FOSTER WHEELER ENVIRONMENTAL CORPORATION
U.S. NAVY NORTHERN DIVISION REMEDIAL ACTION CONTRACT (RAC)
CONTRACT NO. N62472-94-D-0398
NAVAL SUBMARINE BASE - NEW LONDON - GROTON, CT

ANNOTATED RESPONSES TO EPA REVIEW COMMENTS

The following are responses to EPA review comments on Area A Downstream/OBDA Remedial Action Completion Report, dated November 2000, for the Naval Submarine Base New London. EPA comments are provided in italic type followed by Foster Wheeler's responses in bold type.

Reviewer: K. Keckler (EPA) Date: March 14, 2001

Replacement pages for the Remedial Action Completion Report are attached. Please insert as appropriate.

Comment 1
§4.5 *The completion report does not include data listed as a "Geophysical Engineering Classification", as specified in Section 3 of the 100% Design Document on page 3-5. Please clarify whether the "Geotechnical Analyses" provided in the completion report are the same as the Geophysical Engineering Classification analyses as specified in Section 3 of the 100% Design Document.*

Response: **The Geophysical Engineering Classification analyses term was inadvertently used in the 100% Design. The analyses that were planned to be conducted were Geotechnical Analyses. Since the 100% Design will not be resubmitted, this Response to Comments section will act as the correction page and should be reviewed concurrently with the 100% Design.**

Comment 2
§4.6 *The responses to the prior comments 4a, 4b, 4c of January 9, 2001 are adequate responses however, the completion report was not revised. The text should maintain consistency with all sample data information presented in the text (i.e., the sample did not meet lab RG confirmation so the area was re-excavated and re-sampled on _____(date)).*

Response: **Comment 4a was previously addressed and is consistent with sample data. (There were 10 sampling events. Text and table were revised. Samples collected along the road are found on the map.)**

Comment 4b was addressed. Only samples that met RGs and depict the final limits of excavation are shown on maps and tables.

Response for Comment 4c is complete. Although this sample met RGs, it was re-excavated in conjunction with excavation of adjacent samples. In this case,

sample SS19A represented the section of sidewall directly above the section of sidewall represented by sample SS23A. Following re-excavation, these two sections of sidewall were represented by samples SS27A and SS30A, respectively. Samples SS27A and SS30A, collected on 10/26/99, represent the final limits of excavation in that area and are located on the drawing and in the table.

Comment 3
p. 4-8, §4.6.11

The response to the earlier comment 5 of January 9, 2001 is adequate however, the completion report text indicates the sediment sample SED-10C was collected December 14, 1999 not December 16, 1999 as the response states, as depicted on drawing B-1, and as listed in Appendix D-1. Please correct the discrepancy of sample collection dates between text and the other data sources as mentioned above.

Response: **SED-10C was collected on December 16, 1999. Text has been changed to maintain consistency.**

Comment 4
p. 4-14, §4.6.6.1

The completion report was not revised. However, the response clarifies the sample number discrepancy. The response lists the eight soil samples collected on June 13, 2000 and June 14, 2000. The text references the soil samples STI-SS13A through STI-SS25A, which indicates thirteen samples between these sample identifiers.

Response: **Eight samples collected were STI-SS13A, STI-SS14A, STI-SS16A, STI-SS19A, STI-SS21A, STI-SS22A, STI-SS23A, and STI-SS25A. These samples are listed in Appendix D-6. Text has been revised.**

Comment 5
p. 4-14, §4.6.6.1

The completion report was not revised. However, the response clarifies the sample number discrepancy. The response lists the four sediment samples that were sent to the lab for further analysis. The completion report refers to these four samples as STI-SED07A through SED11A, without specifying that there is not a sample SED09A. The completion report indicates there are five sediment samples between these sample identifiers.

Response: **Four samples collected were STI-SED07A, STI-SED08A, STI-SED10A, and STI-SED11A. These samples are listed in Appendix D-6. Text has been revised.**

10/05-06/99 Five soil samples (SS-01A through SS-04A and SS-06A) and two sediment samples (SED-01A through SED-03A) were collected from the upper section of Stream 4. All of the soil samples and one sediment sample (SED-01A) met the RGs.

10/07/99 Two soil samples (SS-07A and SS-08A) and one sediment sample (SED-05A) were collected from the middle section of Stream 4. This area was excavated to bedrock. Both soil samples met the RGs. Data for SED-05A could not be located.

10/19/99 After further excavation, abandoned outfalls were discovered at an elevation of approximately (Elev. 54.0). A soil sample (SS-09A) and a sample from the sediment in the pipe (SEDPIPE) were collected. Both samples met the RGs and were sent to the lab. Soil samples SS-09A did not meet RGs for laboratory analytical methods. This area was re-excavated and re-sampled. Sediment in the pipe will not be sampled again although it did not meet the RG for arsenic.

10/21/99 Fourteen soil samples (SS-10A through SS12A, SS-14A, SS-15A, S-15A-2, SS-17A through SS-24A) and five sediment samples (SED-06A through SED-09A and SED-09A-2) were collected from the lower section of Stream 4. Only five soil samples did not meet RGs (SS-17A, SS-18A, and SS-21A through SS-23A). All of the sediment samples met RGs and were sent to the laboratory for further analysis.

10/26-27/99 Six soil samples (SS-25A through SS-30A) were collected. Only SS-27A and SS-30A met the RGs. Soil samples (RD-01 through RD-06) were also collected along the road and analyzed for the same parameters. None of the samples met the RGs. The road was scraped another 12" and re-sampled on October 27, 1999 (RD-01A through RD-06A). Samples RD-03A through RD-06A met RGs and were sent to the laboratory.

11/01/99 The lower section of Stream 4 was re-excavated and re-sampled. Five soil samples (SS-25B, SS-26B, SS-28B, SS-29B, and SS-31A) and one sediment sample (SED10A) was collected. All soil samples met the RGs. The sediment sample exhibited concentrations of arsenic that exceed the RGs and was re-excavated and re-sampled.

11/02/99 The road was scraped and additional 12" and re-sampled. Two soil samples (RD-01B and RD-02B) were collected. Both met the RGs and were sent to the laboratory.

12/16/99 The last sediment sample (SED-10C) was collected. This sample met the field screening RGs but did not meet RGs for laboratory analytical methods. This area was re-excavated and re-sampled.

4.6.2 Phase II – Stream 3

Using information from on-site field screening and laboratory analytical results, excavation was completed in January 2000. Nine rounds of sampling were conducted for Stream 3. Once field-screening results indicated that the RGs in an area were met, samples were collected and submitted to the laboratory for DDTR, dieldrin, arsenic, beryllium, cadmium, lead, and zinc analysis. A total of 125 samples, including field duplicates, were submitted to the laboratory for analysis. See Sheet B-1 in Appendix B for sample locations.

4.6.2.1 Sampling Event Chronology

12/3/99	Twenty soil samples (SS-01 through SS-20) and four sediment samples (SED-01 through SED-04) were collected from Stream 3. Thirteen of the soil samples (SS-03 through SS-06 and SS-12 through SS-20) and all four of the sediment samples met RGs and were sent to the laboratory for further analysis.
12/7/99	Eleven soil samples (SS-21 through SS-28 and SS-01A through SS-03A) and three sediment samples (SED-05 through SED-07) were collected from Stream 3. All but one of the soil samples (SS-24) and all three sediment samples met RGs and were sent to the laboratory for further analysis.
12/10/99	Fifteen soil samples (SS-04A through SS-12A and SS-29 through SS-34) and three sediment samples (SED-08 through SED-10) were collected from Stream 3. All fifteen of the soil samples and all three of the sediment samples met RGs and were sent to the laboratory for further analysis.
12/14/99	One soil sample (SS-13A) and one sediment sample (SED-01A) were collected from Stream 3. Both samples met RGs and were sent to the laboratory for further analysis. Laboratory results indicated that the soil sample met RGs and was sent to the laboratory for further analysis but the sediment sample did not and this area was re-excavated and re-sampled.
12/16/99	Ten soil samples (SS-35 through SS-44) and one sediment sample (SED-11) were collected from Stream 3. Seven of the soil samples (SS-37 through SS-40 and SS-42 through SS-44) and the sediment sample met RGs and were sent to the laboratory for further analysis.
12/20/99 - 12/21/99	Forty-one soil samples (SS-35A, SS-36A, SS-41A, and SS-45 through SS-82) and nine sediment samples (SED-12 through SED-20) were collected from Stream 3. All but eleven of the soil samples (SS-47 through SS-49, SS-53 through SS-55, SS-66, SS-67, SS-72, SS-73, and SS-80) and all but one of the sediment samples (SED-18) met RGs and were sent to the laboratory for further analysis. Two soil samples (SS-63 and SS-65) and sediment sample SED13, did not meet RGs in the laboratory analysis. These areas will be re-excavated and re-sampled.
12/22/99	Eleven soil samples (SS-47A through SS-49A, SS-53A through SS-55A, SS-66A, SS-67A, SS-72A, SS-73A, and SS-80A) and one sediment sample (SED-18A) were collected from Stream 3. All eleven soil samples and the sediment sample met RGs and were sent to the laboratory for further analysis.
1/6/00 & 1/12/00	Three sediment samples (SED-13A, SED-01B, and SED-13B) and one sample from the headwall were collected from Stream 3. The HEADWALL sample was collected from the sediment accumulated in the junction headwall on the northwest side of North Lake. All four samples met RGs and were sent to the laboratory for further analysis. Two samples (the duplicate for SED-13A and the headwall) did not meet RGs in the laboratory analysis. These areas were re-excavated and re-sampled.

and sediment samples met RGs and were sent to the laboratory for further analysis.

5/25/00 — Six soil samples (OP-SS-18 through SS-23) and twelve sediment samples (OP-SED-19 through SED-30) were collected from OBDA Pond. All six soil samples and eleven sediment samples (all but SED-28) met RGs and were sent to the laboratory for further analysis.

5/31/00 - 6/1/00 — One sediment sample (OP-SED-28A) was collected from OBDA Pond. Eight soil samples (ST1-SS-01 through ST1-SS-08) and five sediment samples (ST1-SED-01 through ST1-SED-05) were collected from Stream 1. Five soil samples (DS-SS-01 through DS-SS-05) and two sediment samples (DS-SED-01 and DS-SED-02) were collected from the Discharge Structure. Eleven soil samples (ST1-SS-01 through ST1-SS-04, ST1-SS-06 through ST1-SS-08, and DS-SS-01 through DS-SS-04) and eight sediment samples (OP-SED-28A, ST1-SED-01 through ST1-SED-05, DS-SED-01, and DS-SED-02) met RGs and were sent to the laboratory for further analysis.

6/7/00 – 6/8/00 — Twenty-four soil samples (ST1-SS-05A through SS31) and eleven sediment samples (ST1-SED06 through SED16) were collected from Stream 1. Thirteen soil samples and three sediment samples met RGs and were sent to the laboratory for further analysis.

6/13/00 - 6/14/00 — One soil sample and a duplicate (OP-SS01A and SS01A-2) were collected from the Base of the OBDA Slope. These samples were sent to the laboratory for lead analysis.

Three sediment samples (OP-SED01A through OP-SED03A) were collected from the OBDA Pond. All samples met RGs and were sent to the laboratory for further analysis. These samples have the same IDs as three samples collected from the OBDA Pond on 5/18/00. This was an identification error in the field, but the samples are from unique locations, as indicated on Sheet B-1 in Appendix B.

Eight soil samples (ST1-SS13A, ST1-SS14A, ST1-SS16A, ST1-SS19A, ST1-SS21A, ST1-SS22A, ST1-SS23A, and ST1-SS25A) were collected from the sidewalls of the Stream 1 excavation. All samples met RGs and were sent to the laboratory for further analysis.

6/15/00 — Two soil samples (ST1-SS09A and SS10A) and four sediment samples (ST1-SED07A, ST1-SED08A, ST1-SED10A, and SED11A) were collected from Stream 1. All samples met RGs and were sent to the laboratory for further analysis.

6/19/00 — Ten soil samples (ST1-RD01 through RD10) were collected from the haul road adjacent to Stream 1. Two of them (ST1-RD01 and RD02) met RGs and were sent to the laboratory for further analysis.

6/21/00 — One sediment sample (ST1-SED12A) and its field duplicate (ST1-SED12A-2) was collected from Stream 1. It met RGs and was sent to the laboratory for

further analysis.

6/29/00 — Six soil samples (DS-SS-05 through DS-Ss-10) and two sediment samples (DS-SED-03 and DS-SED-04) were collected from the Discharge Structure. All soil samples and all sediment samples met RGs and were sent to the laboratory for further analysis.

7/12/00 — Thirteen soil samples (ST1-RD03A through RD15) were collected from the haul road adjacent to Stream 1. All samples met RGs and were sent to the laboratory for further analysis.

4.7 Water Treatment

The purpose for this sampling and analysis was to monitor water treatment and discharge activities in accordance with the CTDEP Emergency Authorization to Discharge. Water treatment procedures are discussed in greater detail in Section 2.4 above. Results of all water treatment sampling and analysis are included in the Discharge Monitoring Reports included in Appendix C.

4.8 Waste Characterization

The purpose of this sampling and analysis was to properly characterize waste for off-site disposal or recycling. Waste characterization was performed in accordance with Section 3.0 of the 100% Design. All results were forwarded to the SUBASENLON Environmental Department for review prior to transportation and disposal.

One exception to the waste characterization process described in the 100% Design was the characterization of Upper Pond waste soil and sediment. One of two samples originally collected from a portion of Upper Pond soil and sediment waste exhibited a TCLP lead concentration of 14.9 mg/L, in excess of the RCRA Characteristic Limit of 5.0 mg/L for TCLP lead. The second sample from the same area exhibited a TCLP lead concentration of 0.0498 mg/L for TCLP lead. This "universe of waste," approximately 100 cubic yards of stockpiled soil and sediment, was re-sampled and characterized in accordance with 40 CFR 260.10. Results of this re-characterization showed that the waste was a non-hazardous waste appropriate for disposal at a non-hazardous facility. Foster Wheeler's memorandum to the SUBASENLON Environmental Department documenting this decision and SUBASENLON Environmental's response are both included in Appendix E.

4.9 Backfill Screening

The purpose of this sampling and analysis was to confirm that all imported backfill material was "clean," i.e. free from contaminants. PCB analysis was conducted on all backfill materials. All fill materials contained concentrations of contaminants below the RGs and the Connecticut Residential Direct Exposure Criteria for soil. Results of backfill analyses were submitted to the Navy, USEPA, and CTDEP in a memorandum dated November 16, 1999 and in Submittal No. 23, dated June 6, 2000.

Results for the geotechnical analyses and organic content have been included in the Remedial Action Report (Appendix D-8). None of the material was cohesive; therefore, the Atterberg Limits were not performed.

Date Collected	Sample ID	4,4'-DDE	Dieldrin	4,4'-DDD	4,4'-DDT	DDTr	Arsenic	Beryllium	Cadmium	Lead	Zinc
Remedial Goal (soil)		NA	NA	NA	NA	5.0	NA	NA	NA	NA	NA
Remedial Goal (sediment)		NA	NA	NA	NA	2.0	6.1	2.1	9.6	218	410
6/13/2000	OP-SED03A-2	U	U	U	U	0	0.21 B	0.39 B	U	5.1	21.7
6/13/2000	ST1-SS13A	U	U	U	U	0					
6/13/2000	ST1-SS14A	U	U	U	U	0					
6/13/2000	ST1-SS16A	U	U	U	U	0					
6/13/2000	ST1-SS19A	U	U	U	U	0					
6/13/2000	ST1-SS21A	U	U	U	U	0					
6/13/2000	ST1-SS22A	U	U	U	U	0					
6/13/2000	ST1-SS23A	U	U	U	U	0					
6/13/2000	ST1-SS25A	U	U	U	U	0					
6/14/2000	OP-SS01A					0				285	
6/14/2000	OP-SS01A-2					0				407	
6/15/2000	ST1-SED07A	U	U	U	U	0	0.55 B	0.35 B	U	5.3	29.5
6/15/2000	ST1-SED08A	U	U	U	U	0	0.78 B	0.78 B	U	4.1	24.8
6/15/2000	ST1-SED08A-2	U	U	U	U	0	1.6	0.40 B	U	4.3	25
6/15/2000	ST1-SED10A	U	U	U	U	0	0.51 B	0.37 B	U	20.4	37.5
6/15/2000	ST1-SED11A	U	U	U	U	0	U	0.44 B	U	4.5	33.9
6/15/2000	ST1-SS09A	U	U	0.023	U	0.023					
6/15/2000	ST1-SS10A	U	U	U	U	0					
6/19/2000	ST1-RD-01	U	U	0.013	U	0.013					
6/19/2000	ST1-RD-02	U	U	0.024	U	0.024					
6/21/2000	ST1-SED12A	U	U	U	U	0	2.8	0.50 B	0.59 B	21.1	64.1
6/21/2000	ST1-SED12A-2	0.077	U	U	0.32	0.397	2.1	0.41 B	0.46 B	9.6	50.6
6/29/2000	DS-SED03	U	U	U	U	0	2.2	0.81	U	5.4	23.7
6/29/2000	DS-SED03-2	U	U	U	U	0	2.2	0.9	U	6.7	28.2
6/29/2000	DS-SED04	U	U	U	U	0	1.4 B	0.94	U	4.7	30.5
6/29/2000	DS-SS05	0.023	U	U	0.036	0.059					

Date Collected	Sample ID	4,4'-DDE	Dieldrin	4,4'-DDD	4,4'-DDT	DDTr	Arsenic	Beryllium	Cadmium	Lead	Zinc
Remedial Goal (soil)		NA	NA	NA	NA	5.0	NA	NA	NA	NA	NA
Remedial Goal (sediment)		NA	NA	NA	NA	2.0	6.1	2.1	9.6	218	410
6/29/2000	DS-SS06	U	U	U	U	0					
6/29/2000	DS-SS07	U	U	U	U	0					
6/29/2000	DS-SS08	U	U	U	U	0					
6/29/2000	DS-SS09	U	U	U	U	0					
6/29/2000	DS-SS10	U	U	U	U	0					
7/12/2000	ST1-RD03A	U	U	0.017	U	0.017					
7/12/2000	ST1-RD04A	0.053	U	0.25	0.15	0.453					
7/12/2000	ST1-RD05A	0.045	U	0.52	0.091	0.656					
7/12/2000	ST1-RD06A	U	U	0.045	U	0.045					
7/12/2000	ST1-RD07A	U	U	U	U	0					
7/12/2000	ST1-RD08A	U	U	0.037	0.021	0.058					
7/12/2000	ST1-RD09A	0.019	U	0.24	0.075	0.334					
7/12/2000	ST1-RD10A	U	U	0.014	0.019	0.033					
7/12/2000	ST1-RD11	U	U	0.11	U	0.11					
7/12/2000	ST1-RD12	0.016	U	0.23	0.022	0.268					
7/12/2000	ST1-RD13	U	U	U	U	0					
7/12/2000	ST1-RD14	U	U	U	U	0					
7/12/2000	ST1-RD15	U	U	0.057	U	0.057					