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USACE CONTRACT NO. DACW33-94-D-0002
DELIVERY ORDER NO. 017
TOTAL ENVIRONMENTAL RESTORATION CONTRACT

DRAFT
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 Harbor, Massachusetts

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1.0 INTRODUCTION

Foster Wheeler Environmental Corporation (FW) prepared the original Air Management Plan (the Plan) under USACE TERC Contract No. DACW33-94-D-0002, which was to be implemented over the course of the New Bedford Harbor Remediation Project. That original Plan has been modified by the US Army Corps of Engineers to meet changing project needs. Specifically, this Plan presents the rationale for the locations and the overall sampling strategy for collecting ambient air polychlorinated biphenyl (PCB) concentration data at sampling station locations during remediation activities. This data will be used in a comparative evaluation with established health-based exposure budgets to proactively manage releases of PCBs during remedial activities. The development of the health-based cumulative exposure budgets is presented in the *Draft Final Development of PCB Air Action Levels for the Protection of the Public* (FW, 2001a) (the Development Document). The principal components associated with the implementation of the cumulative exposure tracking program are described in the document *Draft Final Implementation Plan for the Protection of the Public from Volatilized PCBs During Contaminated Sediment Remediation at the New Bedford Harbor Superfund Site* (FW, 2001b) (the Implementation Plan). This Implementation Plan provided guidelines for implementing the principal components of an air sampling program including: locating sampling stations, collecting air samples, evaluating air sample data, tracking cumulative exposures, and recommending appropriate responses to reduce or mitigate potential PCB inhalation exposures to the public. The tracking of cumulative exposures includes identifying when "triggers" occur (i.e., conditions that indicate when follow-up analysis of projected emissions sources or their potential impact on exposures to the public is warranted).

The Harbor is geographically divided into three areas. The "Upper Harbor" refers to that portion of the Harbor north of the Coggeshall Street Bridge. The "Lower Harbor" refers to that part of the Harbor south of the Coggeshall Street Bridge and north of the Hurricane Barrier. The "Outer Harbor" is that portion of the Harbor south of the Hurricane Barrier. This Plan describes the air sampling activities to be performed in support of remediation activities. In addition, specific reference is made to locations north of Wood Street (the northern-most part of the Upper Harbor).

This Air Management Plan is divided into five sections. Section 2.0 provides an overall summary of cumulative exposure budgeting and tracking. A discussion of the role of atmospheric dispersion modeling also is presented in Section 2.0. Section 3.0 describes how the time series of airborne PCB concentrations will be developed and the use of a network of sampling station locations to collect the data needed to track projected exposures relative to the established budgets. Section 3.0 specifies the locations, sampling schedules and sampling frequencies for the fixed sampling station locations. Section 4.0 discusses the role of annual review of the Plan, and Section 5.0 lists the references cited in this Plan.

2.0 CUMULATIVE EXPOSURE TRACKING

This section reviews the overall approach being used to proactively track potential cumulative public exposures to PCBs concentrations in ambient air during remedial activities at New Bedford Harbor. In general, this includes the measurement of ambient air PCB concentrations around New Bedford Harbor during remedial activities. The collected data are being analyzed to identify and track air quality trends at the sampling locations and to track projected cumulative exposures at nearby potential points of public exposure. The process for defining the cumulative exposure budget for a sampling location is reviewed in Section 2.1. The role of air dispersion modeling in the overall air management effort is discussed in Section 2.2, and the approach for tracking cumulative exposures to PCBs in air by the public is summarized in Section 2.3.

2.1 Cumulative Exposure Budgets

As described in the document *Draft Final Development of PCB Air Action Levels for the Protection of the Public* (FW, 2001a), an exposure budget is a target ambient air concentration trend over time that if achieved will document that public exposures to PCBs are below acceptable health-based target levels. The adverse health effects associated with PCB inhalation are associated in the literature with long-term, or chronic, exposure. As such, the exposure budget is designed to be "cumulative" to reflect that the measured concentrations and projected inhalation exposures should be managed over time as the remediation operations are performed. The measurement of ambient air PCB concentrations and the tracking of projected cumulative exposures relative to an appropriate health-based budget will begin at the start of the full-scale remedial activities and continue, as needed, throughout construction.

As is presented in the Development Document, the slope of the cumulative exposure budget line is the allowable ambient PCB concentration (see Section 2.1.1) at the sampling station that is protective of the most sensitive target receptor. This slope is quantitatively dependent on three primary factors (as defined in the Development Document):

1. the Allowable Ambient Limit assuming a Target Risk of 1×10^{-5}; a Cancer Slope Factor of 0.4 $(mg/kg/day)^{-1}$; and an exposure duration of 10 years (the health-based PCB concentration at the point of potential exposure);
2. the Annual Average Background Concentration of airborne PCBs at the point of potential exposure; and
3. the Air Dispersion Factor between the sampling station and the point of potential exposure.

Each of the three primary factors affecting the slope of the budget line for a particular sampling location is briefly discussed below.

2.1.1 Allowable Ambient Limits

The Development Document presents the development and calculation of the Allowable Ambient Limits used in cumulative exposure budgeting. The health-based Allowable Ambient Limits forming the basis of the cumulative exposure budgets were developed for exposures to either a resident or a commercial worker (whichever was associated with the activities at the potential exposure point). On-site worker protection is regulated by OSHA and is addressed in the SSHP and, therefore, is not addressed in this Plan. Both child and adult residents were considered in developing an Allowable Ambient Limit. Appropriate body weights, breath (lung) volumes, and breathing rates were assumed for each receptor. The Allowable Ambient Limits are also seen above to be a direct function of the potential exposure period. Health-based levels were developed assuming either a 5-year or a 10-year potential public

exposure period. In general, the exposure tracking program will be implemented using the more conservative health-based levels based on an assumed 10 years of exposure.

The Allowable Ambient Limit (daily average exposure of PCBs) for a child resident assuming a 10-year exposure period has been calculated to be 409 ng/m^3 (Foster Wheeler, 2001a). The Allowable Ambient Limit for a commercial worker (10-year exposure) has been calculated to be 894 ng/m^3 (Foster Wheeler, 2001a). These two values will be used to establish the cumulative exposure budgets for the community residents and the results of air monitoring and dispersion modeling will be tracked against each of these exposure budgets.

2.1.2 Background Concentrations

Emissions of PCBs from sediment remediation activities add to current (pre-remediation) background ambient air levels. These background or baseline levels are attributable to current conditions in the Harbor, such as volatilization of PCB from exposure sediments, and other possible sources of PCB emissions in the vicinity. Using the results obtained during the Baseline Ambient Air Sampling and Analysis Program (Foster Wheeler, 2001c), annual average ambient air PCB concentrations were calculated for the period of June 1999 through May 2000 for each of six baseline sampling stations. The results, which were presented in Table 6-2 of the Development Document and are presented again in Table 2-1 below, were used in the calculation of the slopes of the cumulative exposure budget lines.

Table 2-1
Annual Average PCB Background Concentrations at the Baseline Sampling Locations at New Bedford Harbor

Air Quality Site Number [1]	Air Quality Site Location	Annual Average PCB Background Concentration (ng/m^3)
21	CDF D Area	16.7
22	Brooklawn Park	2.3
23	Acushnet Substation	23.0
24 and 24D	Aerovox	75.0
25	Cliftex	26.1
26	Sawyer Street	56.0
28 [2]	Early Action Area	21.4[2]

Notes:
[1] See Figure 3-2, Appendix M of the Development Document
[2] The concentration shown for Air Quality Site 28 reflects the results of ambient air sampling in September 2000 prior to the performance of the Early Action sediment removal activity in the Upper Harbor. As such, this average value is not a full year average concentration.

2.2 Air Dispersion Factors and Air Dispersion Modeling

Dispersion modeling is being proposed for two purposes. The first is to aid in the placement of sampling stations around stationary remediation facilities. This air dispersion modeling analysis is described below in Section 2.2.1. Air dispersion modeling will also be used to predict the ambient air concentration at a location a distance away from a sampling station. Two mobile sampling stations will corroborate the predicted ambient air concentrations. The mobile sampling stations will be located at strategic public receptor locations located on Figure 3-1 during each sampling event. Locations for the mobile stations will be based on anticipated sampling day wind conditions and will, therefore, likely be determined by

site conditions. It is expected that the modeling results will be somewhat conservative (higher than actual sample results) since models tend to be designed conservatively. As site-specific air sampling data is collected at various receptor areas, air modeling may need to be refined to more closely represent the actual site sampling results. The rationale behind this analysis is described in Section 2.2.2.

2.2.1 Dispersion Modeling to Support the Placement of Sampling Stations

The primary release of PCB is anticipated to be from stacks and other facility openings at the Desanding and the Dewatering Facilities. Although both facilities will have central ventilation and these systems will contain pollution control equipment for the removal of PCBs from the stack emission stream, it is likely that some release of PCBs will still occur from the stack and other ancillary operations. Dispersion modeling will be used to support the placement of sampling stations near elevated point source emissions of PCBs. The modeling will identify the point of maximum ground impact (i.e., the highest ground level ambient air concentration of released PCBs). This is especially important for elevated point sources because, depending upon the exhaust parameters and environmental factors such as ambient temperature, predominant wind direction and speed, the point of maximum ground level public impact may not be immediately next to the source but at some distance downwind. Since modeling results will be primarily based on the dispersion of documented source concentrations, it is critical that the initial model input data reflect the maximum starting concentrations so as not to underestimate the potential exposure to downwind receptors. Stack sampling will also be conducted to help verify the emission/dispersion model, however, since there are likely to be additional emission sources at the operational facilities it would not be prudent to rely solely on the stack data.

Preliminary screening dispersion modeling of the controlled process emissions using a conceptual process design has indicated that the location of maximum ground impact will be close to the building. However, the results of this preliminary modeling are highly dependent upon stack parameters such as exhaust flow rate, temperature and stack height. Consequently, the screening modeling will need to be rerun once final process parameters have been established to confirm that the locations of maximum impact will remain close to the building. It is anticipated that the final process parameters will be similar to the conceptual process design, and the results of the modeling will not change significantly. As such, sampling Station Locations 9, 10 and 11 (see Figure 3-1) are proposed around the inland sides of the Dewatering Building to sample at locations of likely maximum ground level concentration. Stations 12, 13, and 14 around the Desanding building, have tentatively been identified as the locations of maximum ground impact. All six stations will again be confirmed once all the critical operational parameters for the facilities are known.

USEPA model, SCREEN3, will be used to determine the points of maximum impact for both the Dewatering Building and the Desanding Operations Area. Using SCREEN3 for the modeling effectively reduces the time and effort required for this exercise while providing results of sufficient accuracy and quality. While SCREEN3 is a conservative model for predicting ground level pollutant concentrations, at this point in the project, it is not necessary to predict the actual magnitude of the ground level PCB concentrations with emissions modeling and dispersion modeling. Only the location of the highest concentration must be estimated. As such, the model could be run with a unit emission rate (1 g/s) and an array of receptor distances to determine the location of maximum impact. SCREEN3 is a particularly effective tool for this type of analysis.

2.2.2 Dispersion Modeling to Estimate the Concentration Attenuation Effect

The sampling station locations located around the Dewatering and Desanding operations will be supported by two mobile air station that will be placed as near as practical to critical public receptor locations on the day of sampling (see Figure 3-1 for critical public receptor locations). As noted earlier it is anticipated that the stationary sampling stations located around the Dewatering and Desanding operations will be located relatively close to these operations and therefore the results will be most representative of the exposure to a commercial worker, since commercial facilities are located closest to these to operations. For each sampling event there will be at least nine stations, three each around the Dewatering and Desanding Facilities and two mobile stations out in the residential/commercial neighborhood and one station on the dredge. The results from the sampling stations around the Dewatering and Desanding Facilities and the dredge will be maximum source concentrations and these results will be utilized to estimate the airborne concentrations at the other receptors identified in Figure 3-1. The results from the two mobile stations will be used to corroborate the modeling results. As more data is collected the model parameters will be evaluated to improve the accuracy of the model. At some point it is anticipated that only sampling around the Dewatering and Desanding Operations will be necessary and modeling for the other locations will be able to address the other off-site receptor issues. If it is determined that the pollution control systems on the Dewatering and Desanding Operations are very effective and total emissions from these facilities are well below budget line criteria, air monitoring may be cut back significantly or even discontinued. Modeling in combination with corroborating data will provide a relatively simple and inexpensive means of documenting public exposure during the forthcoming Harbor activities. Over the past ten years considerable air sampling has been performed during a variety of operations at the Harbor. This data provides confidence that the projected sampling/modeling program is sufficient to document the risk to the public during the Harbor remediation activities.

2.3 Cumulative Exposure Tracking

Potential cumulative exposure to inhaled PCBs will be tracked against appropriate budget lines as outlined in the Implementation Plan. This Implementation Plan describes a set of calculations that facilitate the tracking of cumulative exposures over the course of the remediation activities. The set of calculations also identify various "triggers" that are associated with specified ambient air PCB concentration or cumulative exposure trends that could indicate that a closer assessment of PCB emission sources and their potential impact on exposures to the public may be warranted.

One option for performing these calculations is to use spreadsheets. A prototype program has been developed using a set of linked computational spreadsheets to perform these calculations. This prototype program is called the Public Exposure Tracking System (PETS). As an output from this prototype program, a graded scale of response action priority is defined to facilitate matching a site management response (in terms of PCB emission source management) to the severity of the potential consequences of the triggering condition. Using this program, a brief standardized summary report is generated for each sampling station, utilizing real data collected or calculated exposure concentration from the dispersion model, following each sampling event. That report contains the current plot of the comparison of the estimated cumulative exposures to the established budget line and a review of any triggers present during that sampling period. Illustrative examples of these pieces of the sampling report, which would also include the validated data and corresponding meteorological conditions, are presented in Figure 2-1 and Table 2-2, respectively. Further details are presented in the Implementation Plan.

As presented previously, the tracking of cumulative exposures will begin with the remedial actions scheduled to begin in 2004, after construction of the Dewatering Building is complete and prior to initial

operations. A larger public exposure picture could be obtained by modeling results from past activities, adjusting exposure budget line to reflect the full period of work at the Harbor. Cumulative exposures will be tracked as described above and in the Implementation Plan. Following review and the required quality assurance/quality control checks, the cumulative plots and summary reports will be forwarded to a broader set of decision makers and stakeholders.

Figure 2-1
Sample Status / Screening Report: Comparison of Estimated Cumulative Exposure Levels to the Health-Based Budget

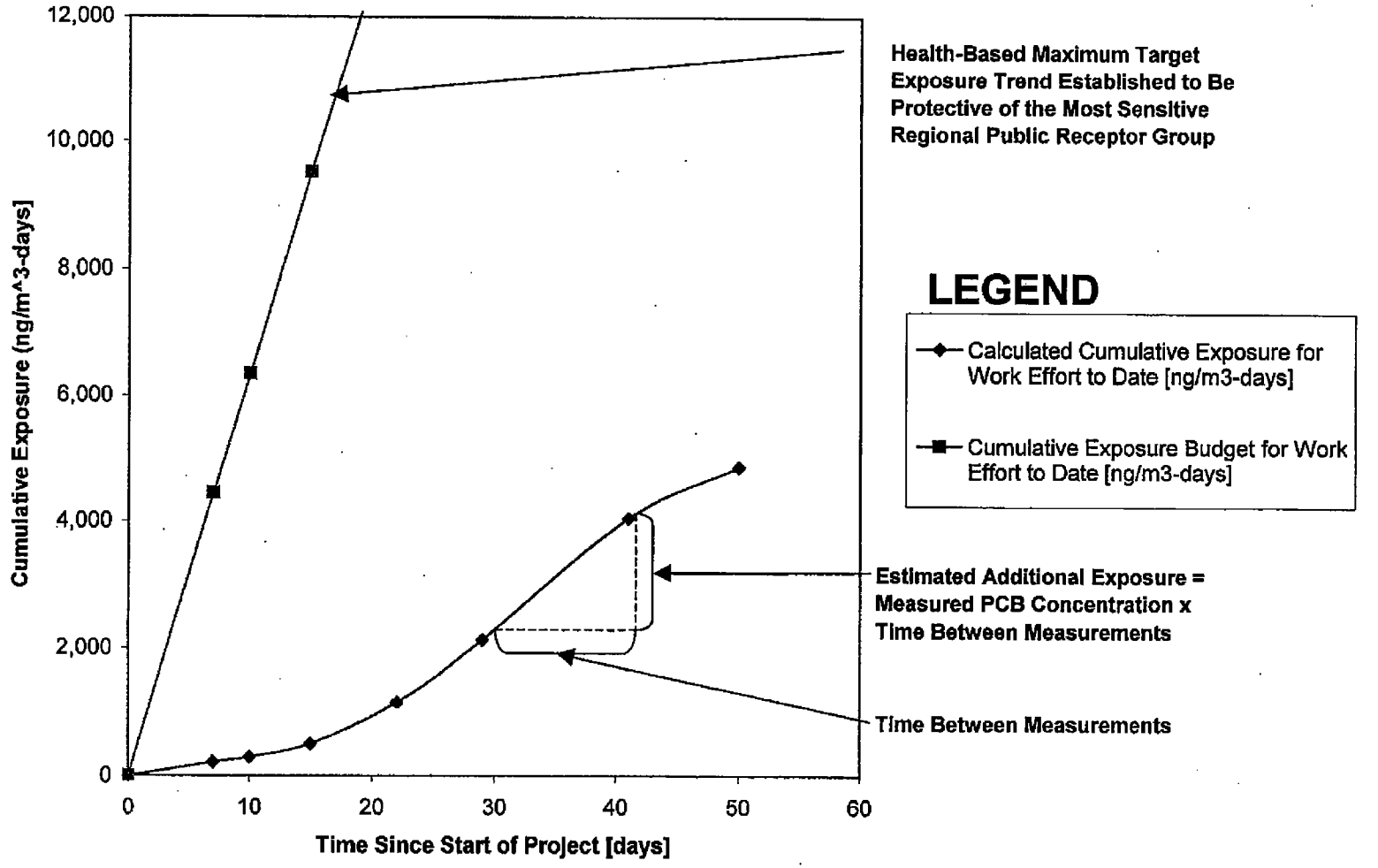

Table 2-2
Sample Status / Screening Report: Identified Triggers and Suggested Responses

Monitoring Station : AQ Site ## - Hypothetical Long-Term Sampling Station
Monitoring Date: 8/14/01

Monitored Concentration (ng/m^3): 110
Response Level: LOW
Response: Evaluate the Cause of Triggered Conditions

Triggers:

High

Medium

Low

Trigger C5: Measured Concentration Exceeds the Annual Average Background Concentration by more than 25%

Trigger C7: Measured Concentration has Doubled Since the Last Monitoring Period

RESPONSE LEVEL	NATURE OF POTENTIALLY WARRANTED RESPONSE
Low	Evaluate the Cause of the Unfavorable Condition(s); Operational Adjustments Likely to Not Be Required
Medium	Consider or Plan for Operational Adjustments or Engineering Control Options
High	Implement Operational Adjustments or Engineering Controls

3.0 DEVELOPING AMBIENT AIR PCB CONCENTRATION TIME TRENDS

The cumulative exposure budgets discussed in Section 2.0 provide a benchmark against which a time series of airborne PCB concentrations can be compared to evaluate potential inhalation risks to the public. The series of PCB concentrations at a location will be established using a combination of actual sample results and dispersion modeling.

The following sections describe the principal elements of the Plan, specifically the:

- Proposed locations of the fixed and mobile sampling stations; and the
- Schedule of operation and frequency of sampling at the fixed sampling station locations.

The results of the Baseline Ambient Air Sampling and Analysis Program and air sampling performed in conjunction with past removal or construction efforts may, at times, provide suitable estimates of ambient air PCB levels in the absence of influences due to remediation activity. This information will be used, as appropriate, to "fill in" or verify portions of the time series of ambient PCB concentrations when remediation activities are not taking place. The use of a combination of these different sets of ambient air measurements is proposed as a cost-effective approach for collecting the information needed to implement the airborne PCB tracking program for the protection of the public.

3.1 Proposed Locations of the Sampling Stations

This section presents the proposed network of sampling station locations to be used in tracking cumulative exposure budgets relative to potential public exposure points located around New Bedford Harbor. The goal in establishing the sampling locations is to position the stations where the airborne PCB concentrations may be the highest.

In establishing locations for the network of sampling stations, the following elements were considered:

- The locations of the Desanding Operations Area (near the Sawyer Street CDF) and the Dewatering Building and Dewatered Sediment Load-Out Facility (at Area D) were recognized as the sites of nearly continuous operation during remediation and elevated (i.e., stack or vent-type) point PCB emission sources.
- The dredge or areas of sediment handling operations were recognized as areas of PCB emission sources.
- The site-specific meteorological data collected to date were reviewed to identify the prevailing wind directions at different times of the year:
    - Summer – During the summer, the prevailing winds are from the south or southwest (off the ocean, toward the land), and would generally transport PCBs toward the north or northeast.
    - Fall – During the fall, the prevailing winds are typically from either the northwest or the south/southwest, and would generally transport PCBs toward the southeast or the north/northeast, respectively.
    - Winter – During the winter, the prevailing winds are from the northwest (off the land, toward the ocean) with secondary peak winds from the northeast and southeast, and would generally transport PCBs toward the southeast.
    - Spring – During the spring, the prevailing winds are transitional, but most typically from either the northwest with secondary easterly component winds (north or south of east), and would generally transport PCBs toward the southeast or components of the west, respectively.

- The survey of the potential public exposure points described in the Development Document was used to identify locations around the Harbor where residential, commercial or other sensitive public inhalation exposure could be expected. The abutters to the Dewatering Building were explicitly considered with regard to possible exposure.

The proposed sampling stations were located based on one or more of the following considerations:

A. Proximate to dredging/excavation or contaminated soil handling operations; or

B. Proximate and potentially downwind from planned remediation facilities that may be stationary sources of PCB emissions (i.e., the Dewatering Building Area and the Desanding Operation (Sawyer Street CDF) Area);

Table 3-1 identifies the set of proposed air sampling station locations. The only fixed stations will be stations 9-14 and station 19, the dredge. The exact location of these stations will be determined once the final parameters and layout of the operational facilities and dredge are known. The general locations identified as the result of this analysis are shown on Figure 3-1. The actual station locations will be field-verified and may be moved slightly prior to implementation to ensure that there are no significant obstructions (e.g., adjacent buildings, large trees) at the proposed sampling sites, that they are secure and that electrical power is available at these locations. Based on in-the-field reconnaissance, specific sampling station locations will be defined. One mobile station and one fixed station around the Dewatering Facility will have collocated sample stations for quality control purposes.

Table 3-1
Summary of the Fixed Location Sampling Station Locations and Justifications

Sampling Station Type Location Number [1]	Existing or Prior Air Sampling Station Location?	Town/City	Proximate and Potentially Upwind of What Type of Public Receptor?	Rationale Behind Choice of Station Location
1 (Mobile)	AQ Site 33	Acushnet	Residential	N of High In Situ PCB Concentrations in Upper Harbor Area and Completes Perimeter Coverage Around Harbor
2 (Mobile)	No	Acushnet	Residential	E/NE of High In Situ PCB Concentration in Upper Harbor Area
3 (Mobile)	No	Acushnet	Commercial	E of High In Situ PCB Concentrations in Upper Harbor Area
4 (Mobile)	AQ Site 27	Acushnet	Residential	SE of High In Situ PCB Concentrations in Upper Harbor Area and E of Mudflats
5 (Mobile)	No	Fairhaven	Residential/Commercial	Completes Perimeter Coverage Around Harbor
6 (Mobile)	No	Fairhaven	Residential	E of Lower Harbor Dredging Area
7 (Mobile)	No	Fairhaven	Residential/Commercial	SE of Lower Harbor Dredging Area and Completes Perimeter Coverage Around Harbor
8 (Mobile)	No	New Bedford	Residential/Commercial	Completes Perimeter Coverage Around Harbor
9 (Fixed)[2]	AQ Site 35	New Bedford	Commercial	S of Dewatering Building
10 (Fixed)[2]	AQ Site 36	New Bedford	Commercial	W of Dewatering Building
11 (Fixed)[2]	No	New Bedford	Commercial	N of Dewatering Building
12 (Fixed)[2]	No	New Bedford	Residential	S of Desanding Operations
13 (Fixed)[2]	Sawyer St. CDF Area # 7	New Bedford	Commercial	SW of Desanding Operations
14 (Fixed)[2]	No	New Bedford	Residential	W of Desanding Operations
15 (Mobile)	Sawyer St. CDF Area # 9	New Bedford	Residential	N of Desanding Operations
16 (Mobile)	AQ Site 25	New Bedford	Commercial	W of High In Situ PCB Concentrations in Upper Harbor Area and Completes Perimeter Coverage Around Harbor
17 (Mobile)	AQ Site 30	New Bedford	Commercial	W/SW of High In Situ PCB Concentration in Upper Harbor Area
18 (Mobile)	No	New Bedford	Residential	W of High In Situ PCB Concentration in Upper Harbor Area
19 (Dredge)[2]	No			Source for all Dredging Activities

[1] Location numbers refer to those shown on Figure 3-1.

[2] These seven stations will be run each day sampling occurs. One most downwind mobile station and one other will be run with the eight fixed stations.

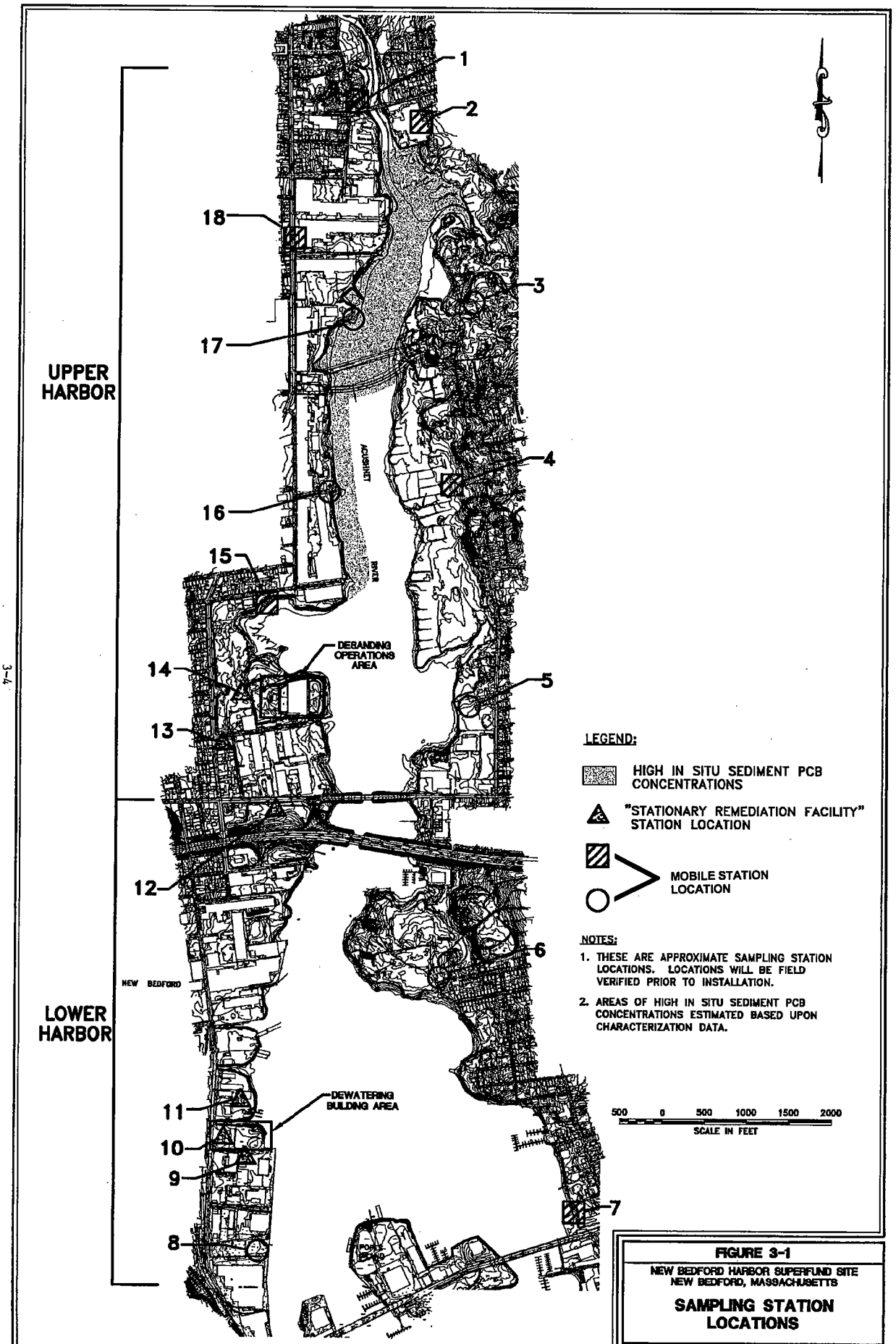

FIGURE 3-1

NEW BEDFORD HARBOR SUPERFUND SITE
NEW BEDFORD, MASSACHUSETTS

SAMPLING STATION LOCATIONS

FOSTER WHEELER ENVIRONMENTAL CORPORATION
TERC PROGRAM

3.2 Station Identification, Operation and Sampling Frequency

The proposed plan for establishing operating schedules and the frequency at which ambient air samples should be collected at each operating station location is presented in this section. The sampling frequencies and operation schedule for each of the 19 identified station locations will depend on remediation schedules and work activities. These 19 identified station locations will be used to document ambient air concentrations from possible PCB emission, as source input data for the dispersion modeling and to provide corroborating data for the dispersion modeling. Considerations and criteria for deciding if, and when, the sampling frequency at a station may be reduced or sampling discontinued altogether are also discussed. Each of these station designations is described in full detail in the sections below.

3.2.1 "Stationary Remediation Facility Station" Locations, Schedules of Operation, and Sampling Frequencies

As a general guideline, sampling will only be conducted when dredging and the operational facilities are operating. There is no reason to sample when operations are shut down as comprehensive baseline (no activity) data exists from a prior sampling effort and this existing baseline data will be incorporated into the budget line as daily representative exposure information when operations are down.
At least initially, sampling should be conducted somewhat aggressively. It is anticipated that dredging and processing of material will occur at the North end of the harbor where the most contaminated material resides. The processing of heavily contaminated material plus the fact that material processing operations will be new and some mechanical/processing issues may arise which could lead to higher than expected emissions warrant more aggressive sampling strategy at this time to establish the level of impact associated with the operations actually occurring. An initial sampling frequency of once-per-week is proposed for all stations. . This proposed sampling frequency parallels the USEPA sampling frequency requirement for non-continuous air monitoring around point source emitters (i.e., once-every-six days). A once-per-month sampling frequency is considered to be insufficient due to the variations in day-to-day meteorological conditions and processing that is anticipated initially. Alternatively, a sampling frequency of once-every-three days is considered to be overly aggressive considering the PCB emissions from these facilities, and the resulting ambient air concentrations, are expected to be low. It is further proposed that after a period of two months of sampling at these stations, this initial sampling frequency should be re-evaluated. If the ambient concentrations remain at low levels relative to those associated with the health-based cumulative exposure budget, the sampling frequency may be reduced to either once every-two-weeks or monthly (at a minimum), depending on the observed concentrations.

It is proposed that sampling at six stationary remediation facility stations begin two weeks prior to the planned start of material processing, continue throughout the remediation activities, and end one month or one sampling event after the completion of the remediation activities. The purpose of collecting a sample before and after the active remediation period is to document the airborne PCB concentrations not associated with the remediation activities. This information, in combination with the baseline data, will be used to interpolate conditions between distinct remediation events for tracking cumulative exposure against the applicable budget.

3.2.2 "Dredge/Contaminated Sediment Handling" Station Location, Schedules of Operation and Sampling Frequency

It also highly likely that the operations at the dredge will create another potential source of emissions which would impact nearby receptors and contribute substantially to the overall exposure budget. To quantify this source an ambient air station will be located on the dredge. The data from the dredge sampling will be modeled along with the other source data to obtain a more complete exposure scenario for the community receptors. The air sampling frequency for the dredging operations will be the same as

for the other six fixed stations and two mobile stations. The location of the sampling equipment on the dredge will be in an area to be determined. Ideally the sampling equipment will be primarily downwind and relatively close proximity to the operations so that worst case emission data can be obtained. The positioning of the sampling unit on the dredge may have to be moved to periodically to achieve these objectives.

It is more defensible and has been past site philosophy to collect samples on a more frequent schedule at the beginning of a new remediation effort or remediation activity to ensure that the resulting ambient PCB data is truly representative of the conditions present. During the period of active remediation, the collected data will be continually evaluated to determine if it is appropriate to relax the sampling frequency at the active area sampling stations. For example, should sampling indicate that ambient PCB levels are relatively low with respect to public exposure and not highly variable, the sampling frequency could be reduced to once every two weeks or less, especially during the cooler months and in areas where in-situ PCB concentrations are relatively low, as the construction progresses. However, it is important to maintain the ability to defensibly document conditions near the active remediation zone. Therefore, active area sampling stations should not be operated at less than a once-per-month sampling frequency until sufficient data has been collected, reviewed and presented to all state holders and everyone is in agreement that a less frequent sampling schedule is justified.

3.2.3 "Mobile" Station Locations, Schedules of Operation and Sampling Frequency

The primary objective of collecting samples with the mobile stations at the identified locations is to corroborate the dispersion factors being used to track cumulative exposures. The two mobile samplers will be mounted on trailers and placed as close as possible to two of the identified (Figure 3-1) critical receptor locations based on site activities. These mobile stations will be used to verify and ground truth the dispersion factors being used at the fixed station locations.

As mentioned above, it is proposed that the operation of the mobile sampling stations be limited to periods only when remediation is active and the other monitoring stations are running. The data collected from the mobile stations will be used for tracking cumulative exposures at that location for that sampling round and to corroborate modeling estimates.

At least one of the mobile stations will be located at one of the critical receptor locations most downwind to the major activities on the day of sampling. The other mobile station will be located at other critical receptor locations so long as all the identified critical receptor locations ultimately receive equal number of sampling events. The mobile stations will be operated on the same schedule as the other fixed sampling stations.

4.0 ANNUAL REVIEW

This Air Management Plan document presents a technically defensible air sampling approach to provide ambient air PCB concentration data for the purpose of tracking and documenting public exposure to airborne PCBs relative to the cumulative exposure budgets. The planned remediation of New Bedford Harbor will occur over a number of years. Over the course of the project, the plans for remediation will continue to be updated in response to changes in the project. It is recommended that the approach outlined in this document will be reviewed annually as the remediation of the Harbor progresses to ensure that it remains appropriate for accomplishing the stated objectives of the Air Management Plan. Based upon this annual review, changes to the sampling approach may be appropriate and can be incorporated as a modification to this document.

5.0 REFERENCES

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