TRUAX FIELD

SITE ASSESSMENT REPORT
HANGAR 414 EXPANSION AREA

WISCONSIN AIR NATIONAL GUARD
128th FIGHTER WING
DANE COUNTY AIRPORT, TRUAX FIELD
MADISON, WISCONSIN

FINAL

Prepared for:

National Guard Bureau ANGRC/CEVR
Andrews AFB, Maryland 20331-6008

Prepared by:

Advanced Sciences, Inc.
165 Mitchell Road
Oak Ridge, Tennessee 37830

Submitted to:

Hazardous Waste Remedial Action Program
Martin Marietta Energy Systems, Inc.
Oak Ridge, Tennessee 37830

July, 1994

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LIST OF ACRONYMS

ANGRC	Air National Guard Readiness Center
ASI	Advanced Sciences, Inc.
BGL	Below Ground Level
CLP	Contract Laboratory Program
Cm/Sec	Centimeters Per Second
COC	Chain-of-Custody
DILHR	Department of Industry, Labor, and Human Relations
DOE	Department of Energy
DOT	Department of Transportation
EPA	Environmental Protection Agency
ES	Enforcement Standard
F	Fahrenheit
F-12	Dichlorodifluoromethane
Ft	Feet
GC	Gas Chromatograph
GRO	Gasoline Range Organic
HAZWRAP	Hazardous Waste Remedial Actions Program
ID	Inside Diameter
In/Yr	Inches Per Year
K	Hydraulic Conductivity
LEL	Lower Explosive Limit
MMES	Martin Marietta Energy Systems, Inc.
MSL	Mean Sea Level
Mt.	Mount
MW	Monitoring Well
NOAA	National Oceanic and Atmospheric Administration
OD	Outside Diameter
OVM	Organic Vapor Meter
PAL	Preventive Action Limit
PID	Photoionization Detector
PPM	Parts Per Million
PVC	Polyvinyl Chloride
QA	Quality Assurance
QC	Quality Control
RRI	Rapid Response Initiative
SA	Site Assessment
SB	Soil Boring
SVOC	Semivolatile Organic Compound
TN	Tennessee

LIST OF ACRONYMS (Continued)

UST	Underground Storage Tank
VOC	Volatile Organic Compound
WANG	Wisconsin Air National Guard
WDNR	Wisconsin Department of Natural Resources
WI	Wisconsin

1.0 INTRODUCTION

1.1 BACKGROUND

The Air National Guard Readiness Center (ANGRC) has developed the Rapid Response Initiative (RRI) to conduct site assessments (SAs), evaluate potential corrective actions, and design the selected remedies at leaking underground storage tank (UST) and spill sites at Air National Guard facilities. The U.S. Department of Energy (DOE) provides technical assistance in implementing the RRI for the ANGRC through an existing Interagency Agreement with the Air Force and through the Hazardous Waste Remedial Actions Program (HAZWRAP). Martin Marietta Energy Systems, Inc. (MMES) has been assigned the responsibility of managing HAZWRAP for DOE.

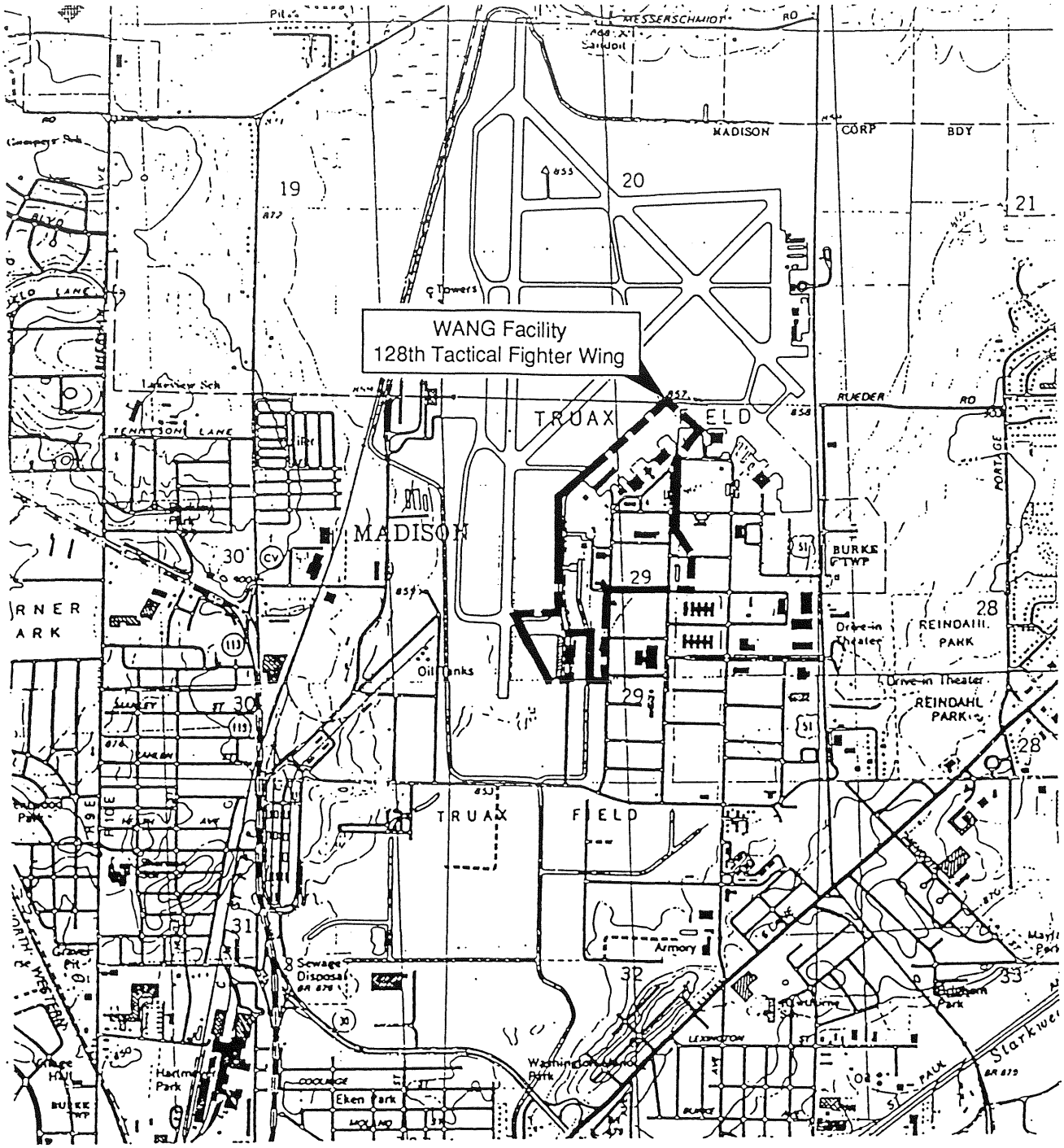
This report details SA activities conducted by Advanced Sciences, Inc. (ASI) at Hangar 414, located at the 128th Fighter Wing, Wisconsin Air National Guard (WANG), Dane County Airport, Truax Field, Madison, Wisconsin (WI), SE&NE1/4, NW1/4, Section 29, T8N, R10E (Figure 1.1). The WANG facility has been in operation since October 1942. This SA was conducted to determine the presence or absence and extent, if any, of petroleum hydrocarbon contamination in the soils at the proposed hangar expansion area for Hangar 414 (Figure 1.2). This SA would also provide, if required, the data necessary to support evaluation of corrective action alternatives, and eventual selection, design, and implementation of a preferred corrective action in accordance with applicable Wisconsin Department of Natural Resources (WDNR) and the Department of Industry, Labor, and Human Relations (DILHR) requirements.

ASI's Senior Geologist Mr. Paul Linley, a Wisconsin Certified Site Assessor (04394) and Tennessee (TN) Registered Geologist (TN 2255), completed the SA activities for the proposed Hangar 414 expansion area. ASI contracted Environmental and Foundation Drilling, Inc. of 217 Raemisch Road, Waunakee, WI 53597, 608-849-9896, to assist with the subsurface investigation. ASI also contracted Warzyn Inc. of 1 Science Court, Madison, WI 53711, 608-231-4747, to conduct the laboratory analyses of the soil and groundwater samples collected as part of the investigation activities.

1.2 ENVIRONMENTAL SETTING

1.2.1 Meteorology

Information from the National Oceanic and Atmospheric Administration (NOAA) indicates that the climate at the WANG facility is considered temperate which consists of mild summers and cold winters. The average mean annual temperature range is 35°-56° fahrenheit (F). Mean annual precipitation is 31 inches per year (in/yr), and the annual evaporation is 25in/yr. The net precipitation (the difference between mean precipitation and mean evaporation) is 5in/yr (NOAA local Climatological Data 1990).



NOTE:

1. SITE LOCATION MAP DEVELOPED FROM THE MADISON EAST AND DEFOREST, WISCONSIN 7 1/2 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE MAPS, DATED 1983.

north

0 2000 4000

SCALE IN FEET

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FIGURE 1.1
WANG FACILITY LOCATION MAP

Drawn By:	Approved By:
Checked By:	Drawing No. WANG28
Project Number: 9750.K19	

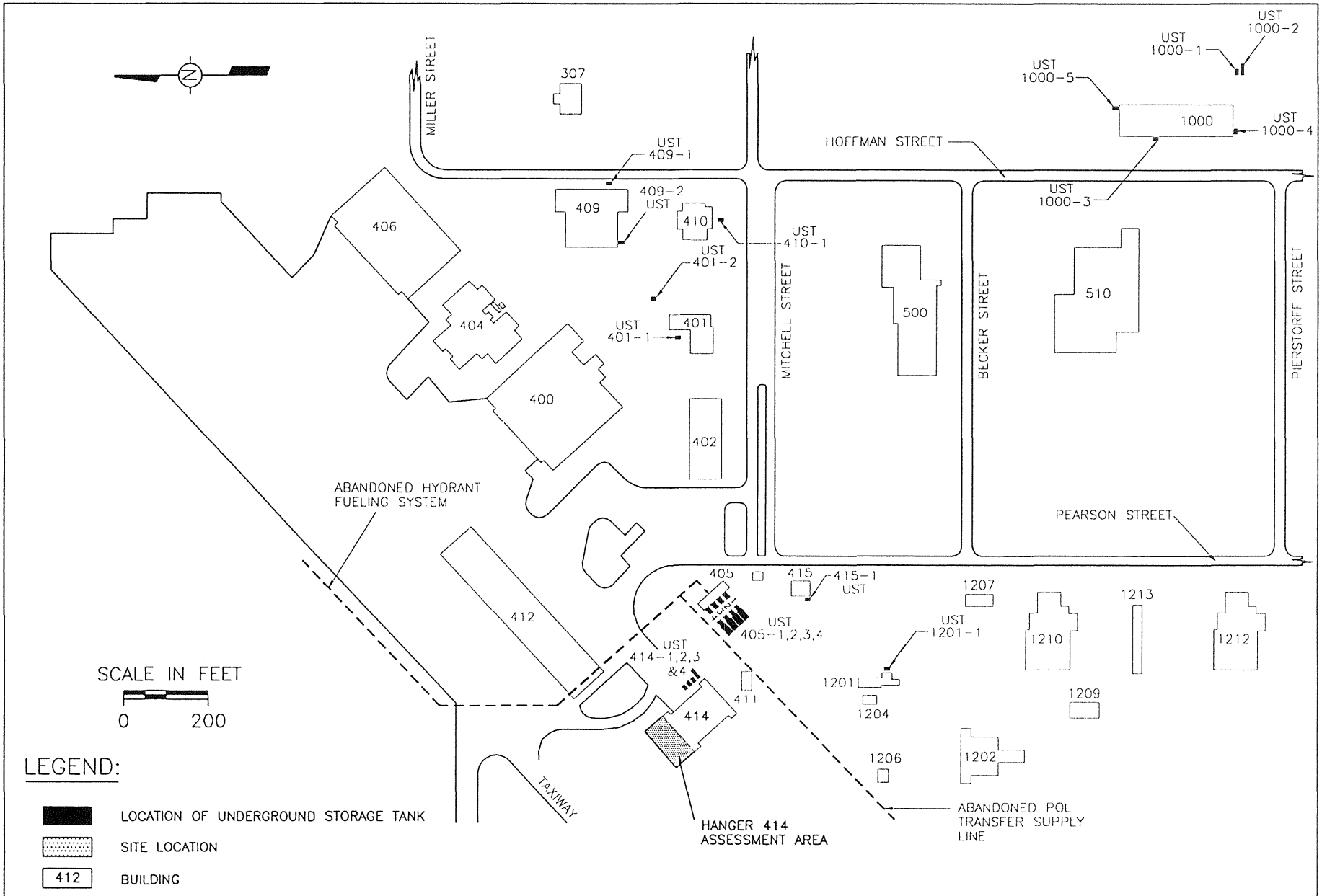

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FIGURE 1.2
HANGAR 414 PROPOSED EXPANSION AREA LOCATION MAP

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Checked By:	Drawing No. WANG51E
Project Number: 9750.K19	

1.2.2 Physiography and Surface Drainage

Truax Field, in Dane County, WI, is situated near the center of the Central Lowlands Physiographic Province of the United States. The province is characterized by generally horizontal to gently dipping strata, and displays widespread topographic effects of glaciation.

The local stratigraphy includes Cambrian aged rock formations overlying Precambrian aged bedrock. The Cambrian strata consist primarily of sandstones, shales, siltstones, and dolomites. The Cambrian strata are overlain by highly weathered dolomites of Ordovician age. The entire area is covered by a veneer of unconsolidated glacial deposits of Quaternary age (Figure 1.3).

The WANG facility is located on a wedge of glacial drift approximately 300 feet (ft) thick, which overlies the Mount (Mt.) Simon Sandstone. The glacial drift material is predominantly sands and silts with interbedded clays and gravels, and is believed to occupy the pre-glacial Yahara River Valley (Figure 1.3). Glacial deposits cover all but the southwestern quarter of Dane County. Truax Field is approximately 15 miles east and 15 miles northeast of the terminal moraines marking the southwestern extent of glaciation during the Wisconsinan period of glaciation.

The uppermost glacial deposits near the WANG facility are mostly silts and clays deposited in the former Lake Yahara, which existed during the glacial period. Outwash sands and gravels occur near former glacial lake shorelines and within a few feet of the surface, beneath the finer-grained lake sediments.

Drainage on the WANG facility is channeled through excavated ditches and culverts which are routed to Starkweather Creek (Figure 1.4). Current surface drainage at the WANG facility flows westward into drainage channels located within the facility boundaries. The drainage channels discharge into Starkweather Creek, with the outfall just south of the facility. Starkweather Creek discharges into Lake Monona approximately two miles south of the WANG facility.

1.2.3 Local Hydrogeology and Groundwater Usage

The aquifer system in Dane County is generally subdivided into the lower sandstone aquifer, composed of the Cambrian age Mt. Simon sandstones, and the upper aquifer, composed mostly of Ordovician dolomites and overlying unconsolidated Quaternary deposits. Precambrian crystalline rocks underlie the Madison area at a depth of about 700 to 1,000ft, forming the lower boundary of the aquifer system (Figure 1.3).

Madison's municipal water supply is obtained from production wells completed in the Mt. Simon sandstone aquifer. The WANG facility receives all of its water from the City of Madison. The nearest groundwater withdrawal is from the sandstone aquifer by municipal wells located approximately one mile to the southeast (Madison City Well No. 15, 3900 East Washington Avenue) and 1.5 miles to the southwest (Madison City Well No. 7, 1709 North Sherman Avenue) of the WANG facility. Production wells for the nearby Oscar Mayer Plant are also located approximately 1.5 miles southwest of the WANG facility. The Madison Area Technical College-Truax Campus, located just south of the WANG facility, is also supplied by the Madison City Water District.

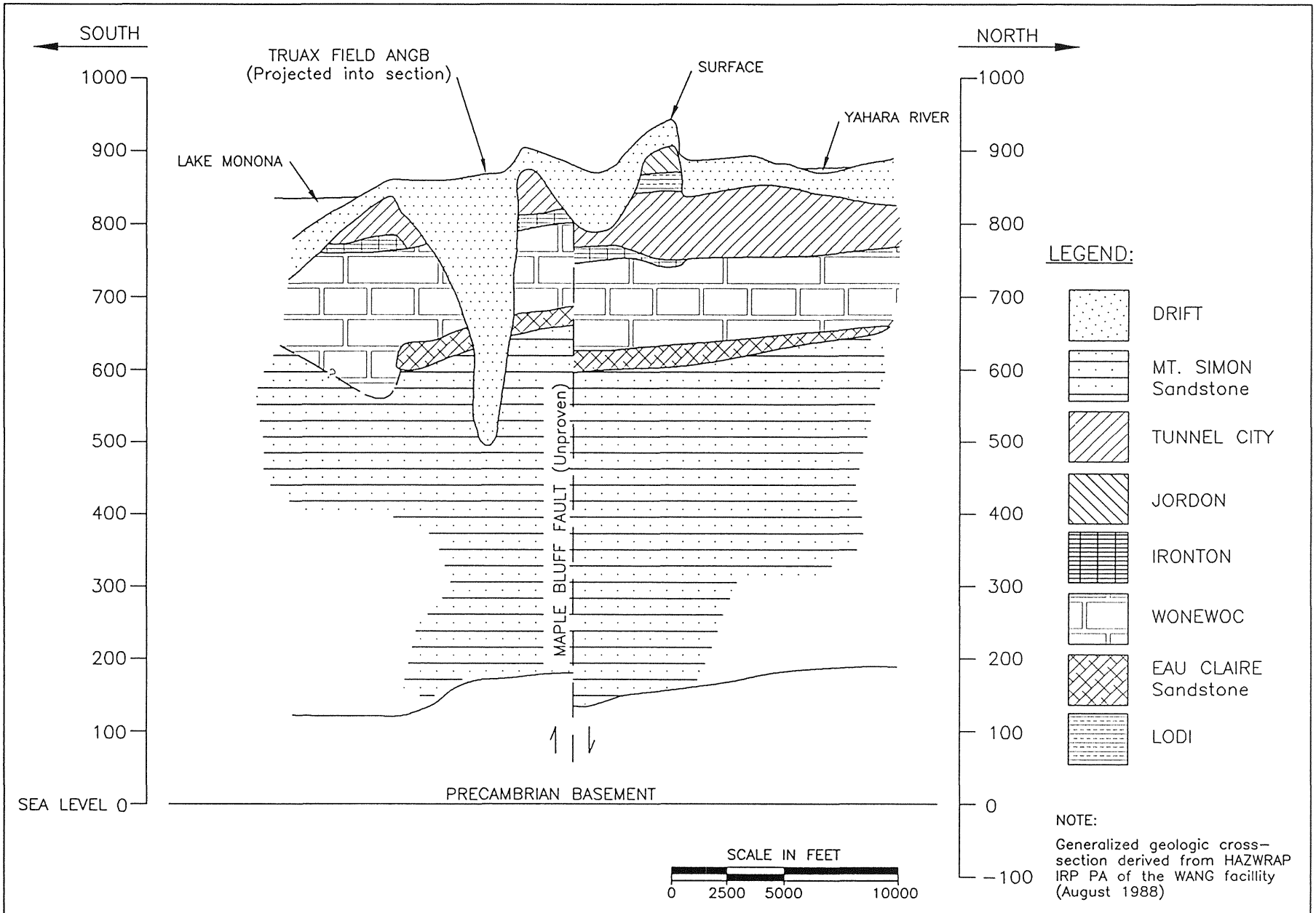

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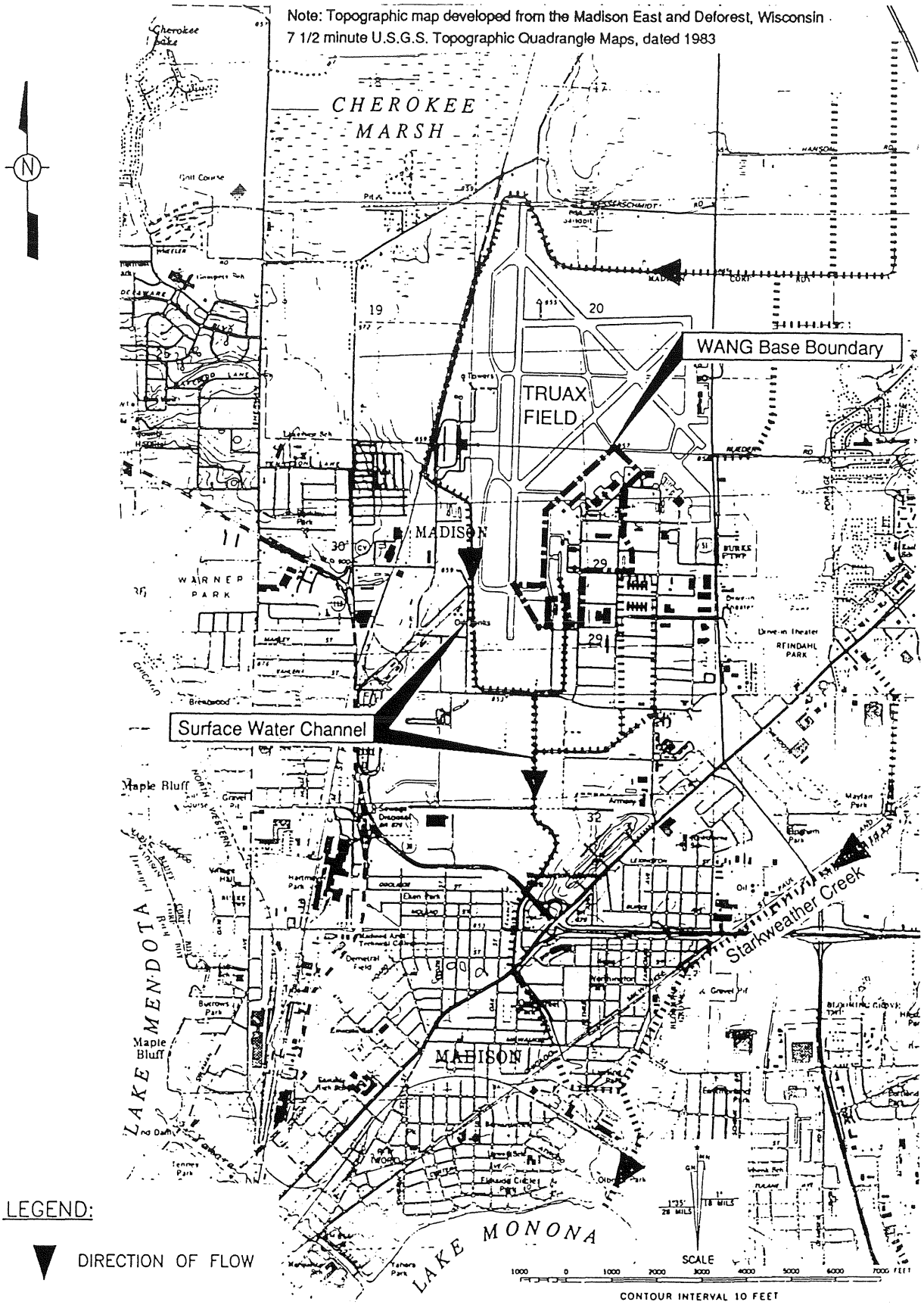
FIGURE 1.3
GENERALIZED GEOLOGICAL CROSS SECTION OF MADISON, WISCONSIN

Drawn By:	Approved By:
Checked By:	Drawing No. WANG52
Project Number: 9750.K19	



ADVANCED SCIENCES, INC.	FIGURE 1.4 SURFACE DRAINAGE AND TOPOGRAPHIC MAP	Drawn By:	Approved By:
		Checked By:	Drawing No. WANG30
		Project Number: 9750.K19	

1.2.4 Site Geology

Truax Field and the proposed 414 hangar expansion area overly glacial outwash material. Figure 1.5 illustrates the line of section for geologic cross section A-A' which is shown in Figure 1.6. Figure 1.6 is a generalized geological section through the site location interpreted from Lithologic Logs (Appendix A) obtained during the current SA. A surficial layer of clayey silt, approximately three feet thick, was encountered at the site location. Below this silt layer, a very fine- to fine-grained stratified clayey sand was observed. The clay fraction decreased with depth, at approximately four feet below ground level (BGL), to form a moderately to poorly sorted sand unit. Groundwater was encountered between three and seven feet BGL depending on the soil boring (SB) location.

The proposed expansion area is located over a small basin which allows stormwater runoff to be collected in a storm drain located at the approximate center of the investigation area.

1.3 SITE DESCRIPTION

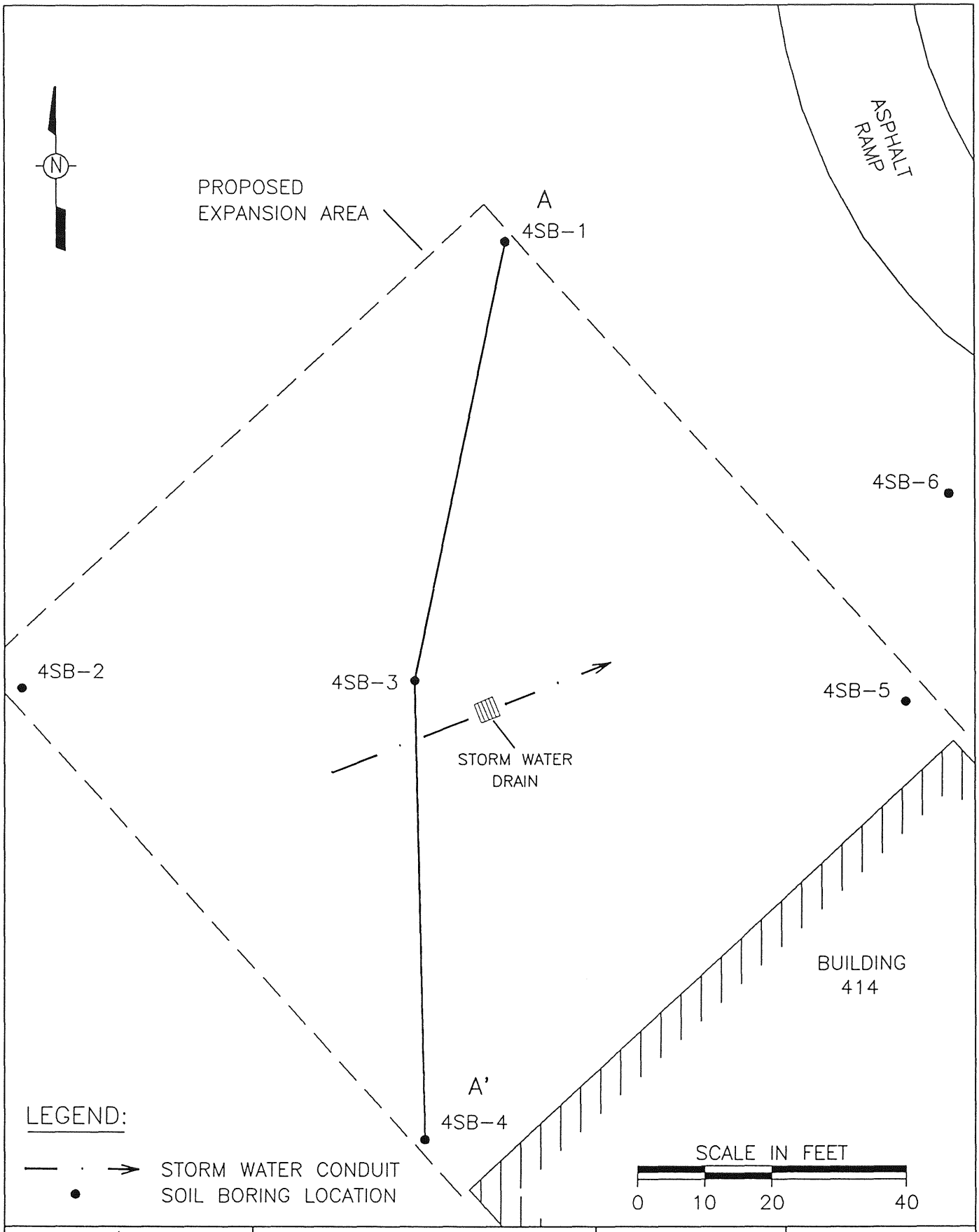
During the course of the predrilling visual inspection for the January 1993 field effort, ASI noted that Hangar 414 was used for aircraft maintenance. The proposed expansion area is located over a topographic low which diverts runoff to a storm drain located at the center of the area. Hangar 412, located to the northeast of Hangar 414, utilizes a surface drainage system that diverts wastewater generated during periodic flushing of the hangar facility floors to the storm drain located in the proposed expansion area. Hangar 412 is also used for general aircraft maintenance operations. Monitoring well (MW) MW-15 is located between Hangars 412 and 414, along the surface drainage route. MW-15 is known to have elevated levels of petroleum hydrocarbon constituents in the groundwater (ASI 1991).

1.3.1 Utilities Location

The site is located on the northwest side of Hangar 414 (Figure 1.2). The on-site inspection of the proposed expansion area identified a stormwater drain located at the approximate center of the site. This drain system bisects the site from west to east. Buried utilities were present in the area along the northwest wall of Hangar 414. Buried utilities included a water line for the fire hydrant system and a high voltage power line. Subsurface utility locations were confirmed by the WANG Civil Engineers and Dig Safe, a utility survey company.

1.4 SITE HISTORY

ASI conducted a limited subsurface investigation to the north of the site with the installation of two MWs, MW-15 and MW-17 (ASI 1991). ASI installed MW-15 to fulfill the "upgradient background" requirement, established by field protocol, for their SA activities completed in April 1991. Upon installation of MW-15, ASI noted elevated levels of volatiles in the soils and groundwater. ASI field screened the soil samples with a photoionization detector (PID) and a field gas chromatograph (GC) which confirmed soil contamination at this location. ASI Dames



ADVANCED SCIENCES, INC.	FIGURE 1.5 TRANSECT OF GEOLOGICAL CROSS SECTION	Drawn By:	Approved By:
		Checked By:	Drawing No. WANG50A
		Project Number: 9750.K19	

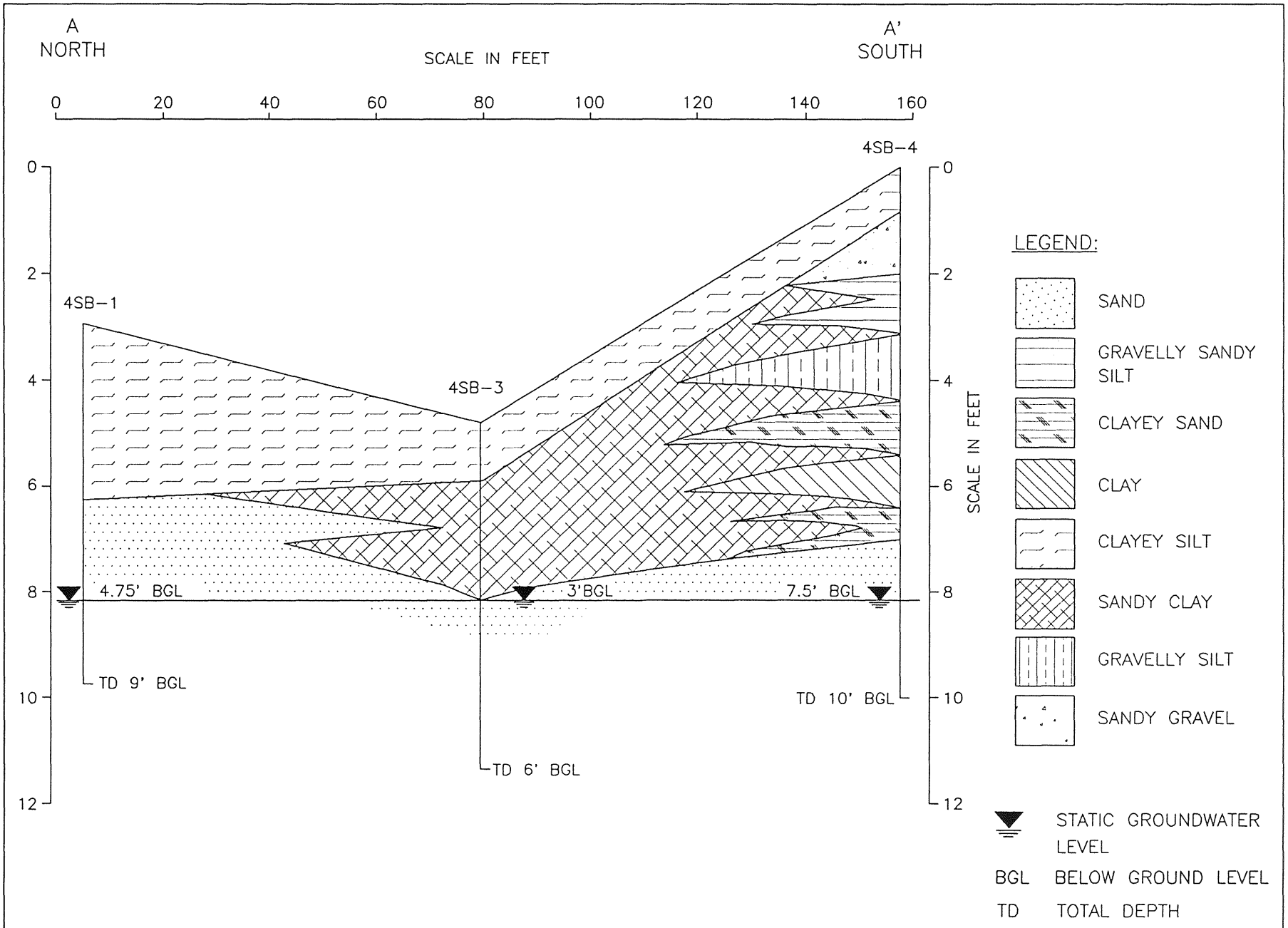


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FIGURE 1.6
GENERALIZED GEOLOGICAL CROSS SECTION
OF SITE HANGAR 414

Drawn By:	Approved By:
Checked By:	Drawing No. WANG58
Project Number: 9750.K19	

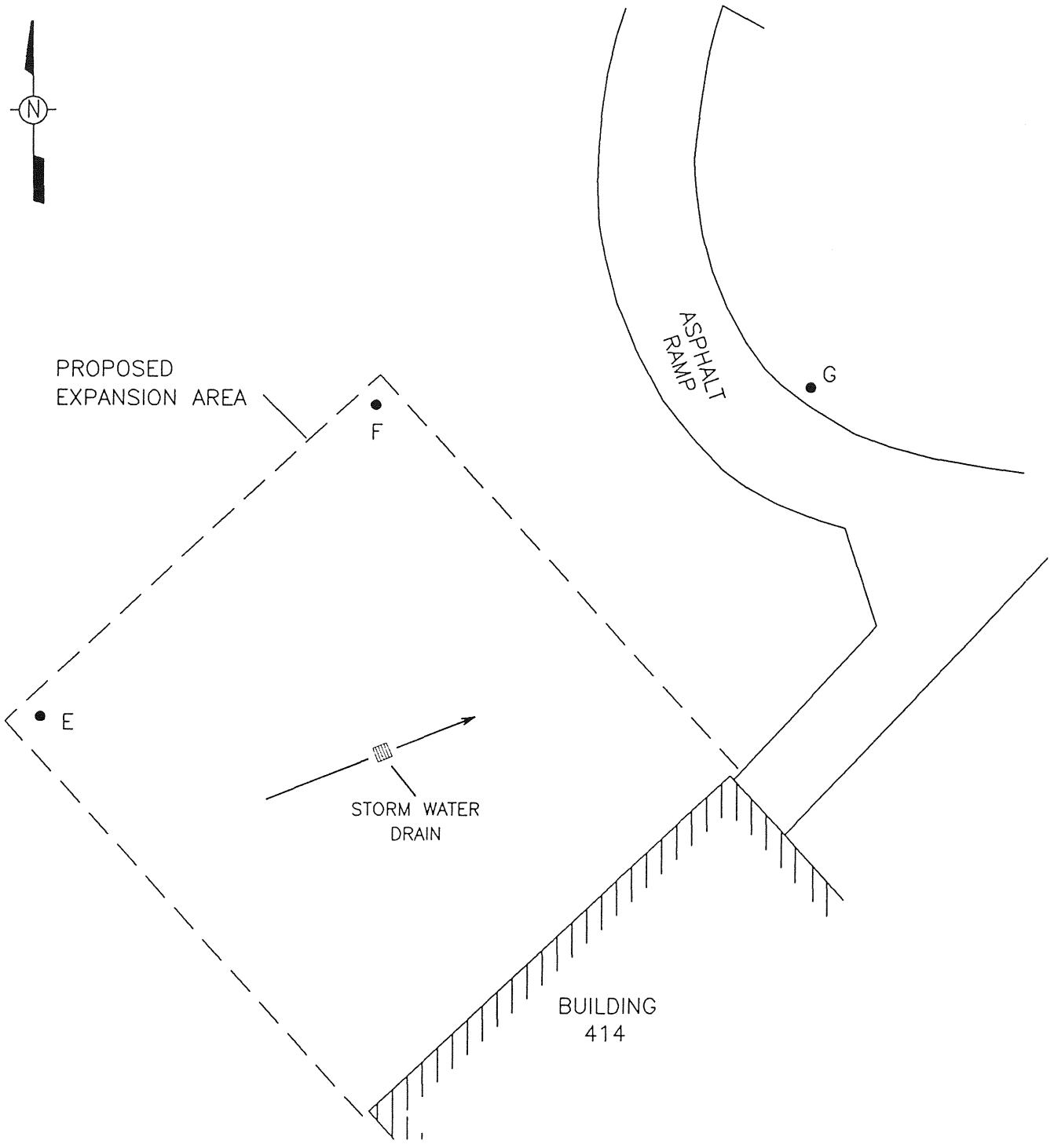
confirmed the presence of petroleum hydrocarbon constituents in the groundwater with an off-site fixed based laboratory. The groundwater samples were analyzed for volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) by Environmental Protection Agency (EPA) Methods 8240 and 8270, respectively. ASI then installed an additional MW, MW-17, to fulfill the upgradient requirement. Analytical results from the groundwater sample collected from MW-17 did not indicate the presence of any constituents of concern (ASI 1991).

Mead and Hunt conducted a limited subsurface investigation around the perimeter of the proposed Hangar 414 expansion area in October 1991. The investigation consisted of a PID headspace survey. Two SBs, "F" and "E", were completed at the north and northwest corners of the site (Figure 1.7). The PID headspace survey of the soils collected from SB "F" ranged from 2.4 to 5 parts per million (ppm), and in SB "E" from 0 to 5.6ppm. Mead and Hunt completed an additional boring, SB "G", northeast of the site, across the access ramp in the shallow drainage ditch which drains runoff from Hangar 412 to the proposed expansion area. The PID survey of the soils collected here recorded levels ranging from 180 to 400ppm (Mead and Hunt 1991).

Dames & Moore was retained by Mead and Hunt to expand the subsurface investigation. Dames & Moore confirmed the presence of petroleum hydrocarbon constituents in the subsurface soils along the ramp located northeast of the site (Figure 1.7). The soil samples collected in Area 2 (Boring Nos. W-22D, B-62, B-68) of the investigation were field screened with a PID and selected samples were analyzed for VOCs by EPA Method 8021. The analytical results, as reported by Dames & Moore, indicate the constituents of concern were primarily detected at the vadose zone/saturated zone interface (Dames & Moore 1992 - TABLES 4 and 5, and SHEET 4 of 6).

In the three borings listed above, which are located north and east of the Hangar Expansion Area, laboratory analytical data from samples at depths of 6ft to 10.5ft indicate the presence of Benzene (Boring W-22D, 0.2ppm); 1,2-Dichloroethane (Boring W-22D, 3.8ppm); Ethylbenzene (Boring B-62, 6.2ppm); Napthalene (Boring B-62, 8.8ppm); 1,2,4-Trimethylbenzene (Boring B-62, 22.0ppm); Total Xylenes (Boring B-62, 15.0ppm).

Subsequent to Dames & Moore's investigation, design plans and specifications were prepared by Mead & Hunt to remediate an estimated 3,000 cubic yards of contaminated soil at Area 2. During the Fall 1993, Sen-Tech Environmental, Ltd. excavated and treated on-site (via low temperature thermal desorption) approximately 3,000 cubic yards of contaminated soil from Area 2. In accordance with WDNR approval, only vadose zone soils (5 to 6 feet below ground surface) were excavated and remediated. Area 2 is located adjacent to and immediately northeast of the Hangar 414 proposed expansion area addressed in this report.



LEGEND:

STORM WATER CONDUIT

SOIL BORING LOCATION

SCALE IN FEET

0 15 30 60

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FIGURE 1.7

MEAD AND HUNT SOIL BORING LOCATION MAP (OCTOBER 1991)

Drawn By:	Approved By:
Checked By:	Drawing No. WANG59
Project Number: 9750.K19	

2.0 SITE INVESTIGATION ACTIVITIES

Table 2.1 summarizes SA activities conducted at Hangar 414 during January 1993. These activities include SBs, soil and grab groundwater sampling, field screening of the soil samples, and fixed-base laboratory analysis of selected soil and the grab groundwater samples. Groundwater static levels were also recorded from all existing MWs at the WANG facility to confirm the local groundwater gradient and assist in the interpretation of any contaminant migration.

2.1 UTILITIES SURVEY

Prior to the initiation of SA activities, a utilities survey was conducted to locate underground utilities and to generally screen acceptable surface locations for all boring operations. These surveys were conducted by WANG Civil Engineering personnel assisted by Dig Safe, a utility survey company.

2.2 SOIL BORINGS

In accordance with the work plan for Hangar 414 (Appendix B), SBs 4SB-1 through 4SB-6 (Figure 2.1) were completed to obtain the necessary soil and groundwater data needed to determine the nature and extent of any contamination. Soil samples were collected from each borehole and analyzed for VOCs, gasoline range organics (GROs), percent moisture, and lead. Grab groundwater samples were collected from each borehole and analyzed for VOCs and lead.

Before commencing drilling activities, the exact location of each SB was marked with a stake. Staked areas were screened by WANG personnel for buried utilities.

The SBs were completed using a CME-55 drill rig equipped with 4.25in inside diameter (ID) hollow stem augers. Soil samples were collected, with a standard 2in, outside diameter (OD), stainless steel split-spoon sampler at 2ft intervals, beginning at ground level and continuing until the vadose/saturated zone interface was reached (between 3.0ft and 8.0ft BGL). Lithological logs for all SBs are included in Appendix A of this report.

Immediately upon retrieval of each split-spoon, the soil sample was screened using a Thermal Environmental organic vapor meter (OVM) Model 580-B PID. Soil samples were collected in duplicate. The duplicate samples were field screened for headspace analysis using the PID. Soil samples found to have the highest headspace reading and the deepest unsaturated sample were retained for laboratory analyses. Results of the laboratory analyses of the soil samples are discussed in Section 3.2.2.1. The boreholes and the breathing zone were continuously monitored during drilling operations with an ISC MX251 lower explosive limit (LEL) monitor and the PID.

TABLE 2.1
SUMMARY OF SITE ASSESSMENT SAMPLING ACTIVITIES
TRUAX AIR FIELD - PHASE II
WISCONSIN AIR NATIONAL GUARD, MADISON, WISCONSIN
ASI, JANUARY 1993

Location	Field Activities		Materials of Concern	Media Analysis	
	Screening	Confirmation		Soil	Groundwater
Hanger 414	PID Scan soil samples from all SBs	• Auger 6 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Petroleum Hydrocarbon Constituents	VOC GRO Lead	VOC Lead

Definitions:

PID = Photoionization Detector
SBs = Soil Borings
GRO = Gasoline Range Organics
VOC = Volatile Organic Compounds

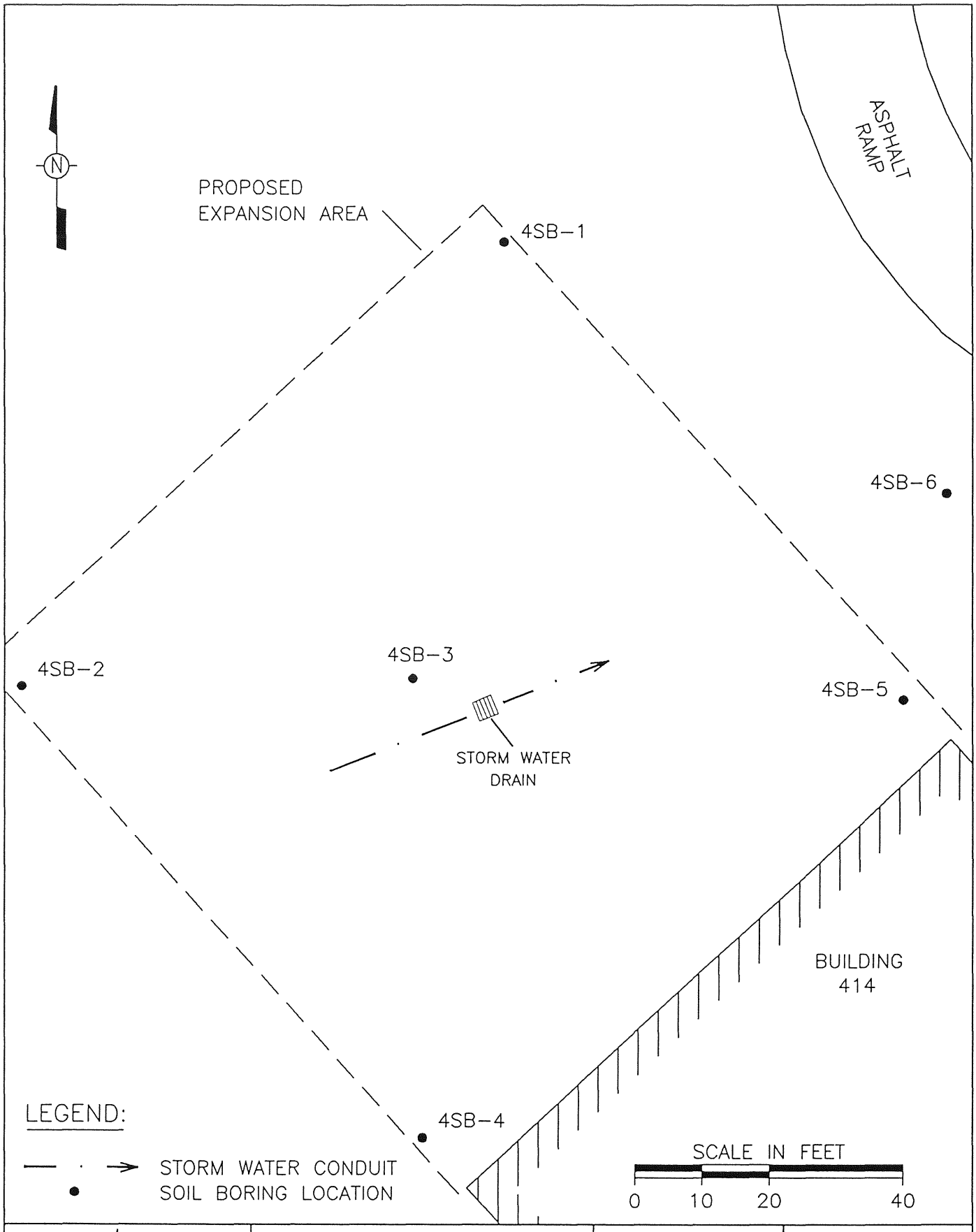

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FIGURE 2.1
SOIL BORING LOCATION MAP
(JANUARY 1993)

Drawn By:	Approved By:
Checked By:	Drawing No. WANG50
Project Number: 9750.K19	

Readings from the PID are included at their respective sample intervals on the boring logs in Appendix A and Table 2.2. Results of the PID headspace survey are illustrated in Figure 2.2.

After reaching the vadose zone/saturated zone interface, the borings were advanced to approximately three feet below initial groundwater contact, to allow the installation of individual temporary wells for the collection of grab groundwater samples. The temporary wells were constructed of 2in flush joint, polyvinyl chloride (PVC) screen (0.010in slot) and riser (supplied precleaned and prepackaged by the manufacturer). The length of the screen and riser assembly were five and 10ft, respectively. The wells were installed by connecting the individual sections as they were lowered into the augers. After the casing was installed, approximately 50 pounds of washed and sieved Red Flint 45/55 sand (filter pack) was poured into the auger annuls. The augers were then removed to allow the groundwater to equilibrate in the well casings. A grab groundwater sample was then collected from the temporary wells with a decontaminated Teflon bailer. The laboratory analyses of the grab groundwater samples are discussed in Section 3.2.2.2. After sample collection, the temporary wells were removed and abandoned per WDNR requirements NR140.25. The temporary screens and risers were decontaminated, as outlined in Section 2.5.2, for use in other investigations conducted simultaneously with the current SA.

2.3 GROUNDWATER MONITORING WELLS

Existing MWs at the WANG facility are illustrated in (Figure 2.3). These MWs were installed between 1990 and 1992 during previous field efforts. Static groundwater measurements were taken during this SA and are discussed in detail in Section 3.1.1. These measurements were taken to obtain hydrogeological data at the site for assessment activities.

During the current SA for the site no new permanent MWs were installed at the WANG facility.

2.4 SAMPLE HANDLING AND ANALYSIS

In order to expedite the receipt of information about the lateral and vertical extent of potential contamination at Hangar 414, rapid turnaround time (approximately 72 hours) was considered essential for off-site, fixed-base laboratory analyses of the selected samples. Warzyn Inc. of Madison, WI was selected to perform the required analyses of all samples. Warzyn supplied all sampling containers and coolers to properly contain and transport the samples.

After samples were collected, bottles were labeled and placed on ice for preservation. The sample designation for analytical samples employed a 5-character alphanumeric code. For soil samples, the five-digit code indicates the site number, the SB number, and the depth of sample collection. For grab groundwater samples, the five-digit code indicates the site number, the SB number, and the groundwater identification. All analytical samples were labeled with the date, time the sample was collected, the sampling technician's name, and sample preservative. Samples were delivered to the laboratory on the day they were collected, and analytical results were reported within 72 hours to the site manager. Analytical methods used were EPA Method

TABLE 2.2
TRUAX AIR FIELD, MADISON, WISCONSIN
PID FIELD SCREENING RESULTS: HANGAR 414 AREA
ASI, JANUARY 1993

Soil Sample Number	Sample Location	Sample Depth (Feet)	Soil Type	Moisture Content	Date	Time	Sample Odor	Initial Field Reading (I.U.)	Headspace Sample Reading (I.U.)
4SB-1-4	Northeast of Hangar 414	4	Clay/Silt/Sand	Moist	1-22-93	1433	No	ND	ND
4SB-1-6	Northeast of Hangar 414	6	Sand	Damp	1-22-93	1441	No	ND	ND
4SB-2-4	Northwest of Hangar 414	4	Clay/Silt	Moist	1-22-93	1524	No	ND	ND
4SB-3-4	Center of Hangar 414	4	Sand	Damp	1-22-93	1609	No	ND	ND
4SB-4-4	Southwest of Hangar 414	4	Clay/Silt/Sand	Moist	1-23-93	0804	No	ND	ND
4SB-4-6	Southwest of Hangar 414	6	Sand/Clay	Moist	1-23-93	0812	No	ND	ND
4SB-4-8	Southwest of Hangar 414	8	Sand	Damp	1-23-93	0821	No	ND	ND
4SB-4-8DUP	Southwest of Hangar 414	8	Sand	Damp	1-23-93	0823	No	ND	ND
4SB-5-4	Southeast of Hangar 414	4	Clay/sand	Moist	1-23-93	0908	Yes	ND	2.0
4SB-5-6	Southeast of Hangar 414	6	Clay/sand	Moist	1-23-93	0911	Yes	ND	1.0
4SB-5-8	Southeast of Hangar 414	8	Sand	Moist	1-23-93	0917	Yes	ND	3.0
4SB-5-10	Southeast of Hangar 414	10	Sand	Damp	1-23-93	0929	Yes	246.0	245.0
4SB-6-2	Southeast of Hangar 414	2	Clay/Silt	Moist	1-23-93	1011	Yes	ND	1.0
4SB-6-4	Southeast of Hangar 414	4	Clay/Silt/Sand	Moist	1-23-93	1026	Yes	128.0	229.0
4SB-6-6	Southeast of Hangar 414	6	Silty Sand	Damp	1-23-93	1033	Yes	126.0	162.0

PID = Photoionization Detector
I.U. = Instrument Units as Isobutylene; calibrated to isobutylene standard of 100ppm.
ND = Not Detected

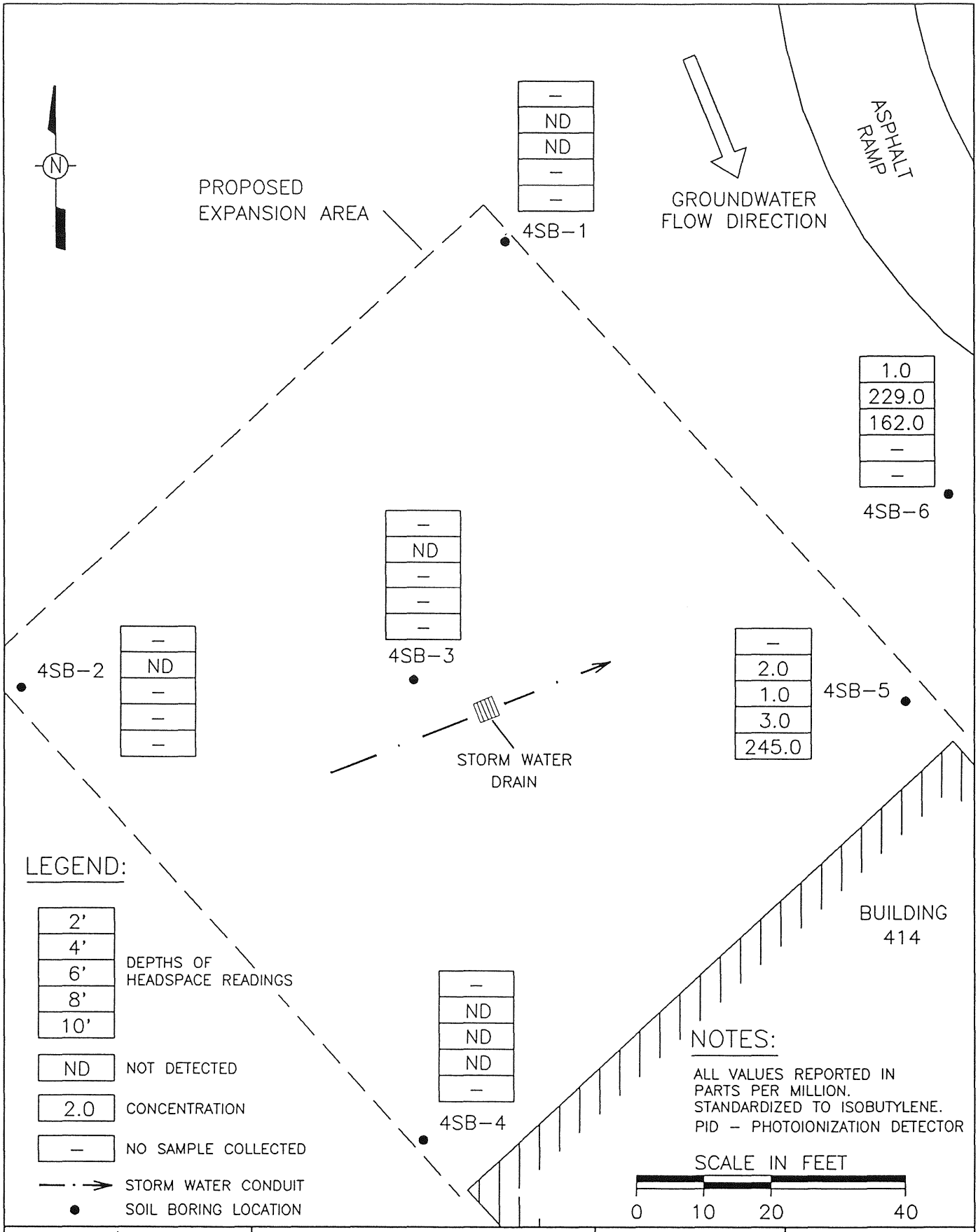

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FIGURE 2.2

PID HEADSPACE CONCENTRATION MAP
(JANUARY 1993)

Drawn By:	Approved By:
Checked By:	Drawing No. WANG50G
Project Number: 9750.K19	

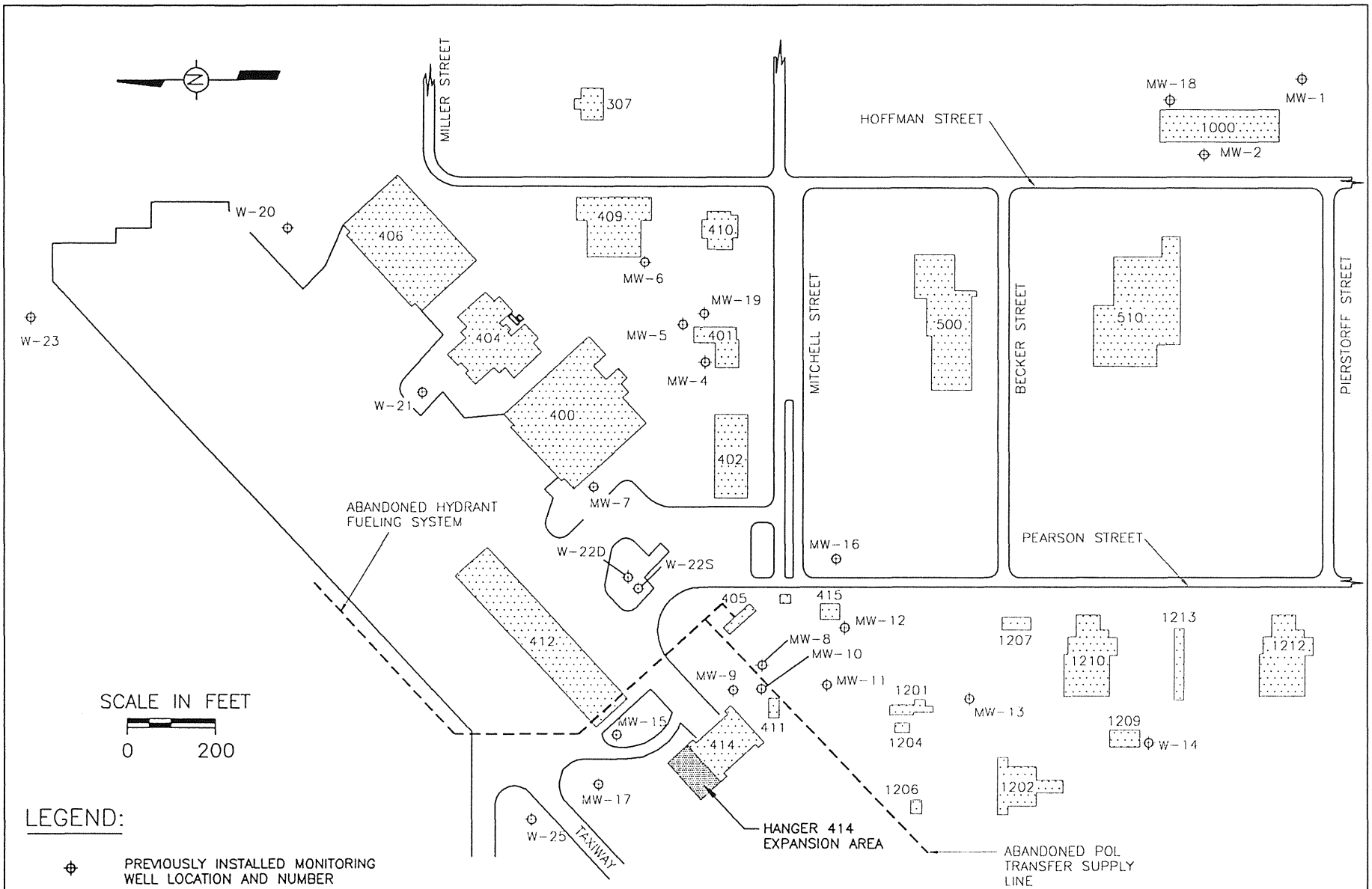

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FIGURE 2.3

MONITORING WELL LOCATION MAP

Drawn By:	Approved By:
Checked By:	Drawing No. WANG460
Project Number: 9750.K19	

5030/8021 for VOCs, EPA Method 3050/7421 for lead in soil, EPA Method 3020/7421 for lead in groundwater, and WDNR modified GRO Method for GRO.

2.4.1 Soils

Soil samples were collected with a standard 2in stainless steel split spoon, and each boring's lithology was recorded on HAZWRAP lithological log forms (Appendix A). A total of 15 soil samples were collected from the six SBs, in accordance with procedures outlined in Section 2.2. The analytical results for the soils are discussed in Section 3.2.2.1.

2.4.2 Groundwater Samples

Grab groundwater samples were collected from all SBs installed during this field effort in order to determine the presence or absence of contaminants in the groundwater. In compliance with WDNR regulations, samples obtained for metals analysis were filtered through a 0.45 micron filter as part of the collection process. All samples were collected (in accordance with Section 2.2), labeled, and shipped to the laboratory to be analyzed for VOCs and lead. The results of the groundwater analyses are discussed in Section 3.2.2.2.

2.5 QUALITY ASSURANCE/QUALITY CONTROL

Standard ASI quality assurance/quality control (QA/QC) procedures were followed in the conduct of all activities associated with this project. Warzyn Inc. analyzed all samples by EPA's Contract Laboratory Program (CLP) protocol and followed their own internal QA/QC requirements. Daily communications were maintained with the processing laboratory to ensure that appropriate steps were taken for accurate data.

2.5.1 Chain-of-Custody

Samples submitted to the laboratory were documented on a chain-of-custody (COC) form (Appendix C), which accompanied all samples from the time of their collection through their receipt by the laboratory. Each transfer was documented with date and time of transfer and by signatures of the relinquishing and receiving parties.

2.5.2 Decontamination

The drill rig and all down-hole soil sampling equipment were thoroughly steam cleaned with a high pressure hot water washer before boring and between each successive boring operation. Decontamination was conducted on a mobile decontamination trailer supplied by the drilling contractor. All groundwater sampling equipment was cleaned between each use by washing in Liquinox detergent, followed by successive rinsing with potable water, deionized water, methanol, and then allowed to air dry. The screen and riser assemblies used to collect the grab groundwater samples were also steam cleaned, prior to and between each successive sampling event, with the high pressure hot water washer. All cleaning tools (brushes, buckets, etc.) were decontaminated prior to each use with the steam cleaner.

2.5.3 Waste Management

Soil cuttings from each SB were containerized in 55gal U.S. Department of Transportation (DOT) approved drums. Each drum was permanently labeled as to its contents. Disposal of the drums and their contents will be managed by the WANG facility.

2.5.4 Quality Assurance/Quality Control Samples

Trip blanks, field duplicates, matrix spike/matrix spike duplicates, equipment rinsates, and field blanks were prepared in accordance with the SA Work Plan (ASI 1991). Trip blanks and field blanks were analyzed for VOCs. Field duplicates and equipment rinsates were analyzed for VOCs and lead. These analyses were performed using their respective methods referenced in Section 2.4. Matrix spike/matrix spike duplicates were analyzed by the laboratory according to Warzyn's QA/QC requirements.

3.0 SITE INVESTIGATION RESULTS

3.1 PHYSICAL CHARACTERISTICS

3.1.1 Groundwater

The WANG facility is generally overlain by glacial outwash deposits consisting predominantly of sands and silts with interbedded clays and gravels. ASI measured static water levels during previous SA activities in April 1991 (Table 3.1). As shown on Figure 3.1, the groundwater flow direction was determined to be to the southeast with a gradient of 0.001ft/ft (5.28ft/mile).

Static groundwater elevations were recorded for all facility MWs during the current investigation to confirm the local gradient and flow direction. Table 3.2 is a summary of all well survey information and static water level data collected during the current SA. All elevations and well locations are referenced to mean sea level (MSL) and the state plane coordinate system. Figure 3.2 illustrates the MW locations and local groundwater-flow-direction, as of January 1993. The direction of flow is to the southeast across the WANG facility which agrees with the previous data collected by ASI (ASI 1991). The hydraulic gradient is 0.0006ft/ft (3.17ft/mile) which differs from the previous measured gradient of 0.001ft/ft (ASI 1991). This difference could be attributed to seasonal fluctuations experienced at the WANG facility.

It should be noted that MW-16, -22S, and -23 have static elevations which seem anomalous to the overall groundwater gradient (Figure 3.2). These anomalies could be caused by erroneous field measurements of the static levels.

In May 1992, Dames & Moore measured static water levels in selected monitoring wells, MW-7, -9, -15, -17, -20, -21, -22S, -22D, and -23, which are located adjacent to the apron area where their investigation was concentrated (Dames & Moore 1992 - TABLE 2 and WATER TABLE MAP SHEET 3 OF 6). The data collected during this event differed from the data collected by ASI in April 1991 in that the prominent groundwater flow in the apron area was toward the northwest (Dames & Moore, 1992). The difference noted by Dames & Moore could be due to the limited areal extent of the well data that was collected during their subsurface investigation. The depth to groundwater, as measured by Dames & Moore in May 1992, ranged from 8ft to 13.98 ft.

Also in May 1992, slug tests were completed in wells MW-20, -21, -22S, -22D, and -23 (Dames & Moore 1992). Results of the slug tests are summarized in Table 3.3. Due to the similarity of the subsurface lithology throughout the WANG facility, it can be assumed that the hydraulic conductivity (K) is consistent across the facility. Results of the tests ranged from 2.9ft/day [1.023×10^{-3} centimeters per second (cm/sec)] to 27.2ft/day (9.60×10^{-3} cm/sec) . Calculated K values were highest at wells MW-22S and MW-22D, ranging from, 15.0ft/day (5.295×10^{-3} cm/sec)to 27.2ft/day (9.60×10^{-3} cm/sec). The remaining three wells, MW-20, -21, and -23, reported K values ranging from 2.9ft/day (1.023×10^{-3} cm/sec) to 7.7ft/day (2.71×10^{-3} cm/sec). The K values for these three wells, averaging 5.3ft/day (1.87×10^{-3} cm/sec), are more

TABLE 3.1
GROUNDWATER LEVEL MEASUREMENTS AND ELEVATIONS
HANGAR 414
ASI, APRIL 1991

Locations	Elevation	April 11, 1991		April 29, 1991	
		Static (TOC)	Static Elevation	Static (TOC)	Static Elevation
MW-1	859.94	11.38	848.56	11.07	848.87
MW-2	863.02	14.85	848.17	14.23	848.79
MW-3	N/A	N/A	N/A	N/A	N/A
MW-4	861.00	11.85	849.15	10.80	850.20
MW-5	860.82	11.56	849.26	10.63	850.19
MW-6	857.62	8.26	849.36	7.39	850.23
MW-7	859.74	10.00	849.74	9.23	850.51
MW-8	857.74	8.30	849.44	7.48	850.26
WM-9	858.46	8.38	850.08	8.07	850.39
MW-10	859.05	9.55	849.50	8.74	850.31
MW-11	858.55	9.11	849.44	8.36	850.19
MW-12	858.91	9.57	849.34	8.77	850.14
MW-13	860.71	11.55	849.16	10.71	850.00
MW-14	863.40	14.54	848.86	13.85	849.55
MW-15	855.60	4.86	850.74	4.94	850.66
MW-16	858.38	8.89	849.49	8.23	850.15
MW-17	857.01	6.08	850.93	6.31	850.70
MW-18	857.93	9.45	848.48	8.95	848.98
MW-19	857.97	8.54	849.43	7.80	850.17

TOC = Top of Casing
N/A = Not Applicable
Elevations reported in feet above mean sea level (MSL).
MW-3 removed from service per WDNR ND 141.25.

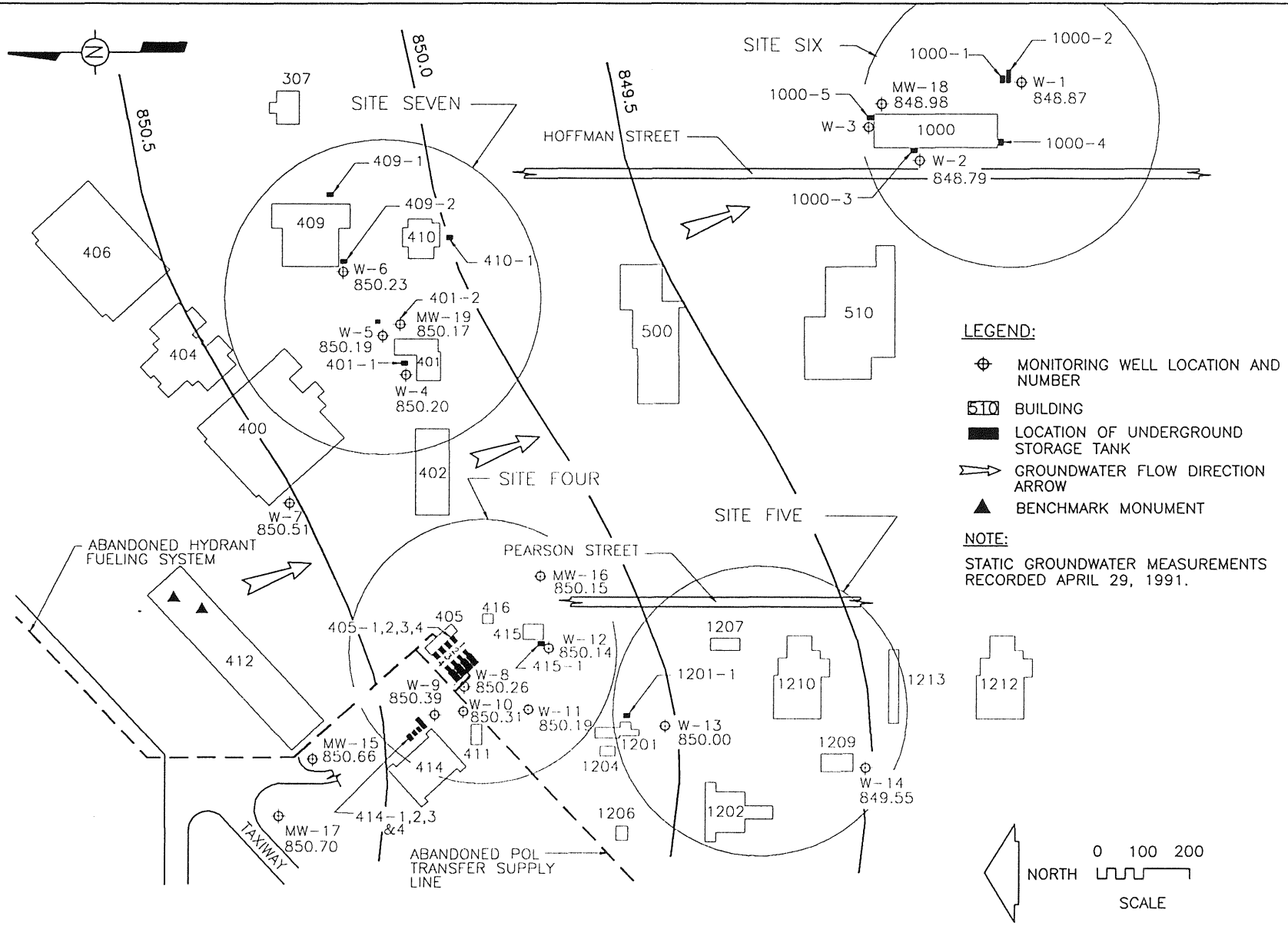

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FIGURE 3.1
GROUNDWATER FLOW DIRECTION MAP
APRIL 1991

Drawn By:	Approved By:
Checked By:	Drawing No. WANG10A
Project Number: 9750.K19	

TABLE 3.2
GROUNDWATER LEVEL MEASUREMENTS AND ELEVATIONS
HANGAR 414
ASI, JANUARY 1993

Location	Elevation TOC (ft above MSL)	Static TOC	Static Elevation (ft above MSL)
MW-1	859.94	11.51	848.43
MW-2	863.02	14.61	848.41
MW-3	★	★	★
MW-4	861.00	11.51	849.49
MW-5	866.82	11.37	849.45
MW-6	857.62	8.23	849.39
MW-7	859.74	10.05	849.63
MW-8	857.74	8.11	849.63[1]
MW-9	858.46	8.75	849.71
WM-10	859.05	9.40	849.65
WM-11	858.55	8.95	849.60
MW-12	858.91	9.36	849.55
MW-13	860.71	11.24	849.47
MW-14	863.40	14.26	849.14
MW-15	855.60	★★	★★
MW-16	858.38	8.19	850.19
MW-17	857.01	7.17	849.84
MW-18	857.93	9.47	848.46
MW-19	857.97	8.57	849.40
MW-20	858.77	7.69	851.08
MW-21	859.00	9.15	849.85
MW-22s	858.69	10.00	848.69
MW-23	856.47	7.39	849.08
MW-24	★★★	★★★	★★★
MW-25	858.63	8.68	849.95

MW = Monitoring Well
TOC = Top of Casing
[1] = Free product present in MW (0.01 ft)
★ = MW removed from service
★★ = Unable to collect measurement due to sheet ice over MW
★★★ = Not installed

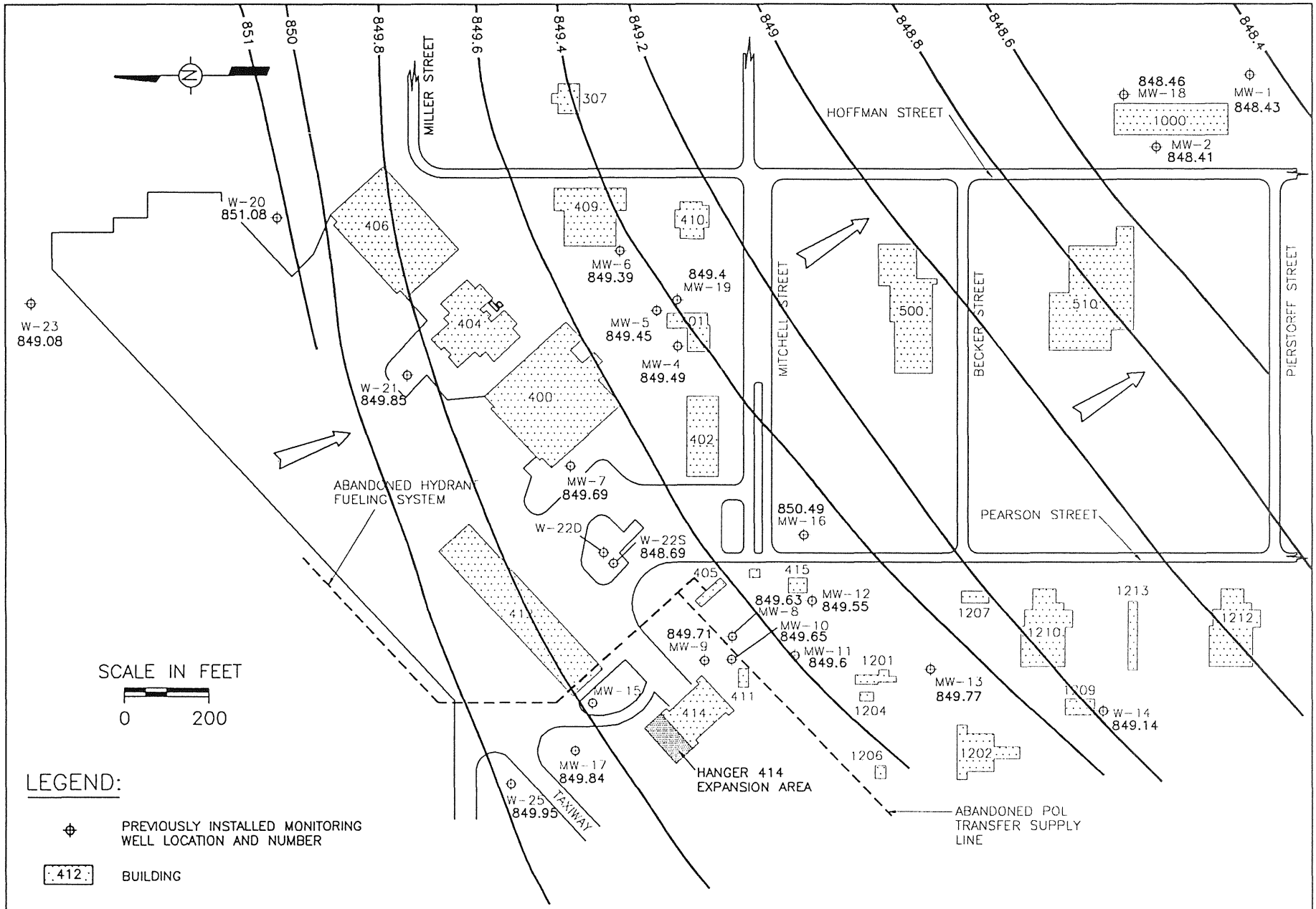

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FIGURE 3.2
GROUNDWATER FLOW DIRECTION MAP
JANUARY 1993

Drawn By:	Approved By:
Checked By:	Drawing No. WANG46P
Project Number: 9750.K19	

TABLE 3.3
SLUG TEST RESULTS
DAMES & MOORE, 1992

Well	Hydraulic Conductivity	
	Slug In	Slug Out
W-20	7.7ft/day (2.71 x 10^{-3}cm/sec)	6.0ft/day (2.118 x 10^{-3}cm/sec)
W-21	3.0ft/day (1.059 x 10^{-3}cm/sec)	5.8ft/day (2.047 x 10^{-3}cm/sec)
W-22S	15.0ft/day (5.295 x 10^{-3}cm/sec)	19.5ft/day (6.88 x 10^{-3}cm/sec)
W-22D	18.9ft/day (6.67 x 10^{-3}cm/sec)	27.2ft/day (9.60 x 10^{-3}cm/sec)
W-23	2.9ft/day (1.023 x 10^{-3}cm/sec)	3.2ft/day (1.129 x 10^{-3}cm/sec)

representative of the hydrogeologic conditions present at the WANG facility.

Groundwater velocity across the WANG facility was estimated using the following equation (USGS 1984):

$$V = Ki/Ne$$

where

V = Velocity (ft/day)
K = Hydraulic conductivity (ft/day)
i = Hydraulic gradient (ft/ft)
Ne = Effective porosity (using specific yield of a predominantly silty till as an estimate of effective porosity).

If: K = 5.3ft/day (1.87×10^{-3} cm/sec)
i = 0.0006ft/ft
Ne = 6%

Then: $V = \frac{5.3 \times 0.0006}{0.06} = 0.053$ft/day

The estimated velocity across the WANG facility is 0.053ft/day, or approximately 19.3ft/year.

3.2 NATURE AND EXTENT OF CONTAMINATION

3.2.1 State Action Cleanup Levels

3.2.1.1 Soils

The WDNR has not established specific action levels for VOCs, GRO, or lead in soils, except on a site-specific basis with regard to risk.

3.2.1.2 Groundwater

The WDNR has established specific enforcement standards (ES) and preventive action limits (PALs) for VOCs in groundwater. The ESs and PALs for VOCs from Wisconsin Administrative Code NR 140 are included on the VOC analytical table in this report.

The WDNR has not established ESs and PALs for GRO or lead in groundwater, except on a site-specific basis with regard to risk.

3.2.2 Analytical Results

3.2.2.1 Soils

Soil samples collected during this SA were analyzed for VOCs, lead, and GRO. As illustrated in (Figure 3.3), the highest concentrations of VOCs were detected in the soil sampled from boring 4SB-5 at 10ft BGL (4SB-5-10); however, this sample was collected below the water table and detected concentrations of VOCs can not be considered representative of any vadose zone contamination. Lower concentrations of VOCs were detected in samples 4SB-6-4 and 4SB-6-6 at 4ft and 6ft BGL, respectively. All other soil samples collected at Hangar 414 had VOCs concentrations less than the laboratory detection limits. Table 3.4 provides a summary of VOC analytical results.

The highest concentration of GRO detected during this SA was in soil sampled from boring 4SB-5 (Figure 3.4). Boring 4SB-5 is located approximately 10ft southeast of Hangar 414 and the sample at 10ft BGL (4SB-5-10) had a reading of 15,000ppm. GRO was also detected in sample 4SB-6 at 4ft BGL [(4SB-6-4);(27.0ppm)]. These were the only samples that had concentrations of GRO above laboratory detection limits. Table 3.5 provides a summary of GRO analytical results.

The highest concentration of total lead in soil during this SA was detected in boring 4SB-2 (Figure 3.5). Boring 4SB-2 is located approximately 10ft northwest of Hangar 414 and the sample at 4ft BGL (4SB-2-4) had a reading of 14.5ppm. Table 3.6 provides a summary of the lead analytical results.

Dichlorodifluoromethane (F-12) was detected throughout the soil sample analytical data. F-12 has numerous sources, including laboratory operations. Only trace amounts of F-12 were detected in the VOC analysis and are considered insignificant to the current SA.

3.2.2.2 Groundwater

Groundwater samples collected during this SA were analyzed for VOCs and lead. As illustrated in (Figure 3.6), the highest concentrations of VOCs were detected in the groundwater sampled from boring 4SB-5, and 4SB-6. Table 3.7 provides a summary of the VOC analytical results. Concentrations of VOCs were determined by EPA Method 8021. Method 8021 utilizes a capillary column and electrolytic conductivity and photoionization detectors in series to detect both halogenated and aromatic volatiles. Please note that although 1,2-dibromo-3-chloropropane, 1,2-dibromoethane, 1,1,2-trichloroethane and vinyl chloride were not detected in any of the samples collected at Hangar 414, the analytical detection limits (3.0ppb, 2.0ppb, 1.0ppb, and 1.0ppb, respectively) are greater than the reported enforcement standards.

Groundwater samples analyzed for total lead were all found to be less than the laboratory detection limits. Table 3.8 provides a summary of the lead analytical results.

F-12 was detected throughout the groundwater analytical data. F-12 has numerous sources, including laboratory operations. Only trace amounts of F-12 were detected in the VOC analysis

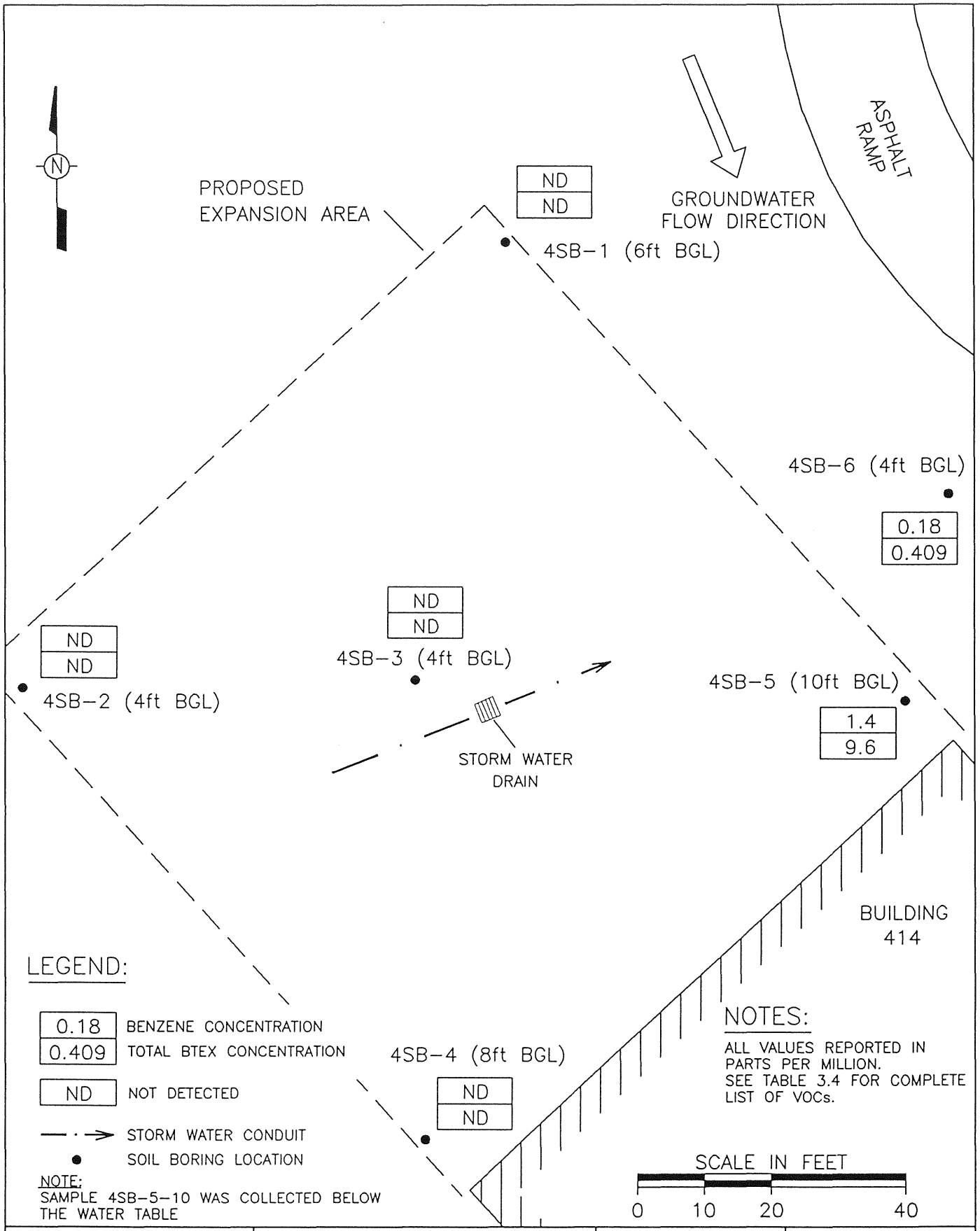

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FIGURE 3.3
BTEX CONCENTRATION MAP
FOR SOILS
(JANUARY 1993)

Drawn By:	Approved By:
Checked By:	Drawing No. WANG50E
Project Number: 9750.K19	

TABLE 3.4
VOLATILE ORGANIC ANALYSIS
SOIL BORING SAMPLES: HANGAR 414
ASI, JANUARY 1993

COMPOUND	4SB-1-6	4SB-2-4	4SB-3-4	4SB-4-8	4SB-4-8-DUP	4SB-5-8	4SB-5-10	4SB-6-4	4SB-6-6
Benzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.4	0.18	0.13
Bromobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Bromodichloromethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
N-butylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	8.7	0.03	0.030
Sec-butylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.2	0.012	0.011
Tert-butylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.060
Carbon tetrachloride	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.060
Chlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.060
Chlorodibromomethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.060
Chloroethane	<0.012	<0.015	<0.012	<0.012	<0.012	<0.012	<0.11	<0.011	<0.012
Chloroform	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Chloromethane	<0.012	<0.015	<0.012	<0.012	<0.012	<0.012	<0.11	<0.011	<0.012
2-Chlorotoluene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
4-Chlorotoluene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,2-Dibromo-3-chloropropane	<0.018	<0.023	<0.018	<0.018	<0.018	<0.018	<0.17	<0.017	<0.018
1,2-Dibromoethane	<0.012	<0.015	<0.012	<0.012	<0.012	<0.012	<0.11	<0.011	<0.012
1,2-Dichlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,3-Dichlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,4-Dichlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Dichlorodifluoromethane	0.019	<0.015	0.018	<0.012	0.030	0.046	0.14	0.039	0.014

Samples analyzed by EPA Method 5030/8021.
Results in mg/kg or ppm.

TABLE 3.4 (Continued)
VOLATILE ORGANIC ANALYSIS
SOIL BORING SAMPLES: HANGAR 414

COMPOUND	4SB-1-6	4SB-2-4	4SB-3-4	4SB-4-8	4SB-4-8-DUP	4SB-5-8	4SB-5-10	4SB-6-4	4SB-6-6
Benzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.4	0.18	0.13
1,1-Dichloroethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,2-Dichloroethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,1-Dichloroethene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Cis-1,2-dichloroethene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Trans-1,2-dichloroethene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,2-Dichloropropane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,3-Dichloropropane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
2,2-Dichloropropane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Di-isopropyl ether	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Ethyl benzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	2.0	0.078	0.045
Hexachlorobutadiene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Isopropylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	2.4	0.014	0.010
P-isopropyltoluene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Methylene chloride	<0.018	<0.023	<0.018	<0.018	<0.018	<0.018	<0.17	<0.0017	<0.018
Methyl-tert-butyl ether	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	0.80	<0.0056	<0.0060
Naphthalene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.7	0.036	0.056
N-propyl benzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.4	0.029	0.015
1,1,2,2-Tetrachloroethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Tetrachloroethene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Toluene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	2.3	0.011	<0.0060

Samples analyzed by EPA Method 5030/8021.
Results in mg/kg or ppm.

TABLE 3.4 (Continued)
VOLATILE ORGANIC ANALYSIS
SOIL BORING SAMPLES: HANGAR 414

COMPOUND	4SB-1-6	4SB-2-4	4SB-3-4	4SB-4-8	4SB-4-8-DUP	4SB-5-8	4SB-5-10	4SB-6-4	4SB-6-6
Benzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.4	0.18	0.13
1,2,3-Trichlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,2,4-Trichlorobenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,1,1-Trichloroethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,1,2-Trichloroethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Trichloroethene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
Trichlorofluoromethane	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
1,2,4-Trimethylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	16	0.13	0.083
1,3,5-Trimethylbenzene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	3.9	0.054	0.030
Vinyl chloride	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	<0.057	<0.0056	<0.0060
O-xylene	<0.0058	<0.0077	<0.0061	<0.0059	<0.0059	<0.0060	1.8	0.010	0.012
M + P - Xylene	<0.012	<0.015	<0.012	<0.012	<0.012	<0.012	3.9	0.13	0.068

Samples analyzed by EPA Method 5030/8021.
Results in mg/kg or ppm.

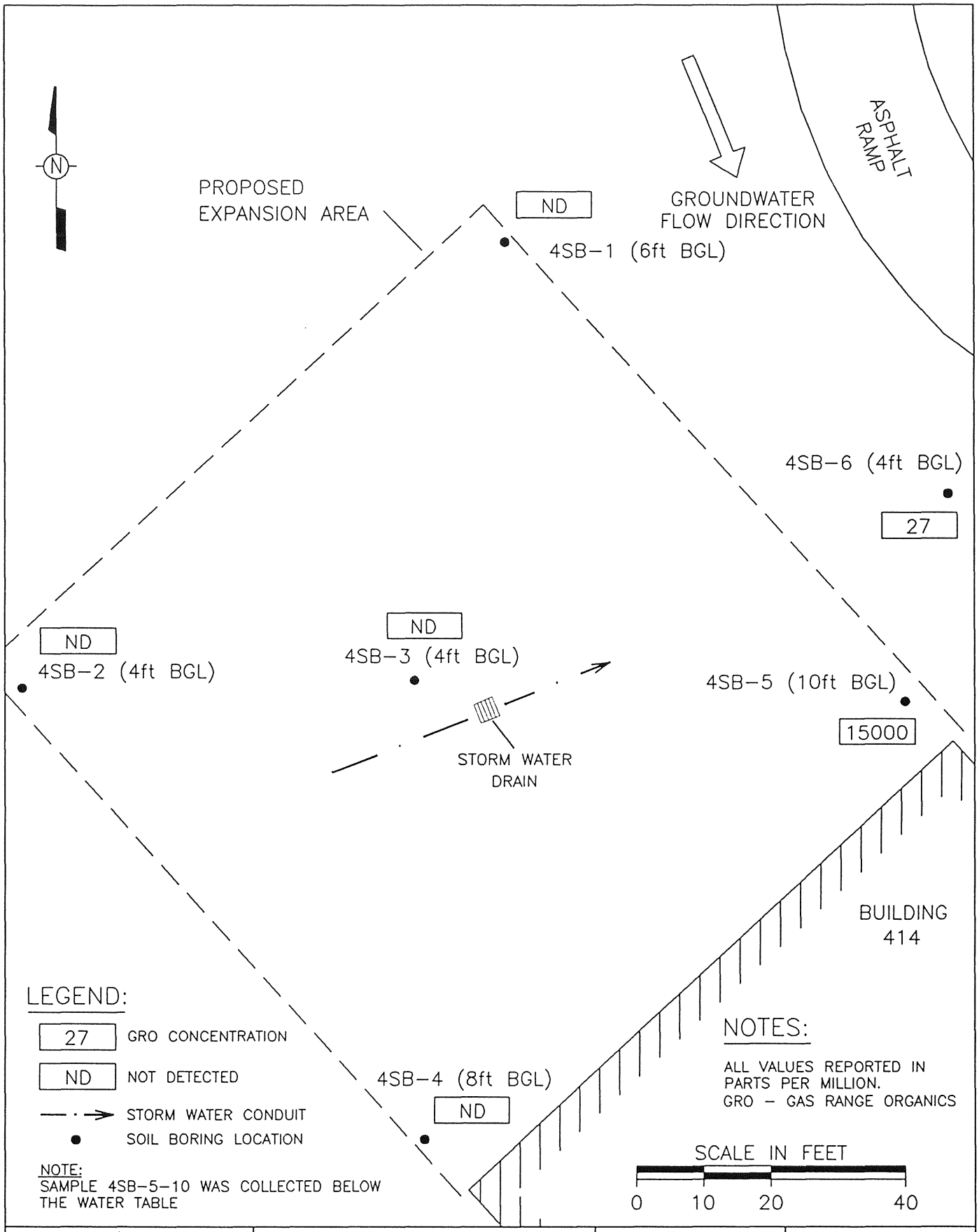

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FIGURE 3.4
GRO CONCENTRATION MAP
FOR SOILS
(JANUARY 1993)

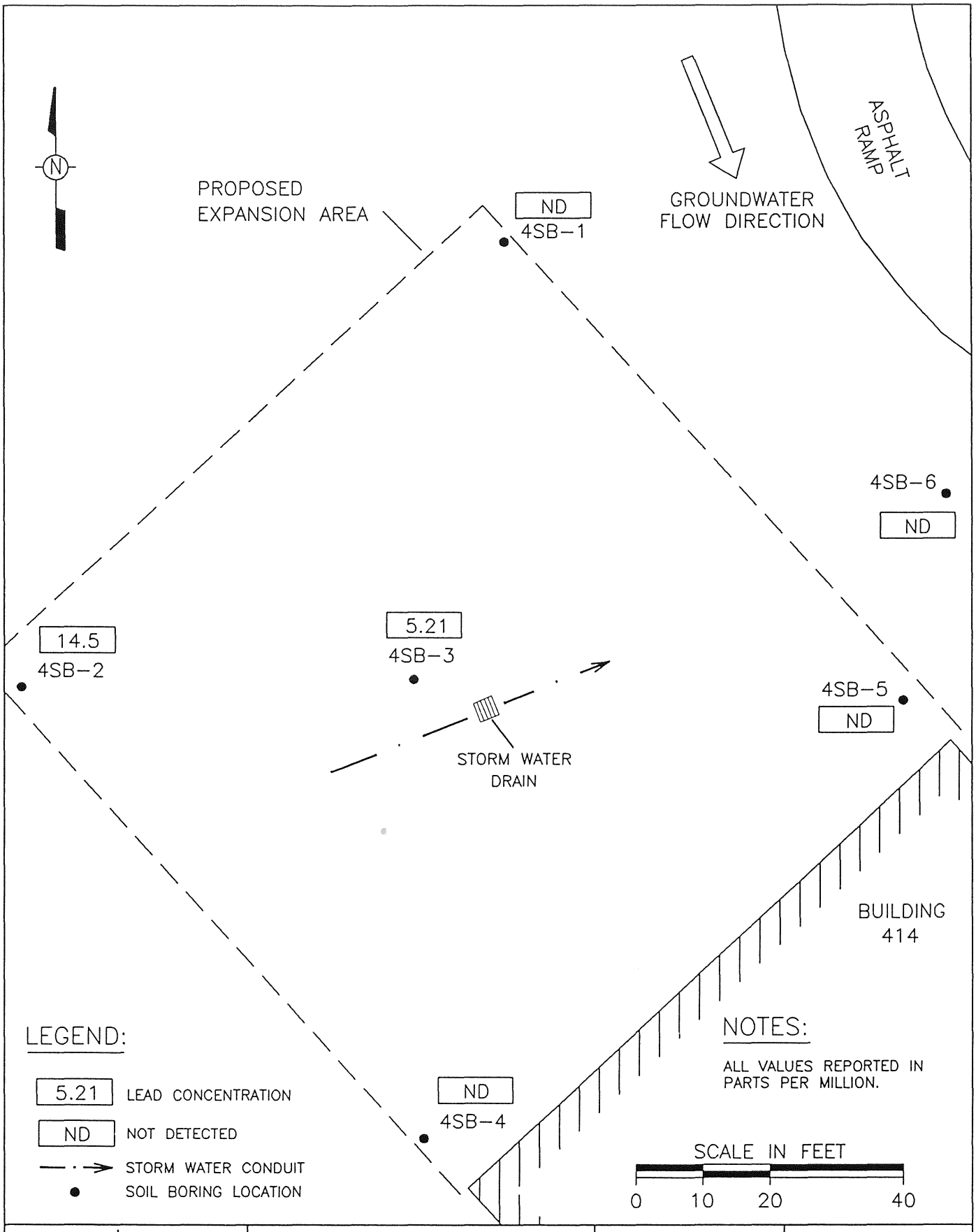
Drawn By:	Approved By:
Checked By:	Drawing No. WANG50D
Project Number: 9750.691	

TABLE 3.5
GASOLINE RANGE ORGANICS (GRO) ANALYSIS
SOIL BORING SAMPLES: HANGAR 414
ASI, JANUARY 1993

Sample Number	Results	Units
4SB-1-6	<10	mg/kg
4SB-2-4	<10	mg/kg
4SB-3-4	<10	mg/kg
4SB-4-8	<10	mg/kg
4SB-4-8-DUP	<10	mg/kg
4SB-5-8	<10	mg/kg
4SB-5-10	15000	mg/kg
4SB-6-4	27.0	mg/kg
4SB-6-6	<10	mg/kg

Samples analyzed by Wisconsin DNR Modified GRO Method.

mg/kg = ppm



ADVANCED SCIENCES, INC.

FIGURE 3.5
LEAD CONCENTRATION MAP
FOR SOILS
(JANUARY 1993)

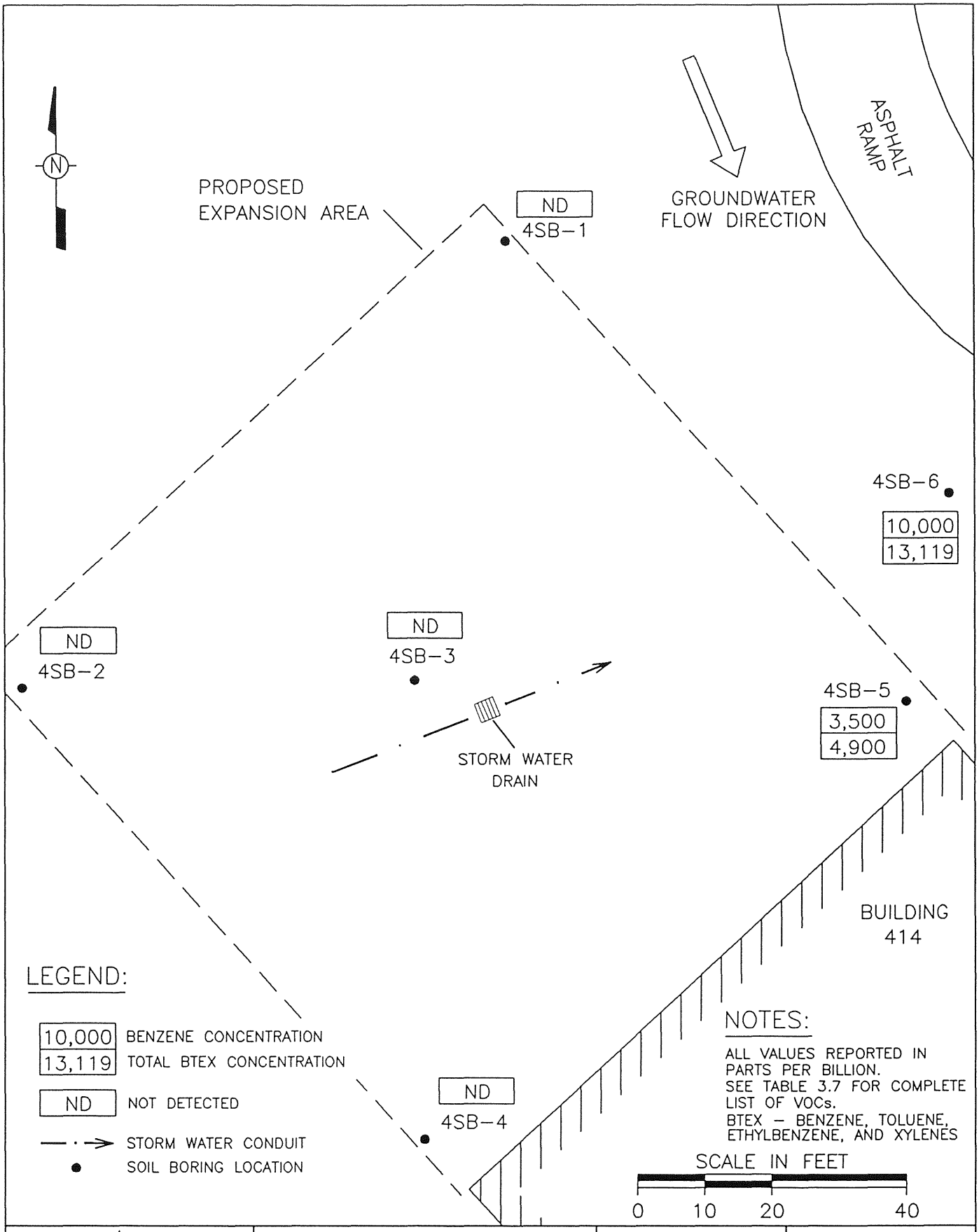
Drawn By:	Approved By:
Checked By:	Drawing No. WANG50C
Project Number: 9750.K19	

TABLE 3.6
LEAD ANALYSIS
SOIL BORING SAMPLES: HANGAR 414
ASI, JANUARY 1993

Sample Number	Results	Units
4SB-1-6	<2.91	mg/kg
4SB-2-4	14.5	mg/kg
4SB-3-4	5.21	mg/kg
4SB-4-8	<2.89	mg/kg
4SB-4-8-DUP	<2.96	mg/kg
4SB-5-8	<2.99	mg/kg
4SB-5-10	<2.84	mg/kg
4SB-6-4	<2.79	mg/kg
4SB-6-6	<2.95	mg/kg

Samples analyzed by EPA Method 3050/7421.

mg/kg = ppm



ADVANCED SCIENCES, INC.

FIGURE 3.6

BTEX CONCENTRATION MAP
FOR GROUNDWATER
(JANUARY 1993)

Drawn By:	Approved By:
Checked By:	Drawing No. WANG50B
Project Number: 9750.K19	

TABLE 3.7
VOLATILE ORGANIC ANALYSIS
GROUNDWATER SAMPLES: HANGAR 414
ASI, JANUARY 1993

COMPOUND	Enforcement Standard (ppb)	Preventive Action Limit (ppb)	4SB-1-GW	4SB-2-GW	4SB-3-GW	4SB-4-GW	4SB-4-GW-DUP	4SB-5-GW	4SB-6-GW
Benzene	5	.067	<1.0	<1.0	<1.0	<1.0	<1.0	3500	10000
Bromobenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Bromodichloromethane	179	36	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
N-butylbenzene	–	–	2.7	<1.0	<1.0	<1.0	<1.0	88	98
Sec-butylbenzene	–	–	2.1	<1.0	<1.0	<1.0	<1.0	27	25
Tert-butylbenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Carbon tetrachloride	5	.5	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Chlorobenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Chlorodibromomethane	215	43	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Chloroethane	–	–	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<20
Chloroform	6	.6	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Chloromethane	–	–	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<20
2-Chlorotoluene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
4-Chlorotoluene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2-Dibromo-3-chloropropane	.05	.005	<3.0	<3.0	<3.0	<3.0	<3.0	<30	<30
1,2-Dibromoethane	.01	.001	<2.0	<2.0	<2.0	<2.0	<2.0	<20	<20
1,2-Dichlorobenzene	1250	125	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,3-Dichlorobenzene	1250	125	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,4-Dichlorobenzene	75	15	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10

Samples analyzed by EPA Method 5030/8021.
Results in µg/L or ppb.

TABLE 3.7 (Continued)
VOLATILE ORGANIC ANALYSIS
GROUNDWATER SAMPLES: HANGAR 414

COMPOUND	Enforcement Standard (ppb)	Preventive Action Limit (ppb)	4SB-1-GW	4SB-2-GW	4SB-3-GW	4SB-4-GW	4SB-4-GW-DUP	4SB-5-GW	4SB-6-GW
Benzene	5	.067	<1.0	<1.0	<1.0	<1.0	<1.0	3500	10000
Dichlorodifluoromethane	–	–	6.3	6.8	4.7	5.0	5.0	29	29
1,1-Dichloroethane	850	85	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2-Dichloroethane	5	.05	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,1-Dichloroethene	7	.024	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Cis-1,2-dichloroethene	100	10	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Trans-1,2-dichloroethene	100	20	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2-Dichloropropane	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,3-Dichloropropane	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
2,2-Dichloropropane	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Di-isopropyl ether	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Ethyl benzene	1360	272	<1.0	<1.0	<1.0	<1.0	<1.0	400	1200
Hexachlorobutadiene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Isopropylbenzene	–	–	2.2	<1.0	<1.0	<1.0	<1.0	46	54
P-isopropyltoluene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Methylene chloride	150	15	<3.0	<3.0	<3.0	<3.0	<3.0	<30	<30
Methyl-tert-butyl ether	60 (proposed)	12 (proposed)	<1.0	<1.0	<1.0	<1.0	<1.0	<10	12
Naphthalene	40 (proposed)	8 (proposed)	<1.0	<1.0	<1.0	<1.0	<1.0	170	240
N-propyl benzene	–	–	1.7	<1.0	<1.0	<1.0	<1.0	44	49
1,1,2,2-Tetrachloroethane	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10

Samples analyzed by EPA Method 5030/8021.
Results in µg/L or ppb.

TABLE 3.7 (Continued)
VOLATILE ORGANIC ANALYSIS
GROUNDWATER SAMPLES: HANGAR 414

COMPOUND	Enforcement Standard (ppb)	Preventive Action Limit (ppb)	4SB-1-GW	4SB-2-GW	4SB-3-GW	4SB-4-GW	4SB-4-GW-DUP	4SB-5-GW	4SB-6-GW
Benzene	5	.067	<1.0	<1.0	<1.0	<1.0	<1.0	3500	10000
Tetrachloroethene	1	.1	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Toluene	343	68.6	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2,3-Trichlorobenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2,4-Trichlorobenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,1,1-Trichloroethane	200	40	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,1,2-Trichloroethane	.6	.06	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Trichloroethene	5	.18	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
Trichlorofluoromethane	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
1,2,4-Trimethylbenzene	–	–	2.0	<1.0	<1.0	<1.0	<1.0	620	640
1,3,5-Trimethylbenzene	–	–	<1.0	<1.0	<1.0	<1.0	<1.0	62	71
Vinyl chloride	.2	.0015	<1.0	<1.0	<1.0	<1.0	<1.0	<10	<10
O-xylene	620	124	<1.0	<1.0	<1.0	<1.0	<1.0	<10	19
M + P - Xylene	620	124	<2.0	<2.0	<2.0	<2.0	<2.0	1000	1900

Samples analyzed by EPA Method 5030/8021.
Results in µg/L or ppb.

TABLE 3.8
LEAD ANALYSIS
GROUNDWATER SAMPLES: HANGAR 414
ASI, JANUARY 1993

Sample Number	Results	Units
4SB-1-GW	<3.0	µg/L
4SB-2-GW	<3.0	µg/L
4SB-3-GW	<3.0	µg/L
4SB-4-GW	<3.0	µg/L
4SB-4-GW-DUP	<3.0	µg/L
4SB-5-GW	<3.0	µg/L
4SB-6-GW	<3.0	µg/L

Samples analyzed by EPA Method 3020/7421.

µg/L = ppb

and are considered insignificant to the current SA.

3.2.3 Quality Assurance/Quality Control Results

Trip blanks, field blanks, equipment rinsate blanks and duplicate samples were collected and analyzed according to the QA/QC procedures outlined in the SA Work Plan. Trip blanks were prepared by the laboratory and accompanied each sample shipment. The trip blanks were analyzed for VOCs. Laboratory transmittals for the trip blanks are included in Appendix C.

Equipment rinsate blanks were collected from each sampling tool (soil and groundwater). Equipment blanks were analyzed for VOCs and lead. Results indicate chloroform and methylene chloride were detected in equipment rinsate blanks from the bailers and split-spoon sampler. A field blank was collected from the deionized water. Results from this field blank identified similar contaminants. The concentrations detected in the field blank were consistent with the concentrations detected in the equipment rinsate blanks. The similar contamination levels for both the field blank and equipment rinsate blanks led to the conclusion that the deionized water that was being utilized in the field was contaminated. It should be noted that the analytes that were detected in the deionized water were not detected at significant levels in soil or groundwater analytical results. Laboratory transmittals for equipment rinsate and field blanks are include in Appendix C.

During the field effort for the SA, duplicate samples were collected from each media sampled at a rate of one duplicate sample for every ten samples collected. A duplicate soil sample was collected from boring 4SB-4 at 8ft BGL. Based on the results of the primary and duplicate soil samples, the analytical results of the duplicate samples was acceptable. Results of the duplicate sampling events are sufficient to meet the SA QA/QC requirements and are summarized in Tables 3.4, 3.5, and 3.6 for the soil samples

A duplicate groundwater sample was collected at 4SB-4 and results of the primary and duplicate groundwater samples were also acceptable. The groundwater results for QA/QC samples are summarized in Tables 3.7 and 3.8.

Personal communication with Mr. Mike Schmoller (WDNR, Project Manager), on February 16, 1993, informed ASI that Warzyn, Inc. was not approved, by WDNR, to conduct PAH analyses, as anticipated by both WDNR and ASI (Appendix D). Therefore, Mr. Schmoller suggested that ASI use the VOC analytical data, collected during the current investigation, to assess the site for any constituents of concern.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS

4.1.1 Soils

The horizontal and vertical extent of petroleum hydrocarbons in the soil have been defined in the vicinity of the proposed Hangar 414 expansion area. Soils in the vicinity of the vadose zone/saturated zone contact have been impacted by petroleum hydrocarbons. Borings 4SB-5 and 4SB-6, located on the north side of the site, are the only two locations where elevated levels of petroleum hydrocarbon compounds were recorded (Figure 3.3). Only the soils at the interface between the vadose zone and saturated zone are impacted. By the contamination observed at the interface, it is evident that the groundwater, with an upgradient source, is the most probable cause of the elevated levels of the constituents of concern. Seasonal fluctuations of the groundwater level has caused a "smearing" effect on the soil at the groundwater interface. The analytical data of the soil samples collected during this investigation confirm the absence of any surficial or vadose zone petroleum hydrocarbon contamination. Lead was detected in borings 4SB-2 and 4SB-3 at 14.5ppm and 5.21ppm, respectively. The analytical results reported total lead concentrations. The levels of lead reported during the current investigation, coupled with the absence of lead in the groundwater, are considered to be low and insignificant.

Please note that design plans and specifications were prepared by Mead & Hunt to remediate an estimated 3,000 cubic yards of contaminated soil at Area 2. During the Fall of 1993, Sen-Tech Environmental, Ltd. excavated and treated on-site (via low temperature thermal desorption) approximately 3,000 cubic yards of contaminated soil from Area 2. In accordance with WDNR approval, only vadose zone soils (5 to 6 feet below ground surface) were excavated and remediated. Area 2 is located adjacent to and immediately northeast of the Hangar 414 proposed expansion area addressed in this report, where petroleum hydrocarbons were detected in Boring Nos. 4SB-5 and 4SB-6.

4.1.2 Groundwater

Groundwater below the proposed Hangar 414 expansion area, has been contaminated by petroleum hydrocarbons. Elevated levels of numerous petroleum hydrocarbon compounds were identified in the groundwater samples collected from borings 4SB-5 and 4SB-6, which are located along the north side of the site (Figure 3.6, Table 3.7). The contamination is believed to be from an up-cross gradient source, possibly the abandoned fuel hydrant pipeline and Hangar 412. The abandoned hydrant pipeline and Hangar 412 have been identified as a source of groundwater contamination in previous investigations (ASI 1991 and Dames & Moore 1992). Based on the analytical results of the soil samples collected above the groundwater, it is evident that an upgradient source is responsible for the groundwater contamination observed at this site.

4.2 RECOMMENDATIONS

Based on the information currently available, the following courses of action are recommended:

- Conduct a detailed groundwater investigation to determine the extent of petroleum hydrocarbon contamination at the WANG facility.
- Conduct a risk-based study to determine the potential alternatives for groundwater corrective actions at the WANG facility.
- Remove the abandoned fuel hydrant pipeline.

REFERENCES / BIBLIOGRAPHY

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LITHOLOGICAL LOGS

BORING LOG	Boring/Well No.: 4SB-1 Northeast corner of site	Page 1 of 1
Installation: WANG	Site: H414	
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II	
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson
Drlg Started: 1/22/93	Drlg Ended 1/22/93 ( )	Borehole Dia(s) 7.25
Drlg Method/Rig Type: HSA		
Logged by: Linley	E-Log (Y/N) From ____ to ____	Protection Level: D

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-1-2	N	100	0	0-2' **Clayey Silt,** Black (N1), very fine to fine, moderately sorted, semi-consl, subrnd, moist.	ML	4 5 6 8				
2		4SB-1-4	N	100	0	2-3' **Clayey Silt,** Black (N1), very fine to fine, moderately sorted, semi-consl, subrnd, moist.	ML	2 4				
						3-4' **Sand,** Pale yellow brown (10YR6/2), fine, unconsl, mod sort, subang to subrnd, moist.	SW	6 7				
4		4SB-1-6	Y	100	0	4-6' **Sand,** Moderate yellow brown (10YR5/4), fine to coarse, poorly sorted, unconsl, subang to subrnd, wet 4.5-5' BGL.	SW	3 4 6 8				
6						TD at 9'						
8												
10												

W4SB1

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring ____
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

BORING LOG	Boring/Well No.: 4SB-2 Northwest corner of site	Page 1 of 1
Installation: WANG		Site: H414
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II	
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson
Drlg Started: 1/22/93	Drlg Ended 1/22/93 ( )	Borehole Dia(s) 7.25
Drlg Method/Rig Type: HSA		
Logged by: Linley	E-Log (Y/(N)) From ____ to ____	Protection Level: D

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-2-2	N	100	0	0-2' **Clayey Silt,** Black (N1), very fine to fine, moderately sorted, semi-consl, subrnd, moist.	ML	4 7 7 7				
2		4SB-2-4	Y	100	0	2-4' **Clayey Silt,** Black (N1), very fine to fine, moderately sorted, semi-consl, subrnd, moist.	ML	1 2 5 6				
4		4SB-2-6	N	100	0	4-6' **Sand,** Grayish orange (10YR7/4) to dark yellow (10YR6/6), fine to medium, poorly sorted, subang to subrnd, saturated, unconsl. TD at 9'	SW	6 8 10 13				
6												
8												
10												

W4SB2

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring ____
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

BORING LOG	Boring/Well No.: 4SB-3	Center of site	Page 1 of 1
Installation: WANG		Site: H414	
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II		
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson	
Drlg Started: 1/22/93	Drlg Ended 1/22/93 ( )	Borehole Dia(s) 7.25	
Drlg Method/Rig Type: HSA			
Logged by: Linley	E-Log (Y/(N)) From ____ to ____	Protection Level: D	

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-3-2	N	100	0	0-1' **Clayey Silt,** Black (N1), very fine, semiconsl, mod sorted.	ML	4 4				
						1-2' **Sandy Clay,** Olive gray (5Y4/1), very fine to fine, poorly sorted, semi-consl, subang to subrnd, moist.	CL	4 8				
2		4SB-3-4	Y	100	0	2-3' **Sandy Clay,** Olive gray (5Y4/1), very fine to fine, poorly sorted, semi-consl, subang to subrnd, moist.	CL					
						3-4' **Sand,** Dark yellow orange (10YR6/6) to gray orange (10YR7/4) to pale yellow orange (10YR8/6), fine, mod sorted, unconsl, subang to subrnd, wet at 3' BGL.	SW					
4						TD at 6'						
6												
8												
10												

W4SB3

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring ____
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

BORING LOG	Boring/Well No.: 4SB-4 Southwest corner of site	Page 1 of 1
Installation: WANG		Site: H-414
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II	
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson
Drlg Started: 1/23/93	Drlg Ended 1/23/93 ( )	Borehole Dia(s) 7.25
Drlg Method/Rig Type: HSA		
Logged by: Linley	E-Log (Y/N) From ____ to ____	Protection Level: D

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-4-2	N	100	0	0-1' **Clayey Silt,** Black (N1), very fine to fine, semi-consl, mod sorting, moist, frozen, organic matter.	ML	11				
						1-2' **Sandy Gravel,** Fill, moderate yellow brown (10YR5/4), fine to very coarse, unconsl,poor sorting, subang to subrnd, gravel up to 2" dia.	GP	30 25 10				
2		4SB-4-4	N	100	0	2-3' **Gravelly Sandy Silt,** Dusky yellow brown (10YR2/2), very fine to med, poorly sorted, semi to unconsl, subang to subrnd, gravel fraction ~20% up to 1-1.5" dia.	GM	2 4				
						3-4' **Clayey Silty Sand,** Dusky yellow brown (10YR2/2) to pale yellow brown (10YR6/2), very fine to med, poorly sorted, subang to subrnd, semi to unconsl, moist.	SM	7 8				
4		4SB-4-6	N	100	0	4-5' **Clayey Sand,** Dusky yellow brown (10YR7/2) to dark yellow brown (10YR4/2), very fine to fine, mod poor sorting, subang to subrnd, unconsl, moist.	SC	2 3				
						5-6' **Clay,** Medium light gray (N6), very fine, mod sorting, semi-consl, grading into fine sand at 6' BGL, pale yellow brown (10YR6/2), unconsl, subang to subrnd, moist.	CL	4 6				
6		4SB-4-8	Y	100	0	6-6.5' **Clayey Sand,** Dusky yellow brown (10YR2/2), very fine, semi to ununconsl, subang to subrnd, mod poor sort, moist.	SL	2				
						6.5-8' **Sand,** Light olive gray (5Y6/1) to pale yellow brown (10YR6/2), fine, unconsl, subang to subrnd, mod sorting, wet at 7.5' BGL.	SW	3 6 8				
8						TD at 10'						
10												

W4SB4

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring ____
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

BORING LOG	Boring/Well No.: 4SB-5 Southeast corner of site	Page 1 of 1
Installation: WANG		Site: H414
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II	
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson
Drlg Started: 1/23/93	Drlg Ended 1/23/93 ( )	Borehole Dia(s) 7.25
Drlg Method/Rig Type: HSA		
Logged by: Linley	E-Log (Y/N) From ____ to ____	Protection Level: D

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-5-2	N	100	0	0-1.5' **Clayey Silt,** Black (N1), very fine to fine, semi-consl, mod sorting, subang to subrnd, frozen.	ML	9				
						1.5-2' **Clayey Silty Sand,** Mottled dusky brown (5YR2/2) to light brown (5YR5/6) pale yellow brown (10YR6/2), very fine to fine, semi-friable, mod poor sort, subang to subrnd.	SM	15 10 6				
2		4SB-5-4	N	100	1	2-4' **Clayey Sand,** Dusky yellow brown (10YR2/2) to dark yellow orange (10YR6/6), very fine to fine, unconsl, poorly sorted, subang to subrnd.	SC	2 3 4 6				
4		4SB-5-6	N	100	2	4-5' **Clay,** Dusky yellow brown (10YR7/2) to light olive gray (5Y6/1), very fine, semi-consl, mod sorting, moist.	CL	2 3				
						5-6' **Sand,** Gray orange (10YR7/4), fine, unconsl, mod sorting, unconsl, subang to subrnd, moist.	SW	6 7				
6		4SB-5-8	Y	100	3	6-8' **Sand,** Pale yellow brown (10YR6/2) to light olive gray (5Y6/1), fine, unconsl, subang to subrnd, mod sorting, dark yellow orange (10YR6/6), very moist.	SW	3 6 8 11				
8		4SB-5-10	Y	100	245	8-10' **Sand,** Medium dark gray (N4) to dark gray (N3), fine to coarse, unconsl, subang to subrnd, poorly sorted, saturated, strong HC odor-sheen on split spoon, gravel ~5% up to 1/2" dia. Wet at approximately 8' BGL.	SW	6 9 12 16				
10												

W4SB5

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

BORING LOG	Boring/Well No.: 4SB-6 East side of site	Page 1 of 1
Installation: WANG		Site: H414
Project No.: 9661.006.91	Client/Project: NGB/TRUAX II	
HAZWRAP Contr.: Advanced Sciences, Inc.	Drlg Contractor: EFD	Driller: D. Paulson
Drlg Started: 1/23/93	Drlg Ended 1/23/93 ( )	Borehole Dia(s) 7.25
Drlg Method/Rig Type: HSA		
Logged by: Linley	E-Log (Y/N) From ____ to ____	Protection Level: D

Depth (ft.)	Sample	Sample No.	Lab Anal (Y/N)	Rec (%)	OVM hdsp(ppm)	Lithologic Description	USGS	Blows/6 inch	Graphic Log	Well Data	Boring Depth and Remarks	Elevation (ft.)
0		4SB-6-2	N	100	1	0-2' **Clayey Silt,** Dusky brown (5YR2/2) to dark yellow orange (10YR6/6), very fine to fine, mod poor sorted, semi to unconsl, subang to subrnd, sand fraction ~10%, frozen.	ML	4 5 7 7				
2		4SB-6-4	Y	100	229	2-3' **Clayey Silt,** Dusky brown (5YR2/2) to dark yellow orange (10YR6/6), very fine to fine, mod poor sorted, semi to unconsl, subang to subrnd, sand fraction ~10%, frozen.	ML	3 5				
						3-4' **Sand,** Light olive gray (5Y6/1), fine, unconsl, mod sorted, subang to subrnd, moist, HC odor	SW	7 8				
4		4SB-6-6	Y	100	162	4-6' **Silty Sand,** Light olive gray (5Y6/1), very fine to fine, unconsl, mod sorted, subang to subrnd, HC odor, sheen on split spoon. Wet at 6' BGL.	SM	2 3 5 10				
6						TD at 9' BGL						
8												
10												

W4SB6

U = Thin Wall Tube
(S) = Split Spoon (tube)
R = Rock Coring ____
O = Other:
Field G/C (Make/Mod.) ____
G/C Operator

SITE ASSESSMENT WORK PLAN

TRUAX AIR FIELD

SITE ASSESSMENT - PHASE II
WORK PLAN ADDENDUM

WISCONSIN AIR NATIONAL GUARD
TRUAX FIELD
MADISON, WISCONSIN

Prepared For:

Air National Guard Readness Center ANGRC/CEVR
Andrews AFB, Maryland 20331-6008

Prepared by:

Advanced Sciences, Inc.
165 Mitchell Road
Oak Ridge, Tennessee 37830-7919

Submitted to:

Hazardous Waste Remedial Action Program
Oak Ridge, Tennessee 37830
Managed by Martin Marietta Energy Systems, Inc.
For the U.S. Department of Energy under contract DE-AC-05-84OR21400

September 1992

1. INTRODUCTION

This Work Plan Addendum has been developed to provide a description of the Phase II Site Assessment (SA) activities proposed for the Rapid Response Initiative Sites at the Wisconsin Air National Guard Base located at Truax Air Field, Madison, Wisconsin. The locations of these sites are shown on Fig.1A. The purpose of the Phase II SA is twofold; first, to assess two previously excavated and removed underground storage tank (UST) sites, 1000-3 and 1201-1, in preparation for permanent closure; and secondly, to assess the area northeast of Hangar 414 to determine if any remedial activities are required prior to commencement of construction activities to expand Hangar 414.

Information pertaining to site background and the technical information on monitoring well construction, sampling, borehole construction, etc., are described in the original work plan and will not be included herein. The only exception from the original work plan is that soil samples will not be additionally screened with a Field Gas Chromatograph prior to shipment to a State Approved Laboratory. A description of additional field activities planned for each site are included in this addendum. Field activities and sampling requirements will follow the Wisconsin Department of National Resources (WDNR) Leaking Underground Storage Tank (LUST) requirements issued in June 1991.

2. INVESTIGATION METHODOLOGY

The subsurface will be investigated by the placement of soil borings (SBs) and the collection of soil samples. If groundwater is encountered, appropriate samples will be collected. All soil and groundwater samples will be analyzed by a state-approved laboratory in accordance with Wisconsin Department of Natural Resources (WDNR) regulations.

Grab groundwater samples will be collected from each SB if groundwater is encountered. The groundwater samples will be collected through the auger with a temporary well casing and screen. The well casing will be removed from each boring upon completion of sample collection and decontaminated prior to the collection of successive groundwater samples.

Initially, installation of permanent monitoring wells (MWs) is not planned for the sites because the presence of contamination in the groundwater has not been confirmed. In the event that the analytical data from the grab groundwater samples indicate contaminant levels above WDNR Enforcement Standards, MWs will be located upgradient and downgradient of the proposed assessment sites. The upgradient MW will be installed to confirm that the site is an actual source and the downgradient MWs will be installed to determine the extent of contamination. Activities planned at the sites are summarized in Table 1A of this addendum. If the planned sampling activities do not adequately define the extent of soil and/or groundwater contamination, requirements for additional sampling will be determined in consultation with the HAZWRAP Program Manager and the National Guard Bureau.

3. PROJECT SCOPE

3.1 ASSESSMENT OF EXCAVATED UNDERGROUND STORAGE TANKS 1000-3 and 1201-1

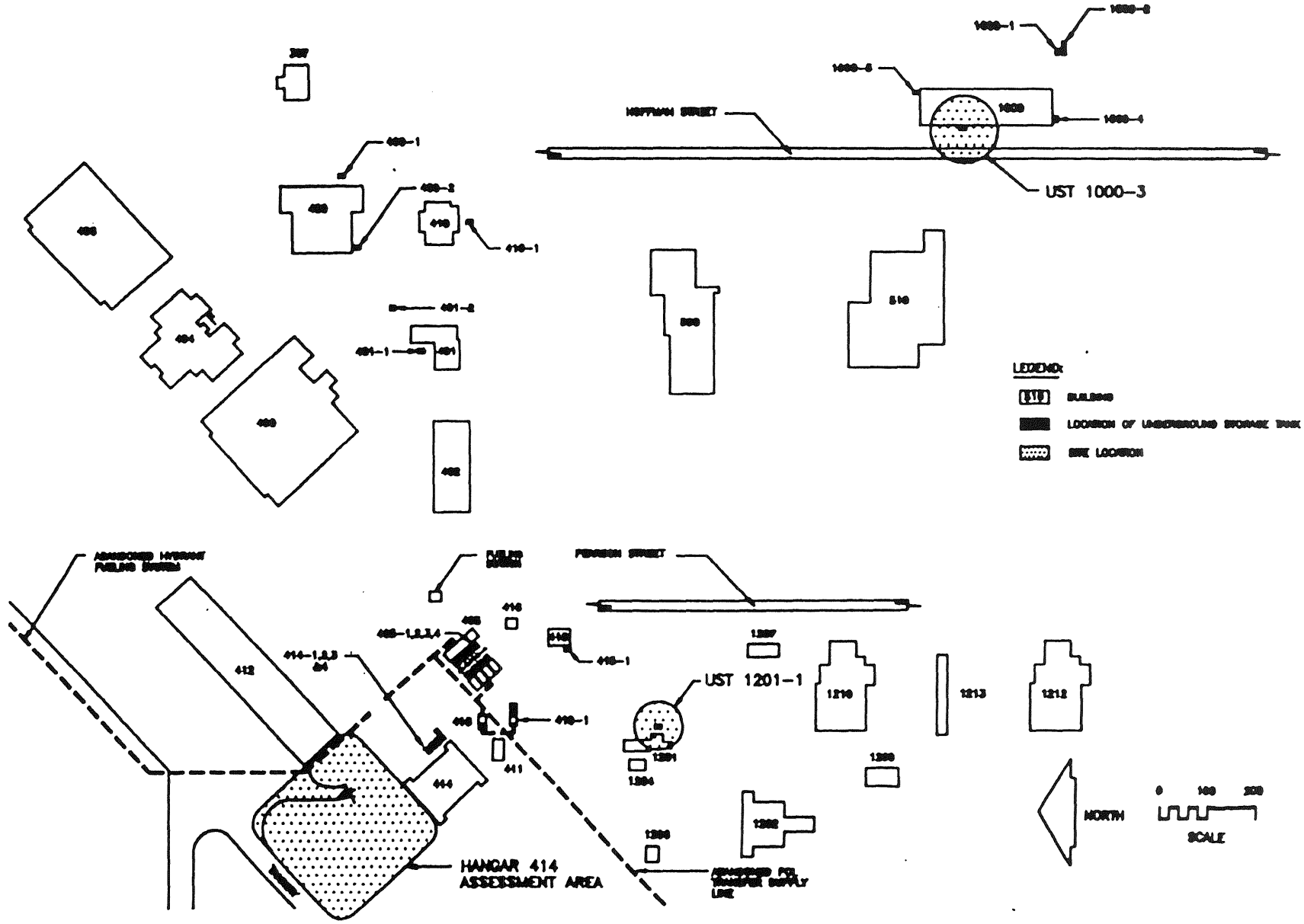
The purpose of the assessment is to evaluate the subsurface conditions for petroleum hydrocarbon constituents (according to the WDNR UST permanent closure requirements) at the locations of the removed USTs.

During initial excavation activities for removal of the USTs, limited soil samples were collected and the presence of petroleum hydrocarbon constituents was established. The current assessment will confirm the presence or absence of any constituents-of-concern by the placement of four SBs around the perimeter of each UST site and one SB, one foot below the bottom of the excavation of each former UST (Fig.2A and Fig.3A). If contamination is confirmed, additional borings will be placed outward from the UST site at intervals to be determined in the field until non-detect (ND) readings are obtained, using a photoionization detector (PID) analyzing for volatile organics, for two consecutive SBs. All soil samples will be confirmed by the state-approved laboratory with 24-hour turn around. If the presence of contamination above WDNR action levels is identified by the state-approved laboratory, additional borings will be completed to delineate the extent of subsurface contamination.

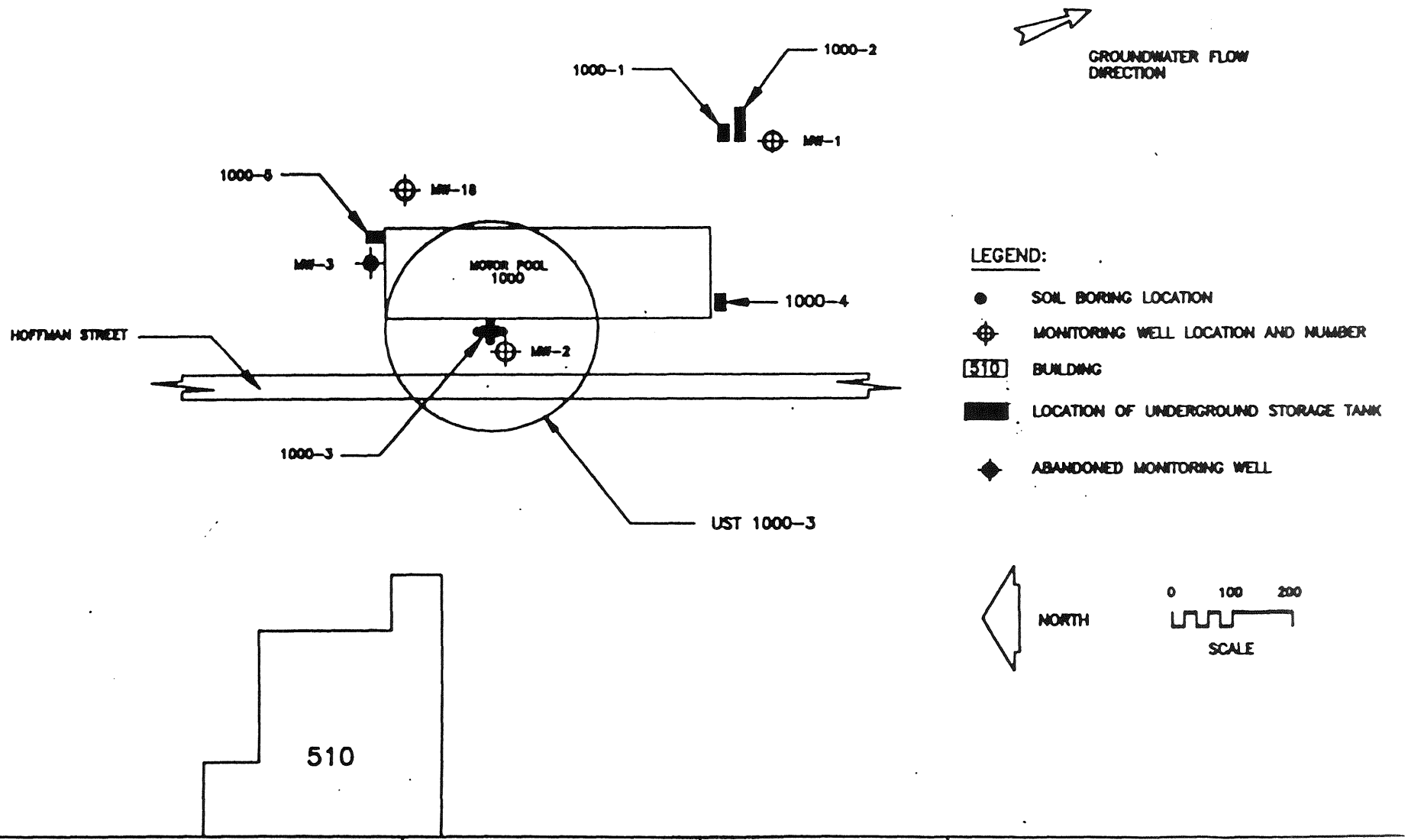
3.2 ASSESSMENT OF HANGAR 414

During the previous SA (ASI 1991), the soil and groundwater were assessed approximately 100—150ft to the north and northeast of Hangar 414 with installation of monitoring wells MW-17 and MW-15 (Fig. 4A). Petroleum hydrocarbon constituents were identified at the location of monitoring well MW-15. Analytical data indicated that monitoring well MW-17 was free of any constituents-of-concern and representative of background conditions. An abandoned fuel hydrant pipeline (which, in the past, carried leaded aviation fuel) is also located in the vicinity of MW-15. Consequently, samples collected at this site will also be analyzed for the presence of lead.

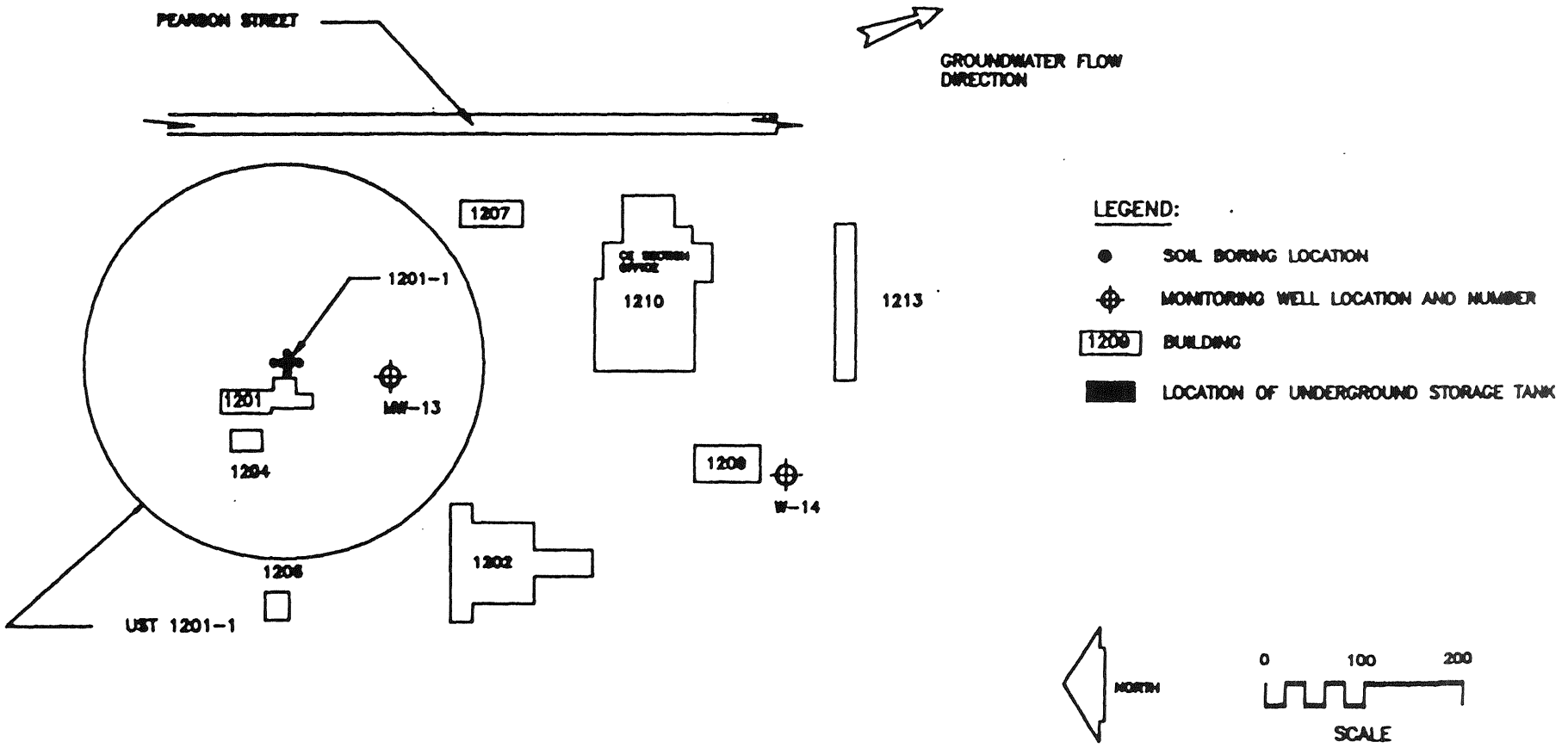
This assessment is intended to determine the presence or absence of petroleum hydrocarbon constituents with the placement of approximately six SBs in the planned area for construction activities for Hangar 414 (Fig.4A). The assessment will identify any corrective actions required prior to construction activities. If contamination is found, borings will be placed outward at intervals determined in the field until ND readings are obtained for two consecutive SBs using a PID to analyze for volatile organics. All soil samples will be confirmed by the state-approved laboratory with 24-hour turn around. If the presence of contamination above WDNR action levels is identified by the state-approved laboratory, additional SBs will be completed to delineate the extent of subsurface contamination.



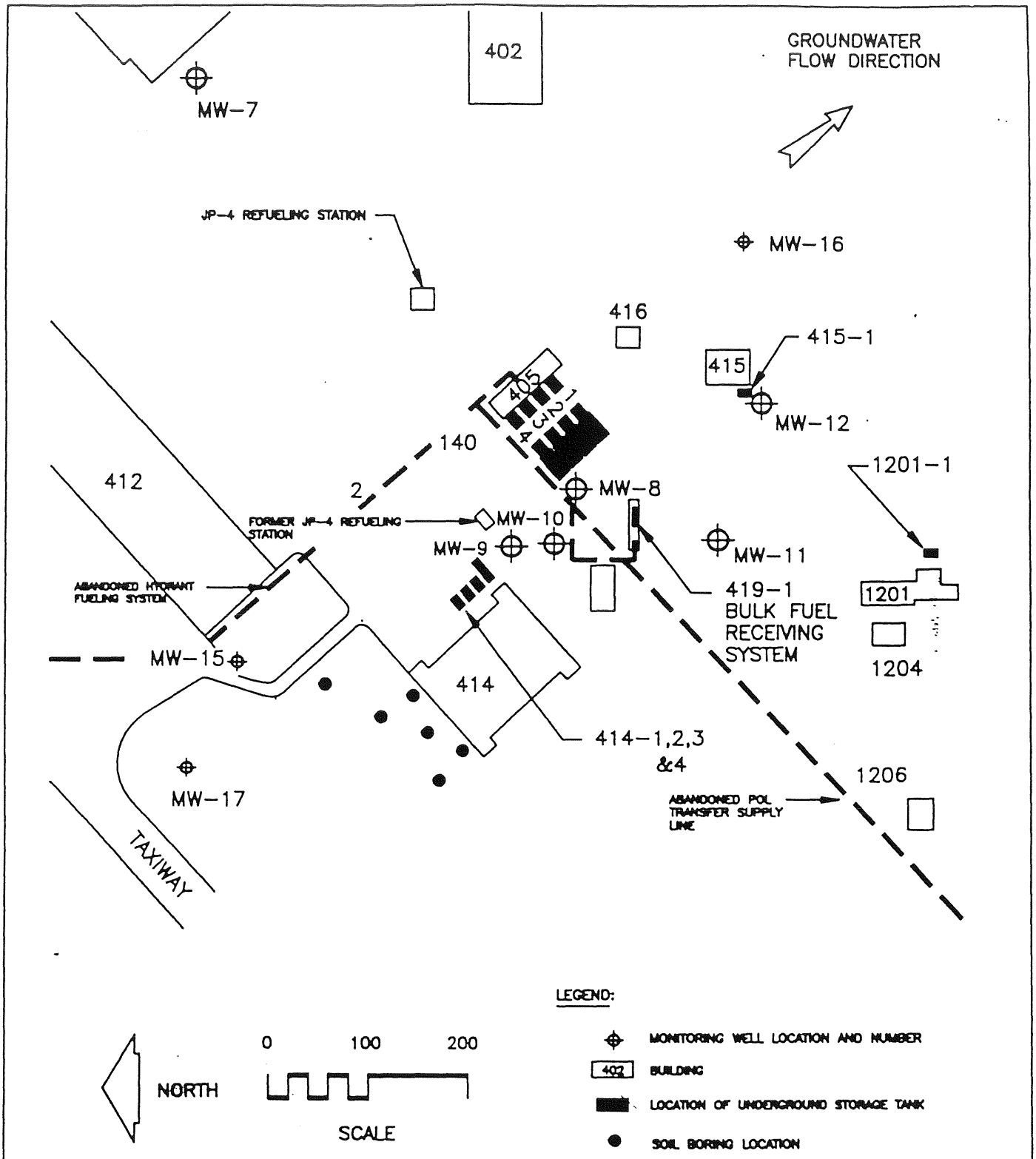
ADVANCED SCIENCES, INC.		FIGURE 1A. PROJECT SITE LOCATIONS	Wisconsin Air National Guard Headquarters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG31	FEBRUARY 1992		



ADVANCED SCIENCES, INC.		FIGURE 2A. UST 1000-3 SOIL BORING LOCATION MAP	Wisconsin Air National Guard Headquaters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG32	FEBRUARY 1992		



ADVANCED SCIENCES, INC.		FIGURE 3A. UST 1201-1 SOIL BORING LOCATION MAP	Wisconsin Air National Guard Headquaters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG33	FEBRUARY 1992		



ADVANCED SCIENCES, INC.		FIGURE 4A. HANGAR 414 SOIL BORING LOCATION MAP	Wisconsin Air National Guard Headquarters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG36	FEBRUARY 1992		

Table 1A. Summary of Site Assessment Sampling Activities
TRUAX Air Field - Phase II
Wisconsin Air National Guard, Madison, Wisconsin

Location	Field Activities		Materials of Concern	Media Analysis	
	Screening	Confirmation		Soil	Groundwater
UST-1000-3 Motorpool	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil	TRPH GRO DRO	VOC TRPH DRO PAH Lead Cadmium
UST-1201-1	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil Avgas	TRPH GRO	VOC TRPH GRO PAH Lead Cadmium
Hanger 414	• PID Scan soil samples from all SBs	• Auger 6 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Petroleum Hydrocarbon Constituents	VOC TRPH Lead	VOC TRPH Lead

Definitions:

UST - Underground Storage Tank
PID - Photoionization Detector
SBs - Soil borings
AVGAS - Aviation fuel
TRPH - Total Recoverable Petroleum Hydrocarbons
GRO - Gasoline Range Organics
DRO - Diesel Range Organics
VOC - Volital Organic Compounds
PAH - Polynuclear Aromatic Hydrocarbons

ADVANCED
SCIENCES, INC.

November 17, 1992

Don Miller, HAZWRAP
TCM-MS 7607
P.O.Box 2003
Oak Ridge, TN 37830

RE: Work Plan Addendum-WANG, Truax Field (Task No. ASI-006-91)

Dear Mr. Miller,

This Work Plan Addendum has been developed to provide a description of the expanded Phase II Site Assessment (SA) activities proposed for the Rapid Response Initiative sites at the Wisconsin Air National Guard (WANG) Base located at Truax Air Field, Madison, Wisconsin. The initial Phase II SA activities proposed for the WANG facility included assessment of two abandoned and removed underground storage tanks (USTs) sites (1000-3 and 1201-1) and the proposed expansion area for Hangar 414. The purpose of this letter is to discuss the scope expansion of the Phase II SA activities.

Information pertaining to site background and the technical information on monitoring well construction, sampling, borehole construction, etc., are described in the original work plan (ASI, March 1991) and will not be included herein. Field activities and sampling requirements will follow the Wisconsin Department of Natural Resources (WDNR) leaking underground storage tank (LUST) requirements issued in April 1992.

Two additional USTs sites (401-2 and 1000-3) have been included in the Phase II SA activities (Figure 1b). Both of the USTs have been previously removed and UST closure assessment activities have not yet been completed for these sites. ASI will follow the investigation methodology outlined in the Site Assessment-Phase II Work Plan Addendum (ASI, March 1992) to assess the former UST locations.

Five soil borings will be completed at each UST site. Four borings will be completed around the perimeter, and one boring will be completed in the center of each former UST location (Figure 2b and 3b). Soil samples will be collected and field screened for volatile organic constituents (VOCs). A soil sample with the highest headspace reading and the deepest unsaturated sample from each boring will be selected for laboratory confirmatory analysis. If contamination is confirmed, additional borings will be placed outward from the UST site at intervals determined in the field until non-detect (ND) readings are obtained and confirmed by a State approved laboratory analysis. A grab groundwater sample will also be collected from each boring for laboratory analysis. If groundwater contamination is confirmed, further assessment of the groundwater will be recommended.

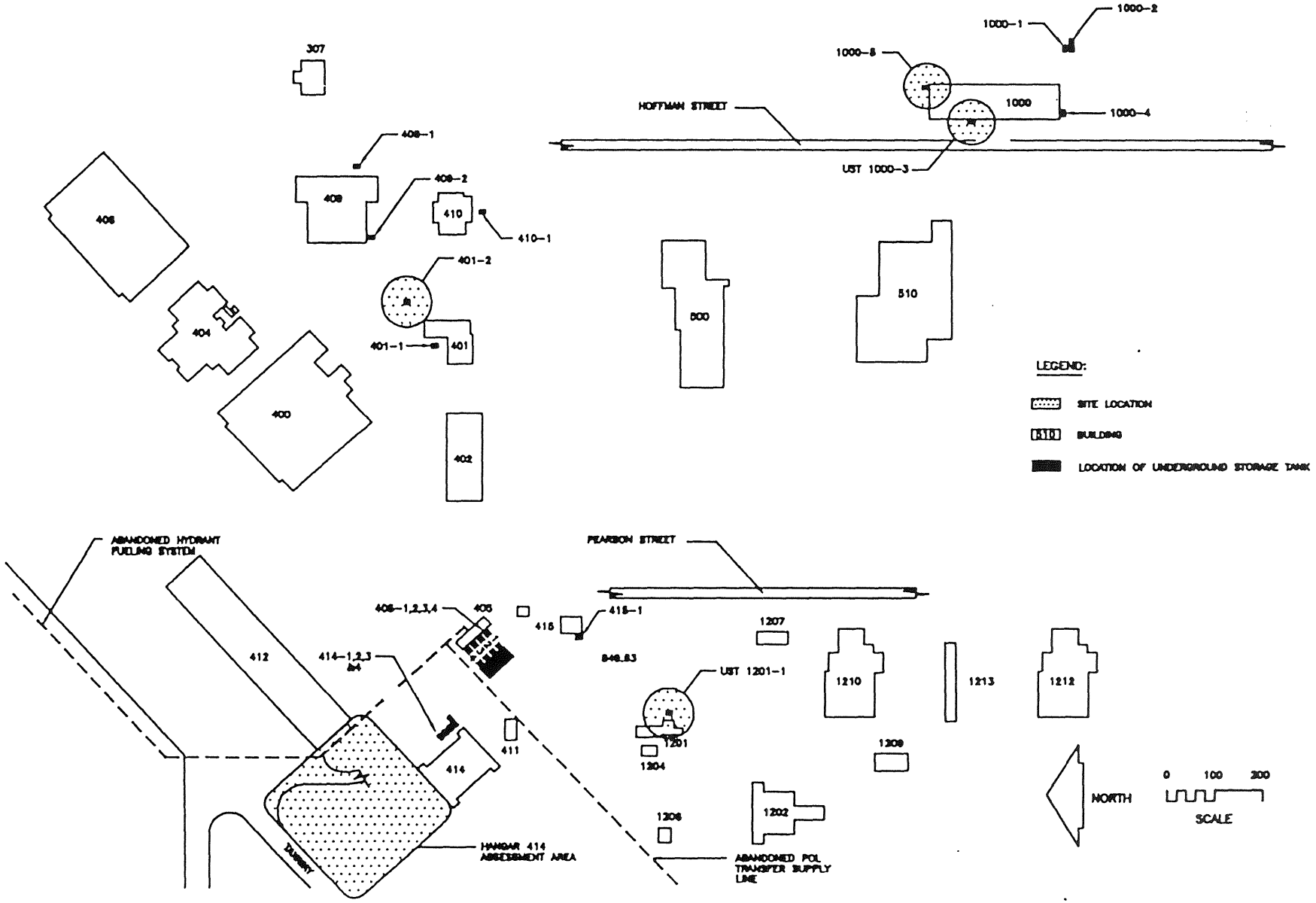
165 Mitchell Road Oak Ridge, TN 37830-7919 (615) 483-1274 FAX (615) 483-6355

If you have any questions concerning the expanded Phase II assessment activities please do not hesitate to contact Paul Linley or myself at (615) 483-1274.

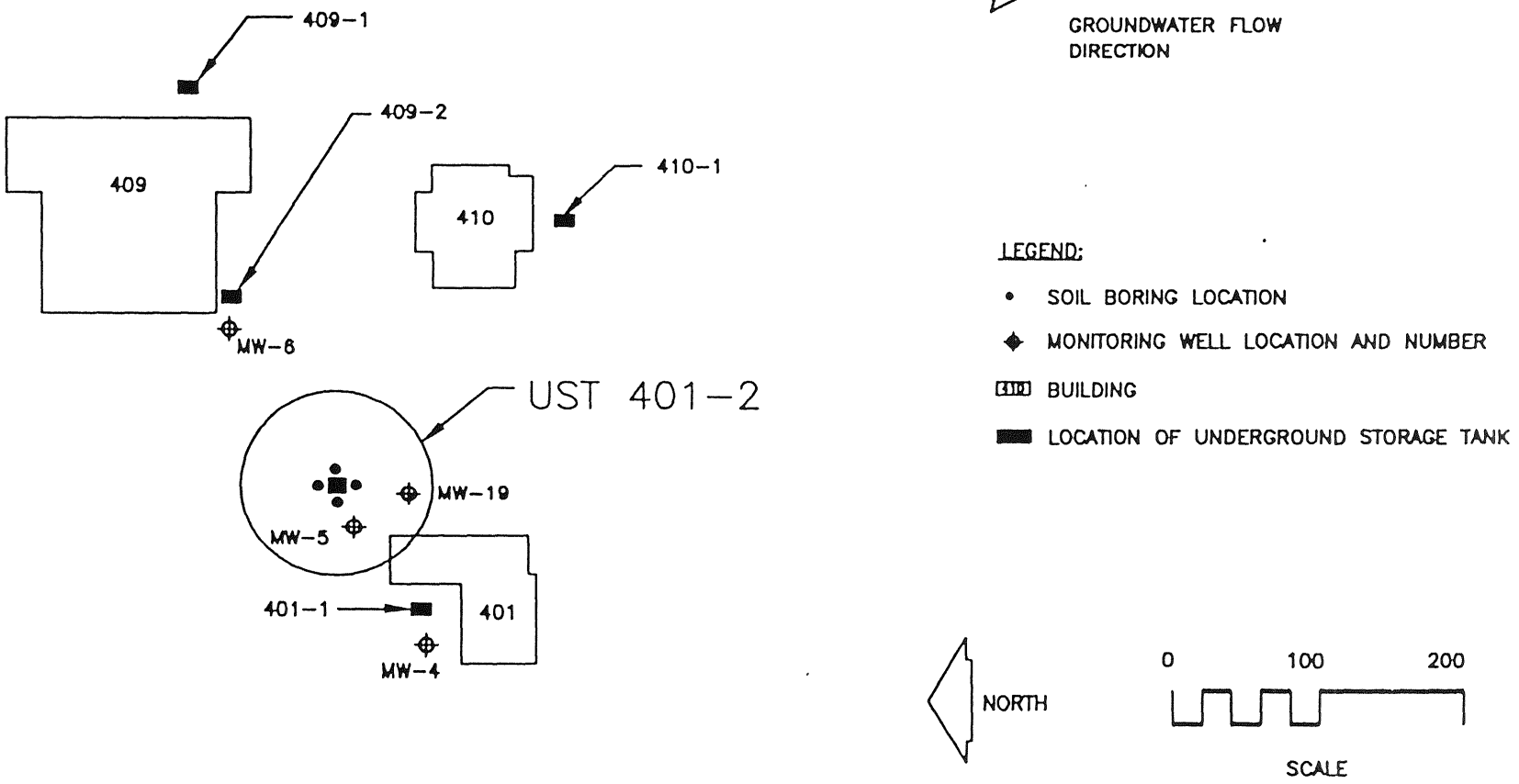
Sincerely,

Joseph Hawk
Deputy Project Manager

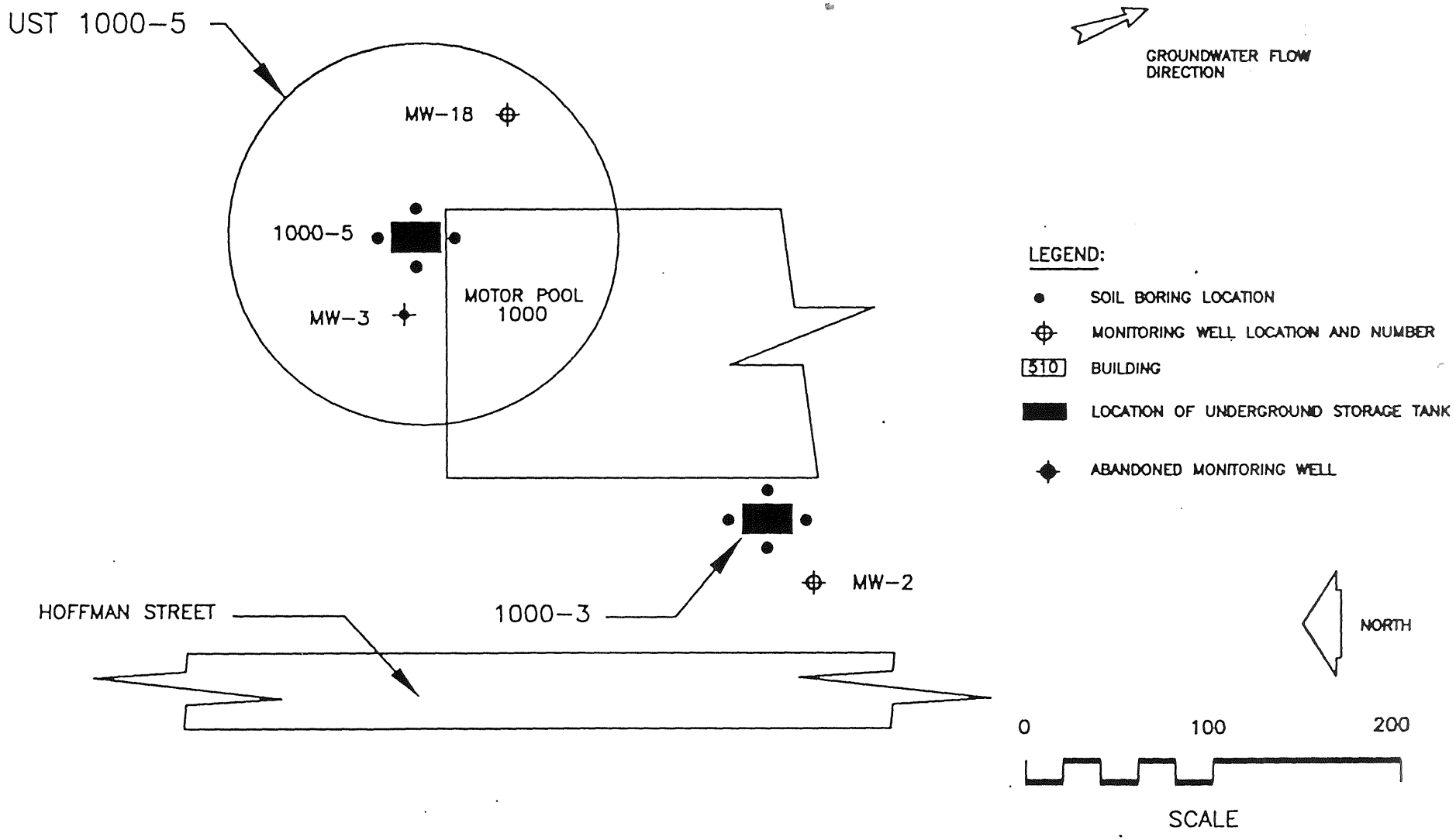
cc: Mary Bridgewater (ANGRC)
Capt. Gurtz (WANG)
Don Hudson (ASI)
Paul Linley (ASI)
Project File 9661.006.91



ADVANCED SCIENCES, INC.		FIGURE 1b. SITE LOCATION MAP	Wisconsin Air National Guard Headquaters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG44	NOVEMBER 1992		



ADVANCED SCIENCES, INC.		FIGURE 2b. UST 401-2 SOIL BORING LOCATION MAP	Wisconsin Air National Guard Headquaters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG43	NOVEMBER 1992		



ADVANCED SCIENCES, INC.		FIGURE 3b. UST 1000-5 SOIL BORING LOCATION MAP	Wisconsin Air National Guard Headquaters, 128th Tactical Fighter Wing Truax Field Dane County Regional Airport Madison, Wisconsin
WANG42	NOVEMBER 1992		

WISCONSIN
DEPT. OF NATURAL RESOURCES
Carroll D. Beeadny
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Southern District Headquarters
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711
TELEPHONE 608-275-3266
TELEFAX 608-275-3338

November 19, 1992

Captain Keith Geurts
Wisconsin Air National Guard
Truax Field
3110 Mitchell Street
Madison, WI 53704-2591

Dear Captain Geurts:

The Department has reviewed the November 13, 1992, Site Assessment Work Plan Addendum for Truax Field. As proposed, the soil and groundwater sampling plans are not acceptable and cannot be implemented.

The proposed soil and groundwater parameter lists are based on an outdated guidance and are incorrect. Attached is a revised table showing the correct parameters.

Also, it is not acceptable to collect groundwater samples from inside hollow stem augers. Groundwater samples should be collected through permanent monitoring wells or through hydropunch sampling tools. The proposed work plan must be amended to correct this deficiency.

Please contact me when field work will begin and if you have any questions or comments.

Sincerely,

Michael R. Schmoller
Hydrogeologist
(608) 275-3303

MRS:ps
9212\swlargrd.mrs
Enc.

Table 1A. Summary of Site Assessment Sampling Activities
TRUAX Air Field - Phase II
Wisconsin Air National Guard, Madison, Wisconsin

Location	Field Activities		Materials of Concern	Media Analysis	
	Screening	Confirmation		Soil	Groundwater
UST-1000-3 Motorpool	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil	~~TRPH~~ ~~GRO~~ ~~DRO~~ VOC PAH Pb Cd	VOC ~~TRPH~~ ~~DRO~~ PAH Lead Cadmium
UST-1201-1	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil Avgas	~~TRPH~~ ~~GRO~~ PAH VOC Pb Cd DRO	VOC ~~TRPH~~ ~~GRO~~ PAH Lead Cadmium
Hanger 414	• PID Scan soil samples from all SBs	• Auger 6 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Petroleum Hydrocarbon Constituents	VOC ~~TRPH~~ GRO Lead	VOC ~~TRPH~~ Lead

Definitions:

UST - Underground Storage Tank
PID - Photoionization Detector
SBs - Soil borings
AVGAS - Aviation fuel
TRPH - Total Recoverable Petroleum Hydrocarbons
GRO - Gasoline Range Organics
DRO - Diesel Range Organics
VOC - Volital Organic Compounds
PAH - Polynuclear Aromatic Hydrocarbons

ADVANCED
SCIENCES, INC.

December 3, 1992

Captain Keith Geurts
Wisconsin Air National Guard
Truax Field
3110 Mitchell Street, Build. 1210
Madison, WI 53704-2591

RE: Site Assessment Work Plan Addendum Sample Analysis Plan

Dear Capt. Geurts

Based on comments received from the Wisconsin Department of Natural Resources (reference letter from Michael R. Schmoller, Hydrogeologist (WDNR) to Capt. Keith Geurts (WANG), dated November 19, 1992) concerning the Site Assessment Work Plan Addendum for Truax Field, the technical requirements specified in the Summary of Sampling Activities must be amended in accordance with WDNR analytical guidance. Please find enclosed an amended Summary of the Site Assessment Sampling Activities for Truax Field-Phase II per Mr. Schmoller (WDNR) requirements as stated in the above referenced letter.

ASI will be using the grab groundwater sampling activities only to field screen the groundwater in conjunction with the analytical data from the soil sampling activities to determine if a need for permanent monitoring wells will be necessary. Therefore the current technical approach for groundwater screening will be implemented as stated in the Site Assessment Work Plan Addendum for Truax Field.

Based on revised WDNR mandated assessment sampling requirements and the resulting revisions required to project documentation, ASI expects to be conducting the field assessment activities in early January 1993.

ASI recommends that you forward this letter to Michael R. Schmoller of the WDNR to acknowledge that we have amended our sampling plan per WDNR requirements.

If you have any questions please do not hesitate to contact Paul Linley or myself at (615) 483-1274.

Sincerely,

Joseph Hawk
Deputy Project Manager

cc: Fritz Lebow, HAZWRAP, w/encl
Mary Bridgewater, ANGRC, w/encl
Don Hudson, ASI
Paul Linley, ASI, w/encl
Project Files 9661.006.91.C

165 Mitchell Road Oak Ridge, TN 37830-7919 (615) 483-1274 FAX (615) 483-6355

Table 1A. Summary of Site Assessment Sampling Activities
TRUAX Air Field - Phase II
Wisconsin Air National Guard, Madison, Wisconsin

Location	Field Activities		Materials of Concern	Media Analysis	
	Screening	Confirmation		Soil	Groundwater
UST-401-2 Engine Rebuild Shop	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil	VOC PAH Lead Cadmium	VOC PAH Lead Cadmium
UST-1000-3 1000-5 Motorpool	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil	VOC PAH Lead Cadmium	VOC PAH Lead Cadmium
UST-1201-1	• PID Scan soil samples from all SBs	• Auger 5 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Waste Oil Avgas	PAH VOC Lead Cadmium DRO	VOC PAH Lead Cadmium
Hanger 414	• PID Scan soil samples from all SBs	• Auger 6 SBs • Laboratory analysis of two soil samples per boring (highest PID headspace and soil/water interface) • Collect one groundwater sample per soil boring • Laboratory analysis of groundwater samples	Petroleum Hydrocarbon Constituents	VOC GRO Lead	VOC Lead

Definitions:

UST - Underground Storage Tank
PID - Photoionization Detector
SBs - Soil borings
AVGAS - Aviation fuel
GRO - Gasoline Range Organics
DRO - Diesel Range Organics
VOC - Volatile Organic Compounds
PAH - Polynuclear Aromatic Hydrocarbons

CHAIN-OF-CUSTODY AND LABORATORY ANALYTICAL DATA

WARZYN

CHAIN OF CUSTODY RECORD

№ 011907

PROJECT No.	PROJECT NAME	CITY & STATE
9661.006.71	TRUAX II	MADISON, WI

SAMPLERS (Signature): John Kanduc / Scott Schumann

LAB No.	DATE	TIME	COMP.	GRAB	STATION LOCATION		No. OF CONTAINERS	VOA (8021)	Pb	GRO	% MOISTURE	TEMPERATURE VERIFICATION	REMARKS
4SB-1-6	1-22-93	1441		X	H-414	6151-0012	6	X	X	X	X		
4SB-2-4	1-22-93	1524		X	H-414	0013	6	X	X	X	X		
4SB-2-GW	1-22-93	1550		X	H-414	0014	3	X	X				
4SB-1-GW	1-22-93	1506		X	H-414	0015	3	X	X				
4SB-3-4	1-22-93	1609		X	H-414	0016	6	X	X	X	X		2 GRO Bottles not labeled, 2 4SB-3-4 missing Lab # assumes these are same samples
4SB-3-GW	1-22-93	1629		X	H-414	0017	3	X	X				
TB-04	1-22-93			X	TRIP BLANK	0018	1	X					TRIP BLANK
TEMP-BL04	1-22-93	1648		X	H-414		1					X	TEMPRATURE BLANK
METH-BL04	1-22-93	1645		X	H-414	0019	1			X			METHANOL BLANK

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott L Schumann	1/22/93 1800				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)		Date/Time	
		Ken Zimmerman		1-22-93 1800	

REMARKS

CUSTODY SEALS ON COOLERS NOS 04911, 04912

PROJECT MANAGER:

Temp 8°C KLZ 1-22-93

Delivered: Intact, onice, via hand

WARZYN

CHAIN OF CUSTODY RECORD

№ 011990

PROJECT No.	PROJECT NAME	CITY & STATE
9661.006.91 10009610 206	TRIAX II	MADISON, WI.

SAMPLERS (Signature) John Ransone / Scott R Schumm

LAB No.	DATE	TIME	COMP.	GRAB	STATION LOCATION	No. OF CONTAINERS	PB	VOA	GRO	% Moisture			REMARKS
ER-B-04	1-23-93	0740		X	H414	3	X	X					6152- 0001
ER-SS-04	1-23-93	0757		X	H414	3	X	X					0002
4SB-4-8	1-23-93	0821	SPK	X	H414	6	X	X	X	X			0003
4SB-4-8-DUP	1-23-93	0823	SPC	X	H414	6	X	X	X	X			0004
4SB-4-GW	1-23-93	0850		X	H414	3	X	X					0005
4SB-4-GW-DUP	1-23-93	0851		X	H414	3	X	X					0006
4SB-5-8	1-23-93	0917		X	H414	6	X	X	X	X			0007
4SB-5-10	1-23-93	0929		X	H414	6	X	X	X	X			0008
4SB-5-GW	1-23-93	0956		X	H414	3	X	X					0009
4SB-6-4	1-23-93	1026		X	H414	6	X	X	X	X			0010
4SB-6-6	1-23-93	1033		X	H414	6	X	X	X	X			0011
4SB-6-GW	1-23-93	1054		X	H414	3	X	X					0012

gw
soil

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Scott R Schumm	1/23/93 1656				
Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Relinquished by: (Signature)	Date / Time	Received by: (Signature)
Relinquished by: (Signature)	Date / Time	Received for Laboratory by: (Signature)		Date/Time 1-23-93 5:00PM	

REMARKS

CUSTODY SEALS ON COOLER

#'s 04890, 04891, 04892

PROJECT MANAGER: S. Tauschek

Intact, on ice. Hand delivered

Distribution: White — Accompanies Shipment; Yellow — Laboratory File; Pink — Coordinator Field Files

WARZYN

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0013	FB-01 UST 1000-3	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	30	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	< 2	2	GroundH2O	ug/L	
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	59	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0013	FB-01 UST 1000-3	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24, 25-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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INORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Sample Date	Analysis Date
6151-0001	ER-SS-03 UST	Cadmium	< .2	.2	GroundH2O	ug/L	22-JAN-93	24-JAN-93
	1000-5	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0002	3SB-3-6 UST	Cadmium	< .3	.25	Solid	mg/kg	22-JAN-93	24-JAN-93
	1000-5	Lead	24.3	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	84.4	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0003	3SB-3-10 UST	Cadmium	< .28	.25	Solid	mg/kg	22-JAN-93	24-JAN-93
	1000-5	Lead	< 2.84	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	87.8	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0004	3SB-3-10 DUP	Cadmium	< .29	.25	Solid	mg/kg	22-JAN-93	24-JAN-93
	UST 1000-5	Lead	< 2.91	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	85.7	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0005	3SB-3-GW UST	Cadmium	< .2	.2	GroundH2O	ug/L	22-JAN-93	24-JAN-93
	1000-5	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0007	3SB-5-10 UST	Cadmium	< .3	.25	Solid	mg/kg	22-JAN-93	24-JAN-93
	1000-5	Lead	< 3	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	83.1	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0008	3SB-5-GW UST	Cadmium	< .2	.2	GroundH2O	ug/L	22-JAN-93	24-JAN-93
	1000-5	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0009	3SB-5-GW-DUP	Cadmium	< .2	.2	GroundH2O	ug/L	22-JAN-93	24-JAN-93
	UST 1000-5	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0010	3SB-4-8 UST	Cadmium	< .28	.25	Solid	mg/kg	22-JAN-93	24-JAN-93
	1000-5	Lead	3.86	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	90.6	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0011	3SB-4-GW UST	Cadmium	< .2	.2	GroundH2O	ug/L	22-JAN-93	24-JAN-93
	1000-5	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0012	4SB-1-6 H-414	Lead	< 2.91	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	85.8	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0013	4SB-2-4 H-414	Lead	14.5	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	65.2	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0014	4SB-2-GW H-414	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93
6151-0015	4SB-1-GW H-414	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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INORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Sample Date	Analysis Date
6151-0016	4SB-3-4 H-414	Lead	5.21	2.5	Solid	mg/kg	22-JAN-93	24-JAN-93
		Solids, Total	81.4	.5	Solid	%	22-JAN-93	23-JAN-93
6151-0017	4SB-3-GW H-414	Lead	< 3	3	GroundH2O	ug/L	22-JAN-93	24-JAN-93

Note: Results in mg/kg are reported on a dry weight basis.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: LH App'd: JFM
Date Issued: 2/5/93

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INORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Sample Date	Analysis Date
6152-0001	ER-B-04 H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0002	ER-SS-04 H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0003	4SB-4-8 H414	Lead	< 2.89	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	85.5	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0004	4SB-4-8 DUP H414	Lead	< 2.96	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	85.2	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0005	4SB-4-GW H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0006	4SB-4-GW-DUP H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0007	4SB-5-8 H414	Lead	< 2.99	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	83	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0008	4SB-5-10 H414	Lead	< 2.84	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	87.6	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0009	4SB-5-GW H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0010	4SB-6-4 H414	Lead	< 2.79	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	89.7	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0011	4SB-6-6 H414	Lead	< 2.95	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	84	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0012	4SB-6-GW H414	Lead	< 3	3	GroundH2O	ug/L	23-JAN-93	25-JAN-93
6152-0014	SSB-2-12 UST	Cadmium	< .3	.25	Solid	mg/kg	23-JAN-93	26-JAN-93
	1000-3	Lead	< 3.01	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	84.8	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0015	SSB-3-9 UST	Cadmium	< .27	.25	Solid	mg/kg	23-JAN-93	26-JAN-93
	1000-3	Lead	< 2.71	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	92.5	.5	Solid	%	23-JAN-93	25-JAN-93
6152-0016	SSB-1-9 UST	Cadmium	< .3	.25	Solid	mg/kg	23-JAN-93	26-JAN-93
	1000-3	Lead	5.08	2.5	Solid	mg/kg	23-JAN-93	26-JAN-93
		Solids, Total	84.7	.5	Solid	%	23-JAN-93	25-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0014	4SB-2-GW H-414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	6.8	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0014	4SB-2-GW H-414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 22-JAN-93
Analysis Date: 23-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: LLS App'd: SJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0015	4SB-1-GW H-414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	2.7	1	GroundH2O	ug/L	
		sec-Butylbenzene	2.1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	6.3	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	2.2	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	1.7	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

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Ck'd: JHS App'd: SJM
Date Issued: 9/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0015	4SB-1-GW H-414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	2	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 22-JAN-93
Analysis Date: 23-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0017	4SB-3-GW H-414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	4.7	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JH App'd: BJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0017	4SB-3-GW H-414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 22-JAN-93
Analysis Date: 23-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0018	TB-04 TRIP	Benzene	< 1	1	GroundH2O	ug/L	
	BLANK	Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	3.3	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 3/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0018	TB-04 TRIP	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
	BLANK	1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	5	2	GroundH2O	S.U.	G13

Sample Date: 22-JAN-93
Analysis Date: 23-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0001	ER-B-04 H414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	28	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	3.1	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	51	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JLO App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0001	ER-B-04 H414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24, 26-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JHA App'd: SJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0002	ER-SS-04 H414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	27	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	< 2	2	GroundH2O	ug/L	
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	47	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JLy App'd: BJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0002	ER-SS-04 H414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24, 25-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0005	4SB-4-GW H414	Benzene	< 1	1	GroundH2O	ug/L	
		Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	5	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0005	4SB-4-GW H414	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
		1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: LH App'd: RJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0006	4SB-4-GW-DUP	Benzene	< 1	1	GroundH2O	ug/L	
	H414	Bromobenzene	< 1	1	GroundH2O	ug/L	
		Bromodichloromethane	< 1	1	GroundH2O	ug/L	
		n-Butylbenzene	< 1	1	GroundH2O	ug/L	
		sec-Butylbenzene	< 1	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 1	1	GroundH2O	ug/L	
		Carbon tetrachloride	< 1	1	GroundH2O	ug/L	
		Chlorobenzene	< 1	1	GroundH2O	ug/L	
		Chlorodibromomethane	< 1	1	GroundH2O	ug/L	
		Chloroethane	< 2	2	GroundH2O	ug/L	
		Chloroform	< 1	1	GroundH2O	ug/L	
		Chloromethane	< 2	2	GroundH2O	ug/L	
		2-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		4-Chlorotoluene	< 1	1	GroundH2O	ug/L	
		1,2-Dibromo-3-chloropropane	< 3	3	GroundH2O	ug/L	
		1,2-Dibromoethane	< 2	2	GroundH2O	ug/L	
		1,2-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,3-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,4-Dichlorobenzene	< 1	1	GroundH2O	ug/L	
		Dichlorodifluoromethane	5	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,2-Dichloroethane	< 1	1	GroundH2O	ug/L	
		1,1-Dichloroethene	< 1	1	GroundH2O	ug/L	
		cis-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		trans-1,2-Dichloroethene	< 1	1	GroundH2O	ug/L	
		1,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		1,3-Dichloropropane	< 1	1	GroundH2O	ug/L	
		2,2-Dichloropropane	< 1	1	GroundH2O	ug/L	
		Di-isopropyl ether	< 1	1	GroundH2O	ug/L	
		Ethylbenzene	< 1	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 1	1	GroundH2O	ug/L	
		Isopropylbenzene	< 1	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 1	1	GroundH2O	ug/L	
		Methylene chloride	< 3	3	GroundH2O	ug/L	
		Methyl tert-butyl ether	< 1	1	GroundH2O	ug/L	
		Naphthalene	< 1	1	GroundH2O	ug/L	
		n-Propylbenzene	< 1	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 1	1	GroundH2O	ug/L	
		Tetrachloroethene	< 1	1	GroundH2O	ug/L	
		Toluene	< 1	1	GroundH2O	ug/L	
		1,2,3-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,2,4-Trichlorobenzene	< 1	1	GroundH2O	ug/L	
		1,1,1-Trichloroethane	< 1	1	GroundH2O	ug/L	
		1,1,2-Trichloroethane	< 1	1	GroundH2O	ug/L	
		Trichloroethene	< 1	1	GroundH2O	ug/L	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JHJ App'd: BJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0006	4SB-4-GW-DUP	Trichlorofluoromethane	< 1	1	GroundH2O	ug/L	
	H414	1,2,4-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	< 1	1	GroundH2O	ug/L	
		Vinyl chloride	< 1	1	GroundH2O	ug/L	
		o-Xylene	< 1	1	GroundH2O	ug/L	
		m+p-Xylene	< 2	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0009	4SB-5-GW H414	Benzene	3500	1	GroundH2O	ug/L	
		Bromobenzene	< 10	1	GroundH2O	ug/L	A2
		Bromodichloromethane	< 10	1	GroundH2O	ug/L	A2
		n-Butylbenzene	88	1	GroundH2O	ug/L	
		sec-Butylbenzene	27	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 10	1	GroundH2O	ug/L	A2
		Carbon tetrachloride	< 10	1	GroundH2O	ug/L	A2
		Chlorobenzene	< 10	1	GroundH2O	ug/L	A2
		Chlorodibromomethane	< 10	1	GroundH2O	ug/L	A2
		Chloroethane	< 20	2	GroundH2O	ug/L	A2
		Chloroform	< 10	1	GroundH2O	ug/L	A2
		Chloromethane	< 20	2	GroundH2O	ug/L	A2
		2-Chlorotoluene	< 10	1	GroundH2O	ug/L	A2
		4-Chlorotoluene	< 10	1	GroundH2O	ug/L	A2
		1,2-Dibromo-3-chloropropane	< 30	3	GroundH2O	ug/L	A2
		1,2-Dibromoethane	< 20	2	GroundH2O	ug/L	A2
		1,2-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,3-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,4-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		Dichlorodifluoromethane	29	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,2-Dichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,1-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		cis-1,2-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		trans-1,2-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		1,2-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		1,3-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		2,2-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		Di-isopropyl ether	< 10	1	GroundH2O	ug/L	A2
		Ethylbenzene	400	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 10	1	GroundH2O	ug/L	A2
		Isopropylbenzene	46	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 10	1	GroundH2O	ug/L	A2
		Methylene chloride	< 30	3	GroundH2O	ug/L	A2
		Methyl tert-butyl ether	< 10	1	GroundH2O	ug/L	A2
		Naphthalene	170	1	GroundH2O	ug/L	
		n-Propylbenzene	44	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 10	1	GroundH2O	ug/L	A2
		Tetrachloroethene	< 10	1	GroundH2O	ug/L	A2
		Toluene	< 10	1	GroundH2O	ug/L	A2
		1,2,3-Trichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,2,4-Trichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,1,1-Trichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,1,2-Trichloroethane	< 10	1	GroundH2O	ug/L	A2
		Trichloroethene	< 10	1	GroundH2O	ug/L	A2

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0009	4SB-5-GW H414	Trichlorofluoromethane	< 10	1	GroundH2O	ug/L	A2
		1,2,4-Trimethylbenzene	620	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	62	1	GroundH2O	ug/L	
		Vinyl chloride	< 10	1	GroundH2O	ug/L	A2
		o-Xylene	< 10	1	GroundH2O	ug/L	A2
		m+p-Xylene	1000	2	GroundH2O	ug/L	
		pH	< 2	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24, 26-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0012	4SB-6-GW H414	Benzene	10000	1	GroundH2O	ug/L	
		Bromobenzene	< 10	1	GroundH2O	ug/L	A2
		Bromodichloromethane	< 10	1	GroundH2O	ug/L	A2
		n-Butylbenzene	98	1	GroundH2O	ug/L	
		sec-Butylbenzene	25	1	GroundH2O	ug/L	
		tert-Butylbenzene	< 10	1	GroundH2O	ug/L	A2
		Carbon tetrachloride	< 10	1	GroundH2O	ug/L	A2
		Chlorobenzene	< 10	1	GroundH2O	ug/L	A2
		Chlorodibromomethane	< 10	1	GroundH2O	ug/L	A2
		Chloroethane	< 20	2	GroundH2O	ug/L	A2
		Chloroform	< 10	1	GroundH2O	ug/L	A2
		Chloromethane	< 20	2	GroundH2O	ug/L	A2
		2-Chlorotoluene	< 10	1	GroundH2O	ug/L	A2
		4-Chlorotoluene	< 10	1	GroundH2O	ug/L	A2
		1,2-Dibromo-3-chloropropane	< 30	3	GroundH2O	ug/L	A2
		1,2-Dibromoethane	< 20	2	GroundH2O	ug/L	A2
		1,2-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,3-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,4-Dichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		Dichlorodifluoromethane	29	2	GroundH2O	ug/L	(a)
		1,1-Dichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,2-Dichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,1-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		cis-1,2-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		trans-1,2-Dichloroethene	< 10	1	GroundH2O	ug/L	A2
		1,2-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		1,3-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		2,2-Dichloropropane	< 10	1	GroundH2O	ug/L	A2
		Di-isopropyl ether	< 10	1	GroundH2O	ug/L	A2
		Ethylbenzene	1200	1	GroundH2O	ug/L	
		Hexachlorobutadiene	< 10	1	GroundH2O	ug/L	A2
		Isopropylbenzene	54	1	GroundH2O	ug/L	
		p-Isopropyltoluene	< 10	1	GroundH2O	ug/L	A2
		Methylene chloride	< 30	3	GroundH2O	ug/L	A2
		Methyl tert-butyl ether	12	1	GroundH2O	ug/L	
		Naphthalene	240	1	GroundH2O	ug/L	
		n-Propylbenzene	49	1	GroundH2O	ug/L	
		1,1,2,2-Tetrachloroethane	< 10	1	GroundH2O	ug/L	A2
		Tetrachloroethene	< 10	1	GroundH2O	ug/L	A2
		Toluene	< 10	1	GroundH2O	ug/L	A2
		1,2,3-Trichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,2,4-Trichlorobenzene	< 10	1	GroundH2O	ug/L	A2
		1,1,1-Trichloroethane	< 10	1	GroundH2O	ug/L	A2
		1,1,2-Trichloroethane	< 10	1	GroundH2O	ug/L	A2
		Trichloroethene	< 10	1	GroundH2O	ug/L	A2

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: YH App'd: RJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0012	4SB-6-GW H414	Trichlorofluoromethane	< 10	1	GroundH2O	ug/L	A2
		1,2,4-Trimethylbenzene	640	1	GroundH2O	ug/L	
		1,3,5-Trimethylbenzene	71	1	GroundH2O	ug/L	
		Vinyl chloride	< 10	1	GroundH2O	ug/L	A2
		o-Xylene	19	1	GroundH2O	ug/L	
		m+p-Xylene	1900	2	GroundH2O	ug/L	
		pH	5	2	GroundH2O	S.U.	G13

Sample Date: 23-JAN-93
Analysis Date: 24, 26-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0012	4SB-1-6 H-414	Benzene	< .0058	.005	Solid	mg/kg	
		Bromobenzene	< .0058	.005	Solid	mg/kg	
		Bromodichloromethane	< .0058	.005	Solid	mg/kg	
		n-Butylbenzene	< .0058	.005	Solid	mg/kg	
		sec-Butylbenzene	< .0058	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0058	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0058	.005	Solid	mg/kg	
		Chlorobenzene	< .0058	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0058	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .0058	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0058	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0058	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0058	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0058	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0058	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.019	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .0058	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0058	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0058	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0058	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0058	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0058	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0058	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0058	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0058	.005	Solid	mg/kg	
		Ethylbenzene	< .0058	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0058	.005	Solid	mg/kg	
		Isopropylbenzene	< .0058	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0058	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0058	.005	Solid	mg/kg	
		Naphthalene	< .0058	.005	Solid	mg/kg	
		n-Propylbenzene	< .0058	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0058	.005	Solid	mg/kg	
		Tetrachloroethene	< .0058	.005	Solid	mg/kg	
		Toluene	< .0058	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0058	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0058	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0058	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0058	.005	Solid	mg/kg	
		Trichloroethene	< .0058	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: App'd:
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0012	4SB-1-6 H-414	Trichlorofluoromethane	< .0058	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	< .0058	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .0058	.005	Solid	mg/kg	
		Vinyl chloride	< .0058	.005	Solid	mg/kg	
		o-Xylene	< .0058	.005	Solid	mg/kg	
		m+p-Xylene	< .012	.01	Solid	mg/kg	

Sample Date: 22-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: App'd:
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0013	4SB-2-4 H-414	Benzene	< .0077	.005	Solid	mg/kg	
		Bromobenzene	< .0077	.005	Solid	mg/kg	
		Bromodichloromethane	< .0077	.005	Solid	mg/kg	
		n-Butylbenzene	< .0077	.005	Solid	mg/kg	
		sec-Butylbenzene	< .0077	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0077	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0077	.005	Solid	mg/kg	
		Chlorobenzene	< .0077	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0077	.005	Solid	mg/kg	
		Chloroethane	< .015	.01	Solid	mg/kg	
		Chloroform	< .0077	.005	Solid	mg/kg	
		Chloromethane	< .015	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0077	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0077	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .023	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .015	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0077	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0077	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0077	.005	Solid	mg/kg	
		Dichlorodifluoromethane	< .015	.01	Solid	mg/kg	
		1,1-Dichloroethane	< .0077	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0077	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0077	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0077	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0077	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0077	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0077	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0077	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0077	.005	Solid	mg/kg	
		Ethylbenzene	< .0077	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0077	.005	Solid	mg/kg	
		Isopropylbenzene	< .0077	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0077	.005	Solid	mg/kg	
		Methylene chloride	< .023	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0077	.005	Solid	mg/kg	
		Naphthalene	< .0077	.005	Solid	mg/kg	
		n-Propylbenzene	< .0077	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0077	.005	Solid	mg/kg	
		Tetrachloroethene	< .0077	.005	Solid	mg/kg	
		Toluene	< .0077	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0077	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0077	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0077	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0077	.005	Solid	mg/kg	
		Trichloroethene	< .0077	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: App'd:
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0013	4SB-2-4 H-414	Trichlorofluoromethane	< .0077	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	< .0077	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .0077	.005	Solid	mg/kg	
		Vinyl chloride	< .0077	.005	Solid	mg/kg	
		o-Xylene	< .0077	.005	Solid	mg/kg	
		m+p-Xylene	< .015	.01	Solid	mg/kg	

Sample Date: 22-JAN-93
Analysis Date: 24-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0016	4SB-3-4 H-414	Benzene	< .0061	.005	Solid	mg/kg	
		Bromobenzene	< .0061	.005	Solid	mg/kg	
		Bromodichloromethane	< .0061	.005	Solid	mg/kg	
		n-Butylbenzene	< .0061	.005	Solid	mg/kg	
		sec-Butylbenzene	< .0061	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0061	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0061	.005	Solid	mg/kg	
		Chlorobenzene	< .0061	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0061	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .0061	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0061	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0061	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0061	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0061	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0061	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.018	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .0061	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0061	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0061	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0061	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0061	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0061	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0061	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0061	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0061	.005	Solid	mg/kg	
		Ethylbenzene	< .0061	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0061	.005	Solid	mg/kg	
		Isopropylbenzene	< .0061	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0061	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0061	.005	Solid	mg/kg	
		Naphthalene	< .0061	.005	Solid	mg/kg	
		n-Propylbenzene	< .0061	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0061	.005	Solid	mg/kg	
		Tetrachloroethene	< .0061	.005	Solid	mg/kg	
		Toluene	< .0061	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0061	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0061	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0061	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0061	.005	Solid	mg/kg	
		Trichloroethene	< .0061	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/13

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6151-0016	4SB-3-4 H-414	Trichlorofluoromethane	< .0061	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	< .0061	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .0061	.005	Solid	mg/kg	
		Vinyl chloride	< .0061	.005	Solid	mg/kg	
		o-Xylene	< .0061	.005	Solid	mg/kg	
		m+p-Xylene	< .012	.01	Solid	mg/kg	

Sample Date: 22-JAN-93
Analysis Date: 23-JAN-93

(a) Result should be considered estimated due to an unknown interference.

Note: Results in mg/kg are reported on a dry weight basis.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JBP App'd: RJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0003	4SB-4-8 H414	Benzene	< .0059	.005	Solid	mg/kg	
		Bromobenzene	< .0059	.005	Solid	mg/kg	
		Bromodichloromethane	< .0059	.005	Solid	mg/kg	
		n-Butylbenzene	< .0059	.005	Solid	mg/kg	
		sec-Butylbenzene	< .0059	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0059	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0059	.005	Solid	mg/kg	
		Chlorobenzene	< .0059	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0059	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .0059	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0059	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0059	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		Dichlorodifluoromethane	< .012	.01	Solid	mg/kg	
		1,1-Dichloroethane	< .0059	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0059	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0059	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0059	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0059	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0059	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0059	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0059	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0059	.005	Solid	mg/kg	
		Ethylbenzene	< .0059	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0059	.005	Solid	mg/kg	
		Isopropylbenzene	< .0059	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0059	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0059	.005	Solid	mg/kg	
		Naphthalene	< .0059	.005	Solid	mg/kg	
		n-Propylbenzene	< .0059	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0059	.005	Solid	mg/kg	
		Tetrachloroethene	< .0059	.005	Solid	mg/kg	
		Toluene	< .0059	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0059	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0059	.005	Solid	mg/kg	
		Trichloroethene	< .0059	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JJ App'd: EJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0003	4SB-4-8 H414	Trichlorofluoromethane	< .0059	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	< .0059	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .0059	.005	Solid	mg/kg	
		Vinyl chloride	< .0059	.005	Solid	mg/kg	
		o-Xylene	< .0059	.005	Solid	mg/kg	
		m+p-Xylene	< .012	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0004	4SB-4-8 DUP	Benzene	< .0059	.005	Solid	mg/kg	
	H414	Bromobenzene	< .0059	.005	Solid	mg/kg	
		Bromodichloromethane	< .0059	.005	Solid	mg/kg	
		n-Butylbenzene	< .0059	.005	Solid	mg/kg	
		sec-Butylbenzene	< .0059	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0059	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0059	.005	Solid	mg/kg	
		Chlorobenzene	< .0059	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0059	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .0059	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0059	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0059	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0059	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.03	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .0059	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0059	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0059	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0059	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0059	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0059	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0059	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0059	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0059	.005	Solid	mg/kg	
		Ethylbenzene	< .0059	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0059	.005	Solid	mg/kg	
		Isopropylbenzene	< .0059	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0059	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0059	.005	Solid	mg/kg	
		Naphthalene	< .0059	.005	Solid	mg/kg	
		n-Propylbenzene	< .0059	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0059	.005	Solid	mg/kg	
		Tetrachloroethene	< .0059	.005	Solid	mg/kg	
		Toluene	< .0059	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0059	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0059	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0059	.005	Solid	mg/kg	
		Trichloroethene	< .0059	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

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Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0004	4SB-4-8 DUP	Trichlorofluoromethane	< .0059	.005	Solid	mg/kg	
	H414	1,2,4-Trimethylbenzene	< .0059	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .0059	.005	Solid	mg/kg	
		Vinyl chloride	< .0059	.005	Solid	mg/kg	
		o-Xylene	< .0059	.005	Solid	mg/kg	
		m+p-Xylene	< .012	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0007	4SB-5-8 H414	Benzene	< .006	.005	Solid	mg/kg	
		Bromobenzene	< .006	.005	Solid	mg/kg	
		Bromodichloromethane	< .006	.005	Solid	mg/kg	
		n-Butylbenzene	< .006	.005	Solid	mg/kg	
		sec-Butylbenzene	< .006	.005	Solid	mg/kg	
		tert-Butylbenzene	< .006	.005	Solid	mg/kg	
		Carbon tetrachloride	< .006	.005	Solid	mg/kg	
		Chlorobenzene	< .006	.005	Solid	mg/kg	
		Chlorodibromomethane	< .006	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .006	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .006	.005	Solid	mg/kg	
		4-Chlorotoluene	< .006	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.046	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .006	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .006	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .006	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .006	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .006	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .006	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .006	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .006	.005	Solid	mg/kg	
		Di-isopropyl ether	< .006	.005	Solid	mg/kg	
		Ethylbenzene	< .006	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .006	.005	Solid	mg/kg	
		Isopropylbenzene	< .006	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .006	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .006	.005	Solid	mg/kg	
		Naphthalene	< .006	.005	Solid	mg/kg	
		n-Propylbenzene	< .006	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .006	.005	Solid	mg/kg	
		Tetrachloroethene	< .006	.005	Solid	mg/kg	
		Toluene	< .006	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .006	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .006	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .006	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .006	.005	Solid	mg/kg	
		Trichloroethene	< .006	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JMO App'd: SJM
Date Issued: 2/5/93

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MADISON, WI 53705
(608) 231 4747
FAX (608) 231 4777

LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0007	4SB-5-8 H414	Trichlorofluoromethane	< .006	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	< .006	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	< .006	.005	Solid	mg/kg	
		Vinyl chloride	< .006	.005	Solid	mg/kg	
		o-Xylene	< .006	.005	Solid	mg/kg	
		m+p-Xylene	< .012	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JJ App'd: [signature]
Date Issued: 2/5/93

WARZYN

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0008	4SB-5-10 H414	Benzene	1.4	.005	Solid	mg/kg	
		Bromobenzene	< .057	.005	Solid	mg/kg	A2
		Bromodichloromethane	< .057	.005	Solid	mg/kg	A2
		n-Butylbenzene	8.7	.005	Solid	mg/kg	
		sec-Butylbenzene	1.2	.005	Solid	mg/kg	
		tert-Butylbenzene	< .057	.005	Solid	mg/kg	A2
		Carbon tetrachloride	< .057	.005	Solid	mg/kg	A2
		Chlorobenzene	< .057	.005	Solid	mg/kg	A2
		Chlorodibromomethane	< .057	.005	Solid	mg/kg	A2
		Chloroethane	< .11	.01	Solid	mg/kg	A2
		Chloroform	< .057	.005	Solid	mg/kg	A2
		Chloromethane	< .11	.01	Solid	mg/kg	A2
		2-Chlorotoluene	< .057	.005	Solid	mg/kg	A2
		4-Chlorotoluene	< .057	.005	Solid	mg/kg	A2
		1,2-Dibromo-3-chloropropane	< .17	.015	Solid	mg/kg	A2
		1,2-Dibromoethane	< .11	.01	Solid	mg/kg	A2
		1,2-Dichlorobenzene	< .057	.005	Solid	mg/kg	A2
		1,3-Dichlorobenzene	< .057	.005	Solid	mg/kg	A2
		1,4-Dichlorobenzene	< .057	.005	Solid	mg/kg	A2
		Dichlorodifluoromethane	.14	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .057	.005	Solid	mg/kg	A2
		1,2-Dichloroethane	< .057	.005	Solid	mg/kg	A2
		1,1-Dichloroethene	< .057	.005	Solid	mg/kg	A2
		cis-1,2-Dichloroethene	< .057	.005	Solid	mg/kg	A2
		trans-1,2-Dichloroethene	< .057	.005	Solid	mg/kg	A2
		1,2-Dichloropropane	< .057	.005	Solid	mg/kg	A2
		1,3-Dichloropropane	< .057	.005	Solid	mg/kg	A2
		2,2-Dichloropropane	< .057	.005	Solid	mg/kg	A2
		Di-isopropyl ether	< .057	.005	Solid	mg/kg	A2
		Ethylbenzene	2	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .057	.005	Solid	mg/kg	A2
		Isopropylbenzene	2.4	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .057	.005	Solid	mg/kg	A2
		Methylene chloride	< .017	.015	Solid	mg/kg	A2
		Methyl tert-butyl ether	.8	.005	Solid	mg/kg	
		Naphthalene	1.7	.005	Solid	mg/kg	
		n-Propylbenzene	1.4	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .057	.005	Solid	mg/kg	A2
		Tetrachloroethene	< .057	.005	Solid	mg/kg	A2
		Toluene	2.3	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .057	.005	Solid	mg/kg	A2
		1,2,4-Trichlorobenzene	< .057	.005	Solid	mg/kg	A2
		1,1,1-Trichloroethane	< .057	.005	Solid	mg/kg	A2
		1,1,2-Trichloroethane	< .057	.005	Solid	mg/kg	A2
		Trichloroethene	< .057	.005	Solid	mg/kg	A2

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [illegible] App'd: [illegible]
Date Issued: 2/5/93

WARZYN

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0008	4SB-5-10 H414	Trichlorofluoromethane	< .057	.005	Solid	mg/kg	A2
		1,2,4-Trimethylbenzene	16	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	3.9	.005	Solid	mg/kg	
		Vinyl chloride	< .057	.005	Solid	mg/kg	A2
		o-Xylene	1.8	.005	Solid	mg/kg	
		m+p-Xylene	3.9	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 25-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0010	4SB-6-4 H414	Benzene	.18	.005	Solid	mg/kg	
		Bromobenzene	< .0056	.005	Solid	mg/kg	
		Bromodichloromethane	< .0056	.005	Solid	mg/kg	
		n-Butylbenzene	.03	.005	Solid	mg/kg	
		sec-Butylbenzene	.012	.005	Solid	mg/kg	
		tert-Butylbenzene	< .0056	.005	Solid	mg/kg	
		Carbon tetrachloride	< .0056	.005	Solid	mg/kg	
		Chlorobenzene	< .0056	.005	Solid	mg/kg	
		Chlorodibromomethane	< .0056	.005	Solid	mg/kg	
		Chloroethane	< .011	.01	Solid	mg/kg	
		Chloroform	< .0056	.005	Solid	mg/kg	
		Chloromethane	< .011	.01	Solid	mg/kg	
		2-Chlorotoluene	< .0056	.005	Solid	mg/kg	
		4-Chlorotoluene	< .0056	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .017	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .011	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .0056	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .0056	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .0056	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.039	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .0056	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .0056	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .0056	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .0056	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .0056	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .0056	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .0056	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .0056	.005	Solid	mg/kg	
		Di-isopropyl ether	< .0056	.005	Solid	mg/kg	
		Ethylbenzene	.078	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .0056	.005	Solid	mg/kg	
		Isopropylbenzene	.014	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .0056	.005	Solid	mg/kg	
		Methylene chloride	< .017	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .0056	.005	Solid	mg/kg	
		Naphthalene	.036	.005	Solid	mg/kg	
		n-Propylbenzene	.029	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .0056	.005	Solid	mg/kg	
		Tetrachloroethene	< .0056	.005	Solid	mg/kg	
		Toluene	.011	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .0056	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .0056	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .0056	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .0056	.005	Solid	mg/kg	
		Trichloroethene	< .0056	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JLy App'd: [signature]
Date Issued: 2/5/93

WARZYN

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0010	4SB-6-4 H414	Trichlorofluoromethane	< .0056	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	.13	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	.054	.005	Solid	mg/kg	
		Vinyl chloride	< .0056	.005	Solid	mg/kg	
		o-Xylene	.01	.005	Solid	mg/kg	
		m+p-Xylene	.13	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 24-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JH App'd: [signature]
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0011	4SB-6-6 H414	Benzene	.13	.005	Solid	mg/kg	
		Bromobenzene	< .006	.005	Solid	mg/kg	
		Bromodichloromethane	< .006	.005	Solid	mg/kg	
		n-Butylbenzene	.03	.005	Solid	mg/kg	
		sec-Butylbenzene	.011	.005	Solid	mg/kg	
		tert-Butylbenzene	< .006	.005	Solid	mg/kg	
		Carbon tetrachloride	< .006	.005	Solid	mg/kg	
		Chlorobenzene	< .006	.005	Solid	mg/kg	
		Chlorodibromomethane	< .006	.005	Solid	mg/kg	
		Chloroethane	< .012	.01	Solid	mg/kg	
		Chloroform	< .006	.005	Solid	mg/kg	
		Chloromethane	< .012	.01	Solid	mg/kg	
		2-Chlorotoluene	< .006	.005	Solid	mg/kg	
		4-Chlorotoluene	< .006	.005	Solid	mg/kg	
		1,2-Dibromo-3-chloropropane	< .018	.015	Solid	mg/kg	
		1,2-Dibromoethane	< .012	.01	Solid	mg/kg	
		1,2-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		1,3-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		1,4-Dichlorobenzene	< .006	.005	Solid	mg/kg	
		Dichlorodifluoromethane	.014	.01	Solid	mg/kg	(a)
		1,1-Dichloroethane	< .006	.005	Solid	mg/kg	
		1,2-Dichloroethane	< .006	.005	Solid	mg/kg	
		1,1-Dichloroethene	< .006	.005	Solid	mg/kg	
		cis-1,2-Dichloroethene	< .006	.005	Solid	mg/kg	
		trans-1,2-Dichloroethene	< .006	.005	Solid	mg/kg	
		1,2-Dichloropropane	< .006	.005	Solid	mg/kg	
		1,3-Dichloropropane	< .006	.005	Solid	mg/kg	
		2,2-Dichloropropane	< .006	.005	Solid	mg/kg	
		Di-isopropyl ether	< .006	.005	Solid	mg/kg	
		Ethylbenzene	.045	.005	Solid	mg/kg	
		Hexachlorobutadiene	< .006	.005	Solid	mg/kg	
		Isopropylbenzene	.01	.005	Solid	mg/kg	
		p-Isopropyltoluene	< .006	.005	Solid	mg/kg	
		Methylene chloride	< .018	.015	Solid	mg/kg	
		Methyl tert-butyl ether	< .006	.005	Solid	mg/kg	
		Naphthalene	.056	.005	Solid	mg/kg	
		n-Propylbenzene	.015	.005	Solid	mg/kg	
		1,1,2,2-Tetrachloroethane	< .006	.005	Solid	mg/kg	
		Tetrachloroethene	< .006	.005	Solid	mg/kg	
		Toluene	< .006	.005	Solid	mg/kg	
		1,2,3-Trichlorobenzene	< .006	.005	Solid	mg/kg	
		1,2,4-Trichlorobenzene	< .006	.005	Solid	mg/kg	
		1,1,1-Trichloroethane	< .006	.005	Solid	mg/kg	
		1,1,2-Trichloroethane	< .006	.005	Solid	mg/kg	
		Trichloroethene	< .006	.005	Solid	mg/kg	

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JM App'd: SJM
Date Issued: 2/5/93

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LUST VOLATILE ORGANIC REPORT
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Footnotes
6152-0011	4SB-6-6 H414	Trichlorofluoromethane	< .006	.005	Solid	mg/kg	
		1,2,4-Trimethylbenzene	.083	.005	Solid	mg/kg	
		1,3,5-Trimethylbenzene	.03	.005	Solid	mg/kg	
		Vinyl chloride	< .006	.005	Solid	mg/kg	
		o-Xylene	.012	.005	Solid	mg/kg	
		m+p-Xylene	.068	.01	Solid	mg/kg	

Sample Date: 23-JAN-93
Analysis Date: 24, 25-JAN-93

(a) Result should be considered estimated due to an unknown interference.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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GASOLINE RANGE ORGANICS (GRO)
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Petroleum Odor	Footnotes
6151-0012	4SB-1-6 H-414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 22-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						
6151-0013	4SB-2-4 H-414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 22-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						
6151-0016	4SB-3-4 H-414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 22-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						
6151-0019	METH-BL-01 H-414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 22-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						

Note: Results in mg/kg are reported on a dry weight basis.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: [signature] App'd: [signature]
Date Issued: 2/5/93

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GASOLINE RANGE ORGANICS (GRO)
ASI/TRUAX II
MADISON WI
Project Number: 10009610

Sample #	Site	Test	Result	RL	Matrix	Units	Petroleum Odor	Footnotes
6152-0003	4SB-4-8 H414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						
6152-0004	4SB-4-8 DUP H414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 25-JAN-93						
		Analysis Date: 25-JAN-93						
6152-0007	4SB-5-8 H414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 23-JAN-93						
		Analysis Date: 23-JAN-93						
6152-0008	4SB-5-10 H414	Gasoline Range Organics	15000	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 25-JAN-93						
		Analysis Date: 25-JAN-93						
6152-0010	4SB-6-4 H414	Gasoline Range Organics	27	10	Solid	mg/kg	None	G10
		Sample Date: 23-JAN-93						
		Extract Date: 24-JAN-93						
		Analysis Date: 24-JAN-93						
6152-0011	4SB-6-6 H414	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 25-JAN-93						
		Analysis Date: 25-JAN-93						
6152-0020	METHANOL BLANK	Gasoline Range Organics	< 10	10	Solid	mg/kg	None	
		Sample Date: 23-JAN-93						
		Extract Date: 24-JAN-93						
		Analysis Date: 24-JAN-93						

Note: Results in mg/kg are reported on a dry weight basis.

RL = Reporting Limit
WI Lab Certification ID#: 113138300

Ck'd: JMP App'd: [signature]
Date Issued: 2/5/93

WDNR LETTER AND PHONE COMMUNICATION

WISCONSIN
DEPT. OF NATURAL RESOURCES
Carroll D. Besadny
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Southern District Headquarters
3911 Fish Hatchery Road
Fitchburg, Wisconsin 53711
TELEPHONE 608-275-3266
TELEFAX 608-275-3338

January 5, 1993

Mr. Paul Linley
Advanced Sciences Inc.
165 Mitchell Road
Oak Ridge, TN 37830-7919

Dear Mr. Linley:

Based on our discussion of January 5, 1993, I believe it is acceptable to have the Warzyn laboratory analyze your environmental samples for PAH's using a HPLC method. I understand that state certification of the Warzyn lab for this procedure is pending at this time. However, as I understand, all the necessary documentation has been submitted and approval is likely.

Consequently, I believe it is appropriate to have Warzyn conduct the analyses as proposed.

Sincerely,

Michael Schmoller

Michael R. Schmoller
Hydrogeologist
Telephone: (608) 275-3303

MRS:ps
9302\swlasi.mrs

TELEPHONE CONVERSATION RECORD

Date: 16 February 1993

Time: 1443 hours

Caller: Mike Schmoller
Affiliation: WDNR
Tel Number: (608) 253-3303

Person Called: Paul Linley
Affiliation: Advanced Sciences, Inc.

Conversation:
Waryzn Inc. Laboratory is not approved by WDNR to conduct PAH analyses for Site Assessments/Investigations at UST sites in the State of Wisconsin. Waryzn Lab did not successfully document their methodology to conduct PAH analyses by EPA Method 8310 (HPLC) with WDNR for state approval. Therefore, use the VOC analytical data collected during the field investigation for assessment purposes. Since VOCs were analyzed in conjunction with the PAH analyses during the site assessment activities.

Paul R.R. Linley, CSA 04394 : Date: 2/16/93 Time: 1500hrs