day.

There were no surface sheens observed during monitoring. There were no exceedances observed and no samples were collected.

**Week 9: August 18 – August 25, 2013**

- A) Areas of activity: Dredging in Area P, debris removal in Area P (2 crews).
- B) Days monitored: Tuesday, 8/23/13
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

Date	Area/Station	Tide	Turbidity range (NTU)
8/23/2013	Flood Ref - 1000' south of Area P	Flood	3.4–4.7
	Ebb Ref - 1500' north of Area L	Ebb	3.1–6.5
	300 ft north of Area P DRG + DR	Flood	4.8–40.4
	300 ft south of Area P DRG + DR (2 crews)	Ebb	3.7–6.7

- E) Samples:
  - a. None collected.
- F) Wildlife: sea gulls.
- G) Notes: Sheet pile removal/placement was underway in the work zone during boat-based monitoring. The dredge in Area L was moved to Area P and was positioned to run North-South.

**In-situ Mooring Data:**

Turbidity data from all four moorings remained near background levels for the entire deployment period, with only intermittent brief increases. The average turbidity reading was 4.5 NTU. Readings from mooring 1500N and 300S never exceeded 25 NTU and showed no correlation to remediation activity. Mooring 300N had daily, minor increases above background levels during work hours on 8/19–8/22, but the peak value was only 25.7 NTU on 8/20 at 16:45. The peak turbidity reading for this deployment period (34.3 NTU) was recorded at 1000S on 8/19 at 16:30. With the exception of mooring 300N, there appeared to be no correlation between remediation activity and turbidity.

The natural diel cycle was evident in the dissolved oxygen data set: concentrations increased in the day and decreased at night. The average DO reading was 8.20 mg/L for this deployment period. The minimum DO reading was 2.82 mg/L, recorded at 1500N

on 8/23 at 06:00. The maximum reading was 15.88 mg/L at mooring 1500N on 8/18 at 16:30. There appeared to be no relationship between remediation activity and trends in dissolved oxygen.

Water temperature ranged between 22.8 and 27.0°C, and was unaffected by remediation activity.

***Boat-Based Water Quality Monitoring:***

Boat-based remediation was performed on Friday, 8/23. In addition to dredging and debris removal activities, remediation crews installed additional sheet pilings and moved dredge locations. The dredge in Area L moved to Area P and was positioned to run North-South, as opposed to the other dredge in Area P which ran East-West. Despite this additional activity, turbidity readings were between 3.1–13.4 NTU, with a brief spike of 40.4 NTU mid-morning while monitoring 300 feet north of Area P dredging and debris removal activities. DO concentrations ranged from 5.3–10.5 mg/L. There were a number of gulls and other shore birds active in the upper harbor.

There were no surface sheens observed during boat-based monitoring. There were no exceedances observed and no samples were collected.

**Week 10: August 25 – September 1, 2013**

- A) Areas of activity: Dredging in Area P (2 crews), debris removal in Area P, sheet pile removal & cleaning in Area P.
- B) Days monitored: Tuesday, 8/27/13
- C) Exceedances: None observed
- D) Turbidity summary: DRG = dredge, DR = debris removal

<b>Date</b>	<b>Area/Station</b>	<b>Tide</b>	<b>Turbidity range (NTU)</b>
8/27/2013	Flood Ref - 1000' south of Area P	Flood	3.6–5.8
	Ebb Ref - 1500' north of Area L	Ebb	3.9–9.8
	300 ft north of Area P DR	Flood	5.5–30.3
	300 ft north of Area P DRG (East-West)	Flood	4.5–10.2
	300N mooring	Ebb	3.8
	300 ft south of Area P DRG (both crews)	Ebb	2.7–19.5
	300S mooring	Ebb	3.3

- E) Samples:
  - a. None collected.
- F) Wildlife: Osprey, blue heron, green heron, gulls, ducks, swans, cormorants, bait fish, fish jumping.
- G) Notes: Sheet pile removal & cleaning underway in Areas L and P. The final day of remediation dredging was Friday, 8/30.

***In-situ Mooring Data:***

The gap in data on 8/29 was the result of a scheduled maintenance and calibration.

In-situ turbidity data at moorings 1500N, 300N and 300S averaged 4.1 NTU and contained no readings greater than 30 NTU. The largest turbidity value from these three moorings was 26.2 NTU, recorded at mooring 300S at 17:30 on 8/27. Turbidity data from 1000S was similarly low, with two exceptions: a 41.8 NTU single-point spike was recorded at 06:30 on 8/25, and a spike of 2204 NTU at 16:00 on 8/25 which caused the sonde to enter burst mode. The following table presents the turbidity data from the sonde prior to, during, and after the recorded spike:

<b>Time on 8/25/13</b>	<b>Turbidity (NTU)</b>	<b>Time on 8/25/13</b>	<b>Turbidity (NTU)</b>
15:45:00	2.29	16:02:10	1003.41
16:00:00	2203.78	16:02:20	564.41
16:00:10	1392.43	16:02:30	538.3
16:00:20	955.82	16:02:40	188.52
16:00:30	646.26	16:02:50	260.61
16:00:40	490.43	16:03:00	147.66
16:00:50	314.67	16:03:10	120.16
16:01:00	299.49	16:03:20	134.37
16:01:10	335.78	16:03:30	129.3
16:01:20	652.49	16:03:40	121.7
16:01:30	397.69	16:03:50	1753.86
16:01:40	1560.98	16:04:00	2.69
16:01:50	1701.4	16:15:00	2.31
16:02:00	841.62	16:30:00	2.71

The sonde remained in burst mode for four (4) minutes until readings returned to background. There was no recorded precipitation on 8/25, and the tide was at mid-ebb approaching low tide when the readings started. This event occurred on a Sunday and was not a result of remediation activity. Turbidity readings over 1500 NTU are often from solid objects in the sensor beam path, and the high turbidity event stopped abruptly (last two readings are 1753 NTU then 2.69 NTU). Both of these facts suggest a piece of flotsam may have gotten fouled in the sensor cage and was eventually released, but the exact cause of the high turbidity event was unknown. After this high turbidity event, turbidity readings at mooring 1000S were at background levels for the remainder of the deployment period. There appeared to be no correlation to remediation activity and increased turbidity readings.

Dissolved oxygen readings were highly variable during this deployment period. Daily variance between the highest DO readings and the lowest from 8/25 to 8/27 was ~5 mg/L, but after a system-wide increase in DO on 8/28, daily variance increased to as much as 19 mg/L. The maximum DO concentration of this deployment period was 19.6 mg/L at

mooring 1500N on 8/28 at 17:30; the minimum DO concentration was 0.01 mg/L at mooring 300N on 8/28 at 04:45. There did not appear to be a relationship between remediation activity and DO concentration.

Water temperatures were between 19–26°C and were not affected by remediation activity.

The final day of remediation activity was Friday, 8/30.

***Boat-Based Water Quality Monitoring:***

Turbidity readings were very low at all monitoring locations during boat-based monitoring on 8/27/13, ranging between 2.7–30.3 NTU. The largest reading (30.3 NTU) was recorded 300 ft north of the debris removal and sheet pile cleaning crews in the eastern part of Area P. A cleaning crew was using a hose on deck to remove caked-on mud from sheet piles removed from the work zone, and the turbid water would occasionally register during boat-based monitoring. DO was low (1.4–3.0 mg/L) in the morning, but readings increased in the afternoon up to 5.8 mg/L. DO was lowest near the bottom, as in previous monitoring events. There were many different birds in the work zone, including green herons, blue herons, ducks, gulls, cormorants, swans and osprey. Fish were also jumping, swimming around near the surface, and being preyed upon by osprey.

There were no surface sheens observed during boat-based monitoring. There were no exceedances observed and no samples were collected.

**Week 11: September 1 – September 6, 2013**

- A) Areas of activity: No remediation activity, demobilization only.
- B) Days monitored: None
- C) Exceedances: N/A
- D) Turbidity summary: N/A
- E) Samples:
  - a. None collected.
- F) Wildlife: N/A
- G) Notes: The final day of remediation dredging was Friday 8/30. Demobilization efforts continued throughout the week. Real-time telemetry systems were removed from the water on 9/6. Water quality sondes were attached to standard 14” mooring balls and were re-deployed in the same locations as the real-time buoys.

***In-situ Mooring Data:***

The final day of remediation activity was Friday, 8/30. All four real-time telemetry buoys were removed from the water on 9/6. Water quality sondes were cleaned, had data downloaded, and were redeployed at the same locations using mooring balls from previous years of monitoring.

In-situ mooring turbidity data were primarily at background levels (< 10 NTU) during this deployment period, with a few exceptions. At approximately 04:00 on 9/4 during flood tide, a sudden increase in turbidity was recorded at moorings 1500N (44.2 NTU), 300N (66.4 NTU), and 1000S (92.5 NTU). It was too early for on-site activity and there was no recorded precipitation that day, so the exact cause of this increase was unknown. There were thunderstorms and heavy rain the day before these readings were recorded, but there was no effect on turbidity at that time. Turbidity readings prior to these peaks were near background (2–10 NTU) and were slightly elevated (15–30 NTU) for several readings immediately afterwards. Mooring 1500N recorded separate peaks of 175 NTU and 156 NTU on 9/5, and the burst-mode readings before, during and after these peaks are presented in the following table:

<b>Time on 9/5/13</b>	<b>Turbidity (NTU)</b>	<b>Time on 9/5/13</b>	<b>Turbidity (NTU)</b>
13:45:00	4.99	22:45:00	2.48
14:00:00	4.7	23:00:00	2.46
14:15:00	174.53	23:15:00	155.64
14:15:10	30.96	23:15:10	3.11
14:15:20	14.46	23:15:20	2.72
14:15:30	18.71	23:15:30	3.32
14:15:40	13.78	23:15:40	4.07
14:15:50	56.51	23:15:50	3.14
14:16:00	64.38	23:16:00	2.75
14:16:10	71.84	23:16:10	2.63
14:30:00	5.47	23:30:00	2.68
14:45:00	3.6	23:45:00	2.85

Low tide on 9/5 was at 13:50, which may have been the cause of the peak at 14:15, but the exact causes of these peaks were not determined. A spike in turbidity of 58.6 NTU was recorded at 1000S on 9/5 at 00:09:50. The sonde was already in burst-mode due to low (< 2 mg/L) DO readings at the time and recorded a gradual increase from background, then decrease, in turbidity from 23:00 on 9/4 to 02:00 on 9/5.

Dissolved oxygen concentrations followed the natural diel cycle which increased during daylight hours and decreased at night. Concentrations varied daily between 1–10 mg/L for the deployment period. The maximum DO concentration was 19.9 mg/L recorded at 1500N on 9/4 at 18:30. The minimum DO concentration was 0.03 mg/L recorded at 300N on 9/4 at 03:33 during burst-mode readings for low DO. There was a system-wide increase in DO on 9/4 which lasted from the afternoon to the early evening and concentrations to be 2–7 mg/L higher than other peaks during this deployment period. Afterwards, DO returned to concentrations more typical for the upper harbor (3–8 mg/L).

Water temperature varied between 21–26°C.

**Boat-Based Water Quality Monitoring:**

There was no boat-based monitoring during this time period.

**Week 12: September 6 – September 16, 2013**

- A) Areas of activity: No remediation activity, demobilization only.
- B) Days monitored: None
- C) Exceedances: N/A
- D) Turbidity summary: N/A
- E) Samples:
  - a. None collected.
- F) Wildlife: N/A
- G) Notes: Demobilization activities only. Water quality sondes were attached to standard mooring balls and remained at the same locations as they have been throughout the work season.

***In-situ Mooring Data:***

Turbidity data from this deployment period remained at background levels (2–10 NTU) for moorings 1500N, 300N and 300S; the average value for turbidity was 3.67 NTU. There was a single-point spike of 482 NTU at 1500N on 9/14 at 11:30, and the burst-mode data are as follows:

<b>Time on 9/14/13</b>	<b>Turbidity (NTU)</b>
11:00:00	3.58
11:15:00	3.41
11:30:00	482.39
11:30:10	5.77
11:30:20	3.74
11:30:30	3.14
11:30:40	3.11
11:30:50	3.22
11:31:00	3.19
11:31:10	3.12
11:45:00	3.47
12:00:00	3.77

Turbidity and DO data (both are optical sensors) at mooring 1000S were unusable after the sonde suffered biofouling interference starting on 9/10. The effect on DO readings was not as significant as turbidity, but since both sensors acquired data optically, the DO data were considered suspect as well. The sensor wiper was verified to be operational prior to and after the moorings were deployed and none of the sensor faces showed signs of biofouling. However, biofouling on the protective sensor cage and on surfaces not in reach of the sensor brush had extended into the optical sensor beam paths.

Dissolved oxygen readings from moorings 1500N, 300N and 300S showed daily variance between high and low concentrations, in accordance with the natural diel cycle. The average DO reading was 8.29 mg/L. The minimum reading was 1.31 mg/L recorded at

1500N on 9/14 at 08:30. The maximum reading was 19.48 mg/L recorded at 300S on 9/7 at 14:45.

Water temperature had a range between 20–24°C. Water temperatures plateaued at approximately 21°C for 12 hours between 9/10 and 9/11 at all four moorings, but the cause was unknown.

***Boat-Based Water Quality Monitoring:***

There was no boat-based monitoring during this time period.

## 4.0 DREDGING SUMMARY

Remedial dredging was initiated on June 26, 2013 and completed on August 30, 2013. Remediation activities at the Site included hydraulic dredging and/or debris removal in two Dredge Areas: L and P (Figure 2). Dredge Areas are comprised of Dredge Management Units (DMU), which divide up the entire site and are based primarily on contamination levels, contamination sources, and topography. Portions of the following DMUs fell within the boundaries of the Dredge Areas that were active in the 2013 season: DMU-10, DMU-12, DMU-13, DMU-14, and DMU-15 (Figure 2).

Once the dredge areas were determined, sheet pilings were placed around the perimeter of each section, at approximately 50-foot spacing, to anchor the dredge winching cables. The perimeter cable was run around the sheet piles at approximately the high tide mark. Floating, absorbent oil booms were also placed around the dredge area perimeter to contain any surface slicks/sheens.

Dredging was performed by Severson Environmental Services Inc. (SES) under the direction of Jacobs Engineering (JE). Severson Environmental Services utilized a Mud Cat™ hydraulic dredge equipped with a horizontal auger (Figure 7). The dredge was propelled by a winch along a transverse cable that spans the dredge area perimeter. Once a pass was completed, support crews relocated the cable to position for the next pass. Dredged material was pumped through a flexible pipeline to a booster pump on shore, then to the de-sanding facility at Sawyer Street. Following de-sanding, the remaining fine material was pumped via a separate pipeline to the dewatering, treatment, and handling facility in the Lower Harbor. In total, JE has estimated that the dredging team removed 18,995 cubic yards of material in 2013.



**Figure 7. Mud Cat™ hydraulic dredge**

Hydraulic dredges cannot process large debris contained in the native sediment because the debris fouls the auger and suction of the slurry pipeline. Therefore, the hydraulic dredging operation requires a separate debris removal operation prior to the dredging of a

particular area. Debris removal was accomplished by ‘raking’ the bottom with a barge-mounted excavator (Figure 8). The end of the excavator has two forked jaws that are hydraulically opened and closed. The jaws are deployed to the bottom and methodically “grab” or scrape the bottom for debris. Each “grab” of the bottom is brought to the surface, rinsed of sediment and inspected. Debris such as cobbles, old tires, timbers or scrap metal were contained within the excavator jaws, and stored in scows that were secured to the excavator or barge. Support boats were used throughout the operation to transport crews, maintain dredges, handle the pipeline, and move barges.



**Figure 8. Debris removal excavator and debris storage scow**

Dredging operations were limited by water depth at times, and the eastern portions of Areas P and L were often exposed at low tide. When low water prevented work in these areas, the dredge crew moved operations to deeper waters near the western shoreline or the central channel.

## **5.0 RESULTS**

Results for water quality monitoring of the 2013 remedial dredging operations at the New Bedford Harbor Superfund Site are presented in this section. Complete results, including fixed-station time series and laboratory data reports are provided as Appendices to this report.

### **5.1 FIELD MONITORING SUMMARY**

Water quality monitoring was conducted in an adaptive manner due to changing operational and weather related conditions using in-situ fixed station moorings and boat-based observations. The monitoring approach was adjusted: 1) as tides and winds changed, 2) as dredge activities moved between areas, 3) as debris removal activities changed, and 4) as warranted based on support activities. The monitoring program incorporated assessment of the entire operation and environmental conditions.

### **5.2 BOAT-BASED MONITORING**

Boat-based water quality monitoring was performed five consecutive work days during the first week of the dredging season in June, and once per week afterwards until dredging was completed in September. Site conditions and in-situ water quality measurements collected during boat-based monitoring are summarized in Section 3.0 and documented per monitoring protocols in the field logs and daily reports, located in Appendix A. Water quality monitoring was performed north of activities during a flood tide and south of activities during an ebb tide.

#### *5.2.1 Turbidity Summary*

Each water quality monitoring day began with a transit to a reference station, at least 1000 feet up-current of the active work zone. The water quality readings collected at the reference location provided data regarding the background conditions and established the baseline turbidity for use in determining the turbidity criterion (100 NTU above background turbidity) on a given tidal phase. Turbidity values were generally higher at the northern reference site compared to the southern reference site, but the difference was often negligible. The average background turbidity reading was 7.43 NTU, with a range between 3–28.3 NTU, depending on environmental conditions.

During dredging and debris removal operations, down-current turbidity readings in the active work zone increased compared to background conditions, with readings between 1.3–94.7 NTU. Variations in turbidity were observed due to proximity to dredging activities, and environmental conditions. The maximum turbidity observation of 94.7 NTU was observed on July 8, 250 feet south of the dredge and debris removal barge in Area P. Turbidity readings near 100 NTU were measured on July 3 during an investigation of a suspended sediment plume. However, these readings were recorded 50-100 feet north of the Area P dredge and debris removal, which was much closer than boat-based monitoring usually takes place, and were therefore considered circumstantial outliers. In 2013, there were no boat-based observations of sediment plumes over 100 NTU at, or beyond, the 300 foot compliance transects.

Surface sheens were observed on each of the first five monitoring days after remediation started: 6/28, 7/1, 7/2, 7/3, and 7/8. All sheens emanated from remediation operations near the western shoreline in Area P. These sheens either had an oily/iridescent color or appeared like a dull haze on the water surface, but did not have any noticeable odor. All surface sheens had higher than average turbidity associated with them, between 20–90 NTU greater than background readings. Sheens dissipated after 10–30 minutes or after being absorbed by oil boom. The surface sheen on 7/3 extended north from the combined disturbance of remediation work and the Manomet Street CSO, which was producing runoff after several days of heavy rain. The sheen traveled beyond the oil boom, to the no anchor/no spudding zone before terminating in the eastern coastline. The maximum turbidity recorded during this surface sheen was 70 NTU.

The use of support boats to push barges or dredges for re-location and wind stabilization occasionally disturbed the harbor bottom. During high winds or strong tides, support boats were used to maintain the hydraulic dredge's heading, and the propeller wash sometimes extended ~100 feet down-current. The most common contributor to elevated turbidity readings was debris removal, followed by support boats, and dredging.

### *5.2.2 Dissolved Oxygen Summary*

At the request of the USACE, WHG closely monitored the concentration of dissolved oxygen (DO) during the 2013 season on account of the concern for potential impacts to anadromous fish and other fish species.

Hypoxia ( $DO < 2$  mg/L) is a naturally occurring phenomenon in estuarine systems during summer months, and these conditions were observed at depths below 3 feet at the start of the dredge season. Surface water had DO concentrations between 6–12 mg/L, but at greater depths the concentration would be near-anoxic (0.36 mg/L minimum, see daily report from 7/2, Appendix A). At times, DO concentrations were less stratified, and the entire water column was nearly homogenous based on several water quality parameters (see daily reports from 7/26 and 8/23, Appendix A). No dead fish were observed in 2013.

Efforts to limit activity and keep equipment from interfering with fish passage or water flow exchange during hypoxic conditions were successful, as directed by the 2013 Fish Migration Impact Plan (Jacobs Engineering Group, 2013). At no time was the water column in the work area restricted enough such that fish could not pass. Dredging operations appear to have had little or no effect on the fish migration or the overall health of the local fish and wildlife population.

## **5.3 FIXED-STATION CONTINUOUS MONITORING**

Four water quality sondes (manufacturer: YSI, model: EXO2) were installed on June 18, 2013 prior to the onset of active remediation and were removed on September 16. Stations were: 1) 1500 feet north of Area L, 2) 300 feet of Area L, 3) 300 feet south of Area P, and 4) 1000 feet south of Area P (Table 1). These water quality sondes provided additional data that complemented the adaptive boat-based monitoring approach discussed in the previous section. The data were continuously collected during

deployment, even when active boat-based monitoring was not performed, which helped to “fill the gaps” in monitoring coverage. These data also provided valuable information used to define the ambient water quality parameters during non-working periods (nights, weekends, and holidays). Appendix B contains the fixed-station time series data plots for the parameters of turbidity, dissolved oxygen concentration, and temperature in the study area. Each buoy remained at its original deployment location for the duration of the 2013 environmental monitoring season. None of the moorings were dragged or had to be repositioned. Data return was 100% for all moorings except 1000S, which had one instance of biofouling interference from 9/10 – 9/16 and had a data return of 92.8%. Fortunately, the biofouling interference occurred after remediation activities finished, so no data from remediation periods were lost. The only data that were rejected for project use were readings compromised by biofouling, and file breaks, which are defined as data recorded when the sonde was out of the water for maintenance.

Cages of copper mesh were deployed to reduce the amount of biofouling on sonde sensors for the first seven days of in-situ sonde deployment (June 18 – 24). Copper cages would have been deployed throughout the 2013 dredge season, but were removed once the real-time telemetry systems were installed due to lack of space in the central cavity of the buoy. Biofouling proved not to be an issue in 2013, since the sensor-cleaning brushes on the EXO2 sondes did a superior job at reducing biofouling on the sensor faces.

### *5.3.1 High Turbidity Readings*

Excluding data collected while sondes were in burst mode, there were 22 turbidity readings over 100 NTU recorded from sondes 1500N, 300S, and 1000S; 3 readings were recorded during work hours (weekday between 7:00-18:00) and the other 19 were recorded during off hours. These values typically consisted of a single data point or two greater than 100 NTU that were preceded and followed by background readings. In 2013 the dredging contractor provided WHG with weekly summaries of remediation activity, which included start/stop times and locations of work being performed. These summaries allowed for a cause-effect relationship to be investigated between remediation work and turbidity data. Another useful tool for determining cause and duration of high turbidity events was the burst mode feature on the EXO2 sondes, described in Section 2.1.2. Having a temporally focused dataset for the duration of a high turbidity event allowed WHG to investigate changes in turbidity and draw conclusions about the cause. However, without verified observations of the environmental conditions at the time of occurrence, it was not possible to assign an exact cause to any high turbidity event in 2013.

### *5.3.2 Dissolved Oxygen Readings*

Continuous in-situ DO concentration data were collected at each of the fixed-station moorings. Oxygen saturation is a factor of temperature, depth and dissolved oxygen in the water. Conditions within the estuary often varied between hypoxia and hyperoxia (supersaturation), sometimes daily. Based on an average water temperature of 24°C from fixed-station buoy data, the DO saturation limit used in this report is 8.4 mg/L (USEPA, 2012). Therefore, values in excess of 8.4 mg/L were considered supersaturated.

The average DO concentration in 2013 was 6.08 mg/L, with a minimum of 0.0 mg/L (recorded several times by various sondes) and a maximum concentration of 21.1 mg/L (recorded at 1500N and 300N on 7/7). The natural diel cycle was observed each day, with increasing DO values during the day and decreasing values at night. Average daily variance between low and high values was approximately 8 mg/L, between 2–10 mg/L.

### *5.3.3 Temperature Readings*

Water temperature in 2013 had a range between 19.2 °C recorded at station 1500N on June 18, to a maximum of 31.3°C recorded at station 1500N on July 19. The average temperature was 24.4°C. Water temperature was unaffected by remediation activity.

## **5.4 COLLECTION OF DISCRETE WATER SAMPLES**

Discrete water samples were collected three times during the 2013 environmental monitoring season: June 11, July 1, and July 2 (Table 3). All discrete water sample collections were planned Level I and Level II events; there were no Level III sample collection events. Under the protocols outlined in Section 2.1, the sampling team functioned in an adaptive sampling mode to track near-field turbidity plumes within the compliance transects, and utilized real-time in-situ data to guide monitoring and sample collection. Level II – Baseline samples collected on June 11 were used to establish reference conditions for the harbor and confirm the validity of in-situ measurements. On July 1 and 2, Level I – Startup water samples were collected during the first week of the dredging season at reference stations and at stations 300 feet down-current of remediation activity over both flood and ebb tidal cycles. A complete suite of samples were collected for the Level I – Startup events, which were analyzed for TSS, turbidity, dissolved and total PCBs, TOC, and metals (archived).

### *5.4.1 Level II – Baseline Water Quality Samples*

The first sampling event was conducted on June 11, 2013 as part of the Baseline monitoring and sampling performed before the start of the dredge season (Table 3). These samples were analyzed for turbidity, TSS, total PCBs and TOC. The primary objective of the Baseline sampling was to establish baseline or ambient conditions in the planned work zone. A secondary objective was to reaffirm the relationship between turbidity and suspended solids, and verify the accuracy of the in-situ monitoring sensors. Samples were collected at the two reference stations and within the planned active dredge zone during both a flood and an ebb tide.

### *5.4.2 Level I – Startup Water Quality Samples*

Water quality samples were collected July 1 and 2, 2013 as part of the Level I – Startup monitoring performed at the start of the 2013 dredge season. These samples were analyzed to evaluate the protectiveness of the project’s turbidity criterion during dredging activities, to reestablish confidence in the sampling protocol, and to further examine the background conditions at the reference stations during active work. Samples were analyzed for turbidity, TSS, PCBs (total and dissolved), and TOC. Samples for metals analysis were collected and archived, but not analyzed. Samples were collected during dredging and debris removal activities in Areas L and P. Water quality samples were

collected at four locations on both days: 1) 300 feet north of activity during a flood tide, 2) 300 feet south of activity during an ebb tide, 3) the southern flood reference station, and 4) the northern ebb reference station (Table 3).

**Table 3. Summary of discrete water sampling events**

Sampling Event	Date	Sample ID	Sample Description
Level II - Baseline	6/11/2013	WQ-_*_-001-061113	1000' South of Area P
		WQ-_*_-002-061113	Area L
		WQ-_*_-003-061113	1500' North of Area L
		WQ-_*_-004-061113	Area P
Level I - Startup	7/1/2013	WQ-_*_-001-070113	1500' North of Area L
		WQ-_*_-002-070113	300' South of Area P DRG + DR
		WQ-_*_-003-070113	1000' South of Area P
		WQ-_*_-004-070113	250' North of Area P DRG
Level I - Startup	7/2/2013	WQ-_*_-001-070213	1500' North of Area L
		WQ-_*_-002-070213	300' South of Area P DRG + DR
		WQ-_*_-003-070213	1000' South of Area P
		WQ-_*_-004-070213	300' North of Area P DRG

\* = three digit code for type of analysis required (TUR for turbidity, TPC for total PCBs, DPC for dissolved PCBs, TSS for total suspended solids, and TOC for total organic carbon)

### 5.5 LABORATORY TESTING SUMMARY

Several analytes were identified as parameters of interest to assess the impacts of remedial dredging on water quality, including turbidity, total suspended solids (TSS), total organic carbon (TOC), and PCBs (dissolved and total). The primary contaminants of concern at the New Bedford Harbor Superfund Site are PCBs. Analyzing for total and dissolved PCBs allows one to whether the water column contamination is caused by PCBs sorbed onto particulates or suspended solids, and the contamination present in the water column independent of particulates >0.45µm.

#### 5.5.1 Total Suspended Solids and Turbidity

TSS concentrations from the June 11, 2013 Level II – Baseline sampling event ranged from 2.7–8.3 mg/L. Turbidity readings measured from the in-situ water quality monitoring sonde during sampling were comparable with the lab-based turbidity results (Table 4). The small differences between results can be attributed to the fact that two different, albeit very similar, parcels of water were tested by each technique.

Level I – Startup water quality samples collected on July 1–2, 2013 had TSS concentrations between 8–50.7 mg/L. Smaller concentrations were from samples collected at the ebb reference 1500 feet north of Area L on 7/1, and the largest came from

300 feet down-current of Area P dredge on 7/2. Sonde-based turbidity observations made during sample collection are comparable to the sample-based AAL results (Table 4).

A correlation between turbidity and TSS analytical results is plotted in Figure 9, which shows a statistically significant ( $P < 0.0001$ ) relationship exists between the parameters. The correlation was positive, indicating that TSS will increase as turbidity increases.

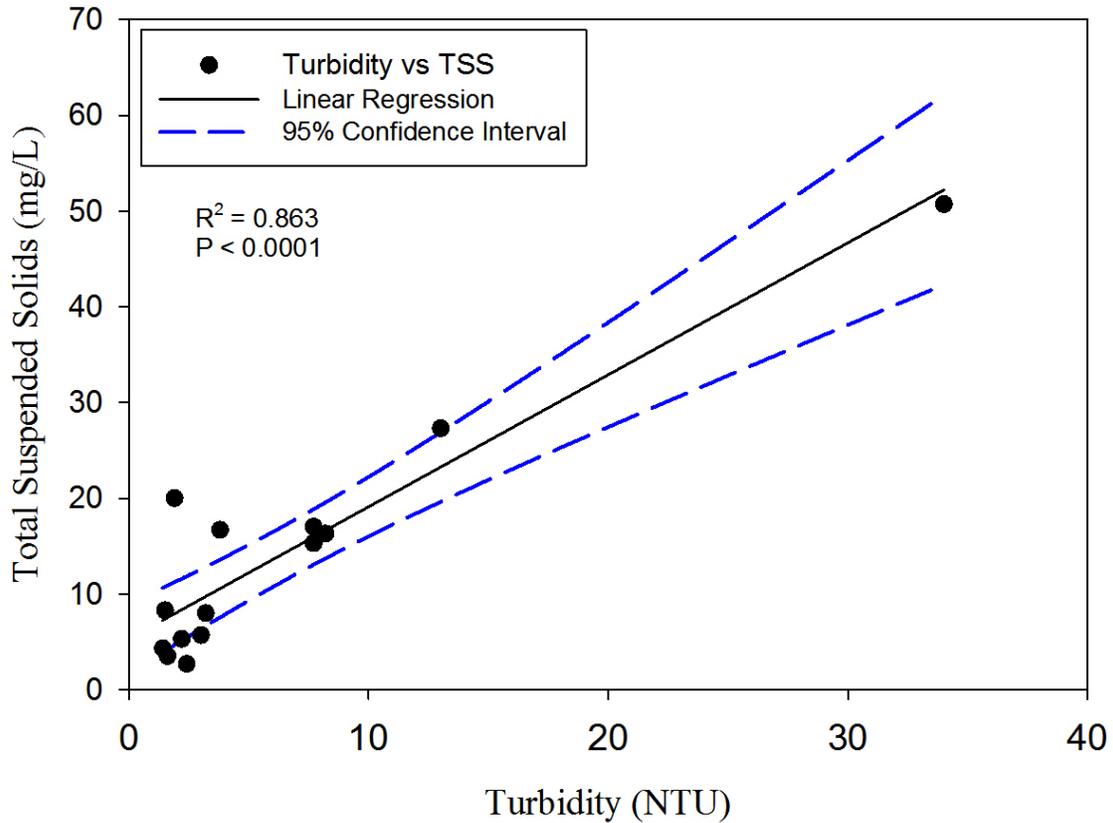


Figure 9. Correlation between TSS and Turbidity.

**Table 4. Summary of TSS, Turbidity and TOC Results**

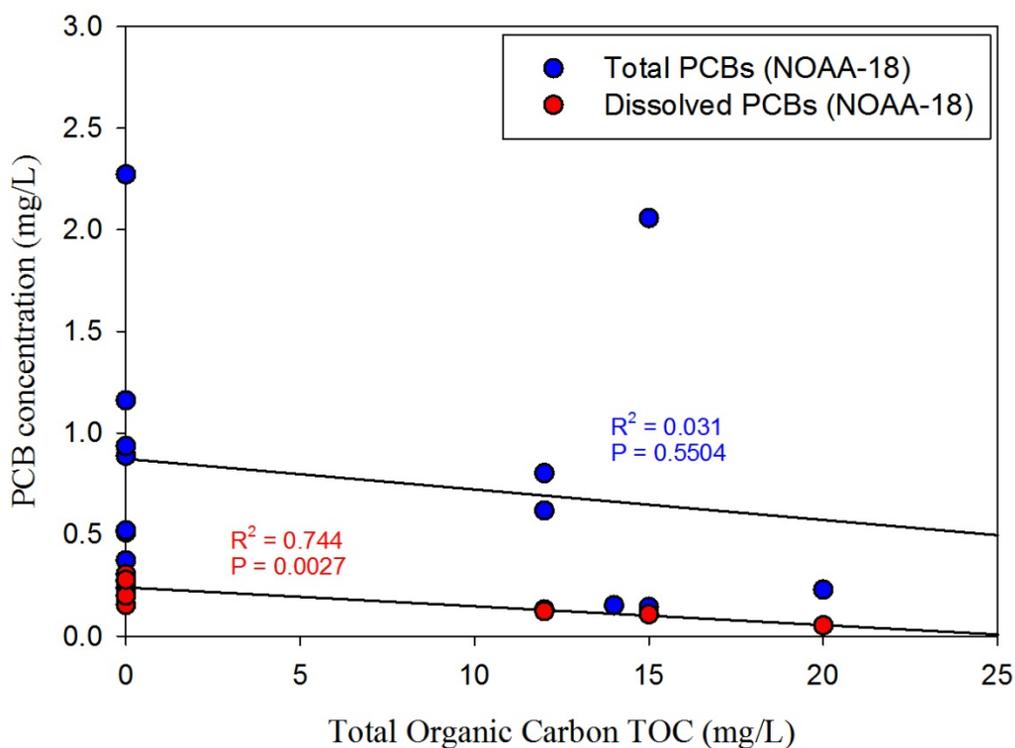
Sampling Event	Date	Sample ID	Sample Description				In-situ Measurements
				TSS (mg/L)	Turbidity (NTU)	TOC (mg/L)	Turbidity (NTU)
Level II - Baseline	6/11/2013	WQ-__-001-061113	1000' South of Area P	4.3	1.4	0	1.9
		WQ-__-002-061113	Area L	5.7	3	14	2.4
		WQ-__-002-061113-REP	Area L	2.7	2.4	15	2.4
		WQ-__-003-061113	1500' North of Area L	8.3	1.5	0	1.6
		WQ-__-004-061113	Area P	3.5	1.6	0	2.4
Level I - Startup	7/1/2013	WQ-__-001-070113	1500' North of Area L	8	3.2	20	4.3
		WQ-__-002-070113	300' South of Area P DRG + DR	27.3	13	0	14.1
		WQ-__-003-070113	1000' South of Area P	20	1.9	0	1
		WQ-__-004-070113	250' North of Area P DRG	16.3	8.2	12	11.5
		WQ-__-004-070113-REP	250' North of Area P DRG	15.3	7.7	12	11.5
Level I - Startup	7/2/2013	WQ-__-001-070213	1500' North of Area L	16.7	3.8	0	3.1
		WQ-__-002-070213	300' South of Area P DRG + DR	17	7.7	0	6.9
		WQ-__-003-070213	1000' South of Area P	5.3	2.2	0	10.3
		WQ-__-004-070213	300' North of Area P DRG	50.7	34	15	39.8

\* Three digit code for type of analysis required (TSS for total suspended solids, TUR for turbidity, TOC for total organic carbon)

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### 5.5.2 Total Organic Carbon

TOC was part of the analytical sampling scheme to examine if total PCB concentration was related to the concentration of organic content in suspended sediment. Most TOC analytical results in 2013 (8 of 14) were non-detects, but the results are plotted in Figure 10 against total and dissolved PCBs. The correlation between TOC and Total PCBs was poor ( $R^2 = 0.031$ ,  $P = 0.5504$ ) but the correlation between dissolved PCBs and TOC was statistically significant ( $R^2 = 0.744$ ,  $P = 0.0027$ ), given a criteria of  $P < 0.01$ . The correlation between TOC and dissolved PCBs was negative, indicating that Total PCBs decrease with increasing TOC. However, this trend was based on comparing just nine pairs of data points, and Woods Hole Group recommends a more robust comparison should be performed if this relationship is to be explored further.



**Figure 10. Correlation between Total Organic Carbon and PCBs (Total & Dissolved).**

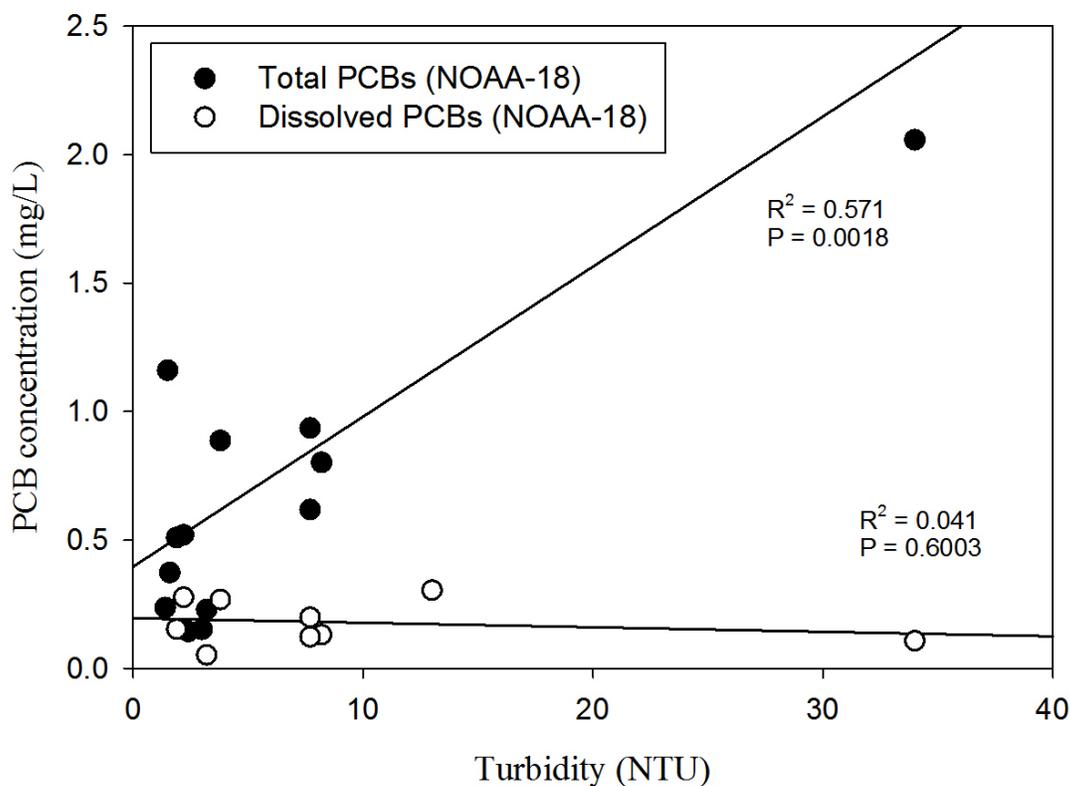
### 5.5.3 Polychlorinated Biphenyl Congeners (NOAA-18)

Total polychlorinated biphenyl (PCB) analysis for the NOAA-18 congeners was performed for all sampling events but only Level I – Startup events (July 1–2) had dissolved PCB analysis. Results are presented in Table 5 as total concentrations of the NOAA-18 congeners. For all congener analyses resulting in a non-detect, a value of zero was used in determining the sum of the NOAA-18 congeners (USEPA, 1998). Results shaded gray in Table 5 are estimated (see section 5.5.4 for more details). Results for individual congeners are reported with all complete analytical data in Appendix C.

Dissolved phase samples were filtered using glass fiber filters (0.45 µm pore size) and the filtrate was captured for analysis. Samples for total PCBs were not filtered. Concentrations of the NOAA-18 PCB congeners ranged from 0.14 to 2.27 µg/L in the total (unfiltered) water samples, and 0.11 to 0.30 µg/L in the dissolved phase (filtered) samples (Table 5). Dissolved phase samples contained lower concentrations than the total, unfiltered samples.

Most analytical PCB concentrations from 2013 were much lower than the historical data available on the New Bedford Harbor Environmental Management Information System (EMIS). Excluding outliers ( $\pm 2$  standard deviations from the mean), the 2004–2012 average of total NOAA-18 PCB congeners sample results was 3.17 µg/L, and the average of dissolved NOAA-18 PCB congeners sample results was 0.69 µg/L. In comparison, the 2013 averages for the total and dissolved PCB samples were 0.79 and 0.18 µg/L, respectively.

Given a criteria of  $P < 0.01$ , the correlation between turbidity and total PCBs was statistically significant ( $R^2 = 0.571$ ,  $P = 0.0018$ ) but the correlation between turbidity and dissolved PCBs was not significant ( $R^2 = 0.041$ ,  $P = 0.6003$ ) (Figure 11). This relationship suggests that observations of turbidity made using an optical sensor were effective at estimating total PCB concentration of suspended particles in the New Bedford Harbor. However, the use of optical turbidity as a proxy for dissolved PCBs was less accurate, which is to be expected.



**Figure 11. Correlation between Turbidity and total NOAA-18 PCB congeners, and dissolved NOAA-18 PCB congeners.**

**Table 5. Summary of total and dissolved PCB (NOAA-18 Congeners) results**

Sampling Event	Date	Sample ID	Sample Description	Lab Results		In-situ Measurements
				TPC (µg/L)	DPC (µg/L)	Turbidity (NTU)
Level II - Baseline	6/11/2013	WQ-__-001-061113	1000' South of Area P	0.24	N/A	1.9
		WQ-__-002-061113	Area L	0.15	N/A	2.4
		WQ-__-002-061113-REP	Area L	0.14	N/A	2.4
		WQ-__-003-061113	1500' North of Area L	1.16	N/A	1.6
		WQ-__-004-061113	Area P	0.37	N/A	2.4
Level I - Startup	7/1/2013	WQ-__-001-070113	1500' North of Area L	0.23	0.05	4.3
		WQ-__-002-070113	300' South of Area P DRG + DR	2.27	0.30	14.1
		WQ-__-003-070113	1000' South of Area P	0.51	0.15	1
		WQ-__-004-070113	250' North of Area P DRG	0.80 J <sup>a</sup>	0.13	11.5
		WQ-__-004-070113-REP	250' North of Area P DRG	0.62 J <sup>a</sup>	0.12	11.5
Level I - Startup	7/2/2013	WQ-__-001-070213	1500' North of Area L	0.89	0.27	3.1
		WQ-__-002-070213	300' South of Area P DRG + DR	0.94	0.20	6.9
		WQ-__-003-070213	1000' South of Area P	0.52	0.28	10.3
		WQ-__-004-070213	300' North of Area P DRG	2.06	0.11	39.8

\* Three digit code for type of analysis required (e.g., TPC for total PCBs and DPC for dissolved PCBs)

a Results are estimated due to field duplicate imprecision.

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#### *5.5.4 Quality Control*

Review of laboratory quality control samples and the complete electronic data package reported by Alpha Analytical Labs was completed by New Environmental Horizons, Inc. during their Tier I+ data validation. Complete laboratory QC data from AAL are included in Appendix C of this report. The quality of the data was acceptable and the analytical methods were in control. For example, target parameters were undetected in the method/procedural blanks, indicating that the methods were free of contamination. Results for the laboratory-based QC samples, such as LCS and MS/MSD samples were acceptable for all test parameters, indicating that the laboratory procedures were in control. Field-based QC samples (i.e. field duplicate samples and equipment blanks) were also acceptable, indicating sampling methods were also in control. All equipment blanks returned non-detects.

From the Level I – Startup event on 7/1, FD precision was acceptable for all NOAA-18 congeners except for one congener in the FD pair of WQ-TPC-004-070113 / WQ-TPC-004-070113-REP (2,2',3,4,4',5,5'-Heptachlorobiphenyl). The results for these samples were estimated (J) with indeterminate bias due to FD imprecision.

Based on Tier I+ validation of NOAA-18 PCB congeners, all results were considered usable for project decisions based on a comparison to the NBH OU1 QAPP Addendum ver. 6 requirements, and were unchanged as a consequence of this review. The full data validation reports are included in Appendix D as well as electronic attachments on CD.

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## **6.0 DISCUSSION**

The water quality monitoring program was developed to characterize the aqueous environment, to limit potential ecologically harmful impacts of remedial operations on water quality, and to limit redistribution of contaminated sediments. Achieving these goals required utilizing a variety of monitoring techniques:

- Adaptive boat-based monitoring with the use of in-situ sensors to track sediment plumes in real-time
- Collection of water samples for analytical testing, which were used to establish baseline water quality conditions and assess project compliance criteria
- Continuous, real-time in-situ data collection using fixed-station moorings at strategically selected locations. Data were collected autonomously to provide water quality data when boat-based monitoring was not possible
- Observational monitoring of water quality conditions with respect to fish and wildlife impacts, used to minimize ecological risk factors

### **6.1 FISHERY AND WILDLIFE OBSERVATIONS**

Field staff consistently recorded visual observations regarding fish migration and wildlife behavior throughout the 2013 environmental monitoring and remedial dredging season. Few fish were observed in the upper harbor between the Area C dock and the northern reaches of the estuary. Lower trophic level fish and juveniles were occasionally observed schooling near the Area C dock, and were not seen in large numbers until late August. Larger predatory fish were seen feeding on the smaller fish in late August.

Stressed fish were not observed during boat-based monitoring, and there were no observations of dead fish. This phenomenon was observed in previous monitoring seasons. Movement and migration of fish within the active work zone were unobstructed.

A variety of waterfowl including great blue herons, green herons, gulls, swans, cormorants, egrets, terns, osprey, ducks and others were observed living and feeding in the estuary surrounding all active dredge areas. The species most frequently observed were cormorants, gulls, and terns. Ospreys were observed in the upper harbor occasionally, but were not observed diving and feeding on fish until late August.

### **6.2 SUSPENDED SEDIMENT PLUMES AND ELEVATED TURBIDITY EVENTS**

In general, there were three activities with the greatest potential to generate suspended sediment plumes; 1) dredging, 2) debris removal, and 3) support operations. Direct field reconnaissance information collected in close proximity to dredge operations allowed field personnel to determine which activities had the greatest potential to contribute to turbidity plumes. These findings were generally consistent with previous monitoring years. The distribution of turbidity plumes in the 2013 active work zone was often limited to areas of shallow water, where bottom perturbation by work-related vessels or the debris removal excavator was common. Suspended sediment plumes exhibited

elevated turbidity levels immediately adjacent to the source, but rapidly decreased with distance away from the source.

There were a total of 21 turbidity readings over 50 NTU during boat-based monitoring; the largest reading was 94.7 NTU on 7/8. Most of the high-turbidity events occurred in the first two weeks of the dredge season, when remediation crews were still adapting to the bottom type and the level of force necessary to disturb bottom sediment. All of the readings over 50 NTU were recorded while monitoring on the west side of the work zone in Area P, which was shallow and had a muddy bottom. Throughout the dredge season remediation crews moved to the east and south within dredge Areas L and P, and after 7/16 there were no turbidity readings greater than 50 NTU. The increase in work zone depth may have contributed to the lack of plumes observed. A main reason why fewer plumes were observed was the continual diligence that remediation crews had in keeping turbidity low. Throughout the dredge season they would ask the WHG monitoring crew if effects of remediation work were being observed downstream and they would adjust their work accordingly.

The placement and removal of sheet pilings can suspend bottom sediments, but this activity was only monitored twice with boat-based efforts. Monitoring on 8/23 and 8/27 during demobilization showed no signs of elevated turbidity that could be directly assigned to sheet pile placement or removal.

### **6.3 TURBIDITY SPIKES FROM IN-SITU DATASETS**

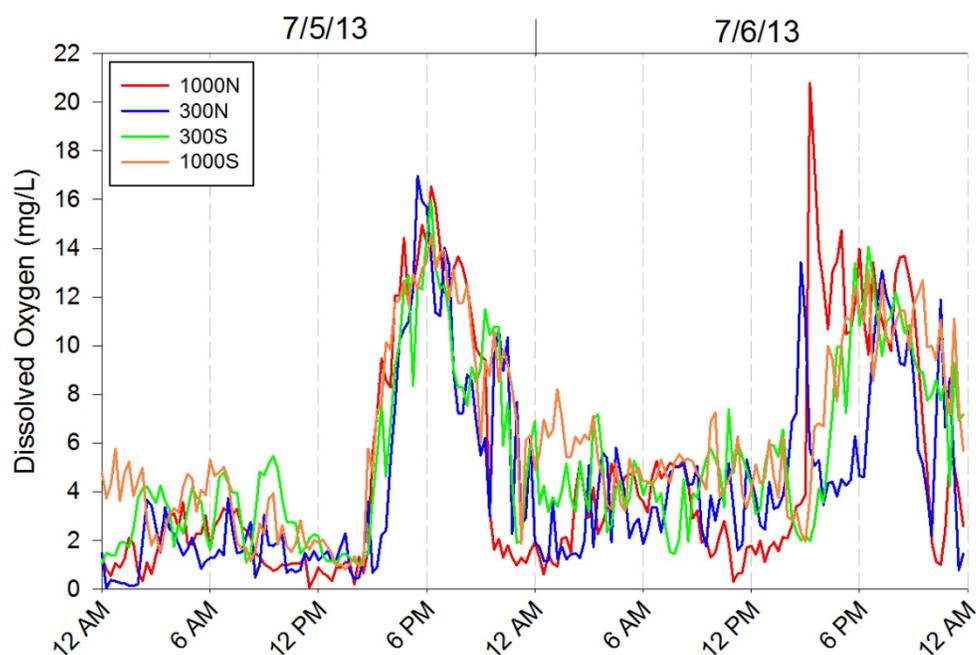
As previously mentioned, turbidity spikes greater than 100 NTU were recorded by in-situ monitoring sondes. High turbidity readings can be caused by a variety of factors, including (but not limited to) remediation activity, turbulent wake from support boats, runoff from a high-precipitation event. High turbidity readings can also be caused artificially by biofouling or by floating debris becoming fouled on the sonde, though the latter is not common and typically represent only a small fraction of high turbidity data points, if any.

Sediment plumes in New Bedford are often temporally short-lived and do not travel long distances before their effects on water quality are immeasurable by in-situ sondes. A high turbidity event could occur within the active work zone then dissipate significantly before it reached in-situ moorings at compliance transects. One example of this was the high turbidity event on July 3: while monitoring the afternoon flood tide, boat-based turbidity readings in the top 3 feet were between 60 – 100 NTU. The combined effects of remediation and the Manomet street CSO created a plume that was transported north by the flood tide a 5-15 mph S-SW wind. Based on transects across the plume, turbidity readings decreased by approximately 20 NTU every 100 feet, once the plume was north of dredge Area L. Mooring 300N was approximately 800 feet north of the source of the plume, and in-situ turbidity readings there reached a maximum of 42.5 NTU.

The plume on July 3 and its effects on water quality traveled farther downstream than most plumes in New Bedford upper harbor, based on historical evidence from previous years of monitoring. However, there were no observable or measurable traces of it remaining after 30 minutes, corroborating the short-lived nature of turbidity plumes.

#### 6.4 RAPID CHANGES IN DISSOLVED OXYGEN

There were several instances when DO increased from very low ( $\leq 2$  mg/L) to very high ( $> 10$  mg/L) concentrations in just a few hours. Figure 12 is an example from July 5–6: on 7/5 all four sondes recorded DO between 0–2 mg/L, which increased to 14–17 mg/L in approximately four hours or less. A similar increase was repeated the next day on 7/6, when DO concentrations changed by up to 18 mg/L in one hour. The decrease back to lower concentrations was equally rapid at times, taking as little as 1 hour to undergo a change of 13.5 mg/L in one instance (1500N, July 7, Appendix B). The peak DO concentrations often occurred during flood tide and minimums often occurred during ebb tide, but an absolute correlation between tidal phase and DO was not recorded. Sometimes the opposite scenario occurred; the highest DO concentrations occurred during low/ebb tide and lowest occurred during high/flood tide. Clearly, several forcing mechanisms other than daylight and tidal phase are at work in the New Bedford upper harbor that influence DO concentration, but the task of identifying them lays outside of the scope of this project task.



**Figure 12. Rapid changes in dissolved oxygen, July 5-6, 2013**

#### 6.5 DATA COMPARISON BETWEEN SONDES

Two different sonde models were used for water quality monitoring, both made by the same manufacturer YSI: a 6920-V2 sonde was used for boat-based monitoring, and four EXO2 sondes were used for in-situ moorings. Both models use optical sensors of similar design to take measurements of turbidity and DO. A comparison of the sonde models was requested by USACE NAE at the beginning of the season. To accomplish this task, WHG stopped at each buoy during boat-based monitoring to collect a measurement with the 6920-V2 at approximately 3 foot depth, the same depth as the EXO2 sondes on the moorings. Boat-based readings were taken once each day per buoy, at a time when both

sondes collected measurements at the same time. Fixed-station sondes collected a reading every fifteen minutes past the top of the hour. Comparison readings were collected twelve times during the 2013 monitoring season. Summary statistics for all pairs of comparison readings are listed in Table 6.

**Table 6. Summary statistics of comparison readings between sondes.**

	Turbidity		DO	
	Difference (NTU)	RPD (%)	Difference (mg/L)	RPD (%)
<b>Min</b>	0.03	0.8	0.01	0.2
<b>Max</b>	5.1	119.5	2.09	152.9
<b>Average</b>	1.27	31.9	0.58	19.13

$$\text{RPD} = \text{Relative percent difference (\%)} = \text{abs} \left( \frac{P_1 - P_2}{0.5(P_1 + P_2)} \right) * 100$$

where *abs* is absolute value,  $P_1$  is the reading from sonde 1, and  $P_2$  is the reading from sonde 2.

Comparison readings of turbidity were between 1.4–9.3 NTU and between 0.2–9.7 mg/L for DO. A consequence of comparing small readings is that even minute differences between readings lead to large RPD values. For example, if sonde 1 had a turbidity reading of 2.5 NTU and sonde 2 had a reading of 3.2 NTU, the RPD was 24.6%, but the difference is only 0.7 NTU. With this consideration in mind, the average differences in turbidity and DO between sondes were just 1.27 NTU and 0.58 mg/L, respectively. These differences show that both types of sondes collected equivalent measurements of water quality parameters, and that data sets from both sondes can be compared without issue. This should come as no surprise, given that the sondes are made by the same manufacturer and collect readings based on the same technology and protocols.

## 6.6 RECOMMENDATIONS FOR FUTURE SAMPLING EVENTS

1. If there had been sufficient space in the real-time buoy cavities for the copper anti-biofouling cages, they would have been used for the entirety of the 2013 season. Woods Hole Group recommends the continued use of copper mesh cages for long-term instrumentation to reduce biofouling on in-situ mooring systems, if possible. Alternatively, the sondes could be fitted with a YSI produced copper cage that is machined to fit onto the sonde.
2. Woods Hole Group recommends the continued procedure of adjusting compliance and reference transects in order to produce a more logically-defined set of boundaries for remediation work each year. Compliance transects should be 300 feet north and south of the northern & southern-most dredge Areas in each season, respectively. Reference transects should be at least 1000 feet north and south of the northern & southern-most dredge Areas, respectively.

3. Real-time in-situ mooring systems were effectively used to monitor water quality parameters when boat-based monitoring was not underway. The ability to set up automatic alerts for turbidity and DO was very useful for staying informed on critical changes in water quality. However, having a trained monitoring crew on the water to monitor environmental conditions is a superior form of monitoring. Woods Hole Group recommends the continued use of real-time mooring systems in conjunction with boat-based monitoring, provided the mooring systems do not completely take the place of boat-based monitoring.
4. As a cost savings measure, Woods Hole Group recommends that reference moorings be non-telemetry systems, but still fixed with the EXO2 sondes. Given that work-related impacts to water quality are unlikely to reach these stations, the need to monitor water quality parameters in real-time at these locations is low.
5. Woods Hole Group recommends the continued use of EXO2 sondes for in-situ moorings, rather than the 6920-V2 model. The EXO2 sondes have better battery life, increased internal storage memory, and burst mode capability which proved to be a valuable tool for interpreting high turbidity values in 2013.

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## **7.0 REFERENCES**

- Ecological Society of America (ESA). No date. "HYPOXIA", accessed June 3, 2013 at <http://water.epa.gov/type/watersheds/named/msbasin/upload/hypoxia.pdf>
- Jacobs Engineering Group. 2013. Final 2013 Fish Migration Impact Plan, New Bedford Harbor Remedial Action. New Bedford Harbor Superfund Site. Document ACE-J23-35BG0708-M1-0009. Prepared under Contract DACW33-03-D0006 Task Order No. 0013 for the U.S. Army Corps of Engineers New England District, Concord, MA.
- USEPA. 1998. Record of Decision of the Upper and Lower Harbor Operable Unit: New Bedford Superfund Site, New Bedford, Massachusetts. United States Environmental Protection Agency Region 1. September 1998.
- USEPA. 2012. "Dissolved Oxygen and Biochemical Oxygen Demand." Accessed June 28, 2013 at <http://water.epa.gov/type/rsl/monitoring/vms52.cfm>. Last updated March 6, 2012.
- Woods Hole Group. 2013a. Environmental Monitoring, Sampling and Analysis Water Quality Monitoring Field Sampling Plan. New Bedford Harbor Superfund Site, New Bedford, MA. Prepared under Contract W912WJ-09-D-0001 Task Order No 0010-13 for the U.S. Army Corps of Engineers New England District, Concord, MA.
- Woods Hole Group. 2013b. Environmental Monitoring, Sampling and Analysis Quality Assurance Project Plan Addendum. New Bedford Harbor Superfund Site, New Bedford, Massachusetts. Prepared under Contract W912WJ-09-D-0001 Task Order No 0010-13 for the U.S. Army Corps of Engineers New England District, Concord, MA.

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**APPENDIX A WATER QUALITY MONITORING FIELD LOGS AND  
DAILY REPORTS**

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New Bedford Harbor Water Quality Monitoring  
Daily Field Report

X 1500 N

Date: 6/11/13

Weather: Overcast, 60's, fog in AM, wind from S

Tides:

L	@	0327
H	@	1028
L	@	1523
H	@	2242

Monitoring Period:

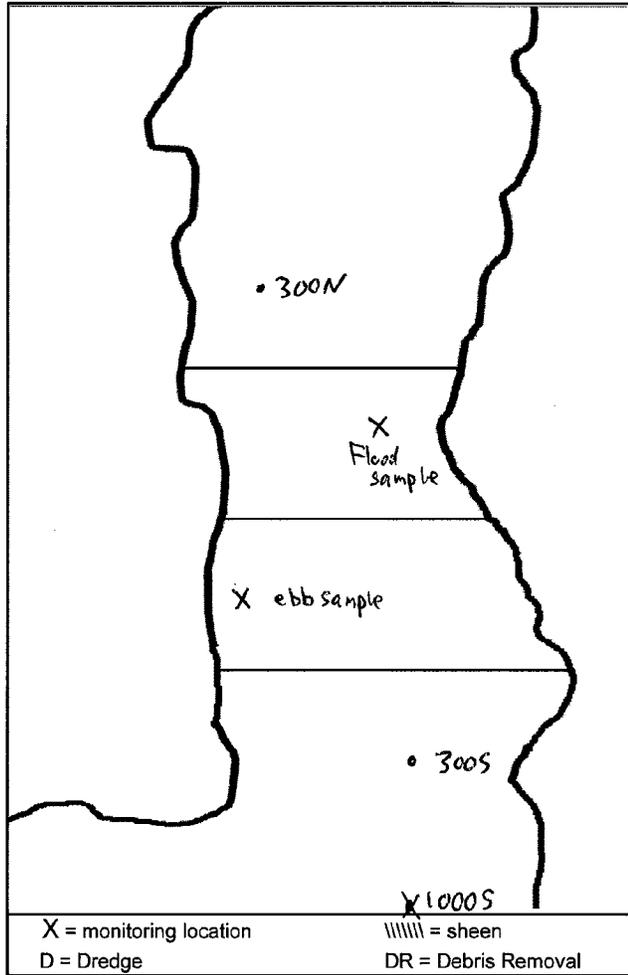
From: 0815 To: 1200

Tidal Stages: (HWS) (Ebb) LWS (Flood)

AM:	Dredge Area:	Debris Removal	Dredging	Other?
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<del>DS None</del>			
1000 S	1.5-1.9	2.77-5.01	2.06-5.42
Area L	1.2-2.5	1.40-8.24	1.03-6.01
1500 N	1.3-3.1	2.62-8.14	1.43-6.01
Area P	1.3-3.6	1.70-8.19	1.07-5.21



Oil Sheen/Debris: None observed

Wildlife Observations: Swans, gulls, jelly fish

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)	4 samples + REP	Turbidity (1L)	4 samples + REP
Total PCB (2x 1L)	4 samples + REP + QC + Equip. Blank	Dissolved PCB (2x 1L)	
Toxicity (2x 10L)		Metals (500ml)	
TOC (2x 40mL)	4 samples + REP		

Notes: Baseline samples collected, No mobilization of dredge crews occurred during sampling.

Sampling Crew: D. Stuart, D. Rogers

Chief Scientist Signature: *David Stuart*



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

NA
NA
R/V George Hampson
P. Struck
-
D. Rogers
-
Overcast, 60s, fog, chance of rain

**Date** 6/11/13  
**Page** 1 of 1

Tide Information	
High	2242
Low	0327
High	1028
Low	1523

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1000S	0828	41° 39.729	70° 54.971	7.2	2.06	1.5	5.01	12.09	19.39	
I	0830	I	I	I	4.05	1.6	4.45	21.64	19.19	
I	0833	I	I	I	5.42	1.9	2.77	24.20	19.16	← Sample depth
Flood Sample - Area L	0858	41° 40.011	70° 55.015	7.5	1.03	2.5	8.24	7.64	18.29	
I	0901	I	I	I	2.60	1.9	4.80	13.93	19.35	
I	0904	I	I	I	4.04	1.2	3.02	22.01	19.47	
I	0906	I	I	I	6.01	1.8	1.40	24.17	19.31	
I	0910	I	I	I	1.68	2.4	7.80	4.20	18.38	← Sample depth
1500N	1112	41° 40.287	70° 55.028	7.9	1.43	3.1	8.14	0.81	17.84	+ REP
I	1114	I	I	I	3.01	1.5	3.34	18.80	19.05	
I	1116	I	I	I	5.02	1.3	3.06	23.28	19.26	
I	1118	I	I	I	6.01	1.6	2.62	24.55	19.26	← Samples
Ebb Sample - Area P	1133	41° 39.904	70° 55.081	6.3	1.07	3.6	8.19	3.18	18.55	
I	1135	I	I	I	2.59	2.6	6.78	8.10	18.70	
I	1137	I	I	I	4.54	1.3	3.38	24.37	19.23	
I	1140	I	I	I	5.21	2.4	1.70	25.79	19.20	← Samples + Q/C

FIELD DATA RECORD - SURFACE WATER

PROJECT **NBH Water Quality Monitoring**

JOB NUMBER **TO-0010-**

DATE **6/11/13**

LOCATION ID **1000 S morning**

ACTIVITY TIME **START** **END**

BOTTLE TIME **0840**

SURFACE WATER DATA

WATER DEPTH AT LOCATION **7.2** FT

DEPTH OF SAMPLE **5.42** FT

WATER QUALITY PARAMETERS:

TEMPERATURE **19.16** °C

SPEC. COND.  mS/cm

PH  Units

ORP  mV

DO **2.77** mg/L

TURBIDITY **1.9** NTUs

SALINITY **24.20** ppt

EQUIPMENT USED:

BEAKER

PACS BOMB

PERISTALTIC PUMP

FILTER/ NUMBER

OTHER

TYPE OF SURFACE WATER:

STREAM/ RIVER

LAKE/ POND

SEEP

OPEN WATER

\_\_\_\_\_

DECON FLUIDS USED:

DI WATER

POTABLE WATER

LIQUINOX

DILUTE NITRIC ACID

\_\_\_\_\_

ANALYTICAL PARAMETERS

ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED?
<input checked="" type="checkbox"/> TOTAL PCBs	EPA 8082A	NONE	2x 1L GLASS	<input checked="" type="checkbox"/>
<input type="checkbox"/> DISSOLVED PCBs	EPA 8082A	NONE	2x 1L GLASS	<input type="checkbox"/>
<input checked="" type="checkbox"/> TSS	SM 2540D	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TURBIDITY	EPA 180.1	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TOC	5310C	H2SO4	2x 40mL VIAL	<input checked="" type="checkbox"/>
<input type="checkbox"/> METALS	EPA 6062A	HNO3	500mL PLASTIC	<input type="checkbox"/>
<input type="checkbox"/> TOXICITY	EPA 1007.0, 1008.0, 1009.0	NONE	2x 10L CUBITAINER	<input type="checkbox"/>

Drawing for location

N 41° 39.729  
W 70° 54.971

Notes:

1000' South of Area P. Flood Reference

ID: WQ-XXX-001-061113

SIGNATURE: Dad Stuss

RECEIVED BY: \_\_\_\_\_

FIELD DATA RECORD - SURFACE WATER

PROJECT **NBH Water Quality Monitoring**

JOB NUMBER **TO-0010-**

DATE **6/11/13**

LOCATION ID **Area L**

ACTIVITY TIME **START** **END**

BOTTLE TIME **0910**

0915 - REP

SURFACE WATER DATA

WATER DEPTH AT LOCATION **7.5** FT DEPTH OF SAMPLE **1.68** FT

WATER QUALITY PARAMETERS:

TEMPERATURE **18.38** °C

SPEC. COND.  mS/cm

PH  Units

ORP  mV

DO **7.80** mg/L

TURBIDITY **2.4** NTUs

SALINITY **4.20** ppt

EQUIPMENT USED:

BEAKER

PACS BOMB

PERISTALTIC PUMP

FILTER/ NUMBER

OTHER

TYPE OF SURFACE WATER:

STREAM/ RIVER

LAKE/ POND

SEEP

OPEN WATER

\_\_\_\_\_

DECON FLUIDS USED:

DI WATER

POTABLE WATER

LIQUINOX

DILUTE NITRIC ACID

\_\_\_\_\_

ANALYTICAL PARAMETERS

ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED?
<input checked="" type="checkbox"/> TOTAL PCBs	EPA 8082A	NONE	2x 1L GLASS	<input checked="" type="checkbox"/>
<input type="checkbox"/> DISSOLVED PCBs	EPA 8082A	NONE	2x 1L GLASS	<input type="checkbox"/>
<input checked="" type="checkbox"/> TSS	SM 2540D	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TURBIDITY	EPA 180.1	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TOC	5310C	H2SO4	2x 40mL VIAL	<input checked="" type="checkbox"/>
<input type="checkbox"/> METALS	EPA 6062A	HNO3	500mL PLASTIC	<input type="checkbox"/>
<input type="checkbox"/> TOXICITY	EPA 1007.0, 1008.0, 1009.0	NONE	2x 10L CUBITAINER	<input type="checkbox"/>

Drawing for location

N 41° 40.011  
W 70° 55.015

Notes:

Interior of Area L, eastern shoreline, Flood sample

ID: WQ-XXX-002-061113

REP at 0915 = WQ-XXX-002-061113-REP

SIGNATURE: *Dad Stur*

RECEIVED BY: \_\_\_\_\_

FIELD DATA RECORD - SURFACE WATER

PROJECT NBH Water Quality Monitoring JOB NUMBER TO-0010- DATE 6/1/13  
 LOCATION ID 1500 N ACTIVITY TIME START \_\_\_\_\_ END \_\_\_\_\_ BOTTLE TIME 1120

SURFACE WATER DATA WATER DEPTH AT LOCATION 7.9 FT DEPTH OF SAMPLE 6.01 FT

WATER QUALITY PARAMETERS: EQUIPMENT USED: TYPE OF SURFACE WATER: DECON FLUIDS USED:

TEMPERATURE 19.26 °C  BEAKER  STREAM/ RIVER  DI WATER  
 SPEC. COND. \_\_\_\_\_ mS/cm  PACS BOMB  LAKE/ POND  POTABLE WATER  
 PH \_\_\_\_\_ Units  PERISTALTIC PUMP  SEEP  LIQUINOX  
 ORP \_\_\_\_\_ mV  FILTER/ NUMBER  OPEN WATER  DILUTE NITRIC ACID  
 DO 2.62 mg/L \_\_\_\_\_  
 TURBIDITY 1.6 NTUs  OTHER \_\_\_\_\_  
 SALINITY 24.55 ppt \_\_\_\_\_

ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED?
<input checked="" type="checkbox"/> TOTAL PCBs	EPA 8082A	NONE	2x 1L GLASS	<input checked="" type="checkbox"/>
<input type="checkbox"/> DISSOLVED PCBs	EPA 8082A	NONE	2x 1L GLASS	<input type="checkbox"/>
<input checked="" type="checkbox"/> TSS	SM 2540D	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TURBIDITY	EPA 180.1	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TOC	5310C	H2SO4	2x 40mL VIAL	<input checked="" type="checkbox"/>
<input type="checkbox"/> METALS	EPA 6062A	HNO3	500mL PLASTIC	<input type="checkbox"/>
<input type="checkbox"/> TOXICITY	EPA 1007.0, 1008.0, 1009.0	NONE	2x 10L CUBITAINER	<input type="checkbox"/>

Drawing for location

N 41° 40.287  
 W 70° 55.028

Notes:  
 1500' North of Area L, Ebb Ref.  
 ID: WQ-XXX-003-061113

SIGNATURE: *David Stur*  
 RECEIVED BY: \_\_\_\_\_

FIELD DATA RECORD - SURFACE WATER

PROJECT **NBH Water Quality Monitoring** JOB NUMBER **TO-0010-** DATE **06/11/13**  
 LOCATION ID **Area P** ACTIVITY TIME **START** **END** BOTTLE TIME **1145**

SURFACE WATER DATA WATER DEPTH AT LOCATION **6.3** FT DEPTH OF SAMPLE **5.21** FT

WATER QUALITY PARAMETERS: EQUIPMENT USED: TYPE OF SURFACE WATER: DECON FLUIDS USED:

TEMPERATURE **19.20** °C  BEAKER  STREAM/ RIVER  DI WATER  
 SPEC. COND.  mS/cm  PACS BOMB  LAKE/ POND  POTABLE WATER  
 PH  Units  PERISTALTIC PUMP  SEEP  LIQUINOX  
 ORP  mV  FILTER/ NUMBER  OPEN WATER  DILUTE NITRIC ACID  
 DO **1.70** mg/L  OTHER    
 TURBIDITY **2.4** NTUs     
 SALINITY **25.79** ppt

ANALYSIS	ANALYSIS METHOD	PRESERVATION METHOD	BOTTLE TYPE AND VOLUME REQUIRED	SAMPLE COLLECTED?
<input checked="" type="checkbox"/> TOTAL PCBs	EPA 8082A	NONE	2x 1L GLASS	<input checked="" type="checkbox"/>
<input type="checkbox"/> DISSOLVED PCBs	EPA 8082A	NONE	2x 1L GLASS	<input type="checkbox"/>
<input checked="" type="checkbox"/> TSS	SM 2540D	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TURBIDITY	EPA 180.1	NONE	1L PLASTIC	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> TOC	5310C	H2SO4	2x 40mL VIAL	<input checked="" type="checkbox"/>
<input type="checkbox"/> METALS	EPA 6062A	HNO3	500mL PLASTIC	<input type="checkbox"/>
<input type="checkbox"/> TOXICITY	EPA 1007.0, 1008.0, 1009.0	NONE	2x 10L CUBITAINER	<input type="checkbox"/>

Drawing for location

N 41° 39.904  
 W 70° 55.081

Notes:  
 Interior of Area P, near western coastline, Ebb sample  
 ID: WQ-XXX-004-061113  
 11 -MS } QC samples  
 11 -MSD }  
 SIGNATURE: *Dud Hu*  
 RECEIVED BY: \_\_\_\_\_



# New Bedford Harbor Water Quality Monitoring Daily Field Report

Date: 6/28/13

Weather: RAM, T-storms, wind from S 10-25 mph

Tides:

H	@	0012
L	@	0609
H	@	1245
L	@	1841

Monitoring Period:

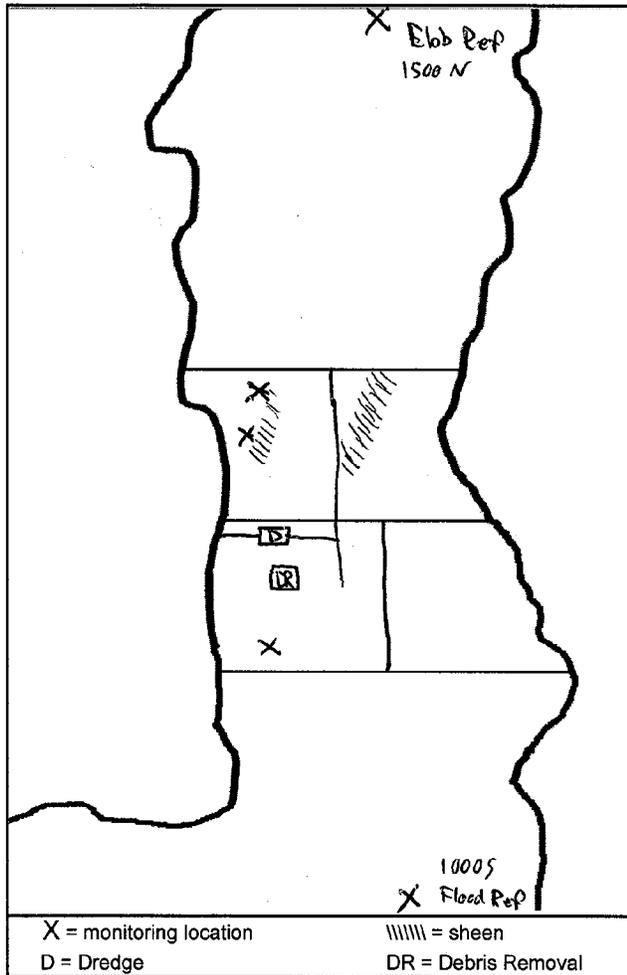
From: 910 To: \_\_\_\_\_

Tidal Stages: HWS Ebb LWS Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
PM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1000 S</u>	<u>2.5-5.6</u>	<u>1.76-3.66</u>	<u>1.57-7.58</u>
<u>300 ft N of Area</u>			
<u>P DRG+DR</u>	<u>4.5-36.8</u>	<u>2.35-4.03</u>	<u>1.17-9.6</u>
<u>1500 N</u>	<u>3.6-6.5</u>	<u>4.02-5.52</u>	<u>1.18-7.02</u>
<u>300 ft S of Area</u>			
<u>P DR</u>	<u>6.5-57.9</u>	<u>3.78-4.28</u>	<u>1.06-6.54</u>



Oil Sheen/Debris:

very light sheen N of debris removal, contained within booms (flood tide only)

Wildlife Observations:

Moon jellies, cormorants, gulls

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Notes: first day of remediation dredging. Lightning standdown at 0755-0845. High winds caused difficulty opening oil boom for transit into/out of dredge zone. Many floating dredge pipelines make transit difficult for WHG vessels. No exceedances observed, no samples collected.

Sampling Crew: D. Stuart, D. Rogers

Chief Scientist Signature: Dacl Stuart



## New Bedford Harbor Water Quality Monitoring In-situ Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P (stop & go)  
 Area P near Manomet  
 R/V George Hampson  
 D. Stuard  
 D. Rogers  
 -  
 Rain, T-stems, wind from S 15-30 mph

**Date** 6/28/13  
**Page** 1 of 2

Tide Information	
High	0012
Low	0609
High	1245
Low	1841

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
000 S	0916	41° 39.725	70° 54.982	8.4	1.57	2.5	3.66	27.42	23.50	Flood Ref
I	0919	I	I	I	3.53	2.5	3.54	27.49	23.50	I
I	0921	I	I	I	5.601	2.6	3.45	27.51	23.51	I
I	0924	I	I	I	7.58	5.6	1.76	28.23	23.59	I
300 ft NoP	0945	41° 39.981	70° 55.104	10.3	1.54	32.9	4.01	25.82	23.39	
Area P DRG+DR	0947	I	I	I	3.64	36.8	3.95	26.06	23.36	
I	0949	I	I	I	5.51	28.4	3.88	26.28	23.30	
I	0951	I	I	I	7.54	23.6	3.18	26.78	23.50	
I	0953	I	I	I	9.61	14.8	2.35	27.47	23.64	
I	1030	I	I	I	2.36	11.4	3.73	27.01	23.36	
I	1110	I	I	I	1.17	8.0	3.76	26.85	23.54	
I	1132	I	I	I	2.63	8.6	3.95	27.85	23.28	
I	1210	41° 39.973	70° 55.111	8.7	2.65	4.5	4.63	28.27	23.25	← water too deep for
1500 N	1305	41° 40.288	70° 55.028	9.2	1.16	3.6	5.52	24.28	23.24	spud at previous location
I	1307	I	I	I	3.52	3.5	5.03	25.27	23.27	Ebb Ref
I	1309	I	I	I	7.02	6.5	4.02	26.84	23.30	I



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P (stepping)  
 Area P, near Mansmet St  
 R/V George Hampson  
 D. Strick  
 -  
 D. Rogers  
 -  
 Rain, T-storm, wind from S 15-30

**Date** 6/28/13  
**Page** 2 of 2

Tide Information	
High	0013
Low	0609
High	1245
Low	1841

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes	
300 ft S of	1327	41° 39.888	70° 55.085	7.3	1.54	24.0	3.96	28.67	23.23	Ebb station	
Area P DR	1330				3.07	19.4	3.96	28.71	23.22		
	1332				5.09	6.5	4.17	28.95	23.15		
	1334				6.54	11.2	4.17	28.99	23.14		
	1400				1.06	8.4	4.28	28.23	23.31		
	1438				6.2	1.98	10.9	4.28	28.10		23.30
	1508				5.8	4.14	22.6	3.90	28.04		23.29
	1526				5.2	3.49	48.4	3.86	27.48		23.34
	1540				3.49	57.9	3.78	27.18	23.33		
	1555				3.48	51.6	3.79	27.18	23.33		



New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 7/1/13  
 Weather: Overcast, humid, rain, wind from S 10-20  
 Tides:  

<u>H</u>	@	<u>0257</u>
<u>L</u>	@	<u>0851</u>
<u>H</u>	@	<u>1531</u>
<u>L</u>	@	<u>2245</u>

Monitoring Period:

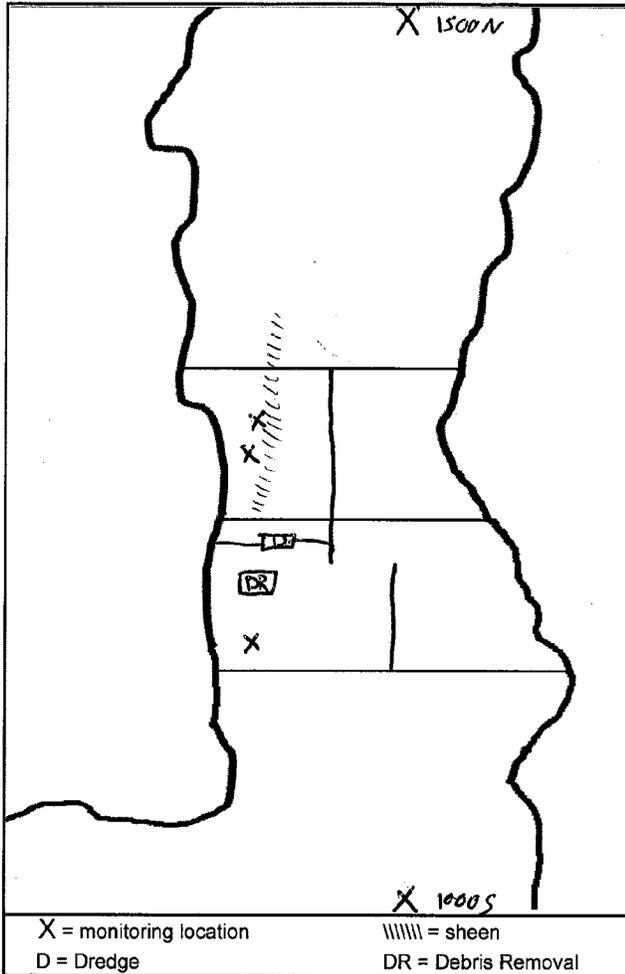
From: 0750 To: \_\_\_\_\_

Tidal Stages: HWS Ebb LWS Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1500 N Ebb Rea</u>	<u>1.5-4.3</u>	<u>1.66-8.10</u>	<u>1.2-4.5</u>
<u>300' S of Area</u>			
<u>P DRG + DR</u>	<u>3.6-14.1</u>	<u>1.20-6.7</u>	<u>1.2-2.61</u>
<u>1000 S Flood Rea</u>	<u>1.0-4.1</u>	<u>2.13-7.23</u>	<u>1.5-5.52</u>
<u>250' S of Area</u>	<u>4.6-81</u>	<u>1.05-6.40</u>	<u>1.58-8.68</u>
<u>P DRG</u>			



Oil Sheen/Debris: moderate sheen in Area P moving N from work, mostly contained by booms

Wildlife Observations: Cormorants, gulls, jellies, crabs, swan

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L) <u>4 Samples + REP</u>	Turbidity (1L) <u>4 Samples + REP</u>
Total PCB (2x 1L) <u>4 Samples + REP + QA + EB</u>	Dissolved PCB (2x 1L) <u>4 Samples + REP + QA + EB</u>
Toxicity (2x 10L) <u>—</u>	Metals (500ml) <u>4 Samples + REP + QA + EB</u>
TOC (2x 40mL) <u>4 Samples + REP</u>	

Notes: Wind and rain prohibited effective note-taking from 1000-1200. Debris removal crew was inactive for parts of the morning. Level 2 samples collected today at 4 locations. Turbidity north of work zone during flood was highly variable from ~4-80 NTU, but could be influenced by Manomet CSO and inlets. No exceedances observed.

Sampling Crew: D. Stuart, D. Rogers, E. Hasbrouck  
 Chief Scientist Signature: Dacl Stuart



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 E. Hasbrouck  
 D. Rogers  
 -  
 Overcast, humid, rain, wind from S

**Date** 7/1/13  
**Page** 1 of 2

**Tide Information**  
**High** 0257  
**Low** 0851  
**High** 1531  
**Low** ~~1030~~ 2245

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1500 N	0805	41° 40.291	70° 55.025	5.00	1.21	4.3	8.10	1.86	22.28	Ebb Ref, Sample depth
	0807	↓	↓	↓	3.07	1.5	1.78	27.29	23.98	
	0810	↓	↓	↓	4.47	4.1	1.66	27.87	22.98	
300' S of P	0820	41° 39.886	70° 55.080	3.50	1.21	3.6	6.68	8.64	22.75	Ebb sample
DRG + DR	0823	↓	↓	↓	2.61	14.1	1.76	26.37	22.98	
	0845	↓	↓	↓	2.57	9.8	1.17	26.46	22.91	
		↓	↓	↓	2.88	10.2	1.23	26.39	22.92	
	0900	↓	↓	↓	2.58	8.7	1.25	26.38	23.04	
	0920	↓	↓	↓	2.56	13.1	1.20	26.40	23.07	
1000 S	0952			6.3	1.5	1.0	7.23	19.54	23.04	
Flood Ref	0955				3.08	1.4	3.12	22.92	23.07	
	0957				5.52	4.1	2.13	28.36	22.85	
		wind & rain prohibited use of <del>pen</del> note taking on this sheet								
	1300	→ leave Area C dock after sample drop off								
250' N of Area	1325	41° 39.973	70° 55.113	9.7	1.58	11.5	6.90	12.70	23.21	Flood.
P DRG	1327	↓	↓	↓	3.06	64.6	1.86	24.81	23.03	
	1329	↓	↓	↓	5.01	18.5	1.05	27.23	22.93	



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 P. Stuart  
 B. Hasbrouck  
 D. Rogers  
 -  
 Overcast, rain, wind from S, humid

**Date** 7/1/13  
**Page** 2 of 2

**Tide Information**  
**High** 0257  
**Low** 0851  
**High** 1531  
**Low** 2245

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
250' N of	1331	41° 39.973	70° 55.113	9.7	7.10	6.0	1.60	28.06	22.93	
Area P DR6	1333				8.68	6.5	1.76	28.13	22.89	
	1330 to				3.00	4.6 to	1.7 to			Highly variable Turbidity
	1350					81 NTU	6.0			Could be Manomet CSO.
	1415				2.28	21.2	5.33	14.43	23.29	
	1435				3.43	39.7	2.68	23.13	23.28	
	1450				3.40	67.7	2.65	24.81	23.10	
	1515				3.42	21.1	4.15	25.03	23.12	
	1530				3.43	13.5	3.96	25.89	23.19	
	1535				3.51	17.8	4.03	26.02	23.27	

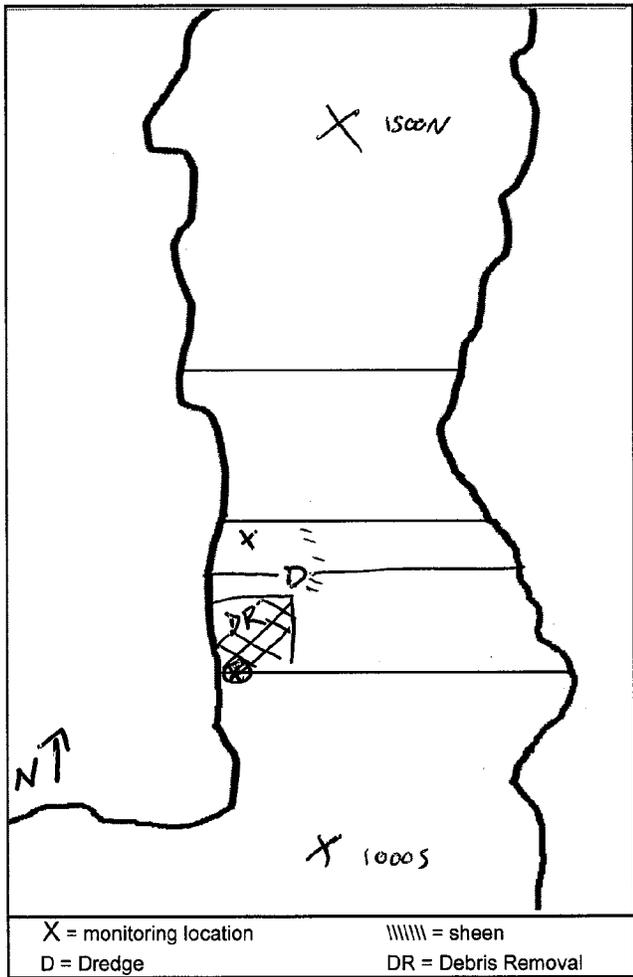
Date: 20130702  
 Weather: Overcast, T-storms, breezy  
 Tides:  
 H @ 0352  
 L @ 0953  
 H @ 1624  
 L @ 2348

Monitoring Period:

From: 0800 To: 1600

Tidal Stages: HWS ebb LWS Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	



Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1000S</u>	<u>(1.4-10.3)</u>	<u>(1.1-8.2)</u>	<u>(1.3-6.9)</u>
<u>300S</u>	<u>(6.4-29.5)</u>	<u>(0.36-8.5)</u>	<u>(0.75-3.0)</u>
<u>1500N</u>	<u>(2.7-3.1)</u>	<u>(0.75-8.0)</u>	<u>(1.4-4.25)</u>
<u>300N</u>	<u>(4.3-8.7)</u>	<u>(0.87-8.82)</u>	<u>(1.2-6.5)</u>

Oil Sheen/Debris: light sheen w/in booms

Wildlife Observations: Cormorants, gulls, swallows,

Samples Collected for Laboratory Analysis - Sample IDs: - WQ-XXX-[002-004]-070231

TSS (1L) <u>x4</u>	Turbidity (1L) <u>x4</u>
Total PCB (2x 1L) <u>x4</u>	Dissolved PCB (2x 1L) <u>x4</u>
Toxicity (2x 10L) <u>x4</u>	Metals (500ml) <u>x4</u>
TOC (2x 40mL) <u>x4</u>	

Notes: planned level 7 sampling occurred @ 4 stations. DO was particularly low in the entire study area. Low DO possibly due to changes in ambient conditions as a result of rain events. No exceedances occurred.

Sampling Crew: EGM, DGS, DJR

Chief Scientist Signature: [Signature] 20130702 1615



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
 Debris Removal Location  
 Survey Vessel  
 Chief Scientist  
 Sampling Technician  
 Vessel Captain  
 Other Personnel  
 Weather Conditions

Area P  
 Area P  
 R/V George Hampson  
 EGH  
 DGS  
 DJR  
 N/A  
 overcast, showers

Date 07.02.13  
 Page 1 of 2

Tide Information	
High	0352
Low	0953
High	1624
Low	2348

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1500 N	0815	41 40.289	070 55.021	4.7'	1.4	2.7	8.08	1.50	22.4	Ref site 1000N
					3.2	3.0	1.5	25.5	22.9	
					4.25	3.1	0.85	26.99	22.8	
300S	0845	41 39.882	070 55.080	3.3	0.75	6.4	8.08	6.5	22.9	Ref Mantoy site 300S
				"	3.0	6.9	1.50	26.0	22.9	
	0850			3.2	3.0	26.0	0.82	26.6	22.9	Dredging - debris removal
300S	0935	41 39.882	070 55.080	3.2	1.0	11.5	8.54	5.9	23.2	dredging - debris removal
	0940				3.0	29.5	1.63	10.11	22.9	
	0954				2.9	15.3	0.63	21.85	22.9	
	1020				2.8	19.9	0.36	25.76	22.91	
1000S	1040	41 39.728	070 54.974	7.2'	1.3	10.8	8.29	10.04	23.53	flood ref. 1000S
				6.0'	1.4	1.4	1.59	26.84	22.89	
					6.9	10.3	1.12	27.13	22.8	
300N	1115	41 39.971	070 55.101	7.7'	1.2	39.8	2.95	6.53	23.41	flood mantoy site 300N
					4.2'	8.4	1.39	26.10	22.92	
					6.5	4.3	0.87	26.59	22.91	
	1122				1.6	28.5	7.04	8.6	23.2	debris - dredging activity



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
 Debris Removal Location  
 Survey Vessel  
 Chief Scientist  
 Sampling Technician  
 Vessel Captain  
 Other Personnel  
 Weather Conditions

Area P  
 Area P  
 R/V George Hampson  
 EGH  
 DGS  
 DJR  
 N/A  
 overcast, humid, light variable breeze

Date 20130902  
 Page 2 of 2

**Tide Information**  
 High 0352  
 Low 0954  
 High 1624  
 Low 2348

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300 N	1135	41 39.971	67 55.101	16.7	1.6	42.8	7.29	8.6	23.51	dredge removal only
	1147					47.8	6.68	10.26	23.70	
300 N	1300	41 39.978	67 55.115	8.5	1.5	41.0	9.46	12.34	24.5	debris removal only
					4.1	17.9	2.8	25.8	23.0	
					6.5	6.5	1.32	26.8	22.8	
					1.5	6.1	7.32	13.0	24.7	
300 N	1330	41 39.978	67 55.115	8.5	1.5	10.2	8.4	13.52	24.7	debris only
	1345				1.56	4.4	8.82	13.62	24.91	Dredge resumes
	1345				1.5	27.4	4.50	13.6	24.40	
	1400				1.5	18.7	6.08	13.79	24	all stop
	1420				2.8	18.5	6.8	16.3	24.2	debris resume
	1440				2.84	44-70	3.45	17.54	24.33	Turbidity range over 2 mm
	1456				2.85	67	2.5	22.8	23.45	dredge maximum but only
	1510				2.84	87	3.02	19.54	23.92	debris removal cont.
	1528				2.84	78.4	3.52	19.8	23.62	
	1545				2.77	26.4	2.89	23.04	25.5	



# New Bedford Harbor Water Quality Monitoring Daily Field Report

Date: 7/3/13  
 Weather: Mostly sunny, low 80s, wind from S/SW 5-15  
 Tides:  

H	@	0445
L	@	1047
H	@	1714
	@	

**Monitoring Period:**

From: 0700 To: \_\_\_\_\_

Tidal Stages: HWS Ebb LWS Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____
	_____	<input type="checkbox"/>	<input type="checkbox"/>	_____

**Turbidity Summary:**

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1500N</u>	<u>1.0-3.0</u>	<u>1.21-6.50</u>	<u>1.5-5.6</u>
<u>200' S of Area P</u>	<u>1.5-58.0</u>	<u>2.27-6.82</u>	<u>1.0-5.6</u>
<u>DR + DRG</u>			
<u>250' S of DR + DRG in P</u>	<u>5.4-56.8</u>	<u>3.26-8.23</u>	<u>1.0-2.5</u>
<u>1000S</u>	<u>1.7-3.5</u>	<u>0.86-9.85</u>	<u>1.0-6.3</u>
<u>300' N of DRG + DR</u>	<u>7.1-84.9</u>	<u>0.9-6.49</u>	<u>1.5-7.0</u>

More on logsheets

**Oil Sheen/Debris:**

light sheen coming from work zone extending to no anchor/spud zone

**Wildlife Observations:**

Swans, cormorants, gulls, ducks,

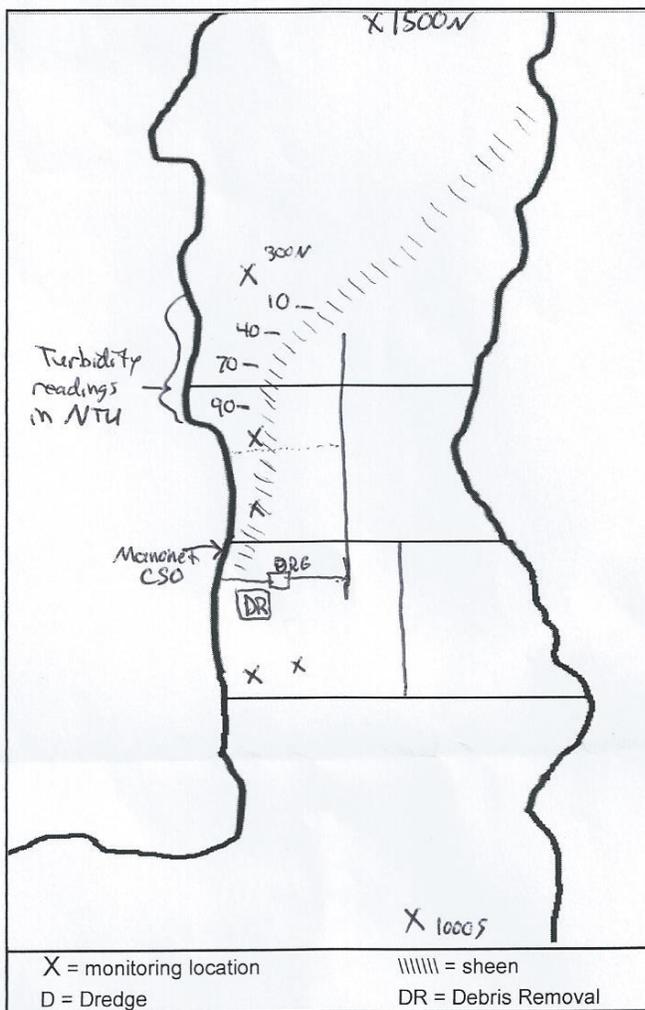
**Samples Collected for Laboratory Analysis - Sample IDs:**

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Notes: Noticeable high turbidity within work zone was a combination of work (70-100 NTU) and runoff from Manomet Street CSO (60-80 NTU). Plume extended to ~600 ft North of source and had a very light sheen which extended to the no spud/no anchor zone. Jacobs observed the plume and paused work and added more boom to Northern boundary. Turbidity measured at 300N was 15-20 NTU during the plume. Sheen dissipated within 30 minutes. No exceedances observed, no samples collected.

Sampling Crew: D. Stuart, D. Rogers

Chief Scientist Signature: Dave Stuart





## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location DRG  
 Debris Removal Location DR  
 Survey Vessel  
 Chief Scientist  
 Sampling Technician  
 Vessel Captain  
 Other Personnel  
 Weather Conditions

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 —  
 D. Rogers  
 —  
 Partly sunny, 80's, wind from S

Date 7/3/13  
 Page 1 of 3

Tide Information	
High	0445
Low	1047
High	1714
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1500' Ebb	0716	41° 40.285	70° 55.020	6.1	1.52	3.0	6.50	4.86	23.18	Ebb
Ref ↓	0718	↓	↓	↓	3.10	1.8	1.21	26.25	23.14	↓
	0720	↓	↓	↓	5.61	1.0	1.77	27.19	23.16	↓
200' South of	0732	41° 39.896	70° 55.056	6.7	1.01	2.7	6.82	4.45	23.48	
Area P DR+DRG	0734	↓	↓	↓	3.06	1.5	2.58	27.16	23.17	work paused, no DR
↓	0736	↓	↓	↓	4.54	44.6	2.43	27.80	23.05	↓
↓	0738	↓	↓	↓	5.58	41.0	2.27	28.01	23.00	↓
↓	0745	↓	↓	↓	4.14	58.0	2.44	27.78	23.06	Dredge resumes
↓	0755	↓	↓	↓	4.81	6.7	2.86	27.83	23.05	
↓	0815	↓	↓	↓	4.73	5.3	2.28	27.65	23.05	
250' South of	0835	41° 39.889	70° 55.088	3.5	1.03	6.3	8.23	6.02	23.76	
Area P DRG	0838	↓	↓	↓	2.54	38.1	3.26	17.28	23.53	} Possibly bottom effects from depth and current passing under boat
↓	0850	↓	↓	↓	2.16	29.5	3.52	11.42	23.59	
↓	0915	↓	↓	↓	<del>2.13</del> 1.76	56.8	<del>3.4</del> 4.06	11.62	23.63	
↓	0930	↓	↓	↓	3.1	17.1	7.53	7.06	23.97	
↓	0940	↓	↓	↓	1.16	12.6	7.96	6.94	23.95	-work stopped
↓	1005	↓	↓	↓	3.0	1.18	10.5	7.90	23.86	Dredging resumes



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuard  
 D. Rogers  
 Partly Sunny, 80's, wind from S 5-10 mph

Date 7/3/13  
 Page 2 of 3

Tide Information	
High	0445
Low	1047
High	1714
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes	
250' South of A	1018	41° 39.881	70° 55.061	2.8	4.4	1.09	5.4	8.16	6.90	24.14	Ebb
Area P DRG	1020	↓	↓	↓	2.51	29.4	1.23	23.94	23.27	↓	
	1023				3.42	21.8	0.75	26.22	23.18		
	1040				2.21	37.3	1.51	18.56	23.46		
1000 S - Flood	1146	41° 39.730	70° 54.977	7.0	1.06	3.4	9.85	7.89	25.35	Flood	
Ref	1143	↓	↓	↓	3.00	3.1	3.80	24.12	23.58	↓	
	1145				5.04	1.7	1.48	27.04	23.10		
	1148				6.31	3.5	0.86	27.23	23.08		
300' North of A	1210	41° 39.976	70° 55.108	8.0	1.53	72.5	6.49	9.25	24.70	↓	
Area P DRG + DR	1213				3.05	7.4	0.93	25.76	23.23		
	1215				5.03	7.1	0.90	26.43	23.17		
	1217				7.04	3.7	1.49	27.54	23.04		
	1232				1.51	84.9	5.38	12.46	24.99		
Manomet CSO					1.5	60-80	4-6			downstream of CSO mouth	
50-100' North of DRG					1.5	70-100				upstream of CSO	
Transects North of work zone				Plume	1.5-2	30-70				Extended ~ 600 ft North of work, sheen extended	
E: to W				Ambient	1.5-2	7-19				to no anchor/no spud zone	



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 Sunny, 80s, wind from S-SW

**Date** 7/3/13  
**Page** 3 of 3

Tide Information	
High	0445
Low	1047
High	1714
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
350' Marsh } of DR+DRG } in Area P }	1340	41° 39.989	70° 55.106	10.5	1.36	28.8	8.60	8.79	26.65	Flood
	1342				3.54	18.4	1.46	25.93	23.25	
	1344				5.56	5.0	1.10	26.85	23.12	
	1346				7.61	5.3	1.37	27.54	23.02	
	1348				9.54	6.1	1.68	27.86	22.98	
	1400				1.62	28.5	8.37	9.55	26.66	
	1415				1.58	11.8	7.15	8.85	24.97	
	1430				1.58	19.7	6.35	11.70	24.83	
	1445				1.62	24.3	5.95	10.19	25.27	
DS										



New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 7/8/13

Weather: Sunny, 80s, wind from W 5-10

Tides:  

L	@	0214
H	@	0837
L	@	1356
H	@	2055

Monitoring Period:

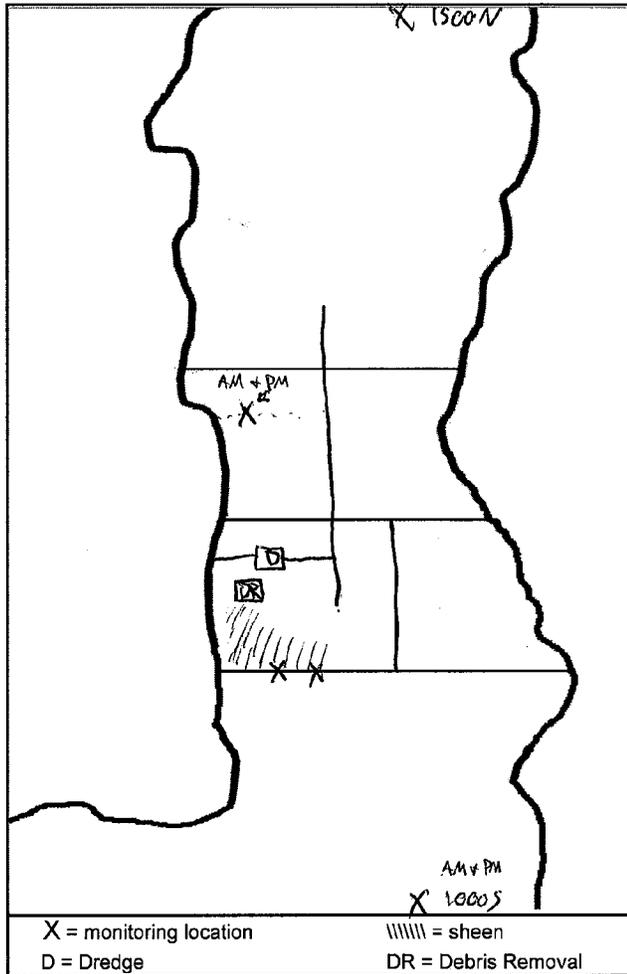
From: 0745 To: 1600

Tidal Stages: (HWS) (Ebb) (LWS) (Flood)

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location		Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
1000 S	AM	1.8-3.0	3.9-8.5	1.6-6.4
	PM	0.8-5.1	2.5-22.0	1.6-7.5
1500 N		0.6-8.0	3.5-12.4	1.3-6.9
250' S of Area P work		1.4-94.7	1.4-11.2	1.1-5.5
300' N of Area P work		1.3-21.6	1.5-19.5	0.5-10.6



Oil Sheen/Debris:

light sheen south of debris removal during ebb tide, contained within booms

Wildlife Observations:

cormorants, gulls, minnows, swans

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Notes: Very high readings for DO in the top 2 feet near the water surface. Maximum reading was 21.97 mg/L at 1000 S flood reference at 1420. Boat-based instrument was checked against readings from in-situ moorings and both returned 5 mg/L at 3 ft/1 m depth. Air smelled like sewage for most of the day, likely originating from the CSO south of remediation activities. High turbidities recorded at 250' S of work lasted on the order of a few minutes. No exceedances were observed, no samples collected

Sampling Crew: D. Stuart, D. Rogers

Chief Scientist Signature: Daed Howard



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 Sunny, 80's, wind from W 5-10

**Date** 7/8/13  
**Page** 1 of 3

**Tide Information**  
**High L** 0214  
**Low H** 0837  
**High L** 1350  
**Low H** 2055

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1000 S - Flood	0800	41° 39.729	70° 54.966	7.7	1.55	2.8	8.54	26.47	25.83	Flood Ref
Ref	0802				3.04	3.0	6.68	28.18	25.40	
	0804				4.98	1.8	4.32	28.74	25.14	
	0806				6.38	3.0	3.90	29.09	24.89	
300' N of Area P	0826	41° 39.989	70° 55.100	11.1	1.55	5.6	6.94	26.03	26.59	Flood
DR + DR6	0828				3.06	1.9	3.26	27.42	26.28	
	0830				5.02	1.3	2.40	28.48	25.37	
	0832				7.03	1.6	2.71	28.76	25.12	
	0834				9.02	2.1	1.72	28.90	24.92	
	0836				10.63	2.2	1.45	28.91	24.89	
	0855				1.49	4.3	8.35	26.06	26.81	High Slack
	0910				1.49	7.3	8.13	26.22	26.60	+
1500 N Ebb	0933	41° 40.284	70° 55.014	7.8	1.32	5.0	12.42	23.20	28.16	Ebb Ref
Reference	0935				3.05	1.7	5.36	27.08	26.56	
	0937				5.03	0.8	4.14	28.08	25.71	
	0939				6.88	0.6	3.52	28.22	25.64	



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 D. Rogers  
 Sunny, 80%, wind from W 5-10

**Date** 7/8/13  
**Page** 2 of 3

Tide Information	
High L	0214
Low H	0837
High L	1350
Low H	2055

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
250' S of Area P	0955	41° 39.876	70° 55.076	6.3	1.13	55.0	4.34	26.40	26.03	Ebb
DR + DRG	0959	7			3.09	94.7	2.32	27.57	25.91	← Fast changes in Turb.
	1002				5.36	25.2	1.42	28.71	25.19	←
	1004				3.04	18.7	3.02	28.11	25.56	←
	1008				3.05	32.8	2.60	28.15	25.56	←
	1020				3.05	54.2	3.89	28.04	25.73	
	1035				3.05	26.8	4.42	27.95	25.80	
	1050				3.05	3.5	4.61	27.87	25.83	
	1115				3.07	17.8	4.32	27.33	26.36	
	1130				3.04	22.1	4.07	27.33	26.37	
	1145				3.05	34.7	3.21	27.31	26.39	
	1215				3.06	29.2	2.53	27.81	25.88	
250' South of Area P	1300	41° 39.875	70° 55.042	6.1	1.50	2.2	11.23	25.91	27.56	Ebb
P DR + DRG	1303				3.00	1.4	4.68	27.53	26.30	
	1306				5.48	7.8	2.46	28.72	25.15	
	1330				5.32	16.6	1.47	28.71	25.09	
	1345				5.01	7.9	2.71	28.56	25.26	



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 Sunny, 80s, wind from S 5-10

**Date** 7/8/13  
**Page** 3 of 3

Tide Information	
High L	0214
Low H	0837
High L	1350
Low H	2055

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1000 S - Flood	1420	Same as AM	DS	8.3	1.59	5.1	21.97	20.12	30.07	Flood
Ref	1422			3.04	1.6	5.20	27.27	26.65		
	1424			5.08	0.8	3.84	28.60	29.27		
	1426			7.52	1.3	2.51	28.73	25.16		
	1428			1.70	4.3	16.98				
300' N of Area P	1450	Same as AM		9.7	1.56	7.7	26.83	25.06	27.02	
DR + DRG	1452	DS		↓	3.07	2.6	4.21	27.62	26.34	↓
	1454				5.02	1.9	3.05	27.93	26.03	
	1456				7.03	2.7	2.51	28.19	26.74	
	1458				9.05	3.4	2.23	28.77	26.25.02	
	1510				0.59	21.6	18.32	20.61	30.09	
	1530				0.54	17.8	19.53	20.83	30.21	
	1545				0.55	18.2	19.54	21.30	30.00	



New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 7/16/13  
 Weather: clear, sunny, 80s, wind from N  
 Tides:  

H	@	0211
L	@	0711
H	@	1449
L	@	1959

Monitoring Period:

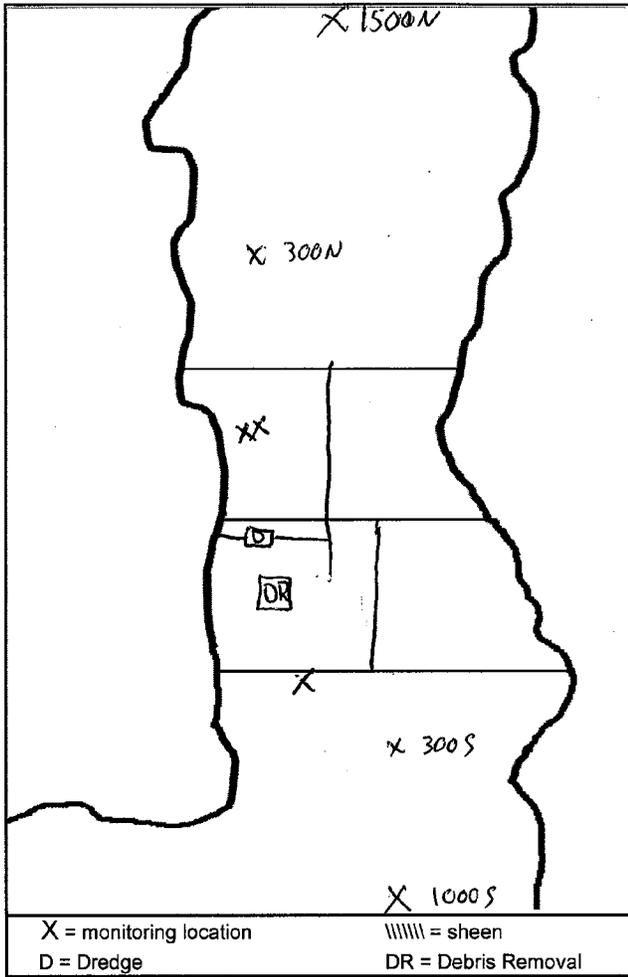
From: 0745 To: 1600

Tidal Stages: (HWS) (Ebb) LWS (Flood)

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/l.)	Sensor/water Depth (ft)
1000S	1.6-4.5	1.9-10.0	1.3-6.8
300S	2.7	5.58	3.0
300' N of Area P DRG/DR	3.3-55.8	1.1-9.9	1.3-11.3
300N	4.1	4.1	3.0
1500N	6.3-11.4	3.5-6.6	1.6-7.0
300' S of Area P DR	1.7-7.1	3.2-9.6	1.2-8.4



Oil Sheen/Debris:

None observed

Wildlife Observations:

None observed

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Notes: Hypoxic or near-hypoxic conditions continue to be observed in the lower half of the water column, typically at depths > 5 ft. No wildlife observed during monitoring. Debris removal crew was consciously attempting to avoid high turbidity by taking breaks and working slowly. No exceedances or sheens observed, no samples collected.

Sampling Crew:

D. Stuart, D. Rogers

Chief Scientist Signature:

Dad Stuart



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

 Delivery Order 0010-13  
August 2014

A-25

 Water Quality Monitoring Summary Report  
W912WJ-090D-0001

Dredging Location		Area P									Date	7/16/13	
Debris Removal Location		Area P									Page	1 of 3	
Survey Vessel		R/V George Hampson									<b>Tide Information</b> High 0211 Low 0711 High 1449 Low 1959		
Chief Scientist		D. Stuart											
Sampling Technician		-											
Vessel Captain		D. Rogers											
Other Personnel		N/A											
Weather Conditions		Clear, sunny, 80's, wind from N											
Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes			
1000S - Flood	0755	41° 39.718	70° 54.980	7.6	1.28	4.5	9.98	23.66	27.11	Flood			
Ref     	0800				3.02	2.5	5.64	27.38	26.90				
	0803				5.03	1.9	1.50	29.22	25.53				
	0807				6.78	1.6	1.94	29.46	25.36				
	0815				300S buoy	41° 39.810	70° 54.944		3.03	2.7	5.58	27.43	26.78
300' N of Area	0832	41° 40.021	70° 55.099	9.7	1.49	3.8	9.14	24.65	27.02				
P Dredge                   	0834				3.07	3.3	2.67	28.93	25.89				
	0835				5.04	3.3	2.13	29.31	25.51				
	0837				7.07	3.6	1.96	29.45	25.39				
	0839				9.07	3.6	1.10	29.52	25.27				
	0855				1.5	4.9	8.63	23.66	27.52	←			
	0920				1.44	8.8	7.33	25.29	27.05	Dredge off, DR stop + go			
	0950				3.04	7.1	3.25	28.57	26.24				
	1015				3.04	6.7	2.75	28.74	26.09	Dredging resumes			
	1040				1.84	22.6	4.43	27.79	26.53				
	1100				1.25	11.9	9.86	25.27	27.83				
1130	1.25	19.8	8.63	25.60	28.79								



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

Area P  
Area P  
R/V George Hampson  
D. Stuard  
-  
D. Rogers  
Clear, sunny, 80s, wind from N

Date 7/16/13  
Page 2 of 3

Tide Information	
High	0211
Low	0711
High	1449
Low	1959

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300 N buoy	1245	41° 40.086	70° 55.106		2.99	4.1	4.13	29.12	25.72	Flood, comparison reading
300 ft NASH off	1253	41° 40.017	70° 55.095	13.0	1.47	9.9	8.66	24.47	29.69	
Area P dredge	1255				2.99	14.8	4.30	28.63	26.14	
	1257				5.04	23.4	2.06	29.31	25.48	
	1259				7.03	25.5	2.12	29.44	25.37	
	1301				9.03	29.8	2.29	29.45	25.37	
	1303				11.01	55.8	3.18	29.57	25.29	
	1305				11.32	51.4	3.39	29.65	25.23	
	1330				2.33	39.1	4.30	27.82	26.95	Dredge stopped
	1350				2.38	30.8	5.53	26.65	27.44	↓
	1405				2.37	20.2	6.68	28.00	26.97	Dredge resumes
	1430				6.58	16.7	3.41	29.86	25.09	
1500 N	1455	41° 40.277	70° 55.029	7.8	1.58	11.4	<sup>90</sup> 6.56	28.51	26.78	Ebb Rep
	1457				3.08	6.3	5.60	29.02	26.02	
	1458				5.03	6.5	3.60	29.44	25.53	
	1500				7.00	10.4	3.50	29.46	25.48	
	1515				2.92	8.0	4.97	29.03	26.17	comparison reading



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
 Debris Removal Location  
 Survey Vessel  
 Chief Scientist  
 Sampling Technician  
 Vessel Captain  
 Other Personnel  
 Weather Conditions

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 clear, sunny, 80s, wind from N

Date 7/16/13  
 Page 3 of 3

Tide Information	
High	0211
Low	0711
High	1449
Low	1959

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300' S of Area	1536	41° 39.865	70° 55.042	9.0	1.19	5.5	9.61	25.01	<del>29.44</del>	Ebb
P debris removal	1538				3.00	2.4	6.68	28.84	26.29	
	1540				5.00	1.6	5.28	29.91	25.30	
	1542				7.03	1.7	4.62	29.99	25.17	
	1544				8.41	7.1	3.18	30.08	24.98	
<div style="position: absolute; top: 0; left: 0; right: 0; bottom: 0; border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black;"></div>										



# New Bedford Harbor Water Quality Monitoring Daily Field Report

Date: 20130726

Weather: 65°, rainy, cloudy, Wind 15-20 knt. NNE

Tides:

0449	@	-0.5'
1123	@	4.6'
1713	@	-0.1'
2343	@	4.3'

Monitoring Period:

From: 0630 To: 1500

Tidal Stages: HWS  Ebb  LWS  Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
1000S	4.8-16.5	4.7-4.9	2'-7'
300N <sub>1</sub>	7.2-11.9	4.22-4.72	1'-9'
300N <sub>2</sub>	13.5-15.4	4.3-4.4	3'
300N <sub>3</sub>	7.4-8.7	5.2-6.5	2'-6'
1500N	6.2-28.3	5.3-7.8	1-8'
300S	12.3-44.4	7.1-8.9	1.5-4.25'

Oil Sheen/Debris:

None observed

Wildlife Observations:

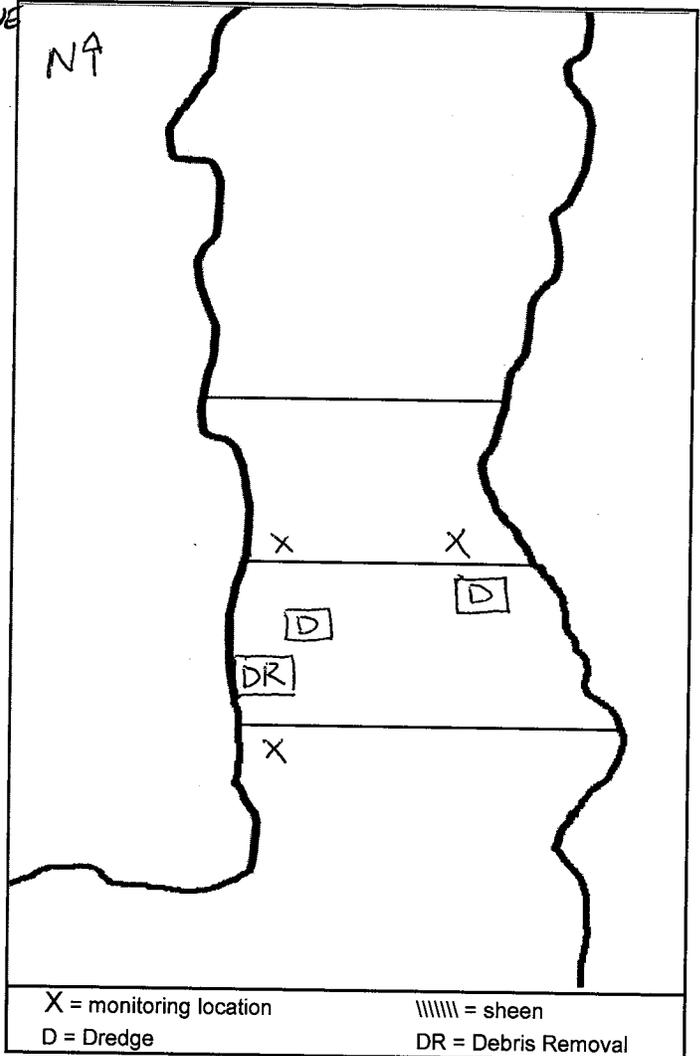
1 tern, 1 gull

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)		Turbidity (1L)	
Total PCB (2x 1L)	N/A	Dissolved PCB (2x 1L)	N/A
Toxicity (2x 10L)		Metals (500ml)	
TOC (2x 40mL)			

Notes:

Note: Monitoring locations are listed as 300N<sub>1</sub>, 300N<sub>2</sub>, 300N<sub>3</sub>, and 300S. These are not the moorings 300N and 300S, but are distances north or south of remediation activity. For example, 300N<sub>1</sub> = 300ft north of remediation activity.



Sampling Crew:

Chief Scientist Signature:

*[Handwritten Signature]*

20130726



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Delivery Order 0010-13  
August 2014

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

AREA P
R/V George Hampson
E. HUSBROUCK
E. HUSBROUCK
D. ROXIS
N/A
rainy winds 15-20 knts NNE

Date	20130726
Page	1 of 3

Tide Information	
High	
Low	0449 -0.5
High	1123 4.6
Low	1713 -0.1

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes	
1000S	0645	41 39.717	070 54.900	8.0	2.05	4.8	4.98	29.42	23.53	Ref site	
					4.02	4.5	4.97	29.46	23.53		
					6.01	5.5	4.87	29.45	23.51		
					9.25	16.5	4.79	29.49	23.57		
300 N of work	0720	41 39.987	070 55.081	10.1	1.3	7.7	4.29	29.00	23.41	300N Mantley Dredge & Debris ↓	
					3.0	8.0	4.28	29.00	23.45		
					6.0	7.5	4.22	29.15	23.41		
					9.0	7.3	4.28	29.4	23.53		
					3.0	7.2	4.23	29.38	23.37		
					7.55	3.1	7.3	4.31	29.10		23.33
					8.15	3.1	11.9	4.42	29.19		23.29
					8.21	3.1	20.2	4.29	29.17		23.39
					8.42	3.1	12.7	4.38	29.19		23.39
300 N of work	0900	41 39.986	070 55.077	10.6	3.2	13.5	4.32	29.17	23.39	Dredge resumes Change location	
					0922	3.1	15.4	4.45	29.25		23.37

A-29

Water Quality Monitoring Summary Report  
W912WJ-090D-0001



New Bedford Harbor  
Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

AREA P  
R/V George Hampson  
E. Hulsbrouck  
N/A  
D. Rogers  
N/A  
65°, cloudy, rainy, windy 15-20kts NNE

Date 20150726  
Page 2 of 3

Tide Information	
High	1123
Low	1713
High	2343
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300 Ref dredge	1000	41 40.020	070 55.008	7.4	2.3	8.7	5.3	29.24	23.11	Moved to East side of Area P
					4.0	8.5	5.31	29.25	23.11	
					6.0	8.3	5.25	29.62	23.13	
					2.5	8.6	5.30	29.27	23.13	
					2.4	7.4	5.97	29.24	23.18	
	1040				2.4	7.4	5.97	29.24	23.18	activity stopped
	1100				2.4	8.1	6.29	29.31	23.20	resume dredging
	1125				2.3	7.4	6.50	29.23	23.22	tide about to change
1500 N	1200	41 40.280	070 55.021	9.1	1.08	6.2	7.84	27.65	23.11	1500N Ref.
					3.0	6.3	7.4	28.05	23.22	
					6.0	7.7	6.8	28.8	23.6	
					8.0	28.3	5.35	29.8	23.7	
					1.5	12.3	8.9	21.27	23.5	
300s	1315	41 39.847	070 55.086	5.5	3.0	26.6	7.7	29.28	23.5	
					4.25	30.5	7.1	29.5	23.6	
					3.25	27.5	7.2	29.25	23.5	
					3.06	31.8	8.3	29.08	23.50	
					3.08	42.0	8.4	29.83	23.46	
	1334									
	1400									





# New Bedford Harbor Water Quality Monitoring Daily Field Report

Date: 20130730

Weather: 80°, Sunny, Clear, breezy ← SW

Tides:

<u>3.3 HT</u>	@	<u>0230</u>
<u>0.6 LT</u>	@	<u>0738</u>
<u>3.7 HT</u>	@	<u>1502</u>
<u>1.0 LT</u>	@	<u>2159</u>

Monitoring Period:

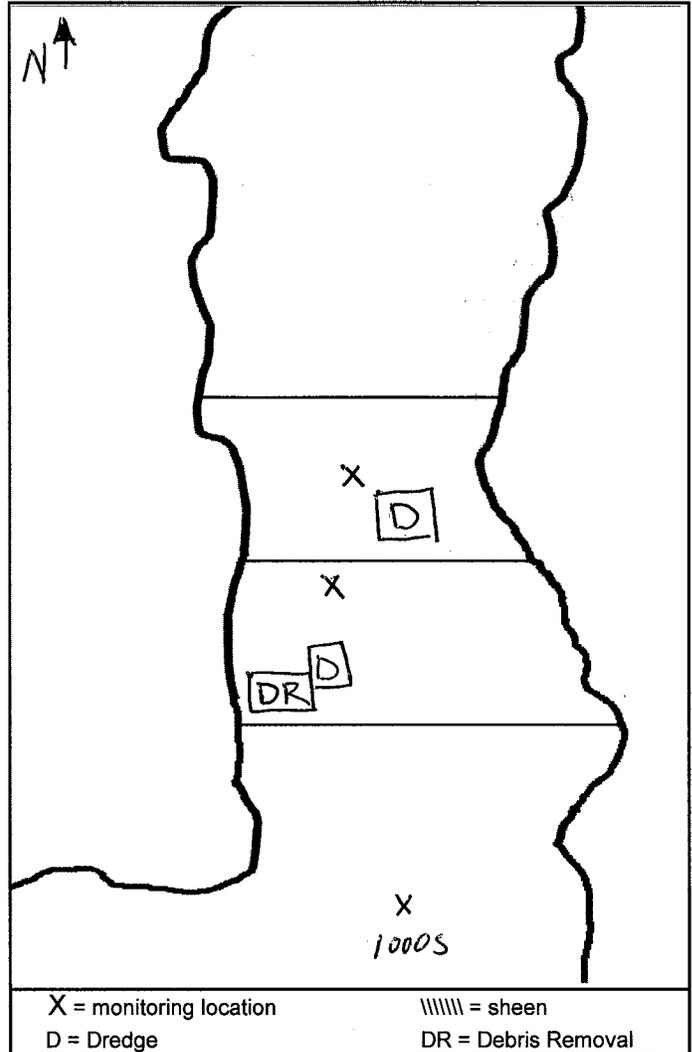
From: 0730 To: 1530

Tidal Stages: HWS Ebb LWS Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:		<input type="checkbox"/>	<input type="checkbox"/>	
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1000S</u>			
<u>1000S</u>	<u>2.3-9.9</u>	<u>3.74-5.26</u>	<u>1.3-7.4</u>
<u>300N<sub>1</sub></u>	<u>2.8-36.6</u>	<u>3.3-7.47</u>	<u>1.2-5'</u>
<u>300N<sub>2</sub></u>	<u>4.7-9.3</u>	<u>4.6-9.5</u>	<u>1.6-6.4</u>
<u>300N<sub>3</sub></u>	<u>5.1-10.9</u>	<u>4.2-11.73</u>	<u>1.9-6.0</u>



Oil Sheen/Debris:

NONE observed

Wildlife Observations:

Osprey, cormorants, gulls, bait fish by Area C dock

Samples Collected for Laboratory Analysis - Sample IDs:

N/A

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Monitoring locations are listed as 300N<sub>1</sub>, 300N<sub>2</sub>, and 300N<sub>3</sub>. These are not the mooring 300N, but are distances north of remediation activity. For example, 300N<sub>1</sub> = 300ft north of remediation activity.

Notes:

beautiful day on the harbor - great to see osprey in the area crews have asked several times how turbidity levels were and seemed concerned about making sure they stayed low.

Sampling Crew: E. Hasbrouck, D. Rogers

Chief Scientist Signature: [Signature] 20130730



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 E. Haskinck  
 N/A  
 D. Rogers  
 \_\_\_\_\_  
 80°, sunny, clear, breezy < 5 knts

Date 2013 07 30  
 Page 1 of 3

Tide Information	
High	0230
Low	0738
High	1502
Low	2154

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1000s	0736	41 39.725	070 54.981	8.6	1.3	2.7	5.26	28.9	25.76	incoming tide Ref.
	0736				3.0	2.5	5.08	30.17	25.45	
↓	0736				5.0	4.7	4.36	30.31	25.29	
	0736				7.4	4.9	3.74	30.44	25.16	
<del>300</del>	<del>0753</del>	<del>41 39.919</del>	<del>070 55.040</del>	<del>8.3</del>						
300N <sub>1</sub>	0803	41 39.950	070.55040	6.8	1.2	2.8	7.47	25.62	25.73	Mandatory Cast
	0803				3.0	<del>3.0</del> 4.0	5.06	24.53	25.61	
	0803				5.0	36.6	3.39	30.28	25.25	
	0803				3.0	4.1	5.06	24.36	25.53	mandatory depth
	0815				2.9	5.5	5.86	28.9	25.5	
	0826				2.9	6.1	4.95	29.66	25.4	
	0845				3.0	7.8	5.3	29.50	25.67	
	0900				3.0	5.8	5.19	29.54	25.4	
	0915				3.0	6.1	5.20	29.52	25.5	
	0940				3.0	5.7	5.64	29.43	25.46	
	0947				3.0	5.2	5.73	24.28	25.46	
	1000				4.0	5.0	5.31	29.57	25.47	



New Bedford Harbor  
Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

Area P
Area P
R/V George Hampson
E. Hasbrouck
D. Rogers

Date 20130730  
Page 2 of 3

Tide Information	
High	0230
Low	0738
High	1502
Low	2154

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300 North <sub>2</sub>	1125	41 39.947	070 55.040	7.1	1.6	7.9	8.6	28.06	26.25	
of dredge activity	1125				3.5	4.7	6.7	29.53	25.59	
	1125				<del>5.5</del>	<del>6.8</del>	5.2			
	1130				5.5	6.8	5.2	30.12	25.29	
	1133				6.4	6.5	4.6	30.12	25.28	
	1135				2.0	6.9	7.5	28.74	25.95	Debris removal
	1150				1.9	6.2	8.3	28.90	25.91	only
	1205				6.1.9	6.4	8.27	29.13	25.88	No activity
	1227				1.9	6.4	9.55	28.38	26.27	All Stop
	1239				1.9	9.3	8.59	29.02	26.31	Dredging resumes
N of dredge ops-3	1320	41 40.034	070 55.041	8.1	1.9	5.7	11.73	28.52	26.43	
	1320				4.0	5.1	7.26	29.87	25.62	
	1320				6.0	7.6	4.57	30.25	25.14	
	1325				4.0	6.0	6.50	29.74	25.67	
	1345				3.9	5.8	6.02	29.94	25.44	
	1405				3.9	5.0	6.77	29.86	25.99	
	1436				3.9	8.5	6.42	30.07	25.30	NO Activity

Water Quality Monitoring Summary Report W912WJ-090D-0001 A-34 Delivery Order 0010-13 August 2014





New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 20130805  
 Weather: 75°, clear, Sunny breezy @ 10 knts.  
 Tides:  
 L @ 0125  
 H @ 0733  
 L @ 1312  
 H @ 1952

Monitoring Period:

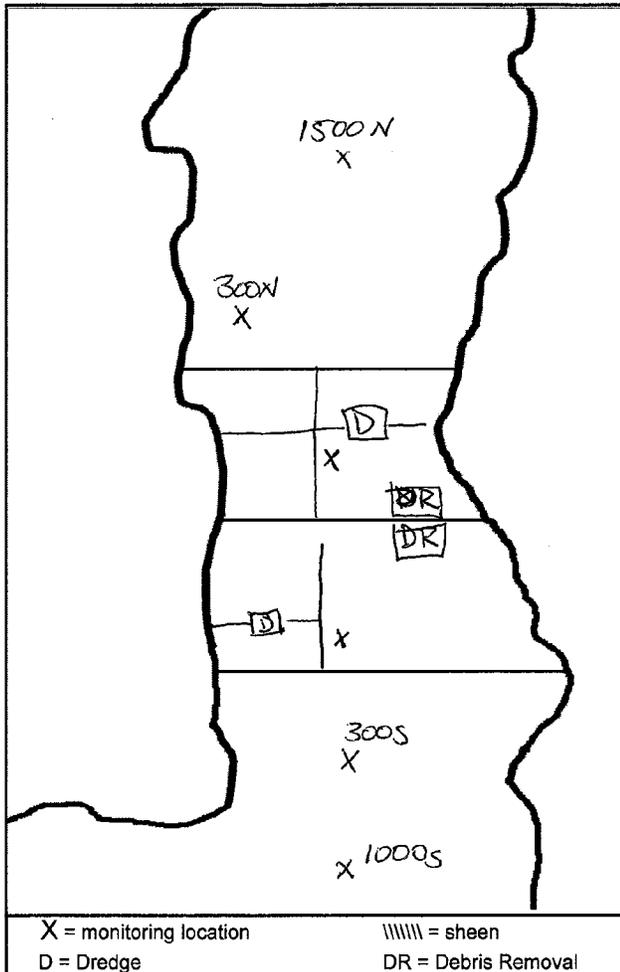
From: 0800 To: 1600

Tidal Stages: HWS  Ebb  LWS  Flood

AM:	Dredge Area:	Debris Removal	Dredging	Other?
		<input type="checkbox"/>	<input type="checkbox"/>	
	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:		<input type="checkbox"/>	<input type="checkbox"/>	
	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
1500N REF	1.1-3.1	1.9-5.4	2.0-5.9
300N REF	1.7-1.8	3.8-5.1	1.3-5.0
300S <sub>1</sub>	1.4-6.0	3.9-5.9	1.5-7.0
300S REF	8.8	7.16	3.0
1000S REF	4.6-11.2	7.0-7.6	1.2-3.9
300N <sub>1</sub>	4.0-17.0	4.3-8.8	1.5-5.0



Oil Sheen/Debris:

None observed

Wildlife Observations:

Great blue heron, gulls,

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)	N/A	Turbidity (1L)
Total PCB (2x 1L)		Dissolved PCB (2x 1L)
Toxicity (2x 10L)		Metals (500ml)
TOC (2x 40mL)		

Notes:

300 N ; 300 S w/ subscript numerals denote monitoring locations  
 300' North of and 300' South of remediation activity not  
 300N ; 300S reference/monitoring buoys

Sampling Crew:

Chief Scientist Signature:

20130805



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
 Debris Removal Location  
 Survey Vessel  
 Chief Scientist  
 Sampling Technician  
 Vessel Captain  
 Other Personnel  
 Weather Conditions

Area P  
 R/V George Hampson  
 E. Hwbroeck  
 D. Rogers  
 N/A  
 Warm, Sunny, clear breezy @ 10knts NNE

Date 20130805  
 Page 1 of 3

Tide Information	
High	0733
Low	1312
High	1952
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1500 N	0845	41 40.283	070 55.011	7.4	2.0	3.1	5.4	28.4	24.0	Ref. cast
		4			4.0	1.1	2.07	29.8	24.7	
					5.9	1.2	1.95	29.8	27.7	
300 N	0855	41 40.090	070 55.083	7.9	1.3	1.8	5.14	28.9	23.8	Ref. site
mooring sta.					3.0	1.8	4.52	29.2	23.9	
					5.0	1.7	3.81	30.0	24.2	
300S <sub>1</sub>	0914	4140								
		4139.886	070 55.014	9.0	1.6	3.7	5.22	28.5	23.6	South of debris removal
					3.0	2.7	4.79	29.3	23.8	
					5.0	2.3	4.5	29.9	23.9	
					7.0	2.1	3.9	30.3	24.0	
	0922				1.8	2.9	4.6	28.5	23.6	
	0931				2.4	2.4	5.3	28.4	23.7	dredge started
	0940				1.5	2.6	5.63	28.	23.8	
	1002				1.5	2.9	5.59	28.5	23.9	dredge → debris
	1015				1.5	3.6	5.65	28.6	24.01	
	1020				1.5	6.0	5.8	28.5	24.1	



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area D  
 R/V George Hampson  
 E. Plashbrock  
 N/A  
 D. Rogers  
 N/A  
 Warm 75°, Sunny, clear, breezy @ 10knts NNE

**Date** 20130805  
**Page** 2 of 3

**Tide Information**  
**High** 0733  
**Low** 1312  
**High** 1952  
**Low**

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300S <sub>1</sub>	1045	41 39.886	070 55.014	4	1.4	4.9	5.74	28.7	24.2	dredge + debris
↓	1056				<del>1.4</del> 1.4	5.2	5.75	28.7	24.3	removal
	1115				1.4	5.9	5.7	28.3	24.5	
300S ref.	1245	41 39.812	070 54.982	6.0	3.0	8.8	7.16	28.65	24.9	300S way ref.
1000S ref.	1256	41 39.724	070 54.970	5.6'	1.2	4.6	7.6	28.7	25.1	
				2'	2.9	4.7	7.6	28.7	25.1	
				4.0	3.4	11.2	7.0	28.8	24.9	
300N <sub>1</sub>	1317	41 39.961	070 55.037	6.0	1.5	4.0	7.93	28.3	25.2	Just debris
of remediation	1				3.0	8.1	7.7	28.6	25.1	removal
					5.0	15.2	4.7	30.3	24.3	
↓	1320			6.0	3.9	15.7	5.0	29.4	24.5	
	1335				3.9	11.1	6.5	29.2	24.7	Just dredge
	1349				3.9	14.4	4.32	29.8	24.4	
	1407				3.9	9.6	5.9	29.1	24.7	
	1415				3.9	17.0	7.65	28.6	25.3	
↓	1432				3.9	15.2	7.43	28.5	25.1	bridge only





New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 8/13/13  
 Weather: Foggy AM, rain in PM, light breeze from S  
 Tides:  
 H @ 0044  
 L @ 0552  
 H @ 1324  
 L @ 1833

Monitoring Period:

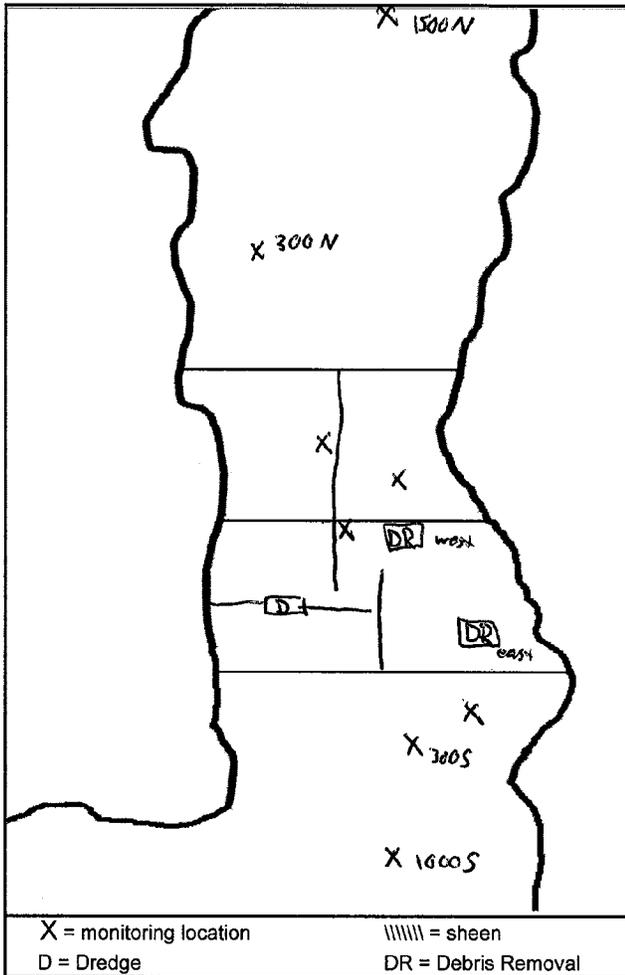
From: 0740 To: 1540

Tidal Stages: (HWS) (Ebb) LWS (Flood)

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
Flood Ref 1000S	2.4-7.7	4.0-6.8	1.6-8.6
200' N of Area P DR	5.4-33.7	4.0-7.5	1.4-4.9
200' N of Area P DRG	2.9-6.8	4.8-10.7	0.7-7.5
300' NW of Area P DRG DR	4.5-7.9	3.9-8.2	0.8-8.9
1500N ebb Ref	3.6-10.8	5.9-12.6	1.5-7.3
300' S of Area P DR east	4.1-22.4	4.9-6.9	1.5-5.0



Oil Sheen/Debris: None observed

Wildlife Observations: Osprey, gulls, crabs, cormorants

Samples Collected for Laboratory Analysis - Sample IDs:

TSS (1L)		Turbidity (1L)	
Total PCB (2x 1L)	<u>PS</u>	Dissolved PCB (2x 1L)	
Toxicity (2x 10L)		Metals (500ml)	<u>DS</u>
TOC (2x 40mL)			

Notes: Turbidity was low in the workzone, work was stop-and-go. No exceedances observed, no sheens observed, no samples collected.

Sampling Crew: D. Stuart, D. Rogers  
 Chief Scientist Signature: Dave Stuart



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P, 2 crews  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 NA  
 Foggy AM, rain in afternoon

**Date** 8/13/13  
**Page** 1 of 3

Tide Information	
High	0049
Low	0552
High	1324
Low	1833

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes	
1000S Ref	0755	41° 39.727	70° 54.987	9.3	1.56	2.5	6.84	29.35	24.49	Flood Ref	
↓	0756	↓	↓	↓	3.00	2.4	5.52	29.91	24.21		
	0757				5.01	3.8	4.65	30.10	24.05		
	0758				7.09	4.4	4.47	30.28	24.08		
	0759				8.56	7.7	4.08	30.31	24.07		
	0800				3.02	3.2	5.08	29.84	24.06	comparison reading	
	200' North of Area				0813	41° 39.982	70° 55.009	5.4	1.41	5.9	6.93
P DR, 400' NW of Area	0815	↓	↓	↓	3.02	10.6	4.90	29.61	24.33	↓	
Area P DR (the) east	0817				4.85	22.0	4.34	29.79	24.29		
	0845				4.86	26.7	4.01	29.78	24.29		
	0910				2.13	15.8	4.86	29.32	24.32		Southern DR stop, dredge start
	0935				2.14	22.1	6.38	28.45	24.33		dredge stop @ 0945
	1017				2.16	33.7	7.01	28.12	24.21		DR crews switch positions
	1045	2.16	12.6	7.53	28.12	24.02	Dredge resume				
	1112	2.15	6.5	7.26	28.87	24.18	Debris rem. switch locations				
200' N of Area	1122	41° 39.954	70° 55.041	8.4	0.74	5.6	10.70	28.29	23.93		
P DR	1124	↓	↓	↓	2.02	5.3	10.20	28.73	23.98		



asp

## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

Area P  
Area P, 2 crews  
R/V George Hampson  
D. Stuart  
-  
D. Rogers  
-  
Foggy in AM, rain in afternoon

Date 8/13/13  
Page 2 of 3

Tide Information	
High	0049
Low	0552
High	1324
Low	1833

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
200' N of Area P	1126	41° 39.954	70° 55.041	8.4	3.99	2.9	6.37	29.58	24.10	Flood
DRG	1128				5.99	3.7	5.24	29.83	24.07	
	1130				7.53	4.6	5.08	29.96	24.08	
	1150				7.45	4.4	5.14	29.90	24.05	Dredge stop
	1210				7.45	6.8	4.75	29.92	24.09	
300' NW of Area P DR	1258	41° 39.993	70° 55.042	9.8	0.75	7.9	9.35	28.84	23.78	
	1306				2.11	4.6	8.24	29.26	23.95	
	1302				4.07	4.7	5.18	30.00	24.10	
	1304				6.04	4.5	4.65	30.02	24.16	
	1306				8.02	7.1	3.91	30.12	24.17	
	1323				8.89	7.5	3.86	30.08	24.06	
	1340				8.91	5.7	3.86	30.06	24.08	Ebb
300' N buoy	1400	41° 40.284			3.01	7.0	9.73	28.66	23.88	comparison reading
1500' N - ebb	1409	41° 40.284	70° 55.031	8.2	1.53	10.8	12.60	27.19	24.38	Ebb Ref
Ref	1411				5.03	3.6	8.97	28.88	24.12	
	1413				7.27	9.0	5.89	29.25	24.27	
	1415				3.04	3.8	9.64	28.35	24.17	comparison reading



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P, 2 crews  
 R/V George Hampson  
 P. Stuart  
 -  
 D. Rogers  
 -  
 Foggy AM, rain in afternoon

**Date** 8/13/13  
**Page** 3 of 3

Tide Information	
High	0049
Low	0552
High	1324
Low	1833

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300' South of	1440	41° 39.858	70° 54.964	6.8	1.51	17.2	6.88	29.10	23.99	Ebb
Area P DR (east)	1442				3.03	20.2	4.87	29.95	24.04	
	1444				5.04	7.2	5.23	30.09	23.92	
	1448				2.50	22.4	6.29	29.39	24.00	
	1505				2.48	4.1	6.33	29.44	24.06	
	1520				2.48	7.6	6.31	29.42	24.05	
300 S buoy	1530				3.01	4.8	<del>7.658</del>	29.31	23.96	Comparison reading Variable DO



# New Bedford Harbor Water Quality Monitoring Daily Field Report

Date: 20130823

Weather: partly cloudy, 75°, breezy NNE 5-10kts.

Tides:

M	@	1004
L	@	1559
H	@	2225
	@	

Monitoring Period:

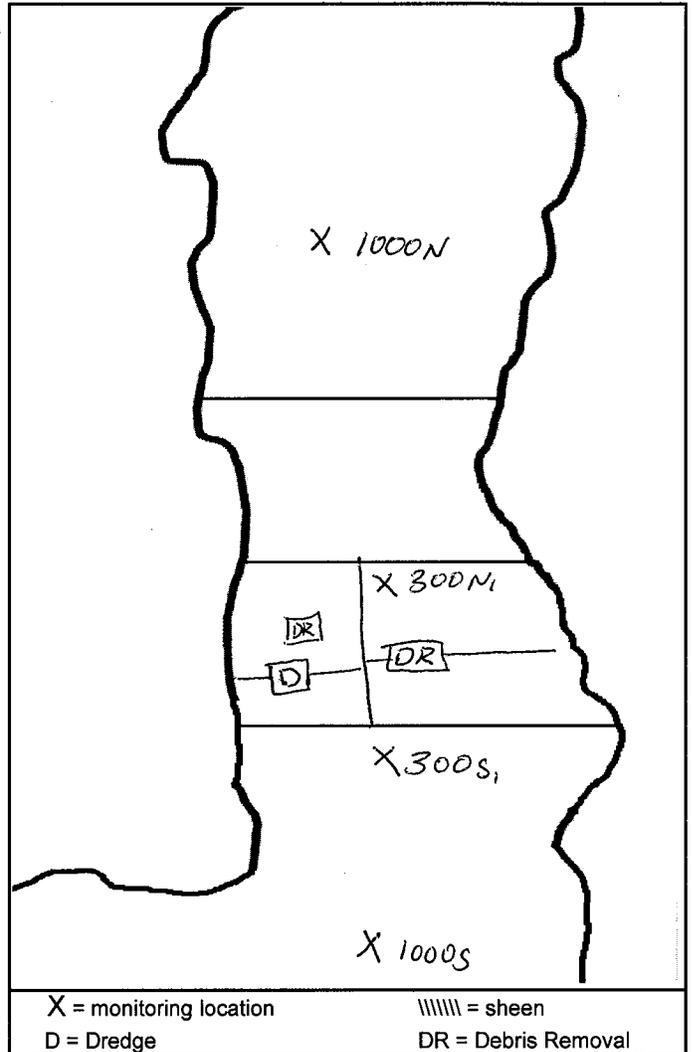
From: 0750 To: 1600

Tidal Stages: ~~HWS~~ ~~Ebb~~ LWS ~~Flood~~

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:		<input type="checkbox"/>	<input type="checkbox"/>	
	P	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/l)	Sensor/water Depth (ft)
1000S	3.4-4.7	5.5-5.8	0.9-7.0
300N <sub>i</sub>	4.8-40.4	5.3-6.6	2.0-4.0
1000N	3.1-6.5	5.7-6.6	1.0-7.0
300S <sub>i</sub>	3.7-6.7	7.2-10.47	1.0-7.0



Oil Sheen/Debris: N/A

Wildlife Observations: Sea gulls

Samples Collected for Laboratory Analysis - Sample IDs: - N/A

TSS (1L)	Turbidity (1L)
Total PCB (2x 1L)	Dissolved PCB (2x 1L)
Toxicity (2x 10L)	Metals (500ml)
TOC (2x 40mL)	

Notes:

$N_i \ni S_i$  - denote monitoring stations ~ 300' from remediation activity.

This report erroneously lists 1000N as the northern ebb reference. This was a typo: the actual ebb reference is mooring 1500N, which was positioned at the coordinates listed on the next page.

Sampling Crew: N/A

Chief Scientist Signature:



New Bedford Harbor  
Water Quality Monitoring In-situ Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

Area P  
Area P  
R/V George Hampson  
E. Hasbrouck  
E. Hasbrouck  
D. Rogers  
N/A  
partly Sunny, 75°, breezy - NNE 5-10 kts.

Date 20130823  
Page 1 of 3

Tide Information	
High	1004
Low	1559
High	2225
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
1000S	0750	41 39.726	070 54.972	8.0	0.9	3.4	5.83	31.05	24.10	1000S Ref
					3.0	3.7	5.7	31.08	24.11	
					5.1	4.0	5.63	31.09	24.12	
					7.0	4.7	5.55	31.11	24.11	
300N <sub>1</sub>	0822	41 39.945	070 54.992	5.8	2.0	7.8	5.69	30.83	24.10	300'N of remediation activity
					4.0	40.4	5.43	31.04	24.11	
					<del>4.0</del>					
					3.5	37.5	5.33	31.05	24.11	debris removal
	0826				3.5	13.4	5.34	31.03	24.11	only
	0830				3.4	7.7	5.38	31.05	24.12	
	0845				3.4	6.6	5.58	31.07	24.10	
	0900				3.4	8.0	6.13	31.07	24.10	
	0915				3.4	15.5	6.11	31.19	24.11	
	0943				3.5	10.5	6.21	31.18	24.13	dredge only
	1000				3.5	4.8	6.60	31.03	24.16	



New Bedford Harbor  
Water Quality Monitoring *In-situ* Data Log Sheet

Dredging Location  
Debris Removal Location  
Survey Vessel  
Chief Scientist  
Sampling Technician  
Vessel Captain  
Other Personnel  
Weather Conditions

Area P  
Area P  
R/V George Hampson  
E. Hasbrouck  
N/A  
D. Rogers  
N/A  
Sunny, partly cloudy, 78°, breezy NNE 5-10 knts

Date 20130823  
Page 2 of 3

Tide Information	
High	1004
Low	1559
High	2225
Low	

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes		
1000 N	1031	41 40.281	070 55.021	8.4	1.0	3.1	6.67	28.85	24.73	Ref.		
					2.9	3.8	6.54	29.57				
						<del>4.9</del>	<del>6.5</del>					
					5.0	6.2	5.8	31.07	24.16			
					7.0	6.5	5.73	31.09	24.16			
300s	1134	41 39.848	070 55.012	10.3	1.0	3.7	8.27	29.87	24.42	300's manting 2x debris removal 1 dredge		
					2.8	4.4	7.8	30.34	24.32			
					5.0	4.2	7.3	30.91	24.21			
					7.0	3.9	7.7	31.12	24.20			
						3.0	4.2	7.8	30.27		24.34	
						2.9	4.1	7.8	30.12		24.47	Only dredge
						2.9	4.2	7.9	30.39		24.48	
	1140				2.9	3.9	7.88	30.54	24.50			
	1200				2.9	4.1	8.38	30.35	24.72			
	1215				2.9	4.1	8.36	30.44	24.73	No activity		
	1230				2.9	4.8	8.57	30.55	24.83			
	1245				2.9	4.9	8.27	30.51	25.00			
	1300				2.9	5.0						
	1315											
	1330											



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 E. Harbrouck  
 N/A  
 D. Rogers  
 N/A  
 partly cloudy, 75°, breezy NNE 10-15 kts.

**Date** 2030823  
**Page** 3 of 3

**Tide Information**  
**High** 1604  
**Low** 1559  
**High** 2225  
**Low**

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300s	1345	41 39.848	670 55.012	10.3	2.9	5.2	8.79	30.51	24.98	Dredging Starts
	1400			falling	3.0	6.0	9.87	30.38	25.22	
	1415				2.9	6.7	9.23	30.39	25.21	Debris removal
	1430				3.0	5.5	9.76	30.39	25.11	Dredging
	1445				3.0	5.6	10.47	30.31	25.40	
	1500				3.0	5.4	10.06	30.30	25.51	No activity
	1515				3.0	5.6	9.7	30.41	25.35	Debris removal
	1536				3.0	5.3	8.0	30.63	24.94	Dredging debris
	1545				3.0	5.4	8.82	30.48	25.21	
	1555				3.0	5.1	8.92	30.64	25.04	



New Bedford Harbor Water Quality Monitoring  
Daily Field Report

Date: 8/27/13  
 Weather: Rain in AM, light breeze Rem N, overcast  
 Tides: PM  

H	@	0051
L	@	0556
H	@	1323
L	@	1847

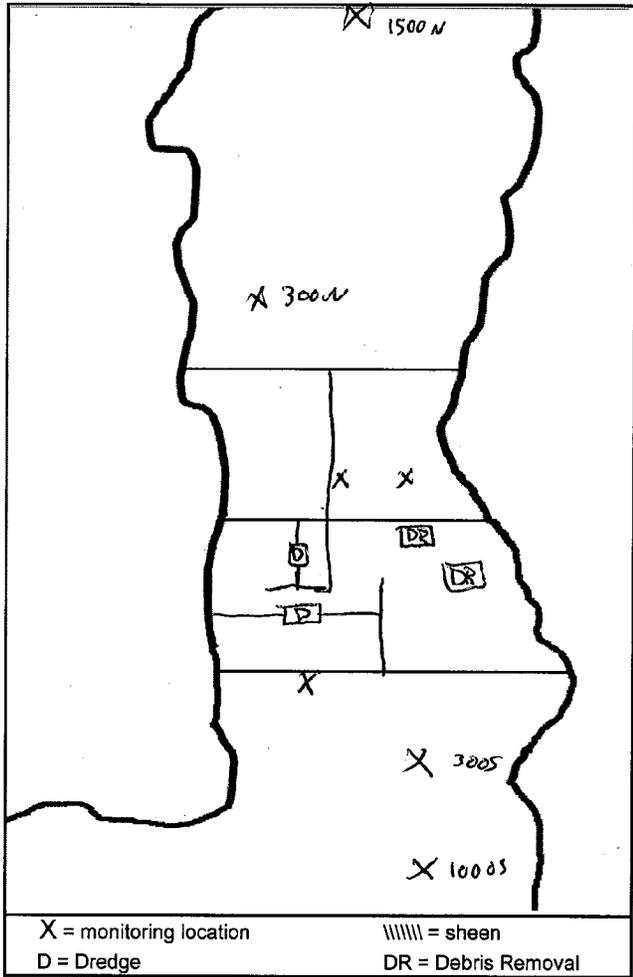
Monitoring Period:  
 From: 0800 To: 1600

Tidal Stages: (HWS) (Ebb) LWS (Flood)

AM:	Dredge Area:	Debris Removal	Dredging	Other?
	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>Sheet piling cleaning</u>
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
PM:	<u>P</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	

Turbidity Summary:

Location	Turbidity range (NTU)	DO Conc range (mg/L)	Sensor/water Depth (ft)
<u>1000S Flood Ref</u>	<u>3.6-5.8</u>	<u>2.8-3.0</u>	<u>1.1-7.5</u>
<u>300' N of Area</u>	<u>5.5-30.3</u>	<u>1.4-2.8</u>	<u>1.5-5.3</u>
<u>P DR</u>			
<u>300' N of P DRG</u>	<u>4.5-10.2</u>	<u>3.0-4.6</u>	<u>1.6-9.1</u>
<u>300' S of P DRG</u>	<u>2.7-19.5</u>	<u>2.1-5.1</u>	<u>1.3-7.3</u>
<u>1500N Ebb Ref</u>	<u>3.9-9.8</u>	<u>1.9-5.8</u>	<u>1.3-5.1</u>



Oil Sheen/Debris: none observed

Wildlife Observations: Osprey, blue heron, green heron, gulls, ducks, swans, cormorants, bait fish, fish jumping

Samples Collected for Laboratory Analysis - Sample IDs:

<del>TSS (1L)</del>	<del>Turbidity (1L)</del>
<del>Total PCB (2x 1L)</del>	<del>Dissolved PCB (2x 1L)</del>
<del>Toxicity (2x 10L)</del>	<del>Metals (500ml)</del>
<del>TOC (2x 40mL)</del>	

Notes: All kinds of wildlife observed in work area, mostly birds. Low DO readings at or near hypoxia (2 mg/L) in the morning; increased in afternoon. No sheens or exceedances observed, no samples collected

Sampling Crew: D. Rogers, D. Stuart  
 Chief Scientist Signature: Derek Stuart



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 Rain in AM, light breeze from N

**Date** 8/27/13  
**Page** 1 of 2

Tide Information	
High	0051
Low	0556
High	1323
Low	1843

Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
10005 mooring	0810	41° 39.723	70° 54.485	8.0	1.14	4.5	2.97	27.83	22.83	Flood Ref
↓	0813	↓	↓	↓	3.03	3.6	2.91	30.90	23.48	
↓	0816	↓	↓	↓	5.08	3.8	2.93	31.09	23.58	
↓	0818	↓	↓	↓	7.48	5.8	2.75	31.10	23.55	
300 ft N of	0835	41° 39.985	70° 55.012	<del>7.4</del>	1.51	6.8	2.77	28.82	23.33	Flood
Area P DR	0837	↓	↑	5.4	3.03	5.5	1.74	30.34	23.47	↓
↓	0839	↓	↑	↓	4.96	30.3	1.71	30.58	23.50	↓
↓	0858	↓	↑	↓	4.30	18.8	1.63	30.34	23.48	↓
↓	0924	↓	↑	↓	4.28	29.5	1.50	30.42	23.58	Piling cleaning crew starts
↓	0950	↓	↑	↓	4.28	15.0	1.38	30.17	23.42	Flood
↓	1027	↓	↑	↓	4.26	15.5	1.55	30.38	23.43	↓
↓	1042	↓	↑	↓	4.27	18.9	1.42	30.38	23.42	↓
↓	1058	↓	↑	6.3	4.27	15.5	1.38	30.36	23.44	↓
↓	1120	↓	↑	↓	5.26	11.7	1.87	30.44	23.42	↓
↓	1143	↓	↑	↓	5.27	13.1	2.51	30.50	23.43	↓
300' N of Area	1301	41° 39.974	70° 55.039	10.4	1.56	6.9	4.59	28.74	23.37	↓
P Dredge	1303	↓	↓	↓	3.07	5.1	3.58	30.21	23.45	↓



## New Bedford Harbor Water Quality Monitoring *In-situ* Data Log Sheet

**Dredging Location**  
**Debris Removal Location**  
**Survey Vessel**  
**Chief Scientist**  
**Sampling Technician**  
**Vessel Captain**  
**Other Personnel**  
**Weather Conditions**

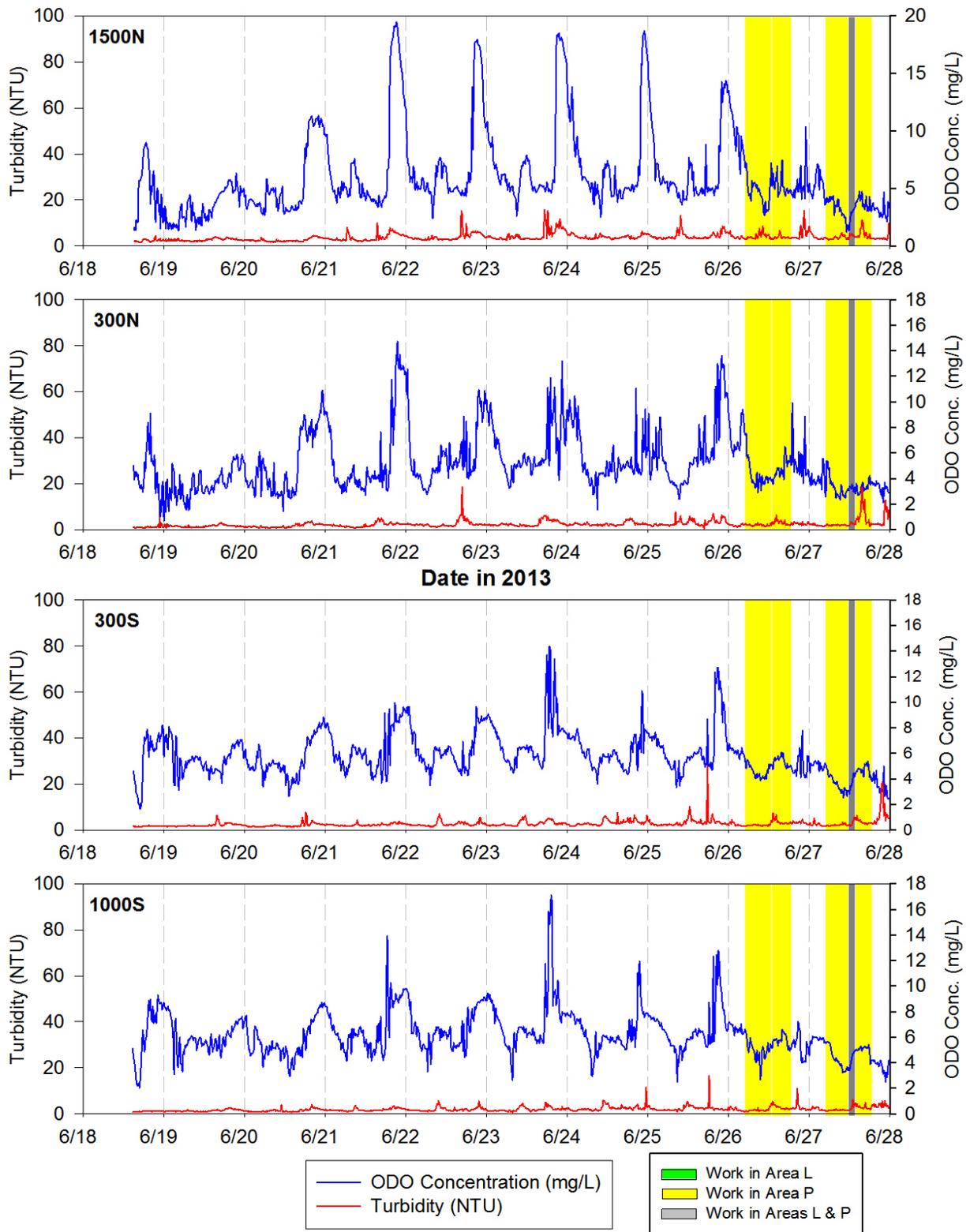
Area P  
 Area P  
 R/V George Hampson  
 D. Stuart  
 -  
 D. Rogers  
 -  
 Rain in AM, light breeze from N

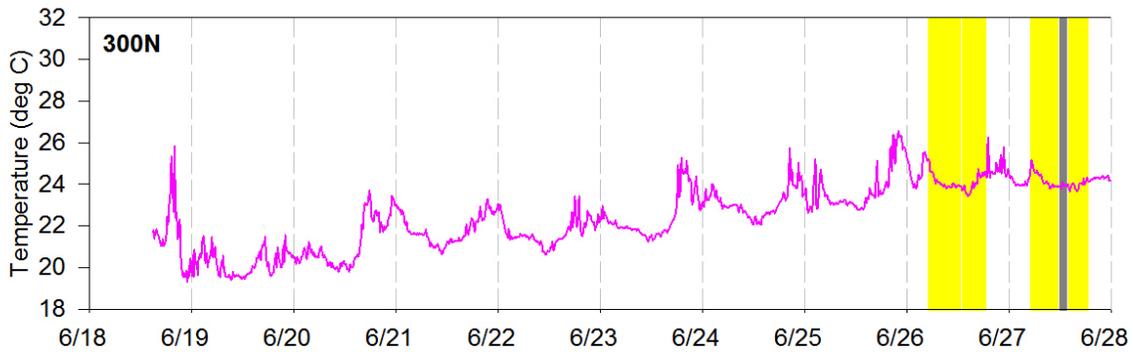
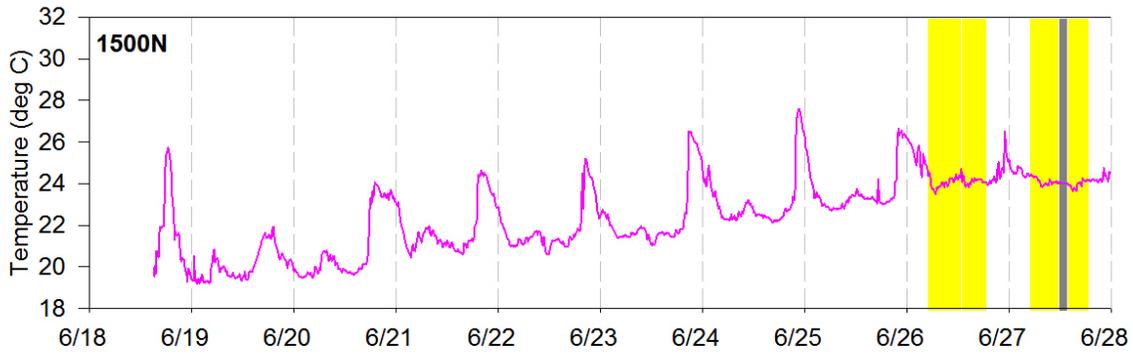
**Date** 8/27/13  
**Page** 2 of 2

Tide Information	
High	0051
Low	0556
High	1323
Low	1843

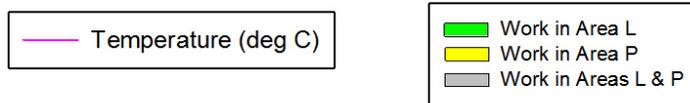
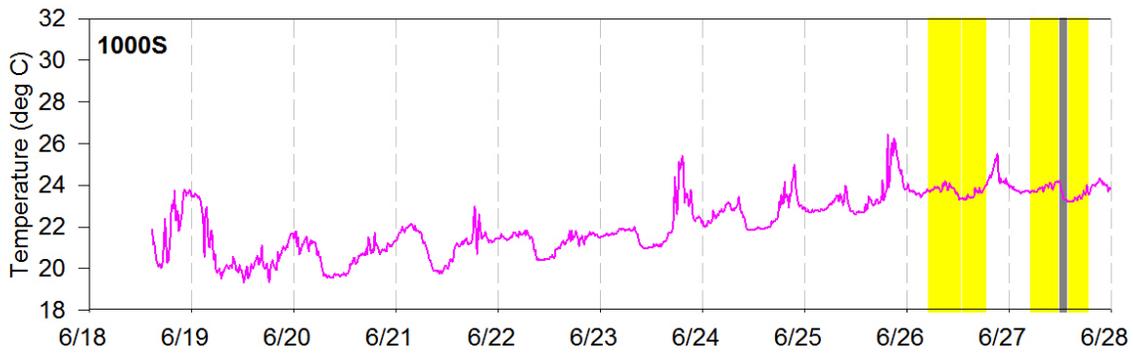
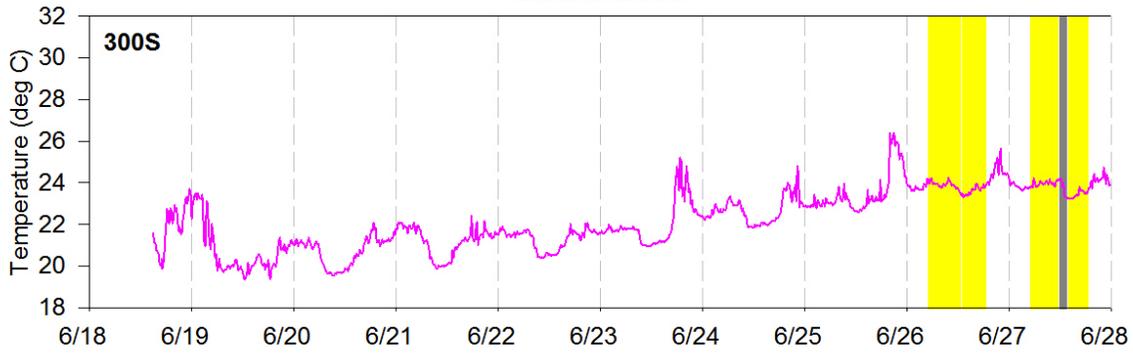
Location	Time	Latitude N	Longitude W	Water Depth (ft)	Reading Depth (ft)	Turbidity (NTU)	DO (mg/L)	Salinity (ppt)	Temp (°C)	Notes
300' North of Area P DRG	1306	41° 39.974	70° 55.039	10.4	4.87	4.5	3.21	30.41	23.45	Flood
↓	1308	↓	↓	↓	7.08	5.8	3.02	30.46	23.45	
↓	1310	↓	↓	↓	9.06	10.2	2.85	30.67	23.46	
300N mooring	1330	-	-	-	3.12	3.8	3.30	30.27	23.45	Comparison reading
1500N mooring	1337	41° 40.272	70° 55.026	6.4	1.26	9.8	5.79	26.95	23.32	Ebb Ref
↓	1339	↓	↓	↓	2.99	4.1	3.51	30.05	23.47	↓
↓	1341	↓	↓	↓	5.11	4.1	1.90	30.60	23.50	↓
↓	1345	↓	↓	↓	2.99	3.9	3.49	29.92	23.42	Comparison reading
300 ft South of Area P DRG	1405	41° 39.867	70° 55.043	9.0	1.28	4.4	5.14	27.22	23.32	Ebb
↓	1407	↓	↓	↓	3.04	3.0	4.10	30.23	23.48	↓
↓	1409	↓	↓	↓	5.00	2.7	3.60	30.57	23.48	↓
↓	1410	↓	↓	↓	7.03	3.2	2.85	30.65	23.48	↓
↓	1430	↓	↓	↓	7.14	3.1	2.36	30.66	23.49	↓
↓	1455	↓	↓	↓	7.25	10.1	2.23	30.70	23.49	↓
↓	1522	↓	↓	↓	7.25	19.5	2.20	30.67	23.47	↓
↓	1536	↓	↓	↓	6.75	12.9	2.11	30.69	23.47	↓
300S mooring	1545	-	-	-	2.95	3.3	3.32	30.24	23.49	Comparison reading

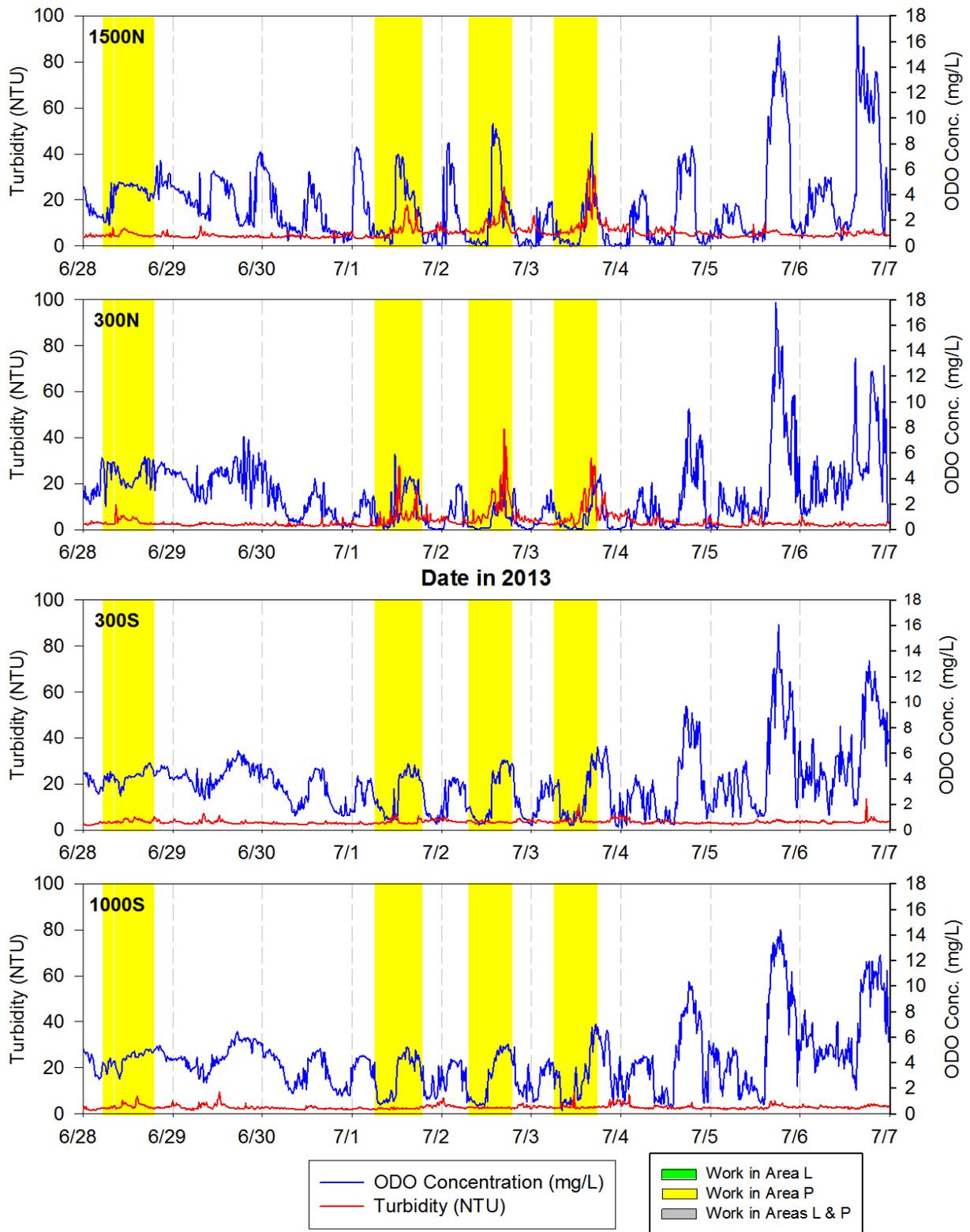
**APPENDIX B. CONTINUOUS *IN-SITU* FIXED STATION WATER QUALITY  
TIME SERIES DATA**

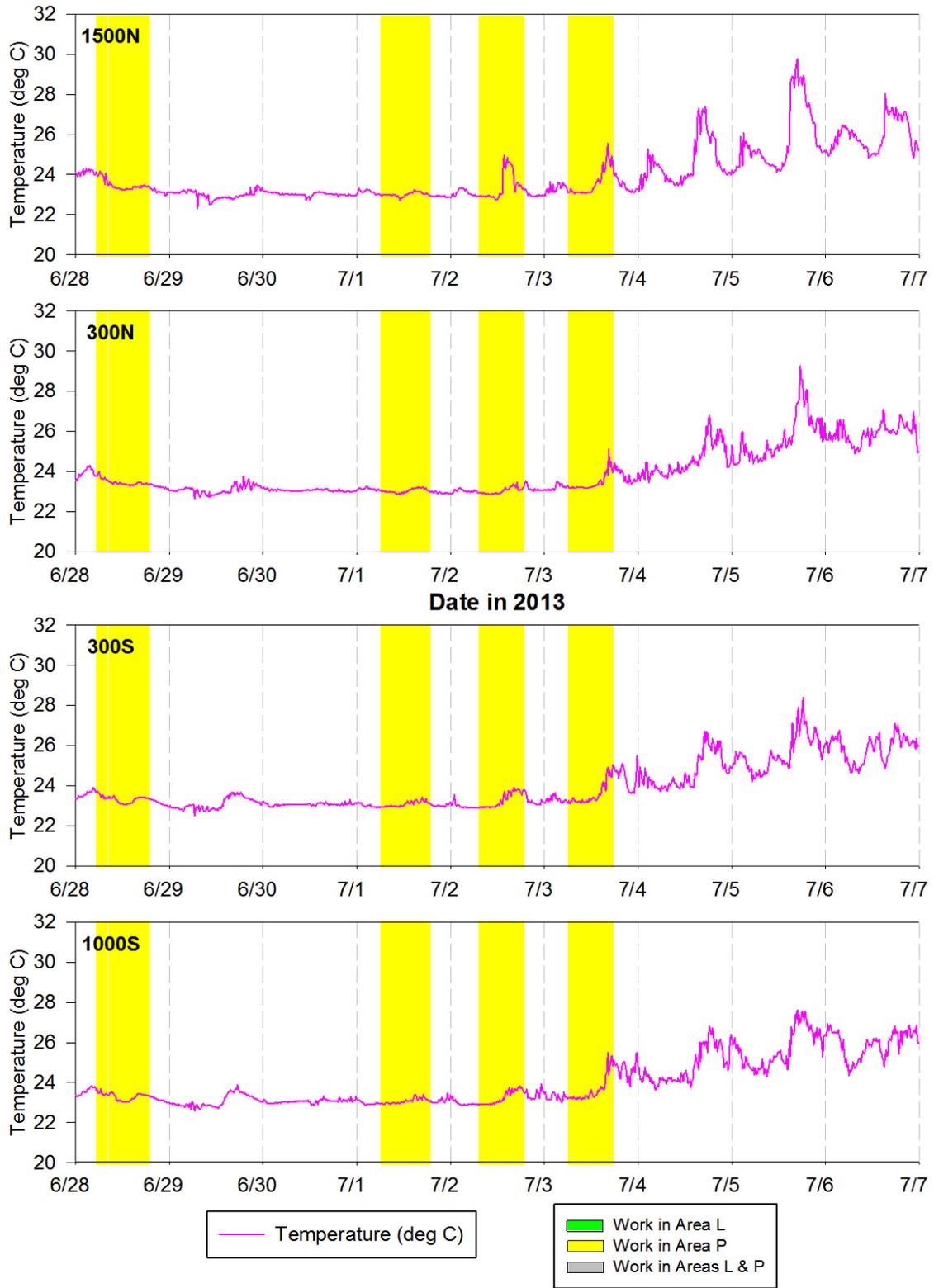


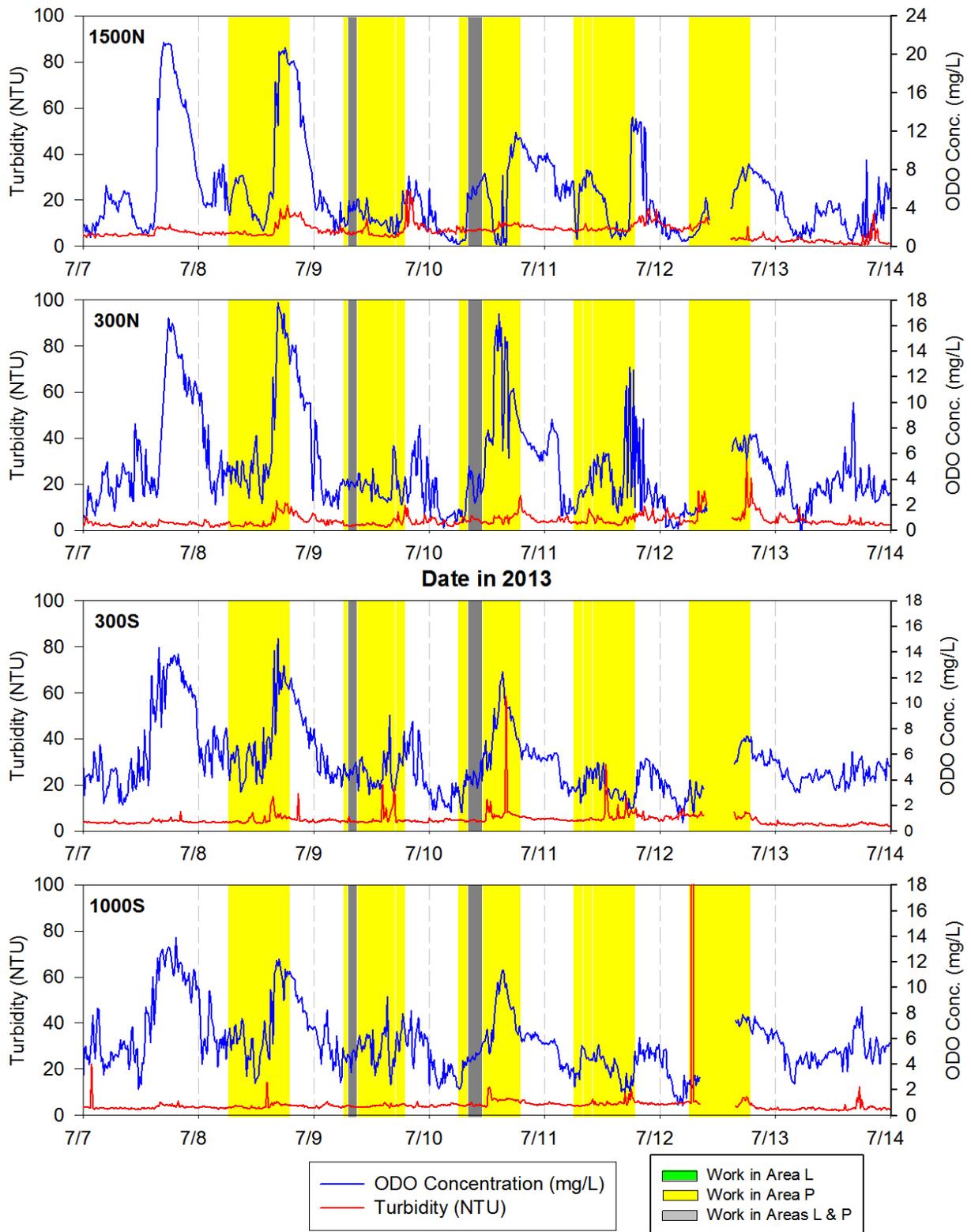


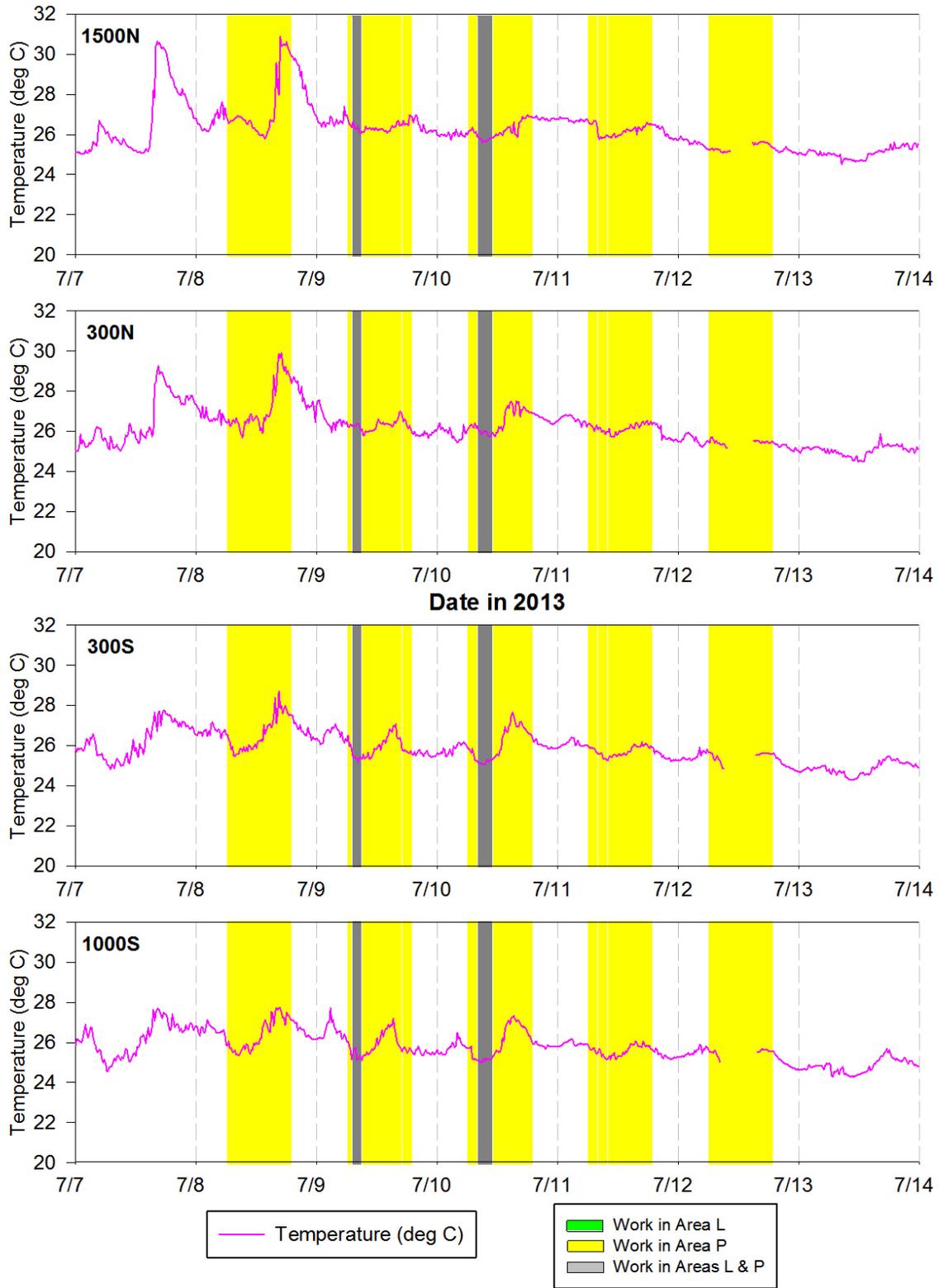
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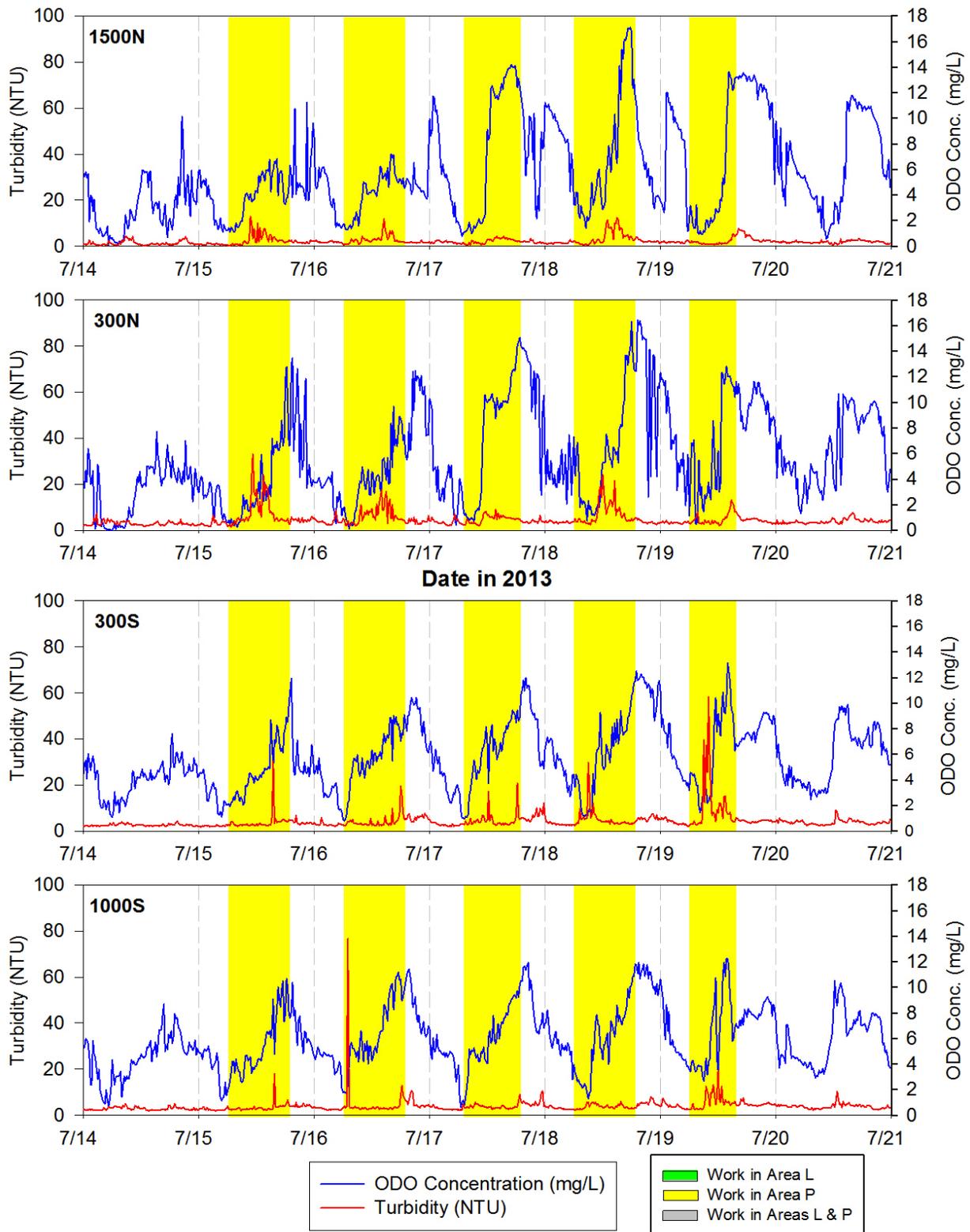


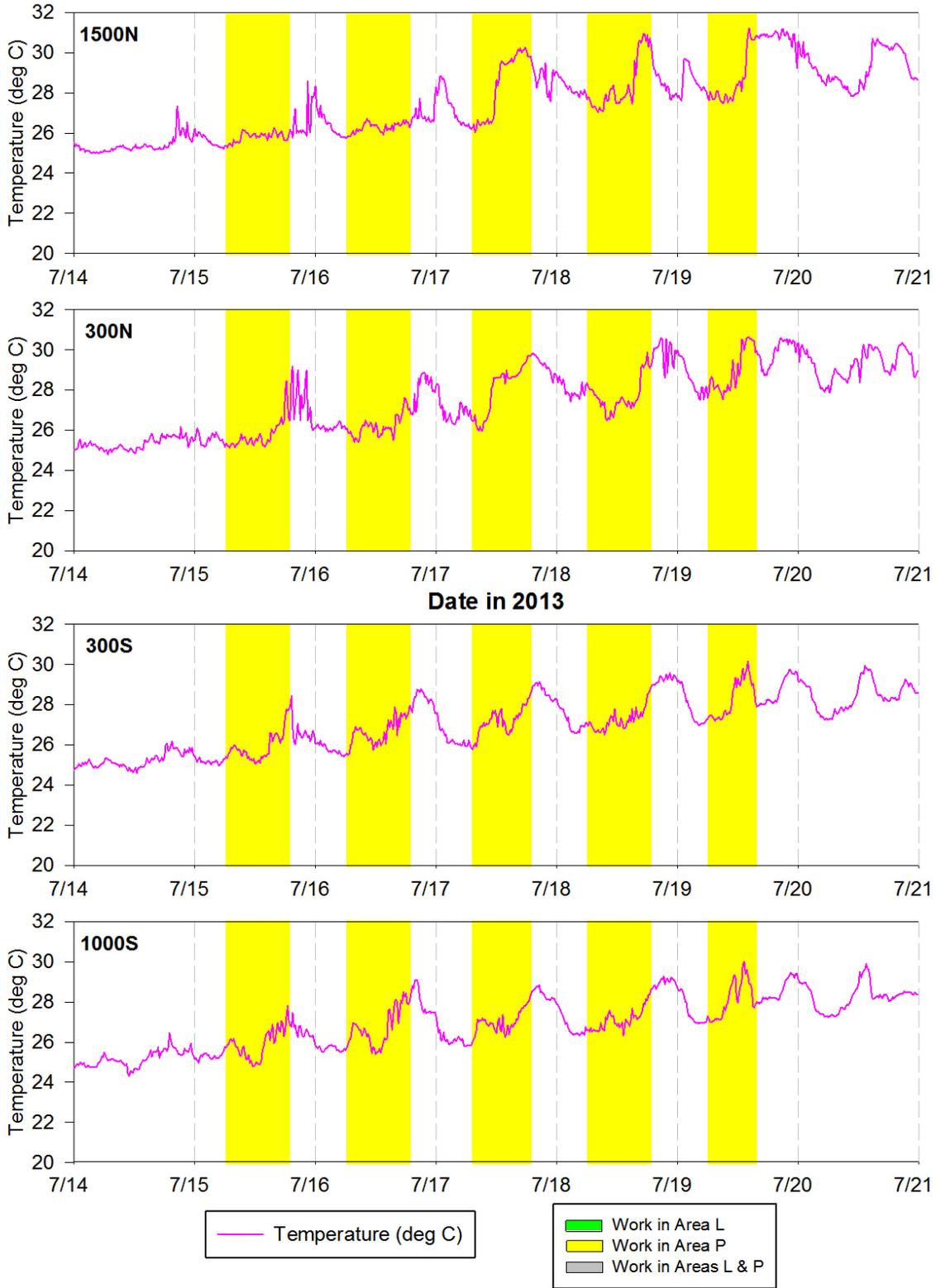


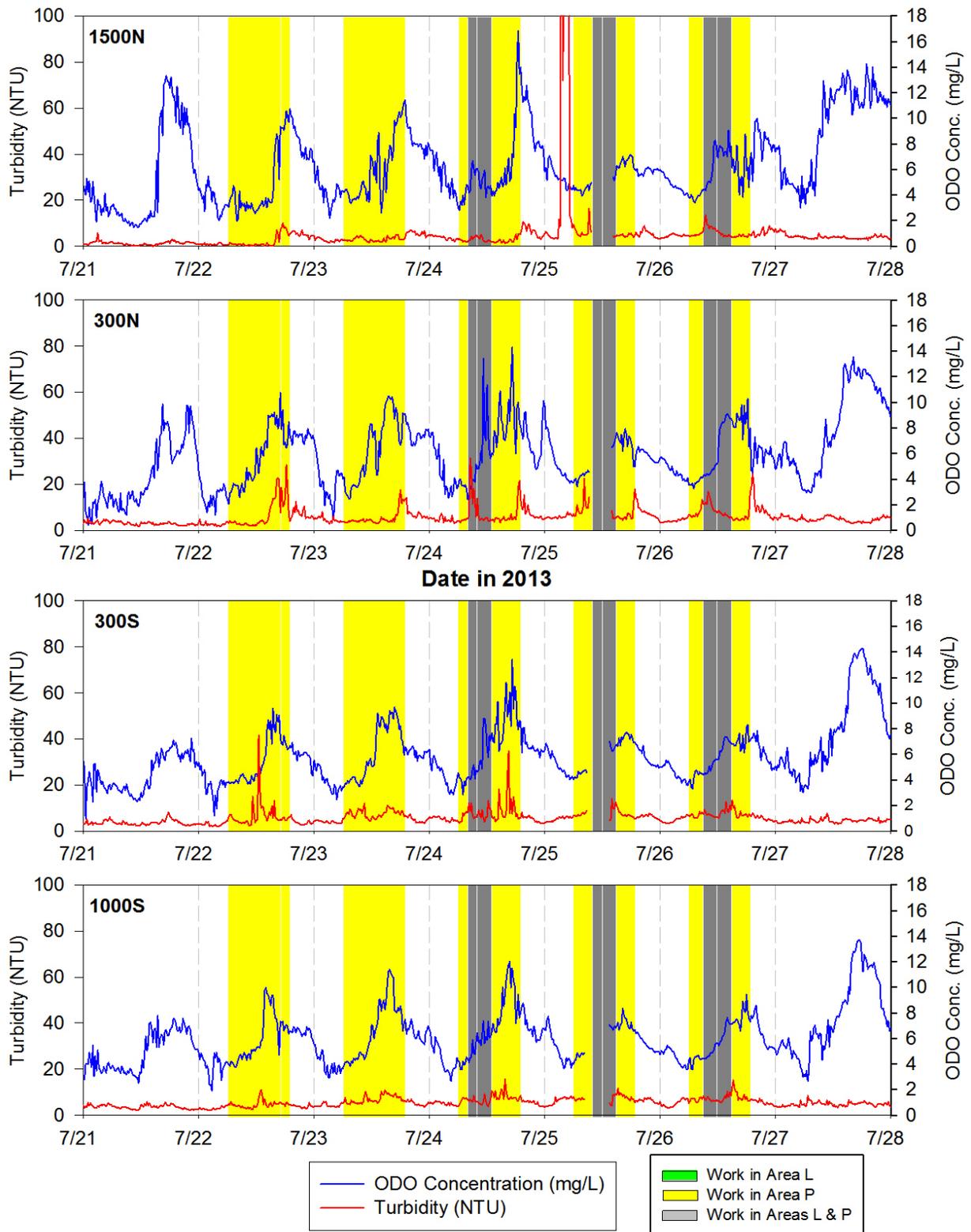


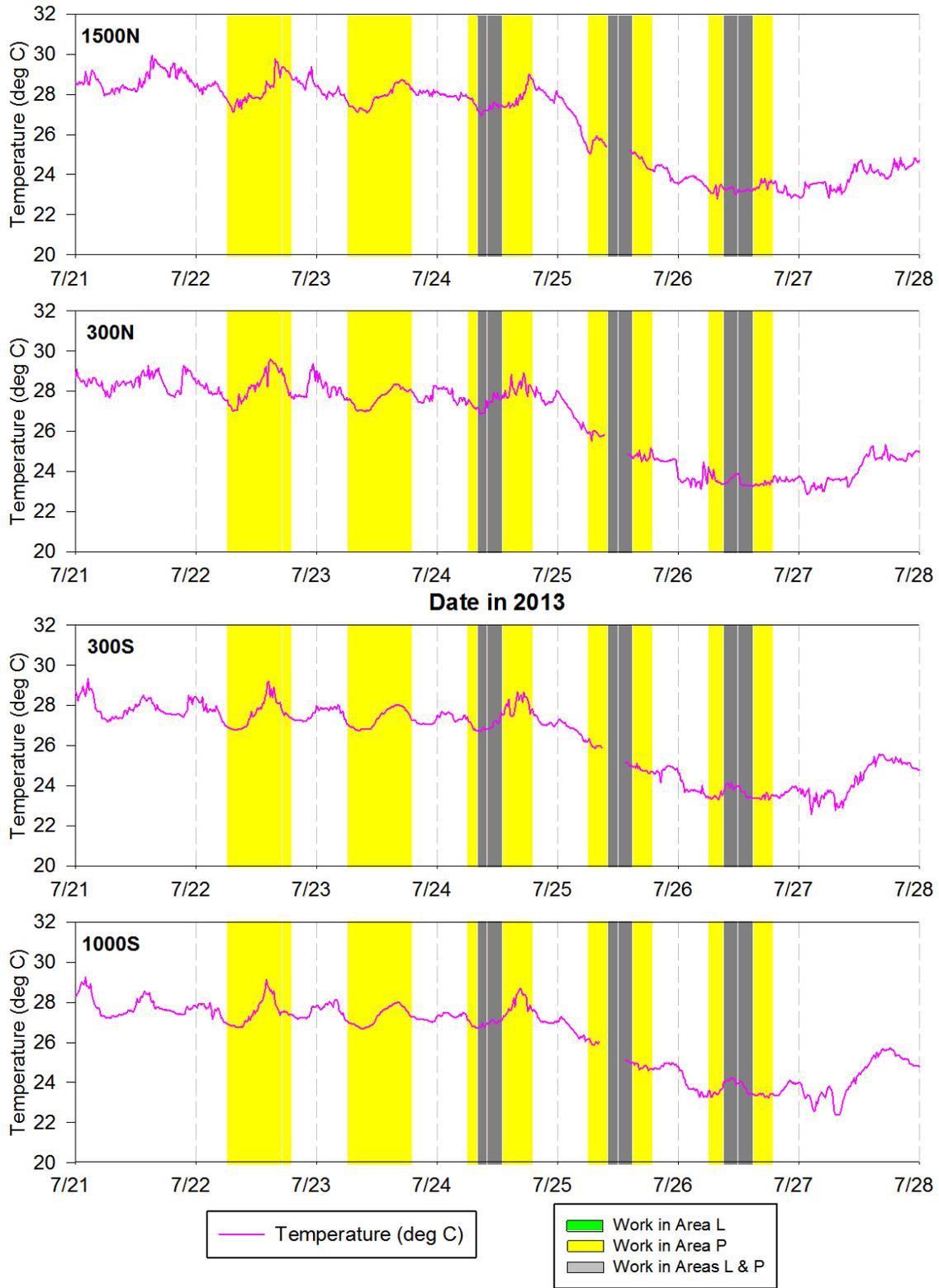


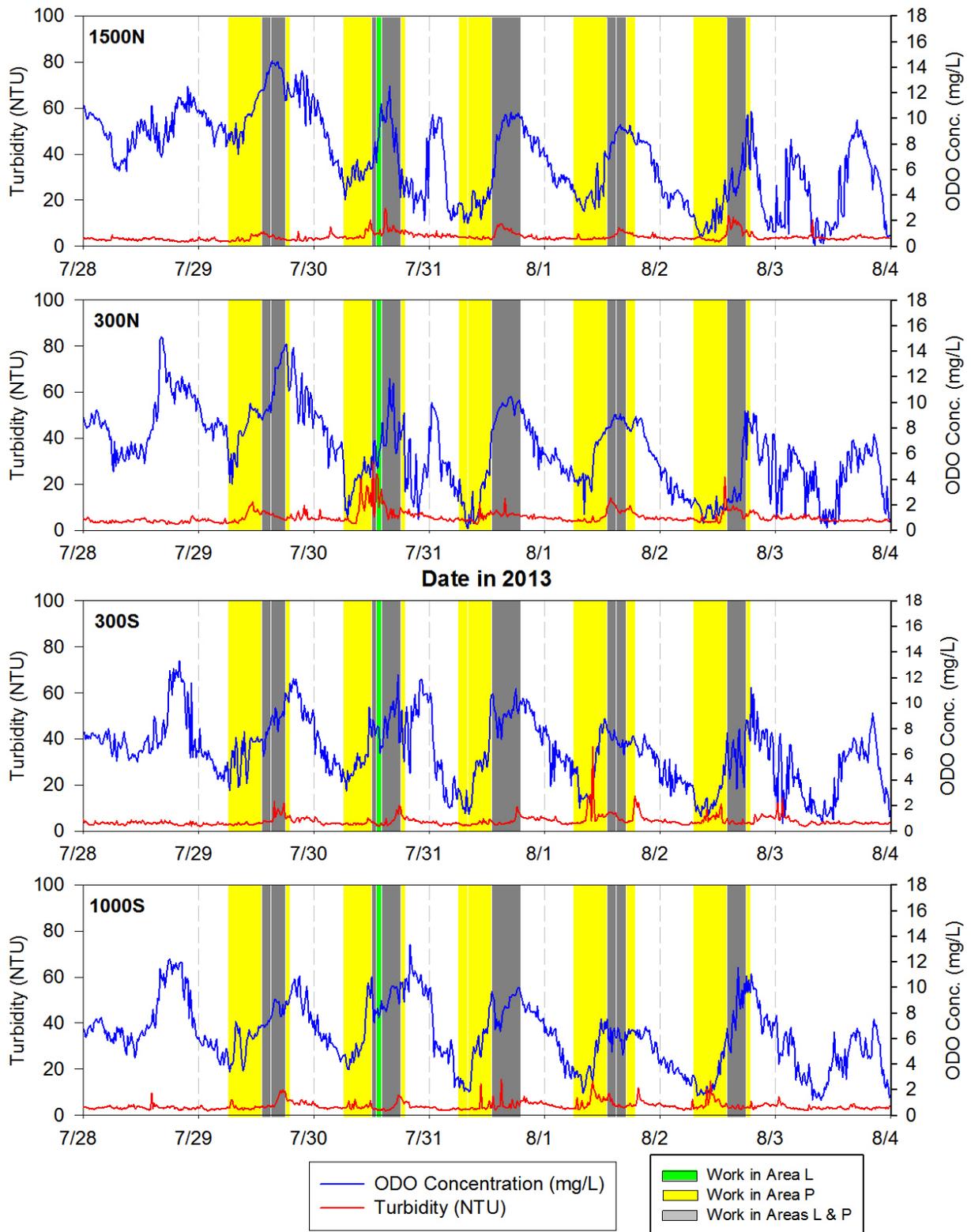


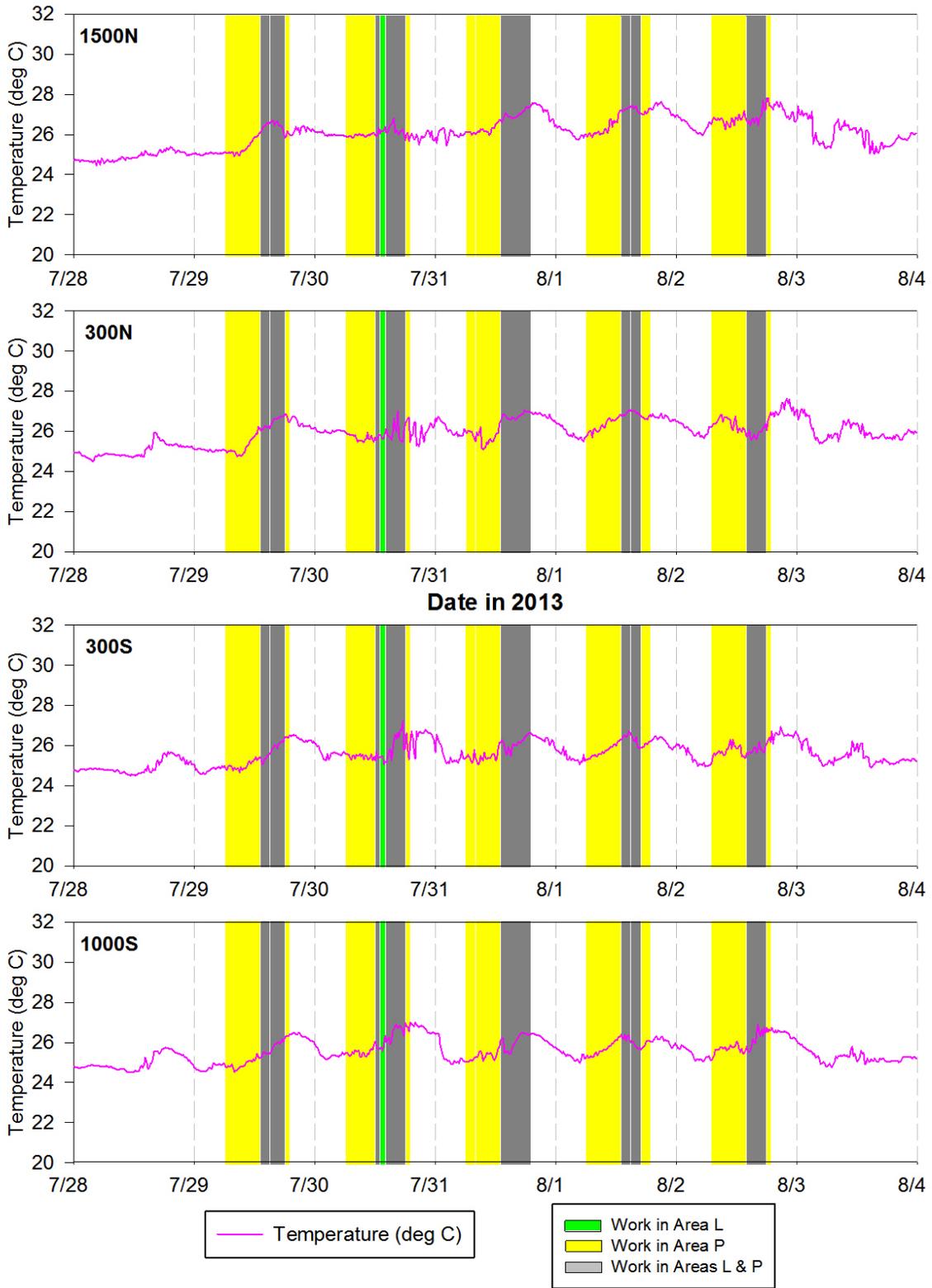


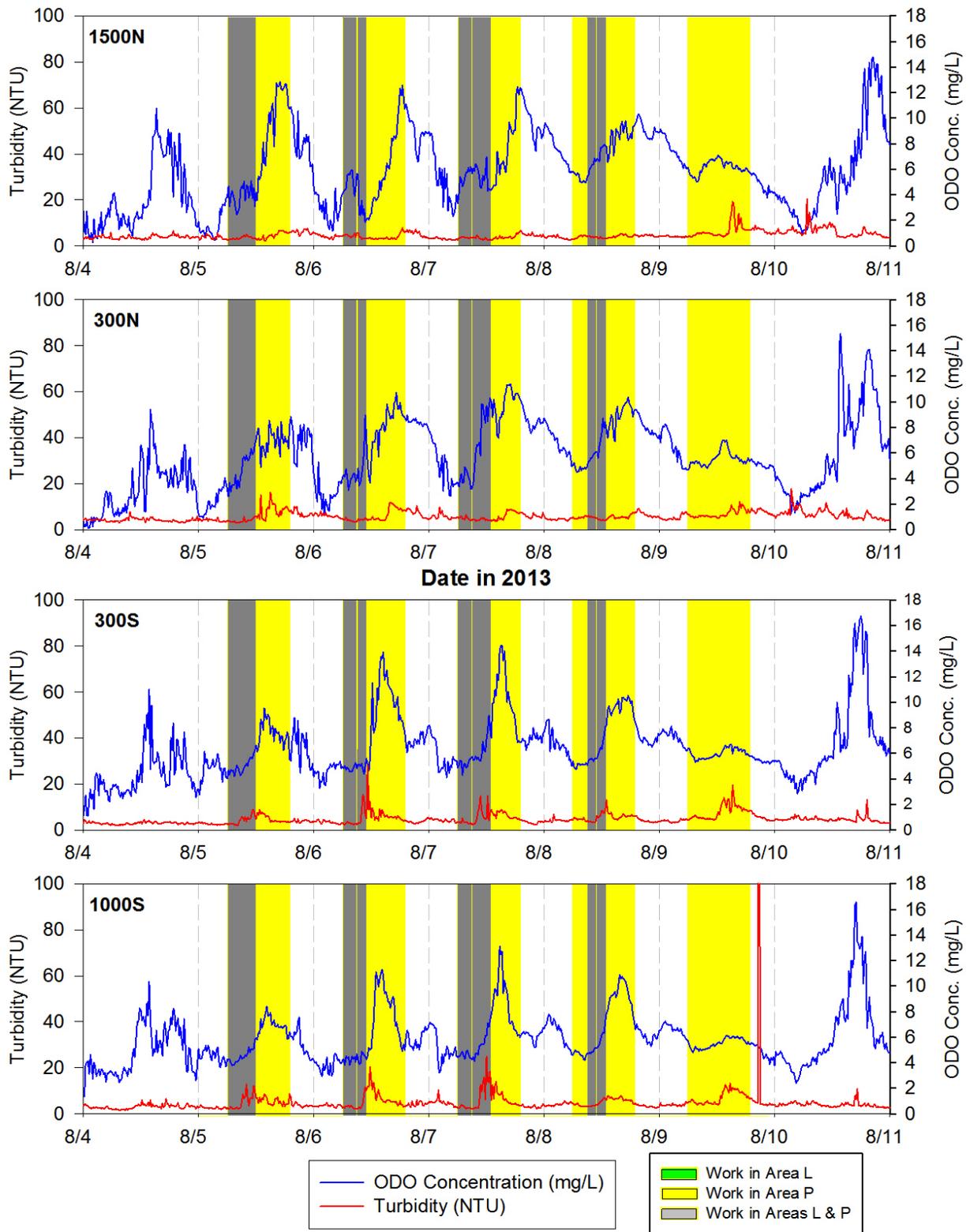


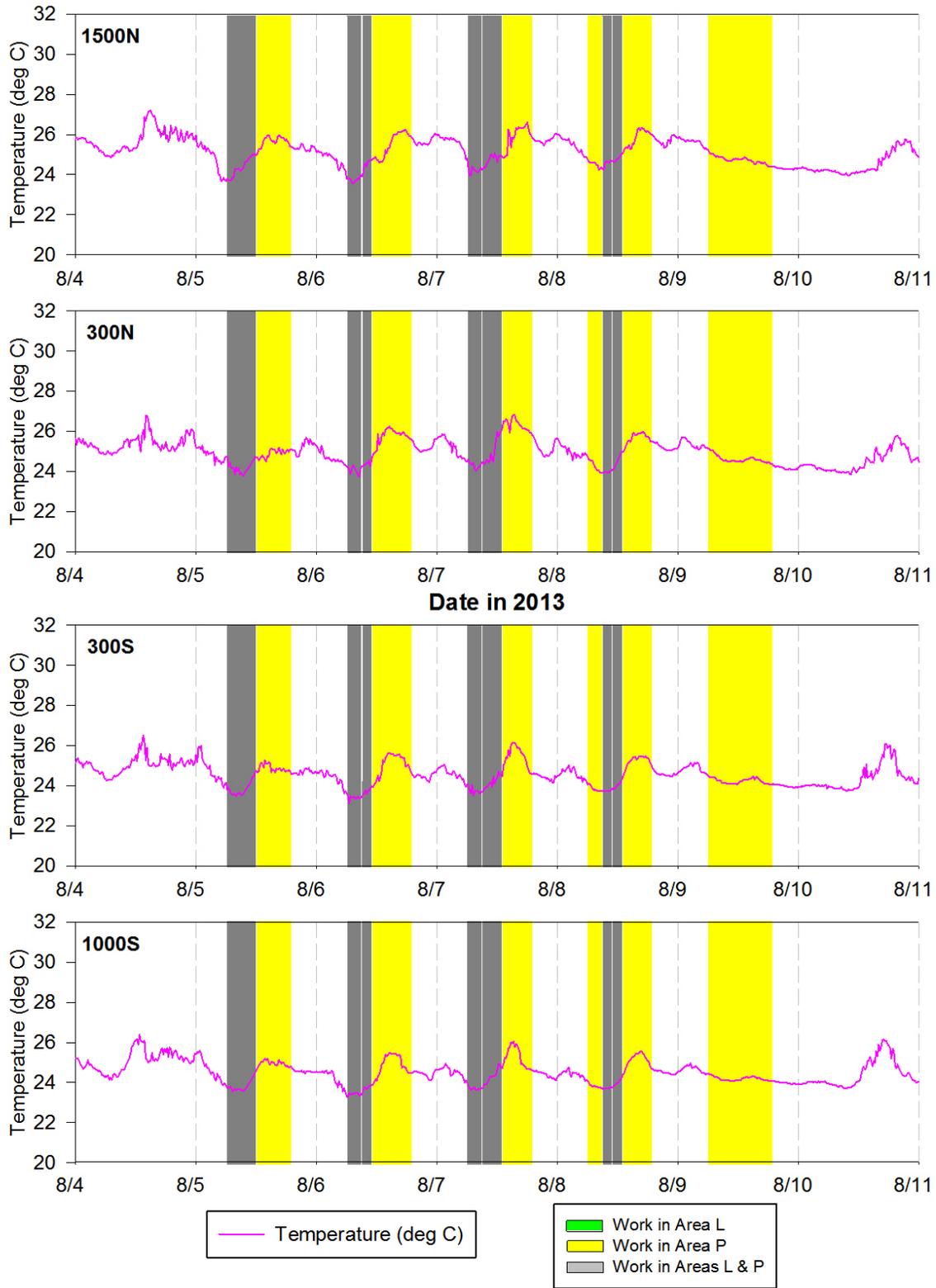


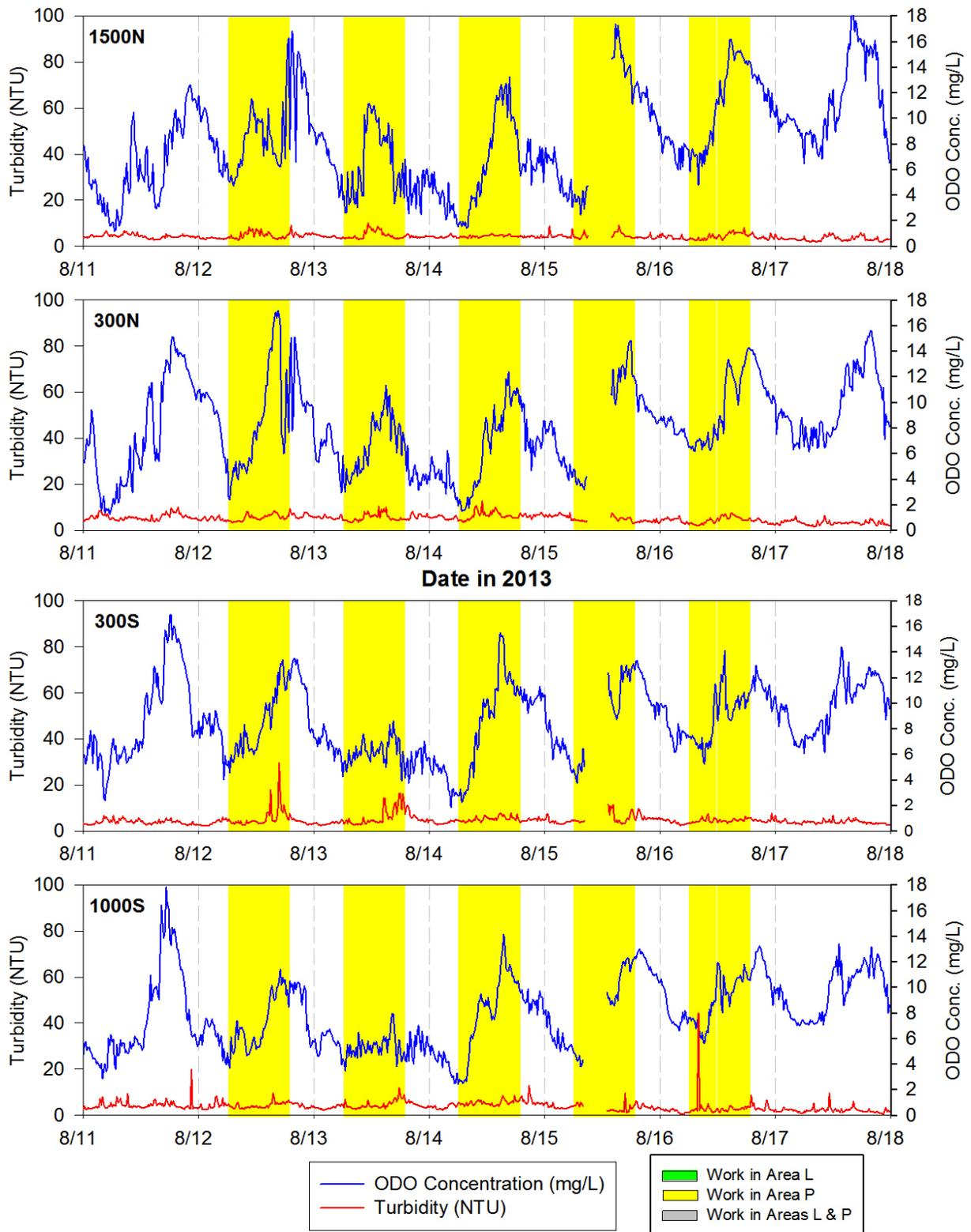


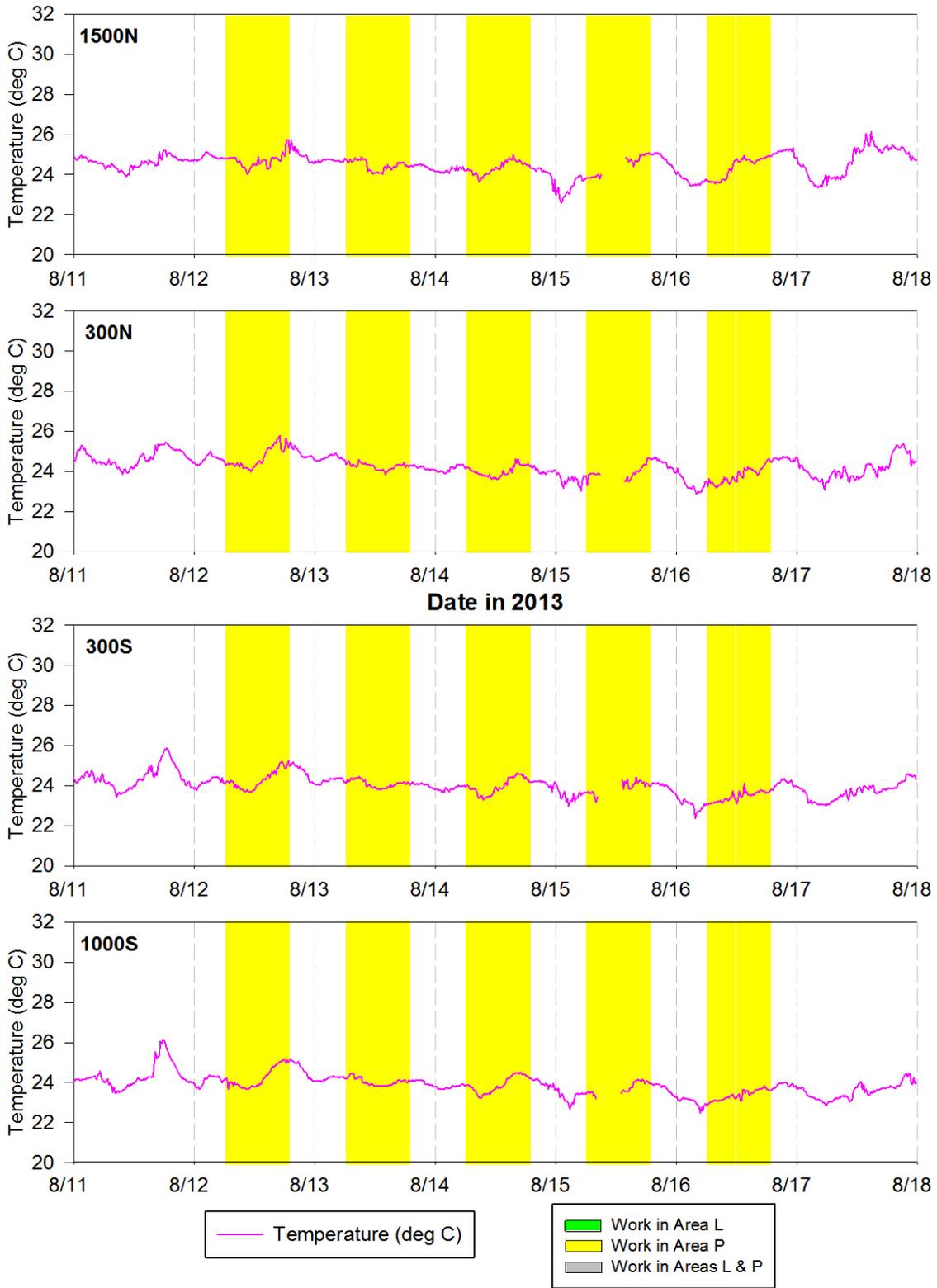


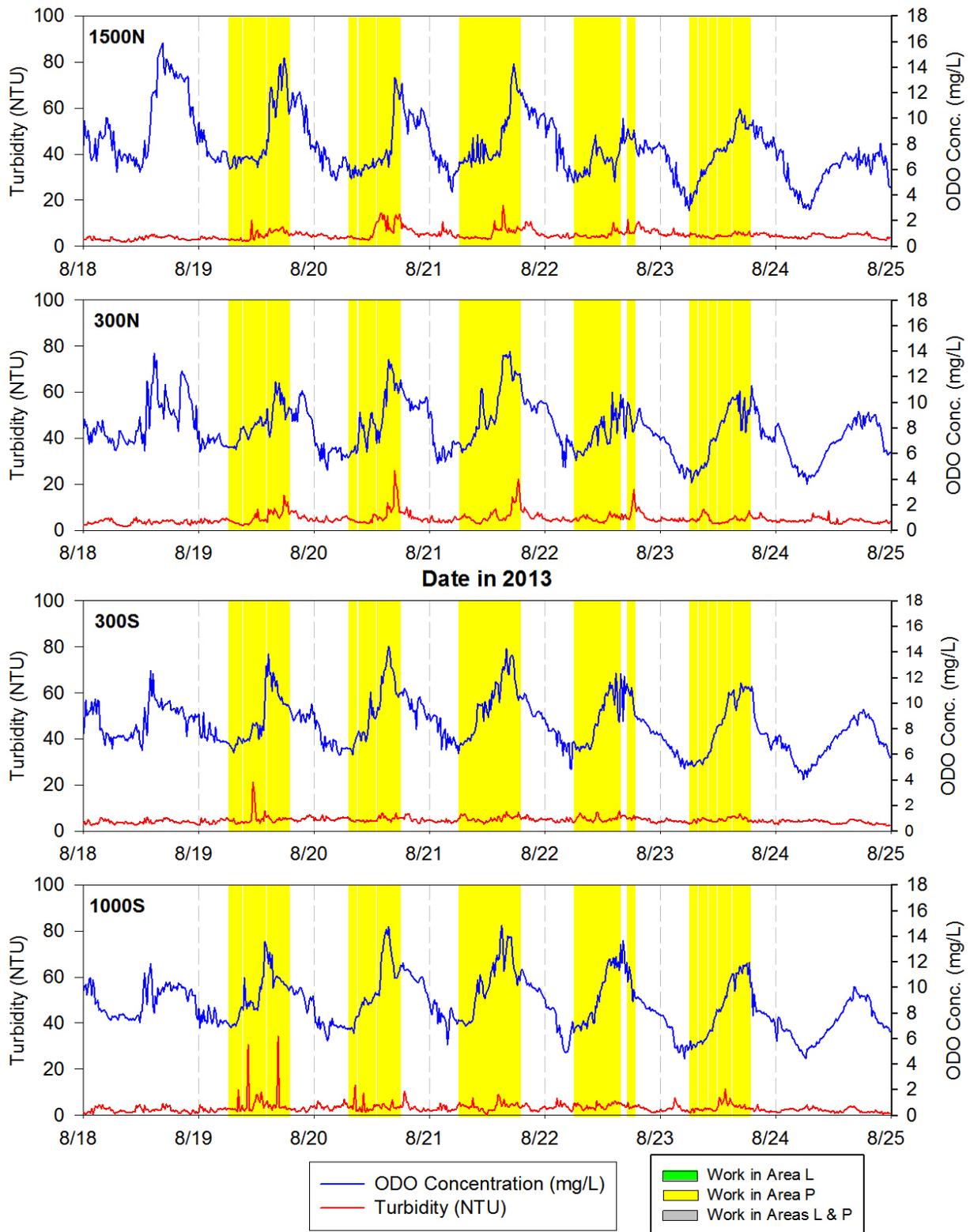


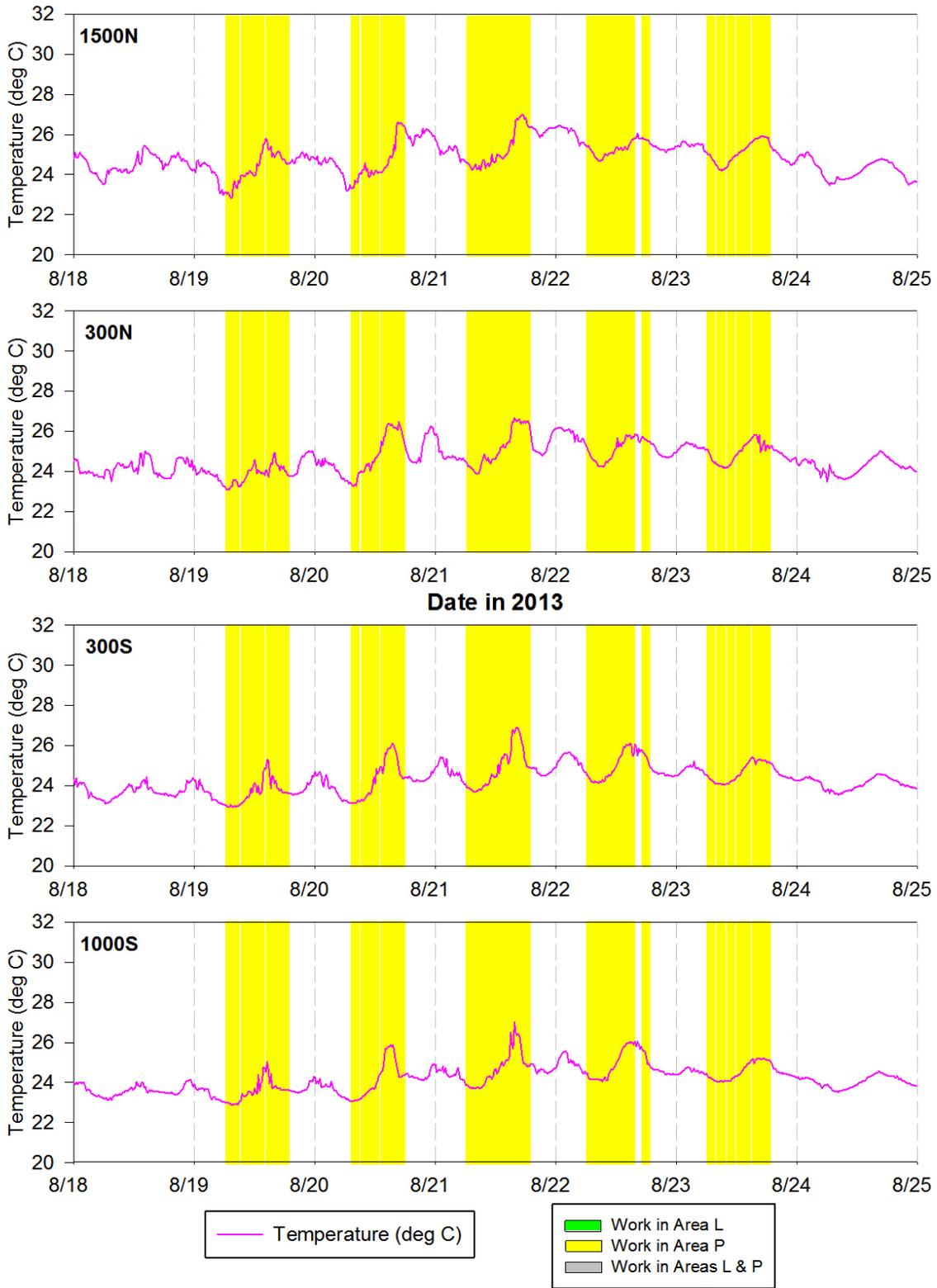


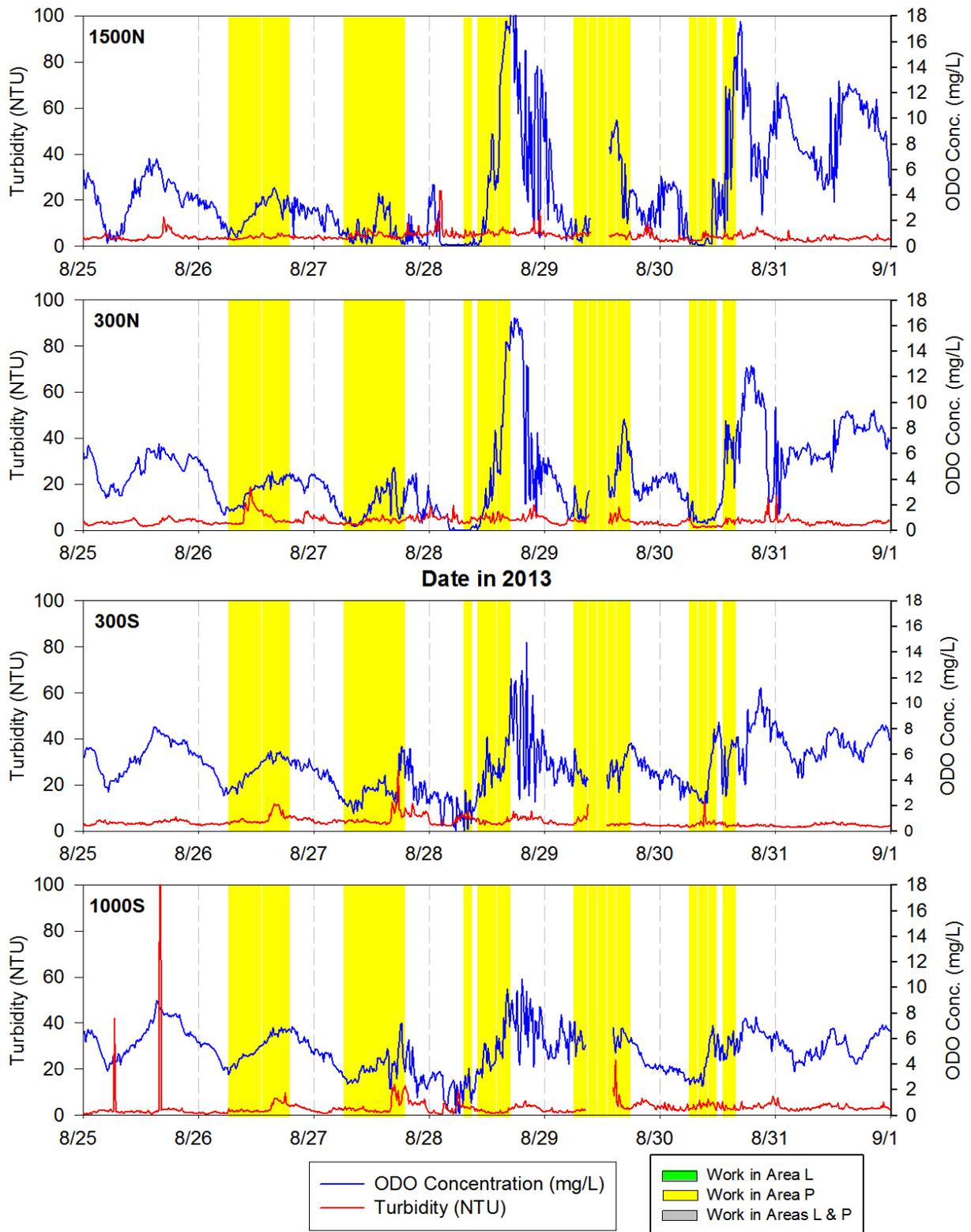


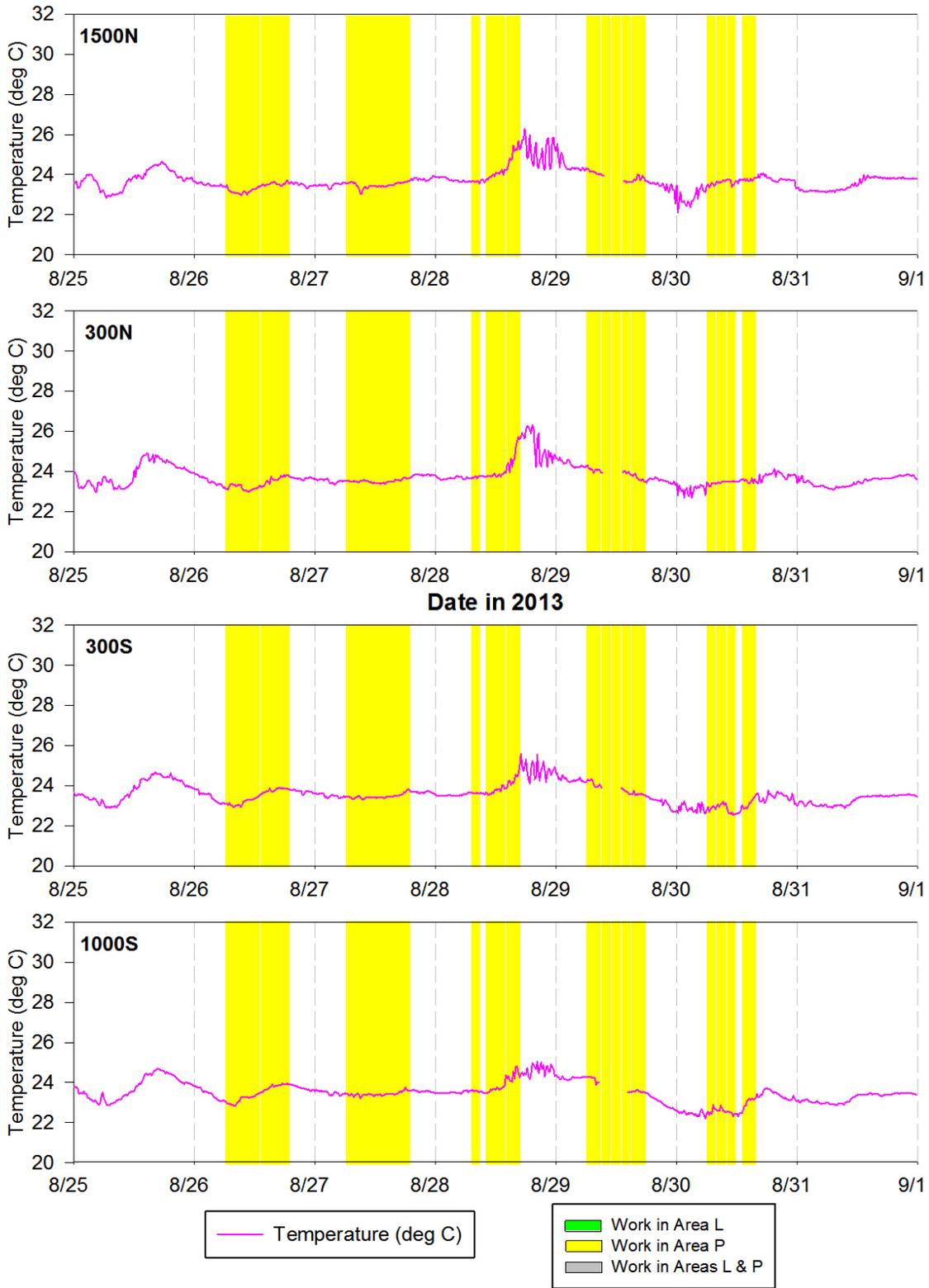


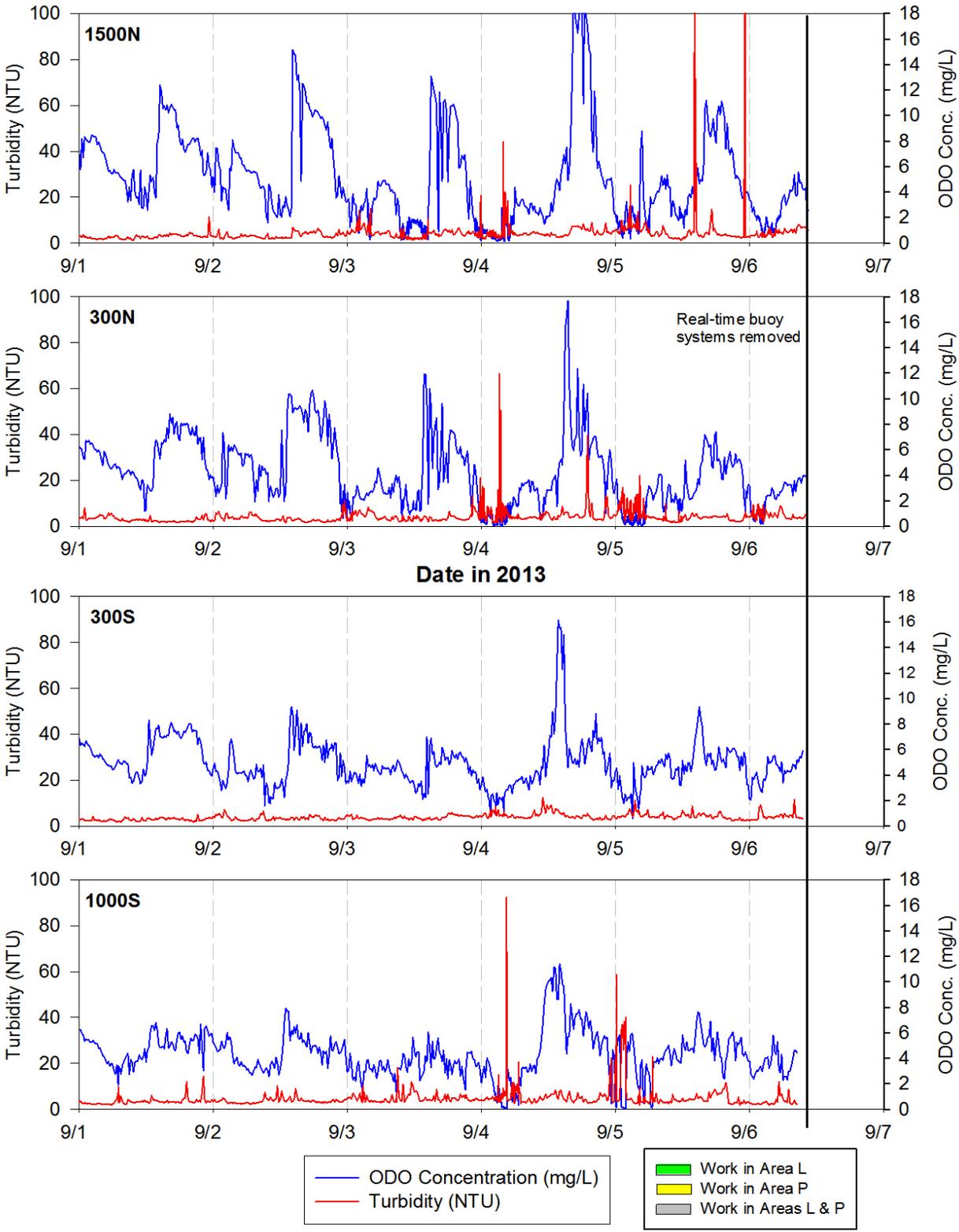


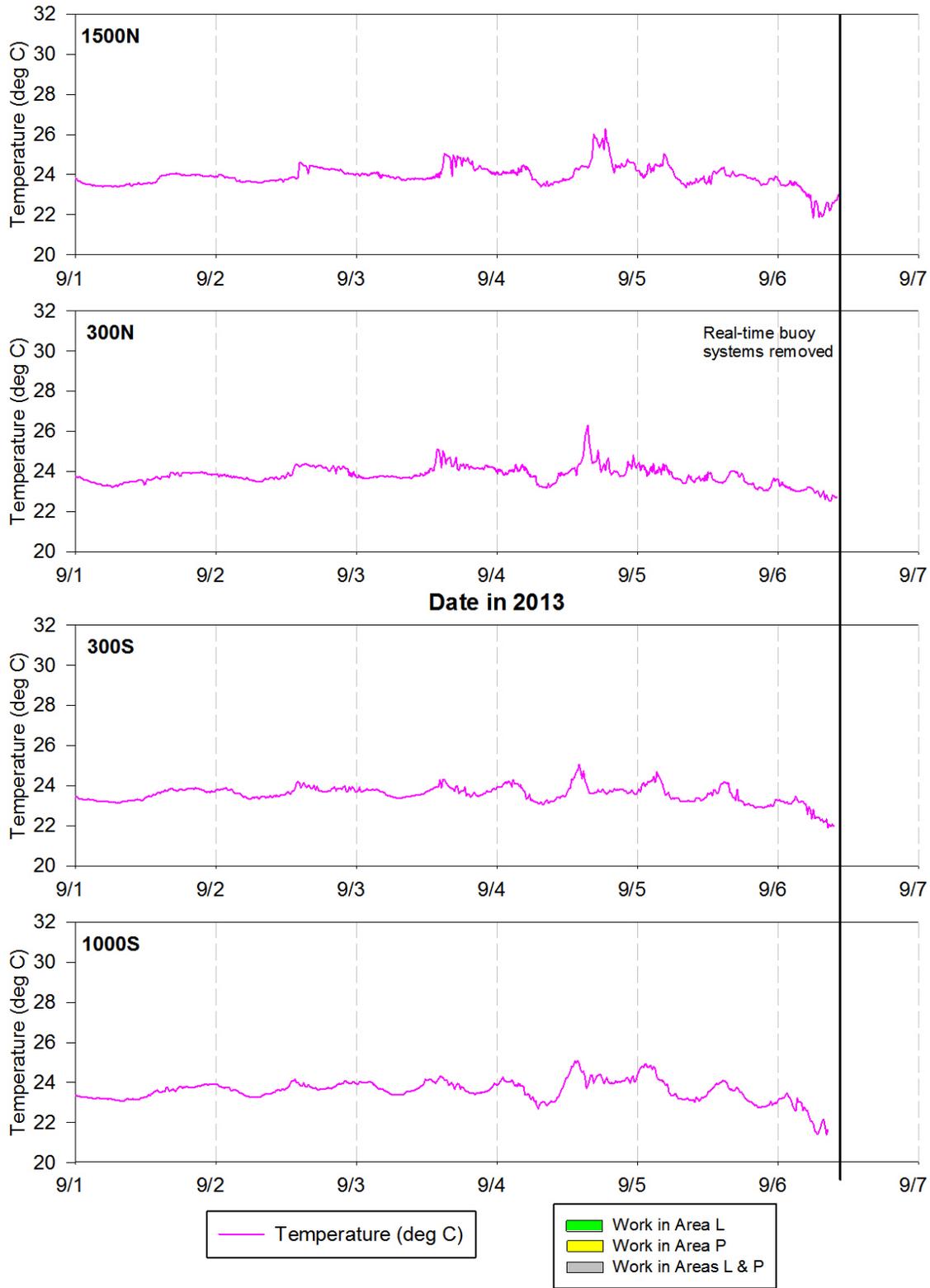


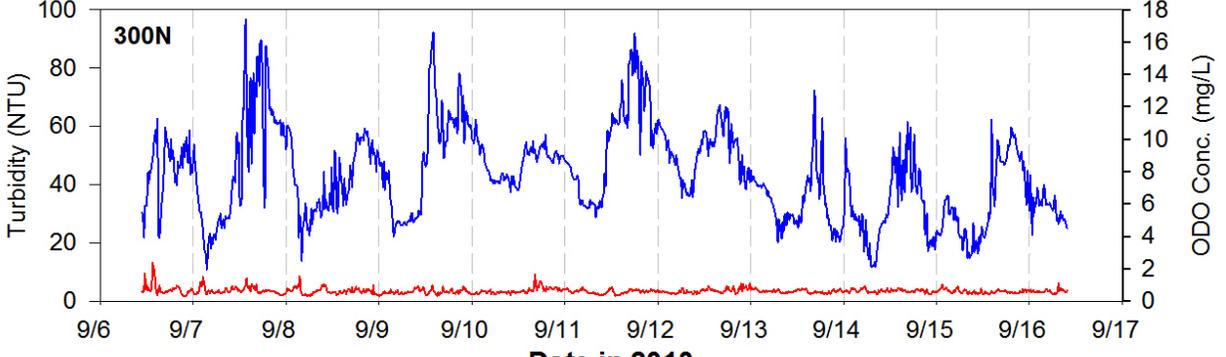
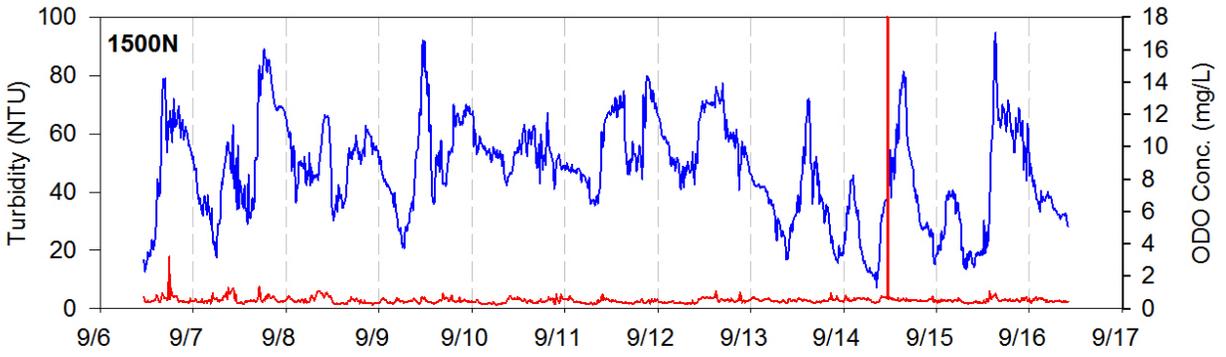




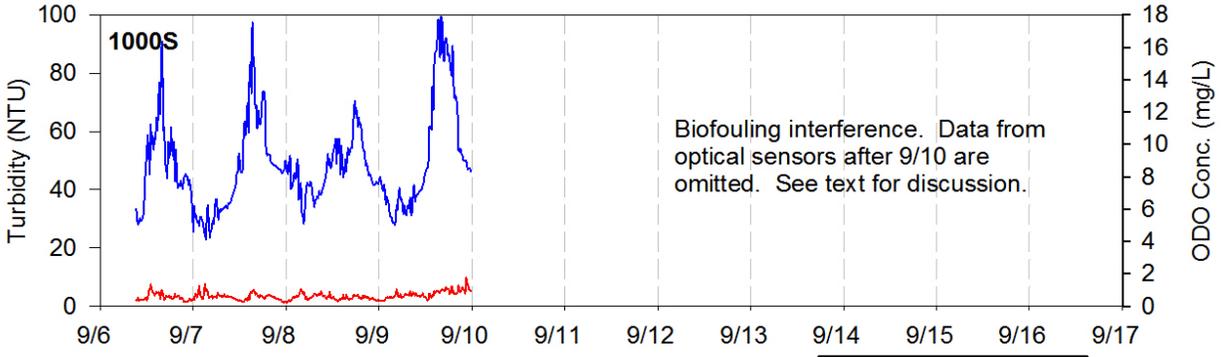




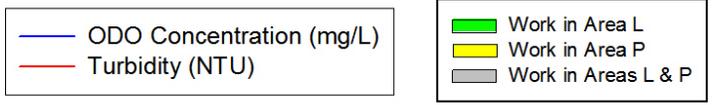




Date in 2013

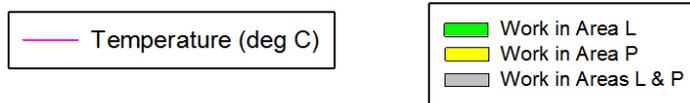


Biofouling interference. Data from optical sensors after 9/10 are omitted. See text for discussion.





**Date in 2013**



## **APPENDIX C. ALPHA ANALYTICAL LABORATORY REPORTS**

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## TABLE OF CONTENTS

Introduction.....	C-1
L1310595 .....	C-2
L1312296 .....	C-63
L1312402 .....	C-142

## INTRODUCTION

Samples were analyzed at Alpha Analytical Laboratories. Upon receipt, samples were divided into sample delivery groups (SDGs), which were assigned a unique 7-digit number preceded by the letter L. One SDG typically consists of 20 samples. Below is a table summarizing which SDGs are associated with each sampling event as well as the analytes reported.

<b>SDG</b>	<b>Sampling Event</b>	<b>Analytes Reported</b>
L1310595	Baseline Lvl. II	Total PCBs (NOAA-18 Congeners), TSS, Turbidity, TOC
L1312296	Level I - Startup	Total PCBs (NOAA-18 Congeners), Dissolved PCBs, TSS, Turbidity, TOC, Metals (not analyzed), Toxicity
L1312402	Level I - Startup	Total PCBs (NOAA-18 Congeners), Dissolved PCBs, TSS, Turbidity, TOC, Metals (not analyzed), Toxicity

A SDG is made up of three data files. The table below, using SDG L1310595 as an example, describes the contents of each SDG file.

<b>File name</b>	<b>File type</b>	<b>Description</b>
L1310595_coc	.PDF	Scanned copy of the chain of custody.
L1310595_nbh	.CSV	Comma-delimited spreadsheet of analytical data, formatted for the New Bedford Harbor Database.
L1310595_pdf	.PDF	SDG laboratory report.

This Appendix document includes the SDG laboratory reports only. All other data files associated with each SDG are included as electronic attachments on the accompanying CD.



## ANALYTICAL REPORT

Lab Number:	L1310595
Client:	Woods Hole Group 81 Technology Park Drive East Falmouth, MA 02536
ATTN:	Dack Stuart
Phone:	(508) 540-8080
Project Name:	NEW BEDFORD HARBOR
Project Number:	TO-0010
Report Date:	07/02/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

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320 Forbes Boulevard, Mansfield, MA 02048-1806  
508-822-9300 (Fax) 508-822-3288 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1310595-01	WQ-TPC-001-061113	NEW BEDFORD, MA	06/11/13 08:40
L1310595-02	WQ-TUR-001-061113	NEW BEDFORD, MA	06/11/13 08:40
L1310595-03	WQ-TSS-001-061113	NEW BEDFORD, MA	06/11/13 08:40
L1310595-04	WQ-TOC-001-061113	NEW BEDFORD, MA	06/11/13 08:40
L1310595-05	WQ-TPC-002-061113	NEW BEDFORD, MA	06/11/13 09:10
L1310595-06	WQ-TUR-002-061113	NEW BEDFORD, MA	06/11/13 09:10
L1310595-07	WQ-TSS-002-061113	NEW BEDFORD, MA	06/11/13 09:10
L1310595-08	WQ-TOC-002-061113	NEW BEDFORD, MA	06/11/13 09:10
L1310595-09	WQ-TPC-002-061113-REP	NEW BEDFORD, MA	06/11/13 09:15
L1310595-10	WQ-TUR-002-061113-REP	NEW BEDFORD, MA	06/11/13 09:15
L1310595-11	WQ-TSS-002-061113-REP	NEW BEDFORD, MA	06/11/13 09:15
L1310595-12	WQ-TOC-002-061113-REP	NEW BEDFORD, MA	06/11/13 09:15
L1310595-13	WQ-TPC-003-061113	NEW BEDFORD, MA	06/11/13 11:20
L1310595-14	WQ-TUR-003-061113	NEW BEDFORD, MA	06/11/13 11:20
L1310595-15	WQ-TSS-003-061113	NEW BEDFORD, MA	06/11/13 11:20
L1310595-16	WQ-TOC-003-061113	NEW BEDFORD, MA	06/11/13 11:20
L1310595-17	WQ-TPC-004-061113	NEW BEDFORD, MA	06/11/13 11:45
L1310595-18	WQ-TUR-004-061113	NEW BEDFORD, MA	06/11/13 11:45
L1310595-19	WQ-TSS-004-061113	NEW BEDFORD, MA	06/11/13 11:45
L1310595-20	WQ-TOC-004-061113	NEW BEDFORD, MA	06/11/13 11:45
L1310595-21	EB-001-061113	NEW BEDFORD, MA	06/11/13 10:00

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

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**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

### Case Narrative (continued)

#### PCBs

The PCB Congener analysis was performed utilizing dual column confirmation with the higher of the two values reported. Technical judgment was employed in the case of an observed interference. In each case that interference was observed on one column, the value from the opposite column was reported regardless of whether it was the higher or lower value.

Sample L1310595-13 has elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the sample.

#### TOC

Samples L1310595-04, -16, and -20 have elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 07/02/13

# ORGANICS

# PCBS

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

Lab ID: L1310595-01  
 Client ID: WQ-TPC-001-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 17:43  
 Analyst: JW

Date Collected: 06/11/13 08:40  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.02280		ug/l	0.00106	--	1
CI4-BZ#52	0.04450		ug/l	0.00106	--	1
CI4-BZ#66	0.01427		ug/l	0.00106	--	1
CI6-BZ#138	0.00472		ug/l	0.00106	--	1
CI7-BZ#187	ND		ug/l	0.00106	--	1
CI6-BZ#128	0.00123		ug/l	0.00106	--	1
CI7-BZ#180	ND		ug/l	0.00106	--	1
CI7-BZ#170	ND		ug/l	0.00106	--	1
CI8-BZ#195	ND		ug/l	0.00106	--	1
CI9-BZ#206	ND		ug/l	0.00106	--	1
CI10-BZ#209	ND		ug/l	0.00106	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	74		30-150
BZ 198	80		30-150

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

Lab ID: L1310595-01  
 Client ID: WQ-TPC-001-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 17:43  
 Analyst: JW

Date Collected: 06/11/13 08:40  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.06102		ug/l	0.00106	--	1
CI3-BZ#28	0.04508		ug/l	0.00106	--	1
CI4-BZ#44	0.01704		ug/l	0.00106	--	1
CI5-BZ#101	0.01106		ug/l	0.00106	--	1
CI5-BZ#118	0.00628		ug/l	0.00106	--	1
CI6-BZ#153	0.00635		ug/l	0.00106	--	1
CI5-BZ#105	0.00162		ug/l	0.00106	--	1

DBOB	74	30-150
BZ 198	80	30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

**Lab ID:** L1310595-05  
**Client ID:** WQ-TPC-002-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/01/13 18:27  
**Analyst:** JW

**Date Collected:** 06/11/13 09:10  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.01855		ug/l	0.00104	--	1
CI3-BZ#28	0.02725		ug/l	0.00104	--	1
CI4-BZ#52	0.03015		ug/l	0.00104	--	1
CI4-BZ#44	0.01020		ug/l	0.00104	--	1
CI4-BZ#66	0.00870		ug/l	0.00104	--	1
CI5-BZ#118	0.00383		ug/l	0.00104	--	1
CI7-BZ#187	ND		ug/l	0.00104	--	1
CI6-BZ#128	ND		ug/l	0.00104	--	1
CI7-BZ#180	ND		ug/l	0.00104	--	1
CI7-BZ#170	ND		ug/l	0.00104	--	1
CI8-BZ#195	ND		ug/l	0.00104	--	1
CI9-BZ#206	ND		ug/l	0.00104	--	1
CI10-BZ#209	ND		ug/l	0.00104	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	86		30-150
BZ 198	78		30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

**Lab ID:** L1310595-05  
**Client ID:** WQ-TPC-002-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/01/13 18:27  
**Analyst:** JW

**Date Collected:** 06/11/13 09:10  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.04011		ug/l	0.00104	--	1
CI5-BZ#101	0.00594		ug/l	0.00104	--	1
CI6-BZ#153	0.00387		ug/l	0.00104	--	1
CI5-BZ#105	0.00109		ug/l	0.00104	--	1
CI6-BZ#138	0.00228		ug/l	0.00104	--	1

DBOB	86	30-150
BZ 198	78	30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

Lab ID: L1310595-09  
 Client ID: WQ-TPC-002-061113-REP  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 19:11  
 Analyst: JW

Date Collected: 06/11/13 09:15  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI3-BZ#28	0.02606		ug/l	0.00100	--	1
CI4-BZ#52	0.02869		ug/l	0.00100	--	1
CI5-BZ#118	0.00375		ug/l	0.00100	--	1
CI5-BZ#105	ND		ug/l	0.00100	--	1
CI6-BZ#138	0.00305		ug/l	0.00100	--	1
CI7-BZ#187	ND		ug/l	0.00100	--	1
CI6-BZ#128	ND		ug/l	0.00100	--	1
CI7-BZ#180	ND		ug/l	0.00100	--	1
CI7-BZ#170	ND		ug/l	0.00100	--	1
CI8-BZ#195	ND		ug/l	0.00100	--	1
CI9-BZ#206	ND		ug/l	0.00100	--	1
CI10-BZ#209	ND		ug/l	0.00100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	88		30-150
BZ 198	75		30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

**Lab ID:** L1310595-09  
**Client ID:** WQ-TPC-002-061113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/01/13 19:11  
**Analyst:** JW

**Date Collected:** 06/11/13 09:15  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.01757		ug/l	0.00100	--	1
CI3-BZ#18	0.03750		ug/l	0.00100	--	1
CI4-BZ#44	0.00965		ug/l	0.00100	--	1
CI4-BZ#66	0.00731		ug/l	0.00100	--	1
CI5-BZ#101	0.00605		ug/l	0.00100	--	1
CI6-BZ#153	0.00377		ug/l	0.00100	--	1
DBOB	88			30-150		
BZ 198	75			30-150		

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

Lab ID: L1310595-13 D  
 Client ID: WQ-TPC-003-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/02/13 11:25  
 Analyst: JW

Date Collected: 06/11/13 11:20  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.15726		ug/l	0.00211	--	2
CI3-BZ#28	0.25202		ug/l	0.00211	--	2
CI4-BZ#52	0.21947		ug/l	0.00211	--	2
CI4-BZ#66	0.04655		ug/l	0.00211	--	2
CI5-BZ#101	0.04689		ug/l	0.00211	--	2
CI5-BZ#105	ND		ug/l	0.00211	--	2
CI6-BZ#128	0.00318		ug/l	0.00211	--	2
CI7-BZ#180	0.00403		ug/l	0.00211	--	2
CI7-BZ#170	0.00304		ug/l	0.00211	--	2
CI8-BZ#195	ND		ug/l	0.00211	--	2
CI9-BZ#206	ND		ug/l	0.00211	--	2
CI10-BZ#209	ND		ug/l	0.00211	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	75		30-150
BZ 198	77		30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

Lab ID: L1310595-13 D  
 Client ID: WQ-TPC-003-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/02/13 11:25  
 Analyst: JW

Date Collected: 06/11/13 11:20  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.29849		ug/l	0.00211	--	2
CI4-BZ#44	0.07636		ug/l	0.00211	--	2
CI5-BZ#118	0.01451		ug/l	0.00211	--	2
CI6-BZ#153	0.02353		ug/l	0.00211	--	2
CI6-BZ#138	0.00914		ug/l	0.00211	--	2
CI7-BZ#187	0.00556		ug/l	0.00211	--	2
DBOB	75			30-150		
BZ 198	77			30-150		

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

Lab ID: L1310595-17  
 Client ID: WQ-TPC-004-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 20:40  
 Analyst: JW

Date Collected: 06/11/13 11:45  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.03810		ug/l	0.00105	--	1
CI3-BZ#18	0.08072		ug/l	0.00105	--	1
CI3-BZ#28	0.06335		ug/l	0.00105	--	1
CI4-BZ#52	0.05974		ug/l	0.00105	--	1
CI4-BZ#44	0.01997		ug/l	0.00105	--	1
CI5-BZ#118	0.00814		ug/l	0.00105	--	1
CI6-BZ#138	0.00815		ug/l	0.00105	--	1
CI7-BZ#187	0.00649		ug/l	0.00105	--	1
CI6-BZ#128	0.00457		ug/l	0.00105	--	1
CI7-BZ#180	0.00690		ug/l	0.00105	--	1
CI7-BZ#170	0.0073		ug/l	0.00105	--	1
CI8-BZ#195	0.00829		ug/l	0.00105	--	1
CI9-BZ#206	0.00956		ug/l	0.00105	--	1
CI10-BZ#209	0.00834		ug/l	0.00105	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	78		30-150
BZ 198	81		30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

**Lab ID:** L1310595-17  
**Client ID:** WQ-TPC-004-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/01/13 20:40  
**Analyst:** JW

**Date Collected:** 06/11/13 11:45  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl4-BZ#66	0.01628		ug/l	0.00105	--	1
Cl5-BZ#101	0.01353		ug/l	0.00105	--	1
Cl6-BZ#153	0.01005		ug/l	0.00105	--	1
Cl5-BZ#105	0.00337		ug/l	0.00105	--	1

DBOB	78	30-150
BZ 198	81	30-150

**Project Name:** NEW BEDFORD HARBOR**Lab Number:** L1310595**Project Number:** TO-0010**Report Date:** 07/02/13**SAMPLE RESULTS**

**Lab ID:** L1310595-21  
**Client ID:** EB-001-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/01/13 22:53  
**Analyst:** JW

**Date Collected:** 06/11/13 10:00  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	ND		ug/l	0.00100	--	1
CI3-BZ#18	ND		ug/l	0.00100	--	1
CI3-BZ#28	ND		ug/l	0.00100	--	1
CI4-BZ#52	ND		ug/l	0.00100	--	1
CI4-BZ#44	ND		ug/l	0.00100	--	1
CI4-BZ#66	ND		ug/l	0.00100	--	1
CI5-BZ#101	ND		ug/l	0.00100	--	1
CI5-BZ#118	ND		ug/l	0.00100	--	1
CI5-BZ#105	ND		ug/l	0.00100	--	1
CI6-BZ#138	ND		ug/l	0.00100	--	1
CI7-BZ#187	ND		ug/l	0.00100	--	1
CI6-BZ#128	ND		ug/l	0.00100	--	1
CI7-BZ#180	ND		ug/l	0.00100	--	1
CI7-BZ#170	ND		ug/l	0.00100	--	1
CI8-BZ#195	ND		ug/l	0.00100	--	1
CI9-BZ#206	ND		ug/l	0.00100	--	1
CI10-BZ#209	ND		ug/l	0.00100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	94		30-150
BZ 198	83		30-150

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

Lab ID: L1310595-21  
 Client ID: EB-001-061113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 22:53  
 Analyst: JW

Date Collected: 06/11/13 10:00  
 Date Received: 06/11/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl6-BZ#153	ND		ug/l	0.00100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	94		30-150
BZ 198	83		30-150

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**Method Blank Analysis  
Batch Quality Control**

Analytical Method: 1,8082A  
Analytical Date: 07/01/13 15:29  
Analyst: JW

Extraction Method: EPA 3510C  
Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 01,05,09,13,17,21 Batch: WG615698-1					
Cl2-BZ#8	ND		ug/l	0.00100	--
Cl3-BZ#18	ND		ug/l	0.00100	--
Cl3-BZ#28	ND		ug/l	0.00100	--
Cl4-BZ#52	ND		ug/l	0.00100	--
Cl4-BZ#44	ND		ug/l	0.00100	--
Cl4-BZ#66	ND		ug/l	0.00100	--
Cl5-BZ#101	ND		ug/l	0.00100	--
Cl5-BZ#118	ND		ug/l	0.00100	--
Cl5-BZ#105	ND		ug/l	0.00100	--
Cl6-BZ#138	ND		ug/l	0.00100	--
Cl7-BZ#187	ND		ug/l	0.00100	--
Cl6-BZ#128	ND		ug/l	0.00100	--
Cl7-BZ#180	ND		ug/l	0.00100	--
Cl7-BZ#170	ND		ug/l	0.00100	--
Cl8-BZ#195	ND		ug/l	0.00100	--
Cl9-BZ#206	ND		ug/l	0.00100	--
Cl10-BZ#209	ND		ug/l	0.00100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	81		30-150
BZ 198	81		30-150

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**Method Blank Analysis  
 Batch Quality Control**

Analytical Method: 1,8082A  
 Analytical Date: 07/01/13 15:29  
 Analyst: JW

Extraction Method: EPA 3510C  
 Extraction Date: 06/18/13 11:45

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 01,05,09,13,17,21 Batch: WG615698-1					
C16-BZ#153	ND		ug/l	0.00100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	81		30-150
BZ 198	81		30-150

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01,05,09,13,17,21 QC Batch ID: WG615698-4 WG615698-5 QC Sample: L1310595-17												
Client ID: WQ-TPC-004-061113												
Cl2-BZ#8	0.03810	0.1	0.10018	62		0.11369	72		40-140	13		30
Cl3-BZ#18	0.08072	0.1	0.14182	61		0.14553	62		40-140	3		30
Cl3-BZ#28	0.06335	0.1	0.14845	85		0.16439	96		40-140	10		30
Cl4-BZ#52	0.05974	0.1	0.12514	65		0.14066	77		40-140	12		30
Cl4-BZ#44	0.01997	0.1	0.09265	73		0.10206	78		40-140	10		30
Cl5-BZ#118	0.00814	0.1	0.08831	80		0.09866	86		40-140	11		30
Cl6-BZ#138	0.00815	0.1	0.08418	76		0.09618	84		40-140	13		30
Cl7-BZ#187	0.00649	0.1	0.07308	66		0.08487	74		40-140	15		30
Cl6-BZ#128	0.00457	0.1	0.08388	79		0.09520	86		40-140	13		30
Cl7-BZ#180	0.00690	0.1	0.08607	79		0.09994	88		40-140	15		30
Cl7-BZ#170	0.0073	0.1	0.08179	74		0.09653	85		40-140	17		30
Cl8-BZ#195	0.00829	0.1	0.07543	67		0.09149	79		40-140	19		30
Cl9-BZ#206	0.00956	0.1	0.07447	65		0.09024	77		40-140	19		30
Cl10-BZ#209	0.00834	0.1	0.06543	57		0.07924	67		40-140	19		30
Cl4-BZ#66	0.01628	0.1	0.09263	76		0.10177	81		40-140	9		30
Cl5-BZ#101	0.01353	0.1	0.08380	70		0.09319	76		40-140	11		30
Cl6-BZ#153	0.01005	0.1	0.07868	69		0.08948	75		40-140	13		30
Cl5-BZ#105	0.00337	0.1	0.08741	84		0.09723	89		40-140	11		30

### Matrix Spike Analysis Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01,05,09,13,17,21    QC Batch ID: WG615698-4 WG615698-5    QC Sample: L1310595-17  
Client ID: WQ-TPC-004-061113

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
BZ 198	81		86		30-150
DBOB	87		85		30-150

## Lab Control Sample Analysis

### Batch Quality Control

Project Name: NEW BEDFORD HARBOR

Lab Number: L1310595

Project Number: TO-0010

Report Date: 07/02/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01,05,09,13,17,21 Batch: WG615698-2 WG615698-3								
Cl2-BZ#8	70		74		40-140	6		30
Cl3-BZ#18	74		77		40-140	4		30
Cl3-BZ#28	89		91		40-140	2		30
Cl4-BZ#52	77		79		40-140	3		30
Cl4-BZ#44	80		82		40-140	2		30
Cl4-BZ#66	87		87		40-140	0		30
Cl5-BZ#101	82		81		40-140	1		30
Cl5-BZ#118	92		90		40-140	2		30
Cl5-BZ#105	98		96		40-140	2		30
Cl6-BZ#138	93		88		40-140	5		30
Cl7-BZ#187	85		79		40-140	7		30
Cl6-BZ#128	96		91		40-140	5		30
Cl7-BZ#180	97		90		40-140	8		30
Cl7-BZ#170	95		85		40-140	11		30
Cl8-BZ#195	91		77		40-140	16		30
Cl9-BZ#206	90		74		40-140	20		30
Cl10-BZ#209	78		60		40-140	26		30

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01,05,09,13,17,21 Batch: WG615698-2 WG615698-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
BZ 198	90		88		30-150
DBOB	86		90		30-150

PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01,05,09,13,17,21 Batch: WG615698-2 WG615698-3					
Cl6-BZ#153	84		81		40-140
					4
					30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
BZ 198	90		88		30-150
DBOB	86		90		30-150

# INORGANICS & MISCELLANEOUS

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-02  
**Client ID:** WQ-TUR-001-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 08:40  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	1.4		NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-03  
**Client ID:** WQ-TSS-001-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 08:40  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	4.30		mg/l	1.00	NA	1	-	06/12/13 13:00	30,2540D(M)	PJ



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-04  
**Client ID:** WQ-TOC-001-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 08:40  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	06/25/13 07:41	1,9060	DW



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-06  
**Client ID:** WQ-TUR-002-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:10  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	3.0		NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-07  
**Client ID:** WQ-TSS-002-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:10  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	5.70		mg/l	2.00	NA	2	-	06/12/13 13:00	30,2540D(M)	PJ



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-08  
**Client ID:** WQ-TOC-002-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:10  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	14.		mg/l	10	--	20	-	06/25/13 07:41	1,9060	DW



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-10  
**Client ID:** WQ-TUR-002-061113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:15  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	2.4		NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-11  
**Client ID:** WQ-TSS-002-061113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:15  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	2.70		mg/l	1.00	NA	1	-	06/12/13 13:00	30,2540D(M)	PJ



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-12  
**Client ID:** WQ-TOC-002-061113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 09:15  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	15.		mg/l	10	--	20	-	06/25/13 07:41	1,9060	DW



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-14  
**Client ID:** WQ-TUR-003-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:20  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	1.5		NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-15  
**Client ID:** WQ-TSS-003-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:20  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	8.30		mg/l	2.00	NA	2	-	06/12/13 13:00	30,2540D(M)	PJ



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-16  
**Client ID:** WQ-TOC-003-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:20  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	06/25/13 07:41	1,9060	DW



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-18  
**Client ID:** WQ-TUR-004-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:45  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	1.6		NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-19  
**Client ID:** WQ-TSS-004-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:45  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	3.50		mg/l	1.00	NA	1	-	06/12/13 13:00	30,2540D(M)	PJ



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**SAMPLE RESULTS**

**Lab ID:** L1310595-20  
**Client ID:** WQ-TOC-004-061113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 06/11/13 11:45  
**Date Received:** 06/11/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	06/25/13 07:41	1,9060	DW



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab for sample(s): 03,07,11,15,19 Batch: WG614839-1									
Solids, Total Suspended	ND	mg/l	1.00	NA	1	-	06/12/13 13:00	30,2540D(M)	PJ
General Chemistry - Mansfield Lab for sample(s): 02,06,10,14,18 Batch: WG615475-2									
Turbidity	ND	NTU	0.40	--	1	-	06/12/13 17:00	8,180.1	JK
General Chemistry - Westborough Lab for sample(s): 04,08,12,16,20 Batch: WG617473-1									
Total Organic Carbon	ND	mg/l	0.50	--	1	-	06/25/13 07:41	1,9060	DW

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR

**Lab Number:** L1310595

**Project Number:** TO-0010

**Report Date:** 07/02/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Mansfield Lab Associated sample(s): 03,07,11,15,19 Batch: WG614839-2								
Solids, Total Suspended	102		-		85-115	-		20
General Chemistry - Mansfield Lab Associated sample(s): 02,06,10,14,18 Batch: WG615475-3								
Turbidity	105		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 04,08,12,16,20 Batch: WG617473-2								
Total Organic Carbon	97		-		90-110	-		

**Matrix Spike Analysis**  
Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 04,08,12,16,20 QC Batch ID: WG617473-4 QC Sample: L1311310-02 Client ID: MS Sample												
Total Organic Carbon	22	80	110	105	-	-	-	-	80-120	-	-	20

### Lab Duplicate Analysis Batch Quality Control

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 03,07,11,15,19 QC Batch ID: WG614839-3 QC Sample: L1310595-07 Client ID: WQ-TSS-002-061113						
Solids, Total Suspended	5.70	6.30	mg/l	10		20
General Chemistry - Mansfield Lab Associated sample(s): 02,06,10,14,18 QC Batch ID: WG615475-1 QC Sample: L1310595-18 Client ID: WQ-TUR-004-061113						
Turbidity	1.6	1.6	NTU	0		10
General Chemistry - Westborough Lab Associated sample(s): 04,08,12,16,20 QC Batch ID: WG617473-3 QC Sample: L1311310-02 Client ID: DUP Sample						
Total Organic Carbon	22	22.	mg/l	0		20

Project Name: NEW BEDFORD HARBOR

Lab Number: L1310595

Project Number: TO-0010

Report Date: 07/02/13

## Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

## Cooler Information Custody Seal

## Cooler

A	Absent
B	Absent
C	Absent

## Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1310595-01A	Amber 1000ml unpreserved	B	7	5.3	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-01B	Amber 1000ml unpreserved	B	7	5.3	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-02A	Plastic 500ml unpreserved	B	N/A	5.3	Y	Absent	A2-TURBIDITY-180.1(2)
L1310595-03A	Plastic 500ml unpreserved	B	7	5.3	Y	Absent	A2-TSS-2540D(M)(7)
L1310595-04A	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-04B	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-05A	Amber 1000ml unpreserved	B	7	5.3	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-05B	Amber 1000ml unpreserved	B	7	5.3	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-06A	Plastic 500ml unpreserved	B	N/A	5.3	Y	Absent	A2-TURBIDITY-180.1(2)
L1310595-07A	Plastic 500ml unpreserved	B	7	5.3	Y	Absent	A2-TSS-2540D(M)(7)
L1310595-08A	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-08B	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-09A	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-09B	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-10A	Plastic 500ml unpreserved	B	N/A	5.3	Y	Absent	A2-TURBIDITY-180.1(2)
L1310595-11A	Plastic 500ml unpreserved	B	7	5.3	Y	Absent	A2-TSS-2540D(M)(7)
L1310595-12A	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-12B	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-13A	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-13B	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-14A	Plastic 500ml unpreserved	C	7	5.7	Y	Absent	A2-TURBIDITY-180.1(2)
L1310595-15A	Plastic 500ml unpreserved	C	N/A	5.7	Y	Absent	A2-TSS-2540D(M)(7)
L1310595-16A	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-16B	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)

**Project Name:** NEW BEDFORD HARBOR**Project Number:** TO-0010**Lab Number:** L1310595**Report Date:** 07/02/13**Container Information**

<b>Container ID</b>	<b>Container Type</b>	<b>Cooler</b>	<b>pH</b>	<b>Temp deg C</b>	<b>Pres</b>	<b>Seal</b>	<b>Analysis(*)</b>
L1310595-17A	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-17B	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-17C	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-17D	Amber 1000ml unpreserved	C	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-18A	Plastic 500ml unpreserved	A	N/A	4.6	Y	Absent	A2-TURBIDITY-180.1(2)
L1310595-19A	Plastic 500ml unpreserved	A	7	4.6	Y	Absent	A2-TSS-2540D(M)(7)
L1310595-20A	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-20B	Vial H2SO4 preserved	B	N/A	5.3	Y	Absent	TOC-9060(28)
L1310595-21A	Amber 1000ml unpreserved	A	7	4.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1310595-21B	Amber 1000ml unpreserved	A	7	4.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)

**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

**Report Format:** Data Usability Report



**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

**Data Qualifiers**

due to obvious interference.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

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**Project Name:** NEW BEDFORD HARBOR  
**Project Number:** TO-0010

**Lab Number:** L1310595  
**Report Date:** 07/02/13

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 8 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. 19th Edition. 1995.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certificate/Approval Program Summary

Last revised August 3, 2012 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### **Connecticut Department of Public Health** Certificate/Lab ID: PH-0141.

*Wastewater/Non-Potable Water* (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

*Solid Waste/Soil* (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

### **Florida Department of Health** Certificate/Lab ID: E87814. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

*Air & Emissions* (EPA TO-15.)

### **Louisiana Department of Environmental Quality** Certificate/Lab ID: 03090. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Biological Tissue* (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

*Air & Emissions* (EPA TO-15.)

### **New Hampshire Department of Environmental Services** Certificate/Lab ID: 2206. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

### **New Jersey Department of Environmental Protection** Certificate/Lab ID: MA015. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Atmospheric Organic Parameters* (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

*Biological Tissue* (Inorganic Parameters: SW-846 6020A. Organic Parameters: SW-846 8270C, 8270D, 3510C, 3570, 3610C, 3630C, 3640A)

**New York Department of Health** Certificate/Lab ID: 11627. **NELAP Accredited**. -

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

*Air & Emissions* (EPA TO-15, TO-10A.)

**Pennsylvania** Certificate/Lab ID: 68-02089 **NELAP Accredited** -

*Non-Potable Water* (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D .)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

**Rhode Island Department of Health** Certificate/Lab ID: LAO00299. **NELAP Accredited via NJ-DEP**. -

Refer to NJ-DEP Certificate for Non-Potable Water.

**Texas Commission of Environmental Quality** Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited**. -

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

*Air* (Organic Parameters: EPA TO-15)

**Virginia Division of Consolidated Laboratory Services** Certificate/Lab ID:460194. **NELAP Accredited**. -

*Non-Potable Water* (Inorganic Parameters:EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020A,7470A,7471B,9040B,9045C,3050B,3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

**Washington State Department of Ecology** Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

**U.S. Army Corps of Engineers**

**Department of Defense, L-A-B** Certificate/Lab ID: L2217.01.

*Non-Potable Water* (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.

*Air & Emissions* (EPA TO-15.)

**Analytes Not Accredited by NELAP**

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

## Certificate/Approval Program Summary

Last revised July 2, 2013 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.  
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### Connecticut Department of Public Health Certificate/Lab ID: PH-0574. **NELAP Accredited Solid Waste/Soil.**

*Drinking Water* (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Coliart (SM9223, Enumeration and P/A), E. Coli. – Coliart (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

*Wastewater/Non-Potable Water* (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Coliart (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

*Solid Waste/Soil* (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270). )

### State of Illinois Certificate/Lab ID: 003155. **NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: SM2120B, 2320B, 2510B, 2540C, SM4500CN-CE, 4500F-C, 4500H-B, 4500NO3-F, 5310C, EPA 200.7, 200.8, 245.1, 300.0. Organic Parameters: EPA 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: SM2120B, 2310B, 2320B, 2340B, 2510B, 2540B, 2540C, 2540D, SM4500CL-E, 4500CN-E, 4500F-C, 4500H-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-E, 4500S-D, 4500SO3-B, 5210B, 5220D, 5310C, 5540C, EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1. Organic Parameters: EPA 608, 624, 625.)

*Hazardous and Solid Waste* (Inorganic Parameters: EPA 1010A, 1030, 1311, 1312, 6010C, 6020A, 7196A, 7470A, 7471B, 9012B, 9014, 9038, 9040C, 9045D, 9050A, 9065, 9251. Organic Parameters: 8011 (NPW only), 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330.)

### Maine Department of Human Services Certificate/Lab ID: 2009024.

*Drinking Water* (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2120B, 2130B, 2320B, 2510C, 2540C, 4500CI-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, 5310C, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 8315A, 9010C, SM2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CI-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-C, 4500NH3-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-B, 4500P-E, 4500S2-D, 4500SO3-B, 5540C, 5210B, 5220D, 5310C, 9010B, 9030B, 9040C, 7470A, 7196A, 2340B, EPA 200.7, 6010C, 200.8, 6020A, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8011, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330, 3510C, 3636C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil* (Inorganic Parameters: 9010B, 9012A, 9014, 9040B, 9045C, 6010C, 6020A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B, 9038, 9251. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260C, 8270D, 8330, 8151A, 8081B, 8082A, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035.)

**Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.**

*Drinking Water* (Inorganic Parameters: (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water* (Inorganic Parameters: (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

*Non-Potable Water* (Inorganic Parameters: SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 2064. NELAP Accredited.**

*Drinking Water* (Organic Parameters: **EPA 524.2**: Di-isopropyl ether (DIPE), Ethyl-t-butyl ether (ETBE), Tert-amyl methyl ether (TAME)).

*Non-Potable Water* (Organic Parameters: **EPA 8260C**: 1,3,5-Trichlorobenzene. **EPA 8015C(M)**: TPH.)

*Solid & Chemical Materials* (Organic Parameters: **EPA 8260C**: 1,3,5-Trichlorobenzene.)

**New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

*Non-Potable Water* (Inorganic Parameters: SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

9050A, 9065, 9251. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

**New York Department of Health Certificate/Lab ID: 11148. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.1, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO<sub>3</sub>-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

*Non-Potable Water* (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH<sub>3</sub>-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO<sub>3</sub>-F, 4500-NO<sub>2</sub>-B, 4500P-E, 2340B, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010C, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 8315A, 3005A, 3015, 9010C, 9030B. Organic Parameters: EPA 624, 8260C, 8270D, 8270D-SIM, 625, 608, 8081B, 8151A, 8330, 8082A, EPA 3510C, 5030B, 8015C, 8011.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1010A, 1030, EPA 6010C, 6020A, 7196A, 7471B, 8315A, 9012B, 9014, 9065, 9050A, 9038, 9251, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. Organic Parameters: EPA 8260C, 8270D, 8270D-SIM, 8015C, 8081B, 8151A, 8330, 8082A, 3540C, 3546, 3580A, 5035A-H, 5035A-L.)

**North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. (Inorganic Parameters**: SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9012B, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO<sub>3</sub>-F, 353.2, 4500P-E, 4500SO<sub>4</sub>-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311,1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

*Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters*: Chloride EPA 300.0. Organic Parameters: 524.2)

**Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO<sub>3</sub>-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1312, 3005A,3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500S-D, 4500SO<sub>3</sub>-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH<sub>3</sub>-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

**Rhode Island Department of Health Certificate/Lab ID: LAO00065. *NELAP Accredited via NJ-DEP.***

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

**Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>B, 4500P-E, 4500 S<sup>2-</sup> D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

**Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.1, 2320B, 4500F-C, 4500NO<sub>3</sub>-F, 4500H+B, 5310C. Organic Parameters: EPA 504.1, 524.2.)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 351.2, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 2340B, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 3500Cr-D, 426C, 4500Cl-E, 4500F-B, 4500F-C, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500 SO<sub>3</sub>-B, 4500H-B, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C, 9010Cm

9030B, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330, )

Solid & Hazardous Waste (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9010C, 9012B, 9030B, 9014, 9038, 9040C, 9045D, 9251, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 3550B, 3580A, 3620C, 3630C, 6020A, 8260B, 8260C, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

**Department of Defense, L-A-B Certificate/Lab ID:** L2217.

Drinking Water (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

Non-Potable Water (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

Solid & Hazardous Waste (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

**The following analytes are not included in our current NELAP/TNI Scope of Accreditation:**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether. **EPA 8260B:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8260 Non-potable water matrix:** Iodomethane (methyl iodide), Methyl methacrylate. **EPA 8260 Soil matrix:** Tert-amyl methyl ether (TAME), Diisopropyl ether (DIPE), Azobenzene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnaphthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine. **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, TKN in a soil matrix, NO<sub>2</sub> in a soil matrix, NO<sub>3</sub> in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.



# MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

### Project Information

Project Name: New Bedford Water Quality  
Project Location: New Bedford, MA  
Project #: T0-0010  
Project Manager: Dave Walsh  
ALPHA Quote #:

Date Rec'd in Lab:

ALPHA Job #: L1310595

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: Time:

### Regulatory Requirements/Report Limits

State / Fed Program Criteria

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:  
Project-specific BDD

**PLEASE NOTE**  
MS/MSD (at unit cost) will be omitted unless you check here:

ANALYSIS	Total PCB (MCAA-18)	
	Turbidity	
	TSS	
	TOC	

**SAMPLE HANDLING**

Filtration \_\_\_\_\_

Done

Not needed

Lab to do

Preservation

Lab to do

(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS				Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time			Total PCB (MCAA-18)	Turbidity	TSS	TOC			
1	WQ-TPC-001-061113	6/11/13	0840	SW	DS	X					Flood Reference	2
2	WQ-TUR-001-061113					X						
3	WQ-TSS-001-061113						X					
4	WQ-TOC-001-061113							X				
5	WQ-TPC-002-061113					0910	X					
6	WQ-TUR-002-061113						X					
7	WQ-TSS-002-061113						X					
8	WQ-TOC-002-061113							X				
9	WQ-TPC-002-061113-REP					0915	X					
10	WQ-TUR-002-061113-REP						X					

Container Type	A	P	P	V
Preservative	A	A	A	D

Relinquished By: Dave Walsh Date/Time: 6/11/13 1415

Received By: [Signature] Date/Time: 6/11/13 1415

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. Delivery Order 0010-13 August 2014



**MANSFIELD CHAIN OF CUSTODY**

PAGE 2 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

**Client Information**

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
Bart Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

**Project Information**

Project Name: New Bedford Water Quality  
Project Location: New Bedford, MA  
Project #: TO-0010  
Project Manager: Dave Walsh  
ALPHA Quote #:

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

Date Rec'd in Lab:

ALPHA Job #: L1310595

**Report Information - Data Deliverables**

FAX  EMAIL  
 ADEX  Add'l Deliverables

**Billing Information**

Same as Client info PO #:

**Regulatory Requirements/Report Limits**

State (Fed) Program \_\_\_\_\_ Criteria \_\_\_\_\_

Other Project Specific Requirements/Comments/Detection Limits:

Project-Specific EDD

**PLEASE NOTE**

MS/MSD (at unit cost) will be omitted unless you check here:

ANALYSIS	Total PCB (NoAA-16)	Turbidity	TSS	TOC	Sample Specific Comments	TOTAL # BOTTLES
					Filtration _____ <input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	
			X		Flood Sample REP	1
				X	L	2
			X		Ebb Reference	2
				X		1
				X		1
				X		2
			X		Ebb sample	2
				X		1
				X		1
				X		2

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
11	WQ-TSS-002-061113-REP	6/11/13	0915	SW	DS
12	WQ-TOC-002-061113-REP		L		
13	WQ-TPC-003-061113		1120		
14	WQ-TUR-003-061113				
15	WQ-TSS-003-061113				
16	WQ-TOC-003-061113				
17	WQ-TPC-004-061113		1145		
18	WQ-TUR-004-061113				
19	WQ-TSS-004-061113				
20	WQ-TOC-004-061113				

Container Type APPV  
Preservative AAAD

Relinquished By: Dave Stuart Date/Time: 6/11/13 1415  
Received By: [Signature] Date/Time: 6/11/13 1415

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**MANSFIELD CHAIN OF CUSTODY**

PAGE 1 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1310595

**Client Information**

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

**Project Information**

Project Name: New Bedford Water Quality  
Project Location: New Bedford, MA  
Project #: TO-0010  
Project Manager: Dave Walsh  
ALPHA Quote #:

**Report Information - Data Deliverables**

FAX  EMAIL  
 ADEX  Add'l Deliverables

**Billing Information**

Same as Client info PO #:

**Regulatory Requirements/Report Limits**

State/Fed Program Criteria

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved)  
Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Project-specific BDD

**PLEASE NOTE**

MS/MSD (at unit cost) will be omitted unless you check here:

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS				Sample Specific Comments	TOTAL # BOTTLES
		Date	Time			TPC	TUR	TSS	TOC		
1	WQ-TPC-001-061113	6/11/13	0840	SW	DS	X	X	X	X	Flood Reference	2
2	WQ-TUR-001-061113					X					1
3	WQ-TSS-001-061113					X					1
4	WQ-TOC-001-061113							X			2
5	WQ-TPC-002-061113		0910			X	X			Flood Sample	2
6	WQ-TUR-002-061113					X					1
7	WQ-TSS-002-061113					X					1
8	WQ-TOC-002-061113							X			2
9	WQ-TPC-002-061113-REP		0915			X	X			Flood Sample REP	2
10	WQ-TUR-002-061113-REP					X					1

**SAMPLE HANDLING**

Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do  
Preservation  
 Lab to do  
(Please specify below)

Container Type

A P P V

Preservative

A A A D

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:

Dave Walsh

Date/Time

6/11/13 1415  
6/11/13 1533  
6/11/13 1946

Received By:

[Signature]

Date/Time

6/11/13 1415  
6/11/13 1533



**MANSFIELD CHAIN OF CUSTODY**

PAGE 2 OF 3

WESTBORO, MA  
 TEL: 508-898-9220  
 FAX: 508-898-9193

MANSFIELD, MA  
 TEL: 508-822-9300  
 FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1310595

**Client Information**

Client: Woods Hole Group  
 Address: 81 Technology Park Dr  
Bart Falmouth, MA 02536  
 Phone: 508-540-8080  
 Fax: 508-540-1001  
 Email: DSTUART@WHGRP.COM

**Project Information**

Project Name: New Bedford Water Quality  
 Project Location: New Bedford, MA  
 Project #: TO-0010  
 Project Manager: Dave Walsh  
 ALPHA Quote #:

**Report Information - Data Deliverables**

FAX  EMAIL  
 ADEX  Add'l Deliverables

**Billing Information**

Same as Client info PO #:

**Regulatory Requirements/Report Limits**

State  Fed Program Criteria

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved)  
 Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Project Specific EDD

**PLEASE NOTE**

MS/MSD (at unit cost) will be omitted unless you check here:

ANALYSIS	Turbidity	TSS	TOC	SAMPLE HANDLING		TOTAL # BOTTLES
				Filtration _____ <input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)		
				Sample Specific Comments		

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS				Sample Specific Comments	TOTAL # BOTTLES
		Date	Time			Turbidity	TSS	TOC	Other		
11	WQ-TSS-002-061113-REP	6/11/13	0915	SW	DS	X	X	X	X	Flood Sample REP	1
12	WQ-TOC-002-061113-REP		L						X	L	2
13	WQ-TPC-003-061113		1120			X	X	X	X	Ebb Reference	2
14	WQ-TUR-003-061113					X	X	X	X		1
15	WQ-TSS-003-061113					X	X	X	X		1
14	WQ-TOC-003-061113					X	X	X	X		2
17	WQ-TPC-004-061113		1145			X	X	X	X	Ebb sample	2
18	WQ-TUR-004-061113					X	X	X	X		1
19	WQ-TSS-004-061113					X	X	X	X		1
20	WQ-TOC-004-061113					X	X	X	X		2

Container Type APPV  
 Preservative AAAD

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By: <u>Dave Walsh</u>	Date/Time: <u>6/11/13 14:15</u>	Received By: <u>Anchor Scott</u>	Date/Time: <u>6/11/13 14:15</u>
<u>[Signature]</u>	<u>6/11/13 15:33</u>	<u>[Signature]</u>	<u>6/11/13 15:33</u>
<u>[Signature]</u>	<u>6/11/13 19:46</u>	<u>Anchor Scott</u>	<u>6/11/13 19:46</u>

FORM NO: 101-09 (rev. 27-SEP-10)



## ANALYTICAL REPORT

Lab Number:	L1312296
Client:	Woods Hole Group 81 Technology Park Drive East Falmouth, MA 02536
ATTN:	Dack Stuart
Phone:	(508) 540-8080
Project Name:	NEW BEDFORD WATER QUALITY
Project Number:	TO-0010-13
Report Date:	07/15/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

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320 Forbes Boulevard, Mansfield, MA 02048-1806  
508-822-9300 (Fax) 508-822-3288 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1312296-01	WQ-TPC-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-02	WQ-DPC-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-03	WQ-TUR-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-04	WQ-TSS-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-05	WQ-TOC-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-06	WQ-MET-001-070113	NEW BEDFORD, MA	07/01/13 08:10
L1312296-07	WQ-TPC-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-08	WQ-DPC-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-09	WQ-TUR-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-10	WQ-TSS-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-11	WQ-TOC-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-12	WQ-MET-002-070113	NEW BEDFORD, MA	07/01/13 08:25
L1312296-13	WQ-TPC-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-14	WQ-DPC-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-15	WQ-TUR-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-16	WQ-TSS-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-17	WQ-TOC-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-18	WQ-MET-003-070113	NEW BEDFORD, MA	07/01/13 10:00
L1312296-19	WQ-TPC-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-20	WQ-DPC-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-21	WQ-TUR-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-22	WQ-TSS-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-23	WQ-TOC-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-24	WQ-MET-004-070113	NEW BEDFORD, MA	07/01/13 11:00
L1312296-25	WQ-TPC-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-26	WQ-DPC-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-27	WQ-TUR-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-28	WQ-TSS-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-29	WQ-TOC-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-30	WQ-MET-004-070113-REP	NEW BEDFORD, MA	07/01/13 11:00
L1312296-31	WQ-TPC-001-070113-EB	NEW BEDFORD, MA	07/01/13 11:00

<b>Alpha Sample ID</b>	<b>Client ID</b>	<b>Sample Location</b>	<b>Collection Date/Time</b>
L1312296-32	WQ-DPC-001-070113-EB	NEW BEDFORD, MA	07/01/13 11:00
L1312296-33	WQ-MET-001-070113-EB	NEW BEDFORD, MA	07/01/13 11:00

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

### Case Narrative (continued)

#### PCBs

The PCB Congener analysis was performed utilizing dual column confirmation with the higher of the two values reported. Technical judgment was employed in the case of an observed interference. In each case that interference was observed on one column, the value from the opposite column was reported regardless of whether it was the higher or lower value.

Sample L1312296-07 was analyzed at dilution due to over-calibration concentrations of target compounds.

#### Total Organic Carbon

Samples L1312296-11 and -17 have elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 07/15/13

# ORGANICS

# PCBS

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-01  
**Client ID:** WQ-TPC-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 12:22  
**Analyst:** JW

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.02318		ug/l	0.01257	--	1
CI3-BZ#18	0.06059		ug/l	0.01152	--	1
CI4-BZ#52	0.05164		ug/l	0.00157	--	1
CI4-BZ#66	0.01235		ug/l	0.00105	--	1
CI5-BZ#118	0.00415		ug/l	0.00105	--	1
CI5-BZ#105	ND		ug/l	0.00838	--	1
CI6-BZ#138	0.00355		ug/l	0.00105	--	1
CI7-BZ#187	0.00118		ug/l	0.00105	--	1
CI6-BZ#128	ND		ug/l	0.00105	--	1
CI7-BZ#180	ND		ug/l	0.00105	--	1
CI7-BZ#170	ND		ug/l	0.00157	--	1
CI8-BZ#195	ND		ug/l	0.00105	--	1
CI9-BZ#206	ND		ug/l	0.00105	--	1
CI10-BZ#209	ND		ug/l	0.00157	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	58		30-150
BZ 198	54		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-01  
**Client ID:** WQ-TPC-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 12:22  
**Analyst:** JW

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#28	0.04208		ug/l	0.00262	--	1
CI4-BZ#44	0.01696		ug/l	0.00157	--	1
CI5-BZ#101	0.00771		ug/l	0.00105	--	1
CI6-BZ#153	0.00545		ug/l	0.00105	--	1

DBOB	58	30-150
BZ 198	54	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-02  
**Client ID:** WQ-DPC-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 13:07  
**Analyst:** JW

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	ND		ug/l	0.01277	--	1
CI4-BZ#44	0.00396		ug/l	0.00160	--	1
CI5-BZ#118	ND		ug/l	0.00106	--	1
CI5-BZ#105	ND		ug/l	0.00851	--	1
CI6-BZ#138	ND		ug/l	0.00106	--	1
CI7-BZ#187	ND		ug/l	0.00106	--	1
CI6-BZ#128	ND		ug/l	0.00106	--	1
CI7-BZ#180	ND		ug/l	0.00106	--	1
CI7-BZ#170	ND		ug/l	0.00160	--	1
CI8-BZ#195	ND		ug/l	0.00106	--	1
CI9-BZ#206	ND		ug/l	0.00106	--	1
CI10-BZ#209	ND		ug/l	0.00160	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	73		30-150
BZ 198	68		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-02  
 Client ID: WQ-DPC-001-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 13:07  
 Analyst: JW

Date Collected: 07/01/13 08:10  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl3-BZ#18	0.02132		ug/l	0.01170	--	1
Cl3-BZ#28	0.00642		ug/l	0.00266	--	1
Cl4-BZ#52	0.01481		ug/l	0.00160	--	1
Cl4-BZ#66	0.00243		ug/l	0.00106	--	1
Cl5-BZ#101	0.00223		ug/l	0.00106	--	1
Cl6-BZ#153	0.00132		ug/l	0.00106	--	1
DBOB	73			30-150		
BZ 198	68			30-150		

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-07  
 Client ID: WQ-TPC-002-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 00:57  
 Analyst: JW

Date Collected: 07/01/13 08:25  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.27166		ug/l	0.06630	--	5
CI3-BZ#28	0.45504		ug/l	0.01381	--	5
CI4-BZ#52	0.41056		ug/l	0.00829	--	5
CI4-BZ#66	0.15182		ug/l	0.00552	--	5
CI5-BZ#118	0.07141		ug/l	0.00552	--	5
CI6-BZ#138	0.05364		ug/l	0.00552	--	5
CI6-BZ#128	0.01187		ug/l	0.00552	--	5
CI7-BZ#170	0.01133		ug/l	0.00829	--	5
CI8-BZ#195	ND		ug/l	0.00552	--	5
CI9-BZ#206	ND		ug/l	0.00552	--	5
CI10-BZ#209	ND		ug/l	0.00829	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	73		30-150
BZ 198	80		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-07  
**Client ID:** WQ-TPC-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 00:57  
**Analyst:** JW

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.44853		ug/l	0.06077	--	5
CI4-BZ#44	0.16854		ug/l	0.00829	--	5
CI5-BZ#101	0.10884		ug/l	0.00552	--	5
CI6-BZ#153	0.07877		ug/l	0.00552	--	5
CI5-BZ#105	ND		ug/l	0.04420	--	5
CI7-BZ#187	0.01630		ug/l	0.00552	--	5
CI7-BZ#180	0.01370		ug/l	0.00552	--	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	73		30-150
BZ 198	80		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-08  
**Client ID:** WQ-DPC-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 14:36  
**Analyst:** JW

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.08168		ug/l	0.01277	--	1
CI4-BZ#44	0.01551		ug/l	0.00160	--	1
CI4-BZ#66	0.00887		ug/l	0.00106	--	1
CI5-BZ#118	0.00195		ug/l	0.00106	--	1
CI5-BZ#105	ND		ug/l	0.00851	--	1
CI6-BZ#138	ND		ug/l	0.00106	--	1
CI7-BZ#187	ND		ug/l	0.00106	--	1
CI6-BZ#128	ND		ug/l	0.00106	--	1
CI7-BZ#180	ND		ug/l	0.00106	--	1
CI7-BZ#170	ND		ug/l	0.00160	--	1
CI8-BZ#195	ND		ug/l	0.00106	--	1
CI9-BZ#206	ND		ug/l	0.00106	--	1
CI10-BZ#209	ND		ug/l	0.00160	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	75		30-150
BZ 198	80		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-08  
**Client ID:** WQ-DPC-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 14:36  
**Analyst:** JW

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.13712		ug/l	0.01170	--	1
CI3-BZ#28	0.02173		ug/l	0.00266	--	1
CI4-BZ#52	0.03018		ug/l	0.00160	--	1
CI5-BZ#101	0.00505		ug/l	0.00106	--	1
CI6-BZ#153	0.00215		ug/l	0.00106	--	1

DBOB	75	30-150
BZ 198	80	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-13  
 Client ID: WQ-TPC-003-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 15:20  
 Analyst: JW

Date Collected: 07/01/13 10:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.05377		ug/l	0.01263	--	1
CI3-BZ#18	0.10778		ug/l	0.01158	--	1
CI3-BZ#28	0.10622		ug/l	0.00263	--	1
CI4-BZ#52	0.09637		ug/l	0.00158	--	1
CI6-BZ#138	0.01116		ug/l	0.00105	--	1
CI6-BZ#128	0.00284		ug/l	0.00105	--	1
CI7-BZ#170	0.00216		ug/l	0.00158	--	1
CI8-BZ#195	ND		ug/l	0.00105	--	1
CI9-BZ#206	ND		ug/l	0.00105	--	1
CI10-BZ#209	ND		ug/l	0.00158	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	56		30-150
BZ 198	74		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-13  
 Client ID: WQ-TPC-003-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 15:20  
 Analyst: JW

Date Collected: 07/01/13 10:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI4-BZ#44	0.03788		ug/l	0.00158	--	1
CI4-BZ#66	0.03123		ug/l	0.00105	--	1
CI5-BZ#101	0.02416		ug/l	0.00105	--	1
CI5-BZ#118	0.01498		ug/l	0.00105	--	1
CI6-BZ#153	0.01524		ug/l	0.00105	--	1
CI5-BZ#105	ND		ug/l	0.00842	--	1
CI7-BZ#187	0.00352		ug/l	0.00105	--	1
CI7-BZ#180	0.00251		ug/l	0.00105	--	1

DBOB	56	30-150
BZ 198	74	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-14  
 Client ID: WQ-DPC-003-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 16:04  
 Analyst: JW

Date Collected: 07/01/13 10:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.03018		ug/l	0.01231	--	1
CI4-BZ#52	0.02641		ug/l	0.00154	--	1
CI4-BZ#44	0.01001		ug/l	0.00154	--	1
CI4-BZ#66	0.00463		ug/l	0.00103	--	1
CI5-BZ#118	ND		ug/l	0.00103	--	1
CI5-BZ#105	ND		ug/l	0.00821	--	1
CI6-BZ#138	ND		ug/l	0.00103	--	1
CI7-BZ#187	ND		ug/l	0.00103	--	1
CI6-BZ#128	ND		ug/l	0.00103	--	1
CI7-BZ#180	ND		ug/l	0.00103	--	1
CI7-BZ#170	ND		ug/l	0.00154	--	1
CI8-BZ#195	ND		ug/l	0.00103	--	1
CI9-BZ#206	ND		ug/l	0.00103	--	1
CI10-BZ#209	ND		ug/l	0.00154	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	59		30-150
BZ 198	76		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-14  
 Client ID: WQ-DPC-003-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 16:04  
 Analyst: JW

Date Collected: 07/01/13 10:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.05529		ug/l	0.01128	--	1
CI3-BZ#28	0.02321		ug/l	0.00256	--	1
CI5-BZ#101	0.00373		ug/l	0.00103	--	1
CI6-BZ#153	ND		ug/l	0.00103	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	59		30-150
BZ 198	76		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-19  
**Client ID:** WQ-TPC-004-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 18:17  
**Analyst:** JW

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.07511		ug/l	0.01237	--	1
CI3-BZ#18	0.15089		ug/l	0.01134	--	1
CI3-BZ#28	0.15953		ug/l	0.00258	--	1
CI4-BZ#52	0.15377		ug/l	0.00155	--	1
CI4-BZ#66	0.05797		ug/l	0.00103	--	1
CI6-BZ#138	0.02118		ug/l	0.00103	--	1
CI6-BZ#128	0.00473		ug/l	0.00103	--	1
CI7-BZ#180	0.00538		ug/l	0.00103	--	1
CI7-BZ#170	0.00417		ug/l	0.00155	--	1
CI8-BZ#195	ND		ug/l	0.00103	--	1
CI9-BZ#206	ND		ug/l	0.00103	--	1
CI10-BZ#209	ND		ug/l	0.00155	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	72		30-150
BZ 198	73		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-19  
 Client ID: WQ-TPC-004-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 18:17  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI4-BZ#44	0.06023		ug/l	0.00155	--	1
CI5-BZ#101	0.04312		ug/l	0.00103	--	1
CI5-BZ#118	0.02807		ug/l	0.00103	--	1
CI6-BZ#153	0.03101		ug/l	0.00103	--	1
CI5-BZ#105	ND		ug/l	0.00825	--	1
CI7-BZ#187	0.00644		ug/l	0.00103	--	1

DBOB	72	30-150
BZ 198	73	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-20  
**Client ID:** WQ-DPC-004-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 20:30  
**Analyst:** JW

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.02754		ug/l	0.01250	--	1
CI3-BZ#28	0.01061		ug/l	0.00260	--	1
CI4-BZ#44	0.00793		ug/l	0.00156	--	1
CI5-BZ#118	0.00126		ug/l	0.00104	--	1
CI5-BZ#105	ND		ug/l	0.00833	--	1
CI6-BZ#138	ND		ug/l	0.00104	--	1
CI7-BZ#187	ND		ug/l	0.00104	--	1
CI6-BZ#128	ND		ug/l	0.00104	--	1
CI7-BZ#180	ND		ug/l	0.00104	--	1
CI7-BZ#170	ND		ug/l	0.00156	--	1
CI8-BZ#195	ND		ug/l	0.00104	--	1
CI9-BZ#206	ND		ug/l	0.00104	--	1
CI10-BZ#209	ND		ug/l	0.00156	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	80		30-150
BZ 198	77		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-20  
 Client ID: WQ-DPC-004-070113  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 20:30  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.05716		ug/l	0.01146	--	1
CI4-BZ#52	0.01817		ug/l	0.00156	--	1
CI4-BZ#66	0.00430		ug/l	0.00104	--	1
CI5-BZ#101	0.00331		ug/l	0.00104	--	1
CI6-BZ#153	0.00130		ug/l	0.00104	--	1

DBOB	80	30-150
BZ 198	77	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-25  
 Client ID: WQ-TPC-004-070113-REP  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 22:43  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.05864		ug/l	0.01270	--	1
CI3-BZ#28	0.12113		ug/l	0.00265	--	1
CI4-BZ#52	0.12028		ug/l	0.00159	--	1
CI4-BZ#66	0.04433		ug/l	0.00106	--	1
CI5-BZ#118	0.02345		ug/l	0.00106	--	1
CI6-BZ#138	0.01604		ug/l	0.00106	--	1
CI6-BZ#128	0.00365		ug/l	0.00106	--	1
CI7-BZ#180	0.00392		ug/l	0.00106	--	1
CI7-BZ#170	0.00321		ug/l	0.00159	--	1
CI8-BZ#195	ND		ug/l	0.00106	--	1
CI9-BZ#206	ND		ug/l	0.00106	--	1
CI10-BZ#209	ND		ug/l	0.00159	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	69		30-150
BZ 198	65		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-25  
 Client ID: WQ-TPC-004-070113-REP  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 22:43  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.11514		ug/l	0.01164	--	1
CI4-BZ#44	0.04624		ug/l	0.00159	--	1
CI5-BZ#101	0.03305		ug/l	0.00106	--	1
CI6-BZ#153	0.02416		ug/l	0.00106	--	1
CI5-BZ#105	ND		ug/l	0.00847	--	1
CI7-BZ#187	0.00485		ug/l	0.00106	--	1
DBOB	69			30-150		
BZ 198	65			30-150		

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-26  
 Client ID: WQ-DPC-004-070113-REP  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 23:28  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI3-BZ#28	0.01082		ug/l	0.00269	--	1
CI4-BZ#44	0.00773		ug/l	0.00161	--	1
CI4-BZ#66	0.00372		ug/l	0.00108	--	1
CI5-BZ#118	ND		ug/l	0.00108	--	1
CI5-BZ#105	ND		ug/l	0.00860	--	1
CI6-BZ#138	ND		ug/l	0.00108	--	1
CI7-BZ#187	ND		ug/l	0.00108	--	1
CI6-BZ#128	ND		ug/l	0.00108	--	1
CI7-BZ#180	ND		ug/l	0.00108	--	1
CI7-BZ#170	ND		ug/l	0.00161	--	1
CI8-BZ#195	ND		ug/l	0.00108	--	1
CI9-BZ#206	ND		ug/l	0.00108	--	1
CI10-BZ#209	ND		ug/l	0.00161	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	78		30-150
BZ 198	76		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-26  
**Client ID:** WQ-DPC-004-070113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/10/13 23:28  
**Analyst:** JW

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.02726		ug/l	0.01290	--	1
CI3-BZ#18	0.05402		ug/l	0.01183	--	1
CI4-BZ#52	0.01636		ug/l	0.00161	--	1
CI5-BZ#101	0.00286		ug/l	0.00108	--	1
CI6-BZ#153	ND		ug/l	0.00108	--	1

DBOB 78 30-150  
 BZ 198 76 30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-31  
 Client ID: WQ-TPC-001-070113-EB  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 00:12  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	ND		ug/l	0.01200	--	1
CI3-BZ#28	ND		ug/l	0.00250	--	1
CI4-BZ#52	ND		ug/l	0.00150	--	1
CI4-BZ#44	ND		ug/l	0.00150	--	1
CI4-BZ#66	ND		ug/l	0.00100	--	1
CI5-BZ#101	ND		ug/l	0.00100	--	1
CI5-BZ#118	ND		ug/l	0.00100	--	1
CI5-BZ#105	ND		ug/l	0.00800	--	1
CI6-BZ#138	ND		ug/l	0.00100	--	1
CI7-BZ#187	ND		ug/l	0.00100	--	1
CI6-BZ#128	ND		ug/l	0.00100	--	1
CI7-BZ#180	ND		ug/l	0.00100	--	1
CI7-BZ#170	ND		ug/l	0.00150	--	1
CI8-BZ#195	ND		ug/l	0.00100	--	1
CI9-BZ#206	ND		ug/l	0.00100	--	1
CI10-BZ#209	ND		ug/l	0.00150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	79		30-150
BZ 198	70		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312296-31  
**Client ID:** WQ-TPC-001-070113-EB  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 00:12  
**Analyst:** JW

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl3-BZ#18	ND		ug/l	0.01100	--	1
Cl6-BZ#153	ND		ug/l	0.00100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	79		30-150
BZ 198	70		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-32  
 Client ID: WQ-DPC-001-070113-EB  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 16:49  
 Analyst: JW

Date Collected: 07/01/13 11:00  
 Date Received: 07/01/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	ND		ug/l	0.01200	--	1
CI3-BZ#28	ND		ug/l	0.00250	--	1
CI4-BZ#52	ND		ug/l	0.00150	--	1
CI4-BZ#44	ND		ug/l	0.00150	--	1
CI4-BZ#66	ND		ug/l	0.00100	--	1
CI5-BZ#101	ND		ug/l	0.00100	--	1
CI5-BZ#118	ND		ug/l	0.00100	--	1
CI5-BZ#105	ND		ug/l	0.00800	--	1
CI6-BZ#138	ND		ug/l	0.00100	--	1
CI7-BZ#187	ND		ug/l	0.00100	--	1
CI6-BZ#128	ND		ug/l	0.00100	--	1
CI7-BZ#180	ND		ug/l	0.00100	--	1
CI7-BZ#170	ND		ug/l	0.00150	--	1
CI8-BZ#195	ND		ug/l	0.00100	--	1
CI9-BZ#206	ND		ug/l	0.00100	--	1
CI10-BZ#209	ND		ug/l	0.00150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	80		30-150
BZ 198	74		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312296**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312296-32

Date Collected: 07/01/13 11:00

Client ID: WQ-DPC-001-070113-EB

Date Received: 07/01/13

Sample Location: NEW BEDFORD, MA

Field Prep: Not Specified

Matrix: Water

Extraction Method: EPA 3510C

Analytical Method: 1,8082A

Extraction Date: 07/08/13 10:50

Analytical Date: 07/10/13 16:49

Analyst: JW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl3-BZ#18	ND		ug/l	0.01100	--	1
Cl6-BZ#153	ND		ug/l	0.00100	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	80		30-150
BZ 198	74		30-150

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8082A  
Analytical Date: 07/10/13 10:09  
Analyst: JW

Extraction Method: EPA 3510C  
Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 Batch: WG619974-1					
Cl2-BZ#8	ND		ug/l	0.01200	--
Cl3-BZ#18	ND		ug/l	0.01100	--
Cl3-BZ#28	ND		ug/l	0.00250	--
Cl4-BZ#52	ND		ug/l	0.00150	--
Cl4-BZ#44	ND		ug/l	0.00150	--
Cl4-BZ#66	ND		ug/l	0.00100	--
Cl5-BZ#101	ND		ug/l	0.00100	--
Cl5-BZ#118	ND		ug/l	0.00100	--
Cl5-BZ#105	ND		ug/l	0.00800	--
Cl6-BZ#138	ND		ug/l	0.00100	--
Cl7-BZ#187	ND		ug/l	0.00100	--
Cl6-BZ#128	ND		ug/l	0.00100	--
Cl7-BZ#180	ND		ug/l	0.00100	--
Cl7-BZ#170	ND		ug/l	0.00150	--
Cl8-BZ#195	ND		ug/l	0.00100	--
Cl9-BZ#206	ND		ug/l	0.00100	--
Cl10-BZ#209	ND		ug/l	0.00150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	73		30-150
BZ 198	74		30-150

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8082A  
 Analytical Date: 07/10/13 10:09  
 Analyst: JW

Extraction Method: EPA 3510C  
 Extraction Date: 07/08/13 10:48

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 Batch: WG619974-1					
Cl6-BZ#153	ND		ug/l	0.00100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	73		30-150
BZ 198	74		30-150

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 QC Batch ID: WG619974-4 WG619974-5 QC Sample: L1312296-19 Client ID: WQ-TPC-004-070113												
Cl2-BZ#8	0.07511	0.108	0.14765	67		0.14209	62		40-140	4		30
Cl3-BZ#18	0.15089	0.108	0.20251	48		0.19913	44		40-140	2		30
Cl3-BZ#28	0.15953	0.108	0.25951	92		0.24663	80		40-140	5		30
Cl4-BZ#52	0.15377	0.108	0.23340	74		0.22244	63		40-140	5		30
Cl4-BZ#66	0.05797	0.108	0.14762	83		0.14581	81		40-140	1		30
Cl6-BZ#138	0.02118	0.108	0.10829	80		0.11173	83		40-140	3		30
Cl6-BZ#128	0.00473	0.108	0.09389	82		0.09818	86		40-140	4		30
Cl7-BZ#180	0.00538	0.108	0.09548	83		0.09929	86		40-140	4		30
Cl7-BZ#170	0.00417	0.108	0.09415	83		0.09820	86		40-140	4		30
Cl8-BZ#195	ND	0.108	0.08502	79		0.08888	82		40-140	4		30
Cl9-BZ#206	ND	0.108	0.08582	79		0.08912	82		40-140	4		30
Cl4-BZ#44	0.06023	0.108	0.13337	68		0.13068	65		40-140	2		30
Cl5-BZ#101	0.04312	0.108	0.11572	67		0.11434	66		40-140	1		30
Cl5-BZ#118	0.02807	0.108	0.10856	74		0.11195	77		40-140	3		30
Cl6-BZ#153	0.03101	0.108	0.10508	68		0.10542	68		40-140	0		30
Cl5-BZ#105	ND	0.108	0.09191	85		0.09767	90		40-140	6		30
Cl7-BZ#187	0.00644	0.108	0.08147	69		0.08161	69		40-140	0		30
Cl10-BZ#209	ND	0.108	0.07522	70		0.07842	72		40-140	4		30

### Matrix Spike Analysis Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32    QC Batch ID: WG619974-4 WG619974-5    QC Sample: L1312296-19    Client ID: WQ-TPC-004-070113

Surrogate	MS		MSD		Acceptance Criteria
	% Recovery	Qualifier	% Recovery	Qualifier	
BZ 198	75		78		30-150
DBOB	72		75		30-150

## Matrix Spike Analysis

### Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 QC Batch ID: WG619974-6 WG619974-7 QC Sample: L1312296-20 Client ID: WQ-DPC-004-070113												
Cl2-BZ#8	0.02754	0.106	0.10088	69		0.10362	73		40-140	3		30
Cl3-BZ#28	0.01061	0.106	0.10086	85		0.10852	94		40-140	7		30
Cl4-BZ#44	0.00793	0.106	0.08716	74		0.09150	81		40-140	5		30
Cl5-BZ#118	0.00126	0.106	0.08368	77		0.09174	87		40-140	9		30
Cl5-BZ#105	ND	0.106	0.08812	83		0.09732	94		40-140	10		30
Cl7-BZ#180	ND	0.106	0.08524	80		0.09364	90		40-140	9		30
Cl7-BZ#170	ND	0.106	0.08417	79		0.09387	90		40-140	11		30
Cl8-BZ#195	ND	0.106	0.07890	74		0.08752	84		40-140	10		30
Cl3-BZ#18	0.05716	0.106	0.12905	68		0.13476	75		40-140	4		30
Cl4-BZ#52	0.01817	0.106	0.08734	65		0.09065	70		40-140	4		30
Cl4-BZ#66	0.00430	0.106	0.08104	72		0.08590	79		40-140	6		30
Cl5-BZ#101	0.00331	0.106	0.07992	72		0.08301	77		40-140	4		30
Cl6-BZ#153	0.00130	0.106	0.07860	73		0.08376	80		40-140	6		30
Cl6-BZ#138	ND	0.106	0.08434	79		0.09126	88		40-140	8		30
Cl7-BZ#187	ND	0.106	0.07794	73		0.08456	82		40-140	8		30
Cl6-BZ#128	ND	0.106	0.08660	81		0.09464	91		40-140	9		30
Cl9-BZ#206	ND	0.106	0.07858	74		0.08805	85		40-140	11		30
Cl10-BZ#209	ND	0.106	0.06951	65		0.07742	75		40-140	11		30

### Matrix Spike Analysis Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
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PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32    QC Batch ID: WG619974-6 WG619974-7    QC Sample: L1312296-20    Client ID: WQ-DPC-004-070113

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
BZ 198	71		81		30-150
DBOB	76		84		30-150

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 Batch: WG619974-2 WG619974-3								
CI2-BZ#8	78		70		40-140	11		30
CI3-BZ#18	81		72		40-140	12		30
CI3-BZ#28	96		84		40-140	13		30
CI4-BZ#52	83		72		40-140	13		30
CI4-BZ#44	85		75		40-140	12		30
CI4-BZ#66	91		80		40-140	12		30
CI5-BZ#101	85		77		40-140	11		30
CI5-BZ#118	94		84		40-140	11		30
CI5-BZ#105	99		87		40-140	13		30
CI6-BZ#138	92		84		40-140	10		30
CI7-BZ#187	83		76		40-140	9		30
CI6-BZ#128	94		85		40-140	10		30
CI7-BZ#180	92		88		40-140	5		30
CI7-BZ#170	89		83		40-140	7		30
CI8-BZ#195	83		79		40-140	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
DBOB	85		69		30-150
BZ 198	84		77		30-150

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 01-02,07-08,13-14,19-20,25-26,31-32 Batch: WG619974-2 WG619974-3								
Cl6-BZ#153	83		74		40-140	11		30
Cl10-BZ#209	67		63		40-140	6		30

DBOB	85	69	30-150
BZ 198	84	77	30-150

# INORGANICS & MISCELLANEOUS

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-03  
**Client ID:** WQ-TUR-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	3.2		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-04  
**Client ID:** WQ-TSS-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	8.00		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-05  
**Client ID:** WQ-TOC-001-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:10  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	20.		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-09  
**Client ID:** WQ-TUR-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	13		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-10  
**Client ID:** WQ-TSS-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	27.3		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-11  
**Client ID:** WQ-TOC-002-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 08:25  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-15  
**Client ID:** WQ-TUR-003-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 10:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	1.9		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-16  
**Client ID:** WQ-TSS-003-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 10:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	20.0		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-17  
**Client ID:** WQ-TOC-003-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 10:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-21  
**Client ID:** WQ-TUR-004-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	8.2		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-22  
**Client ID:** WQ-TSS-004-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	16.3		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-23  
**Client ID:** WQ-TOC-004-070113  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	12.		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-27  
**Client ID:** WQ-TUR-004-070113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	7.7		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-28  
**Client ID:** WQ-TSS-004-070113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	15.3		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312296-29  
**Client ID:** WQ-TOC-004-070113-REP  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/01/13 11:00  
**Date Received:** 07/01/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	12.		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 05,11,17,23,29 Batch: WG619400-1									
Total Organic Carbon	ND	mg/l	0.50	--	1	-	07/03/13 07:18	1,9060	DW
General Chemistry - Mansfield Lab for sample(s): 04,10,16,22,28 Batch: WG620167-1									
Solids, Total Suspended	ND	mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS
General Chemistry - Mansfield Lab for sample(s): 03,09,15,21,27 Batch: WG620170-1									
Turbidity	ND	NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS

## Lab Control Sample Analysis

### Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY

**Lab Number:** L1312296

**Project Number:** TO-0010-13

**Report Date:** 07/15/13

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,11,17,23,29 Batch: WG619400-2								
Total Organic Carbon	96		-		90-110	-		
General Chemistry - Mansfield Lab Associated sample(s): 04,10,16,22,28 Batch: WG620167-2								
Solids, Total Suspended	95		-		85-115	-		20
General Chemistry - Mansfield Lab Associated sample(s): 03,09,15,21,27 Batch: WG620170-2								
Turbidity	107		-		90-110	-		10

**Matrix Spike Analysis**  
**Batch Quality Control**

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,11,17,23,29 QC Batch ID: WG619400-4 QC Sample: L1312140-03 Client ID: MS Sample												
Total Organic Carbon	20	40	64	109	-	-	-	-	80-120	-	-	20

## Lab Duplicate Analysis

Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 05,11,17,23,29 QC Batch ID: WG619400-3 QC Sample: L1312140-03 Client ID: DUP Sample						
Total Organic Carbon	20	20.	mg/l	0		20
General Chemistry - Mansfield Lab Associated sample(s): 04,10,16,22,28 QC Batch ID: WG620167-3 QC Sample: L1312296-16 Client ID: WQ-TSS-003-070113						
Solids, Total Suspended	20.0	21.7	mg/l	8		20
General Chemistry - Mansfield Lab Associated sample(s): 03,09,15,21,27 QC Batch ID: WG620170-3 QC Sample: L1312296-03 Client ID: WQ-TUR-001-070113						
Turbidity	3.2	3.1	NTU	3		10

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

### Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

#### Cooler Information Custody Seal

##### Cooler

A	Absent
D	Absent
B	Absent
C	Absent

#### Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1312296-01A	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-01B	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-02A	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-02B	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-02X1	Glass 100ml unpreserved split	C	N/A	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-02X2	Glass 100ml unpreserved split	C	N/A	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-03A	Plastic 500ml unpreserved	C	N/A	4.5	Y	Absent	A2-TURBIDITY-180.1(2)
L1312296-04A	Plastic 500ml unpreserved	C	7	4.5	Y	Absent	A2-TSS-2540D(M)(7)
L1312296-05A	Vial H2SO4 preserved	C	N/A	4.5	Y	Absent	TOC-9060(28)
L1312296-05B	Vial H2SO4 preserved	C	N/A	4.5	Y	Absent	TOC-9060(28)
L1312296-06A	Plastic 500ml HNO3 preserved	C	<2	4.5	Y	Absent	HOLD(14)
L1312296-07A	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-07B	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-08A	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-08B	Amber 1000ml unpreserved	C	7	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-08X1	Glass 100ml unpreserved split	C	N/A	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-08X2	Glass 100ml unpreserved split	C	N/A	4.5	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-09A	Plastic 500ml unpreserved	C	N/A	4.5	Y	Absent	A2-TURBIDITY-180.1(2)
L1312296-10A	Plastic 500ml unpreserved	C	7	4.5	Y	Absent	A2-TSS-2540D(M)(7)
L1312296-11A	Vial H2SO4 preserved	C	N/A	4.5	Y	Absent	TOC-9060(28)
L1312296-11B	Vial H2SO4 preserved	C	N/A	4.5	Y	Absent	TOC-9060(28)
L1312296-12A	Plastic 500ml HNO3 preserved	C	<2	4.5	Y	Absent	HOLD(14)
L1312296-13A	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1312296-13B	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-14A	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-14B	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-14X1	Glass 100ml unpreserved split	B	N/A	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-14X2	Glass 100ml unpreserved split	B	N/A	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-15A	Plastic 500ml unpreserved	B	N/A	4.7	Y	Absent	A2-TURBIDITY-180.1(2)
L1312296-16A	Plastic 500ml unpreserved	A	7	5.6	Y	Absent	A2-TSS-2540D(M)(7)
L1312296-17A	Vial H2SO4 preserved	B	N/A	4.7	Y	Absent	TOC-9060(28)
L1312296-17B	Vial H2SO4 preserved	B	N/A	4.7	Y	Absent	TOC-9060(28)
L1312296-18A	Plastic 500ml HNO3 preserved	B	<2	4.7	Y	Absent	HOLD(14)
L1312296-19A	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-19B	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-19C	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-19D	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20A	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20B	Amber 1000ml unpreserved	A	7	5.6	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20C	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20D	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20X1	Glass 100ml unpreserved split	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20X2	Amber 1000ml unpreserved	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20X3	Amber 1000ml unpreserved	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-20X4	Glass 100ml unpreserved split	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-21A	Plastic 500ml unpreserved	A	N/A	5.6	Y	Absent	A2-TURBIDITY-180.1(2)
L1312296-22A	Plastic 500ml unpreserved	A	7	5.6	Y	Absent	A2-TSS-2540D(M)(7)
L1312296-23A	Vial H2SO4 preserved	A	N/A	5.6	Y	Absent	TOC-9060(28)
L1312296-23B	Vial H2SO4 preserved	A	N/A	5.6	Y	Absent	TOC-9060(28)
L1312296-24A	Plastic 500ml HNO3 preserved	A	<2	5.6	Y	Absent	HOLD(14)
L1312296-24B	Plastic 500ml HNO3 preserved	D	<2	5.8	Y	Absent	HOLD(14)
L1312296-25A	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-25B	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-26A	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-26B	Amber 1000ml unpreserved	B	7	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-26X1	Glass 100ml unpreserved split	B	N/A	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-26X2	Glass 100ml unpreserved split	B	N/A	4.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-27A	Plastic 500ml unpreserved	A	N/A	5.6	Y	Absent	A2-TURBIDITY-180.1(2)
L1312296-28A	Plastic 500ml unpreserved	B	7	4.7	Y	Absent	A2-TSS-2540D(M)(7)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Container Information**

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1312296-29A	Vial H2SO4 preserved	A	N/A	5.6	Y	Absent	TOC-9060(28)
L1312296-29B	Vial H2SO4 preserved	A	N/A	5.6	Y	Absent	TOC-9060(28)
L1312296-30A	Plastic 500ml HNO3 preserved	B	<2	4.7	Y	Absent	HOLD(14)
L1312296-31A	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-31B	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-32A	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-32B	Amber 1000ml unpreserved	D	7	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-32X1	Glass 100ml unpreserved split	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-32X2	Glass 100ml unpreserved split	D	N/A	5.8	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312296-33A	Plastic 500ml HNO3 preserved	D	<2	5.8	Y	Absent	HOLD(14)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

**Report Format:** Data Usability Report



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

**Data Qualifiers**

due to obvious interference.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

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**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312296  
**Report Date:** 07/15/13

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 8 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. 19th Edition. 1995.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certificate/Approval Program Summary

Last revised August 3, 2012 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

*Wastewater/Non-Potable Water* (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

*Solid Waste/Soil* (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

### Florida Department of Health Certificate/Lab ID: E87814. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

*Air & Emissions* (EPA TO-15.)

### Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Biological Tissue* (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

*Air & Emissions* (EPA TO-15.)

### New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

### New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Atmospheric Organic Parameters* (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

*Biological Tissue* (Inorganic Parameters: SW-846 6020A. Organic Parameters: SW-846 8270C, 8270D, 3510C, 3570, 3610C, 3630C, 3640A)

**New York Department of Health** Certificate/Lab ID: 11627. **NELAP Accredited**. -

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

*Air & Emissions* (EPA TO-15, TO-10A.)

**Pennsylvania** Certificate/Lab ID: 68-02089 **NELAP Accredited** -

*Non-Potable Water* (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D .)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

**Rhode Island Department of Health** Certificate/Lab ID: LAO00299. **NELAP Accredited via NJ-DEP**. -

Refer to NJ-DEP Certificate for Non-Potable Water.

**Texas Commission of Environmental Quality** Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited**. -

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

*Air* (Organic Parameters: EPA TO-15)

**Virginia Division of Consolidated Laboratory Services** Certificate/Lab ID:460194. **NELAP Accredited**. -

*Non-Potable Water* (Inorganic Parameters:EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020A,7470A,7471B,9040B,9045C,3050B,3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

**Washington State Department of Ecology** Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

**U.S. Army Corps of Engineers**

**Department of Defense, L-A-B** Certificate/Lab ID: L2217.01.

*Non-Potable Water* (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.

*Air & Emissions* (EPA TO-15.)

**Analytes Not Accredited by NELAP**

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

## Certificate/Approval Program Summary

Last revised July 2, 2013 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.  
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### Connecticut Department of Public Health Certificate/Lab ID: PH-0574. **NELAP Accredited Solid Waste/Soil.**

*Drinking Water* (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Coliart (SM9223, Enumeration and P/A), E. Coli. – Coliart (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

*Wastewater/Non-Potable Water* (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Coliart (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

*Solid Waste/Soil* (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270). )

### State of Illinois Certificate/Lab ID: 003155. **NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: SM2120B, 2320B, 2510B, 2540C, SM4500CN-CE, 4500F-C, 4500H-B, 4500NO3-F, 5310C, EPA 200.7, 200.8, 245.1, 300.0. Organic Parameters: EPA 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: SM2120B, 2310B, 2320B, 2340B, 2510B, 2540B, 2540C, 2540D, SM4500CL-E, 4500CN-E, 4500F-C, 4500H-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-E, 4500S-D, 4500SO3-B, 5210B, 5220D, 5310C, 5540C, EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1. Organic Parameters: EPA 608, 624, 625.)

*Hazardous and Solid Waste* (Inorganic Parameters: EPA 1010A, 1030, 1311, 1312, 6010C, 6020A, 7196A, 7470A, 7471B, 9012B, 9014, 9038, 9040C, 9045D, 9050A, 9065, 9251. Organic Parameters: 8011 (NPW only), 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330.)

### Maine Department of Human Services Certificate/Lab ID: 2009024.

*Drinking Water* (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2120B, 2130B, 2320B, 2510C, 2540C, 4500CI-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, 5310C, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 8315A, 9010C, SM2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CI-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-C, 4500NH3-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-B, 4500P-E, 4500S2-D, 4500SO3-B, 5540C, 5210B, 5220D, 5310C, 9010B, 9030B, 9040C, 7470A, 7196A, 2340B, EPA 200.7, 6010C, 200.8, 6020A, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8011, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (Inorganic Parameters:* 9010B, 9012A, 9014, 9040B, 9045C, 6010C, 6020A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B, 9038, 9251. *Organic Parameters:* ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260C, 8270D, 8330, 8151A, 8081B, 8082A, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035.)

**Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.**

*Drinking Water (Inorganic Parameters:* (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, 2320B, SM2540C, SM4500H-B. *Organic Parameters:* (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. *Microbiology Parameters:* SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (Inorganic Parameters:* (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

*Organic Parameters:* (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. *Microbiology Parameters:* (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. NELAP Accredited.**

*Drinking Water (Inorganic Parameters:* SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. *Organic Parameters:* 504.1, 524.2.)

*Non-Potable Water (Inorganic Parameters:* SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. *Organic Parameters:* SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

*Solid & Chemical Materials (Inorganic Parameters:* SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. *Organic Parameters:* SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 2064. NELAP Accredited.**

*Drinking Water (Organic Parameters:* **EPA 524.2:** Di-isopropyl ether (DIPE), Ethyl-t-butyl ether (ETBE), Tert-amyl methyl ether (TAME)).

*Non-Potable Water (Organic Parameters:* **EPA 8260C:** 1,3,5-Trichlorobenzene. **EPA 8015C(M):** TPH.)

*Solid & Chemical Materials (Organic Parameters:* **EPA 8260C:** 1,3,5-Trichlorobenzene.)

**New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. NELAP Accredited.**

*Drinking Water (Inorganic Parameters:* SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. *Organic Parameters:* EPA 332, 504.1, 524.2.)

*Non-Potable Water (Inorganic Parameters:* SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. *Organic Parameters:* SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

9050A, 9065, 9251. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

**New York Department of Health Certificate/Lab ID:** 11148. **NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.1, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO<sub>3</sub>-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

*Non-Potable Water* (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH<sub>3</sub>-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO<sub>3</sub>-F, 4500-NO<sub>2</sub>-B, 4500P-E, 2340B, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010C, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 8315A, 3005A, 3015, 9010C, 9030B. Organic Parameters: EPA 624, 8260C, 8270D, 8270D-SIM, 625, 608, 8081B, 8151A, 8330, 8082A, EPA 3510C, 5030B, 8015C, 8011.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1010A, 1030, EPA 6010C, 6020A, 7196A, 7471B, 8315A, 9012B, 9014, 9065, 9050A, 9038, 9251, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. Organic Parameters: EPA 8260C, 8270D, 8270D-SIM, 8015C, 8081B, 8151A, 8330, 8082A, 3540C, 3546, 3580A, 5035A-H, 5035A-L.)

**North Carolina Department of the Environment and Natural Resources Certificate/Lab ID :** 666. (Inorganic Parameters: SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9012B, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO<sub>3</sub>-F, 353.2, 4500P-E, 4500SO<sub>4</sub>-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311,1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

*Drinking Water Program Certificate/Lab ID:* 25700. (Inorganic Parameters: Chloride EPA 300.0. Organic Parameters: 524.2)

**Pennsylvania Department of Environmental Protection Certificate/Lab ID :** 68-03671. **NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO<sub>3</sub>-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1312, 3005A,3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500S-D, 4500SO<sub>3</sub>-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH<sub>3</sub>-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

**Rhode Island Department of Health Certificate/Lab ID:** LAO00065. **NELAP Accredited via NJ-DEP.**

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

**Texas Commisson on Environmental Quality Certificate/Lab ID:** T104704476. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>B, 4500P-E, 4500 S<sup>2-</sup> D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

**Virginia Division of Consolidated Laboratory Services Certificate/Lab ID:** 460195. **NELAP Accredited.**

*Drinking Water* (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.1, 2320B, 4500F-C, 4500NO<sub>3</sub>-F, 4500H+B, 5310C. Organic Parameters: EPA 504.1, 524.2.)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 351.2, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 2340B, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 3500Cr-D, 426C, 4500Cl-E, 4500F-B, 4500F-C, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500 SO<sub>3</sub>-B, 4500H-B, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C, 9010Cm

9030B, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330, )

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9010C, 9012B, 9030B, 9014, 9038, 9040C, 9045D, 9251, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 3550B, 3580A, 3620C, 3630C, 6020A, 8260B, 8260C, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

**Department of Defense, L-A-B Certificate/Lab ID:** L2217.

*Drinking Water* (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

*Non-Potable Water* (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

**The following analytes are not included in our current NELAP/TNI Scope of Accreditation:**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether. **EPA 8260B:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8260 Non-potable water matrix:** Iodomethane (methyl iodide), Methyl methacrylate. **EPA 8260 Soil matrix:** Tert-amyl methyl ether (TAME), Diisopropyl ether (DIPE), Azobenzene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnaphthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine. **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, TKN in a soil matrix, NO<sub>2</sub> in a soil matrix, NO<sub>3</sub> in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.



**MANSFIELD CHAIN OF CUSTODY**

PAGE 1 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3268

**Project Information**

Project Name: New Bedford Water Quality

Project Location: New Bedford, MA

Project #: TO-0010-13

Project Manager: D. Walsh

ALPHA Quote #:

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved)

Date Due: 7/16/13 Time:

Date Rec'd in Lab: 7/1/13

ALPHA Job #: 4/312296

**Report Information - Data Deliverables**

NO  EMAIL  
 INDEX  Add'l Deliverables

**Billing Information**

Same as Client info PO #:

**Client Information**

Client: WOODS Hole Group

Address: 91 Technology Park DR  
East Falmouth, MA 02536

Phone: 508-540-8080

Fax: 508-540-1001

Email: DSTUART@WHGRP.COM

These samples have been previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Project specific EDD

**PLEASE NOTE**

MS/MSD (at unit cost) will be omitted unless you check here:

**Regulatory Requirements/Report Limits**

State/Fed Program Criteria

ANALYSIS	Total Pb	Dissolved Pb	Lead	TSS	TOC	Metals (As, Cd, Cr, Cu, Ni, Pb, Se, V)	TOTAL # BOTTLES
	Filtration	<input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do <input type="checkbox"/> Lab to do (Please specify below)					
Sample Specific Comments							

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time			Total Pb	Dissolved Pb	Lead	TSS	TOC	Metals (As, Cd, Cr, Cu, Ni, Pb, Se, V)				
12296	WQ-TPC-001-070113	7/1/13	8:10	SW	DS	X								Ebb Ref	2
2	WQ-DPC-001-070113						X								2
3	WQ-TUR-001-070113						X								1
4	WQ-TSS-001-070113							X							1
5	WQ-TOC-001-070113								X						2
6	WQ-MET-001-070113									X					1
7	WQ-TPC-002-070113		08:25			X								Ebb samph	2
8	WQ-DPC-002-070113						X								2
9	WQ-TUR-002-070113						X								1
10	WQ-TSS-002-070113							X							1

Container Type	A	A	P	P	V	P
Preservative	A	A	A	A	D	C

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/1/13 17:25	<i>[Signature]</i>	7/1/13 17:25
<i>[Signature]</i>	7/1/13 18:31	<i>[Signature]</i>	7/1/13 18:31
<i>[Signature]</i>	7/1/13 19:50	<i>[Signature]</i>	7/1/13 19:50



# CHAIN OF CUSTODY

PAGE 2 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab: 7/1/13

ALPHA Job #: L1312296

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

### Project Information

Project Name: New Bedford water Quality  
Project Location: New Bedford, MA  
Project #: TO-0010-13  
Project Manager: D. Walsh  
ALPHA Quote #:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

### Billing Information

Same as Client Info PO #:

Turn-Around Time  
 Standard  RUSH (only confirmed if pre-approved)  
Date Due: 7/16/13 Time:

### Regulatory Requirements/Report Limits

State/Fed Program Criteria

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:  
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project - Specific EAD

ANALYSIS	TOTAL PCB	Dissolved PCB	Particulate PCB	TSS	TOC	Alkalinity (Active)	SAMPLE HANDLING	TOTAL # BOTTLES
							Filtration _____ <input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							Sample Specific Comments	TOTAL # BOTTLES				
		Date	Time			TOTAL PCB	Dissolved PCB	Particulate PCB	TSS	TOC	Alkalinity (Active)	Other						
<u>2296</u>	<u>11 WQ-TOC-002-070113</u>	<u>7/1/13</u>	<u>08:25</u>	<u>SW</u>	<u>DS</u>													
	<u>12 WQ-MBT-002-070113</u>		<u>08:25</u>															
	<u>13 WQ-TPC-003-070113</u>		<u>10:00</u>			X												
	<u>14 WQ-DPC-003-070113</u>						X											
	<u>15 WQ-TUR-003-070113</u>							X										
	<u>16 WQ-TSS-003-070113</u>								X									
	<u>17 WQ-TOC-003-070113</u>									X								
	<u>18 WQ-MBT-003-070113</u>										X							
	<u>19 WQ-TPC-004-070113</u>		<u>11:00</u>			X												
	<u>20 WQ-DPC-004-070113</u>						X											

PLEASE ANSWER QUESTIONS ABOVE!

Container Type	<u>A A P P V P</u>
Preservative	<u>A A A A D C</u>

IS YOUR PROJECT MA MCP or CT RCP?

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>7/1/13 17:25</u>	<u>[Signature]</u>	<u>7/1/13 17:25</u>
<u>[Signature]</u>	<u>7/1/13 18:31</u>	<u>[Signature]</u>	<u>7/1/13 18:31</u>
<u>[Signature]</u>	<u>7/1/13 19:50</u>	<u>[Signature]</u>	<u>7/1/13 19:50</u>

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 18-Jan-2010)







# CHAIN OF CUSTODY

PAGE 2 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1312296

**Client Information**

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

**Project Information**

Project Name: New Bedford water Quality  
Project Location: New Bedford, MA  
Project #: TO-0010-13  
Project Manager: D. Walsh  
ALPHA Quote #:

**Report Information - Data Deliverables**

FAX  EMAIL  
 ADEX  Add'l Deliverables

**Billing Information**

Same as Client info PO #:

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved!)

Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

**Regulatory Requirements/Report Limits**

State  Fed Program Criteria

**MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO**

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

**Other Project Specific Requirements/Comments/Detection Limits:**

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project-specific EPD

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							SAMPLE HANDLING	TOTAL # BOTTLES		
		Date	Time			Total PCB	Dissolved PCB	Turbidity	TSS	TOC	Metals (Archive)	Filtration				
11	WQ-TOC-002-070113	7/1/13	08:25	SW	DS								X		Ebb Sample	2
12	WQ-MBT-002-070113		08:25											X	↓	1
13	WQ-TPC-003-070113		10:00			X									Flood Sample Ref.	2
14	WQ-DPC-003-070113						X									2
15	WQ-TUR-003-070113							X								1
16	WQ-TSS-003-070113								X							1
17	WQ-TOC-003-070113									X						2
18	WQ-MBT-003-070113												X			1
19	WQ-TPC-004-070113		11:00			X									Flood sample	2
20	WQ-DPC-004-070113						X								↓	2

**SAMPLE HANDLING**

Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do Preservation  
 Lab to do  
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
MA MCP or CT RCP?

Container Type: A A P P V P  
Preservative: A A A A D C

Relinquished By:	Date/Time	Received By:	Date/Time
<u>D. Walsh</u>	<u>7/1/13 17:25</u>	<u>[Signature]</u>	<u>7/1/13 17:25</u>

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. Delivery Order 0010-13 August 2014



# CHAIN OF CUSTODY

PAGE 3 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGRP.COM

### Project Information

Project Name: New Bedford Monitoring  
Project Location: New Bedford, MA  
Project #: TO-0010-13  
Project Manager: D. Walsh  
ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

Date Rec'd in Lab:

ALPHA Job #: L1312296

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Regulatory Requirements/Report Limits

State/Fed Program \_\_\_\_\_ Criteria \_\_\_\_\_

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:  
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project-specific EDD

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							SAMPLE HANDLING	TOTAL # BOTTLES	
		Date	Time			Total PCB	Dissolved PCB	Turbidity	TSS	TOC	Metals (Archive)	Other			Other
21	WQ-TUR-004-070113	7/1/13	11:00	SV	DS		X							Flood sample	1
22	WQ-TSS-004-070113							X							1
23	WQ-TOC-004-070113								X						2
24	WQ-MBT-004-070113									X					1
25	WQ-TPC-004-070113-REP		11:00			X								Flood Sample REP	2
26	WQ-DPC-004-070113-REP					X									2
27	WQ-TUR-004-070113-REP						X								1
28	WQ-TSS-004-070113-REP							X							1
29	WQ-TOC-004-070113-REP								X						2
30	WQ-MBT-004-070113-REP									X					1

### SAMPLE HANDLING

Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do Preservation  
 Lab to do  
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
MA MCP or CT RCP?

Container Type: AA P P V P  
Preservative: AA A A D C

Relinquished By: Paul Shaw

Date/Time: 7/1/13 17:25

Received By: [Signature]

Date/Time: 7/1/13 17:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. Delivery Order 0010-13 August 2014



# CHAIN OF CUSTODY

PAGE 4 OF 4

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1312296

### Client Information

Client: WOODS Hole Group  
Address: 81 Technology Park Dr  
East Falmouth, MA 02536  
Phone: 508-540-8080  
Fax: 508-540-1001  
Email: DSTUART@WHGPP.COM

### Project Information

Project Name: New Bedford Water Quality  
Project Location: New Bedford, MA  
Project #: TO-0010-13  
Project Manager: D. Walsh  
ALPHA Quote #:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

### Regulatory Requirements/Report Limits

State (Fed Program) \_\_\_\_\_ Criteria \_\_\_\_\_

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

### Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS										SAMPLE HANDLING	TOTAL # BOTTLES		
		Date	Time			Total PCB	Dissolved PCB	Metals (Atrhve)											
19 <sup>W</sup> / <sub>31</sub>	WQ-TPC-004-070113-MS	7/1/13	11:05	SW	DS	X												MS	1
20 <sup>B</sup> / <sub>2</sub>	WQ-DPC-004-070113-MS						X											MS	1
19	WQ-TPC-004-070113-MSD					X												MSD	1
20	WQ-DPC-004-070113-MSD						X											MSD	1
24	WQ-MET-004-070113-MSMSD							X										MS, MSD	1
31	WQ-TPC-001-070113-EB		12:00			X												Equipment Blank	2
32	WQ-DPC-001-070113-EB					X													2
33	WQ-MET-001-070113-EB							X											1

### SAMPLE HANDLING

Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do Preservation  
 Lab to do  
(Please specify below)

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
MA MCP or CT RCP?

Container Type A A P  
Preservative A A C

Relinquished By: Dad [Signature]

Date/Time: 7/1/13 17:25

Received By: [Signature]

Date/Time: 7/1/13 17:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.  
Delivery Order 0010-13  
August 2014



## ANALYTICAL REPORT

Lab Number:	L1312402
Client:	Woods Hole Group 81 Technology Park Drive East Falmouth, MA 02536
ATTN:	Dack Stuart
Phone:	(508) 540-8080
Project Name:	NEW BEDFORD WATER QUALITY
Project Number:	TO-0010-13
Report Date:	07/15/13

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: NY (11627), CT (PH-0141), NH (2206), NJ NELAP (MA015), RI (LAO00299), PA (68-02089), LA NELAP (03090), FL (E87814), TX (T104704419), WA (C954), DOD (L2217.01), USDA (Permit #P330-11-00109), US Army Corps of Engineers.

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320 Forbes Boulevard, Mansfield, MA 02048-1806  
508-822-9300 (Fax) 508-822-3288 800-624-9220 - [www.alphalab.com](http://www.alphalab.com)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

Alpha Sample ID	Client ID	Sample Location	Collection Date/Time
L1312402-01	WQ-TSS-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-02	WQ-TUR-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-03	WQ-TPC-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-04	WQ-DPC-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-05	WQ-MET-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-06	WQ-TOC-001-070213	NEW BEDFORD, MA	07/02/13 08:15
L1312402-07	WQ-TPC-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-08	WQ-DPC-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-09	WQ-MET-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-10	WQ-TSS-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-11	WQ-TUR-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-12	WQ-TOC-002-070213	NEW BEDFORD, MA	07/02/13 08:45
L1312402-13	WQ-TPC-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-14	WQ-DPC-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-15	WQ-TUR-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-16	WQ-TSS-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-17	WQ-MET-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-18	WQ-TOC-003-070213	NEW BEDFORD, MA	07/02/13 10:45
L1312402-19	WQ-TPC-004-070213	NEW BEDFORD, MA	07/02/13 11:10
L1312402-20	WQ-DPC-004-070213	NEW BEDFORD, MA	07/02/13 11:10
L1312402-21	WQ-TUR-004-070213	NEW BEDFORD, MA	07/02/13 11:10
L1312402-22	WQ-TSS-004-070213	NEW BEDFORD, MA	07/02/13 11:10
L1312402-23	WQ-MET-004-070213	NEW BEDFORD, MA	07/02/13 11:10
L1312402-24	WQ-TOC-004-070213	NEW BEDFORD, MA	07/02/13 11:10

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

### Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet all of the requirements of NELAC, for all NELAC accredited parameters. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. Performance criteria for CAM and RCP methods allow for some LCS compound failures to occur and still be within method compliance. In these instances, the specific failures are not narrated but are noted in the associated QC table. This information is also incorporated in the Data Usability format for our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

#### HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples free of charge for 30 days from the date the project is completed. After 30 days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples.

Please contact Client Services at 800-624-9220 with any questions.

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

### Case Narrative (continued)

#### PCBs

The PCB Congener analysis was performed utilizing dual column confirmation with the higher of the two values reported. Technical judgment was employed in the case of an observed interference. In each case that interference was observed on one column, the value from the opposite column was reported regardless of whether it was the higher or lower value.

Samples L1312402-03, -07 and -19 were analyzed at dilution due to over-calibration concentrations of target compounds.

#### Total Organic Carbon

Samles L1312402-06, -12, and -18 have elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:

 Elizabeth Porta

Title: Technical Director/Representative

Date: 07/15/13

# ORGANICS

# PCBS

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-03  
 Client ID: WQ-TPC-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 15:11  
 Analyst: JW

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.15434		ug/l	0.02487	--	2
CI3-BZ#18	0.26897		ug/l	0.02280	--	2
CI3-BZ#28	0.17741		ug/l	0.00518	--	2
CI4-BZ#52	0.14596		ug/l	0.00311	--	2
CI4-BZ#66	0.03105		ug/l	0.00207	--	2
CI5-BZ#101	0.02950		ug/l	0.00207	--	2
CI5-BZ#118	0.00946		ug/l	0.00207	--	2
CI6-BZ#138	0.00822		ug/l	0.00207	--	2
CI7-BZ#187	ND		ug/l	0.00207	--	2
CI6-BZ#128	ND		ug/l	0.00207	--	2
CI7-BZ#180	ND		ug/l	0.00207	--	2
CI7-BZ#170	ND		ug/l	0.00311	--	2
CI8-BZ#195	ND		ug/l	0.00207	--	2
CI9-BZ#206	ND		ug/l	0.00207	--	2
CI10-BZ#209	ND		ug/l	0.00311	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	80		30-150
BZ 198	82		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-03  
 Client ID: WQ-TPC-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 15:11  
 Analyst: JW

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl4-BZ#44	0.05007		ug/l	0.00311	--	2
Cl6-BZ#153	0.01197		ug/l	0.00207	--	2
Cl5-BZ#105	ND		ug/l	0.01658	--	2

DBOB	80	30-150
BZ 198	82	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-04  
**Client ID:** WQ-DPC-001-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 05:23  
**Analyst:** JW

**Date Collected:** 07/02/13 08:15  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.06992		ug/l	0.01290	--	1
CI3-BZ#28	0.02450		ug/l	0.00269	--	1
CI4-BZ#52	0.03001		ug/l	0.00161	--	1
CI4-BZ#44	0.01190		ug/l	0.00161	--	1
CI4-BZ#66	0.00541		ug/l	0.00108	--	1
CI5-BZ#101	0.00175		ug/l	0.00108	--	1
CI5-BZ#118	ND		ug/l	0.00108	--	1
CI5-BZ#105	ND		ug/l	0.00860	--	1
CI6-BZ#138	ND		ug/l	0.00108	--	1
CI7-BZ#187	ND		ug/l	0.00108	--	1
CI6-BZ#128	ND		ug/l	0.00108	--	1
CI7-BZ#180	ND		ug/l	0.00108	--	1
CI7-BZ#170	ND		ug/l	0.00161	--	1
CI8-BZ#195	ND		ug/l	0.00108	--	1
CI9-BZ#206	ND		ug/l	0.00108	--	1
CI10-BZ#209	ND		ug/l	0.00161	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	82		30-150
BZ 198	83		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-04  
 Client ID: WQ-DPC-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 05:23  
 Analyst: JW

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl3-BZ#18	0.12428		ug/l	0.01183	--	1
Cl6-BZ#153	ND		ug/l	0.00108	--	1

DBOB	82	30-150
BZ 198	83	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-07  
 Client ID: WQ-TPC-002-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 15:56  
 Analyst: JW

Date Collected: 07/02/13 08:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.14683		ug/l	0.02400	--	2
CI3-BZ#28	0.18283		ug/l	0.00500	--	2
CI4-BZ#52	0.15215		ug/l	0.00300	--	2
CI4-BZ#66	0.05256		ug/l	0.00200	--	2
CI5-BZ#118	0.02510		ug/l	0.00200	--	2
CI6-BZ#138	0.01580		ug/l	0.00200	--	2
CI6-BZ#128	0.00360		ug/l	0.00200	--	2
CI7-BZ#170	0.00302		ug/l	0.00300	--	2
CI8-BZ#195	ND		ug/l	0.00200	--	2
CI9-BZ#206	ND		ug/l	0.00200	--	2
CI10-BZ#209	ND		ug/l	0.00300	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	89		30-150
BZ 198	83		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-07  
 Client ID: WQ-TPC-002-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 15:56  
 Analyst: JW

Date Collected: 07/02/13 08:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.21568		ug/l	0.02200	--	2
CI4-BZ#44	0.06482		ug/l	0.00300	--	2
CI5-BZ#101	0.03999		ug/l	0.00200	--	2
CI6-BZ#153	0.02436		ug/l	0.00200	--	2
CI5-BZ#105	ND		ug/l	0.01600	--	2
CI7-BZ#187	0.00473		ug/l	0.00200	--	2
CI7-BZ#180	0.00387		ug/l	0.00200	--	2

DBOB	89	30-150
BZ 198	83	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-08  
**Client ID:** WQ-DPC-002-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 06:51  
**Analyst:** JW

**Date Collected:** 07/02/13 08:45  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.05743		ug/l	0.01257	--	1
CI3-BZ#28	0.01491		ug/l	0.00262	--	1
CI4-BZ#52	0.02027		ug/l	0.00157	--	1
CI4-BZ#44	0.01109		ug/l	0.00157	--	1
CI4-BZ#66	0.00478		ug/l	0.00105	--	1
CI5-BZ#101	0.00156		ug/l	0.00105	--	1
CI5-BZ#118	ND		ug/l	0.00105	--	1
CI5-BZ#105	ND		ug/l	0.00838	--	1
CI6-BZ#138	ND		ug/l	0.00105	--	1
CI7-BZ#187	ND		ug/l	0.00105	--	1
CI6-BZ#128	ND		ug/l	0.00105	--	1
CI7-BZ#180	ND		ug/l	0.00105	--	1
CI7-BZ#170	ND		ug/l	0.00157	--	1
CI8-BZ#195	ND		ug/l	0.00105	--	1
CI9-BZ#206	ND		ug/l	0.00105	--	1
CI10-BZ#209	ND		ug/l	0.00157	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	90		30-150
BZ 198	85		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-08  
**Client ID:** WQ-DPC-002-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 06:51  
**Analyst:** JW

**Date Collected:** 07/02/13 08:45  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl3-BZ#18	0.08908		ug/l	0.01152	--	1
Cl6-BZ#153	ND		ug/l	0.00105	--	1

DBOB	90	30-150
BZ 198	85	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-13  
**Client ID:** WQ-TPC-003-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 07:36  
**Analyst:** JW

**Date Collected:** 07/02/13 10:45  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.07766		ug/l	0.01231	--	1
CI3-BZ#18	0.13688		ug/l	0.01128	--	1
CI3-BZ#28	0.10813		ug/l	0.00256	--	1
CI4-BZ#52	0.09237		ug/l	0.00154	--	1
CI4-BZ#66	0.02245		ug/l	0.00103	--	1
CI5-BZ#101	0.02133		ug/l	0.00103	--	1
CI5-BZ#118	0.00825		ug/l	0.00103	--	1
CI6-BZ#138	0.00623		ug/l	0.00103	--	1
CI6-BZ#128	0.00165		ug/l	0.00103	--	1
CI7-BZ#170	ND		ug/l	0.00154	--	1
CI8-BZ#195	ND		ug/l	0.00103	--	1
CI9-BZ#206	ND		ug/l	0.00103	--	1
CI10-BZ#209	ND		ug/l	0.00154	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	80		30-150
BZ 198	80		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-13  
**Client ID:** WQ-TPC-003-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 07:36  
**Analyst:** JW

**Date Collected:** 07/02/13 10:45  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI4-BZ#44	0.03291		ug/l	0.00154	--	1
CI6-BZ#153	0.00873		ug/l	0.00103	--	1
CI5-BZ#105	ND		ug/l	0.00821	--	1
CI7-BZ#187	0.00222		ug/l	0.00103	--	1
CI7-BZ#180	0.00135		ug/l	0.00103	--	1

DBOB	80	30-150
BZ 198	80	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-14  
 Client ID: WQ-DPC-003-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 08:20  
 Analyst: JW

Date Collected: 07/02/13 10:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.04924		ug/l	0.01200	--	1
CI3-BZ#18	0.15796		ug/l	0.01100	--	1
CI3-BZ#28	0.02337		ug/l	0.00250	--	1
CI4-BZ#52	0.02958		ug/l	0.00150	--	1
CI4-BZ#44	0.01022		ug/l	0.00150	--	1
CI5-BZ#118	ND		ug/l	0.00100	--	1
CI5-BZ#105	ND		ug/l	0.00800	--	1
CI6-BZ#138	ND		ug/l	0.00100	--	1
CI7-BZ#187	ND		ug/l	0.00100	--	1
CI6-BZ#128	ND		ug/l	0.00100	--	1
CI7-BZ#180	ND		ug/l	0.00100	--	1
CI7-BZ#170	ND		ug/l	0.00150	--	1
CI8-BZ#195	ND		ug/l	0.00100	--	1
CI9-BZ#206	ND		ug/l	0.00100	--	1
CI10-BZ#209	ND		ug/l	0.00150	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	91		30-150
BZ 198	82		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-14  
 Client ID: WQ-DPC-003-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 08:20  
 Analyst: JW

Date Collected: 07/02/13 10:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
Cl4-BZ#66	0.00410		ug/l	0.00100	--	1
Cl5-BZ#101	0.00292		ug/l	0.00100	--	1
Cl6-BZ#153	ND		ug/l	0.00100	--	1

DBOB	91	30-150
BZ 198	82	30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-19  
 Client ID: WQ-TPC-004-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 16:40  
 Analyst: JW

Date Collected: 07/02/13 11:10  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
<b>PCB Congeners (NOAA List) - Mansfield Lab</b>						
CI2-BZ#8	0.15607		ug/l	0.02553	--	2
CI3-BZ#28	0.38874		ug/l	0.00532	--	2
CI4-BZ#52	0.36724		ug/l	0.00319	--	2
CI4-BZ#66	0.17237		ug/l	0.00213	--	2
CI5-BZ#118	0.10708		ug/l	0.00213	--	2
CI6-BZ#138	0.06618		ug/l	0.00213	--	2
CI6-BZ#128	0.01520		ug/l	0.00213	--	2
CI7-BZ#180	0.01653		ug/l	0.00213	--	2
CI7-BZ#170	0.01277		ug/l	0.00319	--	2
CI8-BZ#195	ND		ug/l	0.00213	--	2
CI9-BZ#206	0.00250		ug/l	0.00213	--	2
CI10-BZ#209	ND		ug/l	0.00319	--	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	87		30-150
BZ 198	83		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-19  
**Client ID:** WQ-TPC-004-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 16:40  
**Analyst:** JW

**Date Collected:** 07/02/13 11:10  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI3-BZ#18	0.32300		ug/l	0.02340	--	2
CI4-BZ#44	0.15780		ug/l	0.00319	--	2
CI5-BZ#101	0.13858		ug/l	0.00213	--	2
CI6-BZ#153	0.09663		ug/l	0.00213	--	2
CI5-BZ#105	0.01819		ug/l	0.01702	--	2
CI7-BZ#187	0.01881		ug/l	0.00213	--	2
DBOB	87			30-150		
BZ 198	83			30-150		

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

Lab ID: L1312402-20  
 Client ID: WQ-DPC-004-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water  
 Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 09:49  
 Analyst: JW

Date Collected: 07/02/13 11:10  
 Date Received: 07/02/13  
 Field Prep: Not Specified  
 Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI4-BZ#44	0.00834		ug/l	0.00156	--	1
CI4-BZ#66	0.00533		ug/l	0.00104	--	1
CI5-BZ#118	0.00197		ug/l	0.00104	--	1
CI5-BZ#105	ND		ug/l	0.00833	--	1
CI6-BZ#138	ND		ug/l	0.00104	--	1
CI7-BZ#187	ND		ug/l	0.00104	--	1
CI6-BZ#128	ND		ug/l	0.00104	--	1
CI7-BZ#180	ND		ug/l	0.00104	--	1
CI7-BZ#170	ND		ug/l	0.00156	--	1
CI8-BZ#195	ND		ug/l	0.00104	--	1
CI9-BZ#206	ND		ug/l	0.00104	--	1
CI10-BZ#209	ND		ug/l	0.00156	--	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
DBOB	81		30-150
BZ 198	81		30-150

**Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13**SAMPLE RESULTS**

**Lab ID:** L1312402-20  
**Client ID:** WQ-DPC-004-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water  
**Analytical Method:** 1,8082A  
**Analytical Date:** 07/11/13 09:49  
**Analyst:** JW

**Date Collected:** 07/02/13 11:10  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified  
**Extraction Method:** EPA 3510C  
**Extraction Date:** 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners (NOAA List) - Mansfield Lab						
CI2-BZ#8	0.01966		ug/l	0.01250	--	1
CI3-BZ#18	0.04395		ug/l	0.01146	--	1
CI3-BZ#28	0.00746		ug/l	0.00260	--	1
CI4-BZ#52	0.01427		ug/l	0.00156	--	1
CI5-BZ#101	0.00444		ug/l	0.00104	--	1
CI6-BZ#153	0.00204		ug/l	0.00104	--	1

DBOB	81	30-150
BZ 198	81	30-150

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8082A  
Analytical Date: 07/11/13 02:25  
Analyst: JW

Extraction Method: EPA 3510C  
Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 03-04,07-08,13-14,19-20 Batch: WG620286-1					
Cl2-BZ#8	ND		ug/l	0.01200	--
Cl3-BZ#18	ND		ug/l	0.01100	--
Cl3-BZ#28	ND		ug/l	0.00250	--
Cl4-BZ#52	ND		ug/l	0.00150	--
Cl4-BZ#44	ND		ug/l	0.00150	--
Cl4-BZ#66	ND		ug/l	0.00100	--
Cl5-BZ#101	ND		ug/l	0.00100	--
Cl5-BZ#118	ND		ug/l	0.00100	--
Cl5-BZ#105	ND		ug/l	0.00800	--
Cl6-BZ#138	ND		ug/l	0.00100	--
Cl7-BZ#187	ND		ug/l	0.00100	--
Cl6-BZ#128	ND		ug/l	0.00100	--
Cl7-BZ#180	ND		ug/l	0.00100	--
Cl7-BZ#170	ND		ug/l	0.00150	--
Cl8-BZ#195	ND		ug/l	0.00100	--
Cl9-BZ#206	ND		ug/l	0.00100	--
Cl10-BZ#209	ND		ug/l	0.00150	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	92		30-150
BZ 198	85		30-150

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Analytical Method: 1,8082A  
 Analytical Date: 07/11/13 02:25  
 Analyst: JW

Extraction Method: EPA 3510C  
 Extraction Date: 07/09/13 09:41

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners (NOAA List) - Mansfield Lab for sample(s): 03-04,07-08,13-14,19-20 Batch: WG620286-1					
Cl6-BZ#153	ND		ug/l	0.00100	--

Surrogate	%Recovery	Qualifier	Acceptance Criteria
DBOB	92		30-150
BZ 198	85		30-150

## Lab Control Sample Analysis

Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 03-04,07-08,13-14,19-20 Batch: WG620286-2 WG620286-3								
Cl2-BZ#8	66		69		40-140	5		30
Cl3-BZ#18	68		72		40-140	5		30
Cl3-BZ#28	84		86		40-140	2		30
Cl4-BZ#52	72		74		40-140	3		30
Cl4-BZ#44	75		77		40-140	2		30
Cl4-BZ#66	83		83		40-140	1		30
Cl5-BZ#101	78		78		40-140	1		30
Cl5-BZ#118	87		88		40-140	1		30
Cl5-BZ#105	93		93		40-140	0		30
Cl6-BZ#138	87		89		40-140	2		30
Cl7-BZ#187	77		79		40-140	3		30
Cl7-BZ#180	87		89		40-140	2		30
Cl7-BZ#170	88		89		40-140	1		30
Cl8-BZ#195	82		84		40-140	2		30

Surrogate	LCS		LCSD		Acceptance Criteria
	%Recovery	Qual	%Recovery	Qual	
DBOB	74		80		30-150
BZ 198	82		84		30-150

### Lab Control Sample Analysis Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
PCB Congeners (NOAA List) - Mansfield Lab Associated sample(s): 03-04,07-08,13-14,19-20 Batch: WG620286-2 WG620286-3								
Cl6-BZ#153	78		78		40-140	0		30
Cl6-BZ#128	90		89		40-140	1		30
Cl9-BZ#206	82		81		40-140	1		30
Cl10-BZ#209	71		70		40-140	2		30

DBOB	74	80	30-150
BZ 198	82	84	30-150

# INORGANICS & MISCELLANEOUS

Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

## SAMPLE RESULTS

Lab ID: L1312402-01  
 Client ID: WQ-TSS-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	16.7		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-02  
 Client ID: WQ-TUR-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	3.8		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-06  
 Client ID: WQ-TOC-001-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 08:15  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-10  
 Client ID: WQ-TSS-002-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 08:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	17.0		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-11  
 Client ID: WQ-TUR-002-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 08:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	7.7		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

**SAMPLE RESULTS**

**Lab ID:** L1312402-12  
**Client ID:** WQ-TOC-002-070213  
**Sample Location:** NEW BEDFORD, MA  
**Matrix:** Water

**Date Collected:** 07/02/13 08:45  
**Date Received:** 07/02/13  
**Field Prep:** Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-15  
 Client ID: WQ-TUR-003-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 10:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	2.2		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-16  
 Client ID: WQ-TSS-003-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 10:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
<b>General Chemistry - Mansfield Lab</b>										
Solids, Total Suspended	5.30		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-18  
 Client ID: WQ-TOC-003-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 10:45  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	ND		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-21  
 Client ID: WQ-TUR-004-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 11:10  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Turbidity	34		NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-22  
 Client ID: WQ-TSS-004-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 11:10  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total Suspended	50.7		mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**SAMPLE RESULTS**

Lab ID: L1312402-24  
 Client ID: WQ-TOC-004-070213  
 Sample Location: NEW BEDFORD, MA  
 Matrix: Water

Date Collected: 07/02/13 11:10  
 Date Received: 07/02/13  
 Field Prep: Not Specified

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Total Organic Carbon	15.		mg/l	10	--	20	-	07/03/13 07:18	1,9060	DW



Project Name: NEW BEDFORD WATER QUALITY

Lab Number: L1312402

Project Number: TO-0010-13

Report Date: 07/15/13

**Method Blank Analysis**  
**Batch Quality Control**

Parameter	Result Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 06,12,18,24 Batch: WG619400-1									
Total Organic Carbon	ND	mg/l	0.50	--	1	-	07/03/13 07:18	1,9060	DW
General Chemistry - Mansfield Lab for sample(s): 01,10,16,22 Batch: WG620167-1									
Solids, Total Suspended	ND	mg/l	1.00	NA	1	-	07/03/13 13:00	30,2540D(M)	PS
General Chemistry - Mansfield Lab for sample(s): 02,11,15,21 Batch: WG620170-1									
Turbidity	ND	NTU	0.40	--	1	-	07/03/13 13:00	8,180.1	PS

**Lab Control Sample Analysis****Batch Quality Control****Project Name:** NEW BEDFORD WATER QUALITY**Lab Number:** L1312402**Project Number:** TO-0010-13**Report Date:** 07/15/13

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 06,12,18,24 Batch: WG619400-2								
Total Organic Carbon	96		-		90-110	-		
General Chemistry - Mansfield Lab Associated sample(s): 01,10,16,22 Batch: WG620167-2								
Solids, Total Suspended	95		-		85-115	-		20
General Chemistry - Mansfield Lab Associated sample(s): 02,11,15,21 Batch: WG620170-2								
Turbidity	107		-		90-110	-		10

### Matrix Spike Analysis Batch Quality Control

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 06,12,18,24 QC Batch ID: WG619400-4 QC Sample: L1312140-03 Client ID: MS Sample												
Total Organic Carbon	20	40	64	109		-	-		80-120	-		20

## Lab Duplicate Analysis

Batch Quality Control

Project Name: NEW BEDFORD WATER QUALITY

Project Number: TO-0010-13

Lab Number: L1312402

Report Date: 07/15/13

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 06,12,18,24 QC Batch ID: WG619400-3 QC Sample: L1312140-03 Client ID: DUP Sample						
Total Organic Carbon	20	20.	mg/l	0		20
General Chemistry - Mansfield Lab Associated sample(s): 01,10,16,22 QC Batch ID: WG620167-3 QC Sample: L1312296-16 Client ID: DUP Sample						
Solids, Total Suspended	20.0	21.7	mg/l	8		20
General Chemistry - Mansfield Lab Associated sample(s): 02,11,15,21 QC Batch ID: WG620170-3 QC Sample: L1312296-03 Client ID: DUP Sample						
Turbidity	3.2	3.1	NTU	3		10

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

### Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Reagent H2O Preserved Vials Frozen on: NA

#### Cooler Information Custody Seal

##### Cooler

A Absent  
 B Absent

#### Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1312402-01A	Plastic 500ml unpreserved	A	7	5.4	Y	Absent	A2-TSS-2540D(M)(7)
L1312402-02A	Plastic 500ml unpreserved	A	N/A	5.4	Y	Absent	A2-TURBIDITY-180.1(2)
L1312402-03A	Amber 1000ml unpreserved	A	7	5.4	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-03B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-04A	Amber 1000ml unpreserved	A	7	5.4	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-04B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-04X1	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-04X2	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-05A	Plastic 500ml HNO3 preserved	A	<2	5.4	Y	Absent	HOLD(14)
L1312402-06A	Vial H2SO4 preserved	A	N/A	5.4	Y	Absent	TOC-9060(28)
L1312402-06B	Vial H2SO4 preserved	A	N/A		Y	Absent	TOC-9060(28)
L1312402-07A	Amber 1000ml unpreserved	A	7	5.4	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-07B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-08A	Amber 1000ml unpreserved	A	7	5.4	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-08B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-08X1	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-08X2	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-09A	Plastic 500ml HNO3 preserved	A	<2	5.4	Y	Absent	HOLD(14)
L1312402-10A	Plastic 500ml unpreserved	A	7	5.4	Y	Absent	A2-TSS-2540D(M)(7)
L1312402-11A	Plastic 500ml unpreserved	A	N/A	5.4	Y	Absent	A2-TURBIDITY-180.1(2)
L1312402-12A	Vial H2SO4 preserved	A	N/A	5.4	Y	Absent	TOC-9060(28)
L1312402-12B	Vial H2SO4 preserved	A	N/A		Y	Absent	TOC-9060(28)
L1312402-13A	Amber 1000ml unpreserved	B	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-13B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-14A	Amber 1000ml unpreserved	B	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-14B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

### Container Information

Container ID	Container Type	Cooler	pH	Temp deg C	Pres	Seal	Analysis(*)
L1312402-14X1	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-14X2	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-15A	Plastic 500ml unpreserved	B	N/A	5.7	Y	Absent	A2-TURBIDITY-180.1(2)
L1312402-16A	Plastic 500ml unpreserved	B	7	5.7	Y	Absent	A2-TSS-2540D(M)(7)
L1312402-17A	Plastic 500ml HNO3 preserved	B	<2	5.7	Y	Absent	HOLD(14)
L1312402-18A	Vial H2SO4 preserved	B	N/A	5.7	Y	Absent	TOC-9060(28)
L1312402-18B	Vial H2SO4 preserved	A	N/A		Y	Absent	TOC-9060(28)
L1312402-19A	Amber 1000ml unpreserved	B	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-19B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-20A	Amber 1000ml unpreserved	B	7	5.7	Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-20B	Amber 1000ml unpreserved	A	7		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-20X1	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-20X2	Glass 100ml unpreserved split	A	N/A		Y	Absent	A2-PCBCONG-8082-NOAA(7)
L1312402-21A	Plastic 500ml unpreserved	B	N/A	5.7	Y	Absent	A2-TURBIDITY-180.1(2)
L1312402-22A	Plastic 500ml unpreserved	B	7	5.7	Y	Absent	A2-TSS-2540D(M)(7)
L1312402-23A	Plastic 500ml HNO3 preserved	B	<2	5.7	Y	Absent	HOLD(14)
L1312402-24A	Vial H2SO4 preserved	B	N/A	5.7	Y	Absent	TOC-9060(28)
L1312402-24B	Vial H2SO4 preserved	A	N/A		Y	Absent	TOC-9060(28)

**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

## GLOSSARY

### Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NI	- Not Ignitable.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

### Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

### Terms

**Analytical Method:** Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

### Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than five times (5x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit.
- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The RPD between the results for the two columns exceeds the method-specified criteria; however, the lower value has been reported

**Report Format:** Data Usability Report



**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

**Data Qualifiers**

due to obvious interference.

- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- J** - Estimated value. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the reporting limit (RL) for the sample.

Report Format: Data Usability Report

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**Project Name:** NEW BEDFORD WATER QUALITY  
**Project Number:** TO-0010-13

**Lab Number:** L1312402  
**Report Date:** 07/15/13

## REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 8 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. 19th Edition. 1995.
- 30 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WPCF. 18th Edition. 1992.

## LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



## Certificate/Approval Program Summary

Last revised August 3, 2012 – Mansfield Facility

The following list includes only those analytes/methods for which certification/approval is currently held. For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### Connecticut Department of Public Health Certificate/Lab ID: PH-0141.

*Wastewater/Non-Potable Water* (Inorganic Parameters: pH, Turbidity, Conductivity, Alkalinity, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Suspended Solids (non-filterable). Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables, Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, PAHs, Haloethers, Chlorinated Hydrocarbons, Volatile Organics.)

*Solid Waste/Soil* (Inorganic Parameters: pH, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Titanium, Vanadium, Zinc, Total Organic Carbon, Corrosivity, TCLP 1311, SPLP 1312. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Volatile Organics, Acid Extractables, Benzidines, Phthalates, Nitrosamines, Nitroaromatics & Cyclic Ketones, PAHs, Haloethers, Chlorinated Hydrocarbons.)

### Florida Department of Health Certificate/Lab ID: E87814. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, SM2540G.)

*Solid & Chemical Materials* (Inorganic Parameters: 6020, 7470, 7471, 9045. Organic Parameters: EPA 8260, 8270, 8082, 8081.)

*Air & Emissions* (EPA TO-15.)

### Louisiana Department of Environmental Quality Certificate/Lab ID: 03090. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 245.7, 1631E, 3020A, 6020A, 7470A, 9040, 9050A, SM2320B, 2540D, 2540G, 4500H-B, Organic Parameters: EPA 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 5030B, 8015D, 3570, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 1311, 3050B, 3051A, 3060A, 6020A, 7196A, 7470A, 7471B, 7474, 9040B, 9045C, 9060. Organic Parameters: EPA 3540C, 3570, 3580A, 3630C, 3640A, 3660, 3665A, 5035, 8015D, 8081B, 8082A, 8260B, 8270C, 8270D.)

*Biological Tissue* (Inorganic Parameters: EPA 6020A. Organic Parameters: EPA 3570, 3510C, 3610B, 3630C, 3640A, 8270C, 8270D.)

*Air & Emissions* (EPA TO-15.)

### New Hampshire Department of Environmental Services Certificate/Lab ID: 2206. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: EPA 180.1, 1631E, 6020A, 7470A, 9040B, 9050A, SM2540D, 2540G, 4500H+B, 2320B, 3020A, . Organic Parameters: EPA 3510C, 3630C, 3640A, 3660B, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 3050B, 3051A, 6020A, 7471B, 9040B, 9045C. Organic Parameters: SW-846 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8015D, 8082A, 8081B.)

### New Jersey Department of Environmental Protection Certificate/Lab ID: MA015. **NELAP Accredited.**

*Non-Potable Water* (Inorganic Parameters: SW-846 1312, 3020A, SM2320B, SM2540D, 2540G, 4500H-B, EPA 180.1, 1631E, SW-846 7470A, 9040C, 6020A, 9050A. Organic Parameters: SW-846 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D)

*Solid & Chemical Materials* (Inorganic Parameters: SW-846 1311, 1312, 3050B, 3051A, 6020A, 7471B, 7474, 9040B, 9040C, 9045C, 9045D, 9060. Organic Parameters: SW-846 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8081B, 8082A, 8270C, 8270D, 8015D.)

*Atmospheric Organic Parameters* (EPA 3C, TO-15, TO-10A, TO-13A-SIM.)

*Biological Tissue* (Inorganic Parameters: SW-846 6020A. Organic Parameters: SW-846 8270C, 8270D, 3510C, 3570, 3610C, 3630C, 3640A)

**New York Department of Health** Certificate/Lab ID: 11627. **NELAP Accredited** -

*Non-Potable Water* (Inorganic Parameters: SM2320B, SM2540D, 6020A, 1631E, 7470A, 9050A, EPA 180.1, 3020A. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 3510C.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 6020A, 7471B, 7474, 9040C, 9045D. Organic Parameters: EPA 8270C, 8270D, 8081B, 8082A, 1311, 3050B, 3580A, 3570, 3051A.)

*Air & Emissions* (EPA TO-15, TO-10A.)

**Pennsylvania** Certificate/Lab ID: 68-02089 **NELAP Accredited** -

*Non-Potable Water* (Inorganic Parameters: 1312, 1631E, 180.1, 3020A, 6020A, 7470A, 9040B, 9050A, 2320B, 2540D, 2540G, SM4500H+-B. Organic Parameters: 3510C, 3580A, 3630C, 3640A, 3660B, 3665A, 8015D, 8081B, 8082A, 8270C, 8270D .)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3051A, 6020A, 7471B, 7474 9040B, 9045C, 9060. Organic Parameters: EPA3050B, 3540C, 3570, 3580A, 3630C, 3640A, 3660B, 3665A, 8270C, 8270D, 8081B, 8015D, 8082A.)

**Rhode Island Department of Health** Certificate/Lab ID: LAO00299. **NELAP Accredited via NJ-DEP** -

Refer to NJ-DEP Certificate for Non-Potable Water.

**Texas Commission of Environmental Quality** Certificate/Lab ID: T104704419-08-TX. **NELAP Accredited** -

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 1311, 9040, 9045, 9060. Organic Parameters: EPA 8015, 8270, 8081, 8082.)

*Air* (Organic Parameters: EPA TO-15)

**Virginia Division of Consolidated Laboratory Services** Certificate/Lab ID:460194. **NELAP Accredited** -

*Non-Potable Water* (Inorganic Parameters:EPA 3020A, 6020A, 245.7, 9040B. Organic Parameters: EPA 3510C, 3640A, 3660B, 3665A, 8270C, 8270D, 8082A, 8081B, 8015D.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020A,7470A,7471B,9040B,9045C,3050B,3051, 9060. Organic Parameters: EPA 3540C, 3580A, 3630C, 3640A, 3660B, 3665A, 3570, 8270C, 8270D, 8081B, 8082A, 8015D.)

**Washington State Department of Ecology** Certificate/Lab ID: C954. *Non-Potable Water* (Inorganic Parameters: SM2540D, 180.1, 1631E.)

*Solid & Chemical Materials* (Inorganic Parameters: EPA 6020, 7470, 7471, 7474, 9045C, 9050A, 9060. Organic Parameters: EPA 8081, 8082, 8015, 8270.)

**U.S. Army Corps of Engineers**

**Department of Defense, L-A-B** Certificate/Lab ID: L2217.01.

*Non-Potable Water* (Inorganic Parameters: EPA 6020A, SM4500H-B. Organic Parameters: 3020A, 3510C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH, 8082A, 8081B, 8015D-SHC, 8015D.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 3050B, 6020A, 7471A, 9045C, 9060, SM 2540G, ASTM D422-63. Organic Parameters: EPA 3580A, 3570, 3540C, 8270C, 8270D, 8270C-ALK-PAH, 8270D-ALK-PAH 8082A, 8081B, 8015D-SHC, 8015D.

*Air & Emissions* (EPA TO-15.)

**Analytes Not Accredited by NELAP**

Certification is not available by NELAP for the following analytes: **8270C**: Biphenyl. **TO-15**: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 2-Methylnaphthalene, 1-Methylnaphthalene.

## Certificate/Approval Program Summary

Last revised July 2, 2013 - Westboro Facility

The following list includes only those analytes/methods for which certification/approval is currently held.  
For a complete listing of analytes for the referenced methods, please contact your Alpha Customer Service Representative.

### Connecticut Department of Public Health Certificate/Lab ID: PH-0574. NELAP Accredited Solid Waste/Soil.

*Drinking Water* (Inorganic Parameters: Color, pH, Turbidity, Conductivity, Alkalinity, Chloride, Free Residual Chlorine, Fluoride, Calcium Hardness, Sulfate, Nitrate, Nitrite, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Nickel, Selenium, Silver, Sodium, Thallium, Zinc, Total Dissolved Solids, Total Organic Carbon, Total Cyanide, Perchlorate. Organic Parameters: Volatile Organics 524.2, Total Trihalomethanes 524.2, 1,2-Dibromo-3-chloropropane (DBCP) 504.1, Ethylene Dibromide (EDB) 504.1, 1,4-Dioxane (Mod 8270). Microbiology Parameters: Total Coliform-MF mEndo (SM9222B), Total Coliform – Colilert (SM9223, Enumeration and P/A), E. Coli. – Colilert (SM9223, Enumeration and P/A), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform-EC Medium (SM 9221E).

*Wastewater/Non-Potable Water* (Inorganic Parameters: Color, pH, Conductivity, Acidity, Alkalinity, Chloride, Total Residual Chlorine, Fluoride, Total Hardness, Silica, Sulfate, Sulfide, Ammonia, Kjeldahl Nitrogen, Nitrate, Nitrite, O-Phosphate, Total Phosphorus, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, Total Residue (Solids), Total Dissolved Solids, Total Suspended Solids (non-filterable), BOD, CBOD, COD, TOC, Total Cyanide, Phenolics, Foaming Agents (MBAS), Bromide, Oil and Grease. Organic Parameters: PCBs, Organochlorine Pesticides, Technical Chlordane, Toxaphene, Acid Extractables (Phenols), Benzidines, Phthalate Esters, Nitrosamines, Nitroaromatics & Isophorone, Polynuclear Aromatic Hydrocarbons, Haloethers, Chlorinated Hydrocarbons, Volatile Organics, TPH (HEM/SGT), CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH. Microbiology Parameters: Total Coliform – MF mEndo (SM9222B), Total Coliform – MTF (SM9221B), E. Coli – Colilert (SM9223 Enumeration), HPC – Pour Plate (SM9215B), Fecal Coliform – MF m-FC (SM9222D), Fecal Coliform – A-1 Broth (SM9221E), Enterococcus - Enterolert.

*Solid Waste/Soil* (Inorganic Parameters: pH, Sulfide, Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Hexavalent Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Tin, Vanadium, Zinc, Total Cyanide, Ignitability, Phenolics, Corrosivity, TCLP Leach (1311), SPLP Leach (1312 metals only), Reactivity. Organic Parameters: PCBs, PCBs in Oil, Organochlorine Pesticides, Technical Chlordane, Toxaphene, CT-Extractable Petroleum Hydrocarbons (ETPH), MA-EPH, MA-VPH, Dicamba, 2,4-D, 2,4,5-T, 2,4,5-TP(Silvex), Dalapon, Volatile Organics (SW 8260), Acid Extractables (Phenols) (SW 8270), Benzidines (SW 8270), Phthalates (SW 8270), Nitrosamines (SW 8270), Nitroaromatics & Cyclic Ketones (SW 8270), PAHs (SW 8270), Haloethers (SW 8270), Chlorinated Hydrocarbons (SW 8270).)

### State of Illinois Certificate/Lab ID: 003155. NELAP Accredited.

*Drinking Water* (Inorganic Parameters: SM2120B, 2320B, 2510B, 2540C, SM4500CN-CE, 4500F-C, 4500H-B, 4500NO3-F, 5310C, EPA 200.7, 200.8, 245.1, 300.0. Organic Parameters: EPA 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: SM2120B, 2310B, 2320B, 2340B, 2510B, 2540B, 2540C, 2540D, SM4500CL-E, 4500CN-E, 4500F-C, 4500H-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-E, 4500S-D, 4500SO3-B, 5210B, 5220D, 5310C, 5540C, EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1. Organic Parameters: EPA 608, 624, 625.)

*Hazardous and Solid Waste* (Inorganic Parameters: EPA 1010A, 1030, 1311, 1312, 6010C, 6020A, 7196A, 7470A, 7471B, 9012B, 9014, 9038, 9040C, 9045D, 9050A, 9065, 9251. Organic Parameters: 8011 (NPW only), 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330.)

### Maine Department of Human Services Certificate/Lab ID: 2009024.

*Drinking Water* (Inorganic Parameters: SM9215B, 9222D, 9223B, EPA 180.1, 353.2, SM2120B, 2130B, 2320B, 2510C, 2540C, 4500CI-D, 4500CN-C, 4500CN-E, 4500F-C, 4500H+B, 4500NO3-F, 5310C, EPA 200.7, EPA 200.8, 245.1, EPA 300.0. Organic Parameters: 504.1, 524.2.)

*Wastewater/Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 8315A, 9010C, SM2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CI-E, 4500CN-C, 4500CN-E, 4500F-B, 4500F-C, 4500H+B, 4500Norg-C, 4500NH3-B, 4500NH3-H, 4500NO2-B, 4500NO3-F, 4500P-B, 4500P-E, 4500S2-D, 4500SO3-B, 5540C, 5210B, 5220D, 5310C, 9010B, 9030B, 9040C, 7470A, 7196A, 2340B, EPA 200.7, 6010C, 200.8, 6020A, 245.1, 1311, 1312, 3005A, Enterolert, 9223B, 9222D. Organic Parameters: 608, 624, 625, 8011, 8081B, 8082A, 8151A, 8260C, 8270D, 8315A, 8330, 3510C, 3630C, 5030B, ME-DRO, ME-GRO, MA-EPH, MA-VPH.)

*Solid Waste/Soil (Inorganic Parameters:* 9010B, 9012A, 9014, 9040B, 9045C, 6010C, 6020A, 7471B, 7196A, 9050A, 1010, 1030, 9065, 1311, 1312, 3005A, 3050B, 9038, 9251. Organic Parameters: ME-DRO, ME-GRO, MA-EPH, MA-VPH, 8260C, 8270D, 8330, 8151A, 8081B, 8082A, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035.)

**Massachusetts Department of Environmental Protection Certificate/Lab ID: M-MA086.**

*Drinking Water (Inorganic Parameters:* (EPA 200.8 for: Sb,As,Ba,Be,Cd,Cr,Cu,Pb,Ni,Se,Tl) (EPA 200.7 for: Ba,Be,Ca,Cd,Cr,Cu,Na,Ni) 245.1, (300.0 for: Nitrate-N, Fluoride, Sulfate); (EPA 353.2 for: Nitrate-N, Nitrite-N); (SM4500NO3-F for: Nitrate-N and Nitrite-N); 4500F-C, 4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, 2320B, SM2540C, SM4500H-B. Organic Parameters: (EPA 524.2 for: Trihalomethanes, Volatile Organics); (504.1 for: 1,2-Dibromoethane, 1,2-Dibromo-3-Chloropropane), EPA 332. Microbiology Parameters: SM9215B; ENZ. SUB. SM9223; ColilertQT SM9223B; MF-SM9222D.)

*Non-Potable Water (Inorganic Parameters:* (EPA 200.8 for: Al,Sb,As,Be,Cd,Cr,Cu,Pb,Mn,Ni,Se,Ag,Tl,Zn); (EPA 200.7 for: Al,Sb,As,Be,Cd,Ca,Cr,Co,Cu,Fe,Pb,Mg,Mn,Mo,Ni,K,Se,Ag,Na,Sr,Ti,Tl,V,Zn); 245.1, SM4500H,B, EPA 120.1, SM2510B, 2540C, 2340B, 2320B, 4500CL-E, 4500F-BC, 426C, SM4500NH3-BH, (EPA 350.1 for: Ammonia-N), LACHAT 10-107-06-1-B for Ammonia-N, SM4500NO3-F, 353.2 for Nitrate-N, SM4500NH3-BC-NES, EPA 351.1, SM4500P-E, 4500P-B,E, 5220D, EPA 410.4, SM 5210B, 5310C, 4500CL-D, EPA 1664, SM14 510AC, EPA 420.1, SM4500-CN-CE, SM2540D.

Organic Parameters: (EPA 624 for Volatile Halocarbons, Volatile Aromatics),(608 for: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT,Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs-Water), (EPA 625 for SVOC Acid Extractables and SVOC Base/Neutral Extractables), 600/4-81-045-PCB-Oil. Microbiology Parameters: (ColilertQT SM9223B; Enterolert-QT: SM9222D-MF.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 200307. NELAP Accredited.**

*Drinking Water (Inorganic Parameters:* SM 9222B, 9223B, 9215B, EPA 200.7, 200.8, 300.0, SM4500CN-E, 4500H+B, 4500NO3-F, 2320B, 2510B, 2540C, 4500F-C, 5310C, 2120B, EPA 332.0. Organic Parameters: 504.1, 524.2.)

*Non-Potable Water (Inorganic Parameters:* SM9222D, 9221B, 9222B, 9221E-EC, EPA 3005A, 200.7, 200.8, 245.1, SW-846 6010C, 6020A, 7196A, 7470A, SM3500-CR-D, EPA 120.1, 300.0, 350.1, 350.2, 351.1, 353.2, 410.4, 420.1, 426C, 1664A, SW-846 9010B, 9010C, 9030, 9040B, 9040C, SM2120B, 2310B, 2320B, 2340B, 2540B, 2540D, 4500H+B, 4500CL-E, 4500CN-E, 4500NH3-H, 4500NO3-F, 4500NO2-B, 4500P-E, 4500-S2-D, 4500SO3-B, 5210B, 5220D, 2510B, 2540C, 4500F-C, 5310C, 5540C, LACHAT 10-204-00-1-A, LACHAT 10-107-06-2-D, 3060A. Organic Parameters: SW-846 3510C, 3630C, 5030B, 8260C, 8270D, 8330, EPA 624, 625, 608, SW-846 8082A, 8081B, 8015C, 8151A, 8330, 8270D-SIM.)

*Solid & Chemical Materials (Inorganic Parameters:* SW-846 6010C, 6020A, 7196A, 7471B, 1010, 1010A, 1030, 9010C, 9012B, 9014, 9030B, 9040C, 9045C, 9045D, 9050, 9065, 9251, 1311, 1312, 3005A, 3050B, 3060A. Organic Parameters: SW-846 3540C, 3546, 3050B, 3580A, 3620D, 3630C, 5030B, 5035, 8260C, 8270D, 8270D-SIM, 8330, 8151A, 8015B, 8015C, 8082A, 8081B.)

**New Hampshire Department of Environmental Services Certificate/Lab ID: 2064. NELAP Accredited.**

*Drinking Water (Organic Parameters:* **EPA 524.2:** Di-isopropyl ether (DIPE), Ethyl-t-butyl ether (ETBE), Tert-amyl methyl ether (TAME)).

*Non-Potable Water (Organic Parameters:* **EPA 8260C:** 1,3,5-Trichlorobenzene. **EPA 8015C(M):** TPH.)

*Solid & Chemical Materials (Organic Parameters:* **EPA 8260C:** 1,3,5-Trichlorobenzene.)

**New Jersey Department of Environmental Protection Certificate/Lab ID: MA935. NELAP Accredited.**

*Drinking Water (Inorganic Parameters:* SM9222B, 9221E, 9223B, 9215B, 4500CN-CE, 4500NO3-F, 4500F-C, EPA 300.0, 200.7, 200.8, 245.1, 2540C, SM2120B, 2320B, 2510B, 5310C, SM4500H-B. Organic Parameters: EPA 332, 504.1, 524.2.)

*Non-Potable Water (Inorganic Parameters:* SM5210B, EPA 410.4, SM5220D, 4500CI-E, EPA 300.0, SM2120B, 2340B, SM4500F-BC, EPA 200.7, 200.8, 351.1, LACHAT 10-107-06-2-D, EPA 353.2, SM4500NO3-F, 4500NO2-B, EPA 1664A, SM5310B, C or D, 4500-PE, EPA 420.1, SM510ABC, SM4500P-B5+E, 2540B, 2540C, 2540D, EPA 120.1, SM2510B, SM15 426C, 9222D, 9221B, 9221C, 9221E, 9222B, 9215B, 2310B, 2320B, 4500NH3-H, 4500-S D, EPA 350.1, 350.2, SW-846 1312, 7470A, 5540C, SM4500H-B, 4500SO3-B, SM3500Cr-D, 4500CN-CE, EPA 245.1, SW-846 9040B, 9040C, 3005A, 3015, EPA 6010B, 6010C, 6020, 6020A, 7196A, 3060A, SW-846 9010C, 9030B. Organic Parameters: SW-846 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3510C, EPA 608, 624, 625, SW-846 3630C, 5030B, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 1,4-Dioxane by NJ Modified 8270, 8015B, NJ EPH.)

9050A, 9065, 9251. Organic Parameters: SW-846 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8330, 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 3540C, 3546, 3580A, 3620C, 3630C, 5030B, 5035L, 5035H, NJ EPH.)

**New York Department of Health Certificate/Lab ID: 11148. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: SM9223B, 9222B, 9215B, EPA 200.8, 200.7, 245.1, SM5310C, EPA 332.0, SM2320B, EPA 300.0, SM2120B, 4500CN-E, 4500F-C, 4500NO<sub>3</sub>-F, 2540C, SM 2510B. Organic Parameters: EPA 524.2, 504.1.)

*Non-Potable Water* (Inorganic Parameters: SM9221E, 9222D, 9221B, 9222B, 9215B, 5210B, 5310C, EPA 410.4, SM5220D, 2310B, 2320B, EPA 200.7, 300.0, SM4500CL-E, 4500F-C, SM15 426C, EPA 350.1, SM4500NH<sub>3</sub>-BH, EPA 351.1, LACHAT 10-107-06-2, EPA 353.2, SM4500-NO<sub>3</sub>-F, 4500-NO<sub>2</sub>-B, 4500P-E, 2340B, 2540C, 2540B, 2540D, EPA 200.8, EPA 6010C, 6020A, EPA 7196A, SM3500Cr-D, EPA 245.1, 7470A, SM2120B, 4500CN-CE, EPA 1664A, EPA 420.1, SM14 510C, EPA 120.1, SM2510B, SM4500S-D, SM5540C, EPA 8315A, 3005A, 3015, 9010C, 9030B. Organic Parameters: EPA 624, 8260C, 8270D, 8270D-SIM, 625, 608, 8081B, 8151A, 8330, 8082A, EPA 3510C, 5030B, 8015C, 8011.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1010A, 1030, EPA 6010C, 6020A, 7196A, 7471B, 8315A, 9012B, 9014, 9065, 9050A, 9038, 9251, EPA 1311, 1312, 3005A, 3050B, 9010C, 9030B, 9040C, 9045D. Organic Parameters: EPA 8260C, 8270D, 8270D-SIM, 8015C, 8081B, 8151A, 8330, 8082A, 3540C, 3546, 3580A, 5035A-H, 5035A-L.)

**North Carolina Department of the Environment and Natural Resources Certificate/Lab ID : 666. (Inorganic Parameters:** SM2310B, 2320B, 4500Cl-E, 4500Cn-E, 9012B, 9014, Lachat 10-204-00-1-X, 1010A, 1030, 4500NO<sub>3</sub>-F, 353.2, 4500P-E, 4500SO<sub>4</sub>-E, 300.0, 4500S-D, 5310B, 5310C, 6010C, 6020A, 200.7, 200.8, 3500Cr-B, 7196A, 245.1, 7470A, 7471B, 1311,1312. Organic Parameters: 608, 8081B, 8082A, 624, 8260B, 625, 8270D, 8151A, 8015C, 504.1, MA-EPH, MA-VPH.)

*Drinking Water Program Certificate/Lab ID: 25700. (Inorganic Parameters:* Chloride EPA 300.0. Organic Parameters: 524.2)

**Pennsylvania Department of Environmental Protection Certificate/Lab ID : 68-03671. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: 200.7, 200.8, 300.0, 332.0, 2120B, 2320B, 2510B, 2540C, 4500-CN-CE, 4500F-C, 4500H+-B, 4500NO<sub>3</sub>-F, 5310C. Organic Parameters: EPA 524.2, 504.1)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1312, 3005A,3015, 3060A, 200.7, 200.8, 410.4, 1664A, SM2540D, 5210B, 5220D, 4500-P,BE, 245.1, 300.0, 350.1, 350.2, 351.1, 353.2, 420.1, 6010C, 6020A, 7196A, 7470A, 9030B, 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 3500Cr-D, 426C, 4500CN-CE, 4500Cl-E, 4500F-B, 4500F-C, 4500H+-B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500S-D, 4500SO<sub>3</sub>-B, 5310BCD, 5540C, 9010C, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 625, 624, 608, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, 8015C, NJ-EPH.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 350.1, 1010, 1030, 1311, 1312, 3005A, 3050B, 3060A, 6010C, 6020A, 7196A, 7471B, 9010C, 9012B, 9014, 9040B, 9045D, 9050A, 9065, SM 4500NH<sub>3</sub>-BH, 9030B, 9038, 9251. Organic Parameters: 3540C, 3546, 3580A, 3620C, 3630C, 5035, 8015C, 8081B, 8082A, 8151A, 8260C, 8270D, 8270D-SIM, 8330, NJ-EPH.)

**Rhode Island Department of Health Certificate/Lab ID: LAO00065. *NELAP Accredited via NJ-DEP.***

Refer to MA-DEP Certificate for Potable and Non-Potable Water.

Refer to NJ-DEP Certificate for Potable and Non-Potable Water.

**Texas Commisson on Environmental Quality Certificate/Lab ID: T104704476. *NELAP Accredited.***

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664, 200.7, 200.8, 245.1, 245.2, 300.0, 350.1, 351.1, 353.2, 410.4, 420.1, 6010, 6020, 7196, 7470, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 426C, 4500CL-E, 4500CN-E, 4500F-C, 4500H+B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>B, 4500P-E, 4500 S<sup>2-</sup> D, 510C, 5210B, 5220D, 5310C, 5540C. Organic Parameters: EPA 608, 624, 625, 8081, 8082, 8151, 8260, 8270, 8330.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1311, 1312, 9012, 9014, 9040, 9045, 9050, 9065.)

**Virginia Division of Consolidated Laboratory Services Certificate/Lab ID: 460195. *NELAP Accredited.***

*Drinking Water* (Inorganic Parameters: EPA 200.7, 200.8, 300.0, 2510B, 2120B, 2540C, 4500CN-CE, 245.1, 2320B, 4500F-C, 4500NO<sub>3</sub>-F, 4500H+B, 5310C. Organic Parameters: EPA 504.1, 524.2.)

*Non-Potable Water* (Inorganic Parameters: EPA 120.1, 1664A, 200.7, 200.8, 245.1, 300.0, 350.1, 351.1, 351.2, 3005A, 3015, 1312, 6010B, 6010C, 3060A, 353.2, 420.1, 2340B, 6020, 6020A, SM4500S-D, SM4500-CN-CE, Lachat 10-204-00-1-X, 7196A, 7470A, 9040, SM 2120B, 2310B, 2320B, 2510B, 2540B, 2540C, 2540D, 3500Cr-D, 426C, 4500Cl-E, 4500F-C, 4500H+-B, 4500NH<sub>3</sub>-H, 4500NO<sub>2</sub>-B, 4500NO<sub>3</sub>-F, 4500 SO<sub>3</sub>-B, 4500H-B, 4500PE, 510AC, 5210B, 5310B 5310C, 5540C, 9010Cm

9030B, 9040C. Organic Parameters: EPA 3510C, 3630C, 5030B, 8260B, 608, 624, 625, 8011, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330, )

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 1010A, 1030, 3060A, 3050B, 1311, 1312, 6010B, 6010C, 6020, , 7196A, 7471A, 7471B, 6020A, 9010C, 9012B, 9030B, 9014, 9038, 9040C, 9045D, 9251, 9050A, 9065. Organic Parameters: EPA 5030B, 5035, 3540C, 3546, 3550B, 3580A, 3620C, 3630C, 6020A, 8260B, 8260C, 8015B, 8015C, 8081A, 8081B, 8082, 8082A, 8151A, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330.)

**Department of Defense, L-A-B Certificate/Lab ID:** L2217.

*Drinking Water* (Inorganic Parameters: SM 4500H-B. Organic Parameters: EPA 524.2, 504.1.)

*Non-Potable Water* (Inorganic Parameters: EPA 200.7, 200.8, 6010B, 6010C, 6020, 6020A, 245.1, 245.2, 7470A, 9040B, 9010B, 180.1, 300.0, 332.0, 6860, 353.2, 410.4, 9060, 1664A, SM 4500CN-E, 4500H-B, 4500NO3-F, 4500CL-D, 5220D, 5310C, 2130B, 2320B, 2540C, 3005A, 3015, 9010B, 9056, 7196A, 3500-Cr-D. Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A, 8082, 8082A, 8081A, 8081B, 3510C, 5030B, MassDEP EPH, MassDEP VPH.)

*Solid & Hazardous Waste* (Inorganic Parameters: EPA 200.7, 6010B, 6010C, 7471A, 6860, 1311, 1312, 3050B, 7196A, 9010B, 9012A, 9040B, 9045C, 3500-CR-D, 4500CN-CE, 2540G, Organic Parameters: EPA 8260B, 8260C, 8270C, 8270D, 8270C-SIM, 8270D-SIM, 8330A/B-prep, 8082, 8082A, 8081A, 8081B, 3540C, 3546, 3580A, 5035A, MassDEP EPH, MassDEP VPH.)

**The following analytes are not included in our current NELAP/TNI Scope of Accreditation:**

**EPA 524.2:** Acetone, 2-Butanone (Methyl ethyl ketone (MEK)), Tert-butyl alcohol, 2-Hexanone, Tetrahydrofuran, 1,3,5-Trichlorobenzene, 4-Methyl-2-pentanone (MIBK), Carbon disulfide, Diethyl ether. **EPA 8260B:** 1,2,4,5-Tetramethylbenzene, 4-Ethyltoluene. **EPA 8260 Non-potable water matrix:** Iodomethane (methyl iodide), Methyl methacrylate. **EPA 8260 Soil matrix:** Tert-amyl methyl ether (TAME), Diisopropyl ether (DIPE), Azobenzene. **EPA 8330A:** PETN, Picric Acid, Nitroglycerine, 2,6-DANT, 2,4-DANT. **EPA 8270C:** Methyl naphthalene, Dimethyl naphthalene, Total Methylnaphthalenes, Total Dimethylnaphthalenes, 1,4-Diphenylhydrazine. **EPA 625:** 4-Chloroaniline, 4-Methylphenol. Total Phosphorus in a soil matrix, TKN in a soil matrix, NO<sub>2</sub> in a soil matrix, NO<sub>3</sub> in a soil matrix. **EPA 9071:** Total Petroleum Hydrocarbons, Oil & Grease.



# CHAIN OF CUSTODY

PAGE 1 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

1 of 3

Date Rec'd in Lab:

ALPHA Job #: 41312402

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr.  
East Falmouth MA 02536  
Phone: 508.540.8080

Fax:

Email: dstuart@WHGRP.com

These samples have been previously analyzed by Alpha

### Project Information

Project Name: New Bidgr WQ

Project Location: New Bedford MA

Project #: TO-0010-0013

Project Manager: D. Walsh

ALPHA Quote #:

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)

Date Due: Time:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Regulatory Requirements/Report Limits

State / Fed Program Criteria

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

### Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project specific EDD

ANALYSIS		SAMPLE HANDLING	
Total	Dissolved	Filtration	Preservation
PCB		<input type="checkbox"/> Done	<input type="checkbox"/> Lab to do
TUR		<input type="checkbox"/> Not needed	<input type="checkbox"/> Lab to do
TSS			
MET (Archive)			
TOC			

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							Sample Specific Comments	TOTAL # BOTTLES			
		Date	Time			Total	Dissolved	TUR	TSS	MET (Archive)	TOC						
41312402 1	WQ-TSS-001-070213	7/2	0815	SW	DS							X				ebb ref	2
2	WQ-TUR-001-070213	7/2	0815	SW	DS			X								ebb ref	1
3	WQ-TR-001-070213	7/2	0815	SW	DS	X										ebb ref	2
4	WQ-DPC-001-070213	7/2	0815	SW	DS		X									ebb ref	2
5	WQ-MET-001-070213	7/2	0815	SW	DS					X						ebb ref	1
6	WQ-TRC-001-070213	7/2	0815	SW	DS						X					ebb ref	2
7	WQ-TPC-002-070213	7/2	0845	SW	DS	X										ebb sample	2
8	WQ-DPC-002-070213	7/2	0845	SW	DS		X									ebb sample	2
9	WQ-MET-002-070213	7/2	0845	SW	DS					X						ebb sample	1
10	WQ-TSS-002-070213	7/2	0845	SW	DS						X					ebb sample	2

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type: A A P P P V  
Preservative: A A A A C D

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	20130702 1615	<i>[Signature]</i>	7/2/13 1705
<i>[Signature]</i>	7/2/13 1705	<i>[Signature]</i>	7/2/13 1705

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. Delivery Order 0010-13 August 2014



# CHAIN OF CUSTODY

PAGE 2 OF 3

293

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1312402

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr.  
East Falmouth MA 02536  
Phone: 508.540.8080  
Fax:  
Email: dstuart@whgrd.com

### Project Information

Project Name: New Bedford WQ  
Project Location: New Bedford MA  
Project #: TO-0010-0013  
Project Manager: D. Walsh  
ALPHA Quote #:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

### Billing Information

Same as Client info PO #:

Other Project Specific Requirements/Comments/Detection Limits:  
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)  
Project specific EDD

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: Time:

### Regulatory Requirements/Report Limits

State /Fed Program Criteria

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

ANALYSIS										SAMPLE HANDLING		TOTAL # BOTTLES
Total PCB	Dissolved PCB	TUR	TSS	MET (Archived)	TOC	Filtration	Done	Not needed	Lab to do Preservation	Lab to do		
	X										ebb Sample	1
									X		ebb Sample	2
X											flod Ref	2
	X										flod Ref	2
		X									flod Ref	1
			X								flod Ref	1
				X							flod Ref	1
					X						flod Ref	2
X											flod Sample	2
	X										flod Sample	2

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
<u>L1312402-11</u>	<u>WQ-TUR-002-070213</u>	<u>7/2</u>	<u>845</u>	<u>SW</u>	<u>DS</u>
<u>12</u>	<u>WQ-TOC-002-070213</u>	<u>7/2</u>	<u>845</u>	<u>SW</u>	<u>DS</u>
<u>13</u>	<u>WQ-TPC-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>14</u>	<u>WQ-DPC-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>15</u>	<u>WQ-TUR-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>16</u>	<u>WQ-TSS-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>17</u>	<u>WQ-MET-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>18</u>	<u>WQ-TOC-003-070213</u>	<u>7/2</u>	<u>1045</u>	<u>SW</u>	<u>DS</u>
<u>19</u>	<u>WQ-TPC-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>
<u>20</u>	<u>WQ-DPC-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type A A P P P P  
Preservative A A A A C D

Relinquished By: [Signature] Date/Time: 7/2/13 1615  
Received By: [Signature] Date/Time: 7/2/13 1705

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side. Delivery Order 0010-13 August 2014



# CHAIN OF CUSTODY

PAGE 3 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

## Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr.  
East Falmouth MA 02536  
Phone: 508 540 8080  
Fax:  
Email: dshvant@WHGRP.com

## Project Information

Project Name: New Bedford WQ  
Project Location: New Bedford MA  
Project #: TO-0010-0013  
Project Manager: D. Walsh  
ALPHA Quote #:

## Turn-Around Time

Standard  RUSH (only confirmed if pre-approved!)  
Date Due: \_\_\_\_\_ Time: \_\_\_\_\_

Date Rec'd in Lab:

ALPHA Job #: L1312402

## Report Information - Data Deliverables

FAX  EMAIL  
 ADEx  Add'l Deliverables

## Billing Information

Same as Client info PO #:

## Regulatory Requirements/Report Limits

State /Fed Program X Criteria

## MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

## Other Project Specific Requirements/Comments/Detection Limits:

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project Specific EDD

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials
		Date	Time		
<u>L1312402-21</u>	<u>WQ-TVR-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>
<u>22</u>	<u>WQ-TSS-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>
<u>23</u>	<u>WQ-MET-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>
<u>24</u>	<u>WQ-TOC-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>

ANALYSIS	Total PCB	Dissolved PCB	TVR	TSS	MET (Arche)	TOC	SAMPLE HANDLING		TOTAL # BOTTLES
							Filtration	Preservation	
							<input type="checkbox"/> Done	<input type="checkbox"/> Lab to do	
							<input type="checkbox"/> Not needed	<input type="checkbox"/> Lab to do	
							<input type="checkbox"/> Lab to do	<input type="checkbox"/> Lab to do	
							(Please specify below)		
							Sample Specific Comments		

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
MA MCP or CT RCP?

Container Type A A D P D V  
Preservative A A A A C D

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>20130702 1615</u>	<u>[Signature]</u>	<u>7/2/13 1615</u>
<u>[Signature]</u>	<u>7/2/13 1705</u>	<u>[Signature]</u>	<u>7/2/13 1705</u>

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# CHAIN OF CUSTODY

PAGE 3 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

Date Rec'd in Lab:

ALPHA Job #: L1312402

## Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr.  
East Falmouth MA 02536  
Phone: 508 540 8080  
Fax:  
Email: dshant@WHGRP.com

## Project Information

Project Name: New Bedford WQ  
Project Location: New Bedford MA  
Project #: TO-0010-0013  
Project Manager: D. Walsh  
ALPHA Quote #:

## Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

## Billing Information

Same as Client info PO #:

These samples have been previously analyzed by Alpha

## Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)  
Date Due: Time:

## Regulatory Requirements/Report Limits

State/Fed Program X Criteria

## MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

Other Project Specific Requirements/Comments/Detection Limits:  
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for Inorganic analyses require MS every 20 soil samples)

Project Specific EDD

ANALYSIS  
Total Pb  
Dissolved Pb  
TUR  
TSS  
MET (Metal)  
TUC

## SAMPLE HANDLING

Filtration \_\_\_\_\_  
 Done  
 Not needed  
 Lab to do  
Preservation  
 Lab to do  
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS						Sample Specific Comments	TOTAL # BOTTLES	
		Date	Time			Total Pb	Dissolved Pb	TUR	TSS	MET (Metal)	TUC			
<u>L1312402-21</u>	<u>WQ-TUR-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>		<u>X</u>						<u>flood sample</u>	<u>1</u>
<u>22</u>	<u>WQ-TSS-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>			<u>X</u>					<u>flood sample</u>	<u>1</u>
<u>23</u>	<u>WQ-MET-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>				<u>X</u>				<u>flood sample</u>	<u>1</u>
<u>24</u>	<u>WQ-TOC-004-070213</u>	<u>7/2</u>	<u>1110</u>	<u>SW</u>	<u>DS</u>					<u>X</u>			<u>flood sample</u>	<u>2</u>

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT  
MA MCP or CT RCP?

FORM NO: 01-01 (rev. 18-Jan-2010)

Container Type A A D P D V  
Preservative A A A A C D

Relinquished By:	Date/Time	Received By:	Date/Time
<u>[Signature]</u>	<u>20130702 1615</u>	<u>[Signature]</u>	<u>7/2/13 1615</u>
<u>[Signature]</u>	<u>7/2/13 1705</u>	<u>[Signature]</u>	<u>7/2/13 1705</u>
<u>[Signature]</u>	<u>7/2/13 1738</u>	<u>[Signature]</u>	<u>7/2/13 1758</u>
<u>[Signature]</u>	<u>7/2/13 19:30</u>	<u>[Signature]</u>	<u>7/2/13 19:58</u>

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.



# CHAIN OF CUSTODY

PAGE 1 OF 3

WESTBORO, MA  
TEL: 508-898-9220  
FAX: 508-898-9193

MANSFIELD, MA  
TEL: 508-822-9300  
FAX: 508-822-3288

143

Date Rec'd in Lab: 7/2/13

ALPHA Job #: 41312402

### Client Information

Client: Woods Hole Group  
Address: 81 Technology Park Dr. East Falmouth MA 02536  
Phone: 508.540.8080  
Fax:  
Email: d.stuart@WHGRP.com

### Project Information

Project Name: New Budget WQ  
Project Location: New Budget MA  
Project #: TO-0010-0013  
Project Manager: D. Walsh  
ALPHA Quote #:

### Report Information - Data Deliverables

FAX  EMAIL  
 ADEX  Add'l Deliverables

### Billing Information

Same as Client info PO #:

### Regulatory Requirements/Report Limits

State/Fed Program Criteria

### MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO

Yes  No Are MCP Analytical Methods Required?  
 Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)  
 Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

### Turn-Around Time

Standard  RUSH (only confirmed if pre-approved)  
Date Due: 7/16/13 Time:

Other Project Specific Requirements/Comments/Detection Limits:  
If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project specific EDD

ANALYSIS	TOTAL	DISSOLVED	FUR	TSS	MET (ALCALINE)	TOC	SAMPLE HANDLING	TOTAL # BOTTLES
<del>Total PCB</del>							Filtration _____ <input type="checkbox"/> Done <input type="checkbox"/> Not needed <input type="checkbox"/> Lab to do Preservation <input type="checkbox"/> Lab to do (Please specify below)	
<del>Dissolved PCB</del>								
<del>FUR</del>								
<del>TSS</del>								
<del>MET (ALCALINE)</del>								
<del>TOC</del>								

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS						Sample Specific Comments	TOTAL # BOTTLES		
		Date	Time			Total PCB	Dissolved PCB	FUR	TSS	MET (ALCALINE)	TOC				
41312402-1	WQ-TSS-001-070213	7/2	0815	SW	DS							X		ebb ref	2
2	WQ-TUR-001-070213	7/2	0815	SW	DS							X		ebb ref	1
3	WQ-TPC-001-070213	7/2	0815	SW	DS	X								ebb ref	2
4	WQ-DPC-001-070213	7/2	0815	SW	DS		X							ebb ref	2
5	WQ-MET-001-070213	7/2	0815	SW	DS							X		ebb ref	1
6	WQ-TOC-001-070213	7/2	0815	SW	DS								X	ebb ref	2
7	WQ-TPC-002-070213	7/2	0845	SW	DS	X								ebb sample	2
8	WQ-DPC-002-070213	7/2	0845	SW	DS		X							ebb sample	2
9	WQ-MET-002-070213	7/2	0845	SW	DS							X		ebb sample	1
10	WQ-TSS-002-070213	7/2	0845	SW	DS							X		ebb sample	2

PLEASE ANSWER QUESTIONS ABOVE!

IS YOUR PROJECT MA MCP or CT RCP?

Container Type	A A P P P V
Preservative	A A A A C D

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time
<i>[Signature]</i>	7/2/13 1615	<i>[Signature]</i>	7/2/13 1615
<i>[Signature]</i>	7/2/13 1705	<i>[Signature]</i>	7/2/13 1705
<i>[Signature]</i>	7/2/13 1738	<i>[Signature]</i>	7/2/13 1738
<i>[Signature]</i>	7/2/13 1958	<i>[Signature]</i>	7/2/13 1958

FORM NO: 01-01 (rev. 18-Jan-2010)

Water Quality Monitoring Summary Report

Delivery Order 0010-13 August 2014

# CHAIN OF CUSTODY

PAGE 2 OF 3



**WESTBORO, MA**  
TEL: 508-898-9220  
FAX: 508-898-9193

**MANSFIELD, MA**  
TEL: 508-822-9300  
FAX: 508-822-3288

**Project Information**

Project Name: New Bedford WQ

Project Location: New Bedford MA

Project #: TO-0010-0013

Project Manager: D. Walsh

ALPHA Quote #:

**Report Information - Data Deliverables**

FAX  EMAIL

ADEX  Add'l Deliverables

**Billing Information**

Same as Client info  PO #:

**Client Information**

Client: Woods Hole Group

Address: 81 Technology Park Dr. East Falmouth MA 02536

Phone: 508.540.8080

Fax:

Email: dstuart@WHGRD.com

These samples have been previously analyzed by Alpha

**Regulatory Requirements/Report Limits**

State / Fed Program:  Criteria

**MA MCP PRESUMPTIVE CERTAINTY --- CT REASONABLE CONFIDENCE PROTO**

Yes  No Are MCP Analytical Methods Required?

Yes  No Is Matrix Spike (MS) Required on this SDG? (If yes see note in Comments)

Yes  No Are CT RCP (Reasonable Confidence Protocols) Required?

**Turn-Around Time**

Standard  RUSH (only confirmed if pre-approved)

Date Due: 7/16/13 Time:

**Other Project Specific Requirements/Comments/Detection Limits:**

If MS is required, indicate in Sample Specific Comments which samples and what tests MS to be performed.  
(Note: All CAM methods for inorganic analyses require MS every 20 soil samples)

Project specific EDD

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection		Sample Matrix	Sampler's Initials	ANALYSIS							Sample Specific Comments	TOTAL # BOTTLES		
		Date	Time			Total PCB	Dissolved PCB	TUR	TSS	MET (Acetified)	TOC	Other				
41312402-11	WQ-TUR-002-070213	7/2	845	SW	DS		X								ebb Sample	1
12	WQ-TOC-002-070213	7/2	845	SW	DS							X			ebb Sample	2
13	WQ-TPC-003-070213	7/2	1045	SW	DS	X									flood Ref	2
14	WQ-DPC-003-070213	7/2	1045	SW	DS		X								flood Ref	2
15	WQ-TUR-003-070213	7/2	1045	SW	DS			X							flood Ref	1
16	WQ-TSS-003-070213	7/2	1045	SW	DS				X						flood Ref	1
17	WQ-MET-003-070213	7/2	1045	SW	DS					X					flood Ref	1
18	WQ-TOC-003-070213	7/2	1045	SW	DS							X			flood Ref	2
19	WQ-TPC-004-070213	7/2	1110	SW	DS	X									flood Sample	2
20	WQ-DPC-004-070213	7/2	1110	SW	DS		X								flood Sample	2

**PLEASE ANSWER QUESTIONS ABOVE!**

IS YOUR PROJECT MA MCP or CT RCP?

Container Type	A	A	P	P	P	P	P		
Preservative	A	A	A	A	C	D			

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Relinquished By:	Date/Time	Received By:	Date/Time
	7/2/13 1645		7/2/13 1645
	7/2/13 1705		7/2/13 1705
	7/2/13 1738		7/2/13 1738
	7/2/13 1958		7/2/13 19:58



**APPENDIX D NEW ENVIRONMENTAL HORIZONS, INC. DATA  
VALIDATION REPORTS**

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## TABLE OF CONTENTS

Introduction.....	D-1
L1310595 .....	D-2
L1312296 .....	D-6
L1312402 .....	D-11

## INTRODUCTION

Data were validated by New Environmental Horizons. A data validation (DV) report was produced for each sample delivery group (SDG). Alpha Analytical Laboratories divided samples into SDGs upon receipt, which were assigned a unique 7-digit number preceded by the letter L. One SDG typically consists of 20 samples. Refer to Appendix C for a summary of which SDGs are associated with each sampling event as well as the analytes reported.

A DV report is made up of three data files. The table below, using SDG L1310595 as an example, describes the contents of each DV file.

<b>File name</b>	<b>File type</b>	<b>Description</b>
dbval_L1310595dv	.XLS	Spreadsheet file of validated sample results
NBH_OU1_SW_DV_Report_L1310595	.PDF	Data validation report letter summarizing actions taken
18NOAACongeners_Tier1+_SW_Checklist_L1310595	.PDF	Data review checklist for NOAA-18 PCB Congener analyses

This Appendix document includes the DV validation report letters only. All other data files associated with each SDG are included as electronic attachments on the accompanying CD.



**Data Validation Report**  
**EPA Region I Tier I+**  
**18 NOAA PCB Congeners by 8082**

**Client/Company:** Woods Hole Group, Inc. (WHG)

**Site/Project Name:** New Bedford Harbor Superfund Site – OU1

**Laboratory:** Alpha Analytical – Mansfield & Westborough, MA

**Lab Project Number(s):** L1310595

**Date(s) of Collection:** June 11, 2013

**Number / Type  
Samples & Analyses  
For Validation** 5 Total surface water samples + 1 Equipment Blank for 18 NOAA PCB  
Congeners

**Senior Data Reviewers:** Nancy C. Rothman, PhD, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** August 5, 2013

This EPA Region I Tier I+ validation for 18 NOAA PCB Congeners was performed with the following intentions: 1) to determine if the data were generated and reported in accordance with the *Environmental Monitoring, Sampling, and Analysis Quality Assurance Project Plan Addendum, New Bedford Harbor Superfund Site, Operable Unit 1 (OU1), New Bedford, MA*, Rev. 6.0, prepared by Woods Hole Group, Inc., July 2013 (NBH OU1 QAPP Addendum 2013); Region I, *EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part III – Pesticide/PCB Data Validation Functional Guidelines*, Draft February 2004; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to generate an electronic deliverable of validated results with project-specific data validation qualifiers added.

The Data Validation Report consists of three parts:

- This Data Validation Report letter summarizing the actions taken;
- The database file of validated sample results with validation qualifiers, bias, and reason codes added based on actions taken; and
- The Data Review Checklist completed during this validation to document the Tier I+ review. The Checklist is an integral part of the DV Report as it contains comprehensive details of all quality control (QC) reviewed, the acceptance criteria used, and the professional judgment and actions taken.

## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification analytical parameters reviewed and the quality control (QC) results (as applicable) of Matrix Spike (MS), Matrix Spike Duplicate (MSD), Matrix Duplicate (MD), Field Duplicate (FD), Field Equipment Blank (EB), and Trip Blank (TB), are listed below in Table 1.

Table 1. Sample Descriptions and Analytical Parameters Validated

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters <sup>1</sup>	Sample Type
WQ-TPC-001-061113	L1310595-01	6/11/13	Total Surface Water	PCBs	Field Sample
WQ-TPC-002-061113	L1310595-05	6/11/13	Total Surface Water	PCBs	Field Sample
WQ-TPC-002-061113-REP	L1310595-09	6/11/13	Total Surface Water	PCBs	FD of WQ-TPC-002-061113
WQ-TPC-003-061113	L1310595-13	6/11/13	Total Surface Water	PCBs	Field Sample
WQ-TPC-004-061113	L1310595-17	6/11/13	Total Surface Water	PCBs	Field Sample [used for MS/MSD analysis]
EB-001-061113	L1310595-21	6/11/13	Water	PCBs	Equipment Blank

<sup>1</sup> Total Suspended Solids (TSS), Total Organic Carbon (TOC), and Turbidity measurements were also performed on total surface water samples; however, data validation for these parameters was not required.

Analytical method references:

PCBs: *Polychlorinated Biphenyls (PCBs) by Gas Chromatography* in EPA's Test Methods for Evaluating Solid Waste, Physical Chemical Methods, SW-846, Third Edition, Method 8082, Rev. 1, February 2007.

## II. Data Validation Report Summary

This Data Validation Report represents a Tier I+ validation of 18 NOAA PCB Congeners and summary QC (method and matrix), which were used to evaluate accuracy, precision, and sensitivity compared to the NBH OU1 QAPP Addendum 2013 requirements.

The following QC elements, as applicable to the analytical methods, were reviewed:

- Data package completeness and reporting protocols
- Sample receipt, holding times and preservation criteria
- Blank results including Method Blanks, Equipment Blanks, & Trip blanks
- Laboratory Control Sample (LCS) recoveries / LCS Duplicate Recoveries
- Surrogate Recoveries
- Matrix Spike (MS) / Matrix Spike Duplicate (MSD) Recoveries
- MS/MSD, LCS/LCSD, sample/Laboratory Duplicate (LD), or sample/Field Duplicate (FD) Relative Percent Differences (RPDs)
- Sample result reporting (including compound lists, reporting limits, and units)
- Calibration criteria\* (including tune criteria, initial calibration and continuing calibration verification)
- Internal Standard (IS) Recoveries\*
- Retention Time windows\*
- Other method-specific QC if applicable and reported\* (e.g., serial dilution results for metals)
- Deficiencies or protocol deviations as noted in the Laboratory Narrative

\* This QC element is reviewed associated with the Tier II-type validation only. For Tier I+ validations this QC element is assumed to be acceptable unless otherwise noted in the laboratory narrative.

Based on this Tier I+ validation of 18 NOAA PCB Congeners, all results were considered usable for project decisions based on a comparison to the NBH OU1 QAPP Addendum 2013 requirements. No results required qualification for QC issues during validation. NEH generated electronic validated results based on the project database file received from WHG for these data, by updating the following database fields for field samples and field QC only: VALID\_QUAL, VALIDATION\_LEVEL, VALIDATION, VALID\_DATE, BIAS, and DV\_COMMENT.

The remainder of this report documents “exceptions” to the NBH OU1 QAPP Addendum 2013 criteria or clarifications of data reported. QC elements not discussed below met all QAPP criteria. The full documentation of all QC elements reviewed during this Tier I+ validation is presented in the attached Data Review Checklist.

### Data Reporting

The EDD contained three “I” qualifiers in the laboratory qualifier field that were not on the hardcopy data for the sample. During this validation, these “I” qualifiers were not accepted for reporting with the final validated data (they were eliminated from the “VALID\_QUAL” field).

### Sample Receipt

Samples were analyzed for Total PCB Congeners, as requested on the Chain-of-Custody (COC).

**Accuracy**

Accuracy was acceptable in the LCS/LCSD analysis and in the MS/MSD analysis performed on sample WQ-TPC-004-061113 indicating acceptable accuracy by the laboratory for analysis of 18 NOAA Congeners for these surface water samples.

**Field Blanks**

The Equipment Blank, EB-001-061113, was non-detect for all 18 NOAA Congeners; therefore, blank action was not required.

**Precision**

Precision was acceptable for the LCS/LCSD and MS/MSD analyses.

There was one set of Field Duplicates: WQ-TPC-002-061113 / WQ-TPC-002-061113-REP. FD precision was acceptable for all 18 NOAA Congeners in this FD pair indicating acceptable precision from field sample collection through analysis and representativeness of these surface water samples for the analysis of 18 NOAA Congeners.

**Sensitivity & Reporting**

All samples that were diluted prior to analysis so that all results would be reported within the calibration range were qualified “D” by the laboratory. At Battelle’s request, the “D” qualifiers were maintained during the DV process.

Sensitivity in terms of sample-specific reporting limits as compared to PALs defined in QAPP Worksheet #15 of the NHB OU1 QAPP Addendum 2013, were met for all 18 NOAA PCB Congeners.



**Data Validation Report**  
**EPA Region I Tier I+**  
**18 NOAA PCB Congeners by 8082**

**Client/Company:** Woods Hole Group, Inc. (WHG)

**Site/Project Name:** New Bedford Harbor Superfund Site – OU1

**Laboratory:** Alpha Analytical – Mansfield & Westborough, MA

**Lab Project Number(s):** L1312296

**Date(s) of Collection:** July 1, 2013

**Number / Type  
Samples & Analyses  
For Validation** 5 Total surface water samples, 5 Dissolved surface waters, 1 Total  
Equipment Blank, and 1 Dissolved Equipment Blank for 18 NOAA PCB  
Congeners

**Senior Data Reviewers:** Nancy C. Rothman, PhD, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** August 7, 2013

This EPA Region I Tier I+ validation for 18 NOAA PCB Congeners was performed with the following intentions: 1) to determine if the data were generated and reported in accordance with the *Environmental Monitoring, Sampling, and Analysis Quality Assurance Project Plan Addendum, New Bedford Harbor Superfund Site, Operable Unit 1 (OU1), New Bedford, MA*, Rev. 6.0, prepared by Woods Hole Group, Inc., July 2013 (NBH OU1 QAPP Addendum 2013); Region I, *EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part III – Pesticide/PCB Data Validation Functional Guidelines*, Draft February 2004; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to generate an electronic deliverable of validated results with project-specific data validation qualifiers added.

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## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification analytical parameters reviewed and the quality control (QC) results (as applicable) of Matrix Spike (MS), Matrix Spike Duplicate (MSD), Matrix Duplicate (MD), Field Duplicate (FD), Field Equipment Blank (EB), and Trip Blank (TB), are listed below in Table 1.

Table 1. Sample Descriptions and Analytical Parameters Validated

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters <sup>1</sup>	Sample Type
WQ-TPC-001-070113	L1312296-01	7/1/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-001-070113	L1312296-02	7/1/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-002-070113	L1312296-07	7/1/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-002-070113	L1312296-08	7/1/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-003-070113	L1312296-13	7/1/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-003-070113	L1312296-14	7/1/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-004-070113	L1312296-19	7/1/13	Total Surface Water	PCBs	Field Sample [used for MS/MSD]
WQ-DPC-004-070113	L1312296-20	7/1/13	Dissolved Surface Water	PCBs	Field Sample [used for MS/MSD]
WQ-TPC-004-070113-REP	L1312296-25	7/1/13	Total Surface Water	PCBs	FD of WQ-TPC-004-070113
WQ-DPC-004-070113-REP	L1312296-26	7/1/13	Dissolved Surface Water	PCBs	FD of WQ-DPC-004-070113
WQ-TPC-001-070113-EB	L1312296-31	7/1/13	Total Water	PCBs	Equipment Blank
WQ-DPC-001-070113-EB	L1312296-32	7/1/13	Dissolved Water	PCBs	Equipment Blank

Note: EB results were reviewed for potential blank actions; however, full data review of this field QC sample was not performed as these results are not directly used for project decisions.

<sup>1</sup> Total Suspended Solids (TSS), Total Organic Carbon (TOC), and Turbidity measurements were also performed on total surface water samples; however, data validation for these parameters was not required. Aliquots of samples were also archived at the laboratory for metals analysis.

Analytical method references:

PCBs: *Polychlorinated Biphenyls (PCBs) by Gas Chromatography* in EPA's Test Methods for Evaluating Solid Waste, Physical Chemical Methods, SW-846, Third Edition, Method 8082, Rev. 1, February 2007.

## II. Data Validation Report Summary

This Data Validation Report represents a Tier I+ validation of 18 NOAA PCB Congeners and summary QC (method and matrix), which were used to evaluate accuracy, precision, and sensitivity compared to the NBH OU1 QAPP Addendum 2013 requirements.

The following QC elements, as applicable to the analytical methods, were reviewed:

- Data package completeness and reporting protocols
- Sample receipt, holding times and preservation criteria
- Blank results including Method Blanks, Equipment Blanks, & Trip blanks
- Laboratory Control Sample (LCS) recoveries / LCS Duplicate Recoveries
- Surrogate Recoveries
- Matrix Spike (MS) / Matrix Spike Duplicate (MSD) Recoveries
- MS/MSD, LCS/LCSD, sample/Laboratory Duplicate (LD), or sample/Field Duplicate (FD) Relative Percent Differences (RPDs)
- Sample result reporting (including compound lists, reporting limits, and units)
- Calibration criteria\* (including tune criteria, initial calibration and continuing calibration verification)
- Internal Standard (IS) Recoveries\*
- Retention Time windows\*
- Other method-specific QC if applicable and reported\* (e.g., serial dilution results for metals)
- Deficiencies or protocol deviations as noted in the Laboratory Narrative

\* This QC element is reviewed associated with the Tier II-type validation only. For Tier I+ validations this QC element is assumed to be acceptable unless otherwise noted in the laboratory narrative.

Based on this Tier I+ validation of 18 NOAA PCB Congeners, all results were considered usable for project decisions based on a comparison to the NBH OU1 QAPP Addendum 2013 requirements and with the understanding of the potential uncertainty (bias) in the qualified results summarized in Table 2. NEH generated electronic validated results based on the project database file received from WHG for these data, by updating the following database fields for field samples and field QC only: VALID\_QUAL, VALIDATION\_LEVEL, VALIDATION, VALID\_DATE, BIAS, and DV\_COMMENT.

The remainder of this report documents “exceptions” to the NBH OU1 QAPP Addendum 2013 criteria or clarifications of data reported. QC elements not discussed below met all QAPP criteria. The full documentation of all QC elements reviewed during this Tier I+ validation is presented in the attached Data Review Checklist.

### **Sample Receipt**

Aliquots of the “dissolved” samples were immediately filtered through a 0.45 µm filter upon receipt at the laboratory to produce the actual Dissolved sample aliquots that were used for PCB analysis.

### **Accuracy**

Accuracy was acceptable for all 18 NOAA Congeners in the LCS/LCSD and both sets of MS/MSD analyses (Total and Dissolved) indicating acceptable accuracy for analysis of the surface water samples for the 18 NOAA PCB Congeners.

### **Field Blanks**

The Equipment Blanks, WQ-TPC-001-070113-EB and WQ-DPC-001-070113-EB, were non-detect for all 18 NOAA Congeners; therefore, blank action was not required.

### **Precision**

Precision was acceptable for the LCS/LCSD and both sets of MS/MSD analyses (Total and Dissolved).

There were two sets of Field Duplicates: WQ-TPC-004-070113 / WQ-TPC-004-070113-REP and WQ-DPC-004-070113 / WQ-DPC-004-070113-REP. FD precision was acceptable for all 18 NOAA Congeners in both FD pairs except for one Congener in the FD pair of WQ-TPC-004-070113 / WQ-TPC-004-070113-REP. Table 2 indicates results that were estimated (J) with indeterminate bias due to FD imprecision.

The MS/MSD and FD results indicate generally acceptable precision from sample collection through analysis and representativeness of the Total and Dissolved surface water samples for the 18 NOAA PCB Congeners.

### **Sensitivity & Reporting**

One sample was diluted prior to analysis so that all results would be reported within the calibration range and qualified “D” by the laboratory. At Battelle’s request, the “D” qualifiers were maintained during the DV process.

Sensitivity in terms of sample-specific reporting limits as compared to PALs defined in QAPP Worksheet #15 of the NHB OU1 QAPP Addendum 2013, were met for all 18 NOAA PCB Congeners.

Table 2. Summary of Data Validation Actions

<b>Field Sample ID</b>	<b>Analyte</b>	<b>Qualifier</b>	<b>Bias</b>	<b>Validation Comments</b>
WQ-TPC-004-070113 WQ-TPC-004-070113-REP	2,2',3,4,4',5,5'- Heptachlorobiphenyl	J	I	FD imprecision

*Qualifiers: U = Analyte is non-detect at or above the sample-specific reporting limit (RL); UJ = Non-detect is estimated at the RL; J = Result is estimated; EB = analyte detected in associated equipment blank; EMPC = estimated maximum possible concentration (PCB congeners only); R = Result is rejected and is unusable for project decisions; D = result reported from a dilution analysis (added by laboratory).*

*Bias: L = Low; H = High; I = Indeterminate*

*Abbreviations used in Table 2:  
 FD = Field Duplicate*



**Data Validation Report**  
**EPA Region I Tier I+**  
**18 NOAA PCB Congeners by 8082**

**Client/Company:** Woods Hole Group, Inc. (WHG)

**Site/Project Name:** New Bedford Harbor Superfund Site – OU1

**Laboratory:** Alpha Analytical – Mansfield & Westborough, MA

**Lab Project Number(s):** L1312402

**Date(s) of Collection:** July 2, 2013

**Number / Type  
Samples & Analyses  
For Validation** 4 Total surface water samples and 4 Dissolved surface waters for 18  
NOAA PCB Congeners

**Senior Data Reviewers:** Nancy C. Rothman, PhD, New Environmental Horizons, Inc.  
Susan D. Chapnick, New Environmental Horizons, Inc.

**Date Completed:** August 8, 2013

This EPA Region I Tier I+ validation for 18 NOAA PCB Congeners was performed with the following intentions: 1) to determine if the data were generated and reported in accordance with the *Environmental Monitoring, Sampling, and Analysis Quality Assurance Project Plan Addendum, New Bedford Harbor Superfund Site, Operable Unit 1 (OU1), New Bedford, MA*, Rev. 6.0, prepared by Woods Hole Group, Inc., July 2013 (NBH OU1 QAPP Addendum 2013); Region I, *EPA-NE Data Validation Functional Guidelines for Evaluating Environmental Analyses, Part III – Pesticide/PCB Data Validation Functional Guidelines*, Draft February 2004; 2) to determine if the data met project data quality objectives for acceptable accuracy, precision, sensitivity; and technical usability; and 3) to generate an electronic deliverable of validated results with project-specific data validation qualifiers added.

The Data Validation Report consists of three parts:

- This Data Validation Report letter summarizing the actions taken;
- The database file of validated sample results with validation qualifiers, bias, and reason codes added based on actions taken; and
- The Data Review Checklist completed during this validation to document the Tier I+ review. The Checklist is an integral part of the DV Report as it contains comprehensive details of all quality control (QC) reviewed, the acceptance criteria used, and the professional judgment and actions taken.

## I. Sample Descriptions and Analytical Parameters

The sample IDs, date of sampling, identification analytical parameters reviewed and the quality control (QC) results (as applicable) of Matrix Spike (MS), Matrix Spike Duplicate (MSD), Matrix Duplicate (MD), Field Duplicate (FD), Field Equipment Blank (EB), and Trip Blank (TB), are listed below in Table 1.

Table 1. Sample Descriptions and Analytical Parameters Validated

Sample ID	Lab Sample ID	Collection Date	Matrix	Analytical Parameters <sup>1</sup>	Sample Type
WQ-TPC-001-070213	L1312402-03	7/2/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-001-070213	L1312402-04	7/2/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-002-070213	L1312402-07	7/2/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-002-070213	L1312402-08	7/2/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-003-070213	L1312402-13	7/2/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-003-070213	L1312402-14	7/2/13	Dissolved Surface Water	PCBs	Field Sample
WQ-TPC-004-070213	L1312402-19	7/2/13	Total Surface Water	PCBs	Field Sample
WQ-DPC-004-070213	L1312402-20	7/2/13	Dissolved Surface Water	PCBs	Field Sample

Note: EB results were reviewed for potential blank actions; however, full data review of this field QC sample was not performed as these results are not directly used for project decisions.

<sup>1</sup> Total Suspended Solids (TSS), Total Organic Carbon (TOC), and Turbidity measurements were also performed on total surface water samples; however, data validation for these parameters was not required. Aliquots of samples were also archived at the laboratory for metals analysis.

Analytical method references:

PCBs: *Polychlorinated Biphenyls (PCBs) by Gas Chromatography* in EPA's Test Methods for Evaluating Solid Waste, Physical Chemical Methods, SW-846, Third Edition, Method 8082, Rev. 1, February 2007.

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The following QC elements, as applicable to the analytical methods, were reviewed:

- Data package completeness and reporting protocols
- Sample receipt, holding times and preservation criteria
- Blank results including Method Blanks, Equipment Blanks, & Trip blanks
- Laboratory Control Sample (LCS) recoveries / LCS Duplicate Recoveries
- Surrogate Recoveries
- Matrix Spike (MS) / Matrix Spike Duplicate (MSD) Recoveries
- MS/MSD, LCS/LCSD, sample/Laboratory Duplicate (LD), or sample/Field Duplicate (FD) Relative Percent Differences (RPDs)
- Sample result reporting (including compound lists, reporting limits, and units)
- Calibration criteria\* (including tune criteria, initial calibration and continuing calibration verification)
- Internal Standard (IS) Recoveries\*
- Retention Time windows\*
- Other method-specific QC if applicable and reported\* (e.g., serial dilution results for metals)
- Deficiencies or protocol deviations as noted in the Laboratory Narrative

\* This QC element is reviewed associated with the Tier II-type validation only. For Tier I+ validations this QC element is assumed to be acceptable unless otherwise noted in the laboratory narrative.

Based on this Tier I+ validation of 18 NOAA PCB Congeners, all results were considered usable for project decisions based on a comparison to the NBH OU1 QAPP Addendum 2013 requirements and were unchanged as a consequence of this review. NEH generated electronic validated results based on the project database file received from WHG for these data, by updating the following database fields for field samples and field QC only: VALID\_QUAL, VALIDATION\_LEVEL, VALIDATION, VALID\_DATE, BIAS, and DV\_COMMENT.

The remainder of this report documents “exceptions” to the NBH OU1 QAPP Addendum 2013 criteria or clarifications of data reported. QC elements not discussed below met all QAPP criteria. The full documentation of all QC elements reviewed during this Tier I+ validation is presented in the attached Data Review Checklist.

### Sample Receipt

Aliquots of the “dissolved” samples were immediately filtered through a 0.45 µm filter upon receipt at the laboratory to produce the actual Dissolved sample aliquots that were used for PCB analysis.

### **Accuracy**

MS/MSD analysis was not performed nor was it requested on the COC. LCS/LCSD accuracy was acceptable for all 18 NOAA PCB Congeners indicating acceptable accuracy by the laboratory for the method of analysis.

### **Field Blanks**

The Equipment Blanks, WQ-TPC-001-070113-EB and WQ-DPC-001-070113-EB, which were reported in SDG L1312296, were non-detect for all 18 NOAA Congeners; therefore, blank action was not required.

### **Precision**

Precision was acceptable for the LCS/LCSD analysis.

There were no MS/MSD or Field Duplicates associated with the samples in this SDG; therefore, it was not possible to evaluate precision from sample collection through analysis for the samples in this SDG. Please see the Data Validation Report for SDG L1312296, where MS/MSD and FD precision of surface water samples collected in July 2013 were evaluated.

### **Sensitivity & Reporting**

Three samples were diluted prior to analysis so that all results would be reported within the calibration range and qualified “D” by the laboratory. At Battelle’s request, the “D” qualifiers were maintained during the DV process.

Sensitivity in terms of sample-specific reporting limits as compared to PALs defined in QAPP Worksheet #15 of the NHB OU1 QAPP Addendum 2013, were met for all 18 NOAA PCB Congeners.