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NAVAL SUBMARINE BASE-NEW LONDON
GROTON, CONNECTICUT

BACKGROUND CONCENTRATIONS OF INORGANICS IN SOIL

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1.0 INTRODUCTION

This Background Soils Report was developed under the Navy's Installation Restoration Program. The report pertains to several investigation sites located within the Naval Submarine Base - New London (NSB-NLON) in Groton, Connecticut.

1.1 Objective and Purpose

The objective of the soil sampling and analysis program described in this report was to determine the native background concentrations of inorganic chemical analytes in soils at the NSB-NLON located in Groton, Connecticut. Native background concentrations are defined as the concentration of a naturally occurring compound in soil that is unaffected by any release of pollutants.

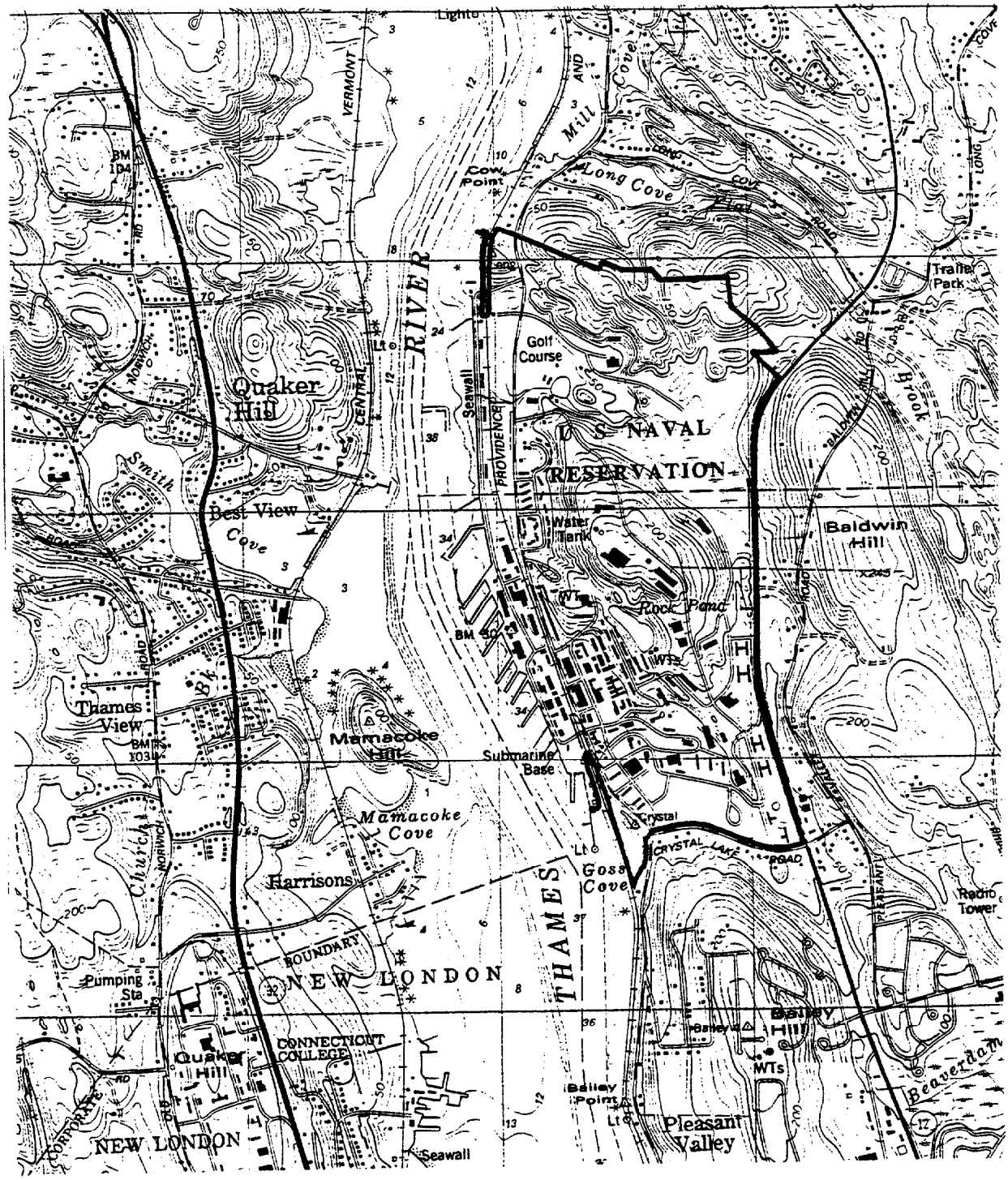
The intended use of the background concentration data is to compare against soil sample results from remedial investigations at several sites for the purpose of identifying areas where the release of pollutants may have occurred. Areas at which releases of pollutants may have occurred will be further evaluated to determine if contaminant levels detected present a hazard to human health or the environment. Further definition of the purpose and use of background concentrations will be established in a consensus statement to be established among the United States Environmental Protection Agency (EPA), the Navy, and the Connecticut Department of Environmental Protection (CTDEP).

1.2 Background

The NSB-NLON consists of approximately 547 acres of land and associated buildings in southeastern Connecticut in the towns of Ledyard and Groton. NSB-NLON is on the east bank of the Thames River, approximately six miles north of Long Island Sound. Figures 1-1 and 1-2 show the overall NSB-NLON site vicinity and location, respectively. NSB-NLON was placed on the National Priorities List (NPL) on August 30, 1990 by the EPA pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

In compliance with CERCLA requirements, a Phase I Remedial Investigation (RI) (Atlantic, August 1992) on nine sites within the overall NSB-NLON sites was completed by Atlantic on behalf of the Navy in August of 1992. In the Phase I RI report, the concentrations of inorganic analytes were compared with published data by the United States Geological Service (USGS) for the eastern United States (Shacklette and Boerngen, 1984). The values used for screening soil sample results were calculated for the upper 95% value limit. Based on comments received on the Phase I RI, the Navy agreed to develop site-specific background levels for inorganic analytes in the soil at NSB-NLON.

INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	SOURCE: Marshall Penn-York Co. Inc. Miles 0 1 2 3 N APPROXIMATE SCALE	FIGURE 1-1 SITE VICINITY ATLANTIC ENVIRONMENTAL SERVICES, INC.



INSTALLATION RESTORATION STUDY
NAVAL SUBMARINE BASE - NEW LONDON
GROTON, CT

SOURCE: Uncasville, CT
U.S.G.S. Topographic Map
1984

N

FIGURE 1-2
SITE LOCATION

ATLANTIC ENVIRONMENTAL SERVICES, INC.

A draft Plan of Action to Establish Background Concentrations of Inorganics in Soil was prepared in October 1992 (Atlantic, October 1992). Subsequent technical discussions of the Plan of Action took place during TRC meetings held on December 2, 1992, February 4, 1993, May 5, 1993, and August 4, 1993. Based upon these discussions and further discussions between the Navy and EPA, a letter transmitting a revised sample location figure to the Plan of Action was submitted to the EPA in a letter dated February 10, 1993, and was approved by EPA in a letter dated March 24, 1993. These letters are included as Appendix A.

Samples were collected in April 1993 to supplement existing "background" data and a Background Soils Data Report was prepared in July 1994 (Atlantic, July 1994). The EPA commented on this report in a letter dated October 5, 1994. Subsequent discussion regarding the comments took place in a meeting between the Navy, EPA, and CTDEP held on January 4, 1995 in the EPA offices in Boston, Massachusetts. Based upon the discussion during this meeting, a response to the comments was prepared by the Navy and submitted to the EPA in a letter dated February 14, 1995. The EPA concurred with these responses in a letter dated March 1, 1995. The letters referenced in this paragraph are included as Appendix B.

In summary, several agreements between the EPA, Navy, and CTDEP were reached regarding the contents of this report regarding establishment of background soils concentrations.

- Only the 16 samples collected during the April 1993 sampling event will be used to establish levels.

- The background level to be used to screen site data will be the highest level detected in the range of any particular analyte. Separate background levels will be established for the 0 to 2 foot and the 0 to 4 foot intervals.

2.0 BACKGROUND SOILS INVESTIGATION

2.1 Description of Sample Areas and Plan

Eight areas at NSB-NLON were selected for background soil sampling as shown in Figure 2-1. A summary of the field sampling plan from the Plan of Action (Atlantic, October 1992) is shown in Table 2-1, and the rationale for selection of constituents to be analyzed is shown in Table 2-2. All eight locations were wooded, upland, and showed no evidence of being disturbed by development. Soil samples from these locations are considered to be representative of the native background concentration of the individual inorganic analytes in soil in this area. Samples were collected and analyzed as described in the Plan of Action (October, 1992) except sample locations were modified as described in the correspondence included as Appendix A.

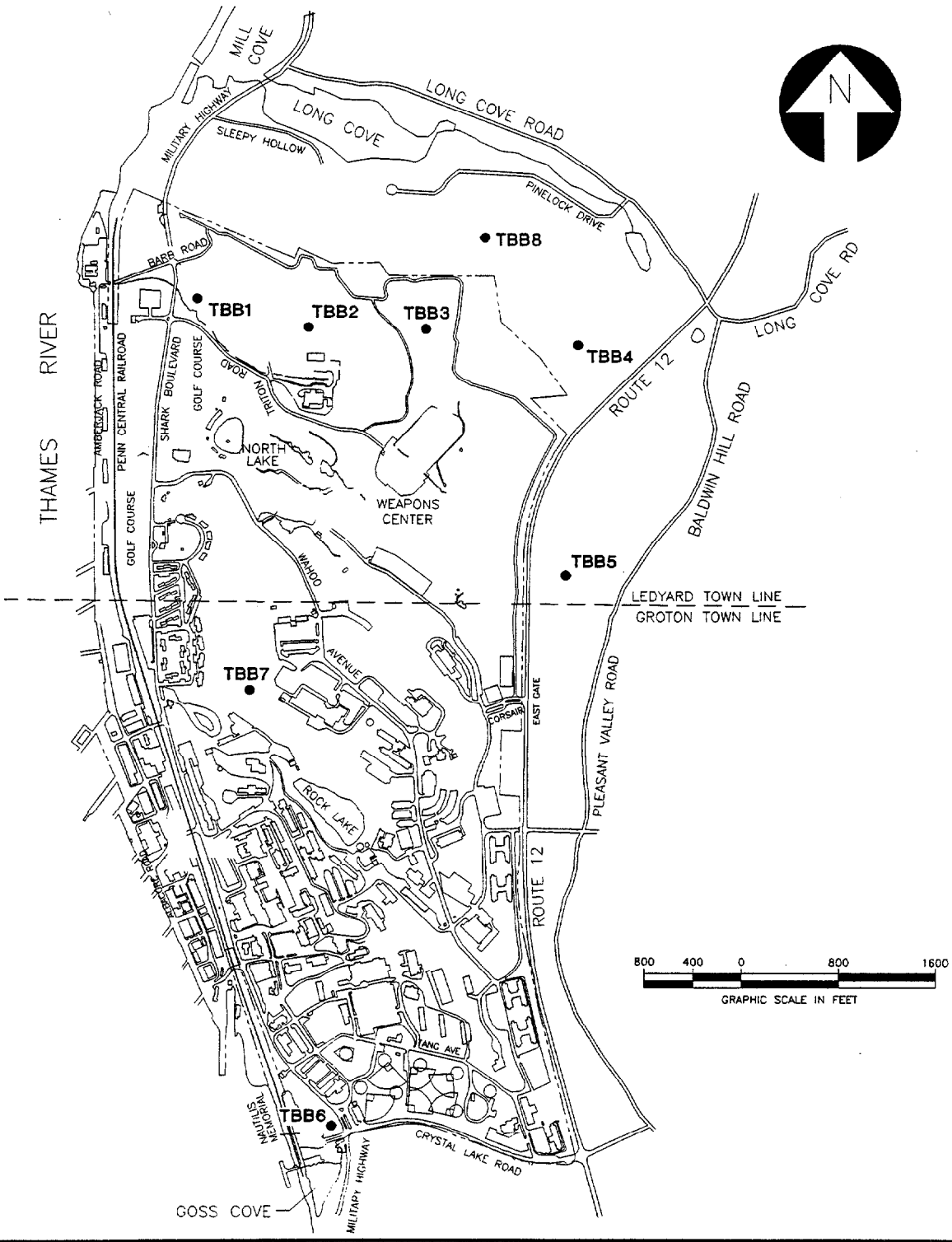
TABLE 2-1
FIELD SAMPLING PLAN

Sample Location	Soil Boring Depth/ Sampling Specifications	Location Rationale and/or Objective	Analysis		
			TCLP Metals	TCL Organics	TAL Inorganics
TBB-1 TBB-2 TBB-3 TBB-4 TBB-5 TBB-6 TBB-7 TBB-8	4 feet/ 0-2', 2-4'	Determine on-site background inorganic concentrations in soil; TCL organics to confirm no prior waste disposal.	•	•	•

TABLE 2-2
RATIONALE FOR SELECTION OF CONSTITUENTS FOR ANALYSIS

Parameter	Rationale
TCLP Metals	Present at NSB-NLON. Needed to establish soil background concentrations in soil.
TCL Organics - VOC, SVOC	Present at NSB-NLON. Needed to determine if background soil samples contain contamination not attributable to natural background sources.
TAL Inorganics	Present at NSB-NLON. Needed to establish soil background concentrations in soil.

The sample areas described above provided soil samples considered to be representative of background levels for inorganic analytes. Shallow soil samples were obtained from two depths (0 to 2 feet and 0 to 4 feet) from each location and analyzed for TCLP metals, TCL organics, and TAL inorganics. Analytical results are summarized in Table 2-3, and complete chemical analysis results are included in Appendix C. Data validation reporting is provided as Appendix D.



INSTALLATION RESTORATION STUDY NAVAL SUBMARINE BASE - NEW LONDON GROTON, CT	LEGEND ● TBB7 – TEST BORING	FIGURE 2-1 BACKGROUND SAMPLING LOCATIONS ATLANTIC ENVIRONMENTAL SERVICES, INC.

TABLE 2-3
NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
SUMMARY OF SOIL ANALYTICAL RESULTS (INORGANICS)
SAMPLES COLLECTED APRIL 1993

	SAMPLE ID / (DEPTH)															
PARAMETER	TBB1 (0-2)	TBB1 (2-4)	TBB2 (0-2)	TBB2 (2-2.3)	TBB3 (0-2)	TBB3 (2-2.5)	TBB4 (0-2)	TBB4 (2-4)	TBB5 (0-2)	TBB5 (2-3.3)	TBB6 (0-2)	TBB6 (2-3.5)	TBB7 (0-2)	TBB7 (2-4)	TBB8 (0-2)	TBB8 (2-3)
TAL INORGANICS (ppm)																
Aluminum	11300	7630	15400	15500	17600	16900	16700	13600	14200	12900	10400	10300	14400	12100	14000	11900
Antimony	2.3 <	2.3 <	3.0 <	2.8 <	3.3 <	2.9 <	2.9 <	2.7 <	2.4 <	2.6 <	2.7 <	2.7 <	4.1 J<	2.7 <	2.7 <	3.2 <
Arsenic	2.5 J	1.7 J	1.9 J	2.6 J	3.5 J	3.5 J	1.4 J	3.3 J	0.72 J	0.53 J	2.0 J	2.3 J	3.6 J	1.9 J	2.7 J	3.1 J
Barium	22.3 J	20.8 J	19.4 J	19.5 J	39.0 J	47.9	35.7 J	20.0 J	35.7 J	57.2	14.4 J	13.6 J	34.0 J	26.7 J	37.4 J	26.6 J
Beryllium	0.58 J	0.39 J<	0.53 <	0.62 J	0.77 <	0.68 <	0.72 J	0.56 J	0.69 J	0.57 J	0.35 J<	0.35 J<	0.69 <	0.54 J	0.60 J	0.42 J<
Boron	3.5 J<	3.3 J<	2.2 <	5.8 J<	6.2 <	3.8 <	3.4 J<	2.9 J<	3.6 J<	3.3 J<	3.6 J<	2.7 J<	2.5 <	2.0 J<	3.0 J<	3.7 J<
Cadmium	0.34 <	0.34 <	0.44 <	0.41 <	0.48 <	0.42 <	0.42 <	0.40 <	0.35 <	0.38 <	0.40 <	0.40 <	0.35 <	0.40 <	0.44 <	0.47 <
Calcium	222 J	499 J	102 J	115 J	258 J	283 J	254 J	245 J	146 J	177 J	212 J	233 J	314 J	278 J	254 J	268 J
Chromium	14.1	11.8	14.0	15.1	19.3	21.5	16.4	18.1	14.6	17.8	10.2	10.8	16.5	18.1	17.7	16.9
Cobalt	4.7 J	5.0 J	4.4 <	5.4 J	6.0 <	8.0 J	5.4 J	7.4 J	5.1 J	7.9 J	4.0 J	5.4 J	5.7 <	6.8 J	7.0 J	7.1 J
Copper	6.5	6.5	5.4 J	7.1	17.9	24.2	16.7	25.0	11.6	25.6	5.5	4.5 J	5.4	6.4	10.3	12.1
Iron	11000	8390	13800	14000	16800	17200	16100	13600	13800	15300	9730	9630	13700	12300	14400	13700
Lead	8.6 J	2.8 J	12.3 J	5.7 J	17.5 J	6.5 J	6.3 J	3.8 J	16.2 J	5.8 J	7.6 J	3.7 J	10.6 J	4.8 J	11.1 J	4.6 J
Magnesium	1980	2230	1410	1810	2460	3460	1910	2870	2010	3650	1560	1680	2010	2800	2210	2590
Manganese	83.9 E	91.2 E	63.6 E	72.4 E	172 E	156 E	84.1 E	128 E	125 E	188 E	69.5 E	68.7 E	124 E	95.8 E	160 E	143 E
Mercury	0.08 <	0.06 <	0.09 <	0.05 J<	0.11 <	0.04 <	0.08 <	0.09 <	0.04 <	0.04 <	0.07 <	0.06 <	0.06 <	0.09 <	0.05 <	0.07 <
Nickel	7.4 J<	7.3 J<	5.2 <	6.6 J<	8.3 <	11.9 <	10.0 J<	9.1 J<	6.6 J<	7.7 J<	6.5 J<	7.2 J<	7.7 <	8.9 J<	7.9 J<	9.0 J<
Potassium	338 J	683 J	229 J	316 J	669 J	1430	297 J	527 J	580 J	2580 J	278 J	351 J	444 J	485 J	336 J	622 J
Selenium	0.31 J<	0.17 J<	0.48 <	0.80 J<	0.89 <	1.30 <	0.30 J<	0.35 J<	0.26 J<	0.37 J<	0.50 J<	0.51 J<	0.44 <	0.47 J<	0.41 J<	0.49 J<
Silver	0.54 <	0.55 <	0.71 <	0.66 <	0.77 <	0.67 <	0.67 <	0.64 <	0.56 <	0.61 <	0.64 <	0.64 <	0.56 <	0.64 <	0.71 <	0.76 <
Sodium	25.3 J<	27.3 J<	26.9 <	26.8 J<	31.1 <	38.3 <	33.0 J<	30.1 J<	28.0 J<	41.0 J<	27.3 J<	26.4 J<	24.0 <	30.7 J<	22.9 J<	34.1 J<
Thallium	0.16 <	0.17 <	0.21 <	0.20 <	0.19 <	0.21 <	0.17 <	0.20 J	0.15 <	0.29 J	0.18 <	0.18 <	0.18 <	0.19 <	0.21 <	0.18 <
Vanadium	23.4	16.0	25.2	24.6	33.3	35.1	29.4	25.2	28.5	29.1	17.8	17.3	28.4	23.9	26.8	24.2
Zinc	19.4	13.9	19.7	18.5	25.6	26.0	20.4	20.8	23.7	31.3	21.1	19.2	21.7	22.4	17.4	17.4

NOTES:

1) Shaded numbers indicate detected compounds.
2) Assigned letters adjacent to numerical values are data qualifiers.
3) ppb indicates a concentration of parts per billion; ppm indicates parts per million.
4) < indicates not detected, less than detection limit.
5) J indicates that a value is estimated.
6) E indicates that a compound was detected above the upper limit of the instrument calibration.

TABLE 2-3 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
SUMMARY OF SOIL ANALYTICAL RESULTS (ORGANICS)
SAMPLES COLLECTED APRIL 1993

	SAMPLE ID															
PARAMETER	TBB1 (0-2)	TBB1 (2-4)	TBB2 (0-2)	TBB2 (2-2.3)	TBB3 (0-2)	TBB3 (2-2.5)	TBB4 (0-2)	TBB4 (2-4)	TBB5 (0-2)	TBB5 (2-3.3)	TBB6 (0-2)	TBB6 (2-3.5)	TBB7 (0-2)	TBB7 (2-4)	TBB8 (0-2)	TBB8 (2-3)
TCL VOLATILE ORGANIC COMPOUNDS (ppb)																
VOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TCL SEMI-VOLATILE ORGANIC COMPOUNDS (ppb)																
SVOCs	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

NOTES:
1) Shaded numbers indicate detected compounds.
2) Assigned letters adjacent to numerical values are data qualifiers.
3) ppb indicates a concentration of parts per billion; ppm indicates parts per million.
4) < indicates not detected, less than detection limit.
5) J indicates that a value is estimated.
6) E indicates that a compound was detected above the upper limit of the instrument calibration.

TABLE 2-3 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
SUMMARY OF SOIL ANALYTICAL RESULTS (TCLP INORGANICS)
SAMPLES COLLECTED APRIL 1993

	SAMPLE ID / (DEPTH)															
PARAMETER	TBB1 (0-2)	TBB1 (2-4)	TBB2 (0-2)	TBB2 (2-2.3)	TBB3 (0-2)	TBB3 (2-2.5)	TBB4 (0-2)	TBB4 (2-4)	TBB5 (0-2)	TBB5 (2-3.3)	TBB6 (0-2)	TBB6 (2-3.5)	TBB7 (0-2)	TBB7 (2-4)	TBB8 (0-2)	TBB8 (2-3)
TCLP INORGANICS (ppb)																
Barium	237 E	195 J	174 J	195 J	142 J	129 J	509 E	211 E	457 E	348 E	119 J	120 J	454 J	299 E	270 E	241 E
Cadmium	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 J	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <	1.8 <
Chromium	3.1 <	3.1 <	3.1 <	4.6 J	3.1 <	3.1 <	3.1 <	3.1 <	3.1 <	3.1 <	3.1 <	4.6 J	5.7 <	3.1 <	3.1 <	3.1 <
Lead	9.8	2.6 J	6 <	13	20.5	0.85 <	8.4	2.6 J	13.2	5.8	10.9	1.2 J	4.1 <	43.4	4	2 J
Mercury	0.24	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <	0.1 <

NOTES:

1) Shaded numbers indicate detected compounds.
2) Assigned letters adjacent to numerical values are data qualifiers.
3) ppb indicates a concentration of parts per billion; ppm indicates parts per million.
4) < indicates not detected, less than detection limit.
5) J indicates that a value is estimated.
6) E indicates that a compound was detected above the upper limit of the instrument calibration.

TABLE 2-3 (continued)
NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
SUMMARY OF SOIL ANALTYICAL RESULTS (PESTICIDES)
SAMPLES COLLECTED APRIL 1993

	SAMPLE ID															
PARAMETER	TBB1 (0-2)	TBB1 (2-4)	TBB2 (0-2)	TBB2 (2-2.3)	TBB3 (0-2)	TBB3 (2-2.5)	TBB4 (0-2)	TBB4 (2-4)	TBB5 (0-2)	TBB5 (2-3.3)	TBB6 (0-2)	TBB6 (2-3.5)	TBB7 (0-2)	TBB7 (2-4)	TBB8 (0-2)	TBB8 (2-3)
TCL PESTICIDES (ppb)																
4,4'-DDE	3.4	3.6 <	4.4 <	4.4 <	4.5 ≤	4.5 <	4 <	4.4 <	9.6	3.7 <	4 <	4.1 <	4 <	4.3 <	4.3 <	4.4 <
4,4'-DDT	5.8	3.6 <	4.4 <	4.4 <	4.5 ≤	4.5 <	4 <	4.4 <	6.9	3.7 <	4 <	4.1 <	4 <	4.3 <	4.3 <	4.4 <

NOTES:
1) Shaded numbers indicate detected compounds.
2) Assigned letters adjacent to numerical values are data qualifiers.
3) ppb indicates a concentration of parts per billion; ppm indicates parts per million.
4) < indicates not detected, less than detection limit.
5) J indicates that a value is estimated.
6) E indicates that a compound was detected above the upper limit of the instrument calibration.

It should be noted that all arsenic and lead values are all qualified as estimated values based on the data validation performed. Whether or not these estimated values bias the data high or low is indeterminate.

2.2 Establishment of Background Concentrations

The highest value recorded for any analyte was taken as the background level for the site. In instances where laboratory analyses did not detect a given analyte, half the value of the highest detection level for that analyte was taken as the background level. These values are shown in Table 2-4 along with the published background levels used in the Phase I, and levels calculated using the statistical methodology proposed in the Plan of Action. These later two values are presented for comparative purposes only.

2.3 Discussion of Findings

All site-derived background levels are within the ranges published by USGS for background levels for the eastern United States. Average values, range of values found, and statistically derived upper 95% values for both the NSB-NLON and USGS are compared in Table 2-5.

The values for each element (except elements having any non-detect values) were checked for both normal and lognormal distribution and outliers by preparation of histograms, which are included as Appendix E. The distribution among sampling locations does not fit into the normal distribution pattern. This is not surprising in that distributions of geological data generally fit into a lognormal pattern (USGS Miech, A.T. *Methods of Computation in Estimating Geochemical Abundance*. Geological Survey Professional Paper 574-B). The distribution, however, does not appear to fit a lognormal distribution either. Probably due to the small sample size, no data distribution is apparent. Although the histograms do not indicate any particular distribution, no apparent outliers can be observed.

Each sampling location was reviewed from its relative contribution of each element to the background value and its relationship to soil type. The average value for each element was compared with the individual sample values. The results show that sampling locations:

- TBB-3, TBB-4, and TBB-7 had a majority of elements above the average;
- TBB-1, TBB-2, and TBB-6 had a majority below average; and
- TBB-5 and TBB-8 were centered around the average.

Regarding relationships to soil type, the results show that sampling locations:

TABLE 2-4
BACKGROUND SOIL CONCENTRATIONS

Parameter	Naval Submarine Base Site-Specific Background[1] (ppm)		Site-Specific[2] Background (July 1994 Data Report)	Published Background[3] (ppm)
	(0-2 feet)	(0-4 feet)		
Aluminum	17,600	17,600	21,100	272,000
Antimony	2.05[6]	2.05[6]	ND	2.95
Arsenic	3.6	3.6	4.60	31.5
Barium	39	57.2	69.1	1,600
Beryllium	0.72	0.72	1.00	3.52
Boron	3.1[6]	3.1[6]	6.85	109
Cadmium	0.24[6]	0.24[6]	4.54	7[4]
Calcium	314	499	1,190	32,300
Chromium	19.3	21.5	25.3	223
Cobalt	7	8	12.9	39
Copper	17.9	25.6	34.5	102
Iron	16,800	17,200	20,500	115,000
Lead	17.5	17.5	19.3	53.2
Magnesium	2,460	3,650	5,620	26,500
Manganese	172	188	245	3,790
Mercury	0.055[6]	0.05	0.0379	0.51
Nickel	5.0[6]	5.95[6]	21.1	76.7
Potassium	669	2,580	3,045	12,000
Selenium	0.445[6]	0.445[6]	0.824	1.79
Silver	0.385[6]	0.385[5]	ND	5
Sodium	16.5[6]	20.5[6]	142	51,800
Thallium	0.105[6]	0.29	0.21	5[5]
Vanadium	33.3	35.1	42.3	271
Zinc	25.6	31.3	83.6	178

Notes:

1. The site-specific background value is the highest value detected from among all the background soil samples collected in April 1993.
2. The site-specific background value is the upper tolerance limit of the upper 95% confidence limit for the true 95th percentile for the background soil sample results using the April 1993 results and select samples from the Phase I RI as reported in the July 1994 data report.
3. The published background value is the upper limit of the range which contains 95% of the sample results from Shacklette and Boerngen USGS Paper 1270 using the formula $M \times D^2$, where M is the geometric mean and D is the geometric deviation, except as noted.
4. Dragun (1988)
5. Lisk (1972)
6. Value based on one-half of the highest detection level from among all the background soil samples collected in April 1993.

TABLE 2-5
NEW LONDON SUBASE BACKGROUND

Parameter	NSB-NLON			Eastern U.S. (Shacklette)		
	Arithmetic Mean	Range	Upper 95% Value[1]	Arithmetic Mean	Range	Upper 95% Value[2]
Aluminum	13,427	7,630 - 17,600	17,929	57,000	7,000 - >100,000	271,817
Antimony	ND	---	---	0.76	<1 - 8.8	2.95
Arsenic	2.3	0.53 - 3.6	4.0	7.4	<0.1 - 73	31.5
Barium	29.4	2.413.6 - 57.2	49.7	420	10 - 1,500	1,601
Beryllium	0.39	ND - 0.72	---	0.85	<1 - 7	3.5
Boron	ND	---	---	38	<20 - 150	110
Cadmium	ND	---	---	NR	---	---
Calcium	241	102 - 499	392.5	6,300	100 - 280,000	32,253
Chromium	15.8	10.2 - 21.5	20.9	52	1 - 1,000	223
Cobalt	6.0	4.0 - 8.0	3.5	9.2	<0.3 - 70	39
Copper	11.9	4.5 - 25.6	24.4	22	<1 - 700	102
Cyanide	ND	---	---	NR	---	---
Iron	13,341	8,360 - 17,200	17,570	25,000	100 - >100,000	115,317
Lead	8.0	2.8 - 17.5	15.3	17	<10 - 300	53
Magnesium	2,290	1,410 - 3,650	3,355.1	4,600	50 - 50,000	26,465
Manganese	114	63.6 - 188	181.3	640	<2 - 7,000	3,794
Nickel	ND	---	---	18	<5 - 700	77
Potassium	635	229 - 2,580	1,612	12,000	50 - 37,000	21,333
Mercury	ND	---	---	0.12	0.01 - 3.4	0.51
Selenium	ND	---	---	0.45	<0.1 - 3.9	1.8
Silver	ND	---	---	NR	---	---
Sodium	ND	---	---	7,800	<500 - 50,000	51,756
Thallium	2.45	0.20 - 0.29	0.344	NR	---	---
Vanadium	25.5	16.0 - 35.1	34.3	66	<7 - 300	271
Zinc	21.2	13.9 - 31.3	27.9	52	<5 - 2,900	178

Notes:

1. The upper 95% value is calculated as follows: $\bar{x} + 1.65S$, where $\bar{x}$ is the mean and S is the standard deviation.
2. The value is the upper limit of the range which contains 95% of the sample results from Shacklette and Boerngen USGS Paper 1270 using the formula $M \times D^2$, where M is the geometric mean and D is the geometric deviation.
3. ND - not detected.

- TBB-1, TBB-4, TBB-7, and TBB-8 were from an area classified as Hollis-Charlton Rock (15 to 45% slope);
- TBB-2 was from an area classified as Hollis-Charlton Rock (3 to 15% slope);
- TBB-3 was from an area classified as Charlton-Hollis; and
- TBB-6 was from an area classified as Rock Outcrop Hollis (3 to 45% slope).

No particular trends relating to chemical abundance are evident based on sampling locations. Similarly, no particular trend is noted when comparing geological abundance to soil types.

Organic compounds were analyzed to determine if sample locations are truly representative of native background because native soils should not contain any organic compounds. The results are shown in Table 2-3 and are summarized as follows:

- ***Volatiles.*** No volatiles were detected based on validated analytical results. Acetone and methylene chloride were found in the blank, data validation qualified all results for these two compounds as non-detects at the reported level.

- ***Semi-Volatile Organics.*** No semi-volatiles were detected.

- ***Pesticides.*** 4,4'-DDE was detected in samples TBB-1 (0-2) at 3.4 ppb and TBB-5 (0-2) at 9.6 ppb. Also, 4,4-DDT was detected at TBB-1 (0-2) at 5.8 ppb and TBB-5 (0-2) at 6.9 ppb. These values are close to the method detection limit, representing a minimal concentration of these compounds that can be stated positively. These values are also well below any screening values which might indicate potential risks to human health or the environment. Neither gross nor widespread contamination is indicated. These two sampling locations are over a half mile apart, did not contain higher levels of inorganics, and pesticide-free soil is found in between (sample TBB-2).

Based upon the organic compounds detected, it is concluded that all sample locations are representative of native background conditions. Due to the historical use of DDT in this area for mosquito control, low levels are now ubiquitous in the environment.

3.0 SUMMARY AND CONCLUSIONS

Based on the results of analysis of 16 samples collected from the 0 to 2 foot depth and the 2 to 4 foot depth at 8 locations in and near NSB-NLON, background levels (as shown in Table 3-1) were established to be used to screen site analytical data to identify areas where releases of pollutants may have occurred at NSB-NLON.

TABLE 3-1
BACKGROUND SOIL CONCENTRATIONS

Parameter	Naval Submarine Base Site-Specific Background[1] (ppm)	
	(0-2 feet)	(0-4 feet)
Aluminum	17,600	17,600
Arsenic	3.6	3.6
Antimony	2.05[2]	2.05[2]
Barium	39	57.2
Beryllium	0.72	0.72
Boron	3.1[2]	3.1[2]
Cadmium	0.24[2]	0.24[2]
Calcium	314	499
Chromium	19.3	21.5
Cobalt	7	8
Copper	17.9	25.6
Iron	16,800	17,200
Lead	17.5	17.5
Magnesium	2,460	3,650
Manganese	172	188
Mercury	0.055[2]	0.05
Nickel	5.0[2]	5.95[2]
Potassium	669	2,580
Selenium	0.445[2]	0.445[2]
Silver	0.385[2]	0.385[2]
Sodium	16.56[2]	20.56[2]
Thallium	0.105[2]	0.29
Vanadium	33.3	35.1
Zinc	25.6	31.3

Notes:
1. The site-specific background value is the highest value detected from among all the background soil samples collected in April 1993.
2. Value based on one-half of the highest detection level from among all the background soil samples collected in April 1993.

4.0 REFERENCES

Atlantic Environmental Services, Inc., August 1992. *Phase I Remedial Investigation - Installation Restoration Study: Naval Submarine Base - New London, Groton, Connecticut*. Final, prepared for Northern Division Naval Facilities Engineering Command.

Shacklette, H.T., and J.G. Boerngen, 1984. *Element Concentrations in Soils and Other Surficial Materials in the Conterminous United States,* United States Geological Survey (USGS) Professional Paper 1270, Department of the Interior, USGS, GPO.

Atlantic Environmental Services, Inc. October 1992. *Plan of Action, Investigation of Boron in Groundwater and Establishment of Background Concentrations of Inorganics in Soil, Installation Restoration Study, Naval Submarine Base - New London, Groton, Connecticut*. Draft, prepared for Northern Division Naval Facilities Engineering Command.

Atlantic Environmental Services, Inc., July 1994. *Background Soils Data Report*. Prepared for Northern Division Naval Facilities Engineering Command.

Dragun, J., 1988. *Soil Chemistry of Hazardous Materials*. Hazardous Materials Control Research Institute, Silver Springs, MD.

Lisk, D.J., 1972. "Trace metals in soils, plants, and animals." Adv. Agron. 24: 267-311.

APPENDIX A

CORRESPONDENCE REGARDING PLAN OF ACTION

PROJECT FILE
~~(NEW) Background Soils C.~~
Boron/Background Plan of Action

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION I

J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

Referenced in Pier 33/B16 Report

March 24, 1992

Deborah Stockdale, RPM
U.S. Department of the Navy
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

RE: Proposed Locations for the Collection of Background Soil Samples for Inorganic Constituents at the US Navy Submarine Base - New London

Dear Ms. Stockdale:

The purpose of this letter is to transmit EPA's written approval for the collection of background samples from three off-site locations. Background soil samples would still be collected from five locations within the base property.

These proposed modifications were described in your memorandum to EPA dated February 10, 1993.

If there are any questions regarding this matter, please feel free to call me at 617/573-9614.

Sincerely,

Andrew F. Miniuks

Andrew F. Miniuks, Remedial Project Manager
Federal Facilities Superfund Section

cc: Dale Weiss, TRC
William Mansfield, NSBNL
Adam Sullivan, CTDEP

PRINTED ON RECYCLED PAPER

DEPARTMENT OF THE NAVY
NORTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
10 INDUSTRIAL HIGHWAY
MAIL STOP, #32
LESTER, PA 19113-2090

FEB 1 2 1993

IN REPLY REFER TO

5090
Ser 1815/1823/DS

FEB 1 0 1993

From: Commanding Officer, Northern Division Naval Facilities Engineering Command
To: Distribution

Subj: CHANGE TO PROPOSED BACKGROUND SAMPLE LOCATIONS

Ref: (a) Draft Plan of Action, Investigation of Boron in Ground Water and Establishment of Background Concentrations of Inorganics in Soil, Naval Submarine Base New London, October 1992

Encl: (1) Map showing revised background sample locations

1. As described in reference (a), data from four existing sample locations from the Phase I Remedial Investigation (RI) and eight new borings were proposed to provide background data for the Phase I and II RI. The Navy believes these locations are representative of uncontaminated local background conditions. The proposed locations were presented to the Technical Review Committee on December 4, 1992. The Town of Ledyard suggested that additional samples be taken from uncontaminated locations off base, however, the Navy considers the twelve samples locations as proposed in reference (a) sufficient to collect the background data needed.

2. Giving due consideration to the Town of Ledyard's suggestion, the Navy is willing to move three of the eight proposed sample locations to off base sites that are of similar soil types and conditions found on the base. Bill Mansfield, SUBASE New London, and Bill Haase, Town of Ledyard, screened potential off base locations and suggested that the three samples be taken from residential and undeveloped land that was recently purchased by the Navy. Enclosure (1) depicts the proposed changes in the background boring locations.

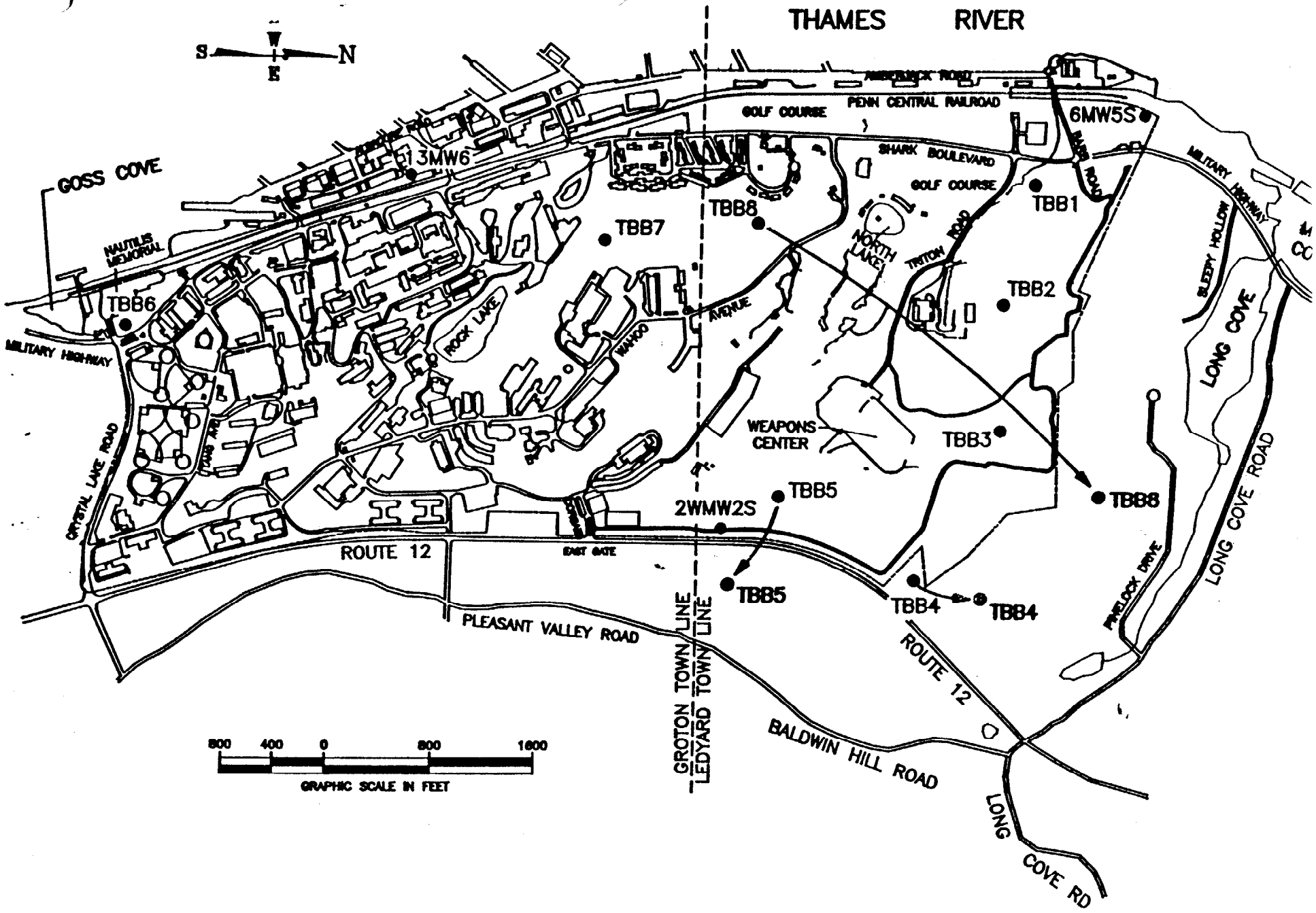
3. Please review the changes to the proposed background locations and submit your comments by March 12, 1993. If you have any questions, contact Debby Stockdale or Mark Leipert at (215)595-0567.

Sincerely,

Deborah Stockdale

DEBORAH STOCKDALE, P.E.
Remedial Project Manager
By direction of the Commanding Officer

Distribution:
CINCLANTFLT (C. McGuire)
COMSUBLANT (H. Stewart)
NSBNL (B. Mansfield)
Town of Ledyard, Town Planner (W. Haase)
USEPA Region I (A. Miniuks)
Town of Groton, Wetlands Planner (D. Jones)
LEAF (R. Fromer)
Town of Waterford (T. Wagner)
CT DEP (P. Jameson)
Atlantic Environmental (P. Burgess)
UNCAS Director of Health (C. Striba)
City of New London (R. Davis)
City of Groton (N. Richards)
Mr. Ronald Ochsner
Mr. Eugene Cioffi


THAMES RIVER
S
W
E
N
GOSS COVE
NAUTILUS MEMORIAL
MILITARY HIGHWAY
CRYSTAL LAKE ROAD
TBB6
13MW6
ROCK LAKE
NAHOO
AVENUE
TBB7
TBB8
GOLF COURSE
PENN CENTRAL RAILROAD
6MW5S
SHARK BOULEVARD
GOLF COURSE
NORTH LAKE
TRITON ROAD
TBB1
TBB2
MILITARY HIGHWAY
SLEEPY HOLLOW
LONG COVE
LONG COVE ROAD
WEAPONS CENTER
TBB3
TBB8
2WMW2S
TBB5
TBB5
TBB4
TBB4
PINELOCK DRIVE
ROUTE 12
EAST GATE
PLEASANT VALLEY ROAD
GROTON TOWN LINE
LEDYARD TOWN LINE
ROUTE 12
BALDWIN HILL ROAD
LONG COVE RD
800 400 0 800 1600
GRAPHIC SCALE IN FEET

APPENDIX B

CORRESPONDENCE REGARDING BACKGROUND SOILS DATA REPORT

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

March 1, 1995

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Responses to EPA's comments on the Background Soils Data Report

Dear Mr. Evans:

I am writing in response to your request for EPA to review the U.S. Navy's responses to EPA's October 5, 1994 comments on the *Background Soils Data Report*. Such responses are discussed in a letter from Atlantic Environmental Services dated February 14, 1995. Generally, the responses adequately address our concerns and the discussions held in Boston, MA on January 4, 1995.

I look forward to reviewing the revised report and to developing a consensus statement among the Connecticut Department of Environmental Protection, the U.S. Navy, and EPA. As noted in my October 5, 1994, we should discuss how these numbers will be used. Please do not hesitate to contact me at (617) 573-5777 should you have any questions or wish to arrange a meeting.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

cc: Mark Lewis, CT DEP, Hartford, CT
Andy Stackpole, NSBNL, Groton, CT
Mary Sanderson, USEPA, Boston, MA
Patti Tyler, USEPA, Boston, MA
Dale Weiss, TRC, Lowell, MA

PRINTED ON RECYCLED PAPER

ATLANTIC

ENVIRONMENTAL SERVICES INC.

engineers
geologists
scientists

February 14, 1995

FILE COPY

Ms. Kymberlee Keckler
Remedial Project Manager
Federal Facilities Superfund Section
United States Environmental
Protection Agency
Region 1
J.F. Kennedy Federal Building
Boston, MA 02203-2211

RE: Background Soils Data Report, July 1994
Naval Submarine Base-New London
Groton, Connecticut
Atlantic Project No. 2072-01-02

Dear Ms. Keckler:

Enclosed please find the Navy's responses to your comments dated October 5, 1994 regarding the Background Soils Data Report dated July 1994. As stated in the responses, the Navy plans on preparing a comprehensive background soils report incorporating your comments. These responses reflect our discussion of the comments during a meeting held in your office on January 4, 1995.

Should you have any further comments or questions, please feel free to contact Mark Evans at (610) 595-0567 (ext. 162) or me.

Sincerely,

ATLANTIC ENVIRONMENTAL
SERVICES, INC.

Barry Giroux

Barry L. Giroux, P.E.
Project Manager

BG:sjg
Enclosures

cc: Mark Lewis, CTDEP
Mark Evans, NORTH DIV
Jean-Luc Glorieux, HNUS

P.O. BOX 297 188 NORWICH AVENUE COLCHESTER, CONNECTICUT 06415 (203) 537-0751 FAX (203) 537-6347
— *Offices in Colchester, CT • St. Louis, MO • Syracuse, NY* —

General Comments

1. I am concerned that the values generated to represent background concentrations includes samples collected in impacted areas. If the calculation of the average concentration were limited to only those background samples collected in April 1993, the average background concentration would be lower. Since the Phase I RI samples exhibited the highest concentration of organic contaminants and higher concentrations of many metals than the April 1993 samples, I recommend that the Phase I RI samples be omitted when calculating the average background concentration.

   The samples used to compute background levels are as specified in the work plan for collection of background soil samples. The Phase I samples do contain several chemicals which are ubiquitous in an urban environment in higher concentrations than the samples collected in April 1993. The April 1993 samples were collected in wooded areas that probably have not been impacted by urban activities. As per EPA's request, the Phase I samples will not be used to compute background levels for this site because they contain higher levels of contaminants than the April 1993 samples.

2. EPA usually does not use statistical alterations of background data for federal facilities. Instead, EPA uses the actual range of detected results to characterize background levels. However, given the relatively small sample size, I would be willing to consider the use of statistical methods if I was convinced that the statistics were performed appropriately. As indicated below, EPA has several questions about the statistical methodology used. A comparison between the actual range and the range generated by using statistics would be helpful.

   To establish inorganic background levels, the Navy will use the highest level detected during the April 1993 sampling event for the range of any particular analyte. For organics, any constituent levels detected will be assumed to be present in concentrations above background. Separate background levels will be established for the 0-2 foot interval and the 0-4 foot interval. In addition the final background soils report will also present for comparative purposes background levels computed using statistical methodologies.

3. Concentrations of contaminants that were less than the detection limit (including antimony, cadmium, and silver) should be listed on the summary tables as such and as half of the detection limit for background concentrations.

   Summary tables will include detection limits, and a value of one half the detection limit will be used as the background level for any constituent that was not detected. In addition, numbers developed using statistical methods will use one half the detection limit to represent the results of any non-detected values.

4. The report could greatly benefit by adding a discussion of the findings, a map of where the samples were taken, and a discussion of the statistical methods used and the rationale for using them (including, but not limited to, tests for normality and treatment of any outliers).

Additionally, I recommend that the data be illustrated with box plots so that both data sets can be compared and the distributions can be summarized. The report should also discuss whether the samples were collected in contaminated areas, the relationship between soil type and contaminant concentration, and the detected concentrations of several contaminants (DDT, DDE, methylene chloride, and acetone).

The report reviewed was a data report only and not intended to be a comprehensive background soils report. However, as requested by the EPA, the Navy will develop a comprehensive background soils report which, in addition to the information in the data report, will include the purpose and objectives of background soil sampling, a discussion of findings, a figure showing sample locations, a discussion of statistical methodologies used, box plots of data, a description of sample areas (e.g., contaminated versus woodland areas), a description of any relationship between soil type and contaminant concentrations, and a discussion regarding the significance of contaminants detected.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

Post-It™ brand fax transmittal memo 7671	# of pages ▸ 2
To Barry Gilroux	From Mark Evans
Co. Atlantic	Co. Navy
Dept.	Phone # (610) 595-0567 x162
Fax # (203) 537-6347	Fax #

October 5, 1994

Mark Evans, Remedial Project Manager
U.S. Department of the Navy
Naval Facilities Engineering Command
Northern Division
10 Industrial Highway
Code 1823, Mail Stop 82
Lester, PA 19113-2090

Re: Background Soils Data Report

Dear Mr. Evans:

I am writing in response to your request for EPA to review the *Background Soils Data Report* dated July 1994.

First, I am concerned that the values generated to represent background concentrations includes samples collected in impacted areas. If the calculation of the average concentration were limited to only those background samples collected in April 1993, the average background concentration would be lower. Since the Phase I RI samples exhibited the highest concentration of organic contaminants and higher concentrations of many metals than the April 1993 samples, I recommend that the Phase I RI samples be omitted when calculating the average background concentration.

Second, EPA usually does not use statistical alterations of background data for federal facilities. Instead, EPA uses the actual range of detected results to characterize background levels. However, given the relatively small sample size, I would be willing to consider the use of statistical methods if I was convinced that the statistics were performed appropriately. As indicated below, EPA has several questions about the statistical methodology used. A comparison between the actual range and the range generated by using statistics would be helpful.

Third, concentrations of contaminants that were less than the detection limit (including antimony, cadmium, and silver) should be listed on the summary tables as such and as half of the detection limit for background concentrations.

Lastly, the report could greatly benefit by adding a discussion of the findings, a map of where the samples were taken, and a discussion of the statistical methods used and the rationale for using them (including, but not limited to, tests for normality and treatment of any outliers). Additionally, I recommend that the data be illustrated with box plots so that both data sets can be compared and the distributions can be summarized. The report should

also discuss whether the samples were collected in contaminated areas, the relationship between soil type and contaminant concentration, and the detected concentrations of several contaminants (DDT, DDE, methylene chloride, and acetone).

I look forward to jointly deciding upon background concentrations. Once we agree on which values or ranges of background values to use, we should discuss how these numbers will be used in the cleanup (*e.g.*, as screening levels). Please do not hesitate to contact me at (617) 573-5777 should you have any questions or wish to arrange a meeting.

Sincerely,

Kymberlee Keckler, Remedial Project Manager
Federal Facilities Superfund Section

Attachment

cc: Mark Lewis, CT DEP, Hartford, CT
Andy Stackpole, NSBNL, New London, CT
Mary Sanderson, USEPA, Boston, MA
Patti Tyler, USEPA, Boston, MA
Dale Weiss, TRC, Lowell, MA

APPENDIX C

ANALYTICAL RESULTS

SAMPLE TABLE

SAMPLE TABLE

CLIENT ID. REPORTED AS	MATRIX	PACE #	PARAMETERS
TBB8 (0-2)			
TBB802	SOLID	35821-001	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-019	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-037	GC/MS VOA
TBB8 (2-3)			
TBB823	SOLID	35821-002	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-020	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-038	GC/MS VOA
TBB4 (0-2)			
TBB402	SOLID	35821-003	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-021	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-039	GC/MS VOA
TBB4 (2-4)			
TBB424	SOLID	35821-004	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-022	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-040	GC/MS VOA
TBB5 (0-2)			
TBB502	SOLID	35821-005	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-023	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES

pace INCORPORATED THE ASSURANCE OF QUALITY

SAMPLE TABLE
(CONTINUED)

CLIENT ID. REPORTED AS	MATRIX	PACE #	PARAMETERS
TBB5 (0-2)			
TBB502	SOLID	35821-041	GC/MS VOA
TBB5 (2-3.3)			
TBB523	SOLID	35821-006	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-024	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-042	GC/MS VOA
TBB14 (0-2)			
TBB140	SOLID	35821-007	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-025	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-043	GC/MS VOA
TBB6 (0-2)			
TBB602	SOLID	35821-008	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-026	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-044	GC/MS VOA
TBB6 (2-3.5)			
TBB623	SOLID	35821-009	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-027	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-045	GC/MS VOA
TBB7 (0-2)			
TBB702	SOLID	35821-010	TOTAL CYANIDE
			CLP METALS
			Boron

pace INCORPORATED THE ASSURANCE OF QUALITY

SAMPLE TABLE
(CONTINUED)

CLIENT ID. REPORTED AS	MATRIX	PACE #	PARAMETERS
TBB7 (0-2)			
TBB702	SOLID	35821-028	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-046	GC/MS VOA
TBB7 (2-4)			
TBB724	SOLID	35821-011	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-029	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-047	GC/MS VOA
TBB3 (0-2)			
TBB302	SOLID	35821-012	TOTAL CYANIDE
SQC			CLP METALS
			Boron
		35821-030	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-048	GC/MS VOA
TBB3 (2-2.5)			
TBB325	SOLID	35821-013	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-031	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-049	GC/MS VOA
TBB13 (0-2)			
TBB130	SOLID	35821-014	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-032	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-050	GC/MS VOA

pace INCORPORATED THE ASSURANCE OF QUALITY

SAMPLE TABLE
(CONTINUED)

CLIENT ID. REPORTED AS	MATRIX	PACE #	PARAMETERS
TBB2 (0-2)			
TBB202	SOLID	35821-015	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-033	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-051	GC/MS VOA
TBB2 (2-2.3)			
TBB223	SOLID	35821-016	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-034	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-052	GC/MS VOA
TBB1 (0-2)			
TBB102	SOLID	35821-017	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-035	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-053	GC/MS VOA
TBB1 (2-4)			
TBB124	SOLID	35821-018	TOTAL CYANIDE
			CLP METALS
			Boron
		35821-036	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS
			ORGANOCHLORINE PESTICIDES
		35821-054	GC/MS VOA
ER-2			
ER-2	WATER	35821-055	CLP METALS
			Boron
		35821-057	TOTAL CYANIDE
		35821-059	ACID EXTRACTABLES
			BASE/NEUTRAL EXTRACTABLES
			PCBS

pace INCORPORATED THE ASSURANCE OF QUALITY

SAMPLE TABLE
(CONTINUED)

CLIENT ID.	REPORTED AS	MATRIX	PACE #	PARAMETERS
ER-2				
	ER-2	WATER	35821-059	ORGANOCHLORINE PESTICIDES
			35821-061	GC/MS VOA 8260
ER-1				
	ER-1	WATER	35821-056	CLP METALS
				Boron
			35821-058	TOTAL CYANIDE
			35821-060	ACID EXTRACTABLES
				BASE/NEUTRAL EXTRACTABLES
				PCBS
				ORGANOCHLORINE PESTICIDES
			35821-062	GC/MS VOA 8260
TB-1				
	TB-1	WATER	35821-063	GC/MS VOA 8260

pace INCORPORATED THE ASSURANCE OF QUALITY

METHOD REFERENCE

METHOD REFERENCES

Volatiles--CLP TCL.....USEPA CLP SOW OLM01.8

Semivolatiles--CLP TCL.....USEPA CLP SOW OLM01.8

Pesticides/Polychlorinated Biphenyls (PCBs).....USEPA CLP SOW OLM01.8

Metals and Cyanide.....USEPA CLP SOW ILM02.1

Conventional and Physical Parameters.....Methods are referenced on sample results

LABORATORY DATA QUALIFIER DEFINITION

DATA QUALIFIER DEFINITIONS

Report Data Qualifiers:

A (semivolatiles) = The tentatively-identified compound is a suspected aldol-condensation product.
B (organics) = Compound was detected in the associated blank.
B (inorganics) = Compound concentration is between the instrument detection limit and the CRDL.
C = GC result was confirmed by GC/MS.
D = On a Form 2: surrogate was diluted out.
On a Form 1: data from a secondary dilution (DL). Compare to data on the Form 1 of the primary dilution.
E = Compound was detected above the upper limit of the instrument calibration.
I = Interference prevents quantitation.
J = Compound concentration is an estimate. Either the compound was positively-identified at a trace value, or it is a nontarget for which no calibration was performed.
N = The identification given for the GC/MS nontarget compound is based on presumptive evidence (mass-spectral matching) only.
P = There is greater than a 25% concentration difference between quantitation on the primary and confirmatory GC columns. The lower value was reported.
U = Compound was analyzed for but not detected at the listed concentration.
X-Z = Qualifiers with definitions explained in the narrative.

Q Qualifiers:

E = Reported value is an estimate due to presence of an interference.
M = Duplicate injection precision not met.
N = Spiked sample recovery not within control limits.
S = Value determined by the Method of Standard Additions (MSA).
W = Post-digestion spike for Furnace AA analysis is outside of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
***** = Duplicate analysis is not within control limits.
+ = Correlation coefficient for the MSA is less than 0.995.

M (Method) Qualifiers:

CV = manual Cold Vapor AA
F = Furnace AA
P = ICP
NR = analysis was not required for this analyte.

Qualifiers used on Raw Data:

BDL = Below the detection limit.
NTC = Non-target compound.
NSM = No spectral match.
NPM = No pattern match.
CONF = Primary data confirmed on second column (GC/ECD).
NCRT = Not confirmed; no peak in retention time window on second column.
MI = Matrix interference.
NP = No peak; background noise incorrectly called a peak.
DOOR = Compound diluted out of the range of detection.
CI = Compound interference; peak coelutes with another target compound.

PACE--C:\EPA\DATAQUAL.DEF

VALIDATION DATA QUALIFIER DEFINITION

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

_____	A blank space denotes no change to the laboratory reported results.
J[1], UJ[1]	Holding times have been exceeded or samples were improperly preserved prior to analysis: estimate positive results (J[1]) and non-detects (UJ[1]). Refer to Section on "Holding Times" for details.
J[2], UJ[2]	Linearity was poor near the CRDL (low levels). Estimate the results. Refer to Section on "Calibration Verification Results" for details.
U[3]	The compound was present in the associated blank. The sample result was less than the action level of 5x the maximum concentration found in any blank, and has been rejected. Alternatively, the associated blank had a value below the negative IDL. The detection limit and/or positive results may be biased low. Refer to Section on "Laboratory Blank Results" for details.
J[4], UJ[4]	The ICS recovery for an element is outside of criteria or interelement interferences were indicated. The reported results or detection limit is estimated. See the Section on "ICP Inference Check Sample Results" for details.
J[5], UJ[5]	The recovery of an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Matrix Spike Results" for details.
J[6]	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated See the Section on "Laboratory Duplicate Results" for details.
J[7]	The RPD for the field duplicate sample analysis results exceeded 30% (50% for soils) for this analyte. The reported results are estimated. See the Section on "Field Duplicate Results" for details.
J[8], UJ[8]	The LCS recovery for an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Laboratory Control Sample Results" for details.
J[9]	The %RSD of duplicate injections for GFAA analysis do not agree within ± 20%. The sample results are estimatedd. See the Section on "Furnace AA Results" for details.

J^{10}, UJ^{10}	The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated. See the Section on "Furnace AA Results" for details.
J^{11}	The sample required MSA which either was not performed, was performed incorrectly, or the correlation coefficient was < 0.995. The positive results are estimated. See the Section on "Furnace AA Results" for details.
J^{12}, UJ^{12}	The results of the ICP Serial Dilution experiment was outside of criteria. Positive sample results or detection limits are estimated. See the Section on "ICP Serial Dilution Results" for details.
J^{13}	Element should have been run by GFAA. The reported value is an estimate.
J^{14}	The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.
R^1	Holding times have been grossly exceeded. Reject all non-detects.
R^2	Instrument calibration was either not performed or not performed properly. Reject all associated data.
R^3	The ICS recovery for an element was less than 50% or severe interelement interferences were detected. Reject all associated data.
R^4	The matrix spike recovery for an element was less than 30%. Reject all associated data.
R^5	The recovery of an element in the aqueous LCS was less than 50%. Reject all associated data.
R^6	The analytical spike recovery for GFAA analysis was less than 10%. Reject the sample result.
R^7	The MSA did not meet criteria. Reject the sample result.
R^8	The ICP Serial Dilution did not meet criteria. Reject all associated data.

TOTAL CYANIDE, CLP METALS, BORON

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER-1 *
****

Sample Collection Date: 4/19/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35821-056
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Aluminum	U	12.8000	
Arsenic	U	.5000	
Boron	B	21.9000	
Barium	U	.9000	
Beryllium	U	.3000	
Calcium	B	54.2000	
Cadmium	U	1.8000	
Cyanide	B	2.2000	
Cobalt	U	2.6000	
Chromium	U	3.1000	
Copper	B	2.9000	
Iron	B	20.3000	
Mercury	U	.1000	
Potassium	U	290.0000	
Magnesium	U	14.0000	
Manganese	U	.7000	
Sodium	B	96.7000	
Nickel	U	8.0000	
Lead	U	.6000	
Antimony	U	12.3000	
Selenium	B	1.2000	
Thallium	UW	.8000	
Vanadium	U	5.0000	
Zinc	B	3.7000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: ER-2 *
****

Sample Collection Date: 4/20/93 Method: 3010,6010/2 Units: UG/L Laboratory ID: 35821-055
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Aluminum	U	12.8000	
Arsenic	U	.5000	
Boron	B	18.9000	
Barium	U	.9000	
Beryllium	U	.3000	
Calcium	B	35.4000	
Cadmium	U	1.8000	
Cyanide	U	1.8000	
Cobalt	U	2.6000	
Chromium	B	3.7000	
Copper	B	2.9000	
Iron	B	80.1000	
Mercury	U	.1000	
Potassium	U	290.0000	
Magnesium	U	14.0000	
Manganese	B	1.2000	
Sodium	B	243.0000	
Nickel	U	8.0000	
Lead	U	.6000	
Antimony	U	12.3000	
Selenium	B	1.1000	
Thallium	U	.8000	
Vanadium	U	5.0000	
Zinc	B	3.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB102 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-017
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.5400	
Aluminum		11300.0000	
Arsenic	NS	2.5000	J
Boron	B	3.5000	JU
Barium	B	22.3000	J
Beryllium	B	.5800	J
Calcium	BE	222.0000	J
Cadmium	U	.3400	
Cyanide	U	.2000	
Cobalt	B	4.7000	J
Chromium		14.1000	
Copper		6.5000	
Iron		11000.0000	
Mercury	U	.0800	J
Potassium	B	338.0000	J
Magnesium		1980.0000	
Manganese	E	83.9000	
Sodium	B	25.3000	JU
Nickel	B	7.4000	JU
Lead	NS*	8.6000	J
Antimony	UN	2.3000	
Selenium	BN	.3100	JU
Thallium	U	.1600	
Vanadium		23.4000	
Zinc		19.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB124 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-018
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	.5500	
Aluminum		7630.0000	
Arsenic	BN	1.7000	J
Boron	B	3.3000	JU
Barium	B	20.8000	J
Beryllium	B	.3900	JU
Calcium	BE	499.0000	J
Cadmium	U	.3400	
Cyanide	U	.1900	
Cobalt	B	5.0000	J
Chromium		11.8000	
Copper		6.5000	
Iron		8390.0000	
Mercury	U	.0600	
Potassium	B	683.0000	J
Magnesium		2230.0000	
Manganese	E	91.2000	
Sodium	B	27.3000	JU
Nickel	B	7.3000	JU
Lead	NS*	2.8000	J
Antimony	UN	2.3000	
Selenium	BNW	.1700	JU
Thallium	U	.1700	
Vanadium		16.0000	
Zinc		13.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB130 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-014
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.7000	
Aluminum		16900.0000	
Arsenic	NS	3.4000	J
Boron	B	2.7000	2.7000 U
Barium	B	35.6000	
Beryllium	B	.7700	.7700 U
Calcium	BE	227.0000	J
Cadmium	U	.4300	
Cyanide	U	.2400	
Cobalt	B	6.1000	6.1000 U
Chromium		19.7000	
Copper		18.8000	
Iron		15600.0000	
Mercury	U	.0900	
Potassium	B	684.0000	
Magnesium		2490.0000	
Manganese	E	173.0000	
Sodium	B	30.8000	30.8000 U
Nickel	B	9.4000	
Lead	N*+	11.8000	J
Antimony	UN	3.0000	UJ
Selenium	BNW	.8200	.8200 U
Thallium	U	.2100	
Vanadium		33.4000	
Zinc		24.6000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB140 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-007
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.5900	
Aluminum		14500.0000	
Arsenic	BNW	1.3000	
Boron	B	3.3000	
Barium	B	32.6000	
Beryllium	B	.6700	
Calcium	BE	201.0000	
Cadmium	U	.3700	
Cyanide	U	.2000	
Cobalt	B	5.2000	
Chromium		14.0000	
Copper		14.5000	
Iron		14300.0000	
Mercury	U	.0600	
Potassium	B	280.0000	
Magnesium		1640.0000	
Manganese	E	79.1000	
Sodium	B	30.6000	
Nickel	B	7.9000	
Lead	NS*	11.4000	
Antimony	UN	2.5000	
Selenium	BNW	.3000	
Thallium	B	.2500	
Vanadium		26.1000	
Zinc		18.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB202 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-015
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.7100	
Aluminum		15400.0000	
Arsenic	BN	1.9000	J
Boron	U	2.2000	
Barium	B	19.4000	J
Beryllium	B	.5300	.5300 U
Calcium	BE	102.0000	J
Cadmium	U	.4400	
Cyanide	U	.2300	
Cobalt	B	4.4000	4.4000 U
Chromium		14.0000	
Copper	B	5.4000	
Iron		13800.0000	
Mercury	U	.0900	
Potassium	B	229.0000	J
Magnesium		1410.0000	
Manganese	E	63.6000	
Sodium	B	26.9000	26.9000 U
Nickel	B	5.2000	5.2000 U
Lead	NS*	12.3000	J
Antimony	UN	3.0000	UJ
Selenium	BNW	.4800	.4800 U
Thallium	U	.2100	
Vanadium		25.2000	
Zinc		19.7000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB223 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-016
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.6600	
Aluminum		15500.0000	
Arsenic	N	2.6000	J
Boron	B	5.8000	JU
Barium	B	19.5000	J
Beryllium	B	.6200	J
Calcium	BE	115.0000	J
Cadmium	U	.4100	
Cyanide	U	.2100	
Cobalt	B	5.4000	J
Chromium		15.1000	
Copper		7.1000	
Iron		14000.0000	
Mercury	B	.0500	J
Potassium	B	316.0000	J
Magnesium		1810.0000	
Manganese	E	72.4000	
Sodium	B	26.8000	JU
Nickel	B	6.6000	JU
Lead	N*+	5.7000	J
Antimony	UN	2.8000	
Selenium	BNW	.8000	JU
Thallium	U	.2000	
Vanadium		24.6000	
Zinc		18.5000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB302 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-012
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data	
Silver	U	.7700		
Aluminum		17600.0000		
Arsenic	NS	3.5000		J
Boron	B	6.2000	6.2000	U
Barium	B	39.0000		
Beryllium	B	.7700	.7700	U
Calcium	BE	258.0000		J
Cadmium	U	.4800		
Cyanide	U	.2300		
Cobalt	B	6.0000	6.0000	U
Chromium		19.3000		
Copper		17.9000		
Iron		16800.0000		
Mercury	U	.1100		
Potassium	B	669.0000		J
Magnesium		2460.0000		
Manganese	E	172.0000		
Sodium	B	31.1000	31.1000	U
Nickel	B	8.3000	8.3000	U
Lead	NS*	17.5000		J
Antimony	UN	3.3000		UJ
Selenium	BNW	.8900	.8900	U
Thallium	U	.1900		
Vanadium		33.3000		
Zinc		25.6000		

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB325 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-013
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data	
Silver	U	.6700		
Aluminum		16900.0000		
Arsenic	NS	3.5000		J
Boron	B	3.8000	3.8000	U
Barium		47.9000		
Beryllium	B	.6800	.6800	U
Calcium	BE	283.0000		J
Cadmium	U	.4200		
Cyanide	U	.2400		
Cobalt	B	8.0000		J
Chromium		21.5000		
Copper		24.2000		
Iron		17200.0000		
Mercury	B	.0400		U
Potassium		1430.0000		
Magnesium		3460.0000		
Manganese	E	156.0000		
Sodium	B	38.3000	38.3000	U
Nickel	B	11.9000	11.9000	U
Lead	NS*	6.5000		J
Antimony	UN	2.9000		UJ
Selenium	NS	1.3000	1.3000	U
Thallium	U	.2100		
Vanadium		35.1000		
Zinc		26.0000		

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB402 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-003
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.6700	
Aluminum		16700.0000	
Arsenic	BNW	1.4000	J
Boron	B	3.4000	JU
Barium	B	35.7000	J
Beryllium	B	.7200	J
Calcium	BE	254.0000	
Cadmium	U	.4200	J
Cyanide	U	.1900	
Cobalt	B	5.4000	J
Chromium		16.4000	
Copper		16.7000	
Iron		16100.0000	
Mercury	U	.0800	
Potassium	B	297.0000	J
Magnesium		1910.0000	
Manganese	E	84.1000	
Sodium	B	33.0000	JU
Nickel	B	10.0000	JU
Lead	N*+	6.3000	J
Antimony	UN	2.9000	
Selenium	BN	.3000	
Thallium	UW	.1700	
Vanadium		29.4000	
Zinc		20.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB424 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-004
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	.6400	
Aluminum		13600.0000	
Arsenic	NS	3.3000	J
Boron	B	2.9000	JU
Barium	B	20.0000	J
Beryllium	B	.5600	J
Calcium	BE	245.0000	J
Cadmium	U	.4000	
Cyanide	U	.2300	
Cobalt	B	7.4000	J
Chromium		18.1000	
Copper		25.0000	
Iron		13600.0000	
Mercury	U	.0900	
Potassium	B	527.0000	J
Magnesium		2870.0000	
Manganese	E	128.0000	
Sodium	B	30.1000	JU
Nickel	B	9.1000	JU
Lead	NS*	3.8000	J
Antimony	UN	2.7000	
Selenium	BNW	.3500	JU
Thallium	B	.2000	J
Vanadium		25.2000	
Zinc		20.8000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB502 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-005
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	.5600	
Aluminum		14200.0000	
Arsenic	BNW	.7200	J
Boron	B	3.6000	JU
Barium	B	35.7000	J
Beryllium	B	.6900	J
Calcium	BE	146.0000	J
Cadmium	U	.3500	
Cyanide	U	.2100	
Cobalt	B	5.1000	J
Chromium		14.6000	
Copper		11.6000	
Iron		13800.0000	
Mercury	U	.0400	
Potassium	B	580.0000	J
Magnesium		2010.0000	
Manganese	E	125.0000	
Sodium	B	28.0000	JU
Nickel	B	6.6000	JU
Lead	NS*	16.2000	J
Antimony	UN	2.4000	
Selenium	BNW	.2600	JU
Thallium	U	.1500	JU
Vanadium		28.5000	
Zinc		23.7000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB523 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-006
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	.6100	
Aluminum		12900.0000	
Arsenic	BN	.5300	J
Boron	B	3.3000	JU
Barium		57.2000	
Beryllium	B	.5700	J
Calcium	BE	177.0000	J
Cadmium	U	.3800	
Cyanide	U	.1600	
Cobalt	B	7.9000	J
Chromium		17.8000	
Copper		25.6000	
Iron		15300.0000	
Mercury	U	.0400	
Potassium		2580.0000	J
Magnesium		3650.0000	
Manganese	E	188.0000	
Sodium	B	41.0000	J
Nickel	B	7.7000	JU
Lead	N*+	5.8000	J
Antimony	UN	2.6000	
Selenium	BNW	.3700	JU
Thallium	B	.2900	J
Vanadium		29.1000	
Zinc		31.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB602 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-008
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.6400	
Aluminum		10400.0000	
Arsenic	BN	2.0000	J
Boron	B	3.6000	JU
Barium	B	14.4000	J
Beryllium	B	.3500	JU
Calcium	BE	212.0000	J
Cadmium	U	.4000	
Cyanide	U	.1900	
Cobalt	B	4.0000	J
Chromium		10.2000	
Copper		5.5000	
Iron		9730.0000	
Mercury	U	.0700	
Potassium	B	278.0000	J
Magnesium		1560.0000	
Manganese	E	69.5000	
Sodium	B	27.3000	JU
Nickel	B	6.5000	JU
Lead	NS*	7.6000	J
Antimony	UN	2.7000	
Selenium	BNW	.5000	JU
Thallium	U	.1800	JU
Vanadium		17.8000	
Zinc		21.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB623 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-009
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.6400	
Aluminum		10300.0000	
Arsenic	N	2.3000	J
Boron	B	2.7000	JU
Barium	B	13.6000	J
Beryllium	B	.3500	JU
Calcium	BE	233.0000	J
Cadmium	U	.4000	
Cyanide	U	.2100	
Cobalt	B	5.4000	J
Chromium		10.8000	J
Copper	B	4.5000	
Iron		9630.0000	
Mercury	U	.0600	
Potassium	B	351.0000	J
Magnesium		1680.0000	
Manganese	E	68.7000	JU
Sodium	B	26.4000	
Nickel	B	7.2000	JU
Lead	NS*	3.7000	J
Antimony	UN	2.7000	
Selenium	BNW	.5100	JU
Thallium	U	.1800	
Vanadium		17.3000	
Zinc		19.2000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB702 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-010
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.5600	
Aluminum		14400.0000	
Arsenic	NS	3.6000	J
Boron	B	2.5000	2.5000 U
Barium	B	34.0000	J
Beryllium	B	.6900	.6900 U
Calcium	BE	314.0000	J
Cadmium	U	.3500	
Cyanide	U	.2000	
Cobalt	B	5.7000	5.7000 U
Chromium		16.5000	
Copper		5.4000	
Iron		13700.0000	
Mercury	U	.0600	
Potassium	B	444.0000	J
Magnesium		2010.0000	
Manganese	E	124.0000	
Sodium	B	24.0000	24.0000 U
Nickel	B	7.7000	7.7000 U
Lead	N*+	10.6000	J
Antimony	BN	4.1000	4.1000 U
Selenium	BNW	.4400	.4400 U
Thallium	U	.1800	
Vanadium		28.4000	
Zinc		21.7000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB724 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-011
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.6400	
Aluminum		12100.0000	
Arsenic	BN	1.9000	J
Boron	B	2.0000	JU
Barium	B	26.7000	J
Beryllium	B	.5400	J
Calcium	BE	278.0000	J
Cadmium	U	.4000	
Cyanide	U	.2300	
Cobalt	B	6.8000	J
Chromium		18.1000	
Copper		6.4000	
Iron		12300.0000	
Mercury	U	.0900	
Potassium	B	485.0000	J
Magnesium		2800.0000	
Manganese	E	95.8000	
Sodium	B	30.7000	JU
Nickel	B	8.9000	JU
Lead	NS*	4.8000	J
Antimony	UN	2.7000	
Selenium	BNW	.4700	J
Thallium	U	.1900	
Vanadium		23.9000	
Zinc		22.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB802 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-001
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	.7100	
Aluminum		14000.0000	
Arsenic	NS	2.7000	J
Boron	B	3.0000	JU
Barium	B	37.4000	J
Beryllium	B	.6000	J
Calcium	BE	254.0000	J
Cadmium	U	.4400	
Cyanide	U	.2400	
Cobalt	B	7.0000	J
Chromium		17.7000	
Copper		10.3000	
Iron		14400.0000	
Mercury	U	.0500	
Potassium	B	336.0000	J
Magnesium		2210.0000	
Manganese	E	160.0000	
Sodium	B	22.9000	JU
Nickel	B	7.9000	JU
Lead	NS*	11.1000	J
Antimony	UN	3.0000	J
Selenium	BN	.4100	JU
Thallium	U	.2100	
Vanadium		26.8000	
Zinc		17.4000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB823 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: MG/KG Laboratory ID: 35821-002
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	.7600	
Aluminum		11900.0000	
Arsenic	N	3.1000	J
Boron	B	3.7000	JU
Barium	B	26.6000	J
Beryllium	B	.4200	JU
Calcium	BE	268.0000	J
Cadmium	U	.4700	
Cyanide	U	.1800	
Cobalt	B	7.1000	J
Chromium		16.9000	
Copper		12.1000	
Iron		13700.0000	
Mercury	U	.0700	
Potassium	B	622.0000	J
Magnesium		2590.0000	
Manganese	E	143.0000	
Sodium	B	34.1000	JU
Nickel	B	9.0000	JU
Lead	N*+	4.6000	J
Antimony	UN	3.2000	
Selenium	BNW	.4900	JU
Thallium	U	.1800	
Vanadium		24.2000	
Zinc		17.4000	

ACID EXTRACTABLES, BASE/NEUTRAL EXTRACTABLES

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER-1 *
****

Sample Collection Date: 4/19/93 Method: 625/1 Units: UG/L Laboratory ID: 35821-060
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
4-Bromophenyl-phenylether	U	10		2,4-Dimethylphenol	U	10	
4-Methylphenol	U	10		1,4-Dichlorobenzene	U	10	
4-Chloroaniline	U	10		2,2'-oxybis(1-Chloropropane)	U	10	
Phenol	U	10		bis(2-Chloroethyl)ether	U	10	
bis(2-Chloroethoxy)methane	U	10		bis(2-Ethylhexyl)phthalate	U	10	
Di-n-octylphthalate	U	10		Hexachlorobenzene	U	10	
Anthracene	U	10		1,2,4-Trichlorobenzene	U	10	
2,4-Dichlorophenol	U	10		2,4-Dinitrotoluene	U	10	
Pyrene	U	10		Dimethylphthalate	U	10	
Dibenzofuran	U	10		Benzo(g,h,i)perylene	U	10	
Indeno(1,2,3-cd)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Fluoranthene	U	10		Benzo(k)fluoranthene	U	10	
Acenaphthylene	U	10		Chrysene	U	10	
Benzo(a)pyrene	U	10		2,4-Dinitrophenol	U	26	
Dibenz(a,h)anthracene	U	10		4,6-Dinitro-2-methylphenol	U	26	
1,3-Dichlorobenzene	U	10		Benzo(a)anthracene	U	10	
4-Chloro-3-methylphenol	U	10		2,6-Dinitrotoluene	U	10	
N-Nitroso-di-n-propylamine	U	10		Hexachloroethane	U	10	
4-Chlorophenyl-phenylether	U	10		Hexachlorocyclopentadiene	U	10	UJ
Isophorone	U	10		Acenaphthene	U	10	
Diethylphthalate	U	10		Di-n-butylphthalate	U	10	
Phenanthrene	U	10		Butylbenzylphthalate	U	10	
N-Nitrosodiphenylamine (1)	U	10		Fluorene	U	10	
Carbazole	U	10		Hexachlorobutadiene	U	10	
Pentachlorophenol	U	26		2,4,6-Trichlorophenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
Naphthalene	U	10		2-Methylnaphthalene	U	10	
2-Chloronaphthalene	U	10		3,3'-Dichlorobenzidine	U	10	
2-Methylphenol	U	10		1,2-Dichlorobenzene	U	10	
2-Chlorophenol	U	10		2,4,5-Trichlorophenol	U	26	
Nitrobenzene	U	10		3-Nitroaniline	U	26	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER-2 *
****

Sample Collection Date: 4/20/93 Method: 625/1 Units: UG/L Laboratory ID: 35821-059
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	26		4-Nitrophenol	U	26	
4-Bromophenyl-phenylether	U	10		2,4-Dimethylphenol	U	10	
4-Methylphenol	U	10		1,4-Dichlorobenzene	U	10	
4-Chloroaniline	U	10		2,2'-oxybis(1-Chloropropane)	U	10	
Phenol	U	10		bis(2-Chloroethyl)ether	U	10	
bis(2-Chloroethoxy)methane	U	10		bis(2-Ethylhexyl)phthalate	U	10	
Di-n-octylphthalate	U	10		Hexachlorobenzene	U	10	
Anthracene	U	10		1,2,4-Trichlorobenzene	U	10	
2,4-Dichlorophenol	U	10		2,4-Dinitrotoluene	U	10	
Pyrene	U	10		Dimethylphthalate	U	10	
Dibenzofuran	U	10		Benzo(g,h,i)perylene	U	10	
Indeno(1,2,3-cd)pyrene	U	10		Benzo(b)fluoranthene	U	10	
Fluoranthene	U	10		Benzo(k)fluoranthene	U	10	
Acenaphthylene	U	10		Chrysene	U	10	
Benzo(a)pyrene	U	10		2,4-Dinitrophenol	U	26	
Dibenz(a,h)anthracene	U	10		4,6-Dinitro-2-methylphenol	U	26	
1,3-Dichlorobenzene	U	10		Benzo(a)anthracene	U	10	
4-Chloro-3-methylphenol	U	10		2,6-Dinitrotoluene	U	10	
N-Nitroso-di-n-propylamine	U	10		Hexachloroethane	U	10	
4-Chlorophenyl-phenylether	U	10		Hexachlorocyclopentadiene	U	10	
Isophorone	U	10		Acenaphthene	U	10	
Diethylphthalate	U	10		Di-n-butylphthalate	U	10	
Phenanthrene	U	10		Butylbenzylphthalate	U	10	
N-Nitrosodiphenylamine (1)	U	10		Fluorene	U	10	
Carbazole	U	10		Hexachlorobutadiene	U	10	
Pentachlorophenol	U	26		2,4,6-Trichlorophenol	U	10	
2-Nitroaniline	U	26		2-Nitrophenol	U	10	
Naphthalene	U	10		2-Methylnaphthalene	U	10	
2-Chloronaphthalene	U	10		3,3'-Dichlorobenzidine	U	10	
2-Methylphenol	U	10		1,2-Dichlorobenzene	U	10	
2-Chlorophenol	U	10		2,4,5-Trichlorophenol	U	26	
Nitrobenzene	U	10		3-Nitroaniline	U	26	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB102 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-035
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	920		4-Nitrophenol	U	920	
4-Bromophenyl-phenylether	U	380		2,4-Dimethylphenol	U	380	
4-Methylphenol	U	380		1,4-Dichlorobenzene	U	380	
4-Chloroaniline	U	380		2,2'-oxybis(1-Chloropropane)	U	380	
Phenol	U	380		bis(2-Chloroethyl)ether	U	380	
bis(2-Chloroethoxy)methane	U	380		bis(2-Ethylhexyl)phthalate	U	380	
Di-n-octylphthalate	U	380		Hexachlorobenzene	U	380	
Anthracene	U	380		1,2,4-Trichlorobenzene	U	380	
2,4-Dichlorophenol	U	380		2,4-Dinitrotoluene	U	380	
Pyrene	U	380		Dimethylphthalate	U	380	
Dibenzofuran	U	380		Benzo(g,h,i)perylene	U	380	
Indeno(1,2,3-cd)pyrene	U	380		Benzo(b)fluoranthene	U	380	
Fluoranthene	U	380		Benzo(k)fluoranthene	U	380	
Acenaphthylene	U	380		Chrysene	U	380	
Benzo(a)pyrene	U	380		2,4-Dinitrophenol	U	920	
Dibenz(a,h)anthracene	U	380		4,6-Dinitro-2-methylphenol	U	920	
1,3-Dichlorobenzene	U	380		Benzo(a)anthracene	U	380	
4-Chloro-3-methylphenol	U	380		2,6-Dinitrotoluene	U	380	
N-Nitroso-di-n-propylamine	U	380		Hexachloroethane	U	380	
4-Chlorophenyl-phenylether	U	380		Hexachlorocyclopentadiene	U	380	
Isophorone	U	380		Acenaphthene	U	380	
Diethylphthalate	U	380		Di-n-butylphthalate	U	380	
Phenanthrene	U	380		Butylbenzylphthalate	U	380	
N-Nitrosodiphenylamine (1)	U	380		Fluorene	U	380	
Carbazole	U	380		Hexachlorobutadiene	U	380	
Pentachlorophenol	U	920		2,4,6-Trichlorophenol	U	380	
2-Nitroaniline	U	920		2-Nitrophenol	U	380	
Naphthalene	U	380		2-Methylnaphthalene	U	380	
2-Chloronaphthalene	U	380		3,3'-Dichlorobenzidine	U	380	
2-Methylphenol	U	380		1,2-Dichlorobenzene	U	380	
2-Chlorophenol	U	380		2,4,5-Trichlorophenol	U	920	
Nitrobenzene	U	380		3-Nitroaniline	U	920	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB124 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-036
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	890		4-Nitrophenol	U	890	
4-Bromophenyl-phenylether	U	370		2,4-Dimethylphenol	U	370	
4-Methylphenol	U	370		1,4-Dichlorobenzene	U	370	
4-Chloroaniline	U	370		2,2'-oxybis(1-Chloropropane)	U	370	
Phenol	U	370		bis(2-Chloroethyl)ether	U	370	
bis(2-Chloroethoxy)methane	U	370		bis(2-Ethylhexyl)phthalate	U	370	
Di-n-octylphthalate	U	370		Hexachlorobenzene	U	370	
Anthracene	U	370		1,2,4-Trichlorobenzene	U	370	
2,4-Dichlorophenol	U	370		2,4-Dinitrotoluene	U	370	
Pyrene	U	370		Dimethylphthalate	U	370	
Dibenzofuran	U	370		Benzo(g,h,i)perylene	U	370	
Indeno(1,2,3-cd)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Fluoranthene	U	370		Benzo(k)fluoranthene	U	370	
Acenaphthylene	U	370		Chrysene	U	370	
Benzo(a)pyrene	U	370		2,4-Dinitrophenol	U	890	
Dibenz(a,h)anthracene	U	370		4,6-Dinitro-2-methylphenol	U	890	
1,3-Dichlorobenzene	U	370		Benzo(a)anthracene	U	370	
4-Chloro-3-methylphenol	U	370		2,6-Dinitrotoluene	U	370	
N-Nitroso-di-n-propylamine	U	370		Hexachloroethane	U	370	
4-Chlorophenyl-phenylether	U	370		Hexachlorocyclopentadiene	U	370	
Isophorone	U	370		Acenaphthene	U	370	
Diethylphthalate	U	370		Di-n-butylphthalate	U	370	
Phenanthrene	U	370		Butylbenzylphthalate	U	370	
N-Nitrosodiphenylamine (1)	U	370		Fluorene	U	370	
Carbazole	U	370		Hexachlorobutadiene	U	370	
Pentachlorophenol	U	890		2,4,6-Trichlorophenol	U	370	
2-Nitroaniline	U	890		2-Nitrophenol	U	370	
Naphthalene	U	370		2-Methylnaphthalene	U	370	
2-Chloronaphthalene	U	370		3,3'-Dichlorobenzidine	U	370	
2-Methylphenol	U	370		1,2-Dichlorobenzene	U	370	
2-Chlorophenol	U	370		2,4,5-Trichlorophenol	U	890	
Nitrobenzene	U	370		3-Nitroaniline	U	890	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB130 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-032
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	440		2,4-Dimethylphenol	U	440	
4-Methylphenol	U	440		1,4-Dichlorobenzene	U	440	
4-Chloroaniline	U	440		2,2'-oxybis(1-Chloropropane)	U	440	
Phenol	U	440		bis(2-Chloroethyl)ether	U	440	
bis(2-Chloroethoxy)methane	U	440		bis(2-Ethylhexyl)phthalate	U	440	
Di-n-octylphthalate	U	440		Hexachlorobenzene	U	440	
Anthracene	U	440		1,2,4-Trichlorobenzene	U	440	
2,4-Dichlorophenol	U	440		2,4-Dinitrotoluene	U	440	
Pyrene	U	440		Dimethylphthalate	U	440	
Dibenzofuran	U	440		Benzo(g,h,i)perylene	U	440	
Indeno(1,2,3-cd)pyrene	U	440		Benzo(b)fluoranthene	U	440	
Fluoranthene	U	440		Benzo(k)fluoranthene	U	440	
Acenaphthylene	U	440		Chrysene	U	440	
Benzo(a)pyrene	U	440		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	440		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	440		Benzo(a)anthracene	U	440	
4-Chloro-3-methylphenol	U	440		2,6-Dinitrotoluene	U	440	
N-Nitroso-di-n-propylamine	U	440		Hexachloroethane	U	440	
4-Chlorophenyl-phenylether	U	440		Hexachlorocyclopentadiene	U	440	
Isophorone	U	440		Acenaphthene	U	440	
Diethylphthalate	U	440		Di-n-butylphthalate	U	440	
Phenanthrene	U	440		Butylbenzylphthalate	U	440	
N-Nitrosodiphenylamine (1)	U	440		Fluorene	U	440	
Carbazole	U	440		Hexachlorobutadiene	U	440	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	UJ
Naphthalene	U	440		2-Methylnaphthalene	U	440	
2-Chloronaphthalene	U	440		3,3'-Dichlorobenzidine	U	440	
2-Methylphenol	U	440		1,2-Dichlorobenzene	U	440	
2-Chlorophenol	U	440		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	440		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB140 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-025
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	930		4-Nitrophenol	U	930	
4-Bromophenyl-phenylether	U	380		2,4-Dimethylphenol	U	380	
4-Methylphenol	U	380		1,4-Dichlorobenzene	U	380	
4-Chloroaniline	U	380		2,2'-oxybis(1-Chloropropane)	U	380	
Phenol	U	380		bis(2-Chloroethyl)ether	U	380	
bis(2-Chloroethoxy)methane	U	380		bis(2-Ethylhexyl)phthalate	U	380	
Di-n-octylphthalate	U	380		Hexachlorobenzene	U	380	
Anthracene	U	380		1,2,4-Trichlorobenzene	U	380	
2,4-Dichlorophenol	U	380		2,4-Dinitrotoluene	U	380	
Pyrene	U	380		Dimethylphthalate	U	380	
Dibenzofuran	U	380		Benzo(g,h,i)perylene	U	380	
Indeno(1,2,3-cd)pyrene	U	380		Benzo(b)fluoranthene	U	380	
Fluoranthene	U	380		Benzo(k)fluoranthene	U	380	
Acenaphthylene	U	380		Chrysene	U	380	
Benzo(a)pyrene	U	380		2,4-Dinitrophenol	U	930	
Dibenz(a,h)anthracene	U	380		4,6-Dinitro-2-methylphenol	U	930	
1,3-Dichlorobenzene	U	380		Benzo(a)anthracene	U	380	
4-Chloro-3-methylphenol	U	380		2,6-Dinitrotoluene	U	380	
N-Nitroso-di-n-propylamine	U	380		Hexachloroethane	U	380	
4-Chlorophenyl-phenylether	U	380		Hexachlorocyclopentadiene	U	380	UJ
Isophorone	U	380		Acenaphthene	U	380	
Diethylphthalate	U	380		Di-n-butylphthalate	U	380	
Phenanthrene	U	380		Butylbenzylphthalate	U	380	
N-Nitrosodiphenylamine (1)	U	380		Fluorene	U	380	
Carbazole	U	380		Hexachlorobutadiene	U	380	
Pentachlorophenol	U	930		2,4,6-Trichlorophenol	U	380	
2-Nitroaniline	U	930		2-Nitrophenol	U	380	
Naphthalene	U	380		2-Methylnaphthalene	U	380	
2-Chloronaphthalene	U	380		3,3'-Dichlorobenzidine	U	380	
2-Methylphenol	U	380		1,2-Dichlorobenzene	U	380	
2-Chlorophenol	U	380		2,4,5-Trichlorophenol	U	930	
Nitrobenzene	U	380		3-Nitroaniline	U	930	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB202 *
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Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-033
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	450		2,4-Dimethylphenol	U	450	
4-Methylphenol	U	450		1,4-Dichlorobenzene	U	450	
4-Chloroaniline	U	450		2,2'-oxybis(1-Chloropropane)	U	450	
Phenol	U	450		bis(2-Chloroethyl)ether	U	450	
bis(2-Chloroethoxy)methane	U	450		bis(2-Ethylhexyl)phthalate	U	450	
Di-n-octylphthalate	U	450		Hexachlorobenzene	U	450	
Anthracene	U	450		1,2,4-Trichlorobenzene	U	450	
2,4-Dichlorophenol	U	450		2,4-Dinitrotoluene	U	450	
Pyrene	U	450		Dimethylphthalate	U	450	
Dibenzofuran	U	450		Benzo(g,h,i)perylene	U	450	
Indeno(1,2,3-cd)pyrene	U	450		Benzo(b)fluoranthene	U	450	
Fluoranthene	U	450		Benzo(k)fluoranthene	U	450	
Acenaphthylene	U	450		Chrysene	U	450	
enzo(a)pyrene	U	450		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	450		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	450		Benzo(a)anthracene	U	450	
4-Chloro-3-methylphenol	U	450		2,6-Dinitrotoluene	U	450	
N-Nitroso-di-n-propylamine	U	450		Hexachloroethane	U	450	
4-Chlorophenyl-phenylether	U	450		Hexachlorocyclopentadiene	U	450	
Isophorone	U	450		Acenaphthene	U	450	
Diethylphthalate	U	450		Di-n-butylphthalate	U	450	
Phenanthrene	U	450		Butylbenzylphthalate	U	450	
N-Nitrosodiphenylamine (1)	U	450		Fluorene	U	450	
Carbazole	U	450		Hexachlorobutadiene	U	450	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	450	
2-Nitroaniline	U	1100		2-Nitrophenol	U	450	UJ
Naphthalene	U	450		2-Methylnaphthalene	U	450	
2-Chloronaphthalene	U	450		3,3'-Dichlorobenzidine	U	450	
2-Methylphenol	U	450		1,2-Dichlorobenzene	U	450	
2-Chlorophenol	U	450		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	450		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB223 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-034
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/04/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	440		2,4-Dimethylphenol	U	440	
4-Methylphenol	U	440		1,4-Dichlorobenzene	U	440	
4-Chloroaniline	U	440		2,2'-oxybis(1-Chloropropane)	U	440	
Phenol	U	440		bis(2-Chloroethyl)ether	U	440	
bis(2-Chloroethoxy)methane	U	440		bis(2-Ethylhexyl)phthalate	U	440	
Di-n-octylphthalate	U	440		Hexachlorobenzene	U	440	
Anthracene	U	440		1,2,4-Trichlorobenzene	U	440	
2,4-Dichlorophenol	U	440		2,4-Dinitrotoluene	U	440	
Pyrene	U	440		Dimethylphthalate	U	440	
Dibenzofuran	U	440		Benzo(g,h,i)perylene	U	440	
Indeno(1,2,3-cd)pyrene	U	440		Benzo(b)fluoranthene	U	440	
Fluoranthene	U	440		Benzo(k)fluoranthene	U	440	
Acenaphthylene	U	440		Chrysene	U	440	
Benzo(a)pyrene	U	440		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	440		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	440		Benzo(a)anthracene	U	440	
4-Chloro-3-methylphenol	U	440		2,6-Dinitrotoluene	U	440	
N-Nitroso-di-n-propylamine	U	440		Hexachloroethane	U	440	
4-Chlorophenyl-phenylether	U	440		Hexachlorocyclopentadiene	U	440	
Isophorone	U	440		Acenaphthene	U	440	
Diethylphthalate	U	440		Di-n-butylphthalate	U	440	
Phenanthrene	U	440		Butylbenzylphthalate	U	440	
N-Nitrosodiphenylamine (1)	U	440		Fluorene	U	440	
Carbazole	U	440		Hexachlorobutadiene	U	440	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	
Naphthalene	U	440		2-Methylnaphthalene	U	440	
2-Chloronaphthalene	U	440		3,3'-Dichlorobenzidine	U	440	
2-Methylphenol	U	440		1,2-Dichlorobenzene	U	440	
2-Chlorophenol	U	440		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	440		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB302 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-030
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	440		2,4-Dimethylphenol	U	440	
4-Methylphenol	U	440		1,4-Dichlorobenzene	U	440	
4-Chloroaniline	U	440		2,2'-oxybis(1-Chloropropane)	U	440	
Phenol	U	440		bis(2-Chloroethyl)ether	U	440	
bis(2-Chloroethoxy)methane	U	440		bis(2-Ethylhexyl)phthalate	U	440	
Di-n-octylphthalate	U	440		Hexachlorobenzene	U	440	
Anthracene	U	440		1,2,4-Trichlorobenzene	U	440	
2,4-Dichlorophenol	U	440		2,4-Dinitrotoluene	U	440	
Pyrene	U	440		Dimethylphthalate	U	440	
Dibenzofuran	U	440		Benzo(g,h,i)perylene	U	440	
Indeno(1,2,3-cd)pyrene	U	440		Benzo(b)fluoranthene	U	440	
Fluoranthene	U	440		Benzo(k)fluoranthene	U	440	
cenaphthylene	U	440		Chrysene	U	440	
enzo(a)pyrene	U	440		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	440		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	440		Benzo(a)anthracene	U	440	
4-Chloro-3-methylphenol	U	440		2,6-Dinitrotoluene	U	440	
N-Nitroso-di-n-propylamine	U	440		Hexachloroethane	U	440	
4-Chlorophenyl-phenylether	U	440		Hexachlorocyclopentadiene	U	440	UJ
Isophorone	U	440		Acenaphthene	U	440	
Diethylphthalate	U	440		Di-n-butylphthalate	U	440	
Phenanthrene	U	440		Butylbenzylphthalate	U	440	
N-Nitrosodiphenylamine (1)	U	440		Fluorene	U	440	
Carbazole	U	440		Hexachlorobutadiene	U	440	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	
Naphthalene	U	440		2-Methylnaphthalene	U	440	
2-Chloronaphthalene	U	440		3,3'-Dichlorobenzidine	U	440	
2-Methylphenol	U	440		1,2-Dichlorobenzene	U	440	
2-Chlorophenol	U	440		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	440		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB325 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-031
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/01/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	460		2,4-Dimethylphenol	U	460	
4-Methylphenol	U	460		1,4-Dichlorobenzene	U	460	
4-Chloroaniline	U	460		2,2'-oxybis(1-Chloropropane)	U	460	
Phenol	U	460		bis(2-Chloroethyl)ether	U	460	
bis(2-Chloroethoxy)methane	U	460		bis(2-Ethylhexyl)phthalate	U	460	
Di-n-octylphthalate	U	460		Hexachlorobenzene	U	460	
Anthracene	U	460		1,2,4-Trichlorobenzene	U	460	
2,4-Dichlorophenol	U	460		2,4-Dinitrotoluene	U	460	
Pyrene	U	460		Dimethylphthalate	U	460	
Dibenzofuran	U	460		Benzo(g,h,i)perylene	U	460	
Indeno(1,2,3-cd)pyrene	U	460		Benzo(b)fluoranthene	U	460	
Fluoranthene	U	460		Benzo(k)fluoranthene	U	460	
Acenaphthylene	U	460		Chrysene	U	460	
Benzo(a)pyrene	U	460		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	460		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	460		Benzo(a)anthracene	U	460	
4-Chloro-3-methylphenol	U	460		2,6-Dinitrotoluene	U	460	
N-Nitroso-di-n-propylamine	U	460		Hexachloroethane	U	460	
4-Chlorophenyl-phenylether	U	460		Hexachlorocyclopentadiene	U	460	
Isophorone	U	460		Acenaphthene	U	460	
Diethylphthalate	U	460		Di-n-butylphthalate	U	460	
Phenanthrene	U	460		Butylbenzylphthalate	U	460	
N-Nitrosodiphenylamine (1)	U	460		Fluorene	U	460	
Carbazole	U	460		Hexachlorobutadiene	U	460	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	460	
2-Nitroaniline	U	1100		2-Nitrophenol	U	460	
Naphthalene	U	460		2-Methylnaphthalene	U	460	
2-Chloronaphthalene	U	460		3,3'-Dichlorobenzidine	U	460	
2-Methylphenol	U	460		1,2-Dichlorobenzene	U	460	
2-Chlorophenol	U	460		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	460		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB402 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-021
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	960		4-Nitrophenol	U	960	
4-Bromophenyl-phenylether	U	400		2,4-Dimethylphenol	U	400	
4-Methylphenol	U	400		1,4-Dichlorobenzene	U	400	
4-Chloroaniline	U	400		2,2'-oxybis(1-Chloropropane)	U	400	
Phenol	U	400		bis(2-Chloroethyl)ether	U	400	
bis(2-Chloroethoxy)methane	U	400		bis(2-Ethylhexyl)phthalate	U	400	
Di-n-octylphthalate	U	400		Hexachlorobenzene	U	400	
Anthracene	U	400		1,2,4-Trichlorobenzene	U	400	
2,4-Dichlorophenol	U	400		2,4-Dinitrotoluene	U	400	
Pyrene	U	400		Dimethylphthalate	U	400	
Dibenzofuran	U	400		Benzo(g,h,i)perylene	U	400	
Indeno(1,2,3-cd)pyrene	U	400		Benzo(b)fluoranthene	U	400	
Fluoranthene	U	400		Benzo(k)fluoranthene	U	400	
Acenaphthylene	U	400		Chrysene	U	400	
Benzo(a)pyrene	U	400		2,4-Dinitrophenol	U	960	
Dibenz(a,h)anthracene	U	400		4,6-Dinitro-2-methylphenol	U	960	
1,3-Dichlorobenzene	U	400		Benzo(a)anthracene	U	400	
4-Chloro-3-methylphenol	U	400		2,6-Dinitrotoluene	U	400	
N-Nitroso-di-n-propylamine	U	400		Hexachloroethane	U	400	
4-Chlorophenyl-phenylether	U	400		Hexachlorocyclopentadiene	U	400	UJ
Isophorone	U	400		Acenaphthene	U	400	
Diethylphthalate	U	400		Di-n-butylphthalate	U	400	
Phenanthrene	U	400		Butylbenzylphthalate	U	400	
N-Nitrosodiphenylamine (1)	U	400		Fluorene	U	400	
Carbazole	U	400		Hexachlorobutadiene	U	400	
Pentachlorophenol	U	960		2,4,6-Trichlorophenol	U	400	
2-Nitroaniline	U	960		2-Nitrophenol	U	400	
Naphthalene	U	400		2-Methylnaphthalene	U	400	
2-Chloronaphthalene	U	400		3,3'-Dichlorobenzidine	U	400	
2-Methylphenol	U	400		1,2-Dichlorobenzene	U	400	
2-Chlorophenol	U	400		2,4,5-Trichlorophenol	U	960	
Nitrobenzene	U	400		3-Nitroaniline	U	960	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB424 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-022
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	440		2,4-Dimethylphenol	U	440	
4-Methylphenol	U	440		1,4-Dichlorobenzene	U	440	
4-Chloroaniline	U	440		2,2'-oxybis(1-Chloropropane)	U	440	
Phenol	U	440		bis(2-Chloroethyl)ether	U	440	
bis(2-Chloroethoxy)methane	U	440		bis(2-Ethylhexyl)phthalate	U	440	
Di-n-octylphthalate	U	440		Hexachlorobenzene	U	440	
Anthracene	U	440		1,2,4-Trichlorobenzene	U	440	
2,4-Dichlorophenol	U	440		2,4-Dinitrotoluene	U	440	
Pyrene	U	440		Dimethylphthalate	U	440	
Dibenzofuran	U	440		Benzo(g,h,i)perylene	U	440	
Indeno(1,2,3-cd)pyrene	U	440		Benzo(b)fluoranthene	U	440	
Fluoranthene	U	440		Benzo(k)fluoranthene	U	440	
Acenaphthylene	U	440		Chrysene	U	440	
Benzo(a)pyrene	U	440		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	440		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	440		Benzo(a)anthracene	U	440	
4-Chloro-3-methylphenol	U	440		2,6-Dinitrotoluene	U	440	
N-Nitroso-di-n-propylamine	U	440		Hexachloroethane	U	440	
4-Chlorophenyl-phenylether	U	440		Hexachlorocyclopentadiene	U	440	
Isophorone	U	440		Acenaphthene	U	440	
Diethylphthalate	U	440		Di-n-butylphthalate	U	440	
Phenanthrene	U	440		Butylbenzylphthalate	U	440	
N-Nitrosodiphenylamine (1)	U	440		Fluorene	U	440	
Carbazole	U	440		Hexachlorobutadiene	U	440	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	
Naphthalene	U	440		2-Methylnaphthalene	U	440	
2-Chloronaphthalene	U	440		3,3'-Dichlorobenzidine	U	440	
2-Methylphenol	U	440		1,2-Dichlorobenzene	U	440	
2-Chlorophenol	U	440		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	440		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB502 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-023
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	930		4-Nitrophenol	U	930	
4-Bromophenyl-phenylether	U	380		2,4-Dimethylphenol	U	380	
4-Methylphenol	U	380		1,4-Dichlorobenzene	U	380	
4-Chloroaniline	U	380		2,2'-oxybis(1-Chloropropane)	U	380	
Phenol	U	380		bis(2-Chloroethyl)ether	U	380	
bis(2-Chloroethoxy)methane	U	380		bis(2-Ethylhexyl)phthalate	U	380	
Di-n-octylphthalate	U	380		Hexachlorobenzene	U	380	
Anthracene	U	380		1,2,4-Trichlorobenzene	U	380	
2,4-Dichlorophenol	U	380		2,4-Dinitrotoluene	U	380	
Pyrene	U	380		Dimethylphthalate	U	380	
Dibenzofuran	U	380		Benzo(g,h,i)perylene	U	380	
Indeno(1,2,3-cd)pyrene	U	380		Benzo(b)fluoranthene	U	380	
Fluoranthene	U	380		Benzo(k)fluoranthene	U	380	
Acenaphthylene	U	380		Chrysene	U	380	
Benzo(a)pyrene	U	380		2,4-Dinitrophenol	U	930	
Dibenz(a,h)anthracene	U	380		4,6-Dinitro-2-methylphenol	U	930	
1,3-Dichlorobenzene	U	380		Benzo(a)anthracene	U	380	
4-Chloro-3-methylphenol	U	380		2,6-Dinitrotoluene	U	380	
N-Nitroso-di-n-propylamine	U	380		Hexachloroethane	U	380	
4-Chlorophenyl-phenylether	U	380		Hexachlorocyclopentadiene	U	380	
Isophorone	U	380		Acenaphthene	U	380	
Diethylphthalate	U	380		Di-n-butylphthalate	U	380	
Phenanthrene	U	380		Butylbenzylphthalate	U	380	
N-Nitrosodiphenylamine (1)	U	380		Fluorene	U	380	
Carbazole	U	380		Hexachlorobutadiene	U	380	
Pentachlorophenol	U	930		2,4,6-Trichlorophenol	U	380	
2-Nitroaniline	U	930		2-Nitrophenol	U	380	
Naphthalene	U	380		2-Methylnaphthalene	U	380	
2-Chloronaphthalene	U	380		3,3'-Dichlorobenzidine	U	380	
2-Methylphenol	U	380		1,2-Dichlorobenzene	U	380	
2-Chlorophenol	U	380		2,4,5-Trichlorophenol	U	930	
Nitrobenzene	U	380		3-Nitroaniline	U	930	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB523 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-024
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	900		4-Nitrophenol	U	900	
4-Bromophenyl-phenylether	U	370		2,4-Dimethylphenol	U	370	
4-Methylphenol	U	370		1,4-Dichlorobenzene	U	370	
4-Chloroaniline	U	370		2,2'-oxybis(1-Chloropropane)	U	370	
Phenol	U	370		bis(2-Chloroethyl)ether	U	370	
bis(2-Chloroethoxy)methane	U	370		bis(2-Ethylhexyl)phthalate	U	370	
Di-n-octylphthalate	U	370		Hexachlorobenzene	U	370	
Anthracene	U	370		1,2,4-Trichlorobenzene	U	370	
2,4-Dichlorophenol	U	370		2,4-Dinitrotoluene	U	370	
Pyrene	U	370		Dimethylphthalate	U	370	
Dibenzofuran	U	370		Benzo(g,h,i)perylene	U	370	
Indeno(1,2,3-cd)pyrene	U	370		Benzo(b)fluoranthene	U	370	
Fluoranthene	U	370		Benzo(k)fluoranthene	U	370	
Acenaphthylene	U	370		Chrysene	U	370	
Benzo(a)pyrene	U	370		2,4-Dinitrophenol	U	900	
Dibenz(a,h)anthracene	U	370		4,6-Dinitro-2-methylphenol	U	900	
1,3-Dichlorobenzene	U	370		Benzo(a)anthracene	U	370	
4-Chloro-3-methylphenol	U	370		2,6-Dinitrotoluene	U	370	
N-Nitroso-di-n-propylamine	U	370		Hexachloroethane	U	370	
4-Chlorophenyl-phenylether	U	370		Hexachlorocyclopentadiene	U	370	
Isophorone	U	370		Acenaphthene	U	370	
Diethylphthalate	U	370		Di-n-butylphthalate	U	370	
Phenanthrene	U	370		Butylbenzylphthalate	U	370	
N-Nitrosodiphenylamine (1)	U	370		Fluorene	U	370	
Carbazole	U	370		Hexachlorobutadiene	U	370	
Pentachlorophenol	U	900		2,4,6-Trichlorophenol	U	370	
2-Nitroaniline	U	900		2-Nitrophenol	U	370	
Naphthalene	U	370		2-Methylnaphthalene	U	370	
2-Chloronaphthalene	U	370		3,3'-Dichlorobenzidine	U	370	
2-Methylphenol	U	370		1,2-Dichlorobenzene	U	370	
2-Chlorophenol	U	370		2,4,5-Trichlorophenol	U	900	
Nitrobenzene	U	370		3-Nitroaniline	U	900	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB602 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-026
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	970		4-Nitrophenol	U	970	
4-Bromophenyl-phenylether	U	400		2,4-Dimethylphenol	U	400	
4-Methylphenol	U	400		1,4-Dichlorobenzene	U	400	
4-Chloroaniline	U	400		2,2'-oxybis(1-Chloropropane)	U	400	
Phenol	U	400		bis(2-Chloroethyl)ether	U	400	
bis(2-Chloroethoxy)methane	U	400		bis(2-Ethylhexyl)phthalate	U	400	
Di-n-octylphthalate	U	400		Hexachlorobenzene	U	400	
Anthracene	U	400		1,2,4-Trichlorobenzene	U	400	
2,4-Dichlorophenol	U	400		2,4-Dinitrotoluene	U	400	
Pyrene	U	400		Dimethylphthalate	U	400	
Dibenzofuran	U	400		Benzo(g,h,i)perylene	U	400	
Indeno(1,2,3-cd)pyrene	U	400		Benzo(b)fluoranthene	U	400	
Fluoranthene	U	400		Benzo(k)fluoranthene	U	400	
Acenaphthylene	U	400		Chrysene	U	400	
Benzo(a)pyrene	U	400		2,4-Dinitrophenol	U	970	
Dibenz(a,h)anthracene	U	400		4,6-Dinitro-2-methylphenol	U	970	
1,3-Dichlorobenzene	U	400		Benzo(a)anthracene	U	400	
4-Chloro-3-methylphenol	U	400		2,6-Dinitrotoluene	U	400	
N-Nitroso-di-n-propylamine	U	400		Hexachloroethane	U	400	
4-Chlorophenyl-phenylether	U	400		Hexachlorocyclopentadiene	U	400	
Isophorone	U	400		Acenaphthene	U	400	
Diethylphthalate	U	400		Di-n-butylphthalate	U	400	
Phenanthrene	U	400		Butylbenzylphthalate	U	400	
N-Nitrosodiphenylamine (1)	U	400		Fluorene	U	400	
Carbazole	U	400		Hexachlorobutadiene	U	400	
Pentachlorophenol	U	970		2,4,6-Trichlorophenol	U	400	
2-Nitroaniline	U	970		2-Nitrophenol	U	400	
Naphthalene	U	400		2-Methylnaphthalene	U	400	
2-Chloronaphthalene	U	400		3,3'-Dichlorobenzidine	U	400	
2-Methylphenol	U	400		1,2-Dichlorobenzene	U	400	
2-Chlorophenol	U	400		2,4,5-Trichlorophenol	U	970	
Nitrobenzene	U	400		3-Nitroaniline	U	970	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB623 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-027
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
4-Bromophenyl-phenylether	U	410		2,4-Dimethylphenol	U	410	
4-Methylphenol	U	410		1,4-Dichlorobenzene	U	410	
4-Chloroaniline	U	410		2,2'-oxybis(1-Chloropropane)	U	410	
Phenol	U	410		bis(2-Chloroethyl)ether	U	410	
bis(2-Chloroethoxy)methane	U	410		bis(2-Ethylhexyl)phthalate	U	410	
Di-n-octylphthalate	U	410		Hexachlorobenzene	U	410	
Anthracene	U	410		1,2,4-Trichlorobenzene	U	410	
2,4-Dichlorophenol	U	410		2,4-Dinitrotoluene	U	410	
Pyrene	U	410		Dimethylphthalate	U	410	
Dibenzofuran	U	410		Benzo(g,h,i)perylene	U	410	
Indeno(1,2,3-cd)pyrene	U	410		Benzo(b)fluoranthene	U	410	
Fluoranthene	U	410		Benzo(k)fluoranthene	U	410	
Acenaphthylene	U	410		Chrysene	U	410	
Benzo(a)pyrene	U	410		2,4-Dinitrophenol	U	1000	
Dibenz(a,h)anthracene	U	410		4,6-Dinitro-2-methylphenol	U	1000	
1,3-Dichlorobenzene	U	410		Benzo(a)anthracene	U	410	
4-Chloro-3-methylphenol	U	410		2,6-Dinitrotoluene	U	410	
N-Nitroso-di-n-propylamine	U	410		Hexachloroethane	U	410	
4-Chlorophenyl-phenylether	U	410		Hexachlorocyclopentadiene	U	410	
Isophorone	U	410		Acenaphthene	U	410	
Diethylphthalate	U	410		Di-n-butylphthalate	U	410	
Phenanthrene	U	410		Butylbenzylphthalate	U	410	
N-Nitrosodiphenylamine (1)	U	410		Fluorene	U	410	
Carbazole	U	410		Hexachlorobutadiene	U	410	
Pentachlorophenol	U	1000		2,4,6-Trichlorophenol	U	410	
2-Nitroaniline	U	1000		2-Nitrophenol	U	410	
Naphthalene	U	410		2-Methylnaphthalene	U	410	
2-Chloronaphthalene	U	410		3,3'-Dichlorobenzidine	U	410	
2-Methylphenol	U	410		1,2-Dichlorobenzene	U	410	
2-Chlorophenol	U	410		2,4,5-Trichlorophenol	U	1000	
Nitrobenzene	U	410		3-Nitroaniline	U	1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB702 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-028
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	970		4-Nitrophenol	U	970	
4-Bromophenyl-phenylether	U	400		2,4-Dimethylphenol	U	400	
4-Methylphenol	U	400		1,4-Dichlorobenzene	U	400	
4-Chloroaniline	U	400		2,2'-oxybis(1-Chloropropane)	U	400	
Phenol	U	400		bis(2-Chloroethyl)ether	U	400	
bis(2-Chloroethoxy)methane	U	400		bis(2-Ethylhexyl)phthalate	U	400	
Di-n-octylphthalate	U	400		Hexachlorobenzene	U	400	
Anthracene	U	400		1,2,4-Trichlorobenzene	U	400	
2,4-Dichlorophenol	U	400		2,4-Dinitrotoluene	U	400	
Pyrene	U	400		Dimethylphthalate	U	400	
Dibenzofuran	U	400		Benzo(g,h,i)perylene	U	400	
Indeno(1,2,3-cd)pyrene	U	400		Benzo(b)fluoranthene	U	400	
Fluoranthene	U	400		Benzo(k)fluoranthene	U	400	
Acenaphthylene	U	400		Chrysene	U	400	
Benzo(a)pyrene	U	400		2,4-Dinitrophenol	U	970	
Dibenz(a,h)anthracene	U	400		4,6-Dinitro-2-methylphenol	U	970	
1,3-Dichlorobenzene	U	400		Benzo(a)anthracene	U	400	
4-Chloro-3-methylphenol	U	400		2,6-Dinitrotoluene	U	400	
N-Nitroso-di-n-propylamine	U	400		Hexachloroethane	U	400	
4-Chlorophenyl-phenylether	U	400		Hexachlorocyclopentadiene	U	400	
Isophorone	U	400		Acenaphthene	U	400	
Diethylphthalate	U	400		Di-n-butylphthalate	U	400	
Phenanthrene	U	400		Butylbenzylphthalate	U	400	
N-Nitrosodiphenylamine (1)	U	400		Fluorene	U	400	
Carbazole	U	400		Hexachlorobutadiene	U	400	
Pentachlorophenol	U	970		2,4,6-Trichlorophenol	U	400	
2-Nitroaniline	U	970		2-Nitrophenol	U	400	
Naphthalene	U	400		2-Methylnaphthalene	U	400	
2-Chloronaphthalene	U	400		3,3'-Dichlorobenzidine	U	400	
2-Methylphenol	U	400		1,2-Dichlorobenzene	U	400	
2-Chlorophenol	U	400		2,4,5-Trichlorophenol	U	970	
Nitrobenzene	U	400		3-Nitroaniline	U	970	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB724 *
****

Sample Collection Date: 4/19/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-029
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
4-Bromophenyl-phenylether	U	420		2,4-Dimethylphenol	U	420	
4-Methylphenol	U	420		1,4-Dichlorobenzene	U	420	
4-Chloroaniline	U	420		2,2'-oxybis(1-Chloropropane)	U	420	
Phenol	U	420		bis(2-Chloroethyl)ether	U	420	
bis(2-Chloroethoxy)methane	U	420		bis(2-Ethylhexyl)phthalate	U	420	
Di-n-octylphthalate	U	420		Hexachlorobenzene	U	420	
Anthracene	U	420		1,2,4-Trichlorobenzene	U	420	
2,4-Dichlorophenol	U	420		2,4-Dinitrotoluene	U	420	
Pyrene	U	420		Dimethylphthalate	U	420	
Dibenzofuran	U	420		Benzo(g,h,i)perylene	U	420	
Indeno(1,2,3-cd)pyrene	U	420		Benzo(b)fluoranthene	U	420	
Fluoranthene	U	420		Benzo(k)fluoranthene	U	420	
Acenaphthylene	U	420		Chrysene	U	420	
Benzo(a)pyrene	U	420		2,4-Dinitrophenol	U	1000	
Dibenz(a,h)anthracene	U	420		4,6-Dinitro-2-methylphenol	U	1000	
1,3-Dichlorobenzene	U	420		Benzo(a)anthracene	U	420	
4-Chloro-3-methylphenol	U	420		2,6-Dinitrotoluene	U	420	
N-Nitroso-di-n-propylamine	U	420		Hexachloroethane	U	420	
4-Chlorophenyl-phenylether	U	420		Hexachlorocyclopentadiene	U	420	
Isophorone	U	420		Acenaphthene	U	420	
Diethylphthalate	U	420		Di-n-butylphthalate	U	420	
Phenanthrene	U	420		Butylbenzylphthalate	U	420	
N-Nitrosodiphenylamine (1)	U	420		Fluorene	U	420	
Carbazole	U	420		Hexachlorobutadiene	U	420	
Pentachlorophenol	U	1000		2,4,6-Trichlorophenol	U	420	
2-Nitroaniline	U	1000		2-Nitrophenol	U	420	
Naphthalene	U	420		2-Methylnaphthalene	U	420	
2-Chloronaphthalene	U	420		3,3'-Dichlorobenzidine	U	420	
2-Methylphenol	U	420		1,2-Dichlorobenzene	U	420	
2-Chlorophenol	U	420		2,4,5-Trichlorophenol	U	1000	
Nitrobenzene	U	420		3-Nitroaniline	U	1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB802 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-019
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1100		4-Nitrophenol	U	1100	
4-Bromophenyl-phenylether	U	440		2,4-Dimethylphenol	U	440	
4-Methylphenol	U	440		1,4-Dichlorobenzene	U	440	
4-Chloroaniline	U	440		2,2'-oxybis(1-Chloropropane)	U	440	
Phenol	U	440		bis(2-Chloroethyl)ether	U	440	
bis(2-Chloroethoxy)methane	U	440		bis(2-Ethylhexyl)phthalate	U	440	
Di-n-octylphthalate	U	440		Hexachlorobenzene	U	440	
Anthracene	U	440		1,2,4-Trichlorobenzene	U	440	
2,4-Dichlorophenol	U	440		2,4-Dinitrotoluene	U	440	
Pyrene	U	440		Dimethylphthalate	U	440	
Dibenzofuran	U	440		Benzo(g,h,i)perylene	U	440	
Indeno(1,2,3-cd)pyrene	U	440		Benzo(b)fluoranthene	U	440	
Fluoranthene	U	440		Benzo(k)fluoranthene	U	440	
cenaphthylene	U	440		Chrysene	U	440	
enzo(a)pyrene	U	440		2,4-Dinitrophenol	U	1100	
Dibenz(a,h)anthracene	U	440		4,6-Dinitro-2-methylphenol	U	1100	
1,3-Dichlorobenzene	U	440		Benzo(a)anthracene	U	440	
4-Chloro-3-methylphenol	U	440		2,6-Dinitrotoluene	U	440	
N-Nitroso-di-n-propylamine	U	440		Hexachloroethane	U	440	
4-Chlorophenyl-phenylether	U	440		Hexachlorocyclopentadiene	U	440	
Isophorone	U	440		Acenaphthene	U	440	
Diethylphthalate	U	440		Di-n-butylphthalate	U	440	
Phenanthrene	U	440		Butylbenzylphthalate	U	440	
N-Nitrosodiphenylamine (1)	U	440		Fluorene	U	440	
Carbazole	U	440		Hexachlorobutadiene	U	440	
Pentachlorophenol	U	1100		2,4,6-Trichlorophenol	U	440	
2-Nitroaniline	U	1100		2-Nitrophenol	U	440	
Naphthalene	U	440		2-Methylnaphthalene	U	440	
2-Chloronaphthalene	U	440		3,3'-Dichlorobenzidine	U	440	
2-Methylphenol	U	440		1,2-Dichlorobenzene	U	440	
2-Chlorophenol	U	440		2,4,5-Trichlorophenol	U	1100	
Nitrobenzene	U	440		3-Nitroaniline	U	1100	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR SEMI-VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB823 *
****

Sample Collection Date: 4/20/93 Method: 8270/2 Units: UG/KG Laboratory ID: 35821-020
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/30/93

Analyte	Lab Result or DL		Validation Data	Analyte	Lab Result or DL		Validation Data
4-Nitroaniline	U	1000		4-Nitrophenol	U	1000	
4-Bromophenyl-phenylether	U	430		2,4-Dimethylphenol	U	430	
4-Methylphenol	U	430		1,4-Dichlorobenzene	U	430	
4-Chloroaniline	U	430		2,2'-oxybis(1-Chloropropane)	U	430	
Phenol	U	430		bis(2-Chloroethyl)ether	U	430	
bis(2-Chloroethoxy)methane	U	430		bis(2-Ethylhexyl)phthalate	U	430	
Di-n-octylphthalate	U	430		Hexachlorobenzene	U	430	
Anthracene	U	430		1,2,4-Trichlorobenzene	U	430	
2,4-Dichlorophenol	U	430		2,4-Dinitrotoluene	U	430	
Pyrene	U	430		Dimethylphthalate	U	430	
Dibenzofuran	U	430		Benzo(g,h,i)perylene	U	430	
Indeno(1,2,3-cd)pyrene	U	430		Benzo(b)fluoranthene	U	430	
Fluoranthene	U	430		Benzo(k)fluoranthene	U	430	
Acenaphthylene	U	430		Chrysene	U	430	
Benzo(a)pyrene	U	430		2,4-Dinitrophenol	U	1000	
Dibenz(a,h)anthracene	U	430		4,6-Dinitro-2-methylphenol	U	1000	
1,3-Dichlorobenzene	U	430		Benzo(a)anthracene	U	430	
4-Chloro-3-methylphenol	U	430		2,6-Dinitrotoluene	U	430	
N-Nitroso-di-n-propylamine	U	430		Hexachloroethane	U	430	
4-Chlorophenyl-phenylether	U	430		Hexachlorocyclopentadiene	U	430	
Isophorone	U	430		Acenaphthene	U	430	
Diethylphthalate	U	430		Di-n-butylphthalate	U	430	
Phenanthrene	U	430		Butylbenzylphthalate	U	430	
N-Nitrosodiphenylamine (1)	U	430		Fluorene	U	430	
Carbazole	U	430		Hexachlorobutadiene	U	430	
Pentachlorophenol	U	1000		2,4,6-Trichlorophenol	U	430	
2-Nitroaniline	U	1000		2-Nitrophenol	U	430	
Naphthalene	U	430		2-Methylnaphthalene	U	430	
2-Chloronaphthalene	U	430		3,3'-Dichlorobenzidine	U	430	
2-Methylphenol	U	430		1,2-Dichlorobenzene	U	430	
2-Chlorophenol	U	430		2,4,5-Trichlorophenol	U	1000	
Nitrobenzene	U	430		3-Nitroaniline	U	1000	

PCBs, ORGANOCHLORINE PESTICIDES

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: ER-1 *
****

Sample Collection Date: 4/19/93 Method: 608/1 Units: UG/L Laboratory ID: 35821-060
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	.0520	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0520	
alpha-BHC	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0520	
gamma-Chlordane	U	.0520	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0520	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5200	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0520	
Toxaphene	U	5.2000	
Endosulfan I	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: ER-2 *
****

Sample Collection Date: 4/20/93 Method: 608/1 Units: UG/L Laboratory ID: 35821-059
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	.0520	
Endosulfan sulfate	U	.1000	
Aroclor-1260	U	1.0000	
Aroclor-1254	U	1.0000	
Aroclor-1221	U	2.1000	
Aroclor-1232	U	1.0000	
Aroclor-1248	U	1.0000	
Aroclor-1016	U	1.0000	
Aldrin	U	.0520	
alpha-BHC	U	.0520	
beta-BHC	U	.0520	
delta-BHC	U	.0520	
Endosulfan II	U	.1000	
4,4'-DDT	U	.1000	
alpha-Chlordane	U	.0520	
gamma-Chlordane	U	.0520	
Aroclor-1242	U	1.0000	
Endrin ketone	U	.1000	
gamma-BHC (Lindane)	U	.0520	
Dieldrin	U	.1000	
Endrin	U	.1000	
Methoxychlor	U	.5200	
4,4'-DDD	U	.1000	
4,4'-DDE	U	.1000	
Endrin aldehyde	U	.1000	
Heptachlor	U	.0520	
Toxaphene	U	5.2000	
Endosulfan I	U	.0520	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB102 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-035
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.8000	
Aroclor-1260	U	38.0000	
Aroclor-1254	U	38.0000	
Aroclor-1221	U	76.0000	
Aroclor-1232	U	38.0000	
Aroclor-1248	U	38.0000	
Aroclor-1016	U	38.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.8000	
4,4'-DDT		5.8000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	38.0000	
Endrin ketone	U	3.8000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.8000	
Endrin	U	3.8000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.8000	
4,4'-DDE	J	3.4000	
Endrin aldehyde	U	3.8000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB124 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-036
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.6000	
Aroclor-1260	U	36.0000	
Aroclor-1254	U	36.0000	
Aroclor-1221	U	73.0000	
Aroclor-1232	U	36.0000	
Aroclor-1248	U	36.0000	
Aroclor-1016	U	36.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.6000	
4,4'-DDT	U	3.6000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	36.0000	
Endrin ketone	U	3.6000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.6000	
Endrin	U	3.6000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.6000	
4,4'-DDE	U	3.6000	
Endrin aldehyde	U	3.6000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB130 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-032
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	89.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB140 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-025
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.9000	
Aroclor-1260	U	39.0000	
Aroclor-1254	U	39.0000	
Aroclor-1221	U	80.0000	
Aroclor-1232	U	39.0000	
Aroclor-1248	U	39.0000	
Aroclor-1016	U	39.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.9000	
4,4'-DDT	U	3.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	39.0000	
Endrin ketone	U	3.9000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.9000	
Endrin	U	3.9000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.9000	
4,4'-DDE	U	3.9000	
Endrin aldehyde	U	3.9000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB202 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-033
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	89.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB223 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-034
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte		Lab Result or	Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	90.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB302 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-030
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.5000	
Aroclor-1260	U	45.0000	
Aroclor-1254	U	45.0000	
Aroclor-1221	U	91.0000	
Aroclor-1232	U	45.0000	
Aroclor-1248	U	45.0000	
Aroclor-1016	U	45.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.5000	
4,4'-DDT	U	4.5000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	45.0000	
Endrin ketone	U	4.5000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.5000	
Endrin	U	4.5000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.5000	
4,4'-DDE	U	4.5000	
Endrin aldehyde	U	4.5000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB325 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-031
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte		Lab Result or	Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.5000	
Aroclor-1260	U	45.0000	
Aroclor-1254	U	45.0000	
Aroclor-1221	U	92.0000	
Aroclor-1232	U	45.0000	
Aroclor-1248	U	45.0000	
Aroclor-1016	U	45.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.5000	
4,4'-DDT	U	4.5000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	45.0000	
Endrin ketone	U	4.5000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.5000	
Endrin	U	4.5000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.5000	
4,4'-DDE	U	4.5000	
Endrin aldehyde	U	4.5000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB402 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-021
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.1000	
Endosulfan sulfate	U	4.0000	
Aroclor-1260	U	40.0000	
Aroclor-1254	U	40.0000	
Aroclor-1221	U	81.0000	
Aroclor-1232	U	40.0000	
Aroclor-1248	U	40.0000	
Aroclor-1016	U	40.0000	
Aldrin	U	2.1000	
alpha-BHC	U	2.1000	
beta-BHC	U	2.1000	
delta-BHC	U	2.1000	
Endosulfan II	U	4.0000	
4,4'-DDT	U	4.0000	
alpha-Chlordane	U	2.1000	
gamma-Chlordane	U	2.1000	
Aroclor-1242	U	40.0000	
Endrin ketone	U	4.0000	
gamma-BHC (Lindane)	U	2.1000	
Dieldrin	U	4.0000	
Endrin	U	4.0000	
Methoxychlor	U	21.0000	
4,4'-DDD	U	4.0000	
4,4'-DDE	U	4.0000	
Endrin aldehyde	U	4.0000	
Heptachlor	U	2.1000	
Toxaphene	U	210.0000	
Endosulfan I	U	2.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB424 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-022
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	89.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB502 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-023
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte		Lab Result or	Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	3.8000	
Aroclor-1260	U	38.0000	
Aroclor-1254	U	38.0000	
Aroclor-1221	U	78.0000	
Aroclor-1232	U	38.0000	
Aroclor-1248	U	38.0000	
Aroclor-1016	U	38.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	3.8000	
4,4'-DDT		6.9000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	38.0000	
Endrin ketone	U	3.8000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	3.8000	
Endrin	U	3.8000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	3.8000	
4,4'-DDE		9.6000	
Endrin aldehyde	U	3.8000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB523 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-024
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	1.9000	
Endosulfan sulfate	U	3.7000	
Aroclor-1260	U	37.0000	
Aroclor-1254	U	37.0000	
Aroclor-1221	U	75.0000	
Aroclor-1232	U	37.0000	
Aroclor-1248	U	37.0000	
Aroclor-1016	U	37.0000	
Aldrin	U	1.9000	
alpha-BHC	U	1.9000	
beta-BHC	U	1.9000	
delta-BHC	U	1.9000	
Endosulfan II	U	3.7000	
4,4'-DDT	U	3.7000	
alpha-Chlordane	U	1.9000	
gamma-Chlordane	U	1.9000	
Aroclor-1242	U	37.0000	
Endrin ketone	U	3.7000	
gamma-BHC (Lindane)	U	1.9000	
Dieldrin	U	3.7000	
Endrin	U	3.7000	
Methoxychlor	U	19.0000	
4,4'-DDD	U	3.7000	
4,4'-DDE	U	3.7000	
Endrin aldehyde	U	3.7000	
Heptachlor	U	1.9000	
Toxaphene	U	190.0000	
Endosulfan I	U	1.9000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB602 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-026
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.1000	
Endosulfan sulfate	U	4.0000	
Aroclor-1260	U	40.0000	
Aroclor-1254	U	40.0000	
Aroclor-1221	U	81.0000	
Aroclor-1232	U	40.0000	
Aroclor-1248	U	40.0000	
Aroclor-1016	U	40.0000	
Aldrin	U	2.1000	
alpha-BHC	U	2.1000	
beta-BHC	U	2.1000	
delta-BHC	U	2.1000	
Endosulfan II	U	4.0000	
4,4'-DDT	U	4.0000	
alpha-Chlordane	U	2.1000	
gamma-Chlordane	U	2.1000	
Aroclor-1242	U	40.0000	
Endrin ketone	U	4.0000	
gamma-BHC (Lindane)	U	2.1000	
Dieldrin	U	4.0000	
Endrin	U	4.0000	
Methoxychlor	U	21.0000	
4,4'-DDD	U	4.0000	
4,4'-DDE	U	4.0000	
Endrin aldehyde	U	4.0000	
Heptachlor	U	2.1000	
Toxaphene	U	210.0000	
Endosulfan I	U	2.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB623 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-027
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte		Lab Result or	Validation Data
Heptachlor epoxide	U	2.1000	
Endosulfan sulfate	U	4.1000	
Aroclor-1260	U	41.0000	
Aroclor-1254	U	41.0000	
Aroclor-1221	U	82.0000	
Aroclor-1232	U	41.0000	
Aroclor-1248	U	41.0000	
Aroclor-1016	U	41.0000	
Aldrin	U	2.1000	
alpha-BHC	U	2.1000	
beta-BHC	U	2.1000	
delta-BHC	U	2.1000	
Endosulfan II	U	4.1000	
4,4'-DDT	U	4.1000	
alpha-Chlordane	U	2.1000	
gamma-Chlordane	U	2.1000	
Aroclor-1242	U	41.0000	
Endrin ketone	U	4.1000	
gamma-BHC (Lindane)	U	2.1000	
Dieldrin	U	4.1000	
Endrin	U	4.1000	
Methoxychlor	U	21.0000	
4,4'-DDD	U	4.1000	
4,4'-DDE	U	4.1000	
Endrin aldehyde	U	4.1000	
Heptachlor	U	2.1000	
Toxaphene	U	210.0000	
Endosulfan I	U	2.1000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB702 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-028
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.0000	
Endosulfan sulfate	U	4.0000	
Aroclor-1260	U	40.0000	
Aroclor-1254	U	40.0000	
Aroclor-1221	U	81.0000	
Aroclor-1232	U	40.0000	
Aroclor-1248	U	40.0000	
Aroclor-1016	U	40.0000	
Aldrin	U	2.0000	
alpha-BHC	U	2.0000	
beta-BHC	U	2.0000	
delta-BHC	U	2.0000	
Endosulfan II	U	4.0000	
4,4'-DDT	U	4.0000	
alpha-Chlordane	U	2.0000	
gamma-Chlordane	U	2.0000	
Aroclor-1242	U	40.0000	
Endrin ketone	U	4.0000	
gamma-BHC (Lindane)	U	2.0000	
Dieldrin	U	4.0000	
Endrin	U	4.0000	
Methoxychlor	U	20.0000	
4,4'-DDD	U	4.0000	
4,4'-DDE	U	4.0000	
Endrin aldehyde	U	4.0000	
Heptachlor	U	2.0000	
Toxaphene	U	200.0000	
Endosulfan I	U	2.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB724 *
****

Sample Collection Date: 4/19/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-029
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/06/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.2000	
Endosulfan sulfate	U	4.3000	
Aroclor-1260	U	43.0000	
Aroclor-1254	U	43.0000	
Aroclor-1221	U	87.0000	
Aroclor-1232	U	43.0000	
Aroclor-1248	U	43.0000	
Aroclor-1016	U	43.0000	
Aldrin	U	2.2000	
alpha-BHC	U	2.2000	
beta-BHC	U	2.2000	
delta-BHC	U	2.2000	
Endosulfan II	U	4.3000	
4,4'-DDT	U	4.3000	
alpha-Chlordane	U	2.2000	
gamma-Chlordane	U	2.2000	
Aroclor-1242	U	43.0000	
Endrin ketone	U	4.3000	
gamma-BHC (Lindane)	U	2.2000	
Dieldrin	U	4.3000	
Endrin	U	4.3000	
Methoxychlor	U	22.0000	
4,4'-DDD	U	4.3000	
4,4'-DDE	U	4.3000	
Endrin aldehyde	U	4.3000	
Heptachlor	U	2.2000	
Toxaphene	U	220.0000	
Endosulfan I	U	2.2000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB802 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-019
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.2000	
Endosulfan sulfate	U	4.3000	
Aroclor-1260	U	43.0000	
Aroclor-1254	U	43.0000	
Aroclor-1221	U	88.0000	
Aroclor-1232	U	43.0000	
Aroclor-1248	U	43.0000	
Aroclor-1016	U	43.0000	
Aldrin	U	2.2000	
alpha-BHC	U	2.2000	
beta-BHC	U	2.2000	
delta-BHC	U	2.2000	
Endosulfan II	U	4.3000	
4,4'-DDT	U	4.3000	
alpha-Chlordane	U	2.2000	
gamma-Chlordane	U	2.2000	
Aroclor-1242	U	43.0000	
Endrin ketone	U	4.3000	
gamma-BHC (Lindane)	U	2.2000	
Dieldrin	U	4.3000	
Endrin	U	4.3000	
Methoxychlor	U	22.0000	
4,4'-DDD	U	4.3000	
4,4'-DDE	U	4.3000	
Endrin aldehyde	U	4.3000	
Heptachlor	U	2.2000	
Toxaphene	U	220.0000	
Endosulfan I	U	2.2000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR PESTICIDES

****
* SAMPLE ID: TBB823 *
****

Sample Collection Date: 4/20/93 Method: 3550,8080/2 Units: UG/KG Laboratory ID: 35821-020
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/05/93

Analyte	Lab Result or		Validation Data
Heptachlor epoxide	U	2.3000	
Endosulfan sulfate	U	4.4000	
Aroclor-1260	U	44.0000	
Aroclor-1254	U	44.0000	
Aroclor-1221	U	89.0000	
Aroclor-1232	U	44.0000	
Aroclor-1248	U	44.0000	
Aroclor-1016	U	44.0000	
Aldrin	U	2.3000	
alpha-BHC	U	2.3000	
beta-BHC	U	2.3000	
delta-BHC	U	2.3000	
Endosulfan II	U	4.4000	
4,4'-DDT	U	4.4000	
alpha-Chlordane	U	2.3000	
gamma-Chlordane	U	2.3000	
Aroclor-1242	U	44.0000	
Endrin ketone	U	4.4000	
gamma-BHC (Lindane)	U	2.3000	
Dieldrin	U	4.4000	
Endrin	U	4.4000	
Methoxychlor	U	23.0000	
4,4'-DDD	U	4.4000	
4,4'-DDE	U	4.4000	
Endrin aldehyde	U	4.4000	
Heptachlor	U	2.3000	
Toxaphene	U	230.0000	
Endosulfan I	U	2.3000	

TCLP METALS

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB102 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-017
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	237.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury		.2400	
Lead		9.8000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB124 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-018
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	195.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	B	2.6000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB130 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-014
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	214.0000	J
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		9.9000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB140 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-007
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	556.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		8.2000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB202 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-015
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	174.0000	J
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		6.0000	6.0000 U
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB222 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-016
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	195.0000	
Cadmium	U	1.8000	
Chromium	B	4.6000	
Mercury	U	.1000	
Lead		13.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB302 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-012
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	142.0000	J
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		20.5000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB322 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-013
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	129.0000	J
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	B	.8500	.8500 U
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB402 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-003
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	509.0000	
Cadmium	B	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		8.4000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB424 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-004
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	211.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	B	2.6000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB502 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-006
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	457.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		13.2000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB523 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-005
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	348.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		5.8000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB602 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-008
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	119.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	S	10.9000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB623 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-009
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte	Lab Result or DL		Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	BE	120.0000	
Cadmium	U	1.8000	
Chromium	B	4.6000	
Mercury	U	.1000	
Lead	B	1.2000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB702 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-010
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	454.0000	J
Cadmium	U	1.8000	
Chromium	B	5.7000	5.7000 U
Mercury	U	.1000	
Lead		4.1000	4.1000 U
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB724 *
****

Sample Collection Date: 4/19/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-011
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	299.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	S	43.4000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB802 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-001
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	270.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead		4.0000	
Selenium	U	33.3000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR TCLP INORGANIC COMPOUNDS

****
* SAMPLE ID: TBB823 *
****

Sample Collection Date: 4/20/93 Method: 3050,6010/2 Units: UG/L Laboratory ID: 35825-002
Lab Receipt Date: 4/21/93
Sample Analysis Date: 5/13/93

Analyte		Lab Result or DL	Validation Data
Silver	U	2.9000	
Arsenic	U	32.1000	
Barium	E	241.0000	
Cadmium	U	1.8000	
Chromium	U	3.1000	
Mercury	U	.1000	
Lead	B	2.0000	
Selenium	U	33.3000	

GC/MS VOA

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER-1 *
****

Sample Collection Date: 4/19/93 Method: 8260/2 Units: UG/L Laboratory ID: 35821-062
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/29/93

Analyte		Lab Result or DL	Validation Data
Ethylbenzene	U	1.0000	
Styrene	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
4-Methyl-2-pentanone	U	5.0000	
Toluene		2.0000	
Chlorobenzene	U	1.0000	
Dibromochloromethane	U	1.0000	
Tetrachloroethene	U	1.0000	
Xylene (total)		1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
Carbon Tetrachloride	U	1.0000	
2-Hexanone	U	5.0000	
Acetone		12.0000	12.0000
Chloroform	J	.6000	
Benzene	U	1.0000	
1,1,1-Trichloroethane	U	1.0000	
Bromomethane	U	2.0000	
Chloromethane	U	2.0000	
Chloroethane	U	2.0000	
Vinyl Chloride	U	2.0000	
Methylene_Chloride	U	1.0000	
Carbon Disulfide	U	1.0000	
Bromoform	U	1.0000	
Bromodichloromethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
1,1,2-Trichloroethane	U	1.0000	
Trichloroethene	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: ER-2 *
****

Sample Collection Date: 4/20/93 Method: 8260/2 Units: UG/L Laboratory ID: 35821-061
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/29/93

Analyte		Lab Result or DL	Validation Data
Ethylbenzene	U	1.0000	
Styrene	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
4-Methyl-2-pentanone	U	5.0000	
Toluene		1.0000	
Chlorobenzene	U	1.0000	
Dibromochloromethane	U	1.0000	
Tetrachloroethene	U	1.0000	
Xylene (total)	J	.8000	
1,2-Dichloroethene_(total)	U	1.0000	
Carbon Tetrachloride	U	1.0000	
2-Hexanone	U	5.0000	
Acetone		12.0000	
Chloroform	U	1.0000	
Benzene	U	1.0000	
1,1,1-Trichloroethane	U	1.0000	
Bromomethane	U	2.0000	
Chloromethane	U	2.0000	
Chloroethane	U	2.0000	
Vinyl Chloride	U	2.0000	
Methylene_Chloride	U	1.0000	
Carbon Disulfide	U	1.0000	
Bromoform	U	1.0000	
Bromodichloromethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
1,1,2-Trichloroethane	U	1.0000	
Trichloroethene	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TB-1 *
****

Sample Collection Date: 4/19/93 Method: 8260/2 Units: UG/L Laboratory ID: 35821-063
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/29/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	1.0000	
Styrene	U	1.0000	
cis-1,3-Dichloropropene	U	1.0000	
trans-1,3-Dichloropropene	U	1.0000	
1,2-Dichloroethane	U	1.0000	
4-Methyl-2-pentanone	U	5.0000	
Toluene	U	1.0000	
Chlorobenzene	U	1.0000	
Dibromochloromethane	U	1.0000	
Tetrachloroethene	U	1.0000	
Xylene (total)	U	1.0000	
1,2-Dichloroethene_(total)	U	1.0000	
Carbon Tetrachloride	U	1.0000	
2-Hexanone	U	5.0000	
Acetone	U	5.0000	
Chloroform	U	1.0000	
Benzene	U	1.0000	
1,1,1-Trichloroethane	U	1.0000	
Bromomethane	U	2.0000	
Chloromethane	U	2.0000	
Chloroethane	U	2.0000	
Vinyl Chloride	U	2.0000	
Methylene_Chloride		1.0000	1.0000
Carbon Disulfide	U	1.0000	
Bromoform	U	1.0000	
Bromodichloromethane	U	1.0000	
1,1-Dichloroethane	U	1.0000	
1,1-Dichloroethene	U	1.0000	
1,2-Dichloropropane	U	1.0000	
2-Butanone	U	5.0000	
1,1,2-Trichloroethane	U	1.0000	
Trichloroethene	U	1.0000	
1,1,2,2-Tetrachloroethane	U	1.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB102 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-053
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	11.0000	
Styrene	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Toluene	U	11.0000	
Chlorobenzene	U	11.0000	
Dibromochloromethane	U	11.0000	
Tetrachloroethene	U	11.0000	
Xylene (total)	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
Carbon Tetrachloride	U	11.0000	
2-Hexanone	U	11.0000	
Acetone	U	11.0000	
Chloroform	U	11.0000	
Benzene	U	11.0000	
1,1,1-Trichloroethane	U	11.0000	
Bromomethane	U	11.0000	
Chloromethane	U	11.0000	
Chloroethane	U	11.0000	
Vinyl Chloride	U	11.0000	
Methylene_Chloride	BJ	6.0000	
Carbon Disulfide	U	11.0000	
Bromoform	U	11.0000	
Bromodichloromethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
Trichloroethene	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB124 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-054
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	11.0000	
Styrene	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Toluene	U	11.0000	
Chlorobenzene	U	11.0000	
Dibromochloromethane	U	11.0000	
Tetrachloroethene	U	11.0000	
Xylene (total)	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
Carbon Tetrachloride	U	11.0000	
2-Hexanone	U	11.0000	
Acetone	U	11.0000	
Chloroform	U	11.0000	
Benzene	U	11.0000	
1,1,1-Trichloroethane	U	11.0000	
Bromomethane	U	11.0000	
Chloromethane	U	11.0000	
Chloroethane	U	11.0000	
Vinyl Chloride	U	11.0000	
Methylene_Chloride	BJ	4.0000	
Carbon Disulfide	U	11.0000	
Bromoform	U	11.0000	
Bromodichloromethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
Trichloroethene	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB130 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-050
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone	U	13.0000	
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	8.0000	13.0000 U
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB140 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-043
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		26.0000	26.0000 U
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	BJ	9.0000	12.0000 U
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB202 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-051
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone		13.0000	13.0000 U
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	8.0000	13.0000 U
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB223 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-052
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/27/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	14.0000	
Styrene	U	14.0000	
cis-1,3-Dichloropropene	U	14.0000	
trans-1,3-Dichloropropene	U	14.0000	
1,2-Dichloroethane	U	14.0000	
4-Methyl-2-pentanone	U	14.0000	
Toluene	U	14.0000	
Chlorobenzene	U	14.0000	
Dibromochloromethane	U	14.0000	
Tetrachloroethene	U	14.0000	
Xylene (total)	U	14.0000	
1,2-Dichloroethene_(total)	U	14.0000	
Carbon Tetrachloride	U	14.0000	
2-Hexanone	U	14.0000	
Acetone	U	14.0000	
Chloroform	U	14.0000	
Benzene	U	14.0000	
1,1,1-Trichloroethane	U	14.0000	
Bromomethane	U	14.0000	
Chloromethane	U	14.0000	
Chloroethane	U	14.0000	
Vinyl Chloride	U	14.0000	
Methylene_Chloride	BJ	7.0000	
Carbon Disulfide	U	14.0000	
Bromoform	U	14.0000	
Bromodichloromethane	U	14.0000	
1,1-Dichloroethane	U	14.0000	
1,1-Dichloroethene	U	14.0000	
1,2-Dichloropropane	U	14.0000	
2-Butanone	U	14.0000	
1,1,2-Trichloroethane	U	14.0000	
Trichloroethene	U	14.0000	
1,1,2,2-Tetrachloroethane	U	14.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB302 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-048
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	14.0000	
Styrene	U	14.0000	
cis-1,3-Dichloropropene	U	14.0000	
trans-1,3-Dichloropropene	U	14.0000	
1,2-Dichloroethane	U	14.0000	
4-Methyl-2-pentanone	U	14.0000	
Toluene	U	14.0000	
Chlorobenzene	U	14.0000	
Dibromochloromethane	U	14.0000	
Tetrachloroethene	U	14.0000	
Xylene (total)	U	14.0000	
1,2-Dichloroethene_(total)	U	14.0000	
Carbon Tetrachloride	U	14.0000	
2-Hexanone	U	14.0000	
Acetone	J	9.0000	14.0000 U
Chloroform	U	14.0000	
Benzene	U	14.0000	
1,1,1-Trichloroethane	U	14.0000	
Bromomethane	U	14.0000	
Chloromethane	U	14.0000	
Chloroethane	U	14.0000	
Vinyl Chloride	U	14.0000	
Methylene_Chloride	BJ	8.0000	14.0000 U
Carbon Disulfide	U	14.0000	
Bromoform	U	14.0000	
Bromodichloromethane	U	14.0000	
1,1-Dichloroethane	U	14.0000	
1,1-Dichloroethene	U	14.0000	
1,2-Dichloropropane	U	14.0000	
2-Butanone	U	14.0000	
1,1,2-Trichloroethane	U	14.0000	
Trichloroethene	U	14.0000	
1,1,2,2-Tetrachloroethane	U	14.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB325 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-049
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	14.0000	
Styrene	U	14.0000	
cis-1,3-Dichloropropene	U	14.0000	
trans-1,3-Dichloropropene	U	14.0000	
1,2-Dichloroethane	U	14.0000	
4-Methyl-2-pentanone	U	14.0000	
Toluene	U	14.0000	
Chlorobenzene	U	14.0000	
Dibromochloromethane	U	14.0000	
Tetrachloroethene	U	14.0000	
Xylene (total)	U	14.0000	
1,2-Dichloroethene_(total)	U	14.0000	
Carbon Tetrachloride	U	14.0000	
2-Hexanone	U	14.0000	
Acetone	J	12.0000	
Chloroform	U	14.0000	
Benzene	U	14.0000	
1,1,1-Trichloroethane	U	14.0000	
Bromomethane	U	14.0000	
Chloromethane	U	14.0000	
Chloroethane	U	14.0000	
Vinyl Chloride	U	14.0000	
Methylene_Chloride	BJ	9.0000	
Carbon Disulfide	U	14.0000	
Bromoform	U	14.0000	
Bromodichloromethane	U	14.0000	
1,1-Dichloroethane	U	14.0000	
1,1-Dichloroethene	U	14.0000	
1,2-Dichloropropane	U	14.0000	
2-Butanone	U	14.0000	
1,1,2-Trichloroethane	U	14.0000	
Trichloroethene	U	14.0000	
1,1,2,2-Tetrachloroethane	U	14.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB402 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-039
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		17.0000	17.0000 U
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	BJ	11.0000	12.0000 U
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB424 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-040
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone		14.0000	
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	11.0000	
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB502 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-041
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		21.0000	
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	BJ	9.0000	
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB523 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-042
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	11.0000	
Styrene	U	11.0000	
cis-1,3-Dichloropropene	U	11.0000	
trans-1,3-Dichloropropene	U	11.0000	
1,2-Dichloroethane	U	11.0000	
4-Methyl-2-pentanone	U	11.0000	
Toluene	U	11.0000	
Chlorobenzene	U	11.0000	
Dibromochloromethane	U	11.0000	
Tetrachloroethene	U	11.0000	
Xylene (total)	U	11.0000	
1,2-Dichloroethene_(total)	U	11.0000	
Carbon Tetrachloride	U	11.0000	
2-Hexanone	U	11.0000	
Acetone		11.0000	
Chloroform	U	11.0000	
Benzene	U	11.0000	
1,1,1-Trichloroethane	U	11.0000	
Bromomethane	U	11.0000	
Chloromethane	U	11.0000	
Chloroethane	U	11.0000	
Vinyl Chloride	U	11.0000	
Methylene_Chloride	BJ	8.0000	
Carbon Disulfide	U	11.0000	
Bromoform	U	11.0000	
Bromodichloromethane	U	11.0000	
1,1-Dichloroethane	U	11.0000	
1,1-Dichloroethene	U	11.0000	
1,2-Dichloropropane	U	11.0000	
2-Butanone	U	11.0000	
1,1,2-Trichloroethane	U	11.0000	
Trichloroethene	U	11.0000	
1,1,2,2-Tetrachloroethane	U	11.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB602 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-044
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		44.0000	
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	BJ	11.0000	
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB623 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-045
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		19.0000	
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	B	12.0000	
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB702 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-046
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	12.0000	
Styrene	U	12.0000	
cis-1,3-Dichloropropene	U	12.0000	
trans-1,3-Dichloropropene	U	12.0000	
1,2-Dichloroethane	U	12.0000	
4-Methyl-2-pentanone	U	12.0000	
Toluene	U	12.0000	
Chlorobenzene	U	12.0000	
Dibromochloromethane	U	12.0000	
Tetrachloroethene	U	12.0000	
Xylene (total)	U	12.0000	
1,2-Dichloroethene_(total)	U	12.0000	
Carbon Tetrachloride	U	12.0000	
2-Hexanone	U	12.0000	
Acetone		19.0000	
Chloroform	U	12.0000	
Benzene	U	12.0000	
1,1,1-Trichloroethane	U	12.0000	
Bromomethane	U	12.0000	
Chloromethane	U	12.0000	
Chloroethane	U	12.0000	
Vinyl Chloride	U	12.0000	
Methylene_Chloride	BJ	10.0000	
Carbon Disulfide	U	12.0000	
Bromoform	U	12.0000	
Bromodichloromethane	U	12.0000	
1,1-Dichloroethane	U	12.0000	
1,1-Dichloroethene	U	12.0000	
1,2-Dichloropropane	U	12.0000	
2-Butanone	U	12.0000	
1,1,2-Trichloroethane	U	12.0000	
Trichloroethene	U	12.0000	
1,1,2,2-Tetrachloroethane	U	12.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB724 *
****

Sample Collection Date: 4/19/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-047
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone	U	13.0000	
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	8.0000	
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB802 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-037
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone		19.0000	
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	8.0000	
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

NAVAL SUBMARINE BASE - NEW LONDON
BACKGROUND SOILS
CHEMICAL ANALYSIS SUMMARY FOR VOLATILE ORGANIC COMPOUNDS

****
* SAMPLE ID: TBB823 *
****

Sample Collection Date: 4/20/93 Method: 8240/2 Units: UG/KG Laboratory ID: 35821-038
Lab Receipt Date: 4/21/93
Sample Analysis Date: 4/26/93

Analyte	Lab Result or DL		Validation Data
Ethylbenzene	U	13.0000	
Styrene	U	13.0000	
cis-1,3-Dichloropropene	U	13.0000	
trans-1,3-Dichloropropene	U	13.0000	
1,2-Dichloroethane	U	13.0000	
4-Methyl-2-pentanone	U	13.0000	
Toluene	U	13.0000	
Chlorobenzene	U	13.0000	
Dibromochloromethane	U	13.0000	
Tetrachloroethene	U	13.0000	
Xylene (total)	U	13.0000	
1,2-Dichloroethene_(total)	U	13.0000	
Carbon Tetrachloride	U	13.0000	
2-Hexanone	U	13.0000	
Acetone		16.0000	
Chloroform	U	13.0000	
Benzene	U	13.0000	
1,1,1-Trichloroethane	U	13.0000	
Bromomethane	U	13.0000	
Chloromethane	U	13.0000	
Chloroethane	U	13.0000	
Vinyl Chloride	U	13.0000	
Methylene_Chloride	BJ	11.0000	
Carbon Disulfide	U	13.0000	
Bromoform	U	13.0000	
Bromodichloromethane	U	13.0000	
1,1-Dichloroethane	U	13.0000	
1,1-Dichloroethene	U	13.0000	
1,2-Dichloropropane	U	13.0000	
2-Butanone	U	13.0000	
1,1,2-Trichloroethane	U	13.0000	
Trichloroethene	U	13.0000	
1,1,2,2-Tetrachloroethane	U	13.0000	

APPENDIX D

DATA VALIDATION REPORTS

MEMORANDUM

TO: File

FROM: Alan Cornell

RE: Data Validation

DATE: March 31, 1995

The contract with the Navy stipulated that 25% of the samples will be validated. A review of the Data Validation Report indicated that there were some qualifications that should apply to all samples of the sample group. Data qualifications that were originally applied to the validated samples are extended to all samples in this group. These are:

- Volatile Organics (due to blank contamination), specifically:

  - Acetone. Values less than the CRQL, 15 ug/kg are qualified as non-detects (U) at the CRQL; values greater than the CRQL and less than the action level of 120 ug/kg are qualified as non-detects at the reported level for the sample; values above the action level stand as reported.

  - Methylene Chloride. All values less than the CRQL, 14 ug/kg are qualified as non-detects (U) at the CRQL; values greater than the CRQL and less than the action level of 40 ug/kg are qualified as non-detects at the reported level for the sample; values above the action level stand as reported.

- Inorganics.

  - U3, qualifying data as non-detect at the reported level due to blank contamination is applied to all samples for beryllium, boron, mercury, nickel, selenium, and sodium.

  - J%, the reported results are estimated due to recovery of the element outside of criteria, applied to all arsenic and lead results.

  - J12, the results of ICP Serial Dilution experiment was outside of criteria, applied to positive values for all calcium samples.

Specific changes to inorganic data values included:

- Arsenic. Reported values were changed to estimates.
- Beryllium. Values from TBB1 (2-4), TBB6 (0-2), TBB6 (2-3.5), and TBB8 (2-3) were changed to non-detects.
- Boron. All values showing boron as detected were changed to non-detects due to the presence of boron in the associated blank.
- Lead. Reported values were changed to estimates.
- Mercury. Datum for sample TBB3 (2-2.5) was changed to non-detected.
- Nickel. All values showing nickel as detected were changed to non-detect.
- Selenium. All values for selenium were changed to non-detected.
- Sodium. All values for sodium (except for sample TBB5 [2-3.3]) were changed to non-detect.

META Environmental, Inc.

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DATA VALIDATION REPORT FOR THE NAVAL SUBMARINE BASE SITE IN GROTON, CT BACKGROUND SOILS SDG NO: TBB80

Prepared for:

Atlantic Environmental Services, Inc.
118 Norwich Avenue
Colchester, CT 06415

Prepared by:

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02172

July 28, 1993

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- Sample Data Sheets: Volatile Organic Compounds
- Sample Data Sheets: Semivolatile Organic Compounds
- Sample Data Sheets: Pesticide Organic Compounds
- Data Validation Recommendation Footnotes - Inorganics
- Sample Data Sheets: Inorganic Analytes
- Sample Data Sheets: TCLP Inorganic Analytes

DATA VALIDATION REPORT

RE:	SDG Nº:	TBB80
	Site:	Naval Submarine Base, Groton, CT
	Reference:	NVDV930607A

Volatiles:	5/soil/TBB2(0-2), TBB3(0-2), TBB4(0-2), TBB13(0-2), TBB14(0-2). 2/water/TB-1, ER-1.
Semivolatiles:	5/soil/TBB2(0-2), TBB3(0-2), TBB4(0-2), TBB13(0-2), TBB14(0-2). 1/water/ER-1.
Pesticides:	5/soil/TBB2(0-2), TBB3(0-2), TBB4(0-2), TBB13(0-2), TBB14(0-2). 1/water/ER-1.
Metals/CN:	5/soil/TBB2(0-2), TBB3(0-2), TBB3(2-2.5), TBB7(0-2), TBB13(0-2). 1/aqueous/ER-1.
TCLP Metals:	5/soil/TBB2(0-2), TBB3(0-2), TBB3(2-2.5), TBB7(0-2), TBB13(0-2).

INTRODUCTION

META Environmental, Inc. (META) has completed a validation of the volatile, semivolatile, and pesticide organic and inorganic analytical data from SDG No. TBB80 low level soil samples collected from the Naval Submarine Base site in Groton, CT. The data were evaluated according to guidelines adapted by META, and based on the U.S. EPA Region I Functional Guidelines for Evaluating Organic Analyses (2/88), the U.S. EPA Region I Functional Guidelines for Evaluating Inorganic Analyses (6/88), the NEESA Sampling and Chemical Analysis Quality Assurance Requirements for the Navy Installation Restoration Program (20.2-047B), and Method 1311 the Toxicity Characteristic Leaching Procedure. At the client's request, only 25% of the samples submitted were validated.

Triclustered Sample Data Sheets detailing the Contract Required Quantitation Limits (CRQLs), laboratory reported results, Instrument Detection Limits (IDLs), data validation results, and recommendations for each fraction of each validated sample have been submitted for your convenience.

The data submitted for SDG No. TBB80 were found to be generally good. There was some qualification of VOA data because of blank contamination and calibration, and some qualification of ABN and PEST data because of calibration. The reader should refer to the report for a more detailed discussion of the results.

ORGANIC DATA

Evaluation of the volatile (VOA), semivolatile (ABN), and pesticide (PEST) organic data was based on the following parameters:

- Data completeness
- ☺ Holding times
- ☺ GC/MS Tuning
- Calibration
- Blanks
- Method blank/spikes
- Surrogate recoveries
- Matrix spike/matrix spike duplicate
- ☺ Field duplicate precision
- ☺ Internal standard performance
- Pesticide instrument performance
- ☺ Compound identification
- ☺ Compound quantitation

☺ - All criteria were met for this parameter.

Data Completeness

The data package contained most of the forms required by the SOW, with the following exceptions:

- The first page of the PEST fraction quantitation report (page 300014) for sample ER-2 was missing from the data package. That sample was not validated, so no action is necessary.

- The PEST fraction chromatogram and part of the quantitation report (page 300034) for sample TBB13(0-2) was missing from the data package. As a result, chromatographic performance and several compound RTs on instrument 2 could not be verified for that sample.

In addition to the forms required by the SOW, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package.

In addition, the following items should be noted:

- The case narrative states that all soil pHs were between 4 an 5. The SOW of recommends that all soil pH levels be between 5 and 9, but does not recommend any method for adjusting the soil pH. The effect of the lower pH on the sample results is not known, an there are no valiation guidelines for low soil pH. No

action is recommended, but the client should be aware of these issues when using the data.

Copy quality was good.

Holding Times

All of the VOA fraction samples were analyzed within the required holding times. No action is recommended.

All of the ABN and PEST fraction samples were extracted and analyzed within required holding times. No action is recommended.

GC/MS Tuning

All of the BFB and DFTPP tuning criteria were within the required limits.

Calibration

The following problems were noted with the initial and/or continuing calibration of the VOA and ABN GC/MS systems:

VOA instrument CMS-HP (initial calibration date 02/16/93):

Compound	IC 02/16/93	CC 04/27/93
Acetone	X	
Carbon disulfide		X
Associated Samples:	All soil samples in this case.	TBB2(0-2), TBB13(0-2).

ABN instrument FMS-HP (initial calibration date 02/01/93):

Compound	CC 04/30/93	CC 05/04/93
Phenol	X	X
bis(2-Chloroethyl)ether	X	X
2-Methylphenol	X	X
2,2'-Oxybis(1-chloropropane)	X	X
Hexachlorocyclopentadiene	XX	X
2,4-Dinitrophenol	X	
4-Nitrophenol	X	XX
4,6-Dinitro-2-methylphenol	X	
bis(2-Ethylhexyl)phthalate	X	X
Associated Samples:	ER-1, TBB3(0-2) TBB4(0-2), TBB14(0-2), TBB3(0-2) MS/MSD.	TBB2(0-2), TBB13(0-2).

X %RSD > 30% or %D > 25%; Estimate (J^3) positive results in associated samples.
XX %RSD or %D > 50%; Estimate (J^4) positive results and (UJ^4) non-detected results in the associated samples.

It should be noted that the samples TB-1 and ER-1 were analyzed against an initial and continuing calibration (01/11/93 and 04/29/93, respectively, on the "GMS-HP" instrument) that met all validation criteria, but did not meet all contractual criteria. The RFs of the SPCC compounds bromoform and 1,1,2,2-tetrachloroethane were less than the contractually required limits of 0.250 and 0.300, respectively. No action is recommended, but the client should be aware of this issue when using the data.

Blanks

The VOA, ABN, and PEST fraction low level laboratory method blanks, equipment, and trip blanks contained the following maximum quantities of contaminants:

Compound	Maximum [ ]	Action Level
Methylene chloride	4 μg/Kg	40 μg/Kg
Acetone	12 μg/L	120 μg/Kg
Chloroform	0.6 μg/L	3 μg/Kg
Toluene	2 μg/L	20 μg/Kg
Total xylenes	1 μg/L	5 μg/Kg

Blank Actions:

- Value < CRQL; report CRQL followed by "U" (U^5).
- Value > CRQL and < action level; report value followed by "U" (U^6).
- Value > CRQL and > action level; report value unqualified.

The action level values were compared to the sample values, and the following recommendations are made: methylene chloride in samples TBB2(0-2), TBB3(0-2), TBB4(0-2), TBB13(0-2), TBB14(0-2), TBB3(0-2)MS, TBB3(0-2)MSD, and acetone in sample TBB3(0-2) should be reported as the CRQL followed by "U" (U^5); acetone in the samples TBB2(0-2), TBB4(0-2), TBB14(0-2), TBB3(0-2)MS, and TBB3(0-2)MSD should be reported as the value followed by "U" (U^6) (i.e., the CRQL has been raised and the value is considered to be non-detect).

Several TIC compounds were detected in the ABN fraction method blanks. The RTs of the blank TICs were compared to the RTs of the sample TICs, and where similarities were found, the sample TIC result was flagged with a "B" on the Tentatively Identified Compound Summary table (Table 1) at the end of this report.

In addition, all TIC compounds were flagged on the Forms I in the following way:

"JN" Presumptive evidence for the tentative identification of a compound at an approximate concentration (required flag).

"BR" TIC was also found in an associated blank, and is rejected in the sample.

"CR" Compound is a common laboratory contaminant, and is rejected in the sample.

Method Blank/Spikes

NEESA requires the analysis of method blank/spikes along with the analysis of samples. The results of the method/blank spikes are to be plotted on control charts and submitted with the data package.

For the VOA and ABN fractions, the method blank/spike is essentially the same thing as a method blank. The method blanks submitted by the laboratory may be evaluated as method blank/spikes by plotting the surrogate recovery results on a control chart. In compliance with NEESA requirements, the laboratory did submit control charts which plotted the surrogate recoveries. It should be noted, however, that NEESA requires a blank of the same matrix as the samples to be analyzed whenever samples are analyzed. For the ABN fraction, the SOW only requires that each method blank be analyzed once on each instrument. On 04/30/93, the laboratory analyzed both water and soil samples for ABN compounds, but only a water blank was analyzed. This satisfies the SOW requirements, but not the NEESA requirements. There are no validation guidelines provided by NEESA, so no action is recommended.

For the PEST fraction, a method blank/spike must contain at least two pesticide compounds and/or one PCB compound, and the recovery results are plotted on a control chart. The laboratory submitted control charts depicting the recovery of one PCB and three pesticide compounds, as well as the associated raw data.

Surrogate Recoveries

All VOA and ABN fraction water and soil surrogate recoveries were within the CRR. No action is recommended.

The PEST fraction surrogate tetrachloro-m-xylene (TCMX) was under-recovered in the water sample ER-1 and its associated method blank. However, both recoveries were close to the lower advisory limit of 60%, and because the limits are advisory only, no action is necessary.

The PEST fraction surrogate TCMX was under-recovered in the soil samples TBB2(0-2), TBB3(0-2), TBB4(0-2), TBB13(0-2), TBB14(0-2), TBB3(0-2)MS, TBB3(0-2)MSD, as well as the associated method blank. PEST surrogate recoveries are advisory only, and no action is recommended.

It should be noted that it is contractually required that method blanks meet all QC criteria. If a method blank does not meet the QC criteria, then the blank and all associated samples should be reextracted or reanalyzed. Contractually, the laboratory should have reextracted and reanalyzed all of the PEST fraction samples associated with the out of control soil and water method blanks. It is not known why the samples were not reanalyzed.

Matrix Spike/Matrix Spike Duplicate

All VOA matrix spike compound %Recs and RPDs were within the Contract Required Recovery range (CRR).

The ABN fraction matrix spike compound 1,2,4-trichlorobenzene was under-recovered in both the MS and the MSD. That compound was not detected in the native sample, so no action is required.

The PEST fraction matrix spike compound 4,4'-DDT was over-recovered in the MS, and the RPD between the MS and MSD was high. That compound was not detected in the native sample, so no action is required.

In addition, results for two soil matrix PEST fraction laboratory control samples (LCS) were submitted. The LCSs were analyzed for the purpose of plotting on control charts, and were spiked with Aroclor 1254. Results for two water matrix PEST fraction LCSs were also submitted.

The results for the non-spiked compounds present in the sample, MS, and MSD were compared, and the %RSDs calculated. All of the %RSDs were below the advisory criterion of < 50% for soils.

Field Duplicate Precision

Samples TBB3(0-2) and TBB13(0-2) were identified by the client as field duplicate samples. There were no positive detects for any compound in any fraction of those samples, so no actions are recommended.

Internal Standard Performance

All VOA and ABN fraction internal standard (IS) areas were within the CRR.

Pesticide Instrument Performance

The following problems were noted with the initial calibration of the PEST GC system:

Instruments GC-15, GC-16 (initial calibration date 05/04/93):

Compound	(SPB-1701) Column 1	(SPB-608) Column 2
α-BHC	X	X
δ-BHC	X	X
γ-BHC	X	X
Aldrin		X
Heptachlor epoxide	X	
Dieldrin		X
4,4'-DDE		X
Endosulfan II	X	
4,4'-DDD		X
Endosulfan sulfate	X	
4,4'-DDT		X
Methoxychlor	X	
Endrin aldehyde	X	
γ-Chlordane	X	
*Decachlorobiphenyl	X	X

Associated Samples: All samples in this case.

X %RSD > 10%; Estimate (J^{18}) positive results for compoundds quantitated on that column in the associated samples.

It should be noted that although the data have been qualified according to the criteria set forth in the validation guidelines, the laboratory was contractually compliant with all initial calibration requirements set forth in SOW OLM01.0.

It should also be especially noted that the compoun decachlorobiphenyl is a surrogate standard compound. Since there were no positive detects for any PEST fraction compounds in any sample, no further actions are recommended.

All continuing calibration standard compound RTs were within the established RT windows. All continuing calibration standard compound %Ds met the criterion of < 15% on both columns. The laboratory followed the correct analytical sequence as stated in SOW OLM01.0. No actions are recommended.

The %breakdown for 4,4'-DDT and endrin was acceptable for all PEM standards. In addition to the %breakdown requirement, the SOW requires that the RPDs for all compounds for both columns must be < 25%. The standard PEMH1, analyzed 05/04/93 1404 on column 2 exceeded the contractually required RPD criterion. No action is recommended.

The TCMX and DCB RT %Ds were less than the criterion of < 1.5% for wide bore capillary columns for all standards and samples. No action is necessary.

Compound Identification

In accordance with contractual requirements, mass spectra were submitted for all VOA and ABN compounds detected, whether they were identified as false positives or not.

Mass spectral identifications were good, and all VOA and ABN compound RRTs were within ± 0.06 units of the standard RRT.

PEST fraction compound identifications were good.

Compound Quantitation

VOA, ABN, and PEST fraction sample quantitation calculations were performed correctly.

It should be noted that the laboratory reported aqueous CRQLs for the VOA fraction compounds acetone, 2-butanone, vinyl acetate, 4-methyl-2-pentanone, and 2-hexanone that exceeded the SOW OLM01.0 contractually required CRQLs by a factor of 2.5. Many of the other compound CRQLs were below the contractually required CRQLs. The laboratory stated that the samples were analyzed by SW846 Method 8260, but the samples were not analyzed for the full 8260 compound list. Also, Method 8260 does not list compound CRQLs (CRQLs are defined in the CLP SOW only), so it is inappropriate to report CRQLs based upon another method on CLP forms. The laboratory should have obtained CRQLs that were in compliance with SOW OLM01.0, regardless of what method was used to analyze the samples, since the results were reported in the SOW format.

Tentatively Identified Compounds

No TICs were found in any VOA fraction sample. The TICs found in the ABN fraction samples are summarized in Table 1.

It should be noted that the laboratory did a poor job with TIC compound identifications. It appears that in many cases the first TIC picked by the library search program was reported, without bothering to compare the sample and reference spectra. It is inappropriate to determine TIC results based upon library search results only. An experienced, qualified spectroscopist should evaluate all TIC results individually before reporting the results on the Forms I. The validator changed many of the reported TIC identifications, and the corrected results were used to compile the summary in Table 1. It is not the job of the validator to review and correct all TIC results reported by the laboratory. In the future, unacceptable TIC identifications will be rejected, not corrected.

Data Assessment

This case did not contain any dilutions, reextractions, or reanalyses. No recommendations are necessary.

INORGANIC DATA

The inorganic data were evaluated based on the following parameters:

- ☺ Data completeness
- ☺ Holding times
- ☺ Calibration verification results
- Laboratory blank results
- Method blank/spike results
- ☺ Interference check standard results
- Matrix spike results
- ☺ Field duplicate results
- ☺ Laboratory duplicate results
- ☺ Laboratory control sample results
- ICP serial dilution results
- Furnace AA results
- ☺ Instrument detection limits
- ☺ Calculations and transcriptions

☺ - all criteria were met for this parameter.

Data Completeness

The data package contained all of the forms and raw data required by the EPA SOW. In addition, the following items are necessary for a NEESA compliant data package:

- The analysis of method/blank spikes, and submission of raw data, summary forms, and control charts for those analyses.

Control charts and raw data were submitted with the data package. Copy quality was good.

Holding Times

Holding times were reviewed and found to meet criteria for all parameters. No action is recommended.

Calibration Verification Results

Initial and continuing calibration verifications were reviewed. All standards had acceptable recoveries and frequency criteria were met.

The 2 X CRDL standard was high for chromium (122%) and silver (132%, 137%). Results less than 3 X CRDL should be considered estimated (J^2) due to poor linearity near the CRDL.

Laboratory Blank Results

The calibration blanks and preparation blanks contained low levels of several metals. The following table lists the maximum concentration of each metal found in any laboratory blank with the resultant action levels. The action level is calculated as 5X the maximum concentration found in any blank. Sample results less than 5X the maximum concentration found in any blank may be due to contamination or instrumental problems, and thus may not be indicative of the actual concentration of the native sample.

Element	Concentration (µg/L)	Action Level (µg/L)
Aluminum	34.8	174
Antimony	20.5	102
Barium	11.2	56.0
Beryllium	0.4	2.0
Boron	51.9	259
Calcium	25.5	127
Cobalt	2.6	13.0
Copper	2.9	14.5
Chromium	3.1	15.5
Iron	36.0	180
Magnesium	21.3	106
Manganese	2.1	10.5
Nickel	11.6	58.0
Lead	1.7	8.5
Selenium	1.9	9.5
Sodium	34.3	171
Zinc	2.4	12.0

The above action levels were calculated base on the calibration blanks and preparation blanks only. Two equipment blanks were collected with the case, therefore two blank contamination tables are listed below.

The following table contains the levels found in the blank ER-1, and affects samples collected on 04/19/93:

Element	Concentration (µg/L)	Action Level (µg/L)
Boron	21.9	109
Calcium	54.2	271
Copper	2.9	14.5
Cyanide	2.2	11.0
Iron	20.3	101
Selenium	1.2	6.0
Sodium	96.7	483
Zinc	3.7	18.5

The following table contains the levels found in the blank ER-2, an affects samples collected on 04/20/93:

Element	Concentration (μg/L)	Action Level (μg/L)
Boron	18.9	94.5
Calcium	35.4	177
Copper	2.9	14.5
Iron	80.1	400.5
Manganese	1.2	6.0
Selenium	1.1	5.5
Sodium	243	1215
Zinc	3.1	15.5

The action level values were compared to the sample values after application of sample preparation and dilution factors, and sample results less than the action level were reported as not detected (UJ[3]) (see Sample Data Sheets attached to this report).

The results for the TCLP blanks were all below the detection limit.

It should be noted that, at the client's request, only one of the field blank samples from this case was validated. Equipment blank ER-1 was fully validated. All other field and equipment blank results were used as reported by the laboratory to qualify sample results, but no raw or QC data were inspected to verify the reported blank results.

Method Blank/Spike Results

A laboratory control sample was analyzed with each batch of field samples. The LCS results were plotted on control charts, and satisfy the NEESA QC requirement for the method blank/spike control program. The LCS results are discussed elsewhere in this report.

Interference Check Standard Results

The ICP interference check sample results were reviewed and all recoveries met required criteria. The ICS solutions were analyzed at the proper frequency. No action is recommended.

Matrix Spike Results

Sample TBB3(0-2) was used as the in-house soil spike. The recovery for lead was less than 30% and it is recommended to estimate (J^5) positive results and reject (R^4) non-detected results for lead in all samples. The recoveries were low for antimony (38.5%), arsenic (42.4%), and selenium (51.5%). It is recommended to estimate (J^5) positive results for those analytes in all samples.

Sample TBB3(0-2) was also used for the TCLP matrix spike. All recoveries met the require criteria. No actions are recommended.

No matrix spike was analyzed for boron. No action is recommended.

Field Duplicate Results

Samples TBB3(0-2) and TBB13(0-2) were identified as field duplicates. All criteria were met for both the total metals and TCLP analyses.

Laboratory Duplicate Results

Sample TBB3(0-2) was used as the in-house soil duplicate. Results for lead have been flagged by the laboratory for failing to meet the laboratory criterion for duplicate precision. The RPD for lead does meet the validation criterion for soils, therefore results may be accepted as reported.

Sample TBB3(0-2) was used as the in-house TCLP duplicate, and all criteria were met.

Laboratory Control Sample Results

The laboratory control sample (LCS) results were reviewed, and the criteria were met for all parameters.

ICP Serial Dilution Results

Sample TBB8(0-2) was used for the serial dilution analysis. The %D for calcium exceeded the validation criterion of < 15%. It is recommended to estimate (J^{12}) positive results that are greater than 10 X IDL for that analyte in all samples, due to the possibility of chemical or physical interferences.

The serial dilution was performed on sample TBB3(0-2) for the TCLP analysis. The %D for barium exceeded the validation criterion. It is recommended to estimate (J^{12}) positive results that are greater than 10 X IDL for that analyte in all samples, due to the possibility of chemical or physical interferences.

Furnace AA Results

Furnace AA QC data were reviewed. Duplicate injections and one-point analytical spikes were performed for each sample and analyte. All duplicate injections agreed within ± 20%. No action is required.

Analytical spike results were reviewed an the following problems were noted:

- Samples TBB7(0-2), TBB3(0-2), TBB13(0-2), an TBB2(0-2) has low recoveries for selenium (79%, 79%, 70%, and 79%, respectively). It is recommended to estimate (J^{10}) positive results for selenium in those samples.
- Sample ER-1 was over-recovered for thallium (118%). The sample result was non-detect, therefore no action is necessary.
- The Method of Standard Additions (MSA) was used to quantitate results for samples TBB13(0-2) and TBB7(0-2) for lead. The correlation coefficients for those samples was less than 0.995. Results shall be considered estimates (J^{11}) due to possible matrix interferences.

Instrument Detection Limits

Instrument Detection Limits (IDLs) were reviewed and found to meet all criteria.

Calculations and Transcriptions

A spot check of calculations and transcriptions was performed and no problems were noted.

Data Assessment

This case did not contain any dilution, reextraction, or reanalysis. No recommendations are necessary.

Organic Section prepared by:

Leigh Ann Evans

Leigh Ann Evans

Organic Data Validator

Inorganic Section prepared by:

JAS for

Karol Anne O'Leary

Karol Anne O'Leary

Inorganic Data Validator

Report reviewed and approved by:

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June A. Schneider

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David M. Mauro

David M. Mauro

Vice President

META Environmental, Inc.

TABLE 1:

TENTATIVELY IDENTIFIED COMPOUND SUMMARY

Table 1

META Environmental, Inc.
Tentatively Identified Compound Summary

Sample/TIC	TBB2(0-2)	TBB3(0-2)	TBB4(0-2)	TBB13(0-2)	TBB14(0-2)
ABN unknown	XXB	XXB	XXB	XXB	XX
Unknown hydrocarbon			XX		
Unknown alkane	XX	XX	XX	XX	XX
Unknown phthalate				XC	
Hydroxybenzoic acid methyl ester isomer					X
Octahydrophenanthrenol isomer			X	X	X

X = Tentatively Identified Compound (TIC) of this description was found in the sample.
XX = Multiple TICs of this description were found in the sample.
B = TIC of this description also found in associated blank.
C = Compound is a common laboratory contaminant.

META

GLOSSARY OF TERMS

GLOSSARY OF TERMS

(In alphabetical order)

ABN	Acid/Base-Neutral. An extraction and analytical method for the determination of semivolatile organic compounds, or a sample extracted and analyzed by that method. Also: BNA, semivolatile, SVOC.
ASP	Analytical Services Protocol. The NYSDEC statement of work.
BFB	Bromofluorobenzene. The compound used for initial tuning of the GC/MS system, prior to the analysis of volatile organic compounds.
CC	Continuing Calibration. A standard solution of organic compounds of known concentration is analyzed periodically to check the continued calibration of the system.
CF	Calibration Factor. In pesticide/PCB analyses, the calibration factor is the area of the standard compound divided by the concentration of that compound in the standard.
CCC	Calibration Check Compound. Any one of a defined subgroup of compounds present in the calibration standards. Used to check the acceptability of instrument performance.
CCV	Continuing Calibration Verfication. A standard solution of inorganic compounds of known concentration is analyzed periodically during sample analyses to verify the continued calibration of the instrument.
CLP	Contract Laboratory Program. The U.S. EPA program that defines analytical, QC, and reporting procedures to generate high quality, defensible data. CLP also has associated the most highly developed and regulated set of data validation guidelines, on which most data validation decisions are based.
COC	Chain of Custody. The documentation that details the history of a given sample, from the time it is collected until the time it has been analyzed.
CRDL	Contract Required Detection Limit. As defned by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the inorganic analyte of interest. Results below the CRDL are reported, but as estimated values.

GLOSSARY OF TERMS

CRQL	Contract Required Quantitation Limit. As defined by the U.S. EPA CLP, the minimum concentration at which the laboratory must be able to **accurately** quantitate the organic compound of interest. Results below the CRQL are reported, but as estimated values.
CRR	Contract Required Recovery range. As defined in the U.S. EPA Region I Functional Guidelines for Evaluating Organics Analyses (11/88), the acceptable recovery range for surrogate spike and matrix spike compounds.
DFTPP	Decafluorotriphenylphosphine. The compound used for initial tuning of the GC/MS system, prior to the analysis of semivolatile organic compounds.
EICP	Extracted Ion Current Profiles. Recommended by the U.S. EPA CLP and required by the NYSDEC ASP, the EICP displays the chromatographic peak specific to a m/z ion in a GC/MS analysis.
EPA	Environmental Protection Agency. The United States federal agency governing environmental concerns.
FP	False Positive. Used to designate as non-detect any compound incorrectly identified by the computer.
GC/MS	Gas Chromatography/Mass Spectrometry. An analytical technique used commonly for the determination of volatile and semivolatile organic compounds.
HT	Holding Time. The contractually defined time in which a sample must be extracted and/or analyzed by the analytical laboratory. Generally calculated from date of sampling.
IC	Initial Calibration. A series of standard solutions of organic compounds are analyzed at different concentration levels to define the initial linearity of the analytical system.
ICV	Initial Calibration Verification. A standard solution of inorganic compounds is analyzed immediately following instrument calibration to confirm the accuracy of that calibration.

GLOSSARY OF TERMS

IDL — Instrument Detection Limit. The lowest concentration at which a particular instrument can reliably detect a given analyte. As differs from the CRQL which is the lowest concentration at which a given analyte may be reliably quantitated. IDLs vary from instrument to instrument, and their determination is required by NYSDEC.

MS/MSD — Matrix Spike/Matrix Spike Duplicate. Prior to extraction, a known quantity of several analytes is spiked into a sample. The sample is analyzed in duplicate and %Recs and RPDs are calculated. Used to monitor matrix effects of the native sample upon the observed sample results.

MSB — Matrix Spike Blank. An aliquot of contaminant-free soil or water is spiked with a known quantity of several analytes. The MSB is analyzed and %Recs are calculated. Required by NYSDEC.

NEESA — Naval Energy and Environmental Support Activity. The regulatory agency for the Navy Installation Restoration Program.

NYSDEC — New York State Department of Environmental Conservation. The New York State agency governing environmental concerns.

%D — Percent Difference. A measure of the variance between two results, relative to the first result.

$$\%D = \frac{R_1 - R_2}{R_2} \times 100$$

where, R_1 is the first result and R_2 is the second result.

%Rec — Percent Recovery. A measure of the recovery of a known amount of analyte.

$$\%Rec = \frac{A_r}{A_s} \times 100$$

where, A_r is the amount recovered and A_s is the amount spiked. (When calculating matrix spike recoveries, the amount of analyte present in the unspiked sample must first be subtracted from the amount recovered).

GLOSSARY OF TERMS

%RSD — Percent Relative Standard Deviation. A measure of the variance between multiple results.

$$\%RSD = \frac{SD}{X} \times 100$$

where, SD is the standard deviation and X is the mean of the values.

PEST — Pesticide/PCB. An extraction and analytical method for the detremination of pesticide and/or PCB compounds, or a sample extracted and analyzed by that method. Also: Pest/PCB, PCB.

QA — Quality Assurance. The system of management that guarantees high quality data output.

QC — Quality Control. Any system of analytical tests and checks that monitors the progress of the data, leading to high quality data output. May also refer to the criteria by which those tests and checks are evaluated.

RPD — Relative Percent Difference. A measure of precision comparing two results.

$$RPD = \frac{D_1 - D_2}{(D_1 + D_2)/2} \times 100$$

where, D_1 is the result from sample 1 and D_2 is the result from sample 2.

RRF — Relative Response Factor. A measure of the response of the instrument to a given compound relative to the response of the instrument to a standard compound.

RT — Retention Time. In GC, the time it takes for a given analyte to move through the analytical system to the detector.

SD — Standard Deviation. In statistics, the standard deviation is a measure of the dispersion of all values around the mean value.

GLOSSARY OF TERMS

$$SD = \frac{\sqrt{(n\Sigma x^2 - (\Sigma x)^2)}}{n(n-1)}$$

where n = number of values and x = individual values.

SOW — Statement of Work. A document describing in detail the contractual obligations of the laboratory to the contractor with regards to analytical methods, reporting requirements, and QC, financial, and litigational obligations.

TAL — Target Analyte List. The list that defines the specific inorganic parameters of interest in a given analysis.

TCL — Target Compound List. The list that defines the specific organic compounds of interest in a given analysis.

TIC — Tentatively Identified Compound. Any non-TCL compound which is detected during sample analysis and identified by mass spectral matching alone.

VOA — Volatile Organic Compound Analysis. An analytical method for the determination of volatile organic compounds, or a sample analyzed by that method. Also: VOC.

VTSR — Verified Time of Sample Receipt. The date and time a group of samples is accepted at the analytical laboratory. Appears on the COC. NYSDEC calculates holding times from VTSR rather than from sampling date.

DATA VALIDATION RECOMMENDATION FOOTNOTES - ORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES

____	A blank space denotes no change to the laboratory reported result.
J^1, UJ^1	Holding times have been exceeded: estimate positive results (J^1) and non-detects (UJ^1). Refer to Section on "Holding Times" for details.
J^2, R^2	The initial or continuing calibration RF was low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on GC/MS "Calibration" for details.
J^3	The initial calibration %RSD was high: estimate positive results (J^3). Refer to Section on GC/MS "Calibration" for details.
J^4, UJ^4	The initial calibration %RSD was greater than 50% or the continuing calibration %D was greater than 25%: estimate positive results (J^4) and non-detects (UJ^4). Refer to Section on GC/MS "Calibration" for details.
U^5	Compound was present in the associated blank. Compound is present in the sample at a concentration less than the CRQL: report the CRQL (U^5). Refer to Section on "Blanks" for details.
U^6	Compound was present in the associated blank. Compound was present in the sample at a concentration higher than the CRQL but lower than the "action level": qualify the result by reporting the value followed by "U" (U^6). (i.e., the Limit of Detection has been raised for that compound, and the result is considered to be non-detect). Refer to Section on "Blanks" for details.
J^7	One or more of the surrogate standard %Recs was greater than the Contract Required Recovery range (CRR): estimate positive results within that area of the chromatogram (J^7). Refer to Section on "Surrogate Recoveries" for details.
J^8, UJ^8	One or more of the surrogate standard %Recs was less than the CRR: estimate positive results (J^8) and non-detects (UJ^8) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.
J^9	One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{10}	The Matrix Spike (MS) and/or Matrix Spike Duplicate (MSD) %Recs were not within the CRR for this compound: estimate positive results in the unspiked sample (J^{10}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{11}	The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{12}	The MS/MSD %RPD for this compound was high: estimate positive results in the unspiked sample (J^{12}). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.
J^{13}	Field duplicate %RPD was high for this compound: estimate positive results for this compound in the sample and duplicate (J^{13}). Refer to Section on "Field Duplicates" for details.
J^{14}, UJ^{14}	One value was non-detect and the other value was greater than the CRQL for this compound in the field duplicate pair: estimate the positive (J^{14}) and non-detected (UJ^{14}) results for that compound. Refer to Section on "Field Duplicates" for details.
J^{15}, UJ^{15}	One or more Internal Standard (IS) areas were not within the CRR: estimate positive results (J^{15}) and non-detects (UJ^{15}) for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{16}, R^5	One or more IS areas were grossly low: estimate (J^{16}) positive results and reject (R^5) non-detected results for all compounds quantitated from that IS. Refer to Section on "Internal Standard Performance" for details.
J^{17}, JN^{17}, R^6	% Breakdown for DDT exceeded 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.
J^{18}, JN^{18}, R^7	% Breakdown for endrin exceeded 20%: estimate positive results for endrin (J^{18}), and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

DATA VALIDATION RECOMMENDATION FOOTNOTES

J^{19} Initial calibration %RSD for this compound exceeded 10%: estimate positive results (J^{19}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{20} Continuing calibration %D for this compound exceeded 15% (quantitation column) and/or 20% (confirmation column): estimate positive results (J^{20}) for this compound in associated samples. Refer to Section on "Pesticide Instrument Performance" for details.

J^{21} The %RSD for this unspiked compound in the sample/MS/MSD set exceeded the advisory criterion of < 30% for aqueous samples or < 50% for soil samples: estimate (J^{21}) positive results for that compound in the sample, MS, and MSD. Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^1 Holding times have been grossly exceeded: reject all non-detects (R^1).

R^2 The initial or continuing calibration RFs were low: estimate positive results (J^2) and reject non-detects (R^2). Refer to Section on "GC/MS Calibration" for details.

R^3 One or more of the surrogate standard %Recs was less than 10%: estimate positive results (J^9) and reject non-detects (R^3) within that area of the chromatogram. Refer to Section on "Surrogate Recoveries" for details.

R^4 The MS and/or MSD %Recs were less than 10% for this compound: estimate positive results in the unspiked sample (J^{11}) and reject non-detects (R^4). Refer to Section on "Matrix Spike/Matrix Spike Duplicate" for details.

R^5 One or more IS areas were grossly low: reject non-detects (R^5). Refer to Section on "Internal Standard Performance" for details.

R^6 % Breakdown for DDT was greater than 20%: estimate positive results for DDT (J^{17}), DDD, and DDE (JN^{17}) in all associated samples. If no DDT is present, but DDD and/or DDE are present: reject the CRQL (R^6) for DDT. Refer to Section on "Pesticide Instrument Performance" for details.

R^7 % Breakdown for endrin was greater than 20%: estimate positive results for endrin (J^{18}) and endrin ketone (JN^{18}) in all associated samples. If no endrin is present, but endrin ketone and/or endrin aldehyde are present: reject the CRQL (R^7) for endrin. Refer to Section on "Pesticide Instrument Performance" for details.

SAMPLE DATA SHEETS:

VOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB2(0-2)			TBB3(0-2)			TBB4(0-2)			TBB13(0-2)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	13			14			12			13		
Bromomethane	13			14			12			13		
Vinyl Chloride	13			14			12			13		
Chloroethane	13			14			12			13		
Methylene Chloride	13	8J	13U5	14	8J	14U5	12	11J	12U5	13	8J	13U5
Acetone	13	13	J3,13U6	14	9J	J3,14U5	12	17	J3,17U6	13		
Carbon Disulfide	13			14			12			13		
1,1-Dichloroethene	13			14			12			13		
1,1-Dichloroethane	13			14			12			13		
1,2- Dichloroethene(total)	13			14			12			13		
Chloroform	13			14			12			13		
1,2-Dichloroethane	13			14			12			13		
2-Butanone	13			14			12			13		
1,1,1-Trichloroethane	13			14			12			13		
Carbon Tetrachloride	13			14			12			13		
Bromodichloromethane	13			14			12			13		
1,2-Dichloropropane	13			14			12			13		
cis-1,3-Dichloropropene	13			14			12			13		
Trichlorethene	13			14			12			13		
Dibromochloromethane	13			14			12			13		
1,1,2-Trichloroethane	13			14			12			13		
Benzene	13			14			12			13		
trans-1,3-Dichloropropene	13			14			12			13		
Bromoform	13			14			12			13		
4-Methyl-2-pentanone	13			14			12			13		
2-Hexanone	13			14			12			13		
Tetrachloroethene	13			14			12			13		
1,1,2,2-Tetrachloroethane	13			14			12			13		
Toluene	13			14			12			13		
Chlorobenzene	13			14			12			13		
Ethylbenzene	13			14			12			13		
Styrene	13			14			12			13		
Total Xylenes	13			14			12			13		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB14(0-2)			TBB3(0-2)MS			TBB3(0-2)MSD			ER-1		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	12			14			14			2		
Bromomethane	12			14			14			2		
Vinyl Chloride	12			14			14			2		
Chloroethane	12			14			14			2		
Methylene Chloride	12	9J	12U5	14	10J	14U5	14	10J	14U5	1		
Acetone	12	26	J3,26U6	14	15	J3,15U6	14	17	J3,17U6	5	12	
Carbon Disulfide	12			14			14			1		
1,1-Dichloroethene	12			14	*		14	*		1		
1,1-Dichloroethane	12			14			14			1		
1,2- Dichloroethene(total)	12			14			14			1		
Chloroform	12			14			14			1	0.6J	
1,2-Dichloroethane	12			14			14			1		
2-Butanone	12			14			14			5		
1,1,1-Trichloroethane	12			14			14			1		
Carbon Tetrachloride	12			14			14			1		
Bromodichloromethane	12			14			14			1		
1,2-Dichloropropane	12			14			14			1		
cis-1,3-Dichloropropene	12			14			14			1		
Trichlorethene	12			14	*		14	*		1		
Dibromochloromethane	12			14			14			1		
1,1,2-Trichloroethane	12			14			14			1		
Benzene	12			14	*		14	*		1		
trans-1,3-Dichloropropene	12			14			14			1		
Bromoform	12			14			14			1		
4-Methyl-2-pentanone	12			14			14			5		
2-Hexanone	12			14			14			5		
Tetrachloroethene	12			14			14			1		
1,1,2,2-Tetrachloroethane	12			14			14			1		
Toluene	12			14	*		14	*		1	2	
Chlorobenzene	12			14	*		14	*		1		
Ethylbenzene	12			14			14			1		
Styrene	12			14			14			1		
Total Xylenes	12			14			14			1	1	
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Water		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/L		

META

META Environmental, Inc.
Sample Data Sheets: Volatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TB-1											
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Chloromethane	2											
Bromomethane	2											
Vinyl Chloride	2											
Chloroethane	2											
Methylene Chloride	1	1										
Acetone	5											
Carbon Disulfide	1											
1,1-Dichloroethene	1											
1,1-Dichloroethane	1											
1,2- Dichloroethene(total)	1											
Chloroform	1											
1,2-Dichloroethane	1											
2-Butanone	5											
1,1,1-Trichloroethane	1											
Carbon Tetrachloride	1											
Vinyl Acetate	5											
Bromodichloromethane	1											
1,2-Dichloropropane	1											
cis-1,3-Dichloropropene	1											
Trichlorethene	1											
Dibromochloromethane	1											
1,1,2-Trichloroethane	1											
Benzene	1											
trans-1,3-Dichloropropene	1											
Bromoform	1											
4-Methyl-2-pentanone	5											
2-Hexanone	5											
Tetrachloroethene	1											
1,1,2,2-Tetrachloroethane	1											
Toluene	1											
Chlorobenzene	1											
Ethylbenzene	1											
Styrene	1											
Total Xylenes	1											

Dilution Factor: 1
Matrix: Water
Units: µg/L

META

SAMPLE DATA SHEETS:

SEMIVOLATILE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB2(0-2)			TBB3(0-2)			TBB4(0-2)			TBB13(0-2)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	450			440			400			440		
bis(2-Chloroethyl)ether	450			440			400			440		
2-Chlorophenol	450			440			400			440		
1,3-Dichlorobenzene	450			440			400			440		
1,4-Dichlorobenzene	450			440			400			440		
1,2-Dichlorobenzene	450			440			400			440		
2-Methylphenol	450			440			400			440		
2,2'-oxybis(1-Chloropropane)	450			440			400			440		
4-Methylphenol	450			440			400			440		
n-Nitroso-di-n-propylamine	450			440			400			440		
Hexachloroethane	450			440			400			440		
Nitrobenzene	450			440			400			440		
Isophorone	450			440			400			440		
2-Nitrophenol	450			440			400			440		
2,4-Dimethylphenol	450			440			400			440		
bis(2-Chloroethoxy)methane	450			440			400			440		
2,4-Dichlorophenol	450			440			400			440		
1,2,4-Trichlorobenzene	450			440			400			440		
Naphthalene	450			440			400			440		
4-Chloroaniline	450			440			400			440		
Hexachlorobutadiene	450			440			400			440		
4-Chloro-3-methylphenol	450			440			400			440		
2-Methylnaphthalene	450			440			400			440		
Hexachlorocyclopentadiene	450			440		UJ4	400		UJ4	440		
2,4,6-Trichlorophenol	450			440			400			440		
2,4,5-Trichlorophenol	1100			1100			960			1100		
2-Chloronaphthalene	450			440			400			440		
2-Nitroaniline	1100			1100			960			1100		
Dimethylphthalate	450			440			400			440		
Acenaphthylene	450			440			400			440		
2,6-Dinitrotoluene	450			440			400			440		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB2(0-2)			TBB3(0-2)			TBB4(0-2)			TBB13(0-2)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	1100			1100			960			1100		
Acenaphthene	450			440			400			440		
2,4-Dinitrophenol	1100			1100			960			1100		
4-Nitrophenol	1100		UJ4	1100			960			1100		UJ4
Dibenzofuran	450			440			400			440		
2,4-Dinitrotoluene	450			440			400			440		
Diethylphthalate	450			440			400			440		
4-Chlorophenyl-phenylether	450			440			400			440		
Fluorene	450			440			400			440		
4-Nitroaniline	1100			1100			960			1100		
4,6-Dinitro-2-methylphenol	1100			1100			960			1100		
n-Nitrosodiphenylamine	450			440			400			440		
4-Bromophenyl-phenylether	450			440			400			440		
Hexachlorobenzene	450			440			400			440		
Pentachlorophenol	1100			1100			960			1100		
Phenanthrene	450			440			400			440		
Anthracene	450			440			400			440		
Carbazole	450			440			400			440		
di-n-Butylphthalate	450			440			400			440		
Fluoranthene	450			440			400			440		
Pyrene	450			440			400			440		
Butylbenzylphthalate	450			440			400			440		
3,3'-Dichlorobenzidine	450			440			400			440		
Benzo(a)anthracene	450			440			400			440		
Chrysene	450			440			400			440		
bis(2-Ethylhexyl)phthalate	450			440			400			440		
di-n-Octylphthalate	450			440			400			440		
Benzo(b)fluoranthene	450			440			400			440		
Benzo(k)fluoranthene	450			440			400			440		
Benzo(a)pyrene	450			440			400			440		
Indeno(1,2,3-cd)pyrene	450			440			400			440		
Dibenzo(a,h)anthracene	450			440			400			440		
Benzo(g,h,i)perylene	450			440			400			440		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB14(0-2)			TBB3(0-2)MS			TBB3(0-2)MSD			ER-1		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
Phenol	380			440	*	J3	440	*	J3	10		
bis(2-Chloroethyl)ether	380			440			440			10		
2-Chlorophenol	380			440	*		440	*		10		
1,3-Dichlorobenzene	380			440			440			10		
1,4-Dichlorobenzene	380			440	*		440	*		10		
1,2-Dichlorobenzene	380			440			440			10		
2-Methylphenol	380			440			440			10		
2,2'-oxybis(1-Chloropropane)	380			440			440			10		
4-Methylphenol	380			440			440			10		
n-Nitroso-di-n-propylamine	380			440	*		440	*		10		
Hexachloroethane	380			440			440			10		
Nitrobenzene	380			440			440			10		
Isophorone	380			440			440			10		
2-Nitrophenol	380			440			440			10		
2,4-Dimethylphenol	380			440			440			10		
bis(2-Chloroethoxy)methane	380			440			440			10		
2,4-Dichlorophenol	380			440			440			10		
1,2,4-Trichlorobenzene	380			440	*		440	*		10		
Naphthalene	380			440			440			10		
4-Chloroaniline	380			440			440			10		
Hexachlorobutadiene	380			440			440			10		
4-Chloro-3-methylphenol	380			440	*		440	*		10		
2-Methylnaphthalene	380			440			440			10		
Hexachlorocyclopentadiene	380		UJ4	440		UJ4	440		UJ4	10		UJ4
2,4,6-Trichlorophenol	380			440			440			10		
2,4,5-Trichlorophenol	930			1100			1100			26		
2-Chloronaphthalene	380			440			440			10		
2-Nitroaniline	930			1100			1100			26		
Dimethylphthalate	380			440			440			10		
Acenaphthylene	380			440			440			10		
2,6-Dinitrotoluene	380			440			440			10		

META

META Environmental, Inc.
Sample Data Sheets: Semivolatile Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG: TBB80

Sample ID:	TBB14(0-2)			TBB3(0-2)MS			TBB3(0-2)MSD			ER-1		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
3-Nitroaniline	930			1100			1100			26		
Acenaphthene	380			440	*		440	*		10		
2,4-Dinitrophenol	930			1100			1100			26		
4-Nitrophenol	930			1100	*	J3	1100	*	J3	26		
Dibenzofuran	380			440			440			10		
2,4-Dinitrotoluene	380			440	*		440	*		10		
Diethylphthalate	380			440			440			10		
4-Chlorophenyl-phenylether	380			440			440			10		
Fluorene	380			440			440			10		
4-Nitroaniline	930			1100			1100			26		
4,6-Dinitro-2-methylphenol	930			1100			1100			26		
n-Nitrosodiphenylamine	380			440			440			10		
4-Bromophenyl-phenylether	380			440			440			10		
Hexachlorobenzene	380			440			440			10		
Pentachlorophenol	930			1100	*		1100	*		26		
Phenanthrene	380			440			440			10		
Anthracene	380			440			440			10		
Carbazole	380			440			440			10		
di-n-Butylphthalate	380			440			440			10		
Fluoranthene	380			440			440			10		
Pyrene	380			440	*		440	*		10		
Butylbenzylphthalate	380			440			440			10		
3,3'-Dichlorobenzidine	380			440			440			10		
Benzo(a)anthracene	380			440			440			10		
Chrysene	380			440			440			10		
bis(2-Ethylhexyl)phthalate	380			440			440			10		
di-n-Octylphthalate	380			440			440			10		
Benzo(b)fluoranthene	380			440			440			10		
Benzo(k)fluoranthene	380			440			440			10		
Benzo(a)pyrene	380			440			440			10		
Indeno(1,2,3-cd)pyrene	380			440			440			10		
Dibenzo(a,h)anthracene	380			440			440			10		
Benzo(g,h,i)perylene	380			440			440			10		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Water		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/L		

META

SAMPLE DATA SHEETS:

PESTICIDE ORGANIC COMPOUNDS

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
Case: TBB80

Sample ID:	TBB2(0-2)			TBB3(0-2)			TBB4(0-2)			TBB13(0-2)		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	2.3			2.3			2.1			2.3		
beta-BHC	2.3			2.3			2.1			2.3		
delta-BHC	2.3			2.3			2.1			2.3		
gamma-BHC (Lindane)	2.3			2.3			2.1			2.3		
Heptachlor	2.3			2.3			2.1			2.3		
Aldrin	2.3			2.3			2.1			2.3		
Heptachlor epoxide	2.3			2.3			2.1			2.3		
Endosulfan I	2.3			2.3			2.1			2.3		
Dieldrin	4.4			4.5			4.0			4.4		
4,4'-DDE	4.4			4.5			4.0			4.4		
Endrin	4.4			4.5			4.0			4.4		
Endosulfan II	4.4			4.5			4.0			4.4		
4,4'-DDD	4.4			4.5			4.0			4.4		
Endosulfan sulfate	4.4			4.5			4.0			4.4		
4,4'-DDT	4.4			4.5			4.0			4.4		
Methoxychlor	23			23			21			23		
Endrin ketone	4.4			4.5			4.0			4.4		
Endrin aldehyde	4.4			4.5			4.0			4.4		
alpha-Chlordane	2.3			2.3			2.1			2.3		
gamma-Chlordane	2.3			2.3			2.1			2.3		
Toxaphene	230			230			210			230		
Aroclor 1016	44			45			40			44		
Aroclor 1221	89			91			81			89		
Aroclor 1232	44			45			40			44		
Aroclor 1242	44			45			40			44		
Aroclor 1248	44			45			40			44		
Aroclor 1254	44			45			40			44		
Aroclor 1260	44			45			40			44		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Soil		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Pesticide Organics Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
Case: TBB80

Sample ID:	TBB14(0-2)			TBB3(0-2)MS			TBB3(0-2)MSD			ER-1		
	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated	CRQL	Reported	Validated
alpha-BHC	2.0			2.3			2.2			0.052		
beta-BHC	2.0			2.3			2.2			0.052		
delta-BHC	2.0			2.3			2.2			0.052		
gamma-BHC (Lindane)	2.0			2.3	*	J18	2.2	*		0.052		
Heptachlor	2.0			2.3	*		2.2	*		0.052		
Aldrin	2.0			2.3	*		2.2	*		0.052		
Heptachlor epoxide	2.0			2.3			2.2			0.052		
Endosulfan I	2.0			2.3			2.2			0.052		
Dieldrin	3.9			4.4	*		4.4	*	J18	0.10		
4,4'-DDE	3.9			4.4			4.4			0.10		
Endrin	3.9			4.4	*		4.4	*		0.10		
Endosulfan II	3.9			4.4			4.4			0.10		
4,4'-DDD	3.9			4.4			4.4			0.10		
Endosulfan sulfate	3.9			4.4			4.4			0.10		
4,4'-DDT	3.9			4.4	*		4.4	*	J18	0.10		
Methoxychlor	20			23			22			0.52		
Endrin ketone	3.9			4.4			4.4			0.1		
Endrin aldehyde	3.9			4.4			4.4			0.1		
alpha-Chlordane	2.0			2.3			2.2			0.052		
gamma-Chlordane	2.0			2.3			2.2			0.052		
Toxaphene	200			230			220			5.2		
Aroclor 1016	39			44			44			1.0		
Aroclor 1221	80			90			88			2.1		
Aroclor 1232	39			44			44			1.0		
Aroclor 1242	39			44			44			1.0		
Aroclor 1248	39			44			44			1.0		
Aroclor 1254	39			44			44			1.0		
Aroclor 1260	39			44			44			1.0		
Dilution Factor:	1			1			1			1		
Matrix:	Soil			Soil			Soil			Water		
Units:	µg/Kg			µg/Kg			µg/Kg			µg/L		

META

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

DATA VALIDATION RECOMMENDATION FOOTNOTES - INORGANICS

_____	A blank space denotes no change to the laboratory reported results.
J[1], UJ[1]	Holding times have been exceeded or samples were improperly preserved prior to analysis: estimate positive results (J[1]) and non-detects (UJ[1]). Refer to Section on "Holding Times" for details.
J[2], UJ[2]	Linearity was poor near the CRDL (low levels). Estimate the results. Refer to Section on "Calibration Verification Results" for details.
U[3]	The compound was present in the associated blank. The sample result was less than the action level of 5x the maximum concentration found in any blank, and has been rejected. Alternatively, the associated blank had a value below the negative IDL. The detection limit and/or positive results may be biased low. Refer to Section on "Laboratory Blank Results" for details.
J[4], UJ[4]	The ICS recovery for an element is outside of criteria or interelement interferences were indicated. The reported results or detection limit is estimated. See the Section on "ICP Inference Check Sample Results" for details.
J[5], UJ[5]	The recovery of an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Matrix Spike Results" for details.
J[6]	The RPD for laboratory duplicate sample analysis results exceeded 20% (35% for soils) for this analyte. The reported results are estimated See the Section on "Laboratory Duplicate Results" for details.
J[7]	The RPD for the field duplicate sample analysis results exceeded 30% (50% for soils) for this analyte. The reported results are estimated. See the Section on "Field Duplicate Results" for details.
J[8], UJ[8]	The LCS recovery for an element is outside of criteria. The reported results or detection limit is estimated. See the Section on "Laboratory Control Sample Results" for details.
J[9]	The %RSD of duplicate injections for GFAA analysis do not agree within ± 20%. The sample results are estimatedd. See the Section on "Furnace AA Results" for details.

J^{10}, UJ^{10}	The recovery of analytical spikes for GFAA analysis is outside of control limits. Positive sample results or detection limits are estimated. See the Section on "Furnace AA Results" for details.
J^{11}	The sample required MSA which either was not performed, was performed incorrectly, or the correlation coefficient was < 0.995. The positive results are estimated. See the Section on "Furnace AA Results" for details.
J^{12}, UJ^{12}	The results of the ICP Serial Dilution experiment was outside of criteria. Positive sample results or detection limits are estimated. See the Section on "ICP Serial Dilution Results" for details.
J^{13}	Element should have been run by GFAA. The reported value is an estimate.
J^{14}	The sample was less than 50% solids. Analysis using a method intended for soils might not give representative results. The results are estimated.
R^1	Holding times have been grossly exceeded. Reject all non-detects.
R^2	Instrument calibration was either not performed or not performed properly. Reject all associated data.
R^3	The ICS recovery for an element was less than 50% or severe interelement interferences were detected. Reject all associated data.
R^4	The matrix spike recovery for an element was less than 30%. Reject all associated data.
R^5	The recovery of an element in the aqueous LCS was less than 50%. Reject all associated data.
R^6	The analytical spike recovery for GFAA analysis was less than 10%. Reject the sample result.
R^7	The MSA did not meet criteria. Reject the sample result.
R^8	The ICP Serial Dilution did not meet criteria. Reject all associated data.

SAMPLE DATA SHEETS:

INORGANIC ANALYTES

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG No.: TBB80

Sample ID:	IDL	TBB2(0-2)			TBB3(0-2)			TBB3(2-2.5)			TBB7(0-2)		
		Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	15400			17600			16900			14400		
Antimony	12.3	3	UN	UJ5	3.3	UN	UJ5	2.9	UN	UJ5	4.1	BN	4.1U3
Arsenic	0.5	1.9	BN	J5	3.5	NS	J5	3.5	NS	J5	3.6	NS	J5
Barium	0.9	19.4	B		39	B		47.9			34	B	
Beryllium	0.3	0.53	B	0.53U3	0.77	B	0.77U3	0.68	B	0.68U3	0.69	B	0.69U3
Boron	8.8	2.2	U		6.2	B	6.2U3	3.8	B	3.8U3	2.5	B	2.5U3
Cadmium	1.8	0.44	U		0.48	U		0.42			0.35	U	
Calcium	11.6	102	BE	J12	258	BE	J12	283	BE	J12	314	BE	J12
Chromium	3.1	14			19.3			21.5			16.5		
Cobalt	2.6	4.4	B	4.4U3	6	B	6.0U3	8	B		5.7	B	5.7U3
Copper	1.6	5.4	B		17.9			24.2			5.4		
Iron	2.2	13800			16800			17200			13700		
Lead	0.6	12.3	NS*	J5	17.5	NS*	J5	6.5	NS*	J5	10.6	N*+	J5,11
Magnesium	14.6	1410			2460			3460			2010		
Manganese	0.7	63.6	E		172	E		156	E		124	E	
Mercury	0.1	0.09	U		0.11	U		0.04	B		0.06	U	
Nickel	8	5.2	B	5.2U3	8.3	B	8.3U3	11.9		11.9U3	7.7		7.7U3
Potassium	290	229	B		669	B		1430			444	B	
Selenium	0.8	0.48	BNW	0.48U3	0.89	BNW	0.89U3	1.3	NS	1.3U3	0.44	BNW	0.44U3
Silver	2.9	0.71	U		0.77	U		0.67	U		0.56	U	
Sodium	16.1	26.9	B	26.9U3	31.1	B	31.1U3	38.3	B	38.3U3	24	B	24.0U3
Thallium	0.8	0.21	U		0.19	U		0.21	U		0.18	U	
Vanadium	5	25.2			33.3			35.1			28.4		
Zinc	1.5	19.7			25.6			26			21.7		
Cyanide	3.7	0.23	U		0.23	U		0.24	U		0.2	U	
Dilution Factor:		1			1			1			1		
Matrix:		Soil			Soil			Soil			Soil		
Units:		mg/Kg			mg/Kg			mg/Kg			mg/Kg		

META

META Environmental, Inc.
Sample Data Sheets: Inorganic Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG No.: TBB80

Sample ID:	IDL	TBB13(0-2) Reported		Validated	ER-1 Reported		Validated	Reported		Validated	Reported		Validated
Aluminum	12.8	16900											
Antimony	12.3	3	UN	UJ5									
Arsenic	0.5	3.4	NS	J5									
Barium	0.9	35.6	B										
Beryllium	0.3	0.77	B	0.77U3									
Boron	8.8	2.7	B	2.7U3	21.9	B							
Cadmium	1.8	0.43	U										
Calcium	11.6	227	BE	J12	54.2	B							
Chromium	3.1	19.7											
Cobalt	2.6	6.1	B	6.1U3									
Copper	1.6	18.8			2.9	B							
Iron	2.2	15600			20.3	B							
Lead	0.6	11.8	N* +	J5,11									
Magnesium	14.6	2490											
Manganese	0.7	173	E										
Mercury	0.1	0.09	U										
Nickel	8	9.4	B	9.4U3									
Potassium	290	684	B										
Selenium	0.8	0.82	BNW	0.82U3	1.2	B							
Silver	2.9	0.7	U										
Sodium	16.1	30.8	B	30.8U3	96.7	B							
Thallium	0.8	0.21	U			W							
Vanadium	5	33.4											
Zinc	1.5	24.6			3.7	B							
Cyanide	3.7	0.24	U		2.2	B							

Dilution Factor:	1	1
Matrix:	Soil	Aqueous
Units:	mg/Kg	µg/L

META

SAMPLE DATA SHEETS:

TCLP INORGANIC ANALYTES

META Environmental, Inc.
Sample Data Sheets: TCLP Inorganic Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG No.: TBB80

Sample ID:		TBB2(0-2)			TBB3(0-2)			TBB3(2-2.5)			TBB7(0-2)		
	IDL	Reported		Validated	Reported		Validated	Reported		Validated	Reported		Validated
Arsenic	32.1												
Barium	0.9	174	BE	J12	142	BE	J12	129	BE	J12	454	E	J12
Cadmium	1.8												
Chromium	3.1										5.7	B	5.7U3
Lead	0.6	6		6.0U3	20.5								
Mercury	0.1							0.85	B	0.85U3	4.1		4.1U3
Selenium	33.3												
Silver	2.9												
Dilution Factor:		1			1			1			1		
Matrix:		Leachate			Leachate			Leachate			Leachate		
Units:		µg/L			µg/L			µg/L			µg/L		

META

META Environmental, Inc.
Sample Data Sheets: TCLP Inorganic Analysis

Reference: NVDV930607A
Site: Naval Submarine Base, Groton, CT
SDG No.: TBB80

Sample ID:		TBB13(0-2)								
	IDL	Reported		Validated	Reported	Validated	Reported	Validated	Reported	Validated
Arsenic	32.1									
Barium	0.9	214	E	J12						
Cadmium	1.8									
Chromium	3.1									
Lead	0.6									
Mercury	0.1									
Selenium	33.3									
Silver	2.9									

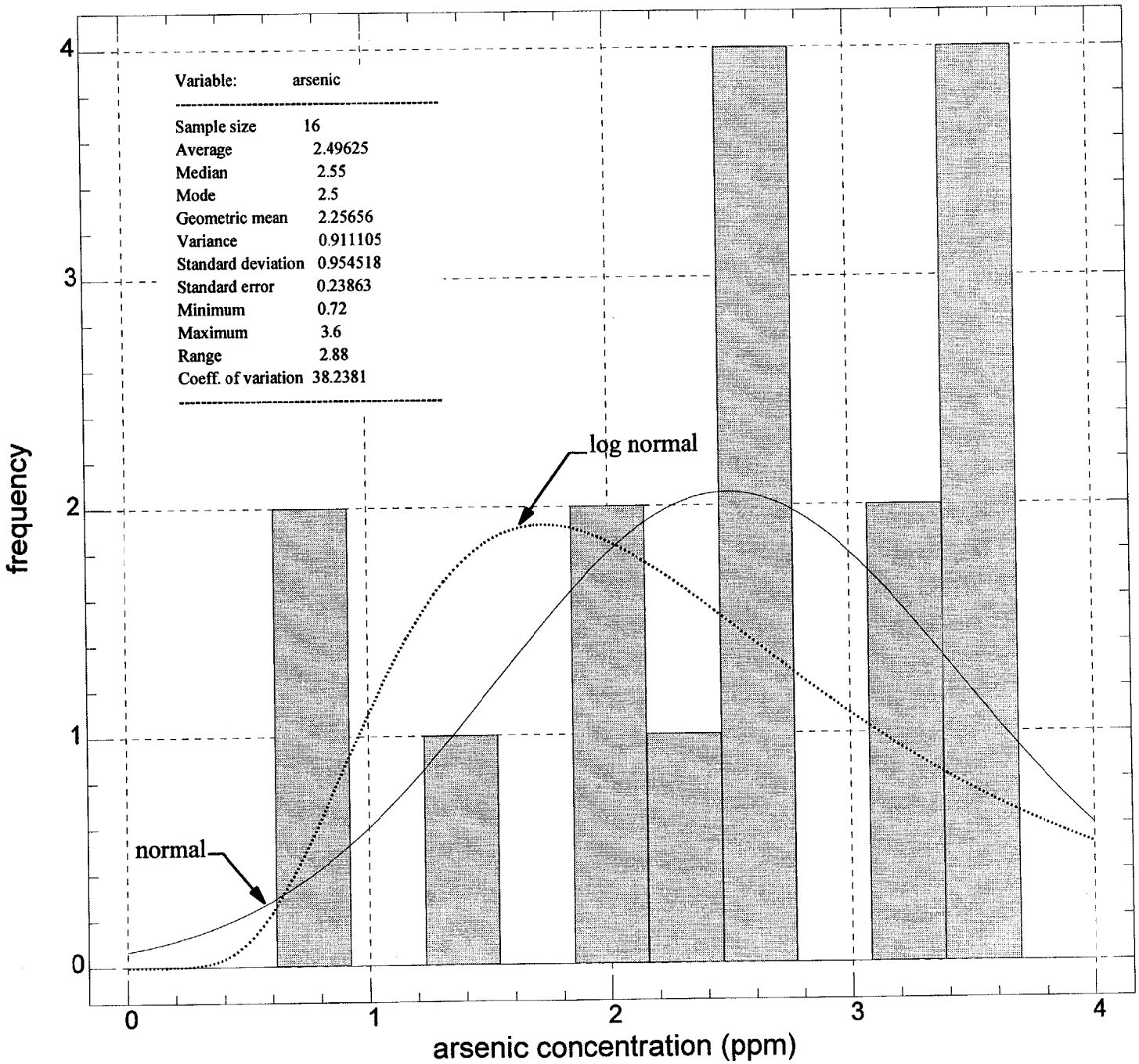
Dilution Factor: 1
Matrix: Leachate
Units: µg/L

META

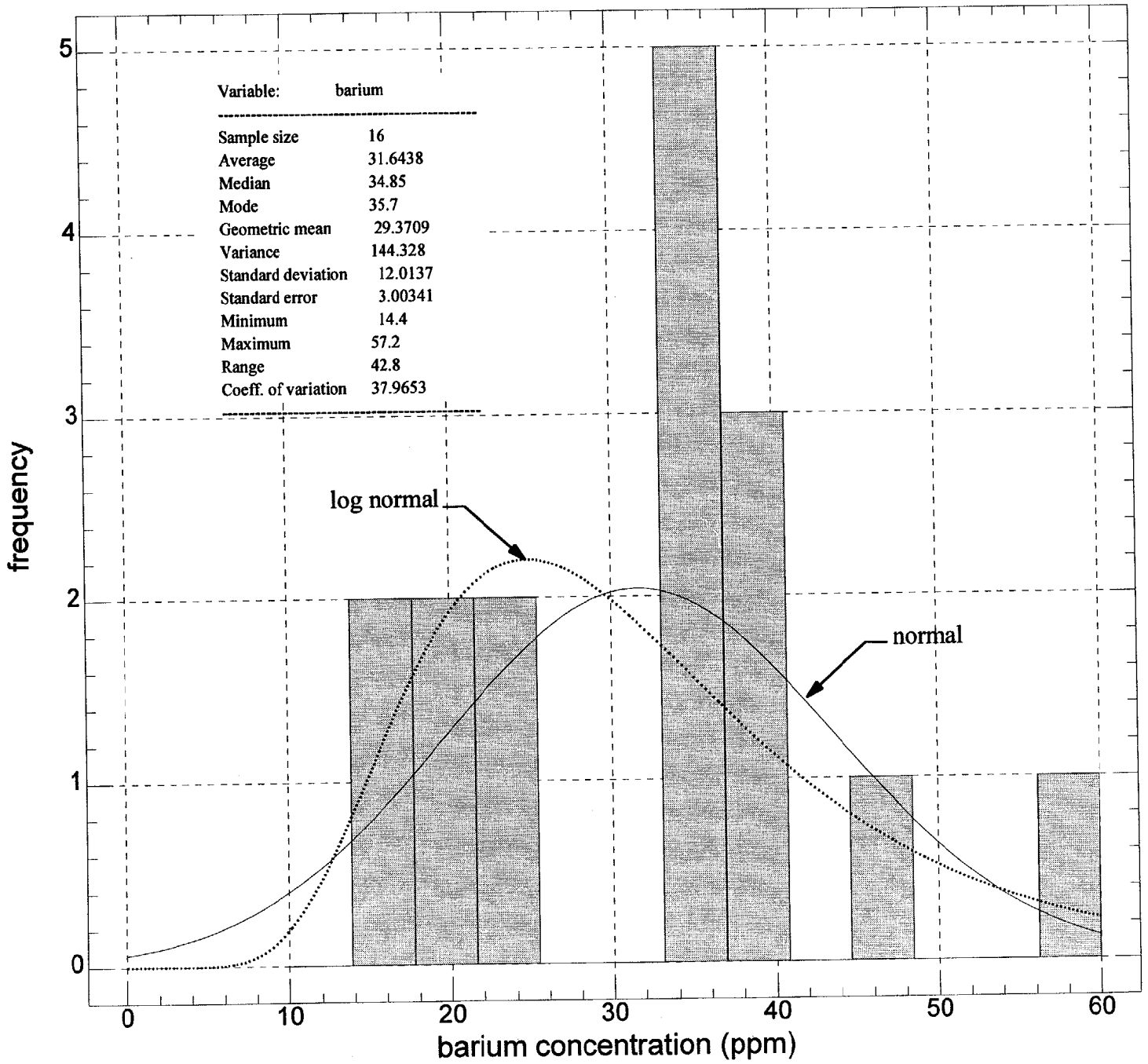
APPENDIX E

HISTOGRAMS

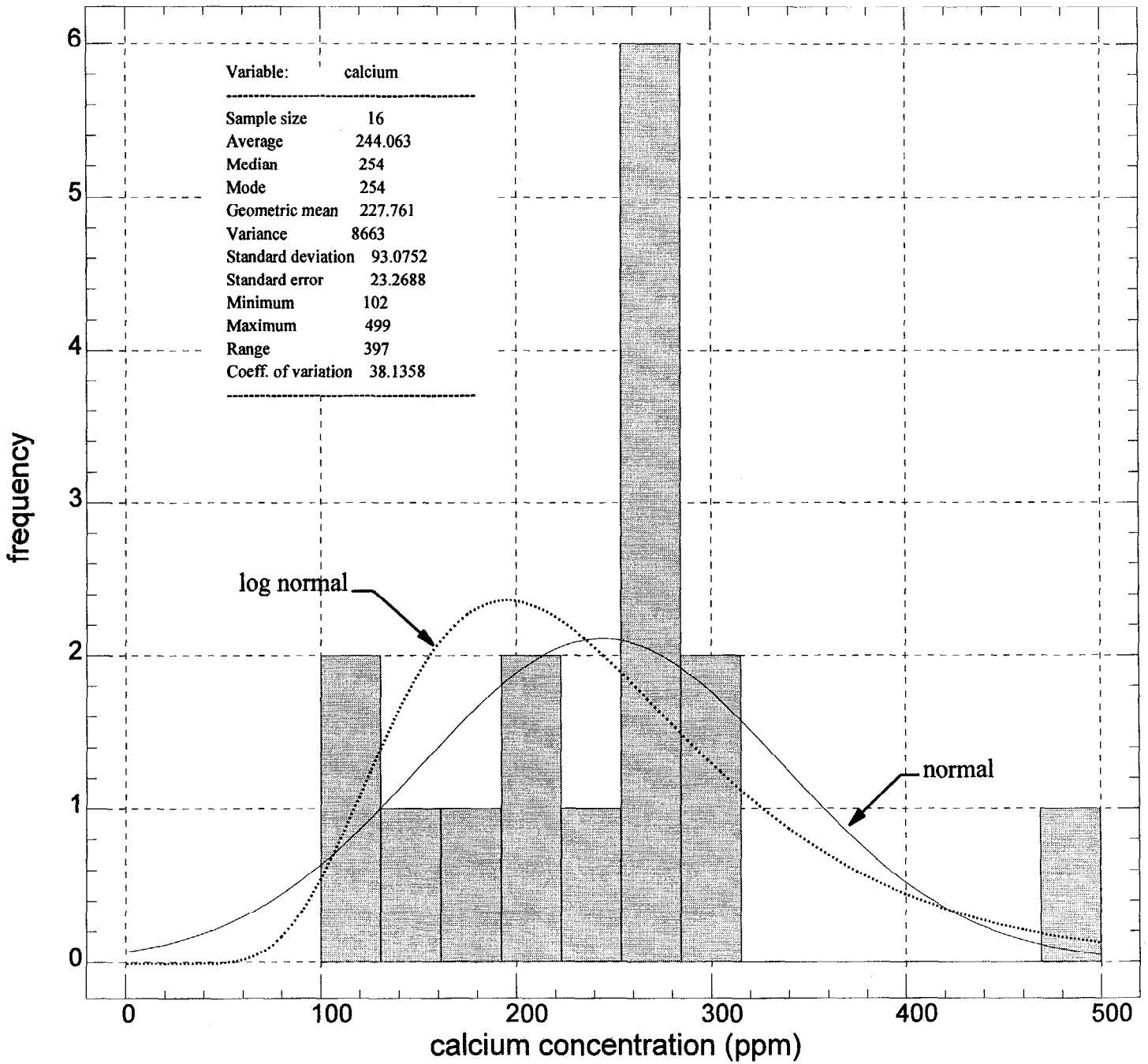
Arsenic - Frequency Histogram



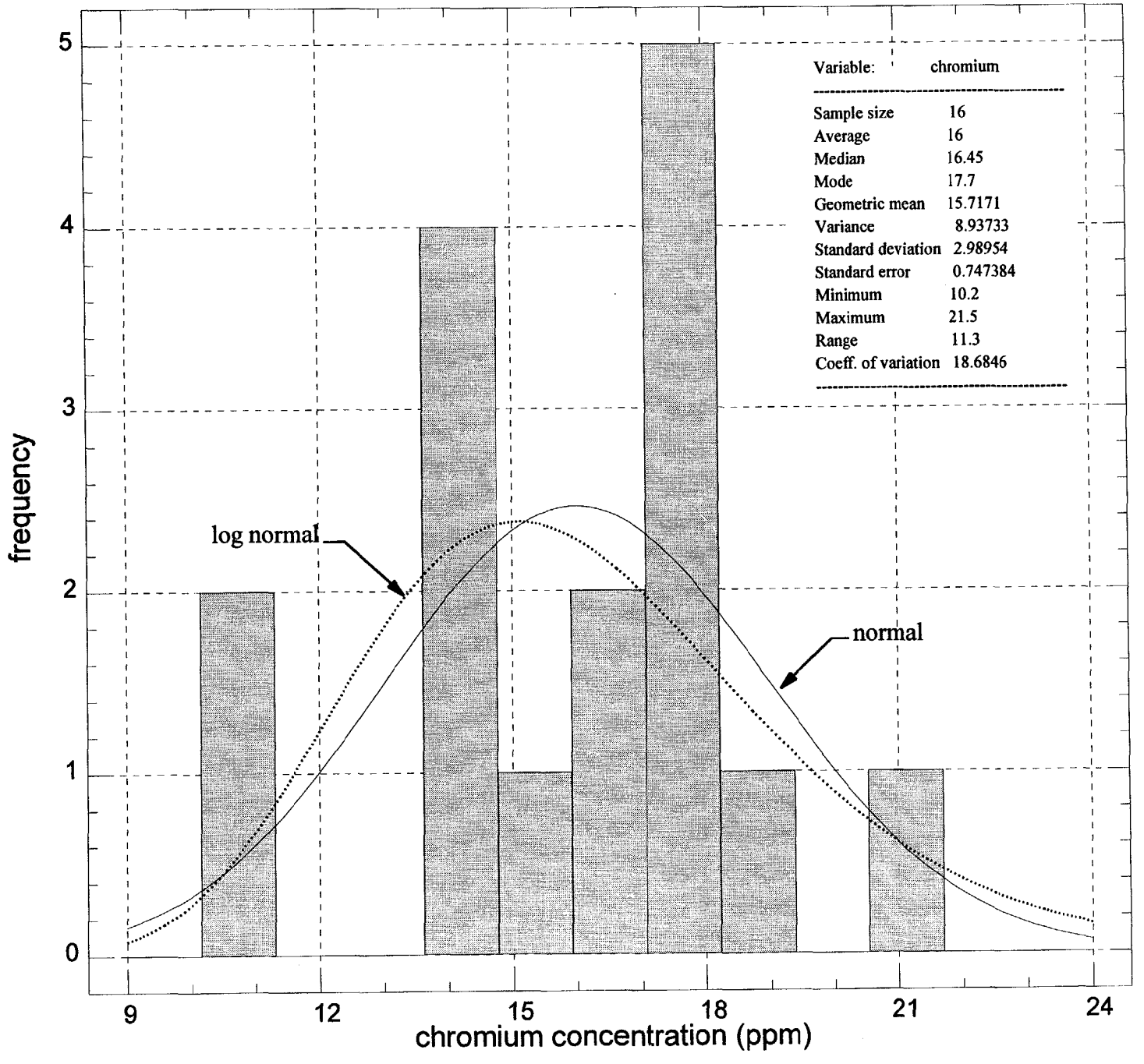
Barium - Frequency Histogram



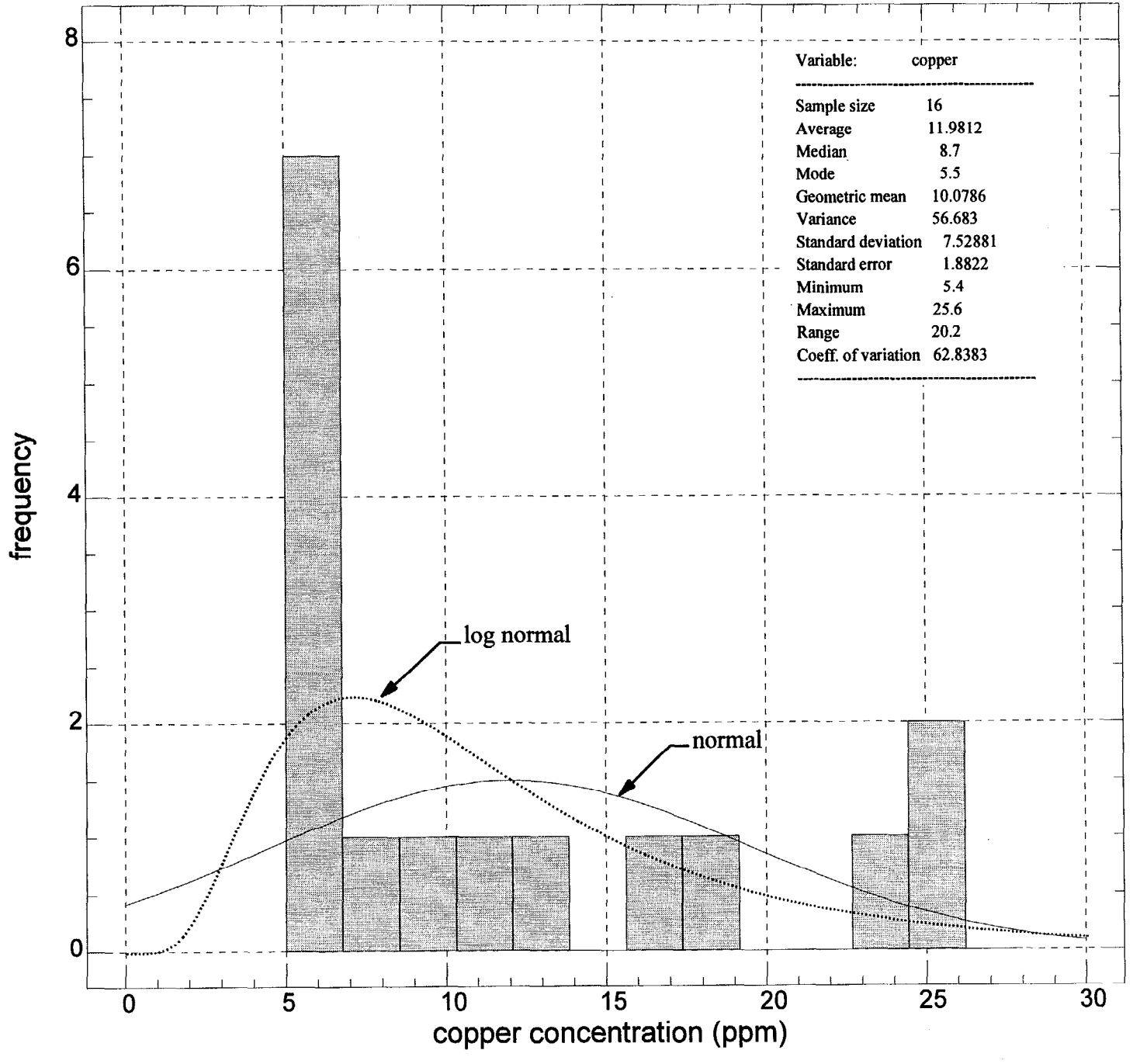
Calcium - Frequency Histogram



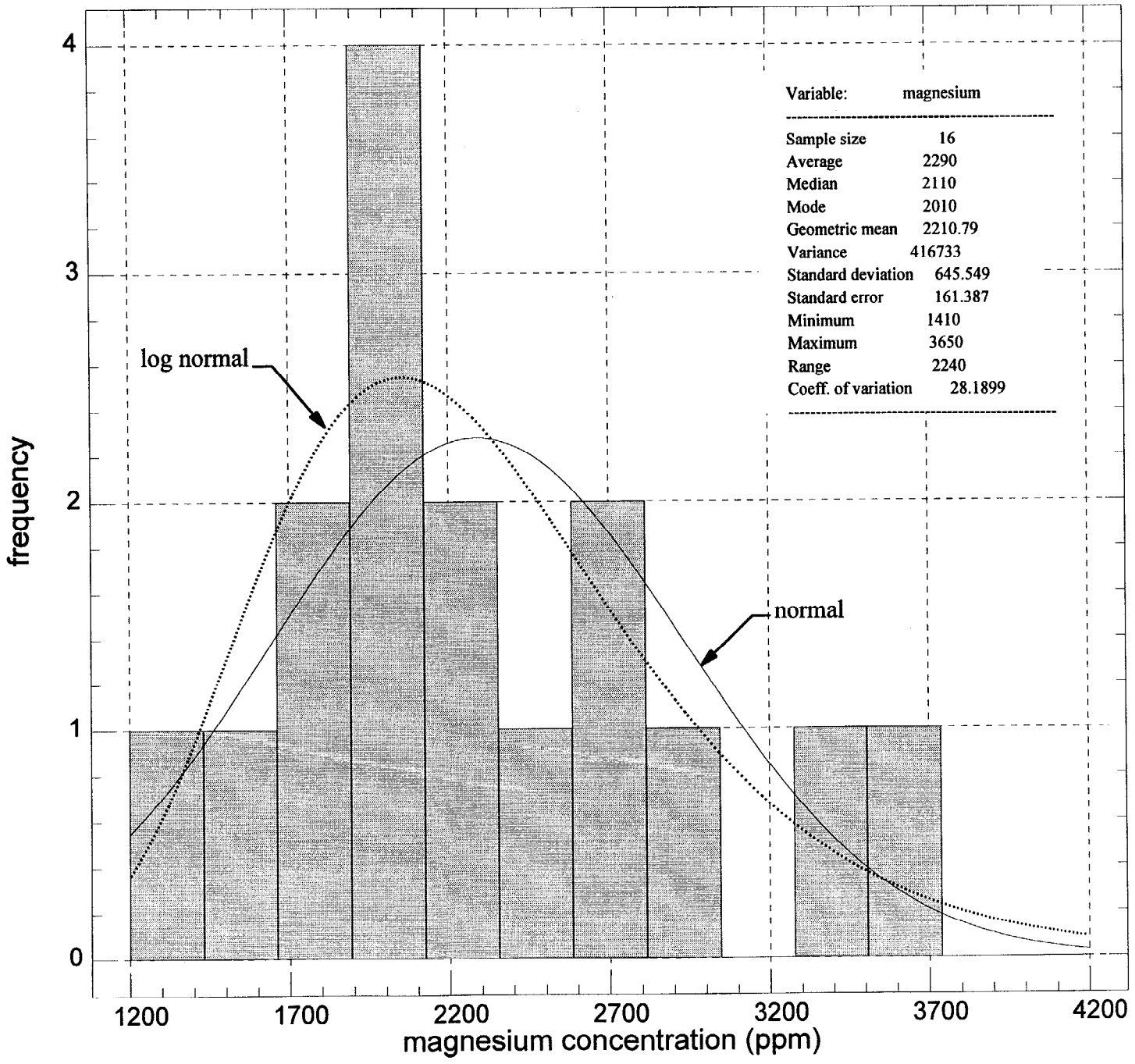
Chromium - Frequency Histogram



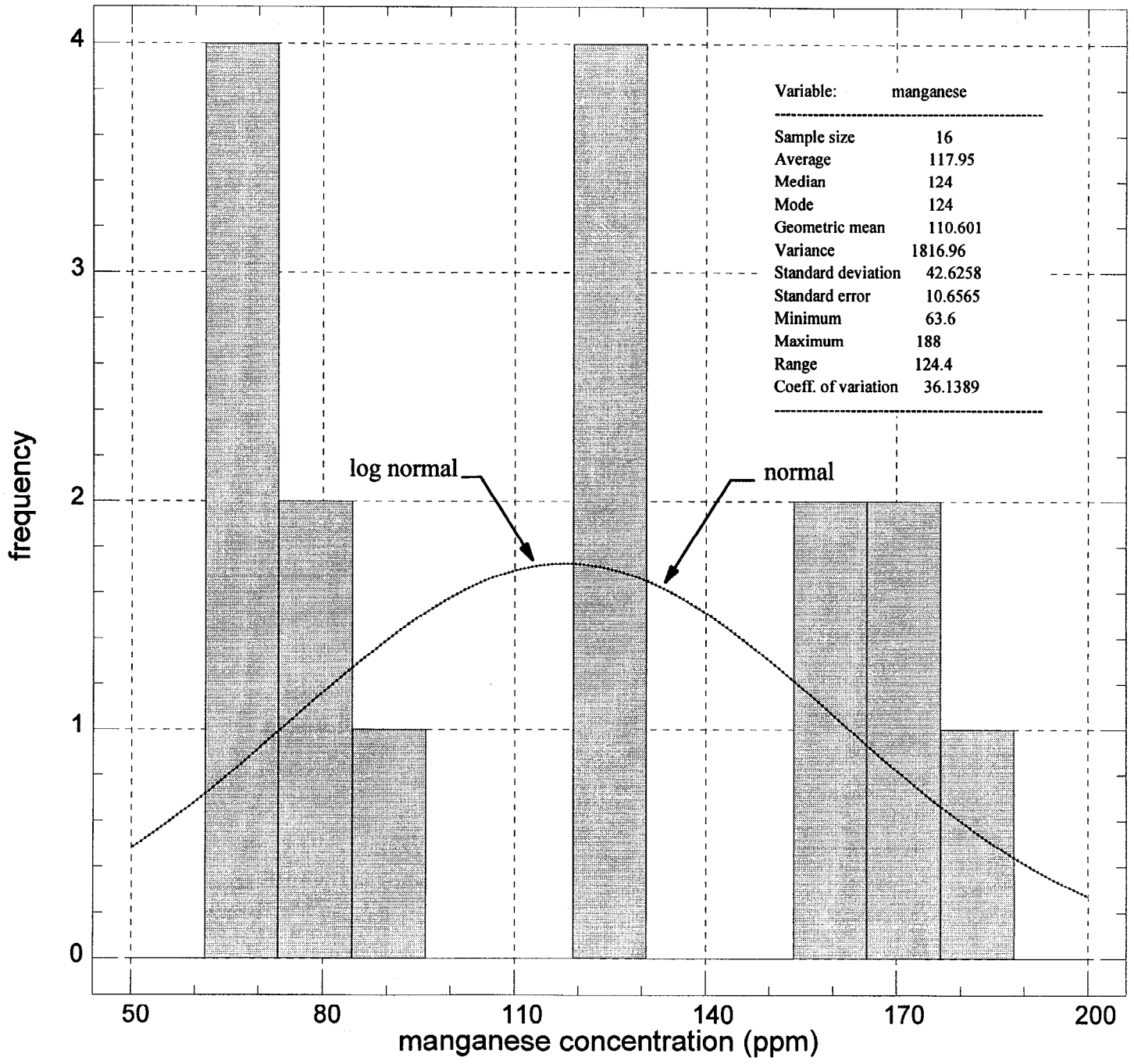
Copper - Frequency Histogram



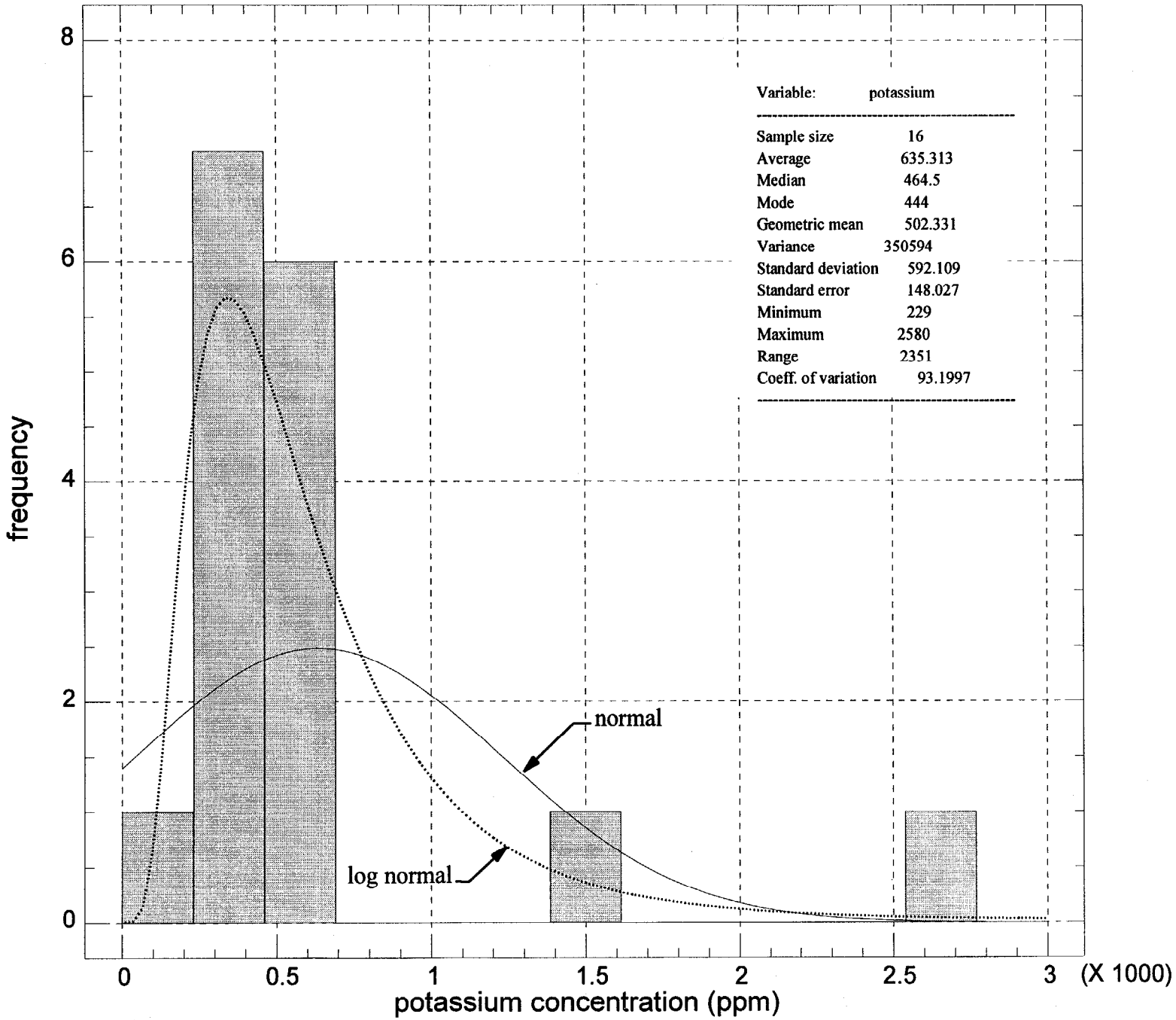
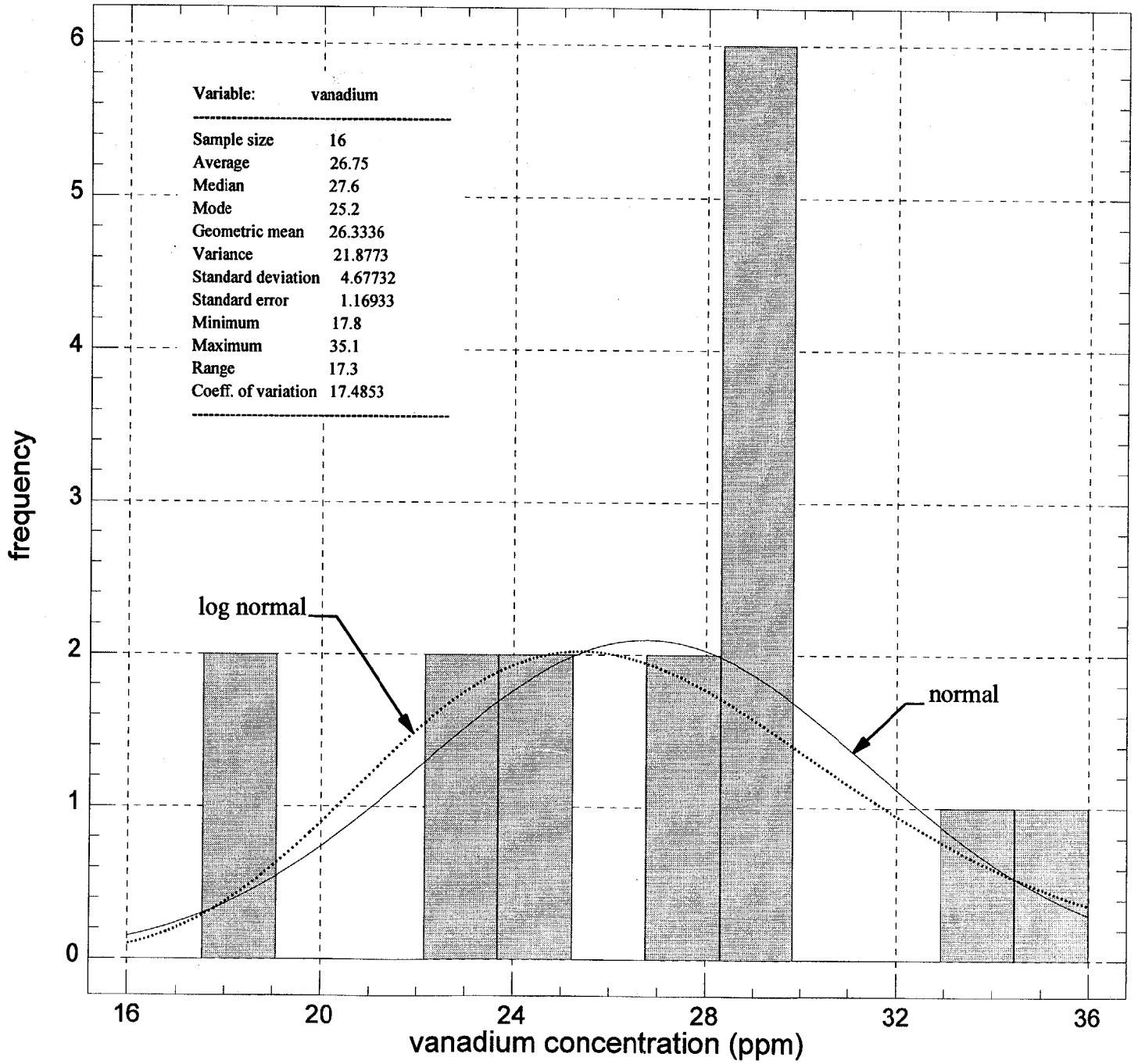
Magnesium - Frequency Histogram



Manganese - Frequency Histogram



Potassium - Frequency Histogram



Vanadium - Frequency Histogram