Sevenson Environmental Services, Inc.

JACOBS

US ARMY CORPS OF ENGINEERS
NEW ENGLAND DISTRICT
Total Environmental Restoration Contract
USACE Contract Number: DACW33-03-D-0006
Task Order No. 0001

AFTER-ACTION REPORT
2004 NEW BEDFORD HARBOR REMEDIAL ACTION

New Bedford Harbor Superfund Site
New Bedford, MA

November 2005

Prepared by
Jacobs Engineering Group
6 Otis Park Drive
Bourne, MA 02532-3870

SDMS DocID 507208

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS vii
1.0 INTRODUCTION 1-1
1.1 PROJECT BACKGROUND 1-1
1.2 TERC CONTRACT 1-7
1.3 PRE-EXISTING SITE FACILITIES 1-7
1.4 INITIAL TASK ORDER SCOPE OF WORK 1-7
1.5 MAJOR TASK ORDER MODIFICATIONS 1-9
2.0 SCOPE OF WORK PERFORMED 2-1
2.1 INITIAL TASK ORDER 2-1
2.1.1 Document Review 2-1
2.1.2 Meetings 2-2
2.1.3 Execution Plan 2-2
2.1.4 Revise Site Plans 2-3
2.2 MODIFICATION 1 2-3
2.2.1 Submittals 2-4
2.3 MODIFICATION 2 2-4
2.3.1 General Mobilization 2-5
2.3.2 Dredge, Treatment Train, and Pipeline Installation 2-5
2.3.3 Truck Scales 2-8
2.3.4 Dewatering Building Air Emissions Contingency Plan 2-8
2.4 MODIFICATIONS 3, 4, AND 5 2-9
2.4.1 System Startup and Shakedown 2-9
2.4.2 Dredge Contaminated Sediments from Area C Cell #1 and DMU-2 2-9
2.4.2.1 Dredging Siltation Control System 2-10
2.4.2.2 Debris Removal Operations 2-10
2.4.2.3 Engineering Controls for Hydrogen Sulfide 2-11
2.4.2.4 Cell #1 Dredging Production 2-16
2.4.2.5 DMU-2 Dredging Production 2-17
2.4.2.6 DMU-2 Survey Activities 2-19
2.4.3 Coarse and Fine Material Separation at Area C 2-20
2.4.3.1 Additional Monitoring Due to Hydrogen Sulfide 2-20
2.4.3.2 Necessity for Supplied Breathing Air 2-25
2.4.3.3 Modifications to GAC System 2-27

TABLE OF CONTENTS

2.4.3.4 Addition of Shaker Screen Hoods 2-28
2.4.3.5 Quantities Generated 2-30
2.4.4 Sediment Dewatering at Area D 2-31
2.4.4.1 Production Variables (Polymers, Cycle Times, etc.) 2-32
2.4.4.2 Quantities Generated 2-34
2.4.5 Wastewater Treatment at Area D Dewatering Facility 2-34
2.4.5.1 Treatment Process Overview 2-34
2.4.5.2 Wastewater Treatment Quantities 2-35
2.4.5.3 WWTP Solids Generated 2-35
2.4.6 General Site Operations and Maintenance 2-36
2.4.6.1 Overview 2-36
2.4.6.2 Dredge Area O&M 2-37
2.4.6.3 Aerovox Area O&M 2-37
2.4.6.4 Manomet Booster Pump Station O&M 2-38
2.4.6.5 Area C O&M 2-38
2.4.6.6 Area D O&M 2-40
2.4.7 Transportation & Disposal of PCB-Contaminated Material from Area C .. 2-42
2.4.8 Transportation & Disposal of PCB-Contaminated Material from Area D .. 2-43
2.4.9 Site Winterization 2-45
3.0 SAMPLING DATA AND ANALYSIS 3-1
3.1 TREATABILITY STUDIES FOR DMU-2 3-1
3.1.1 September 2004 H_2S Bench Tests 3-1
3.1.2 Summary of October and December 2004 H_2S Bench Tests 3-1
3.2 AIR MONITORING 3-1
3.2.1 Ambient Air Monitoring 3-2
3.2.2 Facility Monitoring 3-5
3.2.3 Personal Monitoring 3-6
3.3 SAND, COARSE MATERIAL, AND OVERSIZE DEBRIS 3-8
3.3.1 Discussion of Analytical Results for Characterization 3-10
3.3.2 Discussion of Split Sample Analytical Results 3-11
3.4 DEWATERED SEDIMENT 3-12
3.4.1 Discussion of Filter Cake Analytical Results 3-12
3.4.2 Comparison of Filter Cake and Desanding Plant Analytical Results 3-13

TABLE OF CONTENTS

3.5 WASTEWATER 3-14
3.5.1 Discussion of Analytical Results 3-14
3.6 MASS BALANCE CALCULATION 3-16
3.6.1 New Bedford Harbor Water Balance/Solids Balance Overview 3-16
3.6.2 Solids Balance 3-17
3.6.3 Area C Feed Solids 3-18
3.6.4 Area D Feed Solids 3-18
3.6.5 Water Balance 3-19
3.7 POST-DREDGE CONFIRMATION SAMPLING 3-19
3.8 LONG-TERM MONITORING 3-20
3.9 HEALTH AND SAFETY STATISTICS 3-20
4.0 LESSONS LEARNED/CONCLUSIONS 4-1
4.1 GENERAL 4-1
4.2 HEALTH AND SAFETY 4-1
4.3 QUALITY 4-2
4.4 SUBMITTAL PROCESS 4-3
4.5 GENERAL MOBILIZATION 4-4
4.6 SYSTEM STARTUP AND SHAKEDOWN 4-4
4.7 DEBRIS REMOVAL 4-5
4.8 DREDGING 4-5
4.8.1 Cell #1 Dredging 4-6
4.8.2 DMU-2 Dredging 4-6
4.9 PIPELINE 4-7
4.9.1 Flexible Dredge Pipeline to Ferric Feed System 4-7
4.9.2 Floating Dredge Pipeline from Ferric System to Area C 4-7
4.9.3 Anchored Dredge Pipeline from Area C to Area D 4-8
4.10 SURVEY ACTIVITIES 4-8
4.11 COARSE AND FINE MATERIAL SEPARATION AT AREA C 4-8
4.12 SEDIMENT DEWATERING AT AREA D 4-9
4.12.1 Personnel H_2S Control 4-9
4.12.2 Dilute Press Feed Solids 4-9
4.13 SAMPLE COLLECTION, ANALYSIS AND REPORTING 4-10
4.14 T&D 4-10

TABLE OF CONTENTS

4.15 POSSIBLE PROGRAM IMPROVEMENT ACTIVITIES 4-10
5.0 REFERENCES 5-1

Figures

Figure 1-1 Site Plan 1-5

Tables

Table 2-1 H_2s Headspace Concentrations 2-14
Table 2-2 Air Monitoring Protocol 2-23
Table 2-3 Air Monitoring Results Summary 2-25
Table 2-4 Hydrogen Sulfide Exposure Limits 2-26
Table 3-1 Wastewater Treatment Plant Discharge Goals 3-15

Attachments

Attachment A Summary of 2004 Activities, New Bedford Harbor Superfund Project

Attachment B Revised Process Flow Diagrams and As-Builts

Attachment C Dredge Progress Figures
- Figure C-1 DMU2 Dredge Plan
- Figure C-2 DMU-2 Dredged Areas, October 29, 2004
- Figure C-3 DMU-2 Dredged Areas at or Below Z-Star Target Elevations, November 09, 2004
- Figure C-4 2004 Dredge Area Map
- Figure C-5 Dredge Depth vs. 1999 Bathymetric Survey Contour
- Figure C-6 Dredge Depth vs. 1999 Bathymetric Survey 3D View
- Figure C-7 Dredge Depth vs. Z* Depth Contour
- Figure C-8 Dredge Depth vs. Z* Depth 3D View
- Figure C-9 DMU2 Dredge Plan, Nov 02, 2004
- Figure C-10 DMU2 Dredge Plan, Nov 02, 2004
- Figure C-11 DMU-2 Dredge Area Cross Section Final Survey, 11/12/04

Attachment D Hydrogen Sulfide Documents
- Attachment D-1 Hydrogen Sulfide Control from Desanding Operations at New Bedford Harbor Superfund Site, September 10, 2004
- Attachment D-2 Hydrogen Sulfide Control Bench Test Data Sheets
- Attachment D-3 H_2S Process Engineering Monitoring Plan, New Bedford Harbor Superfund Site
- Attachment D-4 Hydrogen Sulfide Testing Summary and Proposed Plan, New Bedford Harbor Superfund Site, 13 September 2004

TABLE OF CONTENTS

Attachment D-5 Summary of H_2S Bench Tests, New Bedford Harbor Superfund Site, October and December 2004

Attachment E Jacobs Solid and Water Balance, New Bedford Harbor Superfund Project

Attachment F Sevenson Operational Monitoring Data, New Bedford Harbor Superfund Site

Attachment G T&D Reports
- Table G-1 Fine Screenings Transport Log – Area C, New Bedford Harbor Superfund Site 2004 Season
- Table G-2 Coarse Screenings Transport Log – Area C, New Bedford Harbor Superfund Site 2004 Season
- Table G-3 TSCA Filter Cake Waste Transport Log - Area D, New Bedford Harbor Superfund Site 2004 Season

Attachment H Sevenson FY 2004 Winterization Task List, New Bedford Harbor Superfund Site

Attachment I Ambient Air Monitoring Information
- Table I-1 Ambient PCB Sample Station Locations
- Figure I-1 Ambient Air Sampling Station Locations
- Table I-2 Ambient Monitoring Program, Total Detectable PCB in Air
- Air Sampling Status Reports (PETS Curves – 10 Locations)
- PCB Personal Integrated Sample Results

Attachment J Sample Summary Tables
- Table J-1 Process Solids and Analytical Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-2 Sieve Samples Geotechnical Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-3 Screened Materials Data Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-4 Filter Cake Data Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-5 Screened Materials and Filter Cake Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-6 Wastewater Treatment Plant Sampling and Analytical Summary, New Bedford Harbor Superfund Site 2004 Season
- Table J-7 Wastewater Treatment Plant Water Quality Data, New Bedford Harbor Superfund Site 2004 Season

Attachment K New Bedford Harbor Superfund Site 2004, Health and Safety Statistics

(intentionally blank)

ACRONYMS AND ABBREVIATIONS

AAR	*After Action Report*
ACGIH	American Conference of Governmental Industrial Hygienists
BD/DA	Basis of Design/Design Analysis
C	Centigrade
Cd	cadmium
CO	carbon monoxide
CDF	Confined Disposal Facility
cfm	cubic feet per minute
Cu	copper
Cr	chromium
cy	cubic yards
DAF	dissolved air flotation
DDA	Debris Disposal Area
DFW	Definable features of work
DMU	Dredge Management Unit
DO	dissolved oxygen
ENSR	ENSR International
EPA	US Environmental Protection Agency
$Fe_2(SO_4)_3$	ferric sulfate
FeS	ferric sulfide
fpm	feet per minute
frac	fractionation
FSP	Field Sampling Plan
ft.	feet (or foot)

ACRONYMS AND ABBREVIATIONS

FW	Foster Wheeler Environmental Corporation
GAC	granulated activated carbon
GC/MD	Gas Chromatographic/Multi-Detector Detection
GC/MS	gas chromatography/mass spectrometry
gpm	gallons per minute
H^+	hydrogen ion
HCN	hydrogen cyanide
HDPE	high-density polyethylene
hp	horsepower
HS^-	bisulfide ion
H_2S	hydrogen sulfide
H_2SO_4	sulfuric acid
IDLH	Immediately Dangerous to Life or Health
Jacobs	Jacobs Engineering Group
J	estimated concentration
mg/m^3	milligrams per cubic meter
mg/kg	milligrams per kilogram
mm	millimeter
NAE	U.S. Army Corps of Engineers – New England District
NaOH	sodium hydroxide
Na_2SO_4	sodium sulfate
NBH	New Bedford Harbor
ng/m^3	nanograms per cubic meter
NIOSH	National Institute of Occupational Safety and Health
NPL	Superfund National Priorities List

ACRONYMS AND ABBREVIATIONS

NTU	Nephelometric Turbidity Units
OBZ	operator breathing zone
O&G	oil and grease
O&M	operation and maintenance
OU	operable unit
ORP	oxidation reduction potential
OSHA	Occupational Safety and Health Administration
OWS	oil/water separator
Pb	lead
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
PETS	Public Exposure Tracking System
PFD	Process Flow Diagram
PHA	process hazard analysis
PID	photoionization detector
PPE	personal protective equipment
ppm	parts per million
psig	pounds per square inch gauge
PUF	polyurethane foam
PVC	polyvinyl chloride
QAPP	Quality Assurance Project Plan
RAM	respirable aerosol monitor
RMS	Resident Management System
$S^{=}$	sulfide ion
Sevenson	Sevenson Environmental Services

ACRONYMS AND ABBREVIATIONS

Site	New Bedford Harbor Superfund Site
SSHP	Site-Specific Safety and Health Plan
STEL	Short Term Exposure Limit
T&D	transportation and disposal
TCE	trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TDH	total dynamic head
TERC	Total Environmental Restoration Contract
TOC	total organic carbon
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers
VOC	volatile organic compound
WWTP	Wastewater Treatment Plant
µg/L	micrograms per liter

1.0 INTRODUCTION

The purpose of this *After Action Report* (*AAR*) is to summarize the key activities associated with remediation of the New Bedford Harbor Superfund Site (Site) during the 2004 Field Season. This *AAR* consists of six Sections and twelve attachments. This Introduction focuses primarily on administrative and background aspects of the project. The Scope of Work performed during 2004 is presented in Section 2.0 and is organized based on work defined by the Initial Task Order and subsequent Modifications. Section 3.0 presents a discussion of the various studies, analyses, and data performed or developed by the Jacobs Engineering Group (Jacobs) team during 2004. As 2004 was a start-up year, procedures and approaches evolved as information and experiences were gained; these are discussed in Section 4.0 and possible program improvement activities are described. The aforementioned Sections 2.0, 3.0, and 4.0 comprise the bulk of the *AAR*, and the information presented therein is supported by several referenced Attachments that are variously included at the end of this document or bound separately. Finally, major conclusions and cited references are presented as Sections 5.0 and 6.0, respectively.

1.1 PROJECT BACKGROUND

The New Bedford Harbor (NBH) Superfund Site is located in Bristol County, Massachusetts, approximately 55 miles south of Boston, and is bordered by the towns of Acushnet and Fairhaven on the east side of the harbor, and by the City of New Bedford and the Town of Dartmouth on the west side of the harbor. From north to south, the Site extends from the upper reaches of the Acushnet River estuary, through New Bedford's commercial port and into Buzzards Bay. The southern extent of the Outer Harbor and the Site is an imaginary line drawn from Rock Point (the southern tip of West Island in Fairhaven) southwesterly to Negro Ledge and then southwesterly to Mishaum Point in Dartmouth.

Industrial and urban development surrounding the NBH Site have resulted in sediments becoming contaminated with polychlorinated biphenyls (PCBs) and heavy metals, with

concentration gradients generally decreasing from north to south. Identification of PCB-contaminated sediments and seafood in and around New Bedford Harbor was first made in the mid-1970s as a result of US Environmental Protection Agency (EPA) region-wide sampling programs. Based on these sampling programs, the determination was made that the principle sources of PCB contamination were from two electric capacitor manufacturing facilities located adjacent to the Acushnet River/New Bedford Harbor waterway. The primary source of PCB contamination emanated from the Aerovox facility, located near the northern boundary of the Site. PCB wastes were discharged from Aerovox's operations directly into the Upper Harbor through open trenches and discharge pipes, or indirectly throughout the Site via the City's sewage system. Secondary inputs of PCBs were also made from the Cornell Dubilier Electronics, Inc. facility just south of the New Bedford Hurricane Barrier. These electric capacitor manufacturing facilities operated from the 1940s into the 1970s. The NBH Site was added to the Superfund National Priorities List (the NPL) in September 1983.

The NBH Site has been divided into three areas - the Upper Harbor, the Lower Harbor, and the Outer Harbor - consistent with geographical features of the area and gradients of contamination (Figure 1-1). The boundary between the Upper Harbor and the Lower Harbor is the Coggeshall Street Bridge where the width of New Bedford Harbor narrows to approximately 100 feet. The boundary between the Lower Harbor and the Outer Harbor is the 150 foot wide opening of the New Bedford Hurricane Barrier. The operable unit (OU) designation for the Upper and Lower Harbors, and a small portion of the Outer Harbor is OU #1, as defined by the cleanup goals in the *Record of Decision* (EPA 1998).

The Upper Harbor comprises approximately 187 acres, with current sediment PCB levels ranging from below the laboratory detection level to approximately 10,000 parts per million (ppm); prior to the removal of the most contaminated Hot Spot sediments in 1994 and 1995 as part of the Site's first cleanup phase, sediment PCB levels were reported higher than 100,000 ppm in the Upper Harbor. The Lower Harbor comprises approximately 750 acres; in some of this area, sediment PCB levels range from below

detection to over 100 ppm. 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 City's sewage treatment plant's outfall pipes.

(intentionally blank)

Figure 1-1 Site Plan

CBI

(intentionally blank)

1.2 TERC CONTRACT

The EPA and the U.S. Army Corps of Engineers – New England District (NAE) entered into an Inter-Agency Agreement in February 1998 that gives NAE responsibility to provide technical assistance to EPA for the NBH Site. In October 1998, EPA authorized NAE to perform Remedial Design activities associated with the Upper Harbor and Lower Harbor cleanup. All remedial actions undertaken at the Site by the Jacobs team during 2004, were accomplished under U.S. Army Corps of Engineers – New England District Total Environmental Restoration Contract (TERC) No. DACW33-03-D-0006. Through this contract, during 2004 NAE issued an Initial Task Order (Task Order 1) and five Modifications to Jacobs to perform the work; the activities associated with Task Order 1, including subsequent Modifications, are described later in this Section. Additional services related to the remediation effort are being conducted by ENSR and Battelle under separate contract to the NAE. ENSR is providing sampling and analytical services fro groundwater, water column monitoring, and post dredge confirmation sediment sampling. Battelle is providing data base management, data validation services, and is executing the Long-Term Monitoring Program for the project.

1.3 PRE-EXISTING SITE FACILITIES

Prior to Jacobs work at the Site, a number of improvements had been made by others at Areas C and D, including the Area C holding cells, the various Area C office trailers, and the Area D Dewatering Building. These facilities were utilized by Jacobs during 2004 remedial actions. In addition, utilities (public water, sewer, power) were previously installed at the Site to support the remedial activities that occurred prior to 2004. To the extent possible, these utilities were utilized for the remedial action work under this contract.

1.4 INITIAL TASK ORDER SCOPE OF WORK

Tasks covered under the Initial Task Order were primarily administrative and professional in scope to enable project familiarization and planning activities for the 2004 field season to occur. They were performed during the first few months of 2004,

primarily February through May. Principal activities included reviewing existing documents, preparing an *Execution Plan*, and revising site plans. In addition, various meetings were held between NAE and Jacobs to coordinate these activities.

In the period from December 1998 through June 2003, Foster Wheeler Environmental Corporation (FW) developed Remedial Designs for the NBH Site. Eight key FW design documents were reviewed by the Jacobs team, as these summary reports produced by FW generally were intended to provide the basis for subsequent Remedial Actions to be performed at the NBH Site. These documents were reviewed not only to gain insight into project background and existing information, but also to enable Jacobs to identify areas where proposed design aspects or activities could be improved.

Following review of the FW design documents, Jacobs prepared an *Execution Plan* to describe major administrative and technical aspects of proposed fiscal year 2004 and 2005 remediation project activities. With respect to administrative aspects, the *Execution Plan* detailed project organization, office systems, data management, cost accounting and control procedures, and schedule. The bulk of the *Execution Plan* described the proposed scope of work proposed for 2004/2005, including the design, installation, and operation of dredging equipment (barges, pumps, and pipelines), desanding equipment, dewatering equipment, and wastewater treatment equipment, and a description of activities such as material handling, air emission controls, and winter shutdown. The *Execution Plan* also detailed environmental sampling of various media, quality control practices, health and safety protocols, and community relations concerns in support of the various technical activities to be performed.

The final activity associated with the Initial Task Order was revision of five Site Plans initially prepared by FW (*Construction Quality Control Plan*, *Field Sampling Plan* (*FSP*), *Quality Assurance Project Plan* (*QAPP*), *Regulatory Compliance Plan*, and *Transportation & Temporary Storage Plan*), the extensive expansion of the *Site-Specific Safety and Health Plan* (*SSHP*) to address several additional topics, and the creation of an *Environmental Protection Plan*.

1.5 MAJOR TASK ORDER MODIFICATIONS

Modification 1 had a relatively narrow focus. Work performed under this Modification was limited to the design activities associated with the structures, equipment, instrumentation, and other improvements, as well as selected procedures and interactions, associated with proposed remediation processes and support facilities. These design activities culminated in the preparation and submittal of planning documents and other materials to NAE for review and approval.

In preparation for subsequent processing of contaminated sediments, activities performed under Modification 2 included general mobilization, construction of support facilities, installation of dredges, pumps, pipelines, and process equipment, and completion of a Dewatering Facility Air Emissions Contingency Plan.

Modification 3 was the most significant Modification under Task Order 1 during 2004. Submitted to NAE by Jacobs on August 13, 2004 as Request for Proposal No. 4, this Modification provided the basis for performing the bulk of physical remediation activities commencing in late Summer 2004. Tasks executed under Modification 3 between late August and mid-November included system start-up and shakedown, dredging debris and contaminated sediments from Confined Disposal Facility (CDF) Cell #1 and Dredge Management Unit (DMU)-2, providing coarse and fine material separation at Area C, dewatering sediments and treating filtrate at Area D, transporting and disposing of Toxic Substances Control Act (TSCA) filter cake from Area D, and performing sample collection, analysis, and reporting. This Modification also provided for winter shutdown, general Site operations and maintenance through both the processing period and the winter months, and proposal preparation for future activities.

Modification 4, submitted to NAE on October 12, 2004 as Request for Proposal No. 5, had as a primary focus support functions associated with ongoing remediation activities being performed under Modification 3. Modification 4 principally allowed the following activities to occur in response to situations that occurred during the dredging and handling of contaminated sediments: expedited ambient air monitoring lab analysis;

system modifications in response to elevated hydrogen sulfide concentrations at Area C; resources to safely cross an unidentified pipeline; improvement of phone system and local area network infrastructure; and relocation of booster pumps.

Pursuant to Request for Proposal No. 6, on October 14, 2004 Jacobs submitted a Proposal to NAE that became Modification 5. This Modification was modeled on Modification 3, and basically allowed for performing up to an additional 11 days of environmental dredging, desanding/dewatering, wastewater treatment, transport, disposal, and several other tasks associated with the removal of contaminated sediments from DMU-2.

(intentionally blank)

2.0 SCOPE OF WORK PERFORMED

Section 1.0 described the contractual arrangement for work performed during 2004 and introduced the activities associated with the Initial Task Order and the five subsequent Modifications. This Section is organized based on the aforementioned contract elements, and presents a detailed discussion of work activities performed under Task Order 1, including its five 2004 Modifications. To assist in obtaining an introductory overview of the work performed, a chronology of this past year's activities is presented in Attachment A, Summary Table of 2004 Activities.

2.1 INITIAL TASK ORDER

As noted previously, principal activities associated with the Initial Task Order included reviewing existing documents, preparing an *Execution Plan*, and revising site plans; project team coordination meetings were held in support of these efforts.

2.1.1 Document Review

Jacobs gained a historical and technical understanding of the Site, including institutional framework, contaminant characterization and delineation, and preliminary remedial design, through a review of existing pertinent design and data summary documents prepared by FW. The Team reviewed the following FW documents:

- *Final Dredging Basis of Design/Design Analysis (BD/DA) Report* (October 2002);
- *Dredge & Excavation Specifications* (October 2002);
- *Final Excavation BD/DA Report* (October 2002);
- *Final BD/DA, Design Drawings, and Specifications for the Desanding and Dewatering Facilities* (December 2002);
- *Final BD/DA, Design Drawings, and Specifications for the Water Treatment System* (June 2002);
- *Final Confirmatory Sampling Approach Technical Memorandum* (July 2002);
- *Final Volumes, Areas and Properties of Sediment By Management Units Technical Memorandum* (June 2003); and
- *Draft Data Interpretation* Report (June 2002).

Following review, the Jacobs team utilized these existing documents as reference sources when subsequently developing the project *Execution Plan*.

2.1.2 Meetings

Upon review of the existing project documents, the Jacobs team attended a series of planning meetings with NAE and EPA. As a consequence of these discussions, consensus was reached for the dredging and material processing technologies and strategies to be implemented for the initial Harbor remediation in 2004. The decisions reached at these meetings became the basis for development of the project *Execution Plan*.

2.1.3 Execution Plan

The outline of the *Draft Execution Plan* was reviewed by NAE and EPA at a project kickoff meeting held in New Bedford on March 24, 2004. Specific details were discussed that were critical to successfully fast track the design and implementation work necessary to prepare for the 2004 dredging season.

A *Draft Execution Plan* was submitted to NAE and EPA on April 16, 2004. The plan included the following major sections:

- Introduction
- Project Description
- Scope of Work
  - Design (including process flow diagrams)
  - Treatability Study
  - Field Implementation
  - Mass Balance
  - Winter Shutdown
  - 2005 Field Season Plans
- Environmental Sampling
  - Air Monitoring

  - Wastewater Effluent Sampling
  - Dewatered Sediment Sampling
- Quality
- Health and Safety
- Project Organization
- Office Systems
- Data Management
- Costs
- Schedule
- Community Relations

The *Execution Plan* was finalized following an interactive review session with NAE and EPA. The finalized plan was distributed to the project team on July 21, 2004. The document has served as the principal basis for design, implementation, and performance activities for the 2004 field season. Engineering design details and equipment specifications submittals were indexed in accordance with the *Execution Plan* subsections. In addition, the project-specific Definable Features of Work, the basis for the quality control inspection process, were developed from the major work elements described in the *Execution Plan*.

2.1.4 Revise Site Plans

Existing project planning documents (site plans) prepared by Foster Wheeler were revised by the Jacobs team, making them up to date with current project objectives, selected remediation methodologies, and project personnel named to execute the work. The revisions made to each document were reviewed by NAE and EPA before a final document was produced and distributed. The specific documents revised by Jacobs were identified in Subsection 1.4.

2.2 MODIFICATION 1

Modification 1 focused on design activities and submittals, as discussed below.

2.2.1 Submittals

The project submittal list was developed by Jacobs and NAE's Project Engineers at the resident office. The submittal list was entered into the United States Army Corps of Engineers (USACE) Resident Management System (RMS) data base by the Resident office, thereby establishing the official submittal register for the project. Jacobs utilized RMS to prepare transmittal forms (ENG 4025) and to track submittal review and approval status.

The submittal register was developed using the *Execution Plan* as the guidance document. The numbering sequence of the sections and subsections within the *Execution Plan* were used as the reference section number and "specification paragraph number" in the submittal register.

The materials and equipment provided for the dredging and sediment processing operations at the Site were assembled as temporary systems, to be removed and retained by Sevenson Environmental Services (Sevenson) at the conclusion of the project. As such, many of the engineering details for the equipment and material used were submitted to NAE on a 'for information only' basis and did not require governmental approval prior to construction. Furthermore, to expedite the submittal review process, an "on board review" system was established whereby design information was reviewed by NAE project engineers during the mobilization phase of the project.

2.3 MODIFICATION 2

Modification 2 allowed activities such as mobilization, construction, and installation of equipment to occur in support of subsequent contaminated sediment processing. Funding for necessary procurement actions, leased site vehicles, safety supplies, staff travel requirements and additional labor hours in support of the *Air Monitoring Plan* development was also provided under this Modification. These activities are described in the following four Subsections.

2.3.1 General Mobilization

This task provided funding for the Jacobs team to complete many logistical arrangements required to initiate the 2004 field season, which started in June 2004. Office operational systems (i.e., utility, telephone, computer lines, etc.) for Jacobs and Sevenson were initially established within two vacant single-wide office trailers on site, and a new office trailer was placed by Sevenson for their use. During this time period (June to September, 2004), Tetra Tech FW, Inc. continued to occupy the larger double-wide office trailer on site. Following Tetra Tech's departure in September 2004, Jacobs occupied their former offices and one single-wide trailer; Sevenson continued to occupy a second single-wide trailer and their new trailer.

CBI

CBI

CBI

2.3.3 Truck Scales

During the 2004 dredging season, truck scales were used at both Area C and Area D for the purpose of weighing material prior to either offsite shipment (filter cake at Area D) or onsite storage (sand and debris at Area C). Prior to the initiation of transportation and disposal (T&D) field activities, truck scales were installed at both Areas C and D. The scale at Area D was installed west of the Dewatering Building load-out area and the scale at Area C was installed west of the Desanding Building. Both truck scales were installed in August 2004 and calibrated by the City of New Bedford Department of Weights and Measures on September 1, 2004.

2.3.4 Dewatering Building Air Emissions Contingency Plan

In anticipation of further emission controls for nuisance dust, carbon monoxide, volatile organic compounds (VOCs), and PCBs, a technical memorandum was generated to address these potential exposure issues. In the event that direct-read monitoring indicated an exposure issue the following control measures were proposed:

C
B
I

In addition the Dewatering Building Air Emissions Contingency Plan recommended, as a baseline standard procedure, that the facility exhaust fans be operated as appropriate to control air emissions within the facility and the surrounding area.

2.4 MODIFICATIONS 3, 4, AND 5

Modifications 3, 4, and 5 were primarily concerned with actual performance of remedial activities at the Site. With the exception of sample collection and analysis which is discussed separately in Section 3.0, these activities are discussed below based on the general task breakdown associated with Modification 3.

CBI

CBI

CBI

CBI

CBI

CBI

C
B
I

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

C
B
I

CBI

C
B
I

CBI

C
B
I

CBI

C
B
I

2.4.7 Transportation & Disposal of PCB-Contaminated Material from Area C

The material separation operations performed at Area C, as described in Subsection 2.4.3 above, generated both fine and coarse screenings. The *Execution Plan* had envisioned that these materials would be characterized as TSCA or Non-TSCA materials and transported off-site for proper disposal. Based on the limited funds ultimately made available to the NBH TERC during 2004 for remedial activities, EPA and NAE subsequently made the determination that these materials should be stockpiled at the Area C DDA for ultimate disposal in 2005. Periodically, generally once or twice a week, fine and coarse screenings were separately loaded into a site truck, weighed on the Area C truck scale, and driven to the DDA. Between September 21, 2004 and November 11, 2004 the following quantities of material were stockpiled at the DDA:

Fine Screenings (Non-TSCA):	250.33 Tons
Fine Screenings (TSCA):	1,346.27 Tons
Coarse Screenings (Non-TSCA):	32.27 Tons
Coarse Screenings (TSCA):	326.18 Tons

Since material was first placed in these stockpiles, they have been continuously covered with tarps, except during those periodic occasions when material was being actively added to the pile. Details associated with movement and stockpiling of these materials are presented in Attachment G, T&D Reports, as Table G-1 (Fine Screenings Transport Log) and Table G-2 (Coarse Screenings Transport Log). PPE and other contaminated materials present on Site, such as sediment samples collected during the past few years, were transported under manifest to Area D from Area C in a single truckload on November 12, 2004 for subsequent disposal with Area D wastes.

CBI

CBI

2.4.9 Site Winterization

Prior to the start of winterization activities, NAE, Jacobs, and Sevenson agreed on the scope of the winterization activities, as outlined in Attachment H. Many aspects of the site winterization activities, which were initiated on November 9, 2004 and were completed on November 19, 2004, are summarized below:

- CBI

On November 19, 2004, an NAE representative and a Jacobs representative visited each of the areas identified above to verify that all of the winterization activities scoped had been completed.

3.0 SAMPLING DATA AND ANALYSIS

3.1 TREATABILITY STUDIES FOR DMU-2

CBI

3.2 AIR MONITORING

Air monitoring was conducted during 2004 using several industry-accepted methods. Since PCBs were the primary chemical of concern identified for community worker health, the main focus of monitoring was to determine PCB exposure. For the Ambient

Air Monitoring Program, a low-flow sampling method for PCBs was selected for its flexibility in locating sample stations in and around the Upper New Bedford Harbor. The methodologies for the complex Ambient Air Monitoring Program is further explained in Subsection 3.2.1. Facility monitoring was routinely conducted for total VOCs, primarily chlorinated solvents. Direct-read instrumentation was used to collect data on these exposures. Facility monitoring is further explained in Subsection 3.2.2. A combination of direct-read instrumentation and integrated sample collection was utilized during 2004 production activities to monitor personnel exposures during sediment processing beginning at the dredge and including all other work areas. Personnel exposure monitoring is further explained in Subsection 3.2.3.

3.2.1 Ambient Air Monitoring

The background information and the establishment of the Ambient Air Monitoring Program for the project was developed in the document titled *Plan for the Sampling of Ambient Air PCB Concentrations to Support Decisions to Ensure the Protection of the Public During Remediation Activities, New Bedford Harbor Superfund Site, New Bedford Massachusetts* (Foster Wheeler 2001). This document was revised in January 2004 by NAE. The information provided in this subsection describes the Ambient Air Monitoring program implemented by the Jacobs team during the 2004 season.

In previous sampling events, Graseby brand Model PS-1 polyurethane foam (PUF) high volume samplers were used to collect ambient samples. These units require a 120 volt power supply and are not particularly mobile. Jacobs proposed an alternative low flow method with the added benefit of portability and the unit being self contained. All potential sample locations for the Ambient Sampling Program were selected during the modeling process and then ground-proofed for accessibility. The stations used for the 2004 season were 24, 24D, 25, 41, 47, 48, 49, 50, 51, 52, 53, 54, 55, and 56. However, only combinations of 10 of the 14 stations were used during each sampling round. A pilot test was conducted on June 30, 2004 to ensure the use of the BGI brand PQ-100 portable samplers and the low flow analytical method, EPA TO-10A, Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume PUF

Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD), January 1999 would meet the data quality objectives of the project. Samples were collected at the Aerovox parking lot and at Area D near the eastern bulkhead. The samples were analyzed for both the 209 congeners and the 10 homologues for PCBs.

In August 2004, a comparison of three analytical methods was made in an effort to minimize analytical costs. EPA Methods 8082 (Gas Chromatography with Electron Capture Detector), 680 (Low Resolution gas chromatography/mass spectrometry (GC/MS)), and 1668 (High Resolution GC/MS) were evaluated for homologue reportability, number of congeners reported, minimum detection limits base on a 7.2 cubic meter sample, possible interferences and other criteria. The only method providing all of the necessary information required was Method 1668, High Resolution GC/MS; unfortunately this was also the most expensive method of the three.

A series of seven sampling rounds at 10 station locations described in Table I-1 and depicted in Figure I-1 were completed over the course of the dredging season. Six of the rounds were during dredging operations and one was conducted post-operation as a representation of background conditions. The sample locations were identified through a series of EPA SCREEN3 Air Models. Emission rates were assumed based on previous studies for the dredging activity at DMU-2 (area source), the desanding operation at Area C (a combination of desanding point source and Cell #1 area source), and the dewatering operation at Area D (dewatering point source). All potential sample locations for the Ambient Sampling Program were selected during the modeling process and then ground-proofed for accessibility. The stations used for the 2004 season were 24,24D, 25, 41, 47, 48, 49, 50, 51, 52, 53, 54, 55, and 56. However, only combinations of 10 of the 14 stations were used during each sampling round. The 10 station locations were selected in consultation with the NAE and EPA.

Each of the samples was collected using a calibrated BGI brand PQ-100 air sampling pump programmed to run for a 24-hour time period. The sampling pump has a mass flow controller to accurately (+/-2 percent) adjust the 5-liter per minute flow based on the calibrated standard temperature and pressure. The media used was a 22 millimeter (mm)

Supelco Orbo-1500 PUF/XAD-2/PUF sample tube with a 32 mm quartz microfiber filter as the lead media. A standard chain of custody was maintained for each sample collected. The samples were analyzed for the ten PCB homologue groups by Severn Trent Laboratories, Inc. in Knoxville, Tennessee using EPA method TO-10A. Sample turn-around time varied from two weeks to four weeks depending on the sampling round.

The collected mass of each homologue group was quantified and normalized to the total volume of air collected to develop concentrations for each homologue group by the laboratory. The homologue group concentration was then summed to obtain the ambient air concentration of total PCBs. Upon receiving laboratory data, the total PCB concentration was entered into a spreadsheet to follow trends using un-validated data. Once validated data was obtained it was inputted into the Public Exposure Tracking System (PETS). PETS was developed to track exposures and provide a "trigger" of possible actions to take as a result of airborne sample concentrations. Table I-2 depicts the cumulative results of potential public exposures for the 2004 Ambient Air Monitoring Program at each of the monitoring stations. A series of Air Sampling Status Reports (PETS Curves) for 10 locations is also presented in Attachment I.

In certain instances in the PETS curves, the C1 trigger was displayed on the summary sheet. The C1 trigger is set at 1000 nanograms per cubic meter (ng/m^3), which is based on the NIOSH recommended exposure limit and states the "Measured Concentration Exceeds Maximum Occupational Limit". It is important to note that this is an erroneous statement generated within the program. The current legally mandated occupational exposure limit is set at 500,000 ng/m^3 by OSHA.

One particular sample result collected over a 24-hour period on 9/27/04 to 9/28/04 at the eastern portion of the Aerovox parking lot was at 9557 ng/m^3. This result was significantly higher than experienced in three previous sampling rounds, affecting the cumulative exposure budget by approximately 30 percent. In response to this anomalous data point, a detailed analysis of potential factors contributing the higher level was made. Potential contributing factors identified were:

- Temperature
- Wind speed and direction
- Solar radiation
- Dredging duration
- Adjunct activities
- Floating oil
- Tides
- Barometric pressure

It does not appear that temperature, wind speed, wind direction, and barometric pressure made major contributions to the elevated concentration. Solar radiation data was not evaluated due to a lack of data.

It does appear that dredging duration, adjunct activities, floating oils, and tides may have contributed significantly to the elevated concentration. It is believed that the primary contributory factors deal with the duration of activities and surface area. Up to 14 hours of dredging activities occurred during the 24-hour sampling period. Over the two work days, approximately 50 percent of the dredging occurred at or near low tide. Subsequently, the duration of supporting boating activities was higher during this sampling event than others. In addition, the low tide was a negative 0.3 feet at this time causing the source area shoreline and mud flats to be exposed for a greater time with greater surface area exposed. These exposed areas coupled with various types of floating oils increased the overall surface area for PCB vaporization.

3.2.2 Facility Monitoring

Given the experience of the past season it appears that nuisance dust and VOCs were not an issue as indicated by monitoring instrumentation within Area D.

However, carbon monoxide generated by gasoline-powered pressure washers periodically became an issue during housekeeping efforts. Direct read instrumentation was placed adjacent to the work area to measure carbon monoxide levels. If levels were such that the

instrument alarmed (set at 20 ppm), the pressure washer was shut down. The exhaust was dissipated by the building's general dilution ventilation system. Carbon monoxide generated by the diesel-powered equipment was minimized through the installation and use of manufacturer-designed catalytic exhaust scrubbers. There did not appear to be excessive levels of carbon monoxide that were not readily addressed by the building's ventilation system.

The last integrated sample collected for PCBs did indicate a potential problem in the load-out/filter cake storage area. The sample was collected during a shipment of nine trucks for the day (approximately 275 tons of filter cake), during filter cake production, and during housekeeping activities. While the sample concentration was well below the permissible exposure limit, a level of 0.232 ng/m^3 was the highest obtained during the project.

Facility monitoring data are included in the daily reports for the project. Continuous logging over the course of the work shift was performed for all work locations measured. The data did not indicate any exposures during 2004.

Hydrogen sulfide became a major concern within the Desanding Building and on the dredges and work boats while dredging in DMU-2. Refer to Sections 2.4.3.1 through 2.4.3.4 for a thorough discussion regarding H_2S.

3.2.3 Personal Monitoring

To determine personnel exposures to PCBs two methods were used. The first method was to screen work areas with a direct reading respirable aerosol monitor (RAM), an MIE mini-RAM. An exposure limit of 1.5 mg/m^3 was selected for particulates not otherwise classified as representative of potential harmful exposure to PCBs in the air. The mini-RAM was held by hand at operator breathing zone (OBZ) height (approximately 60 inches off the floor or work platform) in various locations within the filter press area, waste-water treatment area, and filter cake storage/load-out area. During the use of the mini-RAM there were no exposures noted above half the exposure limit. At one point

during processing, the transfer conveyor began slipping and caused a considerable amount of smoke to be generated. Readings obtained close to the point of generation did give readings in excess of the exposure limit; however, these readings were assessed to be largely caused by smoke particles. The general exhaust ventilation evacuated the smoke within a very short time. The conveyor was stopped, adjusted, and returned to operation without further problem.

The second, more accurate, means of measuring personnel exposure to PCBs was through integrated sample collection. Health and safety staff collected approximately 75 samples over the course of the year. Samples were collected using a Gillian brand personal sampling pump set at a flow rate of approximately 200 cubic centimeters/minute. The filter media consisted of an SKC brand Florisil tube (100 mg/50 mg) with a 13 mm glass fiber filter attached to the front of the Florisil tube. NIOSH's Analytical Method 5503 for PCBs was followed for analysis.

Although the samples were collected as area samples versus hanging the sampling train on the operators, the media was placed at OBZ levels and within the work area most used by personnel. Considering the low sample results obtained, this technique should be considered acceptable as representative measures of personnel exposures.

Graphics of sample dates, locations, and results are presented in Attachment I. Additional single location samples were collected within the Area D loader operator cab (3700 ng/m^3), Area D laboratory oven exhaust (4800 ng/m^3), and the Manomet Booster Pump Station (2000 ng/m^3). The occupational exposure limit to PCB (54 percent chlorine) is 500,000 ng/m^3.

None of the sample results indicated an overexposure in the work area. However, one sample taken in the Area D load-out area revealed a concentration of 232,000 ng/m^3. This concentration is being heeded as a sign that next season's filter cake load-out management scheme will be revised to ensure that "stock" is rotated to ensure the driest cake is taken out first. Additional housekeeping measures such as splatter control and increased wash downs to control dust accumulations will be implemented as well.

3.3 SAND, COARSE MATERIAL, AND OVERSIZE DEBRIS

Sampling and analytical activities associated with sediment processing activities are presented in this Subsection for solids separated out at Area C, and in Subsections 3.4 and 3.5 for filter cake and wastewater respectively. Sampling/analytical information and data associated with these materials is presented in a series of tables in Attachment J.

In addition, oversize debris also was removed from New Bedford Harbor prior to dredging activities at DMU-2. In accordance with the August 2004 *FSP*, only samples of the sand were submitted for chemical analysis. It is anticipated that the coarse screenings and oversized debris will be sampled and analyzed for disposal characterization during the 2005 field season. All three waste streams (sand, coarse material, and oversize debris) are currently stored under tarps at the DDA at Area C.

During 2004 DMU-2 and Cell #1 dredging activities, composite samples of the sand were collected at about every 100 tons of sand material produced (Table J-1). Following collection, the sand samples were transported to offsite laboratories (Severn Trent in Colchester, Vermont and Newburgh, New York), and analyzed for PCBs, oil and grease (O&G), and total metals in accordance with the procedures outlined in the *FSP* and the *QAPP*. In addition, selected soil samples were submitted to GeoTesting Express in Boxborough, MA for geotechnical (grain size) analysis. The analytical results (PCBs and oil and grease) are presented in Table J-1 and the geotechnical results (grain size) are presented in Table J-2. Since the total metals results were not used for TSCA determination, the metals results were not tabulated for this *AAR*. In addition to the soil samples submitted for offsite grain size analysis, Jacobs personnel also wet-sieved screened material samples and selected filter cake samples to estimate the sand fraction of the various waste streams. As presented in Table J-2, the offsite and onsite grain size

results from the same material (e.g. screened material or filter cake) were generally similar with respect to percent sand.

CBI

- CBI

3.3.1 Discussion of Analytical Results for Characterization

The PCB and oil and grease analytical results for all of the solid samples submitted for analysis (including filter cake from Area D) are summarized in Table J-1. The PCB and

oil and grease analytical results for screening material only (Area C) are presented in Table J-3.

The following summarizes the results of the desanding plant sampling:

- The PCB results ranged from an estimated concentration (J) of 9.0 milligrams per kilogram (mg/kg) to 18.3 J mg/kg. Since these PCB concentrations were below the TSCA threshold concentration of 50 mg/kg, these Cell #1 sands were moved to the DDA and segregated from the DMU-2 sediments.
- The oil and grease concentrations ranged from 410 mg/kg to 890 mg/kg. There are no action levels for oil and grease concentrations detected in the New Bedford Harbor sediments. The oil and grease analyses were performed to assess potential correlation between oil and grease concentrations and PCB concentrations.

The following summarizes the results of the DMU-2 desanding sampling:

- The PCB concentrations ranged from 18.8 J mg/kg to 235 mg/kg. Since the PCB concentrations in the desanding plant material generated during the DMU-2 activities were generally above the TSCA threshold concentration of 50 mg/kg, these sands were segregated from the Cell #1 sediments.
- The oil and grease concentrations ranged from below detection limits to 1,600 mg/kg.

3.3.2 Discussion of Split Sample Analytical Results

The following observations were made on the results of the split samples of the three soil samples (V1-102704, V1-110304, and V1-11104) that were submitted for PCBs, oil and grease, TOC, and total organics:

- Of the sieve fractions (No. 40-plus, No. 100, and No. 200, which are from coarsest to finest), the highest percentage of organic matter was detected in the No. 40-plus sieve fraction.
- For the split samples for V1-110304 and V1-11104, the highest TOC concentrations were detected in the No. 40-plus sieve fractions.
- Concurrently, the highest concentrations of total PCBs in the splits of Samples V1-102704, V1-110304, and V1-11104 were detected in the No. 40-plus sieve fraction at concentrations of 283 J mg/kg, 83 mg/kg, and 27.7 J mg/kg, respectively.

C

3.4 DEWATERED SEDIMENT

During the 2004 season, the dewatering process at Area D produced filter cake that was all disposed offsite as TSCA waste. In accordance with the August 2004 *FSP*, composite samples of the filter cake were collected at a frequency of approximately 1 sample per 550 tons of filter cake produced and submitted for analysis for total PCBs, metals, and oil and grease (Table J-1). The purpose of collecting these samples was to develop a running analytical profile of the filter cake waste and to monitor performance of the dewatering process. As presented in Table J-1, all of the filter cake submitted for analysis was greater than the 50 mg/kg criteria for TSCA waste.

Selected samples were also submitted for geotechnical analysis at the offsite laboratory (Severn Trent) and a number of samples were wet-sieved at Area C to determine the sand fraction of the filter cake (Table J-2).

CBI

The TCLP analytical results are presented in Appendix J at the end of Table J-1. The TCLP analyses passed the disposal facilities criteria to be land filled as a TSCA waste.

3.4.1 Discussion of Filter Cake Analytical Results

The PCB, oil and grease, and grain size results for filter cake samples are summarized in Table J-4. The following summarizes the results of Cell #1 and DMU-2 dewatering plant filter cake plant sampling activities:

- PCBs and oil and grease were detected at concentrations of 133 mg/kg and 4,300 mg/kg, respectively in the one sample that was collected from Cell #1 filter cake.
- The DMU-2 PCB concentrations ranged from 171 J mg/kg to 1,270 J mg/kg. All of the DMU-2 PCB concentrations were above the TSCA threshold concentration of 50 mg/kg.
- The oil and grease concentrations ranged from below detection limits to 3,500 mg/kg.
- The grain size for the samples submitted for offsite analysis ranged from 2.5 percent to 55 percent sand as presented in Table J-2.

CBI

3.5 WASTEWATER

During the 2004 dredging season, water samples were collected at the influent, mid-point, and effluent sampling ports to evaluate the effectiveness of treatment and to determine whether treated water is acceptable for discharge to the harbor. All of the WWTP sampling activities were conducted in accordance with the *FSP*. The influent and mid-point samples were grab samples collected from sampling ports. The effluent samples were collected utilizing a composite sampler provided by NAE. The wastewater samples were packaged and transported to the contract laboratories, and analyzed for PCBs, copper (Cu), chromium (Cr), cadmium (Cd), and lead (Pb), in accordance with the procedures outlined in the *FSP* and the *QAPP*. The analytical results are summarized in Table J-6 and are discussed below.

Water quality parameters were recorded during each sampling event at the influent, mid-point, and effluent sampling ports. These water quality parameters included pH, conductivity, turbidity, temperature, salinity, dissolved oxygen (DO), and oxidation reduction potential (ORP) and are summarized in Table J-7. The instrument used to measure the water quality parameters was switched from a Horiba U-10 to a YSI 6920 after the September 16, 2004 sampling event due to problems with the pH measurements.

3.5.1 Discussion of Analytical Results

The discharge goals for wastewater treatment are presented below in Table 3-1.

Table 3-1 Wastewater Treatment Plant Discharge Goals

Analysis	Surface Water Discharge Treatment Goal (µg/L)
PCB (per Aroclor)	0.065
Metals	
Cd	9.3
Cr	50
Cu	5.6
Pb	8.5

CBI

Mid-Point Concentrations. PCBs, Cd, and Pb were not detected above the laboratory detection limits in the mid-point water samples, during treatment of wastewater generated during the dredging of both Cell #1 and DMU-2. The mid-point concentrations of Cu ranged from below detection limits to 4.9 µg/L. The mid-point concentrations of Cr ranged from below detection limits to 4.0 µg/L (Table J-6).

Effluent Concentrations. During treatment of water generated during the dredging of both Cell #1 and DMU-2 operations, PCBs and Pb were not detected above the laboratory detection limits in the effluent water samples. The effluent concentrations of Cu ranged from below detection limits to 4.2 micrograms per liter (µg/L). Cd was

detected above the laboratory detection in only one effluent sample at a concentration of 0.54 µg/L. The effluent concentrations of Cr ranged from below detection limits to 3.4 µg/L. Therefore, the surface water discharge treatment goals were met for PCBs, Cd, Cr, Cu, and Pb throughout the season.

Effectiveness of Treatment. Therefore, a comparison of the influent, midpoint, and effluent concentrations of PCBs and the selected metals indicates that the WWTP is effective at removing the contaminants of concern from the wastewater prior to discharge to the surface water of the New Bedford Harbor.

3.6 MASS BALANCE CALCULATION

CBI

CBI

CBI

CBI

3.7 POST-DREDGE CONFIRMATION SAMPLING

ENSR (the NAE contractor for the New Bedford Harbor sediment and surface water sampling) collected post-dredge confirmation samples and progress samples during the 2004 DMU-2 dredging activities. The sampling activities were conducted in accordance with the procedures presented in the *Final Confirmatory Sampling Approach, New Bedford Harbor Superfund Site, July 2002,* and the *Sampling and Analysis Plan, New Bedford Harbor Superfund Site, Revision 21, June 2002*. The results of these sampling events are presented in ENSR's reports entitled *Water Quality Monitoring Summary Reports 2004* and *Sediment Sampling Summary Reports 2004.*

3.8 LONG-TERM MONITORING

As part of the Long-Term Monitoring Program, Battelle conducted sediment and water sampling, throughout the 18,000-acre New Bedford Site prior to the start of the 2004 dredging season. The purpose of these sampling activities was to assess the effectiveness of the NBH remediation efforts. The sampling was conducted in accordance with the Long Term Monitoring plan that was developed by the EPA's research laboratory, Atlantic Ecology Division in Narragansett, Rhode Island. As with the post-dredge confirmation activities discussed above, the results of these sampling events are beyond the scope of this document.

3.9 HEALTH AND SAFETY STATISTICS

During the course of the 2004 dredging season, 72,110 labor hours were expended with zero E-1s (doctor visit due to work-related injury) or lost time incidents. During this time there were only four first aid cases. There were however, four incidents listed below that resulted in changes to operations.

- 7/29/04: Release of approximately 10 gallons of petroleum-based hydraulic fluid into the Acushnet River. As a corrective action after this incident, all hydraulic fluid used in equipment operating on or near the water were changed to vegetable oil based fluids.
- 8/2/04: A near-miss while operating an all-terrain crane. The crane was overloaded and resulting in a tipping condition. As a corrective action, more scrutiny was given to all crane lifting operations.
- 9/8/04: Hydrogen sulfide was released from the slurry in the desanding operations building in concentrations requiring respiratory protection. As a corrective action, a ferric sulfate injection system was installed to H_2S formation in the building. Operations were modified to enhance local exhaust ventilation and implement supplied air respiratory protection for all workers.
- 11/9/04: Release of a vegetable-oil based hydraulic fluid from dredging operations in DMU-2.

Health and safety plans (4) were developed for the season's operations and four existing health and safety plans were revised. Throughout the field season, 23 activity hazard analyses were written for all site operations. Seventy-nine personnel attended site-

specific training. Integrated samples were collected for exposure to PCBs, hydrogen sulfide, and hydrogen cyanide. There were no overexposures indicated by these samples' results. Specific information related to the above information and a breakdown of Safety Observation Reports by category are presented in Attachment K.

(intentionally blank)

4.0 LESSONS LEARNED/CONCLUSIONS

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

5.0 REFERENCES

Foster Wheeler Environmental Corporation. 2002 (October). *Final Dredging Basis of Design/Design Analysis Report, New Bedford Harbor Superfund Site.* 2002-017-0232.

_____. 2002 (July). *Final Confirmatory Sampling Approach, New Bedford Harbor Superfund Site.* 2002-017-0205.

_____. 2002 (June). *Draft Data Interpretation Report, New Bedford Harbor Superfund Site.* 2002-017-0157.

_____. 2002 (June). *Sampling and Analysis Plan, New Bedford Harbor Superfund Site, Revision 21.* 2001-017-023.

_____. 2001 (November). *Final Attachment 1 to the Regulatory Compliance Plan for the Full-Scale Dredging/Excavation/Restoration Program Design and the Dewatering & Rail Facility Designs, New Bedford Harbor Superfund Site.* 2001-017-0374.

_____. 2000 (October). *Final Regulatory Compliance Plan for Remedial Design Operable Unit #1, New Bedford Harbor Superfund Site.* 2000-17-0292.

Jacobs Engineering Group Inc. (Jacobs). 2004 (October). *Dewatering Building Air Emissions Contingency Plan Technical Memorandum*. ACE-J23-35BG0102-G7-0002.

_____. 2004 (September). *Construction Quality Control Plan for Remedial Action, New Bedford Harbor Superfund Site*. ACE-J23-35BG0102-M3-0007.

_____. 2004 (September). *Quality Assurance Project Plan, New Bedford Harbor Superfund Site*. ACE-J23-35BG0102-M3-0003.

_____. 2004 (September). *Site-Specific Safety and Health Plan, New Bedford Harbor Superfund Site*. ACE-J23-35BG0101-M3-0005.

_____. 2004 (August). *Dredging, Processing, and T&D of CDF Cell 1 and DMU-2 Sediments & Performance of Site O&M Services: New Bedford Harbor Superfund Site, Response to Request for Proposal No. 4*.

_____. 2004 (August). *Environmental Protection Plan, New Bedford Harbor Superfund Site.* ACE-J23-35BG0101-M1-0001.

_____. 2004 (August). *Field Sampling Plan, New Bedford Harbor Superfund Site*. ACE-J23-35BG0101-M3-0012.

_____. 2004 (August). *Transportation and Temporary Storage Plan, New Bedford Harbor Superfund Site*. ACE-J23-35BG0102-M3-005.

_____. 2004 (July). *Execution Plan 2004, 2005, New Bedford Harbor Remedial Action, New Bedford Harbor Superfund Site.* ACE-J23-35BG0101-M1-0002.

U.S. Army Corps of Engineers, New England District (NAE). *NAE TERC No. DACW33-03-D-0006* and subsequent Task Orders.

U.S. Environmental Protection Agency (EPA). 2002 (August). *Explanation of Significant Differences for the Upper and Lower Harbor Operable Unit, New Bedford Harbor Superfund Site*.

_____. 2001 (September). *Explanation of Significant Differences for the Upper and Lower Harbor Operable Unit, New* Bedford Harbor Superfund Site.

_____. 1999 (January). *Compendium Method TO-10A, Determination of Pesticides and Polychlorinated Biphenyls in Ambient Air Using Low Volume Polyurethane Foam (PUF) Sampling Followed by Gas Chromatographic/Multi-Detector Detection (GC/MD).*

_____. 1998 (September). *Superfund Record of Decision for the Upper and Lower Harbor Operable Unit, New Bedford Harbor Superfund Site.*

ATTACHMENT A

Summary of 2004 Activities

Attachment A
Summary of 2004 Activities
New Bedford Harbor Superfund Project

Date	Activity	Summary
Revise/Submit Planning Documents		
Draft May '04 Final July '04	Submit Execution Plan - *Execution Plan 2004, 2004 New Bedford Harbor Remedial Action, New Bedford Harbor Superfund Site, New Bedford, MA*	Submittal of Execution Plan outlining the remediation of the New Bedford Superfund Site to be accomplished for Fiscal Year (FY) 2004 and 2005.
Draft April '04 Final Sept. '04	Site Safety & Health Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft May '04 Final Sept. '04	Emergency Response Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft May '04 Final August '04	Construction Quality Control Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft May '04 Final August '04	Field Sampling Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft June '04 Final September '04	Quality Assurance Project Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft July '04 Final November '04	Regulatory Compliance Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft May '04 Final August '04	Transportation & Temporary Storage Plan	Revised and updated existing plan prepared by Foster Wheeler.
Draft May '04 Final August '04	Environmental Protection Plan	Includes plans for environmental protection around each of the major components of the dredging, desanding, dewatering and water treatment systems.
Submittal of Initial Task Order/Subsequent Modifications		
Submitted 2/5/04	Initial Task Order	**Tasks covered under Initial Task Order include following**: Review documents, attend meetings, prepare Execution Plan, and revise site plans.
Submitted 5/6/04	Modification 1	**Tasks under Mod. 1 include following**: Submittal of planning documents.
Submitted 5/24/04	Modification 2	**Tasks under Mod. 2 include following**: General mobilization, dredge, installation of dredges, treatment train, pipelines, and completion of Dewatering Facility Air Emissions Contingency Plan.

Attachment A
Summary of 2004 Activities
New Bedford Harbor Superfund Project

Date	Activity	Summary
Submitted 8/13/04	Modification 3	**Tasks under Mod. 3 include following**: System start-up and shakedown; dredge CDF Cell 1 and DMU-2; debris, coarse and fine material separation at Area C; sediment dewatering at Area D; wastewater treatment at Area D dewatering facility; sample collection, analysis and reporting; general operations and maintenance; T&D of PCB contaminated material from Area C and D (including options for both); and proposal preparation and winter shutdown.
Submitted 10/12/04	Modification 4	
Submitted on 10/14/04	Modification 5	**Tasks under Mod. 5 include following**: up to 11 days of environmental dredging, desanding/dewatering, wastewater treatment, transport, disposal, and several other tasks associated with the removal of contaminated sediments from DMU-2 and CDF Cell 1.
Mobilization Activities		
Jun-04	HDPE fusion welding	Prep. Inspect. (6/7/04), Initial Inspection (6/24/04)
June/July 2004	Desanding plant building erection (Area C)	Prep. Inspect. (6/24/04), Initial Inspection (7/12/04)
Jun-04	Diving operations associated with submerged pipeline	Prep. Inspect. (6/18/04), Initial Inspection (6/23/04)
Jun-04	Submerged pipeline installation	Prep. Inspect. (6/18/04), Initial Inspection (7/27/04)
Jul-04	Utility installation	Prep. Inspect. (7/21/04), Initial Inspection (8/11/04)
Jul-04	Offloading and assembling marine equipment	Prep. Inspect. (7/29/04), Initial Inspection (7/30/04)
Aug-04	Placement and tie-down of debris removal platform in DMU-2	Prep. Inspect. (8/10/04), Initial Inspection (8/12/04)
Aug-04	Sheet pile, traveling cable, silt skirt installation	Prep. Inspect. (8/10/04), Initial Inspection (8/17/04)
Aug-04	Booster pump placement and assembly	Prep. Inspect. (8/6/04), Initial Inspection (8/12/04 and 10/12/04)
Aug-04	Dredge piping connect at bulkhead	Prep. Inspect. (6/18/04), Initial Inspection (8/04/04)

Attachment A
Summary of 2004 Activities
New Bedford Harbor Superfund Project

Date	Activity	Summary
Dredging and Associated Activities		
9/1/2004	Initiated CDF Dredging	This included the start-up of activities for the following supporting operations: **Desanding operations** (prep. Inspect. [8/13/04] and initial inspect. [9/16/04]); **Dewatering operations** (prep. inspect. [8/13/04] and initial inspect. [10/05/04]); and **waste water treatment operations** [8/19/04] and initial inspect. [10/05/04].
8/31/2004	Initiate DMU-2 debris removal activities	Debris removal activities were initiated on this date with an excavator placed on a barge.
9/7/2004	Completed DMU-2 debris removal activities	Due to concerns with regard to lack of vertical control and with turbidity generated by debris removal activities, these activities were ceased.
9/8/2004	Initiated DMU-2 Dredging	The preparatory inspection for the dredging operations was conducted on 8/25/04.
9/8/2004	Suspended DMU-2 Activities due to hydrogen sulfide gas at desanding plant	Elevated H_2S levels were detected at the desanding plant (Area C) that warranted ceasing DMU-2 dredging operations until process controls were identified and implemented.
9/22/2004	Completed CDF Dredging	CDF dredging operations were suspended due to issues with debris in cell and the potential effect on pipeline blockages.
9/22/2004	DMU-2 dredging operations resumed with H_2S controls in place	DMU-2 operations were resumed with the following H_2S controls: ferric sulfate injection at Aerovox (prep inspect. [9/21/04] and initial inspect [10/07/04]; and workers in level B protection in the desanding plant (Area C). In addition, increased health and safety monitoring was conducted.
9/29/2004	Initiate shipment of filter cake material from Waste Water Treatment Plant (WWTP)	The Waste Management Process was initiated with the Sept. 21, 2004 preparatory meeting.
10/14/2004	Initiated H2S gas removal at the coarse shaker with ventilation hoods	Local exhaust ventilation system installed as secondary engineering control in the event the ferric sulfate system was not reducing hydrogen sulfide levels below IDLH levels.
11/5/2004	Desanding plant operations were conducted in Level D protection	Workers continued with personal and area monitors for hydrogen sulfide concentrations. Emergency air packs were used as well.

Attachment A
Summary of 2004 Activities
New Bedford Harbor Superfund Project

Date	Activity	Summary
Air Monitoring Activities		
	Air Monitoring Plan Submittal	Prep. Inspect. (6/29/04), Initial Inspection (10/18/04)
6/29-30/2004	Test Round of Air Sampling	Test samples (2) collected to prove low flow sampling and analytical methods were equal to high flow methodology used in previous work.
9/8-9/204	1st Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis.
9/13-14/2004	2nd Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis.
9/22-23/2004	3rd Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis.
9/27-28/2004	4th Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis.
10/18-19/2004	5th Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis.
11/4-5/2004	6th Round of Air Sampling	Twelve PUF with quartz filter samples collected for analysis. The two lowest samples from both Areas C and D were not collected. Instead those samples were used at new locations identified as Stations 42, 54, 55, and 56 to better determine what impact dredging activities were having on the community.
12/1-2/2004	7th Round of Air Sampling	Post dredging/sediment processing samples to determine background values during inactive season.
Winterization Activities		
11/9/04 - 11/18/04	Winterization	Winterization activities were conducted for the following operations: DMU-2; Aerovox ferric sulfide treatment system; Booster pump; docks at Area D; DDA storage; CDF ponds; desanding building (Area C); and dewatering plant (Area D).

ATTACHMENT B

Revised Process Flow Diagrams and As-Builts

CBI

CBI

CBI

ATTACHMENT C

Dredge Progress Figures

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

ATTACHMENT D

Hydrogen Sulfide Documents

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

ATTACHMENT E

Jacobs Solids and Water Balance

CBI

ATTACHMENT F

Sevenson Operational Monitoring Data

CBI

CBI

ATTACHMENT G

T&D Reports

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

ATTACHMENT H

Sevenson FY 2004 Winterization Task List

Attachment H
Sevenson FY2004 Winterization Task Lisk
New Bedford Harbor Superfund Site

Task	Status
Winterization Duration 11-3-04 to 11-19-04	
Dredges	
1. Remove CDF dredge to Area D, rinse-off in CDF, ship off-site	Return to Sevenson
2. Rinse-off 1st H&H at DMU-2, move to Area D, spray-off in river at Area D [with oil boom in river], ship off-site	Return to Sevenson
3. Rinse-off 2nd H&H at DMU-2, move to Area D, spray-off in river at Area D [with oil boom in river], store on east parking area	Store at Area D
4. Rinse-off 1st Mudcat at DMU-2, move to Area D, spray-off in river at Area D [with oil boom in river], store on east parking area	Store at Area D
5. Rinse-off 2nd Mudcat at DMU-2, move to Area D, spray-off in river at Area D [with oil boom in river], store on east parking area	Store at Area D
DMU-2	
1. Remove cables, store at Area C	Store at Area C
2. Remove silt curtains, store at Area C	Store at Area C
3. Rinse excavator at DMU-2, remove to Area C, ship off-site	Store at Area C
4. Remove barges to Area C and pin to docks	Store at Area C docks
5. Remove oil boom to Area C and store on plastic, under a tarp	Store at Area C
6. Remove debris scow to Area C, remove debris.	Store at Area C
7. Remove debris scow to Area D, spray-off in river at Area D [with oil boom in river], store on east parking area	Store at Area D
River Pipelines from DMU-2 down to Area C	
1. Flush lines with river water then blow-out with air	Completed
2. Pull in pipelines between DMU-2 and Area C. Store in water, floating near shore in the Area C cove.	Store near shore at Area C cove
3. Remove land-based pipe at Aerovox and Booster Station to Area C	Store at Area C
4. Remove floating section of pipeline between I-195 and Coggeshall St. bridges. Store in water, floating near shore in the Area C cove.	Store near shore at Area C cove
Aerovox	
1. Empty ferric tank into tote and move tote to Area D WWTP	Completed
2. Flush chemical lines and metering pumps with water into pipeline	Completed
3. Remove metering pumps and lines to storage shed. Move shed to Area C.	Store at Area C
4. Remove diesel tank to Area C.	Store at Area C
5. Return rental lights, generator and portable toilet	Completed
6. Rinse containment and create drain	Completed
7. Secure ferric tank by removing ladder from side of tank	***Completed***
Booster Station	
1. Remove pump skids to Area C, winterize	Store at Area C
2. Remove city water hoses to Area C	Store at Area C
3. Remove diesel tank to Area C.	Store at Area C
4. Disassemble containment and move to Area C	Store at Area C
5. Return rental lights, generator and portable toilet	Completed
6. Review status of site after demobilization with property owner	***Completed***

Attachment H
Sevenson FY2004 Winterization Task Lisk
New Bedford Harbor Superfund Site

Task	Status
7. Change lock to key type and distribute keys to Jacobs, Jeff Jones, NBH Resident Office	***Completed***
Area C - Docks	
1. Lock-up gowning trailer and gates	Store at Area C
2. Pull boats out at Area C, spray-off over river, store at Area C	Store at Area C
3. Install Gate	***Completed***
Area C - DDA Storage	
1. Wash dozer, forklift, flatbed truck and dump truck at Area C and ship off-site	Return to Sevenson
2. Secure tarps on debris and sand piles. Add sand bags roped together, on 10 foot centers or as required, to hold down tarps for the four winter months.	Completed
Area C - Ponds	
1. Pump down Pond #1 [CDF] and Pond #2 as low as possible	Completed
2. Re-fill Pond #2 with city hydrant water [for equipment flushing]	Completed
Area C - Desanding Bldg.	
1. Move all debris and sand to DDA Storage	Completed
2. Flush equipment and floors with city water, air-blow piping	Remain at Area C
3. Dispose of spent PPE	Stored in Building
Area C - General	
1. Remove new oil booms to inside Desanding Building	
Area D	
1. Flush tanks and pipes with city water. Drain all vessels and associated water lines.	Remain at Area D
2. Complete all housekeeping and clean-up of plant, including washing sediment from floor drains and off exterior tanks and vessels	Completed
3. Pump out sumps, treat water. Lift-out sump pump in load-out area [unheated].	Completed
4. Complete final drops and remove final load of filter cake, and PPE, from building	Completed
5. Add sandbags along plant influent/effluent pipes down to low water mark	Completed
6. Move all WWTP chemical totes into main process building and close overhead doors between WWTP and main process building. Set thermostats in main process building at 55°F.	
7. Coating has been scaped off load-out floor	***No Change***
8. Gap in perimeter fence at waters edge near pipeline connection bulkhead	***No Change***
9. Set thermostat for winter, set security alarm	***Completed***

Note: Items indicated in bold italics were added to the Winterization list during a follow-up inspection completed at the conclusion of Winterization activities

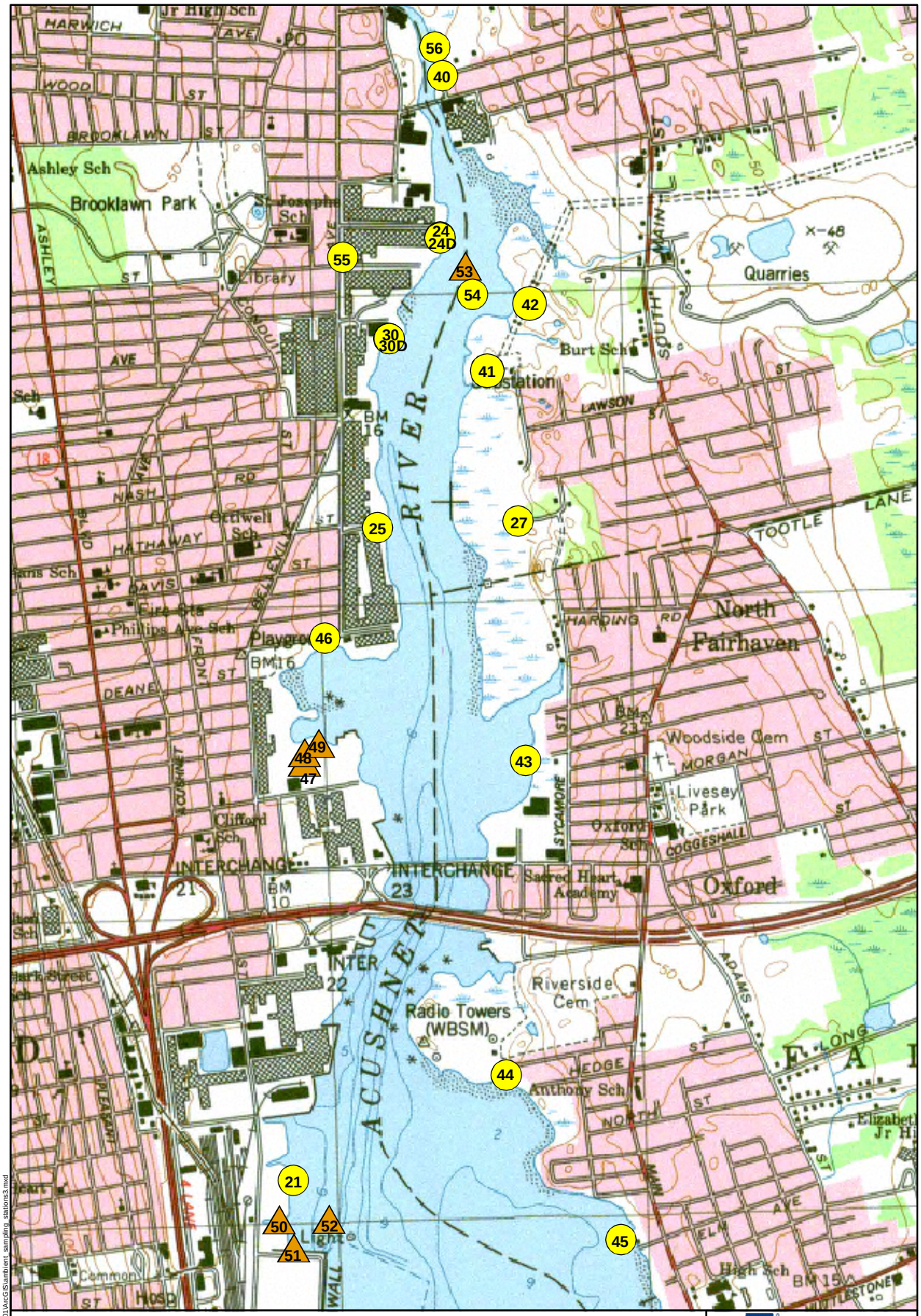
Notes:
CDF = Confined disposal Facility
DDA = Debris Disposal Area
DMU = Dredge Management Unit
PPE = personal protective equipment
WWTP = Wastewater Treatment Plan

ATTACHMENT I

Ambient Air Monitoring Information

Table I-1
Ambient PCB Sample
Station Locations

Station Number	Station Type	Location	City/Town	Northing	Easting
21	M	New Bedford Welding	New Bedford	2696913.00000	814013.00000
24	M	Aerovox NE corner	New Bedford	2706941.00000	815574.00000
24D	M	Aerovox duplicate	New Bedford	2706932.00000	815574.00000
25	M	Cliftex, Manomet Street	New Bedford	2703854.00000	814907.00000
27	M	Francis St (Porter)	Fairhaven	2703925.00000	816405.00000
30	M	Fiber Leather	New Bedford	2705861.00000	815029.00000
30D	M	Fiber Leather duplicate	New Bedford	2705864.00000	815034.00000
40	M	Wood St (Titleist)	Acushnet	2705820.00000	814933.00000
41	M	NSTAR substation	Acushnet	2705524.00000	816074.00000
42	M	NSTAR North	Fairhaven	2706236.00000	816524.00000
43	M	Bus Terminal Lot	Fairhaven	2701377.00000	816482.00000
44	M	Taber St (Pumping Station)	Fairhaven	2698035.00000	816277.00000
45	M	Cozy Cove Marina	Fairhaven	2684279.00000	817739.00000
46	M	Coffin Ave	New Bedford	2703796.00000	814947.00000
47	S	Area C Downwind	New Bedford	2701361.00000	814129.00000
48	S	Area C Crosswind	New Bedford	2701462.00000	814128.00000
49	S	Area C Upwind	New Bedford	2701564.00000	814279.00000
50	S	Area D Downwind	New Bedford	2696198.00000	814012.00000
51	S	Area D Crosswind	New Bedford	2696500.00000	812858.00000
52	S	Area D Upwind	New Bedford	2695390.00000	814397.00000
53	S	DMU2 Dredge	Varies	2706636.00000	815839.00000
54	M	DMU2 DW on barge	Varies	2706333.00000	815917.00000
55	M	Aerovox West (R7 receptor)	New Bedford	2706728.00000	814540.00000
56	M	Acushnet Park	New Bedford	2708962.00000	815519.00000



Legend

Ambient Air Sampling Locations

- Mobile Station
- Stationary Station

Aerial Photography MASSGIS 2003

N

0 750 1,500 Feet

1:18,000

JACOBS

Ambient Air Sampling Station Locations

New Bedford Harbor Superfund Site

August 2004

NAME: jaccuto DATE: 12/1/2004

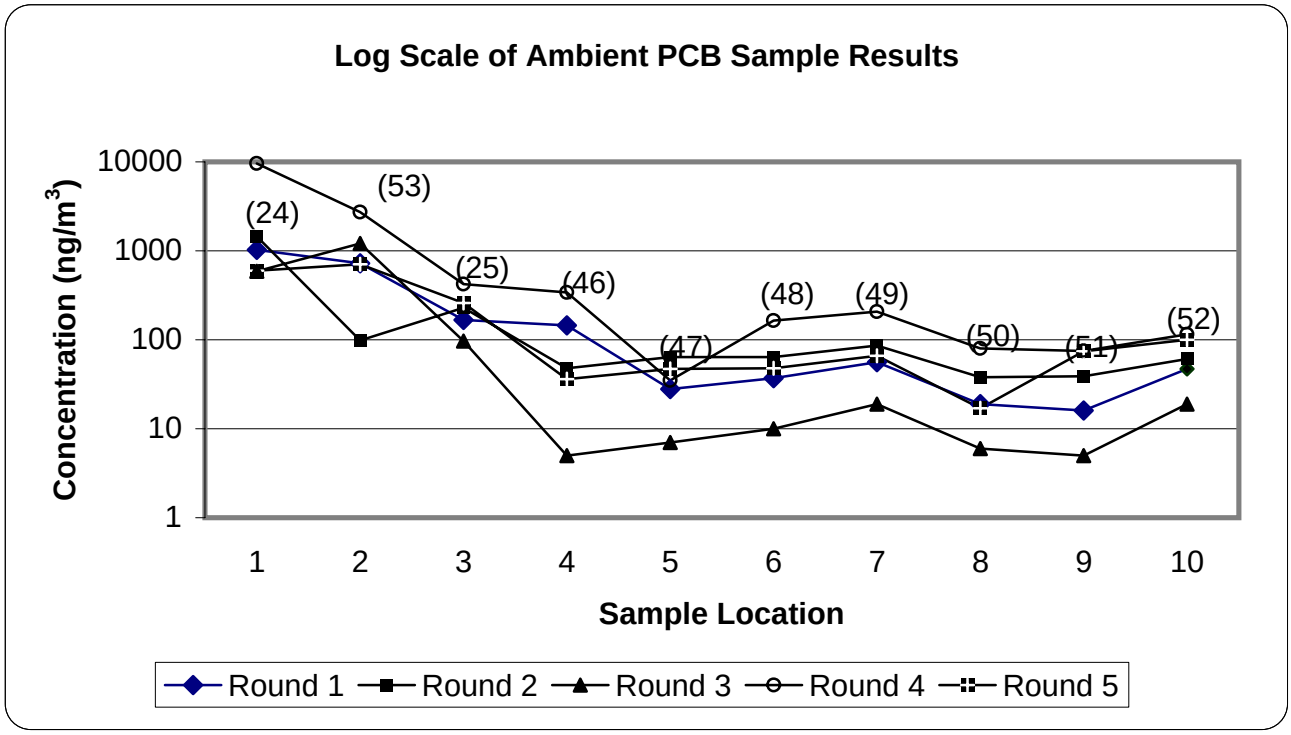
Figure I-1

Y:\NBH\Projects\338\02010\02\20041201\ArcGIS\ambient_sampling_stations3.mxd

Table I-2
Ambient Monitoring Program
Total Detectable PCB in Air

Sampling Period [2]	Station 24 Aerovox [3]	Station 53 DMU-2 Dredge [3]	Station 25 Cliftex [3]	Station 46 Coffin [3] Ave	Station 47 Area C DW	Station 48 Area C CW	Station 49 Area C UW	Station 50 Area D UW	Station 51 Area D CW	Station 52 Area D DW	24-Duplicate	Blank ng/ sample
6.28/29	2286	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	NS[1]	56	NS[1]	NS[1]	0.27
9.8/9	1024	723	167	145	28	37	56	19	16	47	1088	1.4
9.13/14	1449	98	229	48	64	64	86	38	39	61	QC [4]	0.77
9.22/23	588	1212	97	5	7	10	19	6	5	19	5	0.46
9.27/28	9557	2734	423	342	35	165	207	80	75	115	QC [4]	1.23
10.18/19	599	704	259	36	47	48	66	17	74	100	47	0.6
11.4/5 [5]												
12.1/2 [5]												

Notes:
(1) NS - Not Sampled. This was a performance test on new low flow method.
(2) Sampled and analyzed using EPA TO-10a methodology.
(3) All results reported for 24hr time-weighted average in nanograms per cubic meter of air (ng/m ^{3}).
(4) Duplicate sent to USACE laboratory.
(5) Awaiting analytical results.



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 24 Aerovox
Exposure Budget Slope (EBS) = 664 (ng/m^3-day)

Collection Date: 9/28/2004

Construction Activity: Dredging of DMU-2 and susequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

C5, C6,C5&C7, C1,C2, and C3 concentration triggers were identified during this sampling period. These triggering conditions indicate a low response level with the response being to evaluate the cause and significance of the triggering conditions. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station and a relatively high background concentration. Additionally, negative low tides and large areas of floating oils probably contributed to the higher ambient concentrations. In response to this situation, additional measures to control surface oil were implemented by adding oil booms around the perimeter of the dredge and additional surface skimming by dragging oil boom by boat.

Monitoring Station		24 Aerovox
Exposure Budget Slope		664
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	1,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	230

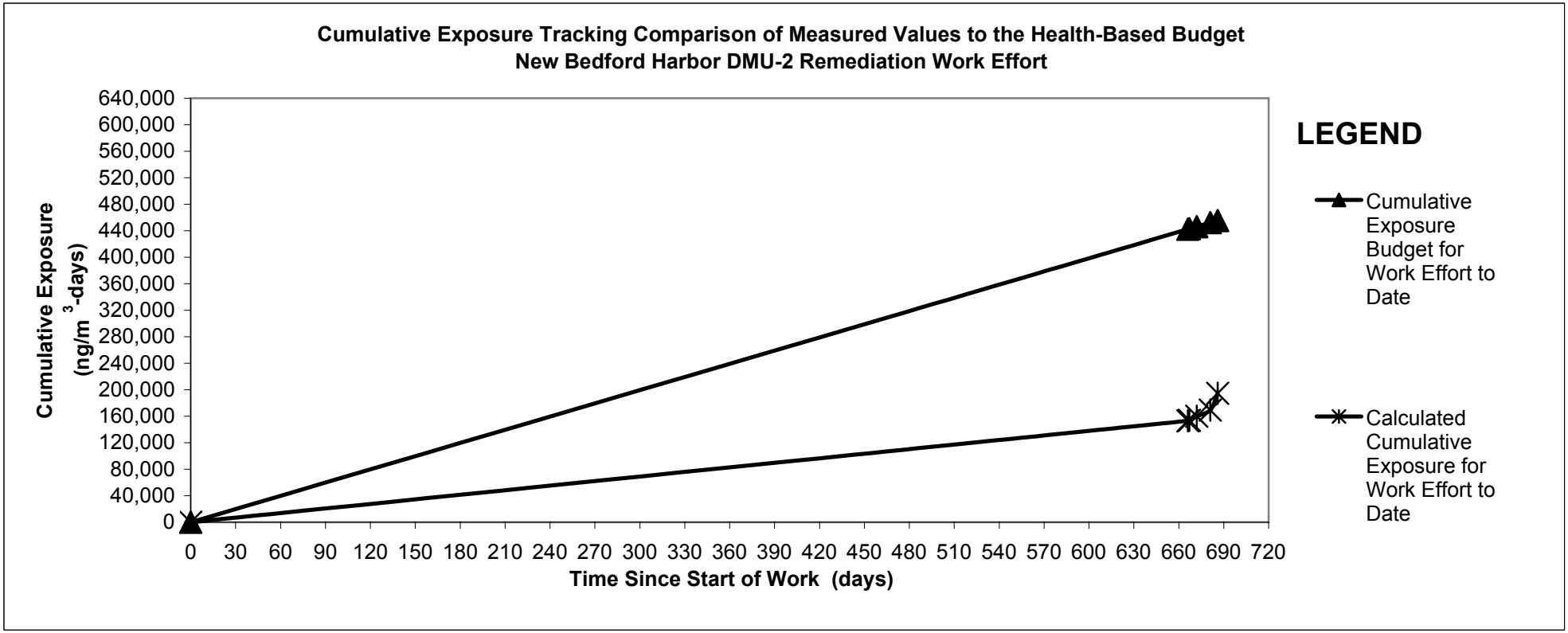
Air Sampling Status Report

Sample Station :	24 Aerovox
Collection Date:	9/28/2004
Measured PCB Concentration (ng/m^3):	9557
Exposure Budget Expended During This Period:	763.9%
Cumulative Exposure Budget Expended to Date:	42.7%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

Trigger C5:	Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%
Trigger C6:	Previous Two Measured Concentrations Exceed the Running Average Concentration
Trigger C5 and Trigger C7:	C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%; C7: Measured Concentration has Doubled Since the Last Monitoring Period
Trigger C1:	Measured Concentration Exceeds Maximum Occupational Limit
Trigger C2:	Measured Concentration Exceeds Minimum TEL/NTEL for a Worker in the Public
Trigger C3:	Measured Concentration Exceeds the Risk-Based Exposure Point Concentration Forming



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 25 Cliftex
Exposure Budget Slope (EBS) = 824 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

The C5 and C6 concentration triggers were identified during this sampling period. Thes triggering conditions indicate a low response level with the response being to evaluate the cause and significance of the triggering conditions. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station and a relatively high background concentration. Since the expenditure of the cumulative exposure budget to date was still at a low level at this point in the project, no change in field procedures is warranted.

Home Sheet

Monitoring Station		25 Cliftex
Exposure Budget Slope		824
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	70

Air Sampling Status Report

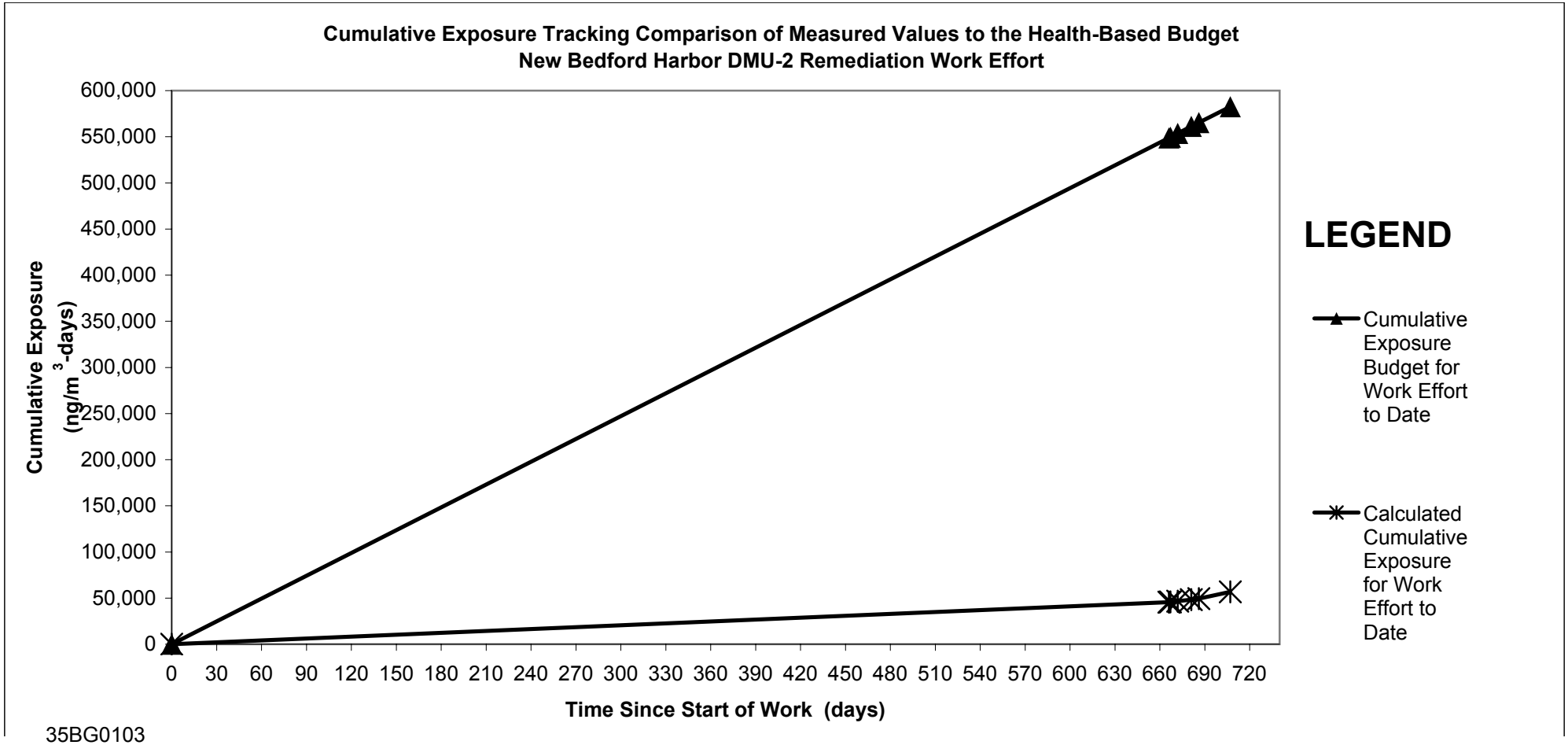
Sample Station :	25 Cliftex
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	256
Exposure Budget Expended During This Period:	41.2%
Cumulative Exposure Budget Expended to Date:	9.7%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%

Trigger C6: Previous Two Measured Concentrations Exceed the Running Average



35BG0103
1/7/2005

25 Cliftex (10-19-04)

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 46 Coffin Ave
Exposure Budget Slope (EBS) = 779 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No triggers were identified therefore no response is necessary.

Home Sheet

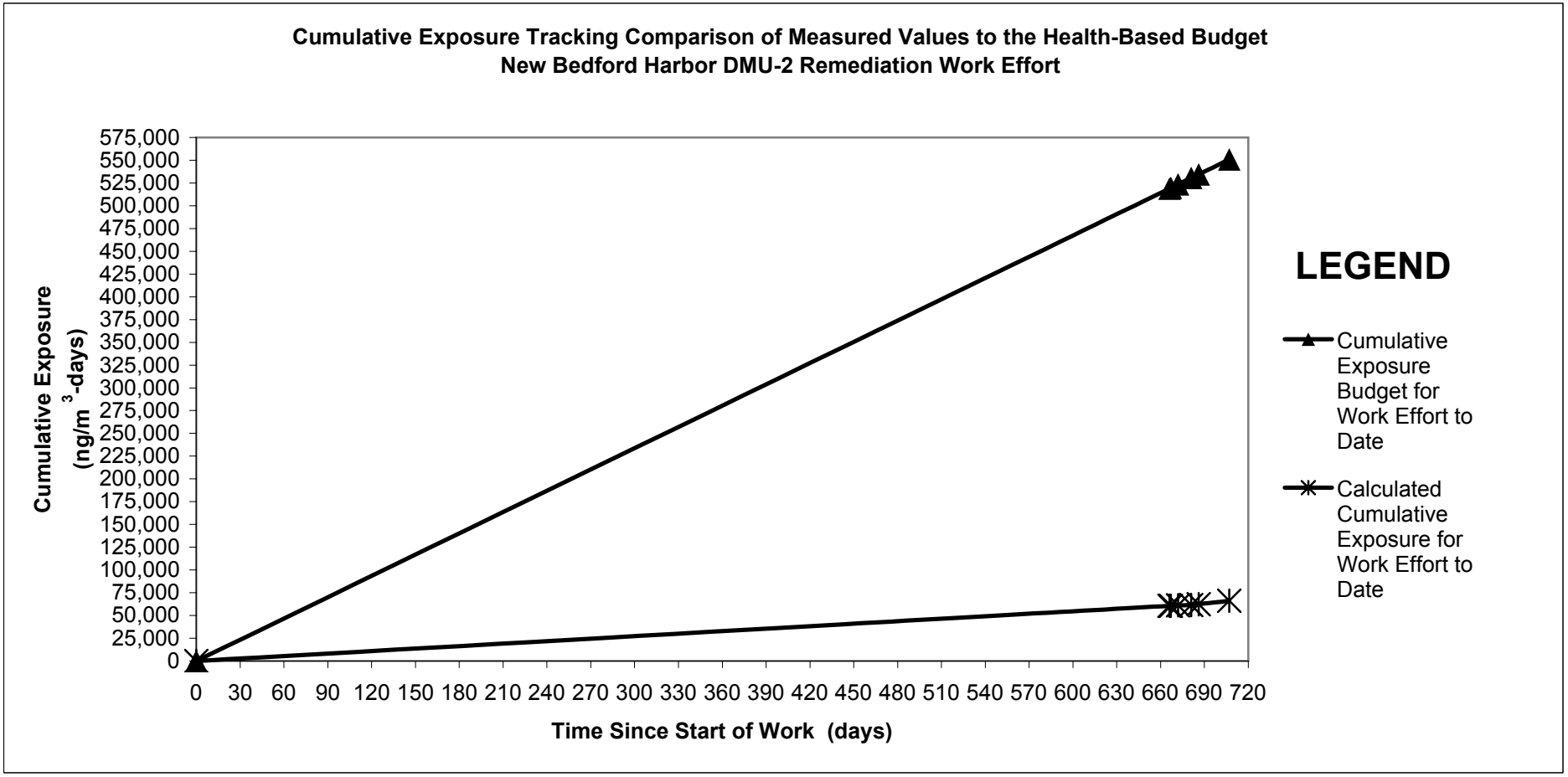
Monitoring Station		46 Coffin Ave
Exposure Budget Slope		779
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	115

Air Sampling Status Report

Sample Station :	46 Coffin Ave
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	36
Exposure Budget Expended During This Period:	24.3%
Cumulative Exposure Budget Expended to Date:	12.0%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Triggers:

Low



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 47 Area C Downwind
Exposure Budget Slope (EBS) = 734 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No triggers were identified therefore no response is necessary.

Home Sheet

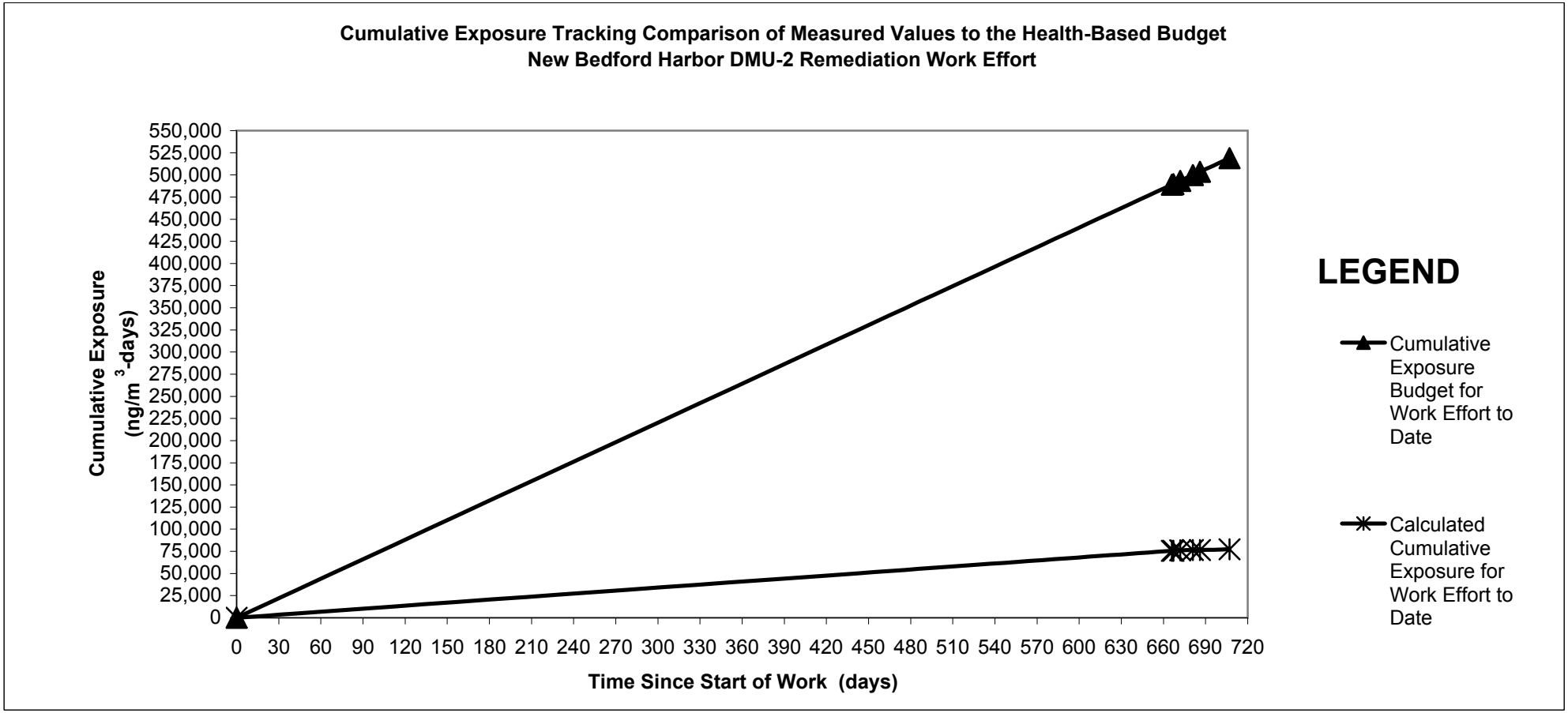
Monitoring Station		47 Area C Downwind
Exposure Budget Slope		734
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	160

Air Sampling Status Report

Sample Station :	47 Area C Downwind
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	47
Exposure Budget Expended During This Period:	5.6%
Cumulative Exposure Budget Expended to Date:	14.9%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Triggers:

Low



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 48 Area C Crosswind
Exposure Budget Slope (EBS) = 734 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No triggers were identified therefore no response is necessary.

Home Sheet

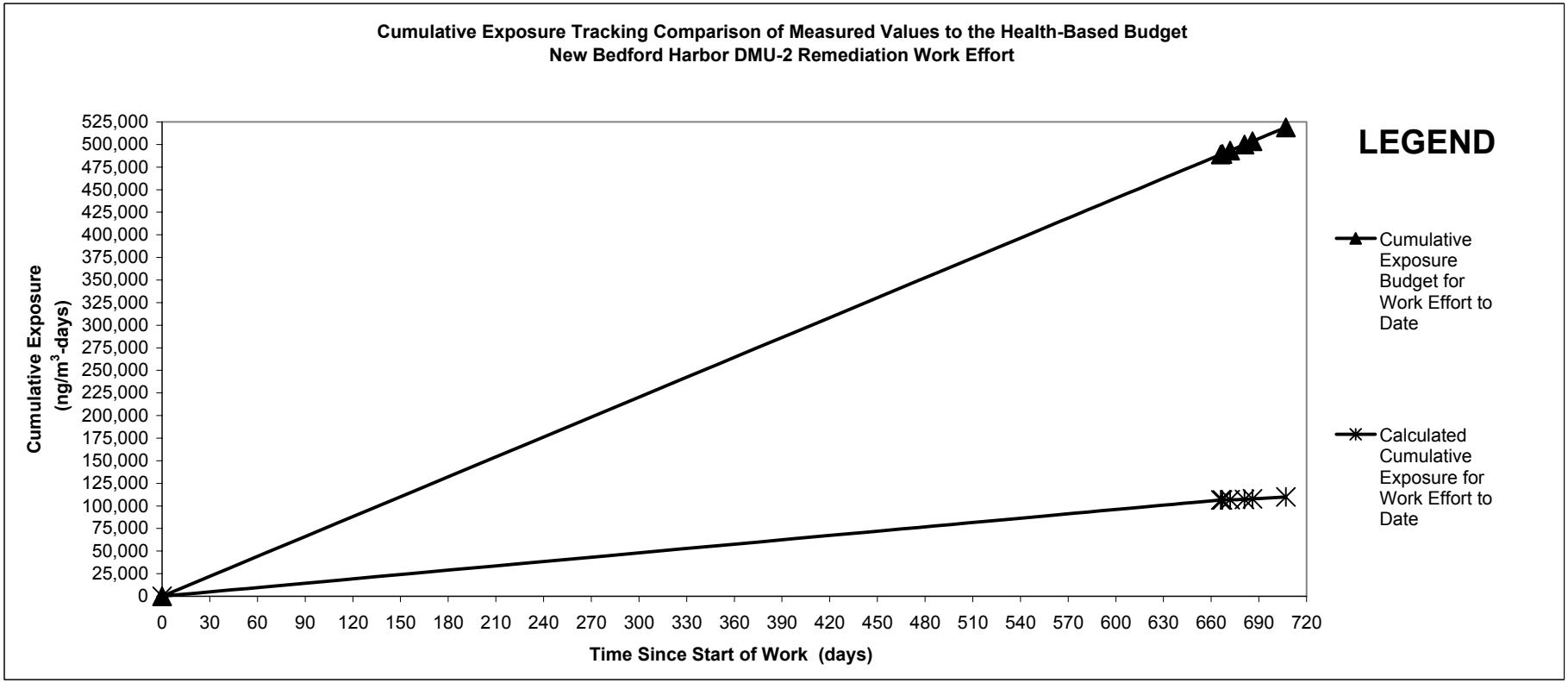
Monitoring Station		48 Area C Crosswind
Exposure Budget Slope		734
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	160

Air Sampling Status Report

Sample Station :	48 Area C Crosswind
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	48
Exposure Budget Expended During This Period:	14.5%
Cumulative Exposure Budget Expended to Date:	21.2%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Triggers:

Low



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 49 Area C Upwind
Exposure Budget Slope (EBS) = 734 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No triggers were identified therefore no response is necessary.

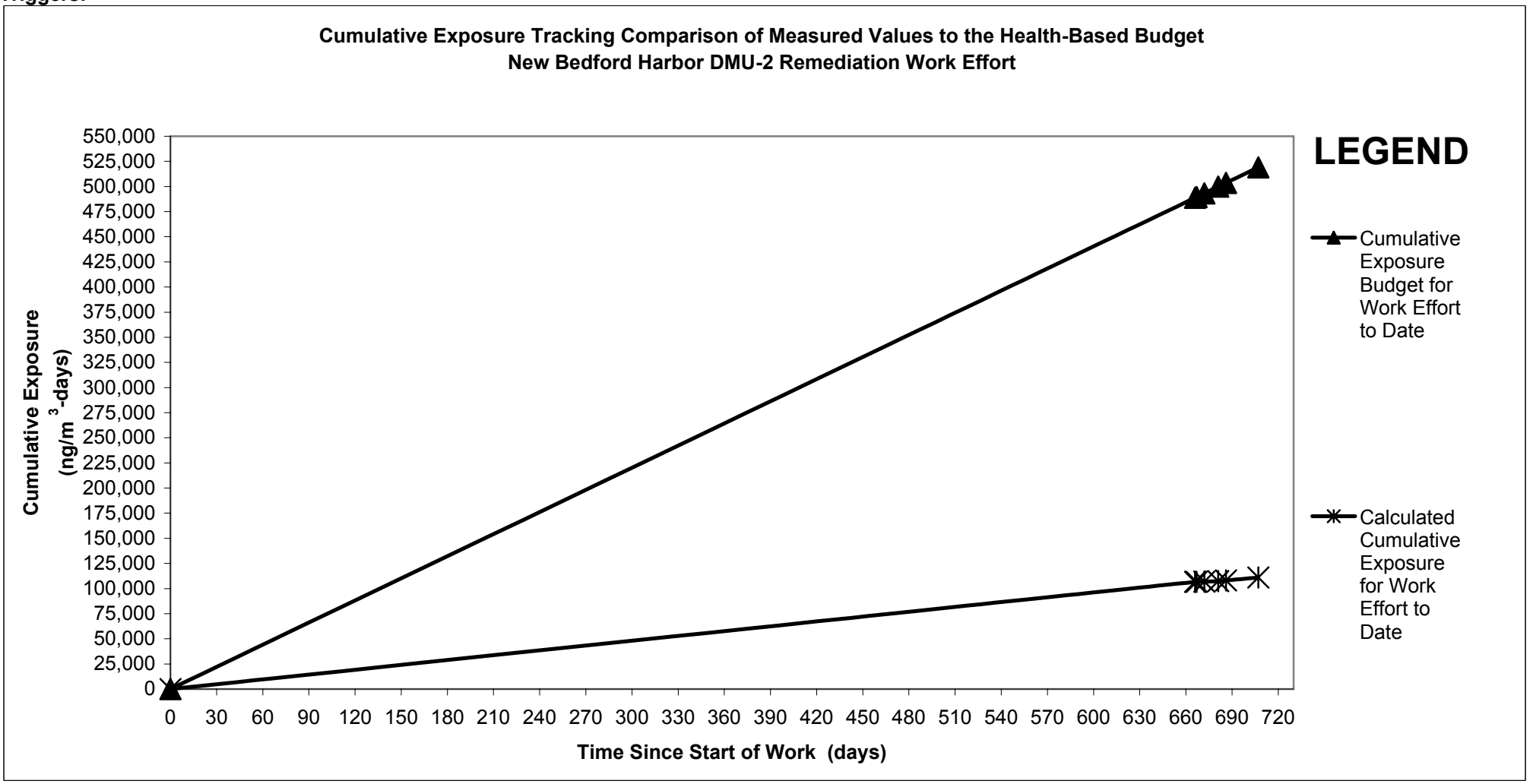
Home Sheet

Monitoring Station		49 Area C Upwind
Exposure Budget Slope		734
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	160

Air Sampling Status Report

Sample Station :	49 Area C Upwind
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	66
Exposure Budget Expended During This Period:	18.6%
Cumulative Exposure Budget Expended to Date:	21.4%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Triggers:



35GB0103
1/7/2005

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 50 Area D Downwind
Exposure Budget Slope (EBS) = 874 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

No triggers were identified therefore no response is necessary.

Home Sheet

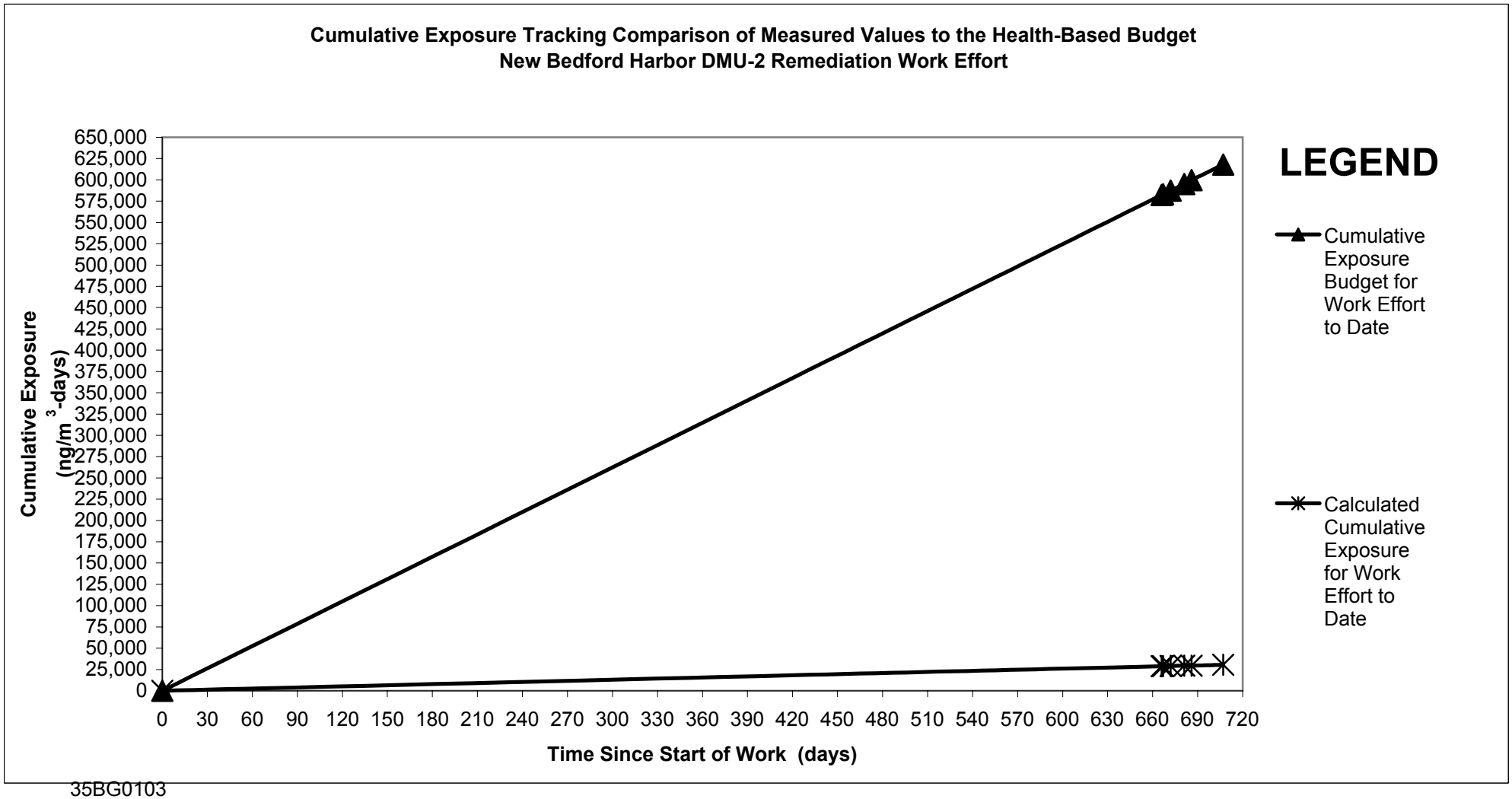
Monitoring Station		50 Area D Downwind
Exposure Budget Slope		874
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	20

Air Sampling Status Report

Sample Station :	50
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	17
Exposure Budget Expended During This Period:	5.5%
Cumulative Exposure Budget Expended to Date:	4.9%
Response Level:	No Triggers Identified
Response:	No Response Necessary

Triggers:

Low



35BG0103
1/7/2005

50 Area D Downwind (10-19-04)

Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 51 Area D Crosswind
Exposure Budget Slope (EBS) = 874 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

C5 and C6 concentration triggers were identified during this sampling period. These triggering conditions indicate a low response level with the response being to evaluate the cause and significance of the triggering conditions. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station and a relatively high background concentration. Since the expenditure of the cumulative exposure budget to date was still at a low level at this point in the project, no change in field procedures is warranted.

Home Sheet

Monitoring Station		51 Area D Crosswind
Exposure Budget Slope		874
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	20

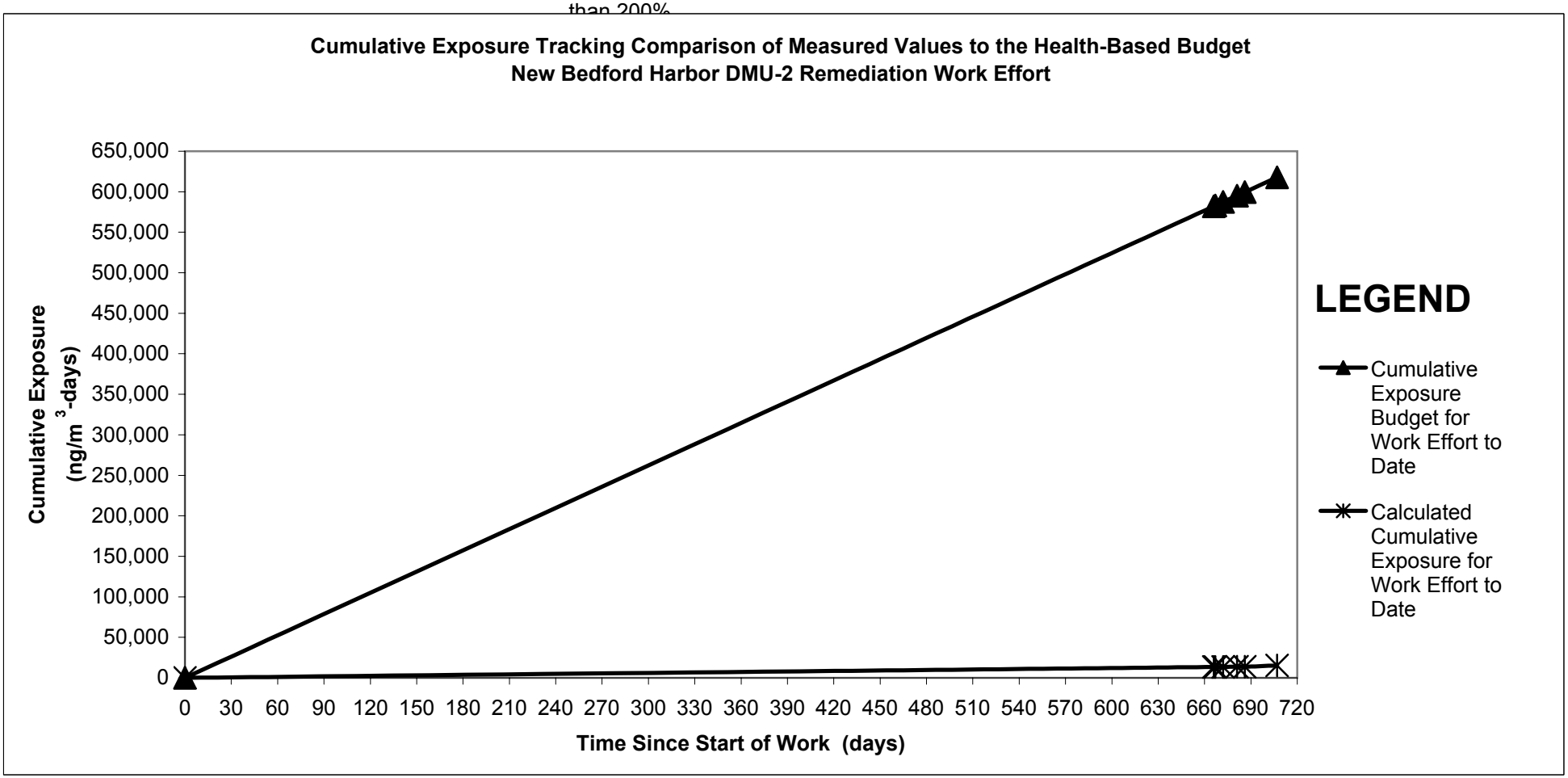
Air Sampling Status Report

Sample Station :	51 Area D Crosswind
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	74
Exposure Budget Expended During This Period:	8.5%
Cumulative Exposure Budget Expended to Date:	2.5%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 52 Area D Upwind
Exposure Budget Slope (EBS) = 874 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and subsequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

C5 and C6 concentration triggers were identified during this sampling period. These triggering conditions indicate a low response level with the response being to evaluate the cause and significance of the triggering conditions. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station and a relatively high background concentration. Since the expenditure of the cumulative exposure budget to date was still at a low level at this point in the project, no change in field procedures is warranted.

Home Sheet

Monitoring Station		52 Area D Upwind
Exposure Budget Slope		874
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	20

Air Sampling Status Report

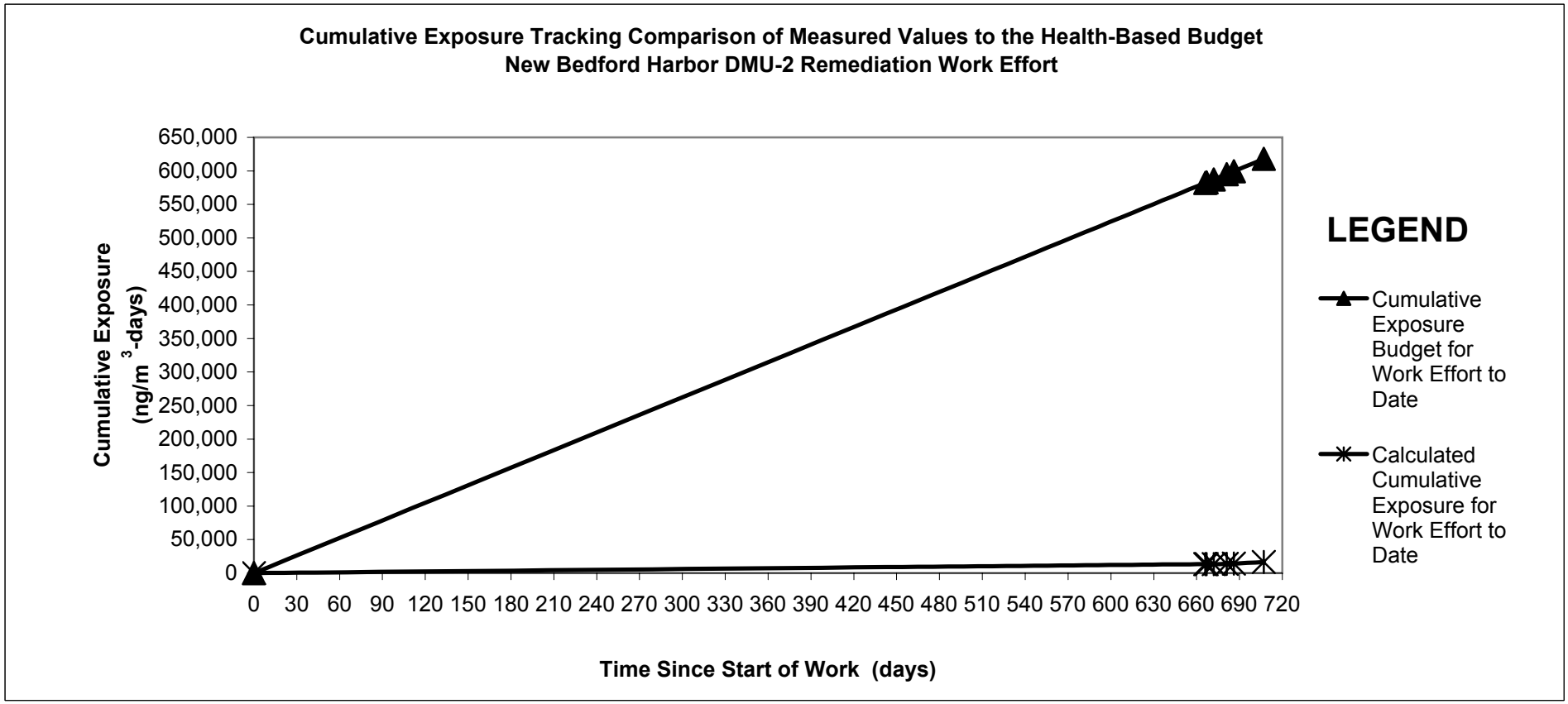
Sample Station :	52 Area D Upwind
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	100
Exposure Budget Expended During This Period:	12.3%
Cumulative Exposure Budget Expended to Date:	2.7%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%

Trigger C6: Previous Two Measured Concentrations Exceed the Running Average Concentration



Air Sampling Status

New Bedford Harbor Superfund Site

Station #: 53 Dredge
Exposure Budget Slope (EBS) = 669 (ng/m^3-day)

Collection Date: 10/19/2004

Construction Activity: Dredging of DMU-2 and susequent treatment of slurry by desanding, dewatering and waste water treament operations.

This report summarizes sample results for the above referenced location and date. The samples were collected on polyurethane foam (PUF)/XAD sample media with a glass fiber pre-filter using a PQ-1 Low-Vol sampler. The samples were analyzed using high-resolution mass spectrometry (HRGCMS) for total PCB homologue groups. Results are evaluated relative to the Exposure Budget Tracking Process described in the Development of PCB Air Action Levels for the Protection of the Public, New Bedford Superfund Site, August 2001. Cumulative data for this reporting period are included on pages 2 and 3. Sample Station Information is summarized in attached Table 1 and illustrated on Figure 1. Air concentration trigger information is presented in attached Table 2.

Summary of This Sampling Period:

C5 and C6 concentration triggers were identified during this sampling period. These triggering conditions indicate a low response level with the response being to evaluate the cause and significance of the triggering conditions. The higher total PCB concentration observed at the sampling station during this period was probably caused by a combination of the higher ambient temperature, calm winds directed toward the station and a relatively high background concentration. Since the expenditure of the cumulative exposure budget to date was still at a low level at this point in the project, no change in field procedures is warranted.

Home Sheet

Monitoring Station		53 Dredge
Exposure Budget Slope		669
Work Start Date		11/12/2002
Projected Work End Date		11/10/2012
Occupational Limit Used as Ceiling	[ng/m^3]	500,000
TEL for Worker in Public	[ng/m^3]	50,000
NTEL for Worker in Public	[ng/m^3]	1,789
Miniumum of TEL/NTEL	[ng/m^3]	1,789
Background Concentration	[ng/m^3]	230

Air Sampling Status Report

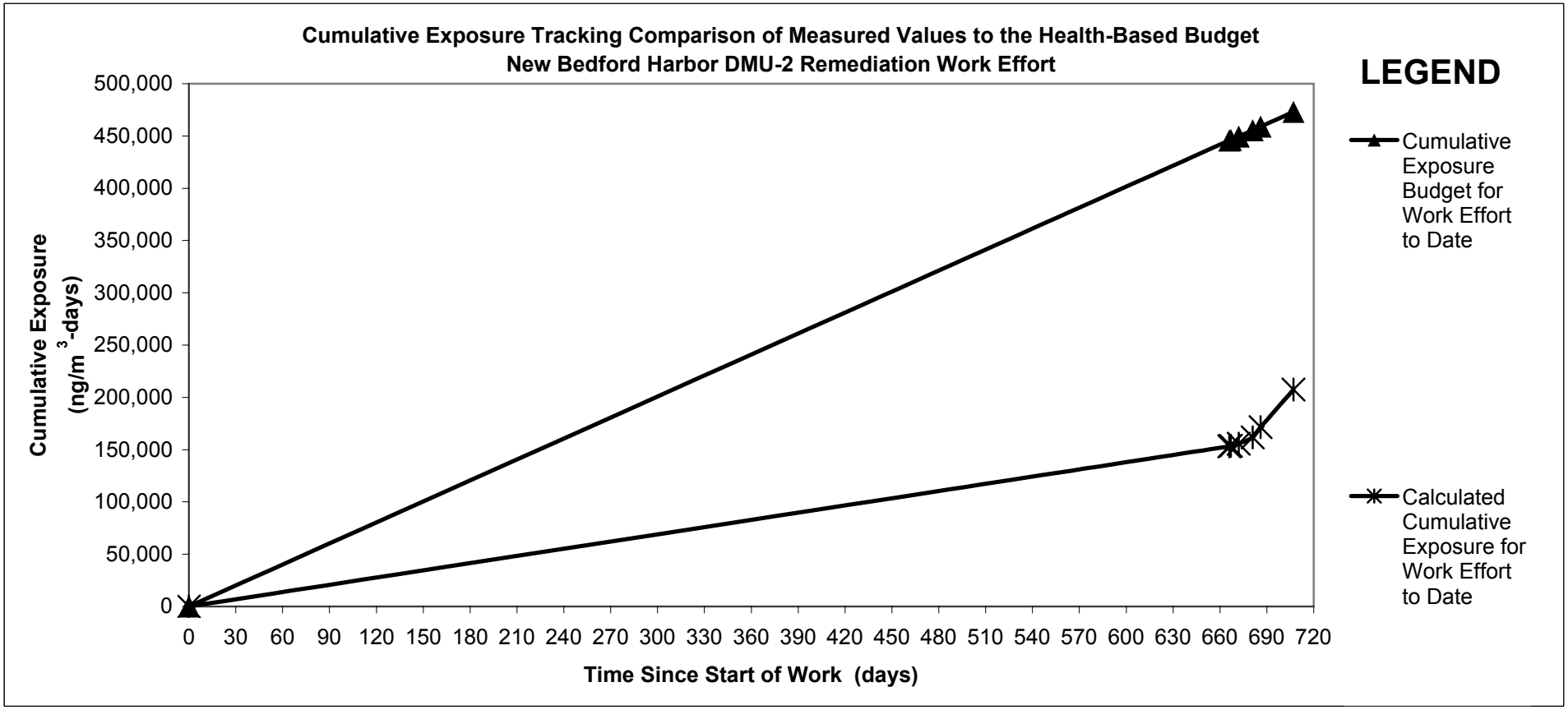
Sample Station :	53 Dredge
Collection Date:	10/19/2004
Measured PCB Concentration (ng/m^3):	704
Exposure Budget Expended During This Period:	257.0%
Cumulative Exposure Budget Expended to Date:	43.9%
Response Level:	LOW
Response:	Evaluate the Cause and Significance of the Triggering Conditions

Triggers:

Low

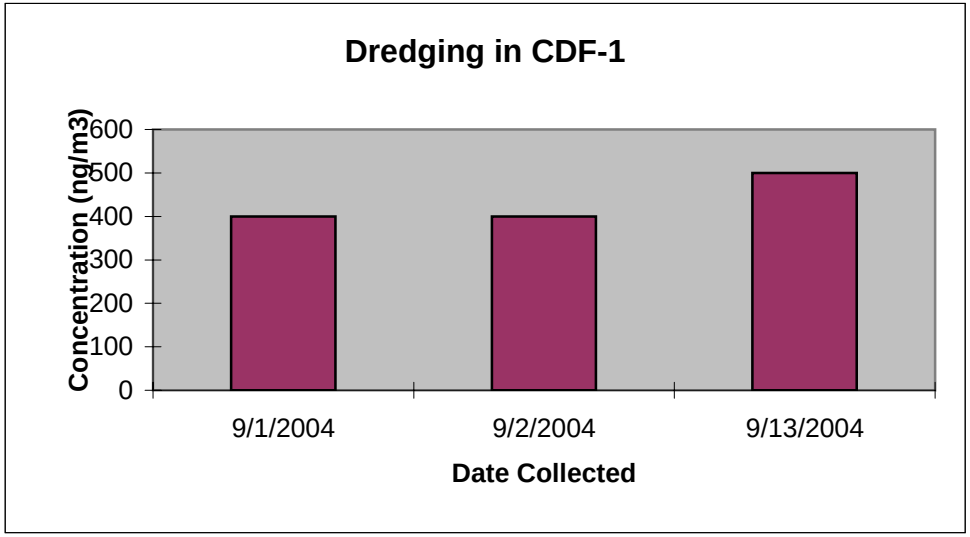
Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 200%

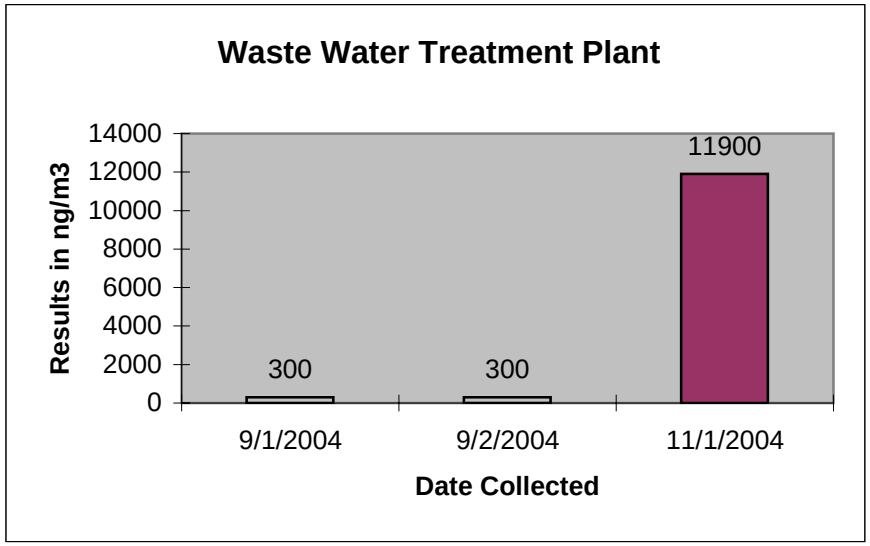
Trigger C6: Previous Two Measured Concentrations Exceed the Running Average Concentration

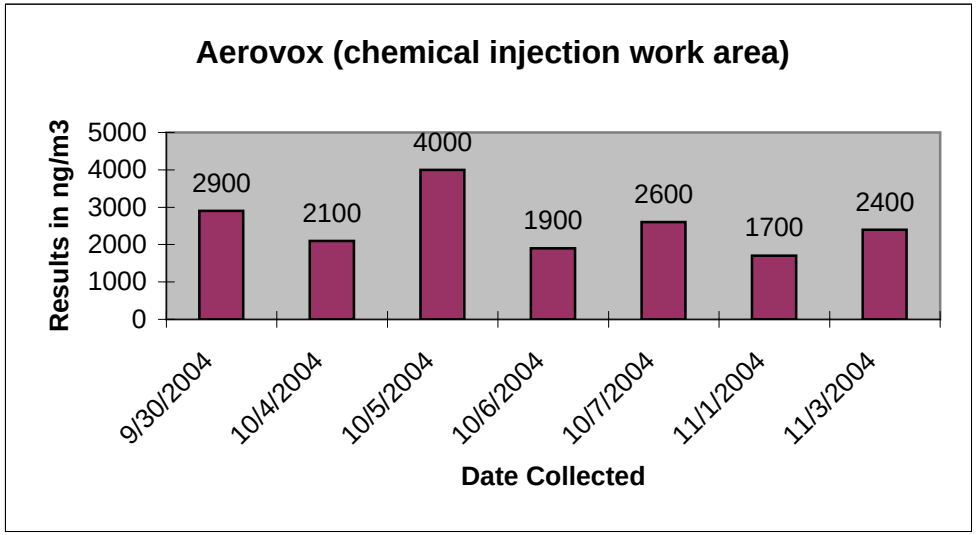


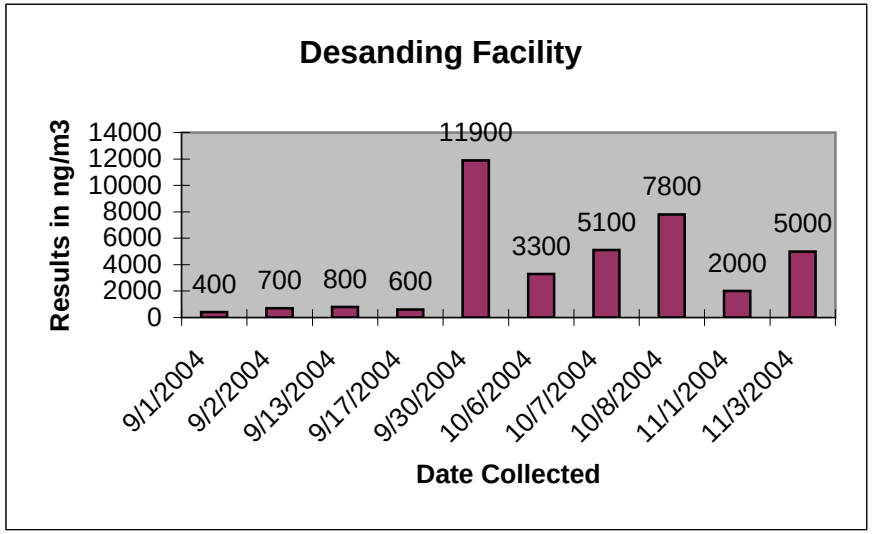
1/7/2005

PCB Personal Integrated
Sample Results

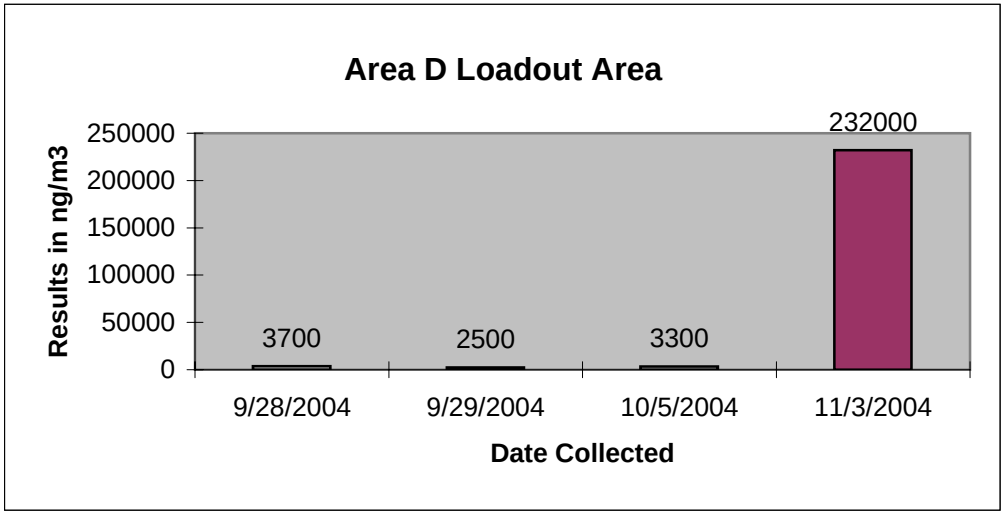


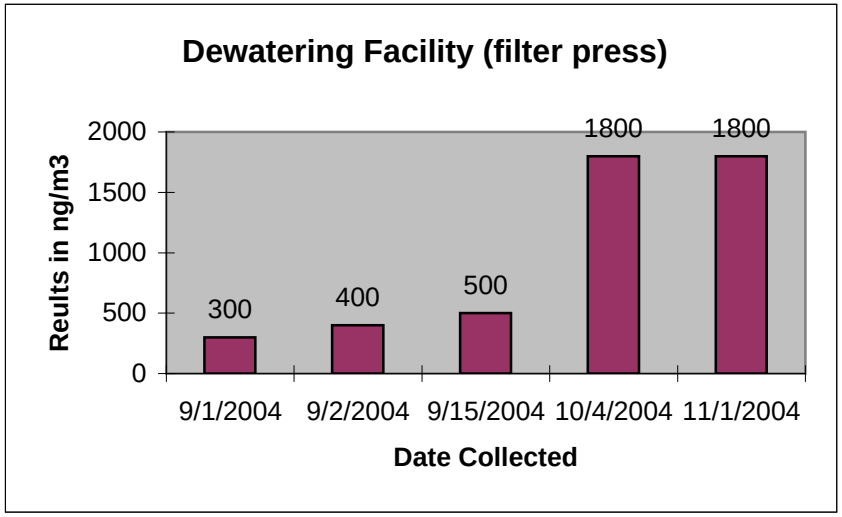


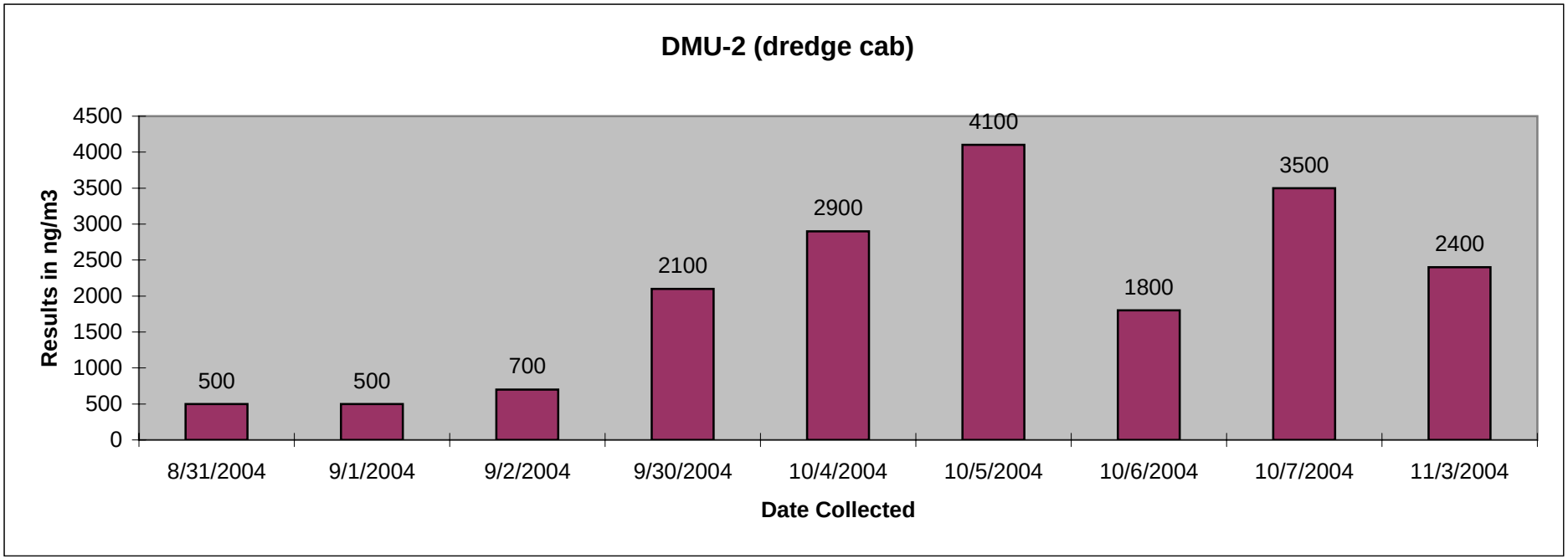




PCB Personal Integrated Sample Results







ATTACHMENT J

Sample Summary Tables

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

CBI

ATTACHMENT K

New Bedford Harbor Superfund Site 2004

Health and Safety Statistics

Attachment K
New Bedford Harbor Superfund Site 2004
Health and Safety Statistics

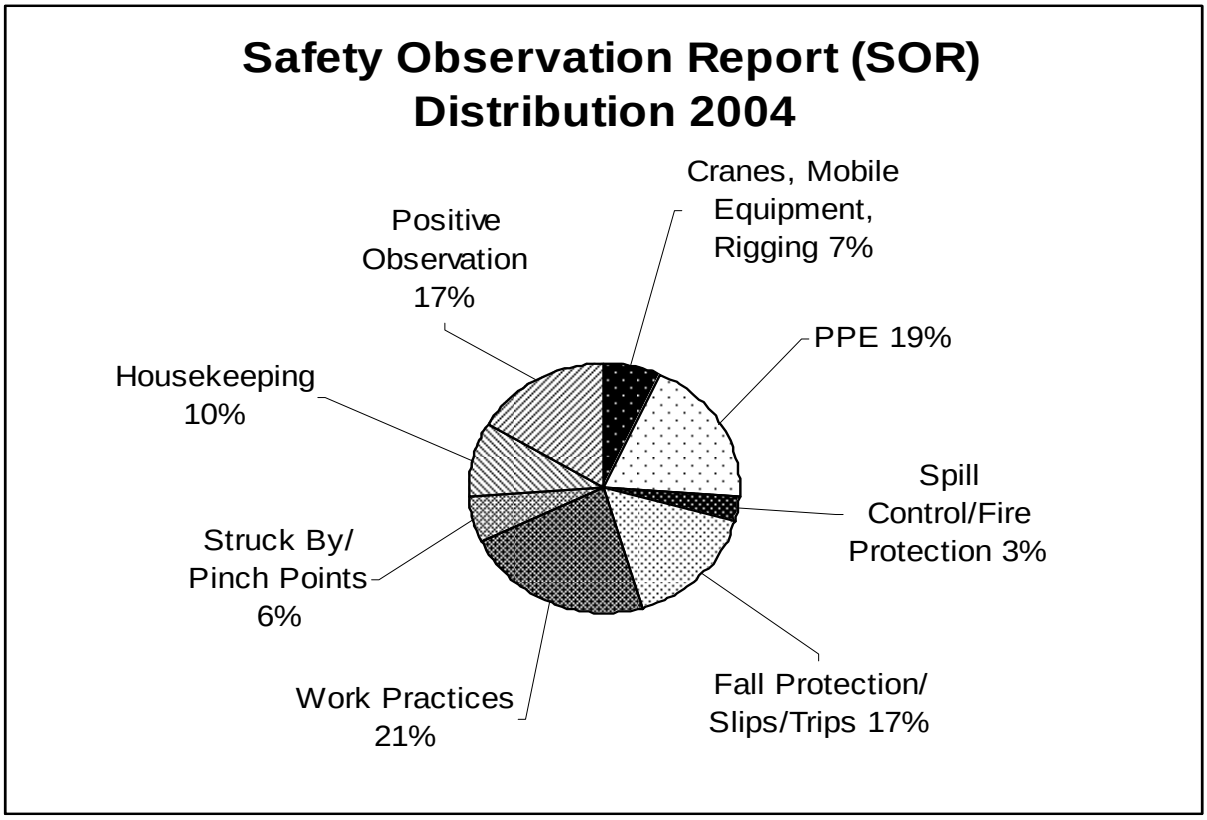
Labor Hours (site wide) as of November 18, 2004	72,110 hrs
Injuries	
First Aid	4
Doctor's Visits (E-1)	0
Lost Time Injuries	0
Fatalities	0
Incidents	
Hydraulic Fluid Spill (approximately 10 gallons petroleum-based)	7/29/04
Crane Near Miss	8/2/04
Potential Hydrogen Sulfide Overexposure	9/8/04
Hydraulic Fluid Spill (approximately 10 gallons vegetable-based)	11/9/04

Plans Developed on Site
1. Master Site Safety and Health Plan
2. Emergency Response and Contingency Plan
3. Mobilization Addendum
4. Hydraulic Dredging O&M Addendum
5. Sediment Desanding O&M Addendum
6. Dewatering O&M Addendum
7. Waste Water Treatment Plant O&M Addendum
8. Ambient Air Monitoring Plan/Test Procedure

Integrated Samples	# Collected
PCB Ambient Program	86
PCB Personnel Exposure	76
Hydrogen Sulfide	8
Hydrogen Cyanide	7

Site Specific Training	# Trained
OSHA First Responder	10
DOT Transportation and Security Plan	8
Site Orientation	61

Activity Hazard Analyses Developed
1. Pipe Fabrication and Leak Detection
2. Offloading/Assembling Marine Equipment
3. Offloading/Assembling Dewatering Equipment
4. Offloading/Assembling WTP Equipment
5. Refueling Equipment
6. Sprung Building Erection
7. Pipeline Installation
8. Silt Curtain Installation
9. Placement/Tie-down Debris Removal Operations
10 Dewatering Utility Connections
11 Offloading/Staging Process Chemicals
12. Offloading Construction Equipment & Materials
13. Offloading/Assembling Desanding Equipment
14. Desanding Utility Connections
15. Ambient Air Monitoring
16. LOTO Procedure and 23 Checklists
17. Ferric Sulfate Injection System
18. Level B Operations
19. Sediment Sampling
20. O&M of dredges
21. O&M of Desanding Facility
22. O&M of Dewatering Facility
23. O&M of WWTP

Attachment K
New Bedford Harbor Superfund Site 2004
Health and Safety Statistics

The Safety Observation Report (SOR) is a tool within the zero accident process that allows anyone on the Project to document identified unsafe conditions, unsafe acts or acknowledges good work practices. The second portion of the tool is to implement or recommend corrective measures as applicable. The chart below shows the distribution of SORs by observation for the 2004 season.