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SITE ASSESSMENT REPORT ADDENDUM FOR BUILDING 860 TANKS 860 A/B/D NAS CECIL FIELD FL

3/15/2001

TETRA TECH NUS INC

Site Assessment Report Addendum for Building 860, Tanks 860 A/B/D

Naval Air Station Cecil Field

Jacksonville, Florida

Southern Division
Naval Facilities Engineering Command

Contract Number N62467-94-D-0888
Contract Task Order 0108

March 2001

Revision 0
03/15/01

SITE ASSESSMENT REPORT ADDENDUM
FOR
BUILDING 860, TANKS 860 A/B/D

NAVAL AIR STATION CECIL FIELD
JACKSONVILLE, FLORIDA

COMPREHENSIVE LONG-TERM
ENVIRONMENTAL ACTION NAVY (CLEAN) CONTRACT

Submitted to:
Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29406

Submitted by:
Tetra Tech NUS, Inc.
661 Andersen Drive
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CONTRACT NUMBER N62467-94-D-0888
CONTRACT TASK ORDER 0108

MARCH 2001

PREPARED UNDER THE SUPERVISION OF:

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CERTIFICATION OF TECHNICAL
DATA CONFORMITY

The Contractor, Tetra Tech NUS, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-94-D-0888 are complete and accurate and comply with all requirements of this contract.

DATE: March 15, 2001

NAME AND TITLE OF CERTIFYING OFFICIAL: Joseph Logan
Task Order Manager

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ACRONYMS

AST	above ground storage tank
bgs	below ground surface
CH2MHill	CH2MHill Constructors, Inc.
CTO	Contract Task Order
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
FL-PRO	Florida – Petroleum Range Organics
GCTL	Groundwater Cleanup Target Level
HLA	Harding Lawson Associates
KAG	Kerosene Analytical Group
mg/L	milligram per liter
mg/kg	milligram per kilogram
MONA	Monitoring Only for Natural Attenuation
NAS	Naval Air Station
PAH	polycyclic aromatic hydrocarbon
PVC	polyvinyl chloride
SA	Site Assessment
SAP	Site Assessment Plan
SAR	Site Assessment Report
SARA	Site Assessment Report Addendum
SRR	Source Removal Report
SCTL	Soil Cleanup Target Level
SOUTHNAVFACENGCOM	Southern Division, Naval Facilities Engineering Command
TRPH	total recoverable petroleum hydrocarbons
TtNUS	Tetra Tech NUS, Inc.
VOC	volatile organic compound
µg/kg	micrograms per kilogram
µg/L	micrograms per liter

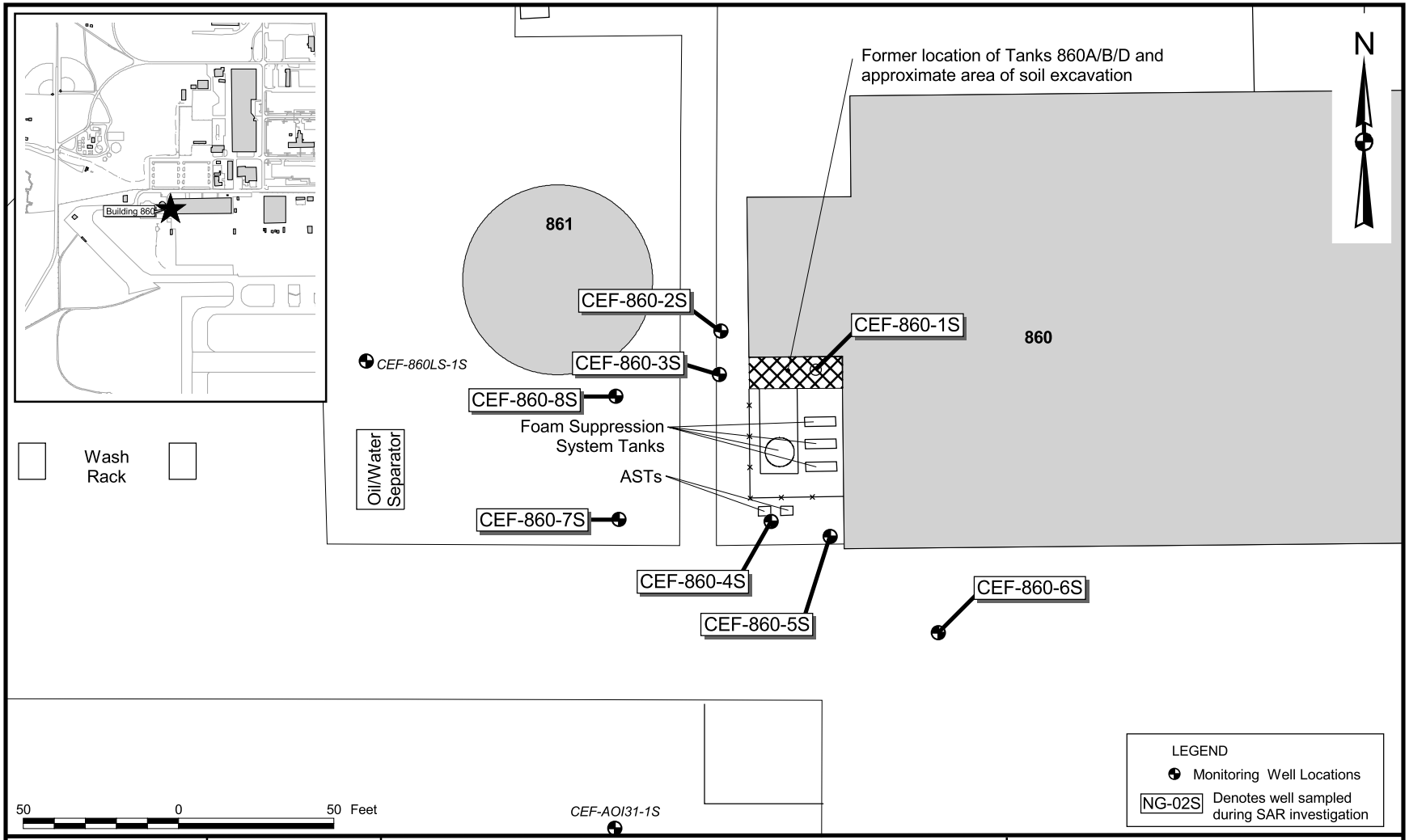
1.0 INTRODUCTION

Tetra Tech NUS, Inc. (TtNUS) was authorized by Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) to conduct a site assessment (SA) at Building 860, Tanks 860 A, B, and D on Naval Air Station (NAS) Cecil Field in Jacksonville, Florida. The Site Assessment was performed in accordance with Florida Administrative Code (FAC) 62-770. A Site Assessment Plan (SAP) for the assessment of soil and groundwater at Tank Sites 337, 437, 815, 860 (Tanks A, B, and D), and G-82/G-82A was prepared by TtNUS (TtNUS, 1999) under Contract Task Order (CTO) 108. Concurrent with the SA, CH2MHill Constructors, Inc. (CH2MHill) conducted a source removal in two phases that involve removal of the above ground storage tanks (ASTs) and associated piping and removal of contaminated soil beneath the tanks to the water table, followed by replacement with clean fill (CH2MHill, 2000a). A Site Assessment Report (SAR) summarizing the related field operations, results, conclusions, and recommendations of the SA was submitted in August 2000. After the SAR was submitted, it was determined that some of the information presented in the Source Removal Report (SRR) (CH2MHill, 2000a) was not accurate. The SRR was revised, and, therefore, this SAR Addendum (SARA) is required. In accordance with the planning documents for CTO 108, Florida Administrative Code (FAC) Chapter 62-770 is the applicable guidance for this report.

1.1 SUMMARY OF SAR

Building 860 is an aircraft maintenance hangar located on the western end of the flightline, just off Aerospace Street (formerly 1st Street) at NAS Cecil Field. See Figure 1-1. Three above ground storage tanks (Tanks A, B, and D) that were used to store diesel fuel for a generator were located within a fenced area adjacent to the western wall of the hangar. Harding Lawson Associates (HLA) initiated a preliminary assessment in November 1997. According to the HLA report (HLA, 1998), the field investigation consisted of the installation of one monitoring well (CEF-860-1S) and the advancement of five soil borings. Samples for laboratory analysis were collected from the monitoring well and one soil boring. The soil analytical results indicated that the level of total recoverable petroleum hydrocarbons (TRPH) detected was above the Florida Department of Environmental Protection (FDEP) Soil Cleanup Target Level (SCTL) in FAC Chapter 62-777. The groundwater analytical results indicated that the naphthalene concentration was above the Groundwater Cleanup Target Level (GCTL) in Chapter 62-777 FAC. The report (HLA, 1998) recommended that a site assessment be conducted to address soil and groundwater contamination at the site.

TtNUS field activities for the SA began on September 29, 1999 and were completed in May 2000. Concurrent with the SA, CH2MHill Constructors, Inc. (CH2MHill) conducted a source removal in two phases that involved removal of the ASTs and associated piping and removal of contaminated soil



DRAWN BY: MJJ	DATE: 20Dec99	SITE PLAN BUILDING 860 - TANKS 860A/B/D SITE ASSESSMENT REPORT ADDENDUM NAVAL AIR STATION CECIL FIELD JACKSONVILLE, FLORIDA	CONTRACT NUMBER: 0394
CHECKED BY	DATE		APPROVED BY / DATE
COST/SCHEDULE-AREA			APPROVED BY / DATE
SCALE: AS NOTED			DRAWING NO.: FIGURE 1-1 / REV: 0

P:\GIS\NAS_CecilField\bldg0860.apr 11Jan01 MJJ 1-1 Site Plan Layout

beneath the tanks to the water table, followed by replacement with clean fill (CH2MHill, 2000a). During their activities, CH2MHill removed source well CEF-860-1S and then replaced it following the installation of clean fill. CH2MHill also reported sampling the replacement well for kerosene analytical group (KAG) constituents as listed in FAC 62-770, Table I. The SRR stated that none of the GCTLs for the KAG constituents were exceeded (CH2MHill, 2000a). The SRR described the sample locations as being from the walls of the excavation, but the actual locations were from the bottom of the excavations, near the foot of the excavation walls. The extent of the excavation was not fully depicted in the SRR and the SRR was revised, as described below. In the revised SRR, CH2MHill indicated that with two exceptions, soil associated with the other sample locations had been removed.

However, based on the SRR (CH2MHill, 2000a), the SAR suggested the remaining soil contamination was more extensive that it actually was. The SAR recommended a Monitoring Only for Natural Attenuation (MONA) plan for groundwater and No Further Action (NFA) with institutional controls for soil. The MONA was not approved, pending revision of the SRR. Section 2.0 of this SARA describes the extent of soil remediation, as described in the revised SRR (CH2MHill, 2000b).

1.2 SUMMARY OF REVISED SRR

CH2MHill submitted the revision to the SRR on November 29, 2000 (CH2MHill, 2000b). This revision consisted of a revised Figure 2-1 that shows the excavation limits and soil sample locations. (See Appendix A.) CH2MHill also indicated that the limits of the excavation to the north and east were the building walls and to the south and west were the containment walls. CH2MHill also reported that all walls were scraped clean of soil. Thus, the only remaining soil sample locations with concentrations greater than SCTLs were from the bottom of the excavation at the water table and outside the excavation to the west.

2.0 REVISED SOURCE REMOVAL REPORT

As indicated in Section 1.2, two soil sample locations that exceed regulatory criteria remain on site. TtNUS has included Table 2-3 of the SRR in Appendix A (CH2MHill, 2000a) to show the concentrations of those samples (CF-860-BT-05 and 860C-07W). The reported concentrations for sample 860-BT-05 exceeded SCTLs (residential, industrial exposure, and leachability to groundwater) for total recoverable petroleum hydrocarbons (TRPH), polycyclic aromatic hydrocarbons (PAHs), and xylenes. The concentrations of benzo(a)pyrene and dibenzo(a, h)anthracene in sample 860C-07W were 510 µg/kg and 920 µg/kg, respectively. These concentrations exceed the residential and industrial SCTLs. The residential SCTL for each of the two PAHs is 0.1 milligrams per kilogram (mg/kg), and the industrial SCTL for each of the two PAHs is 0.5 mg/kg. CH2MHill's Table 2-3 does not indicate the residential and industrial SCTL criteria.

The first sample location (CF-860-BT-05) that was not excavated was collected at about 8 feet below ground surface (bgs). TtNUS reported the depth to water in the former AST area (TtNUS, 2000) to be about 7.5 feet bgs. Therefore, TtNUS concurs with stopping the excavation at a depth of about 8 feet bgs. During the excavation by CH2M Hill, they discovered that the building and exterior walls surrounding the former AST area have sides and footings that extend continuously to about 8 feet bgs. The original SRR (CH2MHill, 2000a) indicated that all soil within the limits of the walls and footings (Figure 2-1 of Appendix A) was removed down to about 8 feet bgs.

The second soil sample (860C-07 W) is indicated in the figure in Appendix A to lie outside the walls that bound the former AST area. Since that sample did not exceed the SCTL for leachability to groundwater, CH2MHill considered the soil in that area (which is outside the walls that bound the former AST area) to be non-impacted by petroleum contamination and did not proceed with further excavation.

3.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the results of this SARA.

Soil

Based on the field investigation, laboratory analyses, and remedial action conducted at the site, TtNUS concludes that the petroleum hydrocarbon-contaminated soil has been removed to the extent allowed by site conditions. The building footers, containment wall footers, and groundwater table limit further removal of contaminated soil. The concentrations of benzo(a)pyrene and dibenzo(a,h)anthracene in the sample from west of the west wall (860C-07W) are greater than residential and industrial SCTLs but less than the leachability SCTLs. Because the sample depth is 4 feet bgs and because of the presence of a paved road, exposure is limited. The road pavement and the earth cover act as a barrier, and an institutional control should be put in place to restrict access to the residual contaminated material. TtNUS recommends the implementation of an institutional control that restricts the site for industrial use. The restriction should also require that the roadway and earth cover be maintained in good condition.

Groundwater

No MONA approval letter had been issued pending the resolution of the SRR. The following conclusions and recommendations from the original SAR (TtNUS, 2000) are provided, with one change: Well CEF-860-3S is to be treated as a source well so that resampling provisions in FAC 62-770 will not be immediately triggered.

- The contaminant source, Tanks A, B, and D, and contaminated soil have been removed and no longer present a potential threat for environmental impact.

- Groundwater concentrations of naphthalene, 1-methylnaphthalene, and 2-methylnaphthalene decreased to less than GCTLs from October 1999 to May 2000. Thus, no monitoring for PAHs is recommended.

- The results of groundwater analyses indicate the concentrations of constituents of concern are less than the natural attenuation default source concentrations in FAC 62-770. Therefore, Monitoring Only for Natural Attenuation (MONA) is recommended. The MONA should be conducted on a semi-annual frequency for TRPH (FL-PRO). The recommended monitoring wells to include in the MONA are as follows: CEF-860-3S (source), CEF-860-4S (source), CEF-860-2S (downgradient), CEF-860-7S (downgradient), and CEF-860-8S (downgradient).

- The following table provides milestone objectives for a recommended monitoring period of 5 years:

Milestone Objectives (mg/L)					
	End of				
Compound	Year 1	Year 2	Year 3	Year 4	Year 5
TRPH	13	11	9	7	<5
Notes: < = less than.					

4.0 PROFESSIONAL REVIEW CERTIFICATION

The SARA was prepared using sound hydrogeologic principles and judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report. If conditions are determined to exist that differ from those described, the undersigned geologist should be notified to evaluate the effects of any additional information on the assessment described in this report. This SARA was developed for Building 860, Tanks 860 A, B, and D at the former NAS Cecil Field, Jacksonville, Florida, and should not be construed to apply to any other site.

Mervin W. Dale

Mervin W. Dale
Florida Professional Geologist
P.G. No. 0001917

03/15/01

Date

REFERENCES

CH2MHill, 2000a. Source Removal Report, Aboveground Storage Tank Removal at Building 860, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, February.

CH2MHill, 2000b. Revised Figure 2-1 for Source Removal Report, Aboveground Storage Tank Removal at Building 860, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, November 29, 2000.

HLA (Harding Lawson Associates), 1998. Confirmatory Sampling Report, Building 860, Tanks 860 A, B, and D, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, North Charleston, South Carolina, November.

TtNUS (Tetra Tech NUS, Inc.), 1998. Base-wide Generic Work Plan, Volumes 1 and 2, Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, October.

TtNUS, 1999. Site Assessment Plan for Tank Sites 337, 437, 815, 860 (Tanks A, B, and D) and G-82. Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, September.

TtNUS, 2000. Site Assessment Report for Building 860, Tanks 860 A/B/D. Naval Air Station Cecil Field, Jacksonville, Florida. Prepared for SOUTHNAVFACENGCOM, August.

APPENDIX A

REVISED SRR EXCAVATION FIGURE AND SRR RESULTS SUMMARY

CCI NAVY RAC
CH2MHILL Constructors, Inc.
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30346-1278
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FAX 770.604.9282

November 29, 2000

Mr. Nick Ugolini
Southern Division, Naval Facilities Engineering Command
P.O. Box 190010
North Charleston, SC 29419-9010

RE: Contract No. N62467-98-D-0995
Contract Task Order 0002 – Building 860 - Naval Air Station Cecil Field
Revised Figure 2-1 for *Source Removal Report Aboveground Storage Tank Removal at Building 860, February 2000*

Dear Mr. Ugolini:

Attached is a revised Figure 2-1 for the referenced document. Please remove the original Figure 2-1 from the document and replace it with this version. As discussed, the original Figure 2-1 was revised based upon a review of field notes and sketches that indicated that the excavation boundaries were drawn incorrectly.

Should you require additional information as a result of this notification, please contact me at (904) 777-4812 or e-mail me at sross@vnet.net.

Sincerely,

Samuel M. Ross

Samuel Ross, P.E.
Project Manager

cc: Joe Logan, Tetra Tech NUS
David Grabka, FDEP
CTO No. 0002 Job File

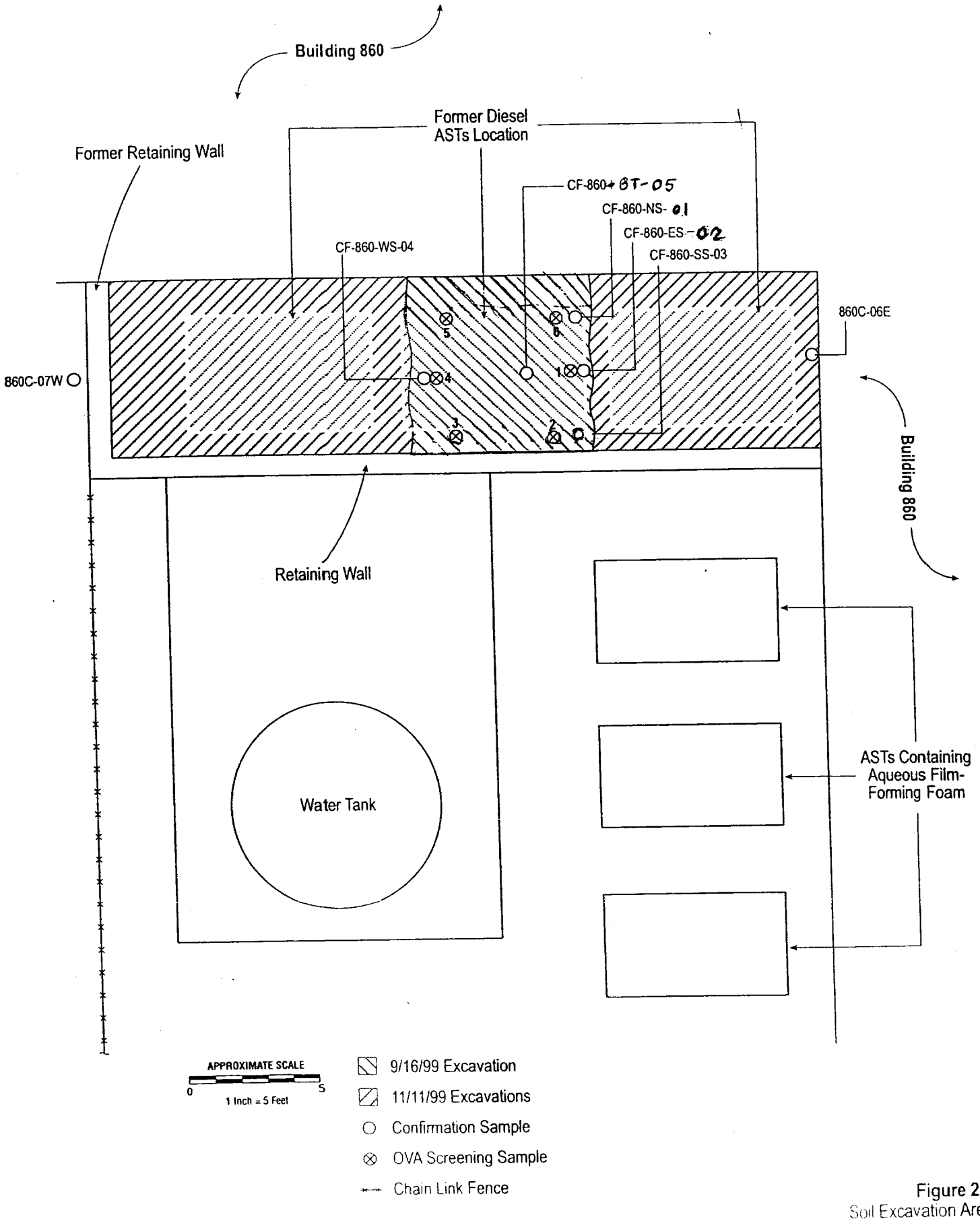

Figure 2-1
Soil Excavation Area
Building 860 Source Removal Report
NAS Cecil Field, Florida

Table 2-3
Summary of KAG Analyses for Soil

Sample Location	Depth	Sample ID	Date	TRPH	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) Anthracene	Benzo (a) Pyrene	Benzo (b) Fluoranthene	Benzo (ghi) Perylene	Benzo (k) Fluoranthene	Chrysene	Dibenzo ah Anthracene	Fluoranthene	Fluorene	Indeno)123-cd) Pyrene	Phenanthrene	Pyrene	Naphthalene	1- Methylnaphthalene	2- Methylnaphthalene	Ethylbenzene	Toluene	Xylenes
North Wall	4'	CF-860-NS-01	9/26/99	8000	ND	3.8	12	9.8	1.1	9.5	1	5.8	7.6	3.7	77	8.3	0.470	2.9	110	3.5	71	36	1.3	ND	0.800
East Wall	4'	CF-860-ES-02	9/26/99	10000	ND	8.4	2.5	8.7	3.6	8.5	2	6.3	6.6	5.1	23	1.5	0.770	0.530	44	<0.220	7.2	2.5	0.380	ND	0.740
W ~~East~~ Wall #2	4'	860C-07 W	11/22/99	5	0.68	0.024	ND	0.19	0.51	0.54	0.48	0.21	0.36	0.92	0.44	0.022	0.4	0.04	0.24	ND	ND	0.27	0.0003	0.002	0.0013
South Wall	4'	CF-860-SS-03	9/26/99	7	ND	0.018	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001	0.0006
West Wall	4'	CF-860-WS-04	9/26/99	2500	ND	0.290	0.940	2.1	1.1	2	0.220	1.3	1.7	0.550	10	0.770	0.160	0.270	16	0.140	1.7	1.8	0.038	0.038	0.180
E ~~West~~ Wall #2	4'	860C-06 E	11/22/99	7	0.41	0.019	ND	0.18	0.57	0.51	0.62	0.23	0.34	0.84	0.26	0.023	0.42	0.011	0.16	ND	0.12	0.15	0.0005	0.0022	0.0018
Bottom	8'	CF-860-BT-05	9/26/99	5300	ND	1.7	4.2	5.5	2.7	5.5	1.1	3.3	4.2	2.3	38	3.7	0.350	1.6	53	1.2	24	13	0.330	ND	0.500
SCTL (Leachability)				340	2.1	27	2500	3.2	8	10	32000	25	77	30	1200	160	28	250	880	1.7	2.2	6.1	0.6	0.5	0.2

ND = Not Detected
All values are reported in mg/kg