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CONTAMINATION ASSESSMENT REPORT ADDENDUM SITE 9 UNDERGROUND STORAGE TANK 134 (UST134) NAS PENSACOLA FL

10/1/1995

ABB ENVIRONMENTAL SERVICES, INC

CONTAMINATION ASSESSMENT REPORT ADDENDUM

SITE 9, UST 134
NAVAL AVIATION DEPOT

NAVAL AIR STATION
PENSACOLA, FLORIDA

UNIT IDENTIFICATION CODE: N00204
CONTRACT NO.: N62467-89-D-0317/008

OCTOBER 1995

SOUTHERN DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORTH CHARLESTON, SOUTH CAROLINA
29419-9010

NAVAL AIR STATION
PENSACOLA, FLORIDA

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CONTAMINATION ASSESSMENT REPORT ADDENDUM

SITE 9, UST 134
NAVAL AVIATION DEPOT

NAVAL AIR STATION
PENSACOLA, FLORIDA

Unit Identification Code: N00204

Contract No. N62467-89-D-0317/008

Prepared by:

ABB Environmental Services, Inc.
2590 Executive Center Circle, East
Tallahassee, Florida 32301

Prepared for:

Department of the Navy, Southern Division
Naval Facilities Engineering Command
2155 Eagle Drive
North Charleston, South Carolina 29418

Byas Glover, Code 18410, Engineer-in-Charge

October 1995

CERTIFICATION OF TECHNICAL
DATA CONFORMITY (MAY 1987)

The Contractor, ABB Environmental Services, Inc., hereby certifies that, to the best of its knowledge and belief, the technical data delivered herewith under Contract No. N62467-89-D-0317/008 are complete and accurate and comply with all requirements of this contract.

DATE: October 3, 1995

NAME AND TITLE OF CERTIFYING OFFICIAL: Mark Diblin, P.G.
Task Order Manager

NAME AND TITLE OF CERTIFYING OFFICIAL: Pamela Wagner
Project Technical Lead

(DFAR 252.227-7036)

FOREWORD

To meet its mission objectives, the U.S. Navy performs a variety of operations, some requiring the use, handling, storage, or disposal of hazardous materials. Through accidental spills and leaks and conventional methods of past disposal, hazardous materials may have entered the environment in ways unacceptable by today's standards. With growing knowledge of the long-term effects of hazardous materials on the environment, the Department of Defense initiated various programs to investigate and remediate conditions related to suspected past releases of hazardous materials at their facilities.

One of these programs is the Comprehensive Long-Term Environmental Action, Navy (CLEAN) underground storage tank (UST) program. This program complies with Subtitle I of the Resource Conservation and Recovery Act and the Hazardous and Solid Waste Amendments of 1984. In addition, the UST program complies with all appropriate State and local storage tank regulations as they pertain to each naval facility.

The UST program includes the following activities:

- registration and management of Navy and Marine Corps storage tank systems,
- contamination assessment planning,
- site field investigations,
- preparation of contamination assessment reports,
- remedial (corrective) action planning,
- implementation of the remedial action plans, and
- tank and pipeline closures.

The Southern Division, Naval Facilities Engineering Command (SOUTHNAVFACENGCOM) manages the underground storage tank (UST) program, and the U.S. Environmental Protection Agency (USEPA) and the Florida Department of Environmental Protection (FDEP; formerly Florida Department of Environmental Regulation) oversee the Navy UST program at Naval Aviation Depot (NADEP) Pensacola.

Questions regarding the UST program at NADEP Pensacola should be addressed to Mr. Byas Glover, SOUTHNAVFACENGCOM, Code 18410, at (803) 743-0651.

ACKNOWLEDGMENTS

In preparing this report, the Underground Storage Tank (UST) Section of the Comprehensive Long-Term Environmental Action, Navy (CLEAN) Group at ABB Environmental Services, Inc. (ABB-ES), commends the support, assistance, and cooperation provided by the personnel at Naval Aviation Depot, Naval Air Station, Pensacola, Florida, and Southern Division, Naval Facilities Engineering Command.

EXECUTIVE SUMMARY

The following report is an addendum to the aviation gasoline (AVGAS) Pipeline Area Contamination Assessment Report (CAR) submitted by ABB Environmental Services, Inc., (ABB-ES) in August 1995. Information such as regional and local physiography, regional hydrology, investigative methodologies and procedures, and supplemental reports and memoranda are included in the August 1995 AVGAS Pipeline Area CAR.

Site 9 is the former location of a 500-gallon underground storage tank (UST), located on the south-central boundary of Chevalier Field, Naval Aviation Depot (NADEP), Pensacola. The tank, designated UST 134, was located on the northwest corner of Building 607. The UST was constructed of galvanized steel and contained lubricating oil. The UST was installed beside a steel containment area referred to by site personnel as an "oil pit." The purpose of the pit is uncertain, although the suspected usage was to dispense lube oil and air during aircraft maintenance.

During the UST 134 removal in September 1994, visual observation of soil contamination was reported. No confirmatory analytical soil samples were collected. Subsequent to the UST removal, all excavated soil was returned to the excavation. Site 11 UST 134 was transferred to ABB-ES in late September 1994 for closure and investigation.

FINDINGS.

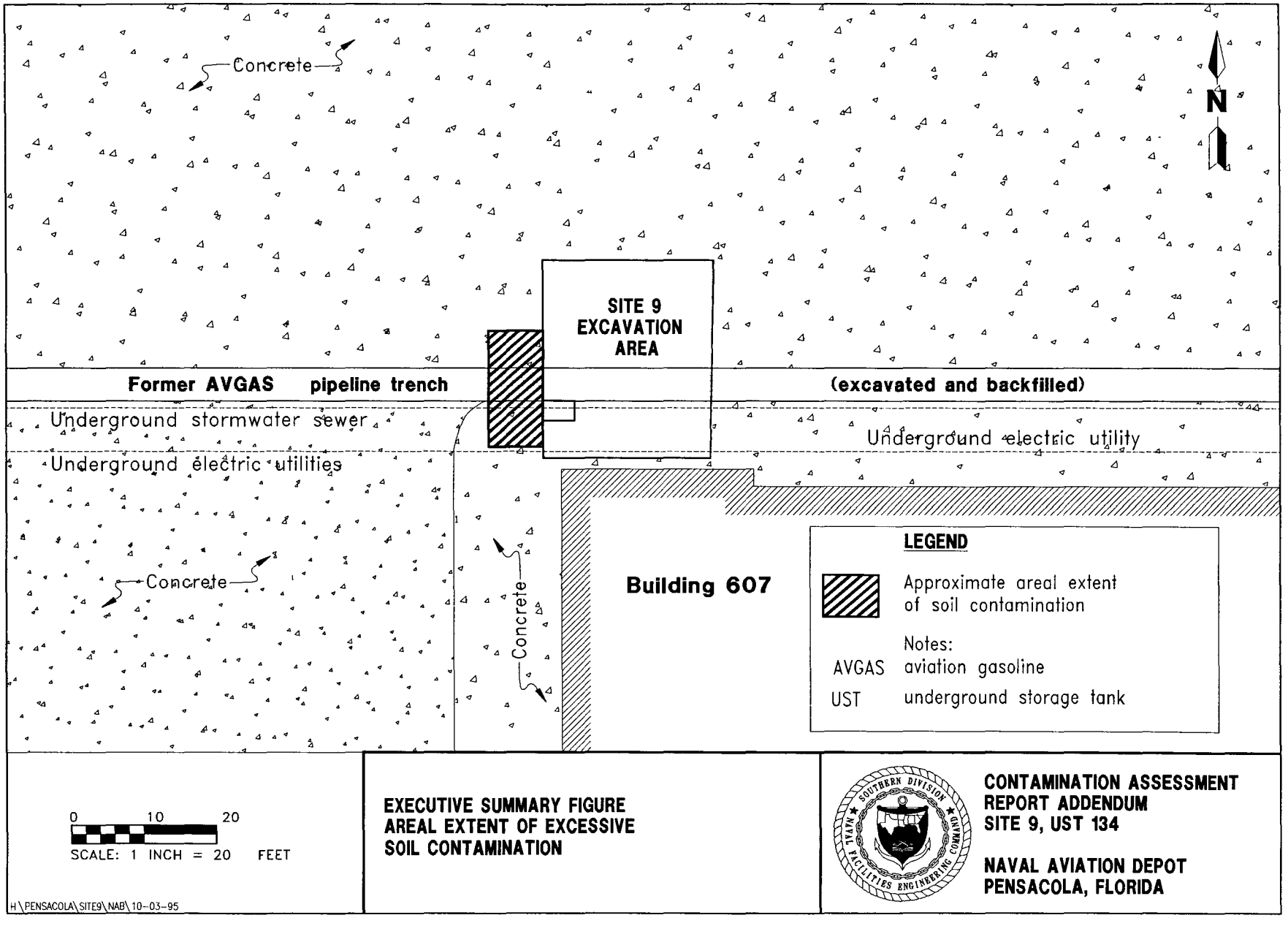
- Site soil consists of fine-grained, well-sorted sand. The color of the soil ranges from very light gray to dark gray.
- The source of contamination, the UST, has been removed.
- Excessively contaminated soil from the tank excavation area was removed. No visual evidence of soil contamination was observed on the excavation walls. The excavation was backfilled with clean soil. Contaminated soil was removed from the site and thermally treated.
- Six confirmatory soil samples were collected from the excavation walls. Contamination detected in one soil sample, 09B00302, exceeded the State maximum concentration for total recoverable petroleum hydrocarbons (TRPH). Contaminants detected in the other five soil samples were below all State maximum concentrations.
- The groundwater flow direction at Site 9 is southeast.
- No groundwater contaminant concentration detected in the Site 9 groundwater samples exceeded any State *No Further Action* target levels.

CONCLUSIONS. Based on the findings of the contamination assessment (CA) and site conditions, the following can be concluded.

- Approximately 14 cubic yards (yd^3) of excessively contaminated soil at Site 9 on the west side of the UST excavation must be remediated in accordance with Chapter 62-770.800, Florida Administrative Code (FAC). The executive summary figure presents the estimated areal extent of remaining soil contamination.

- The groundwater at Site 9 has not been impacted by the soil contamination detected during this investigation.

RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends that the excessively contaminated soil be removed. A No Further Action Proposal (NFAP) will be appropriate for Site 9 following the soil removal.


Concrete
N
SITE 9
EXCAVATION
AREA
Former AVGAS pipeline trench
(excavated and backfilled)
Underground stormwater sewer
Underground electric utility
Underground electric utilities
Concrete
Concrete
Building 607
LEGEND
Approximate areal extent
of soil contamination
Notes:
AVGAS aviation gasoline
UST underground storage tank
0 10 20
SCALE: 1 INCH = 20 FEET
H\PENSACOLA\SITE9\NAB\10-03-95
EXECUTIVE SUMMARY FIGURE
AREAL EXTENT OF EXCESSIVE
SOIL CONTAMINATION
SOUTHERN DIVISION NAVAL FACILITIES ENGINEERING COMMAND
CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 9, UST 134
NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

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Pensacola, Florida

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GLOSSARY

ABB-ES	ABB Environmental Services, Inc.
AVGAS	aviation gasoline
BEI	Bechtel Environmental, Inc.
bdl	below detection limits
bls	below land surface
BRAC	base realignment and closure
CA	contamination assessment
CAR	Contamination Assessment Report
CLEAN	Comprehensive Long-Term Environmental Action, Navy
CompQAP	Comprehensive Quality Assurance Plan
FAC	Florida Administrative Code
FDEP	Florida Department of Environmental Protection
GTES	GT Environmental Services
NADEP	Naval Aviation Depot
NAS	Naval Air Station
NFAP	No Further Action Plan
NTTC	Naval Technical Training Center
PAH	polynuclear aromatic hydrocarbons
ppb	parts per billion
ppm	parts per million
SOUTHNAV-FACENGCOM	Southern Division, Naval Facilities Engineering Command
TIC	tentatively identified compound
TOC	top of casing
TRPH	total recoverable petroleum hydrocarbons
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOA	volatile organic aromatics
yd^3	cubic yard

1.0 SITE BACKGROUND AND DESCRIPTION

Site 9 is located on the south central boundary of Chevalier Field, Naval Aviation Depot (NADEP), Pensacola (Figure 1-1). It is the former location of a 500-gallon underground storage tank (UST) associated with the aviation gasoline (AVGAS) pipeline (Figure 1-2). The tank, designated UST 134, was located on the northwest corner of Building 607. UST 134, which was used for lube oil storage, was constructed of galvanized steel and installed next to a steel containment area referred to by site personnel as an "oil pit." At the time of removal, the "oil pit" contained a variety of piping, valves, and a rubber hose on a steel reel and was covered with a concrete cap. The purpose of the pit is uncertain, although the suspected usage was to dispense lube oil and air during aircraft maintenance.

UST 134 was removed in September 1994 by Phoenix Construction Company and their subcontractor, GT Environmental Services, Inc. (GTES). During the tank removal operations a visual observation of soil contamination was reported by GTES personnel. No confirmatory samples were collected by GTES. Subsequent to the UST removal, all excavated soil was returned to the excavation.

The UST site was transferred to ABB Environmental Services, Inc.,(ABB-ES) in late September 1994 for closure. The closure report form for UST 134 is presented in Appendix A of the AVGAS Pipeline Area Contamination Assessment Report (CAR) submitted by ABB-ES in August 1995. Because contaminated soil was reported at the site, a Discharge Reporting Form was filed with the closure report. The Discharge Reporting Form is also included in Appendix A of the August 1995 AVGAS Pipeline CAR.

The demolition of Chevalier Field commenced in January 1995. The airfield and many associated facilities are being demolished as part of the base realignment and closure (BRAC) program. A Naval Technical Training Center (NTTC) is being constructed on the former airfield. Buildings 606, 607, 627, and 630 are currently undergoing asbestos remediation and remodeling for use at NTTC. Removal of the concrete and asphalt parking areas around these buildings began in March 1995.

The following report summarizes the data gathered during Site 9 UST 134 closure and subsequent contamination assessment (CA). General information such as regional and local physiography, regional hydrology, investigative methodologies, and procedures are included in the August 1995 AVGAS Pipeline Area CAR.

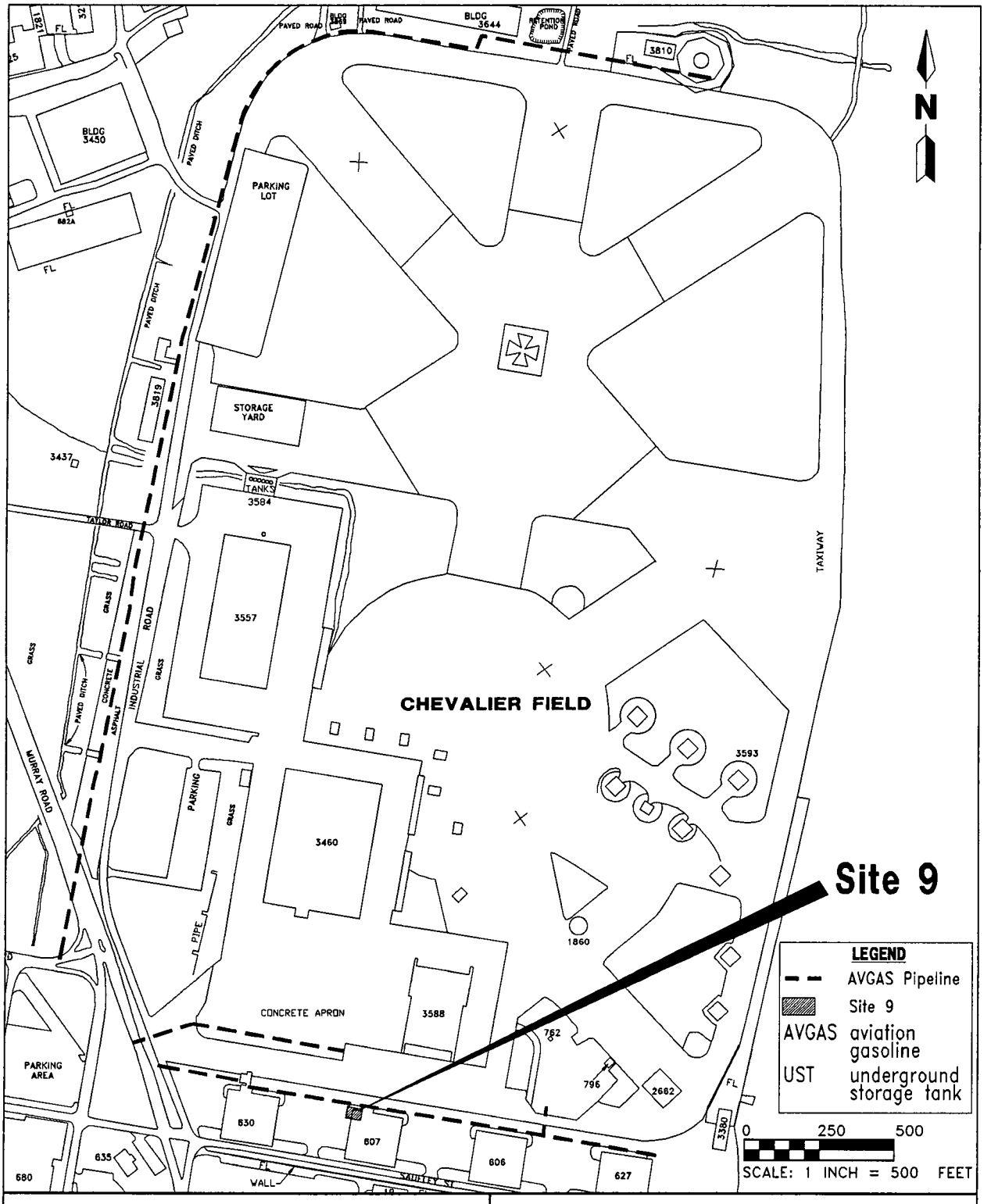

FIGURE 1-1
SITE LOCATION MAP

H:\PENSCOLA\FORMUST\NAB\10-03-95

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 9, UST 134

NADEP PENSACOLA
PENSACOLA, FLORIDA

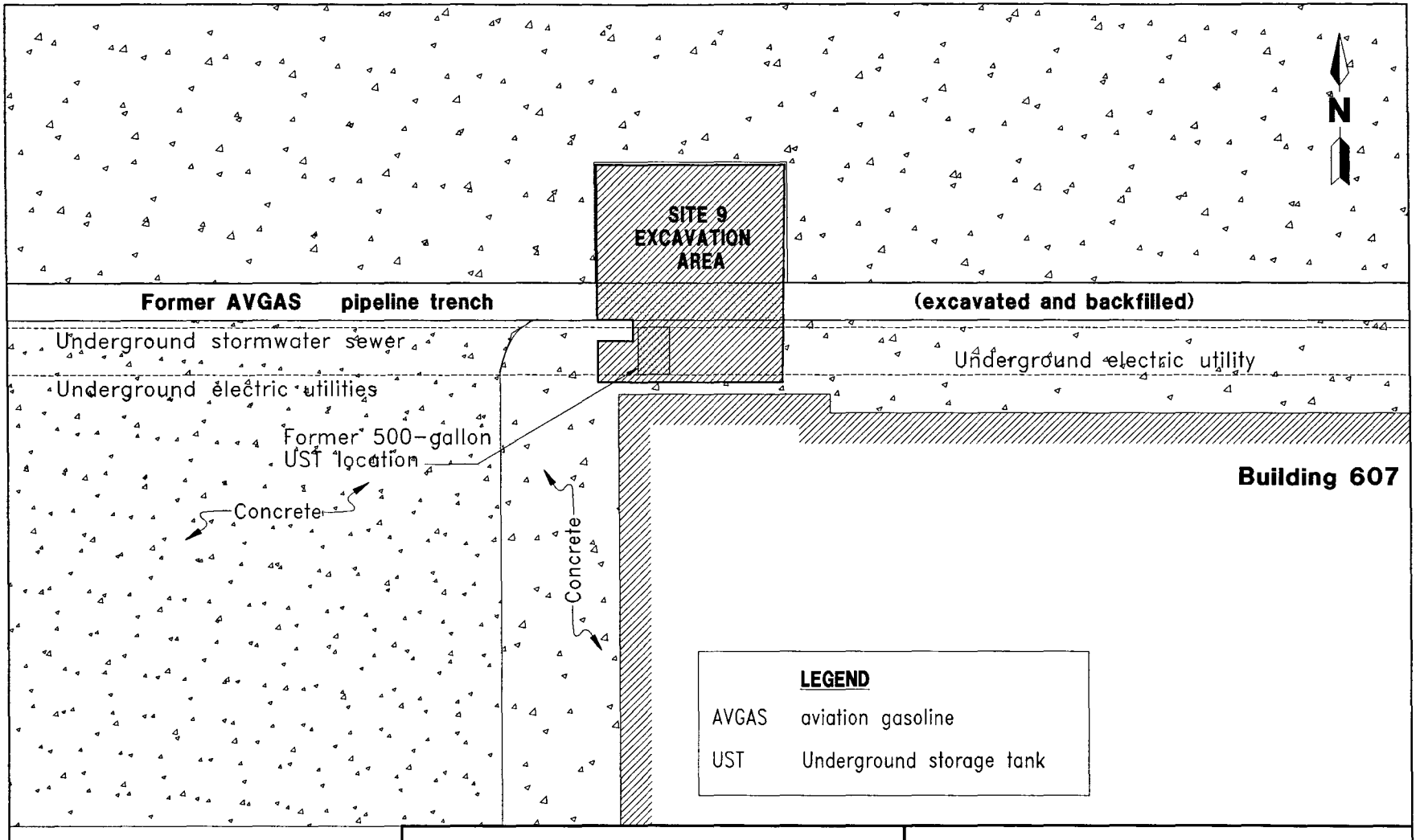

FIGURE 1-2
SITE PLAN, MAY 1995

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

2.0 CONTAMINATION ASSESSMENT RESULTS

2.1 SOIL ASSESSMENT RESULTS. All laboratory analytical soil samples were collected in accordance with ABB-ES's approved Comprehensive Quality Assurance Plan (CompQAP) using a hand-operated auger. Samples were placed in the appropriate containers, labeled, packed in ice, and shipped by overnight carrier to Quanterra Environmental Services in Tampa, Florida, for analysis.

2.1.1 Initial Soil Assessment On November 3, 1994, a composite soil sample, 09B00101, was collected from the soil returned to the Site 9 excavation area. This sample was composited from soil collected at each corner and the center of the UST excavation area from 2.0 to 2.5 feet below land surface (bls). The 2.0 to 2.5 sample was analyzed for the used oil group parameters defined in Chapters 62-770.600, Florida Administrative Code (FAC) and compared to the clean soil criteria described in Chapter 62-775.400 FAC. Figure 2-1 presents the composite soil sampling locations. Figure 2-2 presents the analytical results of 09B00101. Laboratory data sheets are included in Appendix C of this report.

Total volatile organic aromatic (VOA) and total polynuclear aromatic hydrocarbon (PAH) concentrations were below method detection limits for composite sample 09B00101. A total recoverable petroleum hydrocarbons (TRPH) concentration of 97.3 parts per million (ppm) was detected in the same sample. Because total VOA and total PAH were not detected, a TRPH clean soil maximum concentration of 50 ppm was applied to Site 9 in accordance with Chapter 62-775.400, FAC. Cadmium, chromium, arsenic, and lead concentrations were below the respective State maximum concentrations.

On March 3, 1995, excessively contaminated soil from the former location of UST 134 was removed by Bechtel Environmental, Inc. (BEI). The excavation area is shown on Figures 2-1 and 2-2. Approximately 115 cubic yards (yd^3) of soil were removed from an area approximately 27 feet by 23 feet. Excavation continued until the water table was reached at 5 feet bls. The soil removed from the site primarily consisted of very fine- to fine-grained, moderately well sorted sand, ranging in color from grayish brown to reddish brown. ABB-ES personnel supervising the excavation reported stained soil on the northern side of the former UST area. BEI continued excavation on the northern side until no stained soil was visible on the excavation walls. A slight sheen was noted on the water in the excavation prior to backfilling. The excavation was backfilled with clean soil. The contaminated soil from Site 9 was stockpiled with soil excavated from other lube-oil USTs during BEI excavation activities at Chevalier Field. In May 1995, the stockpiled soil was removed from the base and taken to an incineration facility for thermal treatment. The soil transportation manifests and receipts are included in the appendices of the AVGAS Pipeline Area CAR submitted to Florida Department of Environmental Protection (FDEP) in August 1995.

2.1.2 Confirmatory Soil Assessment On March 7, 1995, four confirmatory soil samples, 09B00202 through 09B00502, were collected from the excavation walls. These soil samples were collected from 2 to 3 feet bls. All four samples were analyzed for TRPH, arsenic, cadmium, chromium, and lead, in accordance with Chapter 62-770.600(8)(c), FAC guidelines for the used oil analytical group.

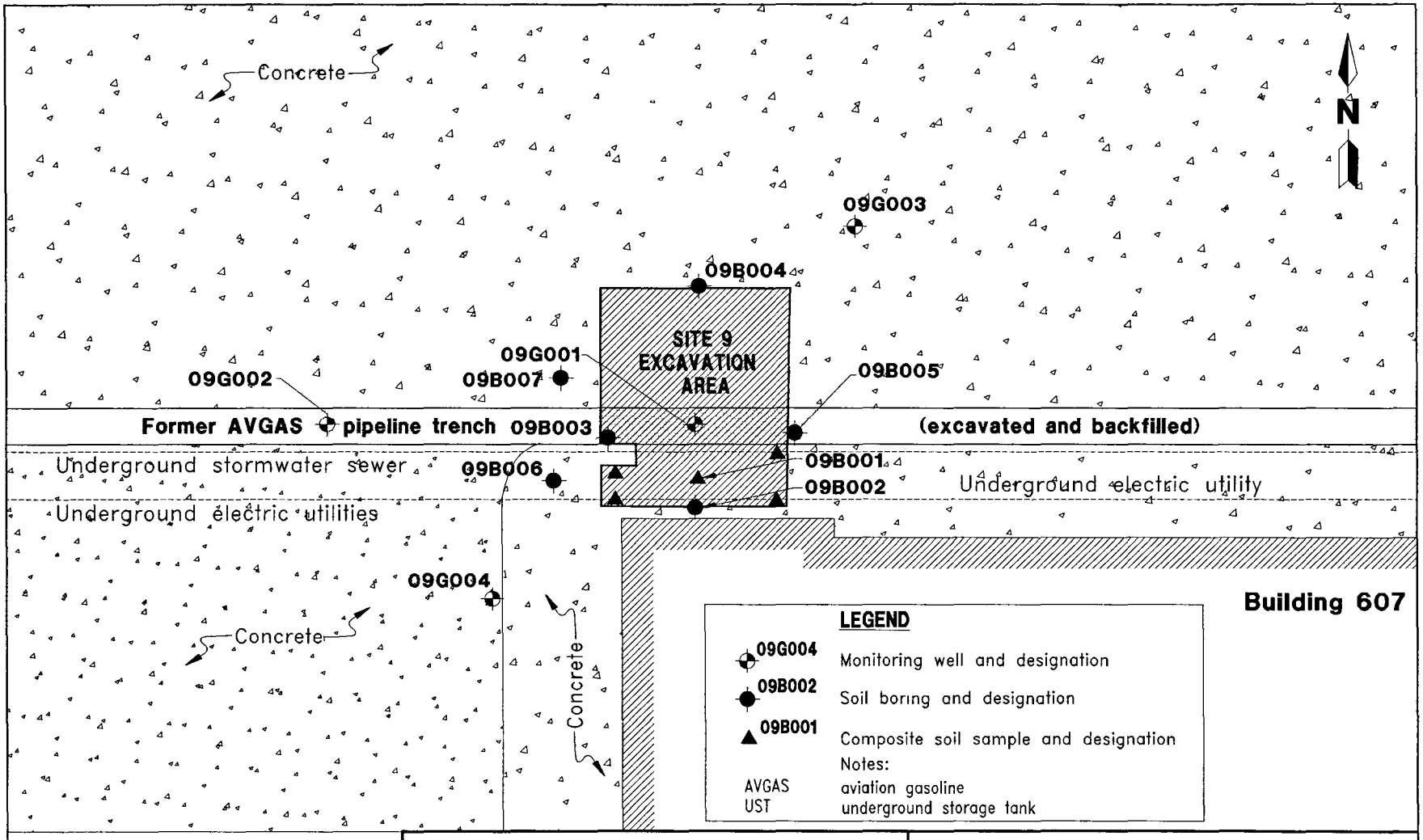

FIGURE 2-1
SOIL BORING AND MONITORING WELL LOCATION MAP

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

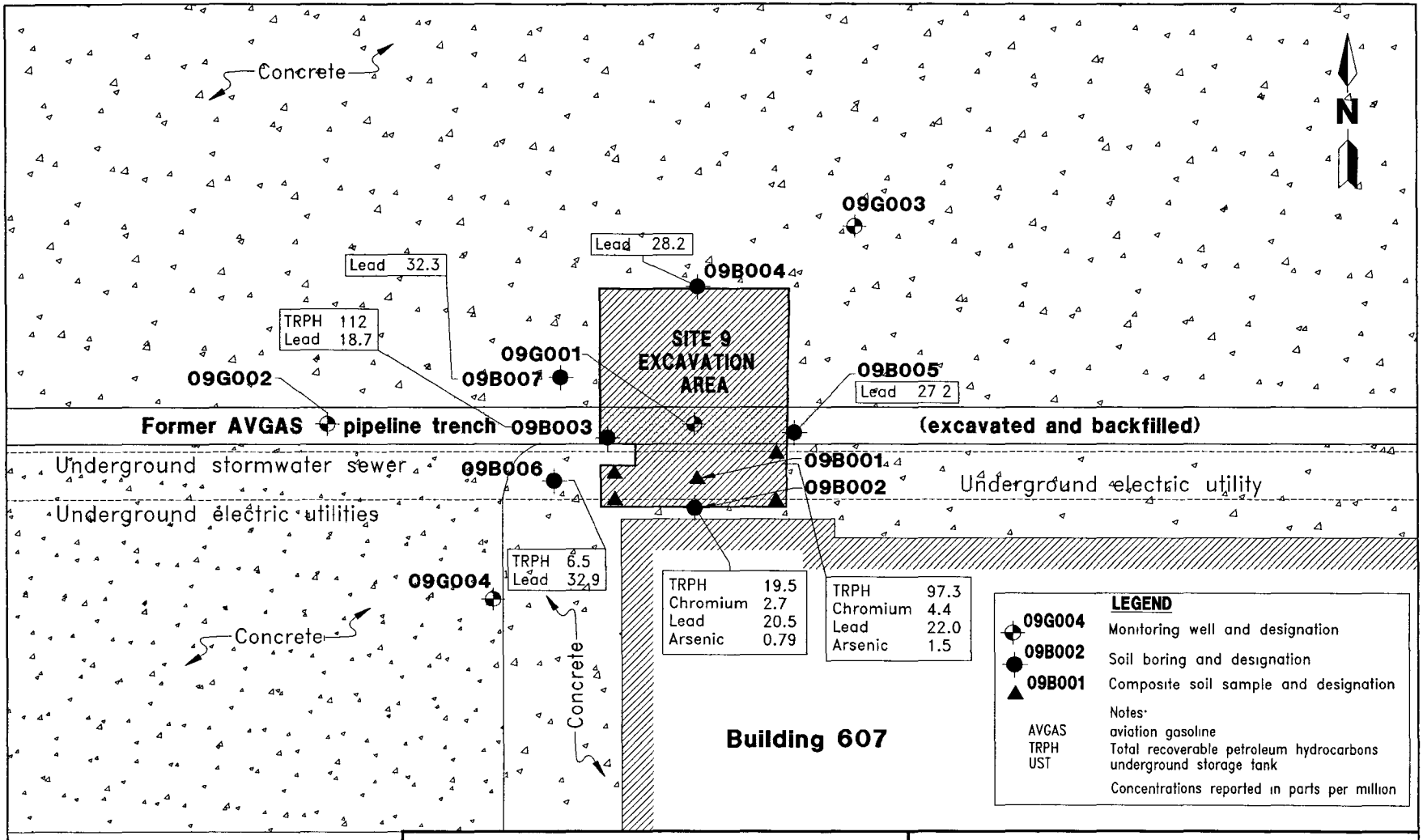

FIGURE 2-2
SOIL CONTAMINATION DISTRIBUTION MAP

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

Table 2-1
Summary of Soil Sample Analytical Results
October 1994 through June 1995

Contamination Assessment Report Addendum
Site 9 - UST 134, Naval Aviation Depot
Pensacola, Florida

Contaminant	Soil Sample Designation							Clean Soil[1] Maximum Concentration
	[2]09B00101	09B00202	09B00302	09B00402	09B00502	09B00603	09B00703	
Volatile Organic Aromatics (VOA). Reported in parts per billion (ppb).								
Total VOA	bdl	NS	NS	NS	NS	NS	NS	100
Polynuclear Aromatic Hydrocarbons (PAH). Reported in ppb.								
Total PAH	bdl	NS	NS	NS	NS	NS	NS	1000
Total Recoverable Petroleum Hydrocarbons (TRPH). Reported in parts per million (ppm).								
TRPH	97 3	19.5	112	<5.2	<5.2	6.5	<5.2	[3]50
Total Metals. Reported in milligrams per kilogram (mg/kg).								
Cadmium	0 52 J	<0.52	<0.52	<0.52	<0.52	<0.52	<0.52	37
Chromium	4.4	2.7	<2.6	<2.6	<2.6	<2.6	<2.6	50
Lead	22.0	20.5	18.7	28.2	27.4	32.9	32.3	108
Arsenic	1.5	0.79	<0.26	<0.26	<0.26	<0.26	<0.26	10

[1] Chapter 62-775.400, Florida Administrative Code.
[2] This sample was collected from the source area prior to soil removal.
[3] Provided total PAH does not exceed 100 ppb and total volatile organic halocarbons do not exceed 50 ppb. In all other cases the TRPH maximum concentration is 10 ppm (Chapter 62-775.400).

Notes: Total VOA = the sum concentration of benzene, toluene, ethylbenzene, and xylenes.
bdl = below detection limits.
NS = not sampled.
Total PAH = the sum concentration of PAH compounds detected by U.S. Environmental Protection Agency (USEPA) Method 8270A.
J = estimated value

Table 2-1 summarizes the confirmatory sampling results. Figure 2-1 presents confirmatory sample locations. Figure 2-2 presents laboratory analytical results.

Cadmium, chromium, lead, and arsenic concentrations were below State maximum concentrations for clean soil in the four confirmatory samples. A TRPH concentration of 112 ppm was detected in sample 09B00302. TRPH concentrations in the other three confirmatory samples were below the State maximum TRPH concentration of 50 ppm.

Because of the high TRPH concentration detected in sample 09B00302, two more soil samples were collected on June 7, 1995. These two samples, 09B00603 and 09B00703, were analyzed for TRPH, cadmium, chromium, lead, and arsenic. No parameter detected in these samples exceeded the State maximum concentrations for clear soil found in Chapter 62-775.400, FAC.

Based on the TRPH distribution shown in Figure 2-2, approximately 14 yd^3 of excessively contaminated soil remains at Site 9.

2.2 GROUNDWATER ASSESSMENT RESULTS.

2.2.1 Monitoring Well Installation In March 1995, ABB-ES personnel supervised the installation of four shallow permanent monitoring wells in and around the source area of Site 9. The monitoring wells were installed to a depth of 12 feet bls and designated 09G001 through 09G004.

Details of shallow permanent monitoring well construction are included in the August 1995 AVGAS Pipeline Area CAR. Monitoring well logs for all permanent monitoring wells installed at Site 9 are included in Appendix B of this report. Figure 2-1 presents Site 9 monitoring well locations.

2.2.2 Site Specific Hydrology The elevation and slope of the water table was measured at Site 9. Groundwater elevation was calculated using the field-surveyed top of casing (TOC) elevation data for each monitoring well, and then correlating the elevation data to a common datum. Groundwater levels were measured on March 30, 1995. Groundwater flow direction is predominantly southeast. Table 2-2 presents the TOC elevations, total depths, and groundwater elevations for Site 9. Figure 2-3 presents the water table elevation contour map for Site 9.

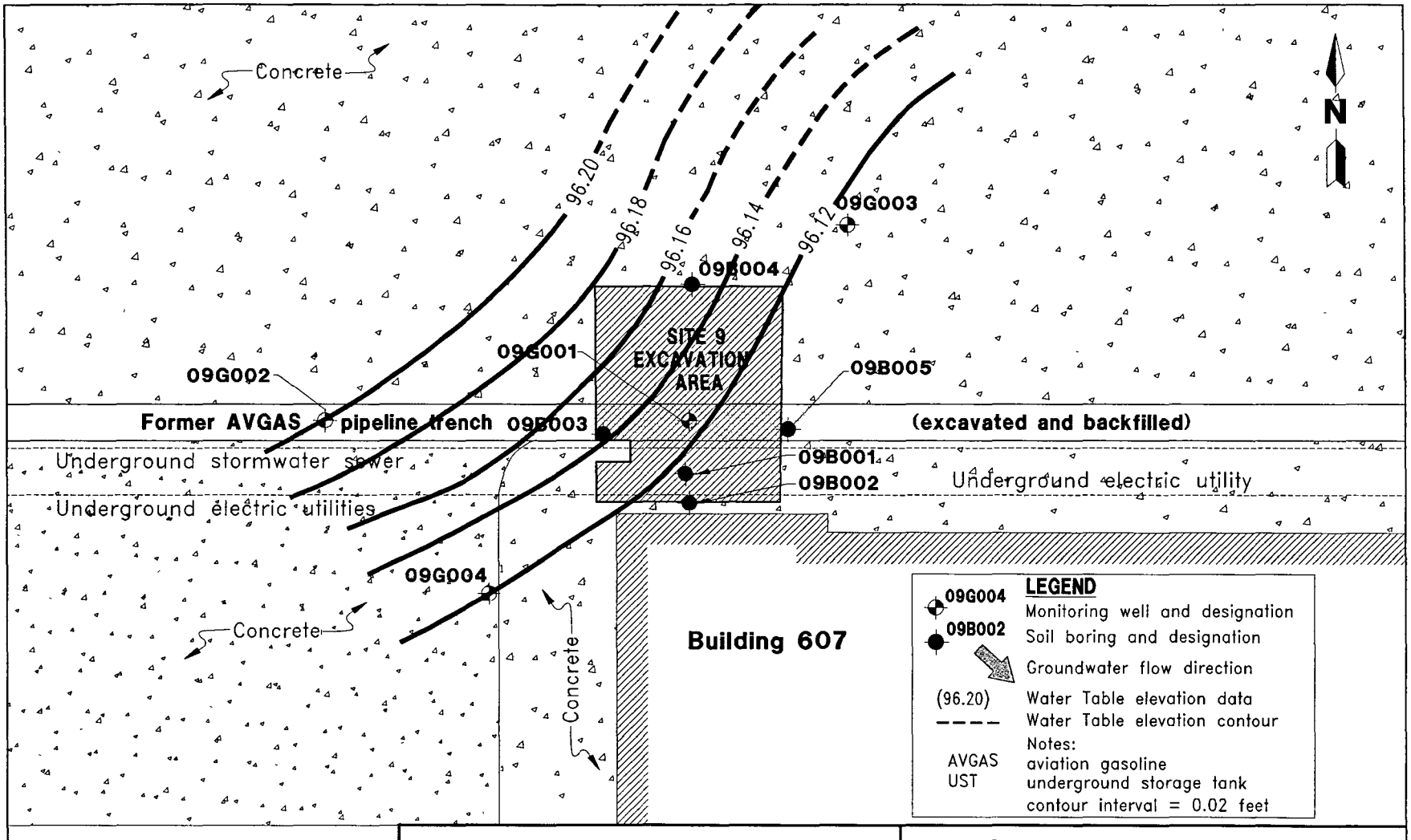

FIGURE 2-3
WATER TABLE ELEVATION
CONTOUR MAP, MARCH 30, 1995

CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

Table 2-2
Top of Casing and Groundwater Elevations
March 30, 1995

Contamination Assessment Report Addendum
Site 9 - UST 134, Naval Aviation Depot
Pensacola, Florida

Monitoring Well Designation	Total Depth	Top of Casing Elevation	Depth to Groundwater	Groundwater Elevation
09G001	11 69	100.00	3 87	96 13
09G002	11 62	100 04	3.84	96.20
09G003	11 73	99 90	3 79	96.11
09G004	11.62	100.20	4.08	96.12

Notes: All depths and elevations recorded in feet
Elevations are based on an arbitrary top of casing elevation of 100 00 feet for 06G001.

No slug tests were conducted at Site 9 due to the low levels of petroleum contamination detected.

2.2.3 Groundwater Assessment Groundwater samples were collected from monitoring wells 09G001 through 09G004 on March 29, 1995. AVGAS from the adjacent AVGAS pipeline was the suspected contaminant at this site; therefore, monitoring wells 09G002, 09G003, and 09G004 were sampled for the gasoline analytical group parameters defined in Chapter 62-770.600(8)(a). Monitoring well 09G001 was sampled for the used oil analytical group parameters as defined in Chapter 62-770.600(8)(a), FAC, because it was located in the former UST excavation area. The used oil analytical group includes volatile organics, base-neutral-acid extractables, TRPH, arsenic, cadmium, chromium, lead, and tentatively identified compounds (TICs), possible contaminants with only 50 percent accuracy level. The gasoline analytical group includes volatile organics, ethylene dibromide, TRPH, and lead.

All groundwater samples were collected in accordance with ABB-ES's approved CompQAP using an extruded Teflon® bailer. Samples were placed in the appropriate containers, labeled, packed on ice, and shipped by overnight carrier to Quanterra Environmental Services in Tampa, Florida, for analysis. Laboratory data sheets are presented in Appendix C of this report. Table 2-3 summarizes the laboratory results for each monitoring well sample and Figure 2-4 presents the areal distribution of the groundwater analytical results. Table 2-4 summarizes the TIC concentrations detected in sample 09G00101.

Benzene was not detected in any of the groundwater samples collected at Site 9. Total VOA concentrations were 30.8 ppb and 1.9 ppb in groundwater samples 09G00101 and 09G00401, respectively. Total VOA concentrations were below method detection limits in all other groundwater samples. The Chapter 620770, FAC No Further Action target level for total VOA is 50 parts per billion (ppb) (FDEP, October 1990).

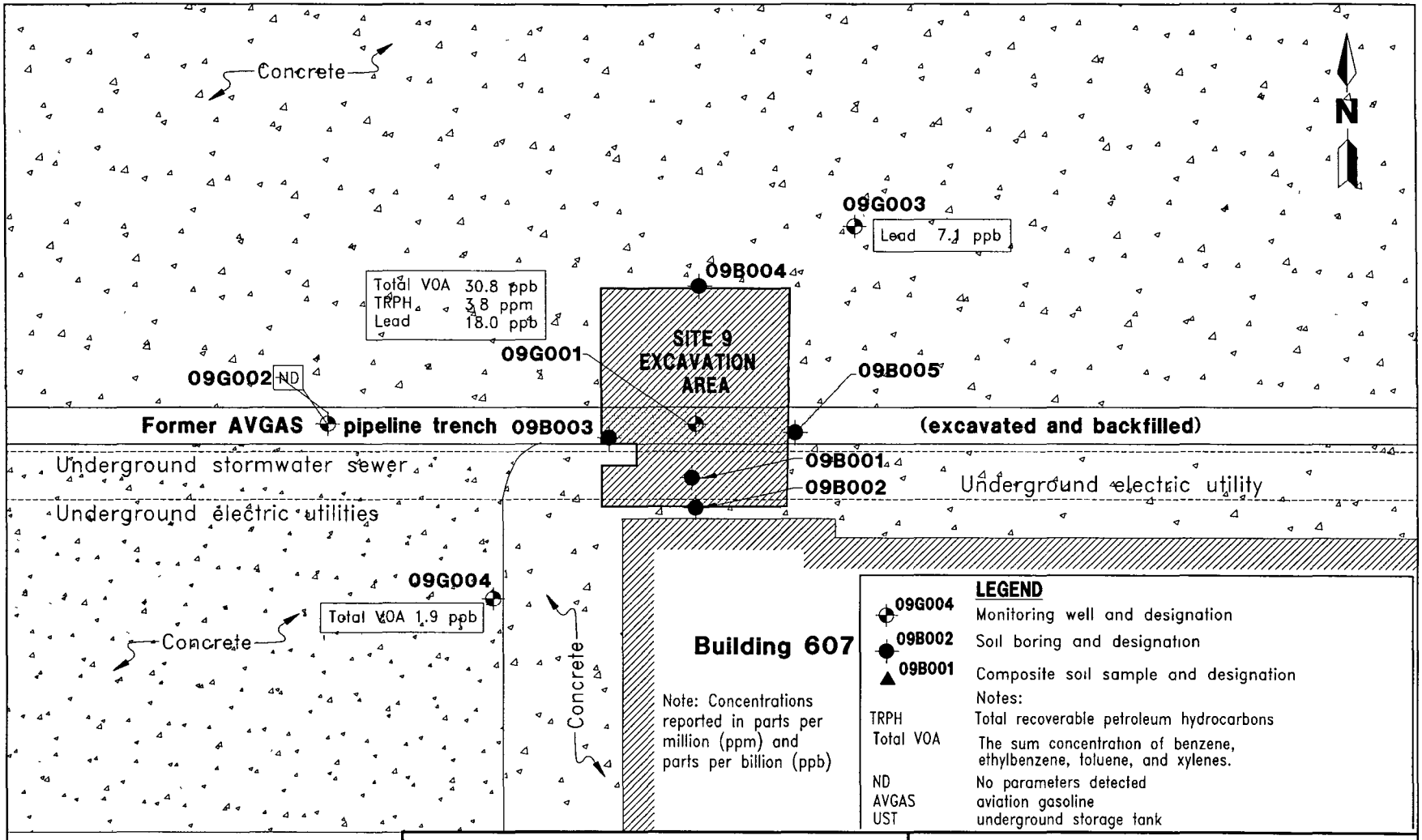

FIGURE 2-4
GROUNDWATER CONTAMINATION DISTRIBUTION MAP, MARCH 29, 1995

CONTAMINATION ASSESSMENT REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

Table 2-3
Summary of Groundwater Analytical Results
March 29, 1995

Contamination Assessment Report Addendum
Site 9 - UST 134, Naval Aviation Depot
Pensacola, Florida

Contaminant	Groundwater Sample Designation					State Target Levels[1]
	[2]09G00101	09G00201	09G00301	09G00401	[3]09G00401D	
Volatile Organic Aromatics (VOA). Reported in parts per billion (ppb).						
Benzene	<1.0	<1.0	<1 0	<1.0	<1.0	1
Toluene	<1.0	<1.0	<1.0	<1 0	<1.0	
Ethylbenzene	5.8	<1.0	<1.0	1 9	1.2	
Total Xylenes	25	<1.0	<1.0	<1 0	<1.0	
Total VOA	30.8	<4.0	<4.0	1.9N	1.2 N	50
Ethylene dibromide	<0 02	<0.02	<0.02	<0.02	<0 02	0.02
Total Recoverable Petroleum Hydrocarbons (TRPH). Reported in parts per million (ppm).						
TRPH	3.8	<1.0	<1 0	<1.0	<1 0	5
Lead. Reported in ppb.						
Total lead	18.0	<5.0	7.1	<5	<5.0	50

[1]Florida primary drinking water standard: Chapter 62-550 Florida Administrative Code.
[2]Monitoring well 09G001 was sampled for the Used Oil analytical group because it is located in a former lube-oil underground storage tank excavation All other samples were analyzed for the Gasoline analytical group
[3]09G00401D is a duplicate sample collected from monitoring well 09G004 in conjunction with the groundwater sample 09G00401.

Notes: Total VOA = the sum concentration of benzene, toluene, ethylbenzene, and xylenes
N = Actual value maybe greater than reported value.

Table 2-4
Tentatively Identified Compounds in Groundwater Sample 09G00101, March 1995

Contamination Assessment Report Addendum
Site 9 - UST 134, Naval Aviation Depot
Pensacola, Florida

Contaminant	Concentration	Unit
Benzene, 1-ethyl-2-methyl-	46	ppb
Benzene, 1-ethyl-3-methyl-	71	ppb
Benzene, 1-ethyl-2,4-dimethyl-	38	ppb
Benzene, 1-ethyl-3,5-dimethyl-	18	ppb
Benzene, 2-ethyl-1,4-dimethyl-	34	ppb
Benzene, 4-ethyl-1,2-dimethyl-	63	ppb
Benzene, 1,3-diethyl-	19	ppb
Benzene, 1,3-diethyl-5-methyl-	12	ppb
Benzene, (1-methylpropyl)-	30	ppb
Benzene, 1-methyl-3-propyl-	30	ppb
Benzene, 1-methyl-2-(1-methylethyl)-	26	ppb
Benzene, 1-methyl-4-(1-methylethyl)-	32	ppb
Benzene, 1,2,3-trimethyl-	150	ppb
Benzene, 1,2,4-trimethyl-	57	ppb
Benzene, 1,3,5-trimethyl-	51	ppb
Ethanone, 1-(3-methylphenyl)-	27	ppb
Caprolactam	46	ppb
1-Methyl-2-methylenecyclohexane	13	ppb
Maleic hydrazide	23	ppb
1,3-Cyclopentanedione, 2-chloro-	42	ppb

Some compounds were tentatively identified more than once. In those cases, the highest concentration has been reported in this table.

Notes: ppb = parts per billion

A TRPH concentration of 3.8 ppm was detected in groundwater sample 09G00101. The Chapter 62-770, FAC No Further Action target level for TRPH is 5 ppm. TRPH was not detected in any other groundwater sample.

Lead was the only metal detected in any groundwater sample. Lead concentrations ranged from below detection limits in sample 09G00201 to 18.0 ppb in sample 09G00101. The Chapter 62-770, FAC No Further Action target levels for lead is 50 ppb.

A detailed summary of the TICs detected in groundwater sample 09G00101 is presented in Table 2-4. There are no target levels or guidance concentrations for TICs.

Due to the BRAC construction, all Site 9 monitoring wells were properly abandoned in May 1995 after the final round of sampling.

3.0 SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

3.1 SUMMARY. Based on the findings of the CA field investigations and laboratory analytical results, the following is a summary of existing conditions at the site.

- Site soil consists of fine-grained, well sorted sand. The color of the soil ranges from very light gray to dark gray.
- The source of contamination, the UST, has been removed.
- Excessively contaminated soil from the tank excavation area was removed. No visual evidence of soil contamination was observed in the excavation or on the excavation walls. The excavation was backfilled with clean soil. Contaminated soil was removed from the site and thermally treated.
- Four confirmatory soil samples were collected from the excavation walls. Contamination detected in one soil sample, 09B00302, exceeded the State maximum concentration for TRPH. Two additional soil samples were collected around 09B00302 and analyzed. Contaminants detected in these samples were below all State maximum concentrations.
- Four shallow monitoring wells were installed to assess the impact of soil contamination on the groundwater at Site 9.
- The groundwater flow direction at Site 9 is southeast.
- No groundwater contaminant concentration detected in the Site 9 groundwater samples exceeded any State No Further Action target levels.
- All Site 9 monitoring wells were properly abandoned after sampling.

3.2 CONCLUSIONS. Based on the findings of the CA and site conditions, the following can be concluded.

- Approximately 14 yd^3 of excessively contaminated soil at Site 9 on the west side of the excavation must be remediated in accordance with Chapter 62-770, FAC. Figure 3-1 presents the estimated areal extent of remaining soil contamination.
- The groundwater at Site 9 has not been impacted by the soil contamination detected during this investigation.

3.3 RECOMMENDATIONS. Based on the findings, conclusions, and interpretations of the CA, ABB-ES recommends that the excessively contaminated soil be removed.

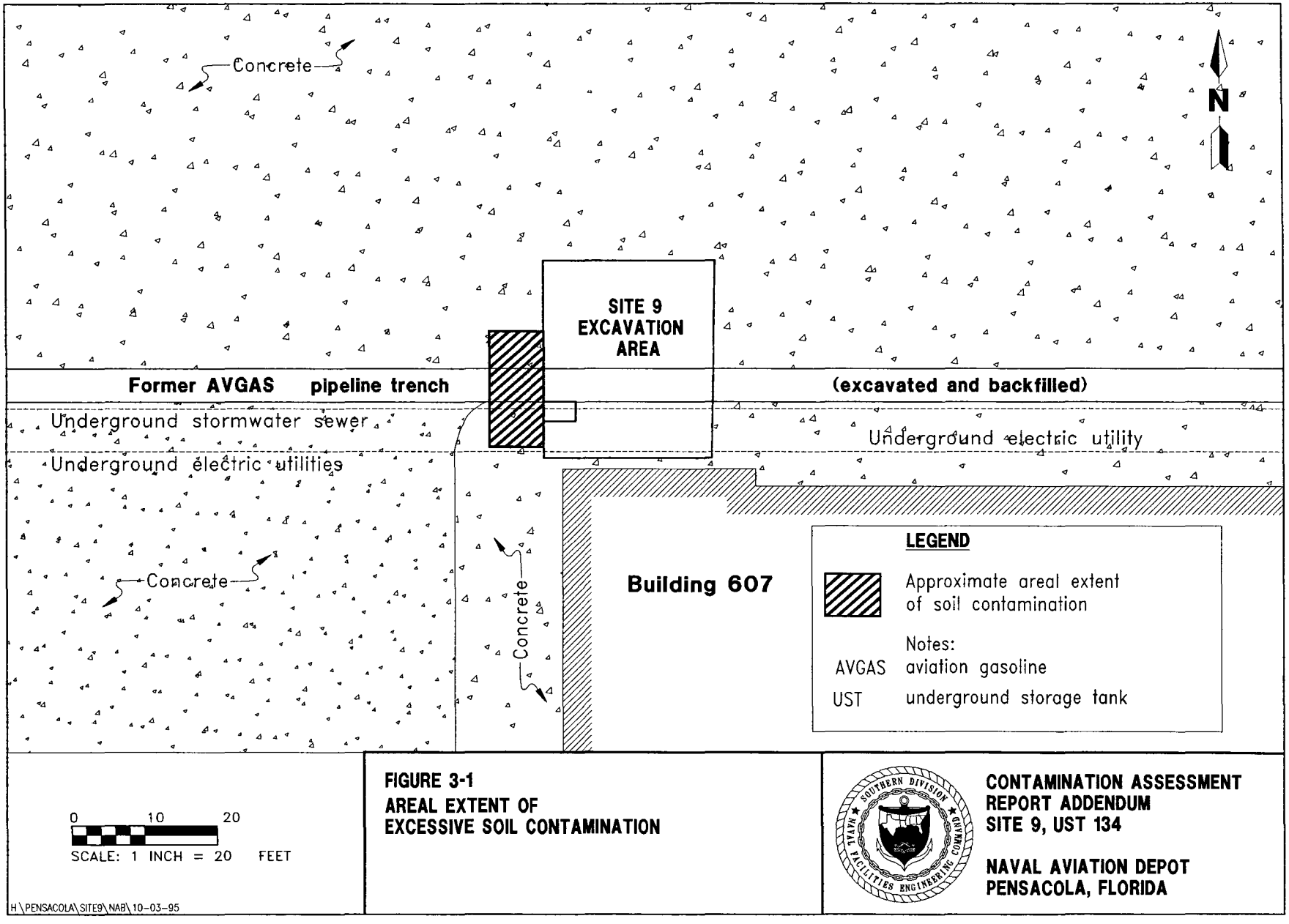

FIGURE 3-1
AREAL EXTENT OF
EXCESSIVE SOIL CONTAMINATION

CONTAMINATION ASSESSMENT
REPORT ADDENDUM
SITE 9, UST 134

NAVAL AVIATION DEPOT
PENSACOLA, FLORIDA

A No Further Action Proposal (NFAP) will be appropriate for Site 9 following soil removal.

4.0 PROFESSIONAL REVIEW CERTIFICATION

This CAR addendum was prepared under the supervision of a professional geologist registered in the State of Florida using sound hydrogeologic principles and professional judgment. This assessment is based on the geologic investigation and associated information detailed in the text and appended to this report or referenced in public literature. Recommendations are based upon interpretations of the applicable regulatory requirements, guidelines, and relevant issues discussed with regulatory personnel during the site investigation. If conditions that differ from those described are determined to exist, the undersigned geologist should be notified to evaluate the effects of any additional information on this assessment or the recommendations made in this report. This CAR addendum was developed for Site 9-UST 134 at NADEP, NAS Pensacola, Florida, and should not be construed to apply to any other site.

_____

Michael J. Williams
Professional Geologist
P.G. No. 344

_____

Date

REFERENCES

ABB Environmental Services, August 1995, Aviation Gasoline (AVGAS) Pipeline Area Contamination Assessment Report....

Florida Department of Environmental Regulation, May 1994, Guidelines for Assessment and Remediation of Petroleum Contaminated Soil: Division of Waste Management, 42 p.

Florida Department of Environmental Regulation, October 1990, No Further Action and Monitoring Only Guidelines for Petroleum Contaminated Sites: Division of Waste Management, 4 p.

Florida Department of Transportation, 1982, Florida official transportation map: 1 sheet.

APPENDIX A

GTES CORRESPONDENCE

GT Environmental Services, Inc.

One Purlieu Place, Suite 205 • Winter Park, FL 32792 • 407/671-0125 • Fax: 407/671-2705

NAS Pensacola / Chevalier Field
Closure Assessment / October 17, 1994
GT Environmental Services, Inc

Tanks 130, 138, 140, 143 had no visual contamination. Analytical was run for lead and TRPH. Contamination was detected on all the above tanks .

Tanks Removed		Contaminated		Method of Detection
#104		Soil/Groundwater		Visual
#107		Soil/Groundwater		Visual
#110		Soil		Visual
#116		Soil		Visual
#119		Soil/Groundwater		Visual
#122		Soil		Visual
#130		Soil	TPH 57 PPM	Analytical
#134	Galv.Tank	Soil		Visual
#136				Visual
#138		Soil	TPH 540 PPM	Analytical
#140			TPH 650 PPM; Lead 10PPM	Analytical
#143		Soil	TPH 49 PPM	Analytical

Note: Soil Samples were taken at points where visual contamination appeared. (Where no visual contamination appeared samples were taken from the ends and middle of soil from underground tanks)

Note: GT Environmental Services, Inc. used an HNU P.I.D. on all tank soil. Due to the heavy oil, the P.I.D. did not pick up any volatiles. We referred to the visual detection as required by the Florida Guidelines for Contamination Assessment for Oil Tanks.

GT ENVIRONMENTAL SERVICES, INC.
One Purlieu Place, Suite 205
Winter Park, Florida 32792
(407) 671-0125
FAX (407) 671-2705

FILE

September 20, 1994

Phoenix Construction Services, Inc.
1805 Tennessee Avenue
Lynn Haven, FL 32444

Attn: Terry Wilson

RE: Fuel Tankage Project
NAS, Pensacola, FL
Contract N62467-90-C-0486

Dear Terry:

The following tanks show signs of contamination, detected by visual inspection:

Tank 107 - overspill
Tank 110 - overspill
Tank 116 - loose pipe, overspill
Tank 122 - overspill
* Tank 134 - This "galvanized steel tank apparently emploded underground prior to our removal.
* Tank 136 - corrosion holes in bottom of tank
→ TANK ?? or Service Pit

Should you have any questions and/or comments, please contact this writer.

Sincerely,

G T Environmental Services, Inc.

George C. Wilbur

xc: PCS
PCS/GT

APPENDIX B

MONITORING WELL LOGS

TITLE: NADEP Pensacola, AVGAS Pipeline Area		**LOG of WELL:** 09G001	**BORING NO.** NA
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 7527.54
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 3/15/95	**COMPLTD:** 3/15/95
METHOD: 4.25" ID HSA	**CASE SIZE:** 2-inch	**SCREEN INT.:** 1.7-11.7 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 11.89FT.	**DPTH TO ▽** 3.87 FT.
LOGGED BY: P. Wagner	**WELL DEVELOPMENT DATE:** 3/15/95		**SITE:** 9, UST 134

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					FILL. crushed limestone and red clayey sand		FILL		
					FILL. red sandy clay.		FILL		
5							SP		
					SAND. very fine- to fine-grained, moderately sorted, light gray, wet, strong petroleum odor.				
10									
15									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP Pensacola, AVGAS Pipeline Area		**LOG of WELL:** 09G002	**BORING NO.** NA
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 7527.54
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 3/15/95	**COMPLTD:** 3/15/95
METHOD: 4.25" ID HSA	**CASE SIZE:** 2-inch	**SCREEN INT.:** 1.8-11.8 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 11.82FT.	**DPTH TO ▽** 3.84 FT.
LOGGED BY: P. Wagner	**WELL DEVELOPMENT DATE:** 3/15/95		**SITE:** 9, UST 134

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					CONCRETE				
					FILL. red sandy clay.		FILL		
5					SAND. very fine- to fine-grained, moderately sorted, dark yellowish brown, wet, sulfurous odor		SP		
10									
15									

ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP Pensacola, AVGAS Pipeline Area	**LOG of WELL:** 09G003	**BORING NO.** NA
CLIENT: SOUTHNAVFACENGCOM		**PROJECT NO:** 7527.54
CONTRACTOR: Groundwater Protection, Inc.	**DATE STARTED:** 3/21/95	**COMPLTD:** 3/21/95
METHOD: 4.25" ID HSA	**CASE SIZE:** 2-inch	**SCREEN INT.:** 1.7-11.7 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 11.73FT.	**DPTH TO ▽** 3.79 FT.
LOGGED BY: P. Wagner	**WELL DEVELOPMENT DATE:** 3/21/95	**SITE:** 9, UST 134

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					CONCRETE				
							SP		
5					SAND fine-grained with 5% silt, moderately to well sorted, dark gray to brownish gray, saturated, no odor				
10									
15									

 ABB ENVIRONMENTAL SERVICES, INC.

TITLE: NADEP Pensacola, AVGAS Pipeline Area		**LOG of WELL:** 09G004	**BORING NO.** NA
CLIENT: SOUTHNAVFACENGCOM			**PROJECT NO:** 7527.54
CONTRACTOR: Groundwater Protection, Inc.		**DATE STARTED:** 3/21/95	**COMPLTD:** 3/21/95
METHOD: 4.25" ID HSA	**CASE SIZE:** 2-inch	**SCREEN INT.:** 1.8-11.8 FT	**PROTECTION LEVEL:** D
TOC ELEV.: 100.00 FT.	**MONITOR INST.:** OVA	**TOT DPTH:** 11.82FT.	**DPTH TO ▽** 4.08 FT.
LOGGED BY: P. Wagner	**WELL DEVELOPMENT DATE:** 3/21/95		**SITE:** 9, UST 134

DEPTH FT.	LABORATORY SAMPLE ID.	SAMPLE	RECOVERY	HEADSPACE (ppm)	SOIL/ROCK DESCRIPTION AND COMMENTS	LITHOLOGIC SYMBOL	SOIL CLASS	BLOWS/6-IN	WELL DATA
					CONCRETE FILL		FILL SP		
5					SAND fine-grained, well sorted, light gray to brownish gray.				
10									
15									

ABB ENVIRONMENTAL SERVICES, INC.

APPENDIX C

LABORATORY ANALYTICAL DATA SHEETS

08/28/95 NADEP AVGAS PIPELINE SITE 9 14:56:30

Lab Sample Number:	B4K0400180				B4K0400180			
Site	NADEP-9				NADEP-9			
Locator	09B00101				09B00101D			
Collect Date:	03-NOV-94				03-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
GC/MS Volatiles								
Acrolein	53	U	ug/kg	53	53	U	ug/kg	53
Acrylonitrile	53	U	ug/kg	53	53	U	ug/kg	53
Benzene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Bromodichloromethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Bromoform	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Bromomethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Carbon tetrachloride	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Chlorobenzene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Dibromochloromethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Chloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
2-Chloroethyl vinyl ether	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Chloroform	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Chloromethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,2-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350
1,3-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350
1,4-Dichlorobenzene	350	U	ug/kg	350	5.3	U	ug/kg	5.3
1,1-Dichloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,2-Dichloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,1-Dichloroethene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
cis-1,2-Dichloroethene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
trans-1,2-Dichloroethene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,2-Dichloropropane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
cis-1,3-Dichloropropene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
trans-1,3-Dichloropropene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Ethylbenzene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Trichlorofluoromethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Methylene chloride	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,1,2,2-Tetrachloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Tetrachloroethene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Toluene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,1,1-Trichloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
1,1,2-Trichloroethane	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Trichloroethene	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Vinyl chloride	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
Xylenes, Total	5.3	U	ug/kg	5.3	5.3	U	ug/kg	5.3
GC/MS Semi-Volatiles								
Acenaphthene	350	U	ug/kg	350	350	U	ug/kg	350
Acenaphthylene	350	U	ug/kg	350	350	U	ug/kg	350
Anthracene	350	U	ug/kg	350	350	U	ug/kg	350
Benzidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800
Benzo(a)anthracene	350	U	ug/kg	350	350	U	ug/kg	350
Benzo(b)fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350
Benzo(k)fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350
Benzo (g,h,i) perylene	350	U	ug/kg	350	350	U	ug/kg	350
Benzo(a)pyrene	350	U	ug/kg	350	350	U	ug/kg	350
Bis(2-chloroethoxy)methane	350	U	ug/kg	350	350	U	ug/kg	350
Bis(2-chloroethyl)ether	350	U	ug/kg	350	350	U	ug/kg	350
Bis(2-chloroisopropyl)ether	350	U	ug/kg	350	350	U	ug/kg	350
Bis(2-ethylhexyl)phthalate	350	U	ug/kg	350	350	U	ug/kg	350
4-Bromophenyl phenyl ether	350	U	ug/kg	350	350	U	ug/kg	350

08/28/95 NADEP AVGAS PIPELINE SITE 9 14:56:30

Lab Sample Number:		B4K0400180				B4K0400180			
Site		NADEP-9				NADEP-9			
Locator		09B00101				09B00101D			
Collect Date:		03-NOV-94				03-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	
Butyl benzyl phthalate	350	U	ug/kg	350	350	U	ug/kg	350	
4-Chloro-3-methylphenol	350	U	ug/kg	350	350	U	ug/kg	350	
2-Chloronaphthalene	350	U	ug/kg	350	350	U	ug/kg	350	
2-Chlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	
4-Chlorophenyl phenyl ether	350	U	ug/kg	350	350	U	ug/kg	350	
Chrysene	350	U	ug/kg	350	350	U	ug/kg	350	
Dibenz (a,h) anthracene	350	U	ug/kg	350	350	U	ug/kg	350	
Di-n-butyl phthalate	350	U	ug/kg	350	350	U	ug/kg	350	
1,2-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	
1,3-Dichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	
1,4-Dichlorobenzene	350	U	ug/kg	350	5.3	U	ug/kg	5.3	
3,3'-Dichlorobenzidine	1800	U	ug/kg	1800	1800	U	ug/kg	1800	
2,4-Dichlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	
Diethyl phthalate	350	U	ug/kg	350	350	U	ug/kg	350	
2,4-Dimethylphenol	350	U	ug/kg	350	350	U	ug/kg	350	
Dimethyl phthalate	350	U	ug/kg	350	350	U	ug/kg	350	
Di-n-octyl phthalate	350	U	ug/kg	350	350	U	ug/kg	350	
4,6-Dinitro-2-methylphenol	1800	U	ug/kg	1800	1800	U	ug/kg	1800	
2,4-Dinitrophenol	1800	U	ug/kg	1800	1800	U	ug/kg	1800	
2,4-Dinitrotoluene	350	U	ug/kg	350	350	U	ug/kg	350	
2,6-Dinitrotoluene	350	U	ug/kg	350	350	U	ug/kg	350	
Fluoranthene	350	U	ug/kg	350	350	U	ug/kg	350	
Fluorene	350	U	ug/kg	350	350	U	ug/kg	350	
Hexachlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	
Hexachlorocyclopentadiene	350	U	ug/kg	350	350	U	ug/kg	350	
Hexachloroethane	350	U	ug/kg	350	350	U	ug/kg	350	
Indeno(1,2,3-cd)pyrene	350	U	ug/kg	350	350	U	ug/kg	350	
Isophorone	350	U	ug/kg	350	350	U	ug/kg	350	
Naphthalene	350	U	ug/kg	350	350	U	ug/kg	350	
Nitrobenzene	350	U	ug/kg	350	350	U	ug/kg	350	
2-Nitrophenol	350	U	ug/kg	350	350	U	ug/kg	350	
4-Nitrophenol	1800	U	ug/kg	1800	1800	U	ug/kg	1800	
N-Nitrosodimethylamine	350	U	ug/kg	350	350	U	ug/kg	350	
N-Nitrosodi-n-propylamine	350	U	ug/kg	350	350	U	ug/kg	350	
N-Nitrosodiphenylamine	350	U	ug/kg	350	350	U	ug/kg	350	
Pentachlorophenol	1800	U	ug/kg	1800	1800	U	ug/kg	1800	
Phenanthrene	350	U	ug/kg	350	350	U	ug/kg	350	
Phenol	350	U	ug/kg	350	350	U	ug/kg	350	
Pyrene	350	U	ug/kg	350	350	U	ug/kg	350	
1,2,4-Trichlorobenzene	350	U	ug/kg	350	350	U	ug/kg	350	
2,4,6-Trichlorophenol	350	U	ug/kg	350	350	U	ug/kg	350	
Hexachlorobutadiene	350	U	ug/kg	350	350	U	ug/kg	350	
GC Semi-Volatiles									
PCB-1016	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1221	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1232	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1242	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1248	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1254	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	
PCB-1260	1.1	U	mg/kg	1.1	1.1	U	mg/kg	1.1	

08/28/95 NADEP AVGAS PIPELINE SITE 9 14:56:30

Lab Sample Number:	B4K0400180				B4K0400180			
Site	NADEP-9				NADEP-9			
Locator	09B00101				09B00101D			
Collect Date:	03-NOV-94				03-NOV-94			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TOTAL METALS								
Cadmium	.46	J	mg/kg	.53	.52	J	mg/kg	.53
Chromium	3.6		mg/kg	2.6	4.4		mg/kg	2.7
Arsenic	1.1		mg/kg	.26	1.5		mg/kg	.27
Lead	20.5		mg/kg	.53	22		mg/kg	1.1
TRPH								
Total petroleum hydrocarbons	17.2		mg/kg	5.3	97.2		mg/kg	5.3
TOTAL SOLIDS								
Total Solids	94.5		PERCE	1	94.3		PERCE	1

U = Not Detected J = Estimated Value

08/28/95 NADEP AVGAS PIPELINE SITE 9 13:13:12

Lab Sample Number:	B5C1000580				B5C1000580				B5C1000580				B5C1000580			
Site	NADEP-9				NADEP-9				NADEP-9				NADEP-9			
Locator	09B00202				09B00302				09B00402				09B00502			
Collect Date:	07-MAR-95				07-MAR-95				07-MAR-95				07-MAR-95			
	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TOTAL METALS																
Cadmium	.52	U	mg/kg	.52	.52	U	mg/kg	.52	.52	U	mg/kg	.52	.52	U	mg/kg	.52
Chromium	2.7		mg/kg	2.6	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6
Arsenic	.79		mg/kg	.26	.26	U	mg/kg	.26	.26	U	mg/kg	.26	.26	U	mg/kg	.26
Lead	20.5		mg/kg	2.6	18.7		mg/kg	2.6	28.2		mg/kg	2.6	27.4		mg/kg	2.6
TRPH																
Total petroleum hydrocarbons	19.5		mg/kg	5.2	112		mg/kg	5.2	5.2	U	mg/kg	5.2	5.2	U	mg/kg	5.2
TOTAL SOLIDS																
Total Solids	96.2		PERCE	1	95.6		PERCE	1	96.6		PERCE	1	95.7		PERCE	1

U = Not Detected J = Estimated Value

08/28/95 NADEP AVGAS PIPELINE SITE 9 13:13:12

	Lab Sample Number:	B5C1000580				B5F0801130				B5F0801130				B4K0400180			
	Site	NADEP-9				NADEP-9				NADEP-9				NADEP-9			
	Locator	09B00502D				09B00603				09B00703				EQUIPMENTBLANK			
	Collect Date:	07-MAR-95				07-JUN-95				07-JUN-95				03-NOV-94			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
TOTAL METALS																	
Cadmium		.52	U	mg/kg	.52	.52	U	mg/kg	.52	.52	U	mg/kg	.52	5	U	ug/l	5
Chromium		2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6	2.6	U	mg/kg	2.6	50	U	ug/l	50
Arsenic		.26	U	mg/kg	.26	10	U	mg/kg	10	10	U	mg/kg	10	2.4	J	ug/l	5
Lead		23.8		mg/kg	2.6	32.9		mg/kg	2.6	32.3		mg/kg	2.6	1.9	J	ug/l	5
TRPH																	
Total petroleum hydrocarbons		5.2	U	mg/kg	5.2	6.5		mg/kg	5.2	5.2	U	mg/kg	5.2	1	U	mg/l	1
TOTAL SOLIDS																	
Total Solids		95.9		PERCE	1	95.9		PERCE	1	96.8		PERCE	1	-			

U = Not Detected J = Estimated Value

08/28/95 NADEP AVGAS PIPELINE SITE 9 14:55:12

Lab Sample Number:	B5C3000350
Site	NADEP-9
Locator	09G00101
Collect Date:	29-MAR-95

	VALUE	QUAL	UNITS	DL
GC/MS Volatiles				
Acrolein	10	U	ug/l	10
Acrylonitrile	10	U	ug/l	10
Benzene	1	U	ug/l	1
Bromodichloromethane	1	U	ug/l	1
Bromoform	1	U	ug/l	1
Bromomethane	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1
Chloroethane	1	U	ug/l	1
2-Chloroethyl vinyl ether	1	U	ug/l	1
Chloroform	1	U	ug/l	1
Chloromethane	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/l	1
1,3-Dichlorobenzene	10	U	ug/l	10
1,4-Dichlorobenzene	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1
cis-1,2-Dichloroethene	1	U	ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1
Ethylbenzene	5.8		ug/l	1
Trichlorofluoromethane	1	U	ug/l	1
Methylene chloride	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1
Tetrachloroethene	1	U	ug/l	1
Toluene	1	U	ug/l	1
1,1,1-Trichloroethane	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1
Xylenes, Total	25		ug/l	1
GC/MS Semi-Volatiles				
Acenaphthene	10	U	ug/l	10
Acenaphthylene	10	U	ug/l	10
Anthracene	10	U	ug/l	10
Benzidine	50	U	ug/l	50
Benzo(a)anthracene	10	U	ug/l	10
Benzo(b)fluoranthene	10	U	ug/l	10
Benzo(k)fluoranthene	10	U	ug/l	10
Benzo (g,h,i) perylene	10	U	ug/l	10
Benzo(a)pyrene	10	U	ug/l	10
Bis(2-chloroethoxy)methane	10	U	ug/l	10
Bis(2-chloroethyl)ether	10	U	ug/l	10
Bis(2-chloroisopropyl)ether	10	U	ug/l	10
Bis(2-ethylhexyl)phthalate	10	U	ug/l	10
4-Bromophenyl phenyl ether	10	U	ug/l	10

Lab Sample Number:	B5C3000350
Site	NADEP-9
Locator	09G00101
Collect Date:	29-MAR-95

	VALUE	QUAL	UNITS	DL
Butyl benzyl phthalate	10	U	ug/l	10
4-Chloro-3-methylphenol	10	U	ug/l	10
2-Chloronaphthalene	10	U	ug/l	10
2-Chlorophenol	10	U	ug/l	10
4-Chlorophenyl phenyl ether	10	U	ug/l	10
Chrysene	10	U	ug/l	10
Dibenz (a,h) anthracene	10	U	ug/l	10
Di-n-butyl phthalate	10	U	ug/l	10
1,2-Dichlorobenzene	1	U	ug/l	1
1,3-Dichlorobenzene	10	U	ug/l	10
1,4-Dichlorobenzene	1	U	ug/l	1
3,3'-Dichlorobenzidine	50	U	ug/l	50
2,4-Dichlorophenol	10	U	ug/l	10
Diethyl phthalate	10	U	ug/l	10
2,4-Dimethylphenol	10	U	ug/l	10
Dimethyl phthalate	10	U	ug/l	10
Di-n-octyl phthalate	10	U	ug/l	10
4,6-Dinitro-2-methylphenol	50	U	ug/l	50
2,4-Dinitrophenol	50	U	ug/l	50
2,4-Dinitrotoluene	10	U	ug/l	10
2,6-Dinitrotoluene	10	U	ug/l	10
Fluoranthene	10	U	ug/l	10
Fluorene	10	U	ug/l	10
Hexachlorobenzene	10	U	ug/l	10
Hexachlorocyclopentadiene	10	U	ug/l	10
Hexachloroethane	10	U	ug/l	10
Indeno(1,2,3-cd)pyrene	10	U	ug/l	10
Isophorone	10	U	ug/l	10
Naphthalene	10	U	ug/l	10
Nitrobenzene	10	U	ug/l	10
2-Nitrophenol	10	U	ug/l	10
4-Nitrophenol	50	U	ug/l	50
N-Nitrosodimethylamine	10	U	ug/l	10
N-Nitrosodi-n-propylamine	10	U	ug/l	10
N-Nitrosodiphenylamine	10	U	ug/l	10
Pentachlorophenol	50	U	ug/l	50
Phenanthrene	10	U	ug/l	10
Phenol	10	U	ug/l	10
Pyrene	10	U	ug/l	10
1,2,4-Trichlorobenzene	10	U	ug/l	10
2,4,6-Trichlorophenol	10	U	ug/l	10
Hexachlorobutadiene	10	U	ug/l	10
TOTAL METALS				
Cadmium	5		ug/l	5
Chromium	50		ug/l	50
Arsenic	5		ug/l	5
Lead	18		ug/l	5
TRPH				
Total petroleum hydrocarbons	3.8		mg/l	1

U = Not Detected J = Estimated Value

Lab Sample Number:	B5C3000350
Site	NADEP-9TIC
Locator	09G00101
Collect Date:	29-MAR-95

	VALUE	QUAL	UNITS	DL
TENTATIVELY IDENTIFIED CMPNDS.				
Benzene, 1,3-Diethyl-	19		ug/l	
Benzene, 1-Ethyl-3,5-Dimethyl-	18		ug/l	
Maleic Hydrazide	23		ug/l	
Benzene, 1-Methyl-2-(1-Methyle	26		ug/l	
Benzene, 1,3-Diethyl-5-Methyl-	12		ug/l	
Caprolactam	46		ug/l	
Benzene, (1-Methylpropyl)-	30		ug/l	
Benzene, 1-Methyl-4-(1-Methyle	32		ug/l	
Benzene, 1-Ethyl-2-Methyl-	21		ug/l	
Benzene, 1,3,5-Trimethyl-	51		ug/l	
Benzene, 4-Ethyl-1,2-Dimethyl-	63		ug/l	
Benzene, 1-Ethyl-2,4-Dimethyl-	18		ug/l	
Ethanone, 1-(3-Methylphenyl)-	27		ug/l	
Benzene, 1-Ethyl-2-Methyl-	46		ug/l	
Benzene, 1,2,4-Trimethyl-	35		ug/l	
Benzene, 1,2,3-Trimethyl-	150		ug/l	
Benzene, 1-Ethyl-3-Methyl-	71		ug/l	
Benzene, 1-Methyl-3-Propyl-	30		ug/l	
Benzene, 2-Ethyl-1,4-Dimethyl-	34		ug/l	
Benzene, 1-Ethyl-2,4-Dimethyl-	38		ug/l	
Benzene, 4-Ethyl-1,2-Dimethyl-	47		ug/l	
Benzene, 1-Ethyl-3-Methyl-	17		ug/l	
1,3-Cyclopentanedione, 2-Chlor	42		ug/l	
Benzene, 1,2,4-Trimethyl-	57		ug/l	

08/29/95 NADEP AVGAS PIPELINE SITE 9 07:35:26

	Lab Sample Number:	B5C3000350				B5C3000350				B5C3000350				B5C3000350			
	Site	NADEP-9				NADEP-9				NADEP-9				NADEP-9			
	Locator	09G00201				09G00301				09G00401				09G00401D			
	Collect Date:	29-MAR-95				29-MAR-95				29-MAR-95				29-MAR-95			
		VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL	VALUE	QUAL	UNITS	DL
EPA 601/602																	
Chloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromomethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Vinyl chloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dichloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichlorofluoromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,2-Dichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chloroform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,1-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Carbon tetrachloride		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichloropropane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
cis-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Trichloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Dibromochloromethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2-Trichloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
trans-1,3-Dichloropropene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Bromoform		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,1,2,2-Tetrachloroethane		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Tetrachloroethene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,3-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,2-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
1,4-Dichlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Benzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Toluene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Chlorobenzene		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
Ethylbenzene		1	U	ug/l	1	1	U	ug/l	1	1.9		ug/l	1	1.2		ug/l	1
Xylenes (total)		1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1	1	U	ug/l	1
601 mod.																	
Ethylene Dibromide		.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02	.02	U	ug/l	.02
METALS																	
Lead		5	U	ug/l	5	7.1		ug/l	5	5	U	ug/l	5	5	U	ug/l	5
TRPH																	
Total petroleum hydrocarbons		1	U	mg/l	1	1	U	mg/l	1	1		mg/l	1	1		mg/l	1

U = Not Detected J = Estimated Value

08/29/95 NADEP AVGAS PIPELINE SITE 9 07:35:26

Lab Sample Number:	B5C3000350			
Site	NADEP-9			
Locator	09G0EB01			
Collect Date:	29-MAR-95			
	VALUE	QUAL	UNITS	DL
EPA 601/602				
Chloromethane	1	U	ug/l	1
Bromomethane	1	U	ug/l	1
Vinyl chloride	1	U	ug/l	1
Chloroethane	1	U	ug/l	1
Dichloromethane	1	U	ug/l	1
Trichlorofluoromethane	1	U	ug/l	1
1,1-Dichloroethene	1	U	ug/l	1
1,1-Dichloroethane	1	U	ug/l	1
trans-1,2-Dichloroethene	1	U	ug/l	1
Chloroform	1	U	ug/l	1
1,2-Dichloroethane	1	U	ug/l	1
1,1,1-Trichloroethane	1	U	ug/l	1
Carbon tetrachloride	1	U	ug/l	1
1,2-Dichloropropane	1	U	ug/l	1
cis-1,3-Dichloropropene	1	U	ug/l	1
Trichloroethene	1	U	ug/l	1
Dibromochloromethane	1	U	ug/l	1
1,1,2-Trichloroethane	1	U	ug/l	1
trans-1,3-Dichloropropene	1	U	ug/l	1
Bromoform	1	U	ug/l	1
1,1,2,2-Tetrachloroethane	1	U	ug/l	1
Tetrachloroethene	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1
1,3-Dichlorobenzene	1	U	ug/l	1
1,2-Dichlorobenzene	1	U	ug/l	1
1,4-Dichlorobenzene	1	U	ug/l	1
Benzene	1	U	ug/l	1
Toluene	1	U	ug/l	1
Chlorobenzene	1	U	ug/l	1
Ethylbenzene	1	U	ug/l	1
Xylenes (total)	1	U	ug/l	1
601 mod.				
Ethylene Dibromide	.02	U	ug/l	.02
METALS				
Lead	5	U	ug/l	5
TRPH				
Total petroleum hydrocarbons	1		mg/l	1

U = Not Detected J = Estimated Value