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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101
NOV 14 2006

Mr. Dan Cook
Environmental Specialist Senior
Contaminated Sites Section
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, Iowa 50319

Dear Mr. Cook:

Re: Ottumwa (ex) Navy Air Station site, Ottumwa, Iowa
EPA ID #IAN000703254

Enclosed is a copy the Preliminary Assessment, dated October 18, 2006 that was completed on the Ottumwa (ex) Navy Air Station site. This Preliminary Assessment was prepared by an Environmental Protection Agency (EPA), Tetra Tech EM Inc.

The Preliminary Assessment was prepared in accordance with EPA's *Guidance for Performing Preliminary Assessments under CERCLA, Interim Final, (EPA 1992).* The purpose of our investigation was to review existing information on the site and its environs to assess the threat(s), if any, posed to public health, welfare, or the environment, and to determine if further investigation under CERCLA/SARA is warranted.

Based upon the findings in this investigation, this site does not warrant further federal response activities under CERCLA/SARA. If you have any questions, or need further information please call or email at (913) 551-7568 or king.ronald@epa.gov.

Sincerely,

Ronald King
Iowa Site Assessment Manager
Enforcement/Fund Lead Removal Branch
Superfund Division

Enclosure

cc: William Bonneau, USACE, w/enclosure

PRELIMINARY ASSESSMENT
OTTUMWA (EX) NAVAL AIR STATION SITE

OTTUMWA, IOWA

EPA ID: IAN000703254

Superfund Technical Assessment and Response Team (START) 3

Contract No. EP-S7-06-01, Task Order No. 0002.006.007

Prepared For:

U.S. Environmental Protection Agency
Region 7
901 North 5th Street
Kansas City, Kansas 66101

October 18, 2006

Prepared By:

Tetra Tech EM Inc.
8030 Flint Street
Lenexa, Kansas 66214
(913) 894-2600

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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (EPA), Region 7, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA), tasked Tetra Tech EM, Inc., (Tetra Tech) to conduct a preliminary assessment (PA) of the Ottumwa (ex) Naval Air Station (NAS) site 5 miles north of Ottumwa, Wapello County, Iowa. Tetra Tech performed this investigation under the Superfund Technical Assessment and Response Team (START) 3 Contract Number EP-S7-06-01, Task Order Number 0002.006.007.

The purpose of the PA is to review existing information on the site and its environs to assess the threat(s), if any, posed to public health, welfare, or the environment, and to determine if further investigation under CERCLA/SARA is warranted. The scope of the PA includes the review of information available from federal, state, and local agencies and performance of an on-site reconnaissance visit and sampling.

Using these sources of existing information and sampling data, the site is then evaluated using the EPA Hazard Ranking System (HRS) criteria to assess the relative threat associated with actual or potential releases of hazardous substances at the site. The HRS has been adopted by the EPA to help set priorities for further evaluation and eventual remedial action at hazardous waste sites. The HRS is the primary method of determining a site's eligibility for placement on the National Priorities List (NPL). The NPL identifies sites at which the EPA may conduct remedial response actions. This report summarizes the findings of these preliminary investigative activities.

The Ottumwa (ex) NAS site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on May 31, 2001 (IAN000703254) (EPA 2006a). The CERCLIS database indicates that aliases for this site include the Ottumwa (ex) Tracking and Data Acquisition Annex, the U.S. Army Reserve Motor Repair Shop, and the Ottumwa Industrial Airport. CERCLIS also indicates an underground storage tank (UST) removal was completed at the site on March 1, 1995. Supplemental information for this PA was also obtained from the Resource Conservation and Recovery Act (RCRA) file for the former Moog Automotive site (IADOC052461225).

The PA report was written using guidance from EPA publications *Guidance for Performing Preliminary Assessments Under CERCLA* (EPA 1991), *Guidance for Performing Site Inspections Under CERCLA* (EPA 1992), and "Hazardous Ranking System Final Rule" (EPA 1990).

Apparent Problem

The former Ottumwa NAS was commissioned in March 1943. In June 1945, the site included 76 buildings, an aircraft landing field with two concrete runways, asphalt landing mats, and a concrete aircraft parking area. A rifle range, skeet range, and ammunition storage were also on site. In 1947, the property was leased to the City of Ottumwa for use as a public airport. In 1957, title to the land—not the improvements—reverted to the City. From about 1959 to 1964, the facility was used by the Air Force as the Ottumwa Tracking and Data Acquisition Annex. In 1964, the facility improvements were sold to the City; however, the U.S. Army Reserve (USAR) requested space for a Motor Repair Shop and Reserve Center. The USAR used an existing building until 1981, when a new building was constructed.

No records were available regarding the use of hazardous substances used by the military at this Formerly Used Defense (FUD) site. EPA determined a PA was necessary based on a 2001 Pre-CERCLIS screening indicating a possible release of contaminants associated with site facilities and citing a lack of sampling data (Tetra Tech 2001). Hazardous substances typically associated with FUD sites include: volatile organic compounds (VOC) including trichloroethylene (TCE), perchlorate, metals, polychlorinated biphenyls (PCB), and total petroleum hydrocarbons (TPH).

2.0 SITE DESCRIPTION

The site location, description, operational history, waste characteristics, and previous investigations of the Ottumwa (ex) NAS site are discussed below.

2.1 SITE LOCATION

The Ottumwa (ex) NAS is currently the Ottumwa Industrial Airport, and is located about 5 miles north of the City of Ottumwa, Iowa. The site covers approximately 1,440 acres and is situated in a rural area within Sections 22, 23, 26, and 27, Township 73 North, and Range 14 West as depicted on the U.S. Geological Survey (USGS) Ottumwa North, Iowa, 7.5-minute quadrangle map (see Figure 1, Appendix A). The geographical coordinates for the center of the site are latitude 41°06'11" north (41.1031° north) and longitude 92°26'16" west (92.4378° west) (USGS 1956, photorevised 1976).

2.2 SITE DESCRIPTION

The site is currently the Ottumwa Industrial Airport and industrial park. Figure 2 presents the 1994 aerial photograph of the site annotated with facility use information indicated on a map (circa 1961) of the NAS included in the Defense Environmental Restoration Program (DERP)-FUD Site Summary (U.S. Army

Corps of Engineers [USACE] 1991a). The site is generally flat to gently sloping, with undeveloped open areas used for agriculture (corn, soybeans, or hay). Much of the northern portion of the facility is owned by Indian Hills Community College (IHCC), which formerly used buildings in the area for its campus. The main IHCC campus is now located in northern Ottumwa, with only the IHCC Aviation Center in use at this location (IHCC 2006). This area was mainly used by the military for barracks, recreational facilities, and the dispensary (shown as "Good Samaritan Home" on Figure 1). A skeet range, rifle ranges (indoor and outdoor), and an ammunition bunker were also located in the northeastern portion of the site. A number of buildings formerly located in the northern portion of the facility, including barracks, the dispensary, and the indoor rifle range, have been demolished. A fenced and secured compound on city property at the far northeastern portion of the site houses a sewage treatment plant and an outdoor firing range used by local law enforcement. This is not the location of the rifle range used during operation of the NAS facility. Airport personnel excavating fill dirt east of the treatment plant reportedly uncovered buried debris (Tetra Tech 2006b). This area is identified on the DERP FUD maps as a "storage and dump area" formerly used by the U.S. Department of Defense (DoD).

Most of the southern portion of the site is the business/industrial park. Businesses in the area typically own their buildings and immediate property; however, large portions of the area and the streets and easements are owned by the City. Major businesses currently using this area are the American Bottling Company, Norris Asphalt and Paving, and Al-Jon Inc., which manufactures recycling equipment such as car crushers. The American Bottling facility (soft drink bottling) property is owned by Ottumwa Properties LLC and managed by Agracel, Inc., in Effingham, Illinois. American Bottling occupies the former Moog Automotive (Everco) facility, and Al-Jon occupies several buildings, including the former USAR motor repair shop. Several smaller businesses are also present, as are a number of vacant buildings, some of which are in disrepair. During field activities, an apparent residence was observed at the corner of Terminal Avenue and 6th Street, and appeared to be associated with an automotive repair business east of the residence. Figure 3 shows the 2004 aerial photograph with current major businesses and site features annotated.

2.3 OPERATIONAL HISTORY AND WASTE CHARACTERISTICS

The former Ottumwa NAS is located about 5 miles north of Ottumwa in Wapello County, Iowa; it was commissioned in March 1943. In June 1945, the site included 76 buildings, an aircraft landing field with two concrete runways, asphalt landing mats, and a concrete aircraft parking area. In 1947, the Federal Government leased the property to the City of Ottumwa for use as a public airport and other approved

purposes (the City sub-leased to various businesses and individuals). In 1954, the lease was modified to delete one building from the City lease and designate it as a U.S. Marine Corps training center. In 1957, title to the 1,440 acres where most of the facility improvements were located reverted to the City of Ottumwa. In 1957, improvements (65 buildings) and 29.12 acres for rail spur easement were reported as excess to the General Services Administration. In 1959, this was withdrawn and the facility (minus two buildings that were transferred to the City) was transferred to the Air Force (Naval Construction Battalion Center 1974). The Air Force used the site as the Ottumwa Tracking and Data Acquisition Annex. The Air Force reported the rail spur easement and 42 buildings excess in 1964, and they were sold to the City shortly thereafter (Naval Construction Battalion Center 1974). In 1964, the USAR requested space for the Motor Repair Shop and Reserve Center. The USAR used an existing building until 1981, when a new building was constructed.

This facility includes the NAS dating to original construction and the U.S. Army Reserve Motor Repair Shop dating to 1964. While in operation, it consisted of 76 buildings, an aircraft landing field with two concrete runways, two asphalt landing mats, a rifle range, a concrete aircraft parking area, underground storage tanks (UST) that held fuel, a sewage system, hangers, and a water supply system (USACE 1991a).

According to the 2001 Pre-CERCLIS Site Screening Assessment report, businesses at the site at that time included Boys and Girls Town, a youth detention center, Al-Jon, Briggs Transportation, American Bottling, Roadway Package System, Norris Asphalt Paving Corporate Headquarters, Bakery Supply, a truck driving school, and Southeast Iowa Drug Task Force (Tetra Tech 2001).

The IHCC campus was located at the Ottumwa Airport from about 1966 to 1981, when the present campus was acquired. IHCC still operates aviation and truck-driving programs at the airport campus (IHCC 2006). No records regarding hazardous substances used at the facility were available for review.

2.4 REGULATORY INVOLVEMENT

Regulatory involvement at the site has included investigations of the Ottumwa (ex) NAS FUD site, including investigations of the Ottumwa (ex) Tracking and Data Acquisition Annex and the U.S. Army Reserve Motor Repair Shop. A number of businesses located at the Ottumwa Industrial Airport are regulated under RCRA; however, most of these facility records are not relevant to the previous site use by the DoD.

Previous regulatory involvement or investigations related to the site use by the DoD have included the following:

- USACE conducted a site visit on October 19 and 20, 1989. A Project Summary Sheet indicated a building had been constructed over two 100,000-gallon and two 25,000-gallon reinforced concrete USTs formerly used by the NAS. These tanks were part of a fuel hydrant system and were connected to seven pumping stations on the runway. In 1970, the property had been leased to Everco Industries, Inc., which poured a building foundation over the tank area but left a manhole between the USTs (USACE 1991a, b, c). In 1986, Moog Automotive purchased Everco. Moog hired a contractor to sample the USTs and install monitoring wells around them. The contractor excavated a 15- by 15-foot area around one of the 100,000-gallon tanks to about 8 feet below ground surface (bgs). Free product and gross soil contamination were encountered. Excavation stopped because of a highly volatile atmosphere. The excavation was backfilled with clean soil and the concrete patched. Analysis of soil samples indicated no metals or PCBs (USACE 1991b). In December 1990, the owner ceased the investigation and remediation activities with the understanding that the USACE would complete the work. The Project Summary Sheet recommended further environmental sampling and possible remediation for this area (USACE 1991b).

- In addition to the four USTs discussed above, four smaller (1,000-gallon to 3,000-gallon) USTs were discussed in the Site Survey Summary Sheet (USACE 1991c). The locations of these USTs were not specified, but appear to have been at the former location of the USAR Motor Repair Shop. Testing and possible removal of these USTs was recommended. A copy of a letter from the Department of the Army to the State of Iowa (dated as received by EPA on June 3, 1997) indicates that three 2,000-gallon USTs and associated piping were removed in March 1995. Levels of petroleum hydrocarbons in soil samples collected from the excavation were below regulatory limits (USACE 1997). The State issued a No Further Action letter for the site in August 1997 (Iowa Department of Natural Resources [IDNR] 1997).

- A letter report from Chemical Waste Management to Everco Corporation, dated February 14, 1990, summarized an investigation at the Everco Facility in December 1989. This letter indicates much of the information previously summarized by USACE. The letter indicates that 24 samples were collected for analysis of VOCs, PCBs, and Extraction Procedure (EP) Toxicity metals. PCBs were not detected above a detection limit of 5 parts per million (ppm), and VOCs were not detected above a detection limit of 100 ppm. Metals results for EP Toxicity were also below detection limits. A sample of waste solvent from Tank 1 indicated that trichloroethene (TCE), tetrachloroethene (PCE), and 1,1,1-trichloroethane (TCA) were present at concentrations of 0.29 to 0.43 percent by weight. Fuel oil compounds were also present in the sample (Chemical Waste Management 1990).

- A USACE memorandum dated August 17, 1992, discussed the contaminants detected from the Chemical Waste Management study of December 1989 and Environmental Resources Management studies of December 1990 and June 1992. According to this memorandum, soil Sample 1-A, located in the Tank 4 area, contained high levels of chlorinated hydrocarbons generally associated with cleaning and degreasing solvents. It also contained high levels of non-chlorinated hydrocarbons associated with cleaning solvents. Sample 3-A, from the manway area between Tanks 3 and 4, contained lower levels of chlorinated and non-chlorinated solvents. Both samples also contained low levels of fuel (gasoline or JP-4) compounds. The memorandum

indicated that two sets of water samples dated December 1990 and June 1992 had been collected for analysis. Sample Manhole 1 reportedly contained low levels of three VOCs typically associated with cleaning and degreasing solvents. The 1992 sample indicated high levels of seven of these VOC compounds. Low levels of semi-volatile organic compounds (SVOC) and high levels of TPH were also reported (USACE 1992).

The memorandum indicates that the Omaha District of the USACE met with Everco in June 1992. In this meeting, it was reported that plating wastes (lead, chromium, and solvents) may have been dumped into the tanks. The USACE concluded that the contamination found at this site was not consistent with DoD usage, but with the industrial uses of the present owner, Moog, and its predecessor, Everco. The USACE concluded that Everco (or Moog) should have notified IDNR upon becoming aware of the contamination at the site (USACE 1992). A March 8, 1993, letter to Iowa DNR from the USACE took the position that the contamination at the Everco/Moog facility was not the responsibility of the DoD and indicated that the USACE did not "intend to conduct or participate in the execution of any studies or remediation activities relating to the tanks located at the Everco/Moog site" (USACE 1993). The letter also indicated that Moog Inc. was a subsidiary of Everco.

- An October 4, 1993, letter from Paul Hartman of Moog Temperature Control Division (Moog) to the EPA Region 7 RCRA Iowa Section stated that upon word of the USACE's position, they developed a plan for evaluating the contents of the tanks. The letter indicated that final sampling of the tanks and six monitoring wells at the facility was completed in September 1993 and they were awaiting the report. Upon receipt of the report, plans would proceed for in-place tank closure (Moog Temperature and Control Division [Moog] 1993). Information available in the Iowa UST database indicates these tanks were closed in place in 1994 (IDNR 2006b).

- EPA performed a Pre-CERCLIS Screening Assessment Report for the Ottumwa Tracking Acquisition Annex in May 2001. The Pre-CERCLIS investigation concluded that further pre-remedial action may be warranted based on past operations and information regarding water management activities at similar DoD Army airfields (Tetra Tech 2001).

- On February 15, 2006, Tetra Tech contacted Mr. Tom Francis at the Ottumwa Industrial Airport. Mr. Francis indicated that the USTs at Everco/Moog had been cleaned and filled with grout for in-place closure. He indicated that during attempts to acquire fill material from a hill near the sewage treatment plant, airport personnel had encountered burned waste materials, and he suspected the area may have been used as a landfill for the former NAS (Tetra Tech 2006b). Mr. Francis also indicated he had maps showing the locations of specific areas of interest, such as the ammunition/pyrotechnics building and the shooting ranges. Mr. Francis also stated that the airport obtains water from the City, and that most of the residences in the area were connected to a rural water system (purchased from the City), but that some older farmsteads might still have wells (Tetra Tech 2006b).

3.0 INVESTIGATIVE EFFORTS

Section 3.0 discusses the PA field sampling and quality assurance (QA)/quality control (QC) activities performed at the Ottumwa (ex) NAS site.

3.1 PREVIOUS SAMPLING

Previous sampling activities associated with UST removal or in-place closure have occurred at the site as discussed in Section 2.4. Because the contamination from the USTs was previously determined unrelated to DoD use, no further investigation was conducted in the immediate tank area. For this PA, several borings were placed in the surrounding area to determine whether contaminants had migrated away from the previously-investigated area.

3.2 SITE ASSESSMENT SAMPLING

The general objective of the PA was to determine whether any threats to human health or the environment exist as a result of releases to the soil exposure, groundwater migration, and surface water migration pathways. START team members (STM) Jenna Mead, Derrick Jones, and Quon Do conducted PA sampling activities on June 12 through 14, 2006. Mr. Tom Francis, the Airport Manager, provided assistance to START during utility location and in establishing sampling locations.

Field activities included collection of on-site soil, sediment, and surface water samples. A site-specific Quality Assurance Project Plan (QAPP) for PA activities developed by Tetra Tech START was submitted to EPA, and approved in May 2006 (Tetra Tech 2006a). Field activities were conducted in accordance with the approved QAPPs, except as noted below. Photographs documenting site activities are included in Appendix B. Sampling related activities were recorded in a logbook (see Appendix C).

Samples were delivered to the EPA Region 7 laboratory on June 14, 2006. The EPA activity number/analytical services request number was RKOTTEXNAS/3047. Field sheets and chain-of-custody records are included in Appendix D, and analytical results are included in Appendix E.

Quality Assurance/Quality Control

To ensure the credibility of sample collection, preparation, and analytical data, QA/QC sampling for the project was conducted according to protocols approved by EPA Region 7 for work at hazardous waste sites, in accordance with the site-specific QAPP submitted to EPA Region 7 on March 30, 2006. Tetra Tech START received the analytical results on July 25, 2006, with data validation completed by EPA Region 7 laboratory (see Appendix E).

QC sampling for this project consisted of the following: two water trip blanks, one soil trip blank, and one water field blank. Duplicate soil and surface water samples were collected. No equipment rinsate blank was collected because only disposable sampling equipment was used.

For interpreting all analytical results, and as a guideline for determining significant matrix contaminant levels, sample results were compared to applicable health-based benchmarks, as published in the Superfund Chemical Data Matrix (SCDM) (EPA 2004b) and the EPA Region 9 preliminary remediation goals (PRG) (EPA 2004a).

Deviations From The Quality Assurance Project Plan

Tetra Tech START performed all work on this project in accordance with the site-specific QAPP, with the following exceptions:

1. No groundwater samples were collected from Geoprobe® temporary wells because groundwater was not present above the maximum penetration depth of 30 feet. Minor amounts of water trapped above a clay layer at about 14 to 16 feet bgs were found; however, these were insufficient to sample. Attempts were made to collect groundwater at locations SB-1, SB-6, and SB-10.

2. An additional soil sampling location was added to the 10 locations proposed in the QAPP. This additional location was a 0.5- to 2-foot sample collected from the debris burial area. A 30-foot boring was originally planned for this location; however, Geoprobe® access would have caused significant damage to a cultivated corn field. Therefore, a hand-dug boring was placed at the debris burial area and the deep boring was placed about 1,000 feet south-southwest, at the vehicle path to the field. This deep boring location was also lower in elevation, increasing the chance of encountering groundwater.

3.2.1 Soil Sampling

Based on previous investigations, site reconnaissance observations, and background information about the site, a biased or judgmental sampling scheme was followed to select source sampling locations on site. Sampling locations are illustrated on Figure 4 (see Appendix A). Table 1 summarizes the soil samples.

Soil samples were collected from 11 locations including a background location. At four locations, samples were collected only from hand-dug holes at 0.5 to 2 feet bgs. Three of these locations (SB-3, -4, and -5) were in areas where any contamination would likely be confined to surficial soils (ammunition storage and rifle or skeet ranges). The fourth location (SB-2) was at the debris burial area identified by Mr. Francis. Access to this location was by crossing cultivated corn fields. The shallow sample was collected by hand to avoid crop damage from the Geoprobe® truck driving across the corn field. An additional deep boring location (SB-1) was placed along the vehicle path from the paved road to the field. Borings in or downgradient of the facility were typically sampled from 12 to 14 feet bgs, as well as from 0.5 to 2 feet bgs. Frequently, a saturated clay layer was encountered around 14 to 16 feet bgs; however, insufficient water was present to sample. Only SB-9, located near the former Motor Repair Facility (currently Al-Jon),

had detectable odors or organic vapors. This sample was collected from 10 to 12 feet bgs based on the presence of a petroleum odor and a photoionization detector (PID) reading of 56.6 ppm.

TABLE 1

SOURCE SOIL SAMPLE SUMMARY
OTTUMWA (EX) NAS SITE, OTTUMWA, IOWA
JUNE 2006

EPA Sample Number	Location	Borehole Number	Depth (ft bgs)	Sample Date	Sample Time
3047-1	Near entrance to sewage treatment plant	SB-1	0.5 – 2	6/12/06	15:15
3047-2			12 – 14	6/12/06	15:50
3047-3	Debris burial area	SB-2	0.5 – 2	6/12/06	16:45
3047-4	North end of ammunition/rifle range area	SB-3	0.5 – 2	6/12/06	18:25
3047-5	South end of ammunition/rifle range area	SB-4	0.5 – 2	6/13/06	7:50
3047-6	Skeet range	SB-5	0.5 – 2	6/13/06	8:10
3047-7	City-owned alfalfa field east-southeast of bottling plant and southwest of warehouse	SB-6	0.5 – 2	6/13/06	10:25
3047-8			12 – 14	6/13/06	10:40
3047-9	Between former rail spur and 1st Avenue, northwest of 5th Street	SB-7	0.5 – 2	6/13/06	12:50
3047-9FD			0.5 – 2	6/13/06	12:50
3047-11			12 – 14	6/13/06	13:15
3047-12	City easement southwest of bottling plant	SB-8	0.5 – 2	6/13/06	14:20
3047-13			12 – 14	6/13/06	14:40
3047-14	Easement north of intersection of 2nd Avenue and 8th Street by former Motor Repair	SB-9	0.5 – 2	6/13/06	15:20
3047-15			10 – 12	6/13/06	15:40
3047-16	Southeast of Airport Terminal, across Terminal Street	SB-10	0.5 – 2	6/13/06	16:30
3047-17			12 – 14	6/13/06	17:00
3047-18	Background location; north of Terminal Avenue near entrance sign from Airport Road	SB-11	0.5 – 2	6/13/06	17:45
3047-19			12 – 14	6/13/06	18:05

Notes:

EPA U.S. Environmental Protection Agency
FD Field duplicate
ft bgs Feet below ground surface
SB Soil boring

Nineteen soil samples (including one duplicate sample) were submitted to EPA Region 7 laboratory to be analyzed for VOCs, TPH, metals, perchlorate, PCBs, explosives, and percent solids. Duplicate samples and extra volume for matrix spike and matrix spike duplicate (MS/MSD) analysis were collected for QC purposes. For each soil sample, 5 grams of soil were placed into two 40-milliliter (mL) vials preserved with sodium bisulfate. Two additional 40-mL vials were filled with soil. The vials were submitted for VOC analysis and percent solids. Two more 40-mL vials were filled for purgeable TPH analysis. In addition, three 8-ounce (oz) jars were filled and submitted for analyses of extractable TPH, perchlorate,

metals, explosives, and PCBs. Samples were placed into a cooler containing ice, where they were stored at or below 4 degrees Celsius (°C) pending submittal to EPA Region 7 laboratory.

Analytical Data Summary

Table 2 presents a summary of the VOCs and TPH detected in soil samples.

TABLE 2

ANALYTICAL DATA SUMMARY FOR VOCS AND TPH IN SOIL SAMPLES
OTTUMWA (EX) NAS SITE, OTTUMWA, IOWA
JUNE 2006

EPA Sample Number	Borehole Number	Depth (ft bgs)	Purgeable TPH (µg/kg)	Extractable TPH (µg/kg)	Acetone (µg/kg)	Carbon Disulfide (µg/kg)	2-butanone µg/kg)
3047-1	SB-1	0.5 – 2	ND	180,000	ND	ND	ND
3047-2		12 – 14	ND	32,000	ND	ND	ND
3047-3	SB-2	0.5 – 2	ND	20,000	35	ND	ND
3047-4	SB-3	0.5 – 2	ND	ND	55	15	ND
3047-5	SB-4	0.5 – 2	ND	21,000	93	ND	ND
3047-6	SB-5	0.5 – 2	ND	37,000	85	ND	ND
3047-7	SB-6	0.5 – 2	ND	25,000	ND	ND	ND
3047-8		12 – 14	ND	11,000	38	ND	ND
3047-9	SB-7	0.5 – 2	ND	21,000	ND	ND	ND
3047-9FD		0.5 – 2	ND	31,000	ND	ND	ND
3047-11		12 – 14	ND	10,000	ND	ND	ND
3047-12	SB-8	0.5 – 2	ND	14,000	ND	ND	ND
3047-13		12 – 14	ND	15,000	ND	ND	ND
3047-14	SB-9	0.5 – 2	ND	9,900	ND	ND	ND
3047-15		10 – 12	1,600 J	14,000	1,700	ND	5,800
3047-16	SB-10	0.5 – 2	ND	13,000	ND	ND	ND
3047-17		12 – 14	ND	4,800	ND	ND	ND
3047-18	SB-11 (BKG)	0.5 – 2	ND	ND	160	ND	14
3047-19		12 – 14	ND	ND	ND	ND	ND
SCDM RfD			**None**	**None**	**70M**	**7.8M**	**47M**
SCDM CR			**None**	**None**	**None**	**None**	**None**
EPA Region 9 PRG (Industrial)			**None**	**None**	**54M**	**720,000**	**110M**

Notes:

BKG	Background sample
CR	Cancer risk from SCDM
EPA	U.S. Environmental Protection Agency
ft bgs	Feet below ground surface
FD	Field duplicate
J	Estimated concentration
µg/kg	Micrograms per kilogram
M	Million
ND	Compound not detected
PRG	Preliminary remedial goal – residential soils
RfD	Reference Dose from SCDM
SB	Soil boring
SCDM	Superfund Chemical Data Matrix

No explosives, PCBs, or perchlorate were detected in any of the soil samples. Acetone, a common laboratory contaminant, was detected in seven of the 19 samples, and 2-butanone was detected in two samples. Carbon disulfide was detected in the sample from SB-3 at a concentration of 15 micrograms per kilogram (µg/kg). These VOC concentrations were all below any health-based risk levels. Purgeable TPH was detected at an estimated 1,600 µg/kg in the sample 3047-15, collected from SB-9 at 10 to 12 feet bgs. This sample was collected downgradient of the former motor repair facility (now Al-Jon) and was noted to have a fuel odor and elevated PID reading (56.6 ppm) during sampling. Extractable TPH was reported at concentrations of 4,800 µg/kg to 180,000 µg/kg in 15 of the 19 soil samples. No health-based benchmark levels are available for TPH.

Table 3 presents the metals concentrations for the soil samples. Arsenic was detected at concentrations in excess of its EPA Region 9 residential PRG and SCDM cancer risk (CR) benchmarks in the five samples where it was reported; however, these concentrations are similar to that in the background sample. Therefore, the reported arsenic concentrations are likley naturally occurring levels and not related to former site use by the DoD. The iron concentrations in three samples exceeded the 23,000 milligrams (mg)/kg PRG; however, these concentrations did not exceed three times the background concentrations. Consequently, they are also considered to be representative of background conditions. The mercury concentration reported for sample 3047-9 (SB-7, 0.5 to 2 feet bgs) exceeded three times the background concentration; however, the concentration reported for its duplicate sample was comparable to the concentrations reported for the background sample. The mercury concentration in sample 3047-9 did not exceed any health-based benchmarks. No other metals concentrations exceeded their Region 9 PRGs, SCDM benchmarks, or three times background. The common metals calcium, potassium, magnesium, and sodium were detected but are not included in Table 3.

3.2.2 Groundwater Sampling

Groundwater was not encountered above the maximum penetration depth of 30 feet in Geoprobe® borings. The airport and surrounding area use Des Moines River surface water supplied by or purchased from the Ottumwa Water Works. A survey of the area was made in an attempt to locate any nearby water wells that might be used for drinking; however, none were identified. One water field blank and one water trip blank were submitted to the EPA Region 7 laboratory for analysis.

TABLE 3

METALS DATA FOR SOIL SAMPLES
OTTUMWA (EX) NAS SITE, OTTUMWA, IOWA
JUNE 2006

EPA Sample Number	3047-1	3047-2	3047-3	3047-4	3047-5	3047-6	3047-7	3047-8	3047-9	3047-9FD	3047-11	3047-12	3047-13	3047-14	3047-15	3047-16	3047-17	3047-18	3047-19	Benchmark Values		
Boring (ft bgs)	SB-1 (0.5-2)	SB-1 (12-14)	SB-2 (0.5-2)	SB-3 (0.5-2)	SB-4 (0.5-2)	SB-5 (0.5-2)	SB-6 (0.5-2)	SB-6 (12-14)	SB-7 (0.5-2)	SB-7 (0.5-2)	SB-7 (12-14)	SB-8 (0.5-2)	SB-8 (12-14)	SB-9 (0.5-2)	SB-9 (10-12)	SB-10 (05-2)	SB-10 (12-14)	SB-11 (0.5-2) BKG	SB-11 (12-14) BKG			
Analyte	Concentration in milligrams per kilogram (mg/kg)																			PRG	RfD	CR
Mercury	0.059	0.047	0.053	0.022	0.041	0.029	0.069	0.045	0.106	0.047	0.034	0.040	0.017	0.044	0.022	0.052	0.028	0.033	0.031	23	23	None
Aluminum	11,100 J	9,560	14,700	4,970	12,100	12,800	16,500	10,300	17,800	12,500	18,600	12,200	12,500	15,500	13,600	13,200	13,000	14,100	10,500	76,000	None	None
Antimony	ND	ND	ND	ND	ND	ND	ND	2.01	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	31	31	None
Arsenic	ND	ND	ND	ND	7.64	5.84	ND	ND	ND	ND	ND	ND	ND	10.3	ND	11.3	6.96	9.90	ND	0.39	23	0.43
Barium	205	189	216	217	296	217	215	262	311	206	159	231	159	273	259	235	215	247	211	5,400	5,500	None
Beryllium	ND	ND	ND	ND	ND	1.02	ND	ND	1.26	ND	ND	ND	1.06	1.26	1.05	1.26	1.07	1.12	ND	150	160	None
Chromium [a]	13.3	13.5	17.2	5.31	13.2	14.4	18.0	15.6	17.4	13.8	16.6	14.1	11.1	18.6	11.1	16.2	12.7	15.6	10.9	30[a]	230	None
Cobalt	4.69	2.59	3.09	2.71	8.96	8.53	4.41	12.6	14.7	5.89	2.68	4.94	8.26	12.8	8.68	18.8	12.6	19.5	23.1	900	None	None
Copper	15.0	13.5	15.6	8.94	14.2	12.6	16.5	20.5	21.1	13.7	8.45	12.5	9.98	26.0	7.18	27.7	11.1	19.4	12.3	3,100	None	None
Iron	16,300 J	8,520	20,200	13,200	18,800	16,800	19,600	21,900	25,100	16,400	16,500	12,700	9,700	25,200	36,400	21,200	22,900	21,100	16,300	23,000	None	None
Lead	14.0	8.87	8.53	12.2	22.2	17.8	11.7	19.1	17.8	11.1	14.8	12.1	31.3	23.3	13.7	23.0	15.7	37.9	12.7	400	None	None
Manganese	181 J	51.8	132	372	998	709	253	1,260	808	361	36.2	142	292	1,140	1,250	697	904	1,380	1,450	1,800	11,000	None
Nickel	11.1	9.94	17.5	9.58	13.6	13.4	13.8	30.8	27.8	12.3	6.30	11.7	7.39	30.3	9.14	35.7	14.3	22.3	15.3	1,600	1,600	None
Selenium	ND	ND	11.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	10.4	ND	10.4	ND	ND	390	390	None
Vanadium	28.9	11.5	29.5	13.7	30.8	34.4	29.4	33.1	33.8	29.5	46.7	22.6	ND	ND	ND	ND	62.1	38.6	36.5	78	550	None
Zinc	28.8 J	42.8	35.3	137	42.9	37.2	46.5	46.1	54.0	40.2	10.7	27.2	10.5	49.4	ND	50.3	18.7	77.3	22.1	23,000	23,000	None

Notes:

Boldface type indicates concentration exceeds a benchmark value.

[a] Benchmark concentrations for Chromium VI are provided

BKG Background sample location
CR Cancer Risk Screening Concentration from SCDM
EPA U.S. Environmental Protection Agency
FD Field duplicate
J Estimated value
ft bgs Feet below ground surface
mg/kg Milligrams per kilogram
PRG Preliminary remediation goal – residential soil
RfD Reference Dose Screening Concentration from SCDM
SB Soil Boring
SCDM Superfund Chemical Data Matrix
ND Compound not detected

3.2.3 Surface Water and Sediment Sampling

During this investigation, two surface water (SW) and collocated sediment (SED) samples were collected from streams flowing southward and northward from the former NAS facility. Duplicate surface water and sediment samples were collected from the south flowing stream. Two additional sediment samples (including the background sample) were collected from the dry drainageway north of the site (upstream of the collated sediment and surface water sample). SED-1 was collected near the burial area and SED-2 (background) was collected upstream of drainages from facility operations other than the runways. Surface water and sediment sampling locations are illustrated in Figure 4 in Appendix A.

Surface water samples were collected by submerging the sample containers or by transferring water from one container to another as needed to fill the sample container. Four 40-mL vials preserved with hydrochloric acid were submitted for VOC analysis, and two additional 40-mL vials were submitted for purgeable TPH analysis. Two 128-ounce containers were submitted for explosives, PCBs, and extractable TPH analysis. Two 1-liter containers were submitted for perchlorate and metals analysis. Metals samples were preserved with nitric acid following sample collection.

Sediment samples were collected for standard VOC analysis in two 40-mL vials. Two additional 40-mL vials were collected for TPH analysis, and three 8-oz glass jars were collected for metals, perchlorate, explosives, and PCBs analysis. Immediately after the containers were filled, they were capped and placed into a cooler containing ice, where they were stored and maintained at or below 4°C pending delivery to the EPA Region 7 laboratory.

Analytical Data Summary

Surface water and sediment samples were analyzed for VOCs, perchlorate, metals, TPH, and PCBs. Table 4 presents a summary of the analytical data for the sediment samples, and Table 5 presents the analytical data for the surface water samples. The common metals calcium, sodium, magnesium, and potassium were also detected in the samples, but are not included in the tables.

No explosives, VOCs, PCBs, perchlorate, or purgeable TPH were reported in the sediment samples. Extractable TPH was detected at 100 mg/kg in SED-3 and at 72 mg/kg in its duplicate. This compound was not reported (at or above its detection limit of 49 mg/kg) in the background sample. This indicates a release of TPH to the surface water has occurred. The common laboratory contaminant acetone was also reported in the SED-3 sample and duplicate at 8.8 µg/kg and 6.3 µg/kg, respectively.

TABLE 4

ANALYTICAL DATA SUMMARY FOR SEDIMENT SAMPLES
OTTUMWA (EX) NAS SITE, OTTUMWA, IOWA
JUNE 2006

Compound	EPA Sample Number, Name, and Reported Concentrations					
	3047-22 SED-1 (Northern Drainage)	3047-24 SED-3 (South flowing stream)	3047-24FD SED-3 (South flowing stream)	3047-20 SED-4 (North flowing stream)	3047-23 SED-2 (BKG)	Three Times Background
Volatile Organic Compounds (µg/kg)						
Acetone	ND	8.8	6.3	ND	ND (5)	ND
Total Petroleum Hydrocarbons (mg/kg)						
Extractable TPH	ND	100	72	ND	ND (49)	ND
Metals (mg/kg)						
Mercury	0.028	0.078	**0.086**	0.027	0.027	0.081
Aluminum	13,200	7,210	5,250	10,700	10,800	32,400
Barium	180	168	96.6	188	173	519
Cadmium	ND	ND	2.32	ND	ND (1)	ND
Chromium	14.7 J	18.5 J	13.2 J	11.5 J	12.9 J	38.7
Cobalt	6.52	11.6	6.47	7.25	3.06	9.18
Copper	14.2	29.6	31.5	12.9	12.6	37.8
Iron	17,800	15,700	19,200	14,000 J	13,100	39,300
Lead	17.4	**165**	**51.8**	16.5	12.4	37.2
Manganese	580	**1,000**	450	749	253	759
Nickel	14.8	18.3	13.1	13.5	12.4	37.2
Selenium	ND	**16.5**	**13.0**	ND	ND (10)	ND
Vanadium	32.0	21.3	13.9	29.6	24.1	72.3
Zinc	53.2	**162**	**188**	38.9	39.1	117.3

Notes:

Boldface type indicates sample concentrations significantly elevated (three times) relative to the background concentration.

EPA	U.S. Environmental Protection Agency
J	Laboratory code indicating the reported value is an estimate
ND	Compound not detected (detection limit provided for background sample)
µg/kg	Micrograms per kilogram
mg/kg	Milligrams per kilogram
SED	Sediment
TPH	Total petroleum hydrocarbons
BKG	Background
FD	Field duplicate

Metals concentrations in the two sediment samples from the northern portion of the facility (SED-1 and SED-4) did not exceed three times the concentrations found in the background sample (SED-2). Sample

SED-3 and/or its duplicate, collected from the southern drainage at 150th Street, contained several compounds at levels in excess of three times background levels. These compounds are: mercury, lead, manganese, selenium, and zinc. In addition, the copper concentrations in SED-3 (29.6 mg/kg) and its duplicate (31.5 mg/kg) exceeded twice the background concentration (12.6 mg/kg). Selenium, not detected in the background sample, was detected at 16.5 mg/kg in sample SED-3 and at 13 mg/kg in the duplicate.

TABLE 5

ANALYTICAL DATA SUMMARY FOR SURFACE WATER SAMPLES
OTTUMWA (EX) NAS, OTTUMWA, IOWA
JUNE 2006

Compound	Benchmark Values		EPA Sample Number, Name, and Concentrations		
	Acute CMC	Chronic CCC	2986-301 SW-3 (South flowing stream)	2986-301FD SW-3 (South flowing stream)	2986-303 SW-4 (North flowing stream)
Total Petroleum Hydrocarbons (µg/L)					
Extractable TPH	None	None	120	110	120
Metals (µg/L)					
Aluminum	750	87	156	160	**7,410**
Barium	None	None	178	175	299
Copper	13	9	ND	ND	5.25
Iron	None	1,000	296	292	**7,410**
Manganese	None	None	90.3	88.8	649
Titanium	None	None	ND	ND	107
Vanadium	None	None	ND	ND	20.6
Zinc	120	120	ND	ND	30.5

Notes:
Value in boldface type exceeds a benchmark.

CMC	Critical Maximum Concentration from SCDM	µg/L	Micrograms per liter
CCC	Criterion Continuous Concentration from SCDM	SW	Surface water
EPA	U.S. Environmental Protection Agency	SCDM	Superfund Chemical Data Matrix
FD	Field duplicate	TPH	Total petroleum hydrocarbons
ND	Compound not detected		

Surface water samples were collected from unnamed streams flowing north and south of the former facility. A duplicate sample was also collected from the south flowing stream. No explosives, VOCs, PCBs, perchlorate, or purgeable TPH was reported in the surface water samples. Extractable TPH was reported for both samples (SW-3 and SW-4) at 120 µg/L and in the duplicate (SW-3D) at 110 µg/L. The

metals concentrations for the north flowing stream sample (SW-4) were much higher compared to the south flowing stream samples (SW-3 and SW-3D). The aluminum and iron concentrations in SW-4 exceeded the ecological benchmark concentrations; however, these high concentrations are likely related to a higher sediment content in SW-4.

4.0 HAZARD RANKING SYSTEM FACTORS

This section discusses the sources of contamination and the various contaminant migration pathways evaluated under the Hazard Ranking System.

4.1 SOURCES OF CONTAMINATION

Soil samples were collected downgradient from potential contaminant source areas identified from facility records—including firing ranges, USTs, and a burial/dump area. No contaminants other than iron and arsenic were detected in surficial soils at concentrations above benchmark values. Because the concentrations of these metals did not exceed three times background levels, they likely represent naturally occurring conditions.

Purgeable TPH was detected at an estimated 1,600 µg/kg in the sample 3047-15, collected from SB-9 at 10 to 12 feet bgs. This sample was collected downgradient of the former motor repair facility (now Al-Jon) and was noted to have a fuel odor and elevated PID reading (56.6 parts per million) during sampling. Extractable TPH was reported at concentrations of 4,800 µg/kg to 180,000 µg/kg in 15 of the 19 soil samples. No health-based benchmark levels are available for TPH.

4.2 GROUNDWATER PATHWAY

Section 4.2 discusses the hydrogeologic setting, groundwater targets, and conclusions. Groundwater was not encountered at the site, and no active drinking water wells were identified in the area. Consequently, no groundwater samples were collected during this investigation.

4.2.1 Hydrogeological Setting

Wapello County is in the Southern Iowa Groundwater Province, which is considered as having poor groundwater resources. Review of the IDNR Geological Survey registered wells database indicates about 40 feet of glacial drift is present in the site area (IDNR 2006a). The glacial drift overlies lower and middle Pennsylvanian-age Cherokee Group and Caseyville Formation bedrock (IDNR 2004). The primary lithology of the Pennsylvanian bedrock is shale, and this serves as an aquiclude. Below the Pennsylvanian

bedrock lies the Mississippian aquifer, which consists of limestones, dolomites, and some interbedded sandstones. The depth to the top of this aquifer is somewhere between 140 and 190 feet bgs. The database indicated only 74 registered wells within a 4-mile radius of the site. Static water levels were generally between 50 and 100 feet bgs, with the main waterbearing units indicated at depths of 100 to 300 feet bgs (IDNR 2006a).

The Pennsylvanian rocks are generally considered as an aquitard; however, local occurrences of limestone and sandstone can occasionally act as aquifers. The underlying Mississippian carbonates can act as an aquifer in areas where the Pennsylvanian is absent. In southern and southeastern Iowa, the underlying Cambrian-Ordovician sandstone aquifers have been used for decades by towns and industries as the only adequate and reliable water supply. Because of the generally poor groundwater resources in the area, rural water districts have decreased reliance on this aquifer (IDNR 2004, Prior and others 2003). Quaternary alluvium, glacial drift, and buried alluvial valleys also act as aquifers. Water quality in buried alluvial valleys tends to be more mineralized than in shallow alluvial deposits (Prior and others 2003).

4.2.2 Groundwater Targets

The 2000 census data indicate that the population within 4 miles of the site is 2,137 persons (Mable/Geocorr Geographic Correspondence Engine Output 2006). Of those, over half are located between 3 and 4 miles from the site, roughly corresponding to the outskirts of the City of Ottumwa, which has a population of 24,998 (U.S. Census Bureau 2006). Census information indicated no residents within 0.25 mile of the site center and 10 residents between 0.25 and 0.5 mile from the site center. The 2000 census data indicate that 37 persons reside between 0.5 and 1 mile; 232 persons are located between 1 and 2 miles; and 261 people are between 2 and 3 miles of the site. The population between 3 and 4 miles of the site is 1,597.

Approximately 25,000 residents of the City of Ottumwa are supplied by surface water from the Des Moines River (EPA 2006b). The EPA's Safe Drinking Water Website indicates that only one public water supply (PWS) in Wapello County—Eddyville, at the northwest corner of the county and outside of the 4-mile distance area—is supplied by groundwater. All others are supplied by surface water (Ottumwa Water Works) or purchased surface water (all others). The largest PWS other than the Ottumwa Water Works is the Wapello Rural Water Association, serving a population of 10, 690. The Ottumwa Water Works has a pumping station at the airport and provides water to that facility. The Wapello Rural Water Association provides water purchased from the City to the residences and businesses surrounding the airport (Tetra Tech 2006b).

An attempt was made to locate active drinking water wells around the site; however, all nearby residents were served by the rural water district. Residents at several older homes or farmsteads were asked if they had an active well or knew of anyone who did; however, no wells were identified. Area residents that previously relied on private wells indicated that their wells had last been used between about 2 and 25 years ago.

4.2.3 Groundwater Pathway Conclusion

Groundwater is not typically used for drinking in the site area; therefore, this pathway poses minimal threat to nearby human health and the environment.

4.3 SURFACE WATER PATHWAY

Section 4.3 discusses the hydrology, targets, sample summary, analytical data summary, and conclusions drawn from the analytical data for the samples collected to assess the surface water pathway. Surface water and sediment samples were collected from drainage pathways to determine the presence and extent of contamination that might have come from the site.

4.3.1 Hydrological Setting

Wapello County receives about 33 inches annual precipitation. The site is located on a flat to gently sloping topographic high between the Des Moines River and Cedar Creek. Intermittent tributaries surround the site and collect surface runoff. The nearest perennial stream is Comstock Creek, which becomes perennial about 1 mile west of the runway cross. Comstock Creek flows into the Des Moines River, which flows southeast and is located about 3 miles southwest of the airport. The 15-mile Target Distance Limit (TDL) for this drainage pathway would end in the Des Moines River near the southern edge of the City of Ottumwa. Because the probable point of entry (PPE) for this pathway receives runoff only from the agricultural, western portion of the runway area, the stream was not sampled during this investigation.

Drainage at the southern portion of the site is to Little Cedar Creek. The PPE, where the stream becomes perennial, is about 2 miles east-southeast of the property boundary. This creek flows southeast from the facility, then turns to the northeast to discharge into Cedar Creek. Drainage from the northern portion of the site is into unnamed tributaries of Cedar Creek. Based on the topographic map, the PPE would be about 2 miles northeast of the facility. Cedar Creek flows southeast paralleling the Des Moines River through neighboring Jefferson County and discharges into the Skunk River in Henry County. The Cedar

Creek 15-mile TDLs would end in eastern Wapello County, northeast of the community of Bladensburg. Because of the distances from the site to the first perennial streams, sample locations were selected from the drainageways leading to these PPE. Both of these drainageways contained surface water during the investigation; however, the surface water is likely derived largely from irrigation tail water or discharge from industrial or treatment operations at the airport.

4.3.2 Surface Water Targets

No known drinking water intakes exist within the Cedar Creek 15-mile TDL. The City of Ottumwa surface water intakes are present within the 15-mile TDL along the Des Moines River; however, this surface water pathway was not evaluated because it receives runoff only from the agricultural western portion of the airfield. The USGS National Map shows numerous freshwater forested/shrub wetlands and several small freshwater emergent wetlands along Cedar Creek at and downstream of the PPE (USGS 2006). A few small wetlands are also present along Little Cedar Creek (USGS 2006). No wetlands or sensitive environments were identified at or near the site.

4.3.3 Surface Water Pathway Conclusion

No explosives, VOCs, PCBs, perchlorate, or purgeable TPH were reported in the surface water or sediment samples. Extractable TPH was detected in SED-3 at 100 mg/kg (72 mg/kg in its duplicate). Extractable TPH was also detected in the two surface water samples at 120 µg/L. These data indicate a release of TPH has occurred. Aluminum and iron were detected at concentrations exceeding ecological benchmarks in the surface water sample collected from the north flowing stream; however, these metals are likely related to a high sediment content in the sample.

The sediment sample (SED-3) and/or its duplicate sample collected from the southern drainage at 150th Street contained concentrations of mercury, lead, manganese, selenium, and zinc that exceeded three times the background levels of these compounds. Surficial soil samples collected at or downgradient of potential source areas at the former NAS facility did not indicate any elevated levels of these metals. It is unknown whether these elevated metals may be related to past DoD use or to other past or current agricultural or industrial operations. Elevated metals concentrations could negatively impact wetlands downstream of the facility.

4.4 SOIL EXPOSURE AND AIR PATHWAY

Section 4.4 discusses the physical conditions, soil and air targets, soil sampling summary, analytical data summary, and conclusions drawn from the analytical data for the soil samples collected from the suspected source areas. Soil samples were collected at the identified potential source areas, but air samples were not collected because actual or potential contamination to the air migration pathway was not considered significant.

4.4.1 Physical Conditions

The site is a former NAS currently serving as the Ottumwa Industrial Airport and business park. The developed portion of the site is largely located east of where the runways cross. Older buildings in this area date to its use as a NAS in the 1940s. A number of older buildings, particularly in the section of the site owned by IHCC, have been demolished and some of these areas are now being farmed or are mowed for hay.

The U.S. Department of Agriculture (USDA) has classified soil in the area as Taintor silty clay loam with some Mahaska silty clay loam (USDA 1976). The Taintor soil type is described by the USDA as a nearly level, poorly drained soil found on broad flats in the loess-covered uplands. The Mahaska soil type is described as nearly level, somewhat poorly drained soil found on narrow flats and the outward edges of moderately broad to broad flats in the loess-covered uplands. The Mahaska-Taintor soil association, which formed in loess under native vegetation, is nearly level or gently sloping. This soil association has low permeability and thus a relatively high runoff volume (Tetra Tech 2001).

4.4.2 Soil and Air Targets

American Bottling, Al-Jon, and NAP are the major employers at the Ottumwa Industrial Airport (Tetra Tech 2006b). Approximately 300 to 400 people work at the airport, with about 200 of those working multiple shifts at the bottling plant and 100 working at Al-Jon. No official residences are located at the airport; however, during the PA it appeared that an auto repair business might be serving as a residence for a family with small children. As described in Section 4.2.2, the total population within the 4-mile target distance limit is approximately 2,137 persons (Mable/Geocorr Geographic Correspondence Engine Output 2006). Of those, over half are located between 3 and 4 miles from the site, roughly corresponding to the outskirts of the City of Ottumwa, which has a population of 24,998 (U.S. Census Bureau 2006). Census information indicated no residents within 0.25 mile of the site center and 10 residents between 0.25 and 0.5 mile from the site center. The 2000 census data indicate that 37 persons reside between 0.5 and 1 mile;

232 persons are located between 1 and 2 miles; and 261 people are between 2 and 3 miles of the site. The population between 3 and 4 miles of the site is 1,597.

4.4.3 Soil Exposure and Air Pathway Conclusions

Analytical results for the shallow surface soil samples indicate extractable TPH was detected in 10 of the 12 surface soil samples (including a duplicate sample) at concentrations of 9,900 µg/kg to 180,000 µg/kg. No health-based benchmarks have been developed for comparison to TPH concentrations. Low concentrations of a common laboratory contaminant, acetone, were reportedly detected in two soil samples, and carbon disulfide was reported at 15 µg/kg in one sample. No VOCs exceeded any applicable benchmark concentrations. Metals concentrations in the samples did not exceed three times the concentrations detected in the background sample. Arsenic concentrations exceeded benchmark levels in all samples where it was detected, including the background sample. Iron concentrations exceeded the Region 9 PRG in two surficial soil samples. Because these iron and arsenic concentrations do not exceed three times the concentrations reported in the background sample, they are considered to represent naturally occurring levels.

No air pathway samples were collected because actual or potential contamination to the air migration pathway was not considered significant.

5.0 EMERGENCY RESPONSE CONSIDERATIONS

The National Contingency Plan [40 Code of Federal Regulations 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at those sites that pose an imminent threat to human health or the environment, For the following reasons, a referral to EPA's Emergency Response Office does not appear to be necessary:

- Groundwater is not used for a drinking water supply in the area. On-site workers are supplied with potable water by the Ottumwa Water Works, which has a surface water intake from the Des Moines River. Nearby residents are supplied by the Wapello Rural Water Association, which purchases water from the City of Ottumwa.

- No significant release of contaminants has been documented at the Ottumwa (ex) NAS site. Although concentrations of mercury, lead, manganese, selenium, and zinc detected in a sediment sample and its duplicate were significantly elevated relative to background, these metals were not elevated in soil samples collected at or downgradient of potential source areas. Soil samples contained arsenic and iron concentrations exceeding health-based benchmarks; however, these concentrations were similar to those in the background sample and are therefore considered to be naturally occurring. Extractable and purgeable TPH were detected in numerous samples, but no

federal health-based benchmarks are available for comparison. Additionally, TPH releases are generally excluded from response actions under CERCLA.

6.0 SUMMARY

The Ottumwa (ex) NAS site is located about 5 miles north of the City of Ottumwa in Wapello County, Iowa. The former Ottumwa NAS was commissioned in March 1943. In June 1945, the site included 76 buildings, an aircraft landing field with two concrete runways, asphalt landing mats, and a concrete aircraft parking area. A rifle range, skeet range, and ammunition storage were also on site. In 1947, the property was leased to the City of Ottumwa for use as a public airport. In 1957, title to the land—not the improvements—reverted to the City. From about 1959 to 1964, the facility was used by the Air Force as the Ottumwa Tracking and Data Acquisition Annex. In 1964, the facility improvements were sold to the City; however, the USAR requested space for a Motor Repair Shop and Reserve Center. The USAR used an existing building until 1981, when a new building was constructed. The site currently currently serves as the Ottumwa Industrial Airport. Much of the northern portion of the site is owned by IHCC, which formerly used buildings in the area for its campus. Much of this area is now farmed or mowed for hay. Much of the southern part of the property is a business park. Main employers on site are the American Bottling Company, Al-Jon, Inc., and Norris Asphalt and Paving.

Because no records were available regarding hazardous substances used at the facility, a variety of contaminants associated with typical operation and maintenance at DoD facilities—including fuels, solvents, VOCs, metals, and PCBs—were considered as possibly released. This investigation was performed to evaluate the presence and extent of site-related contaminants and to determine the impact on human health and the environment. During the PA, the potential source areas, groundwater migration, surface water migration, soil exposure, and air migration pathways were assessed.

Soil samples were collected from one background location and 10 soil borings at or downgradient of potential source areas. No contaminants other than iron and arsenic exceeded health-based benchmarks. Because the iron and arsenic concentrations did not exceed three times the concentrations reported in the background sample, they are considered to represent naturally occurring levels. Groundwater was not encountered at the site, and no active drinking water wells were identified in the area. Consequently, no groundwater samples were collected during this investigation. Drinking water for the site facilities and nearby residents is supplied by surface water intakes from the Des Moines River.

The site is situated on a flat to gently sloping topographic high with drainage generally to the north, south, and west. The western surface water pathway was not evaluated because it receives drainage only from the

undeveloped (other than runways) western portion of the facility. Drainage from the developed portion of the site is southward to Little Cedar Creek. This creek flows southeast from the site, then turns to the northeast to discharge into Cedar Creek. Cedar Creek flows southeast paralleling the Des Moines River through neighboring Jefferson County and discharges into the Skunk River in Henry County. Drainage from the northern portion of the site is into unnamed tributaries of Cedar Creek. Both of these drainages contained surface water during the investigation. The surface water sample from the northern drainage contained aluminum and iron concentrations in excess of ecological benchmarks; however, these concentrations are believed related to the high sediment content of the sample. Concentrations of mercury, lead, manganese, selenium, and zinc detected in a sediment sample and its duplicate were significantly elevated relative to background; however, these metals were not elevated in soil samples collected at or downgradient of potential source areas. Consequently, it is uncertain whether the source for these elevated metals is related to former DoD operations or to current industrial operations at the site.

Extractable TPH was detected in the southern drainage sediment sample, in both the northern and southern drainage surface water samples, and in 15 of the 19 soil samples. Purgeable TPH was detected at an estimated 1,600 µg/kg in the sample 3047-15, collected from SB-9 at 10 to 12 feet bgs. This sample was collected downgradient of the former motor repair facility (now Al-Jon) and was noted to have a fuel odor and elevated PID reading (56.6 parts per million) during sampling. No federal health-based benchmark levels are available for TPH. Further, TPH releases are generally excluded from response actions under CERCLA.

7.0 REFERENCES

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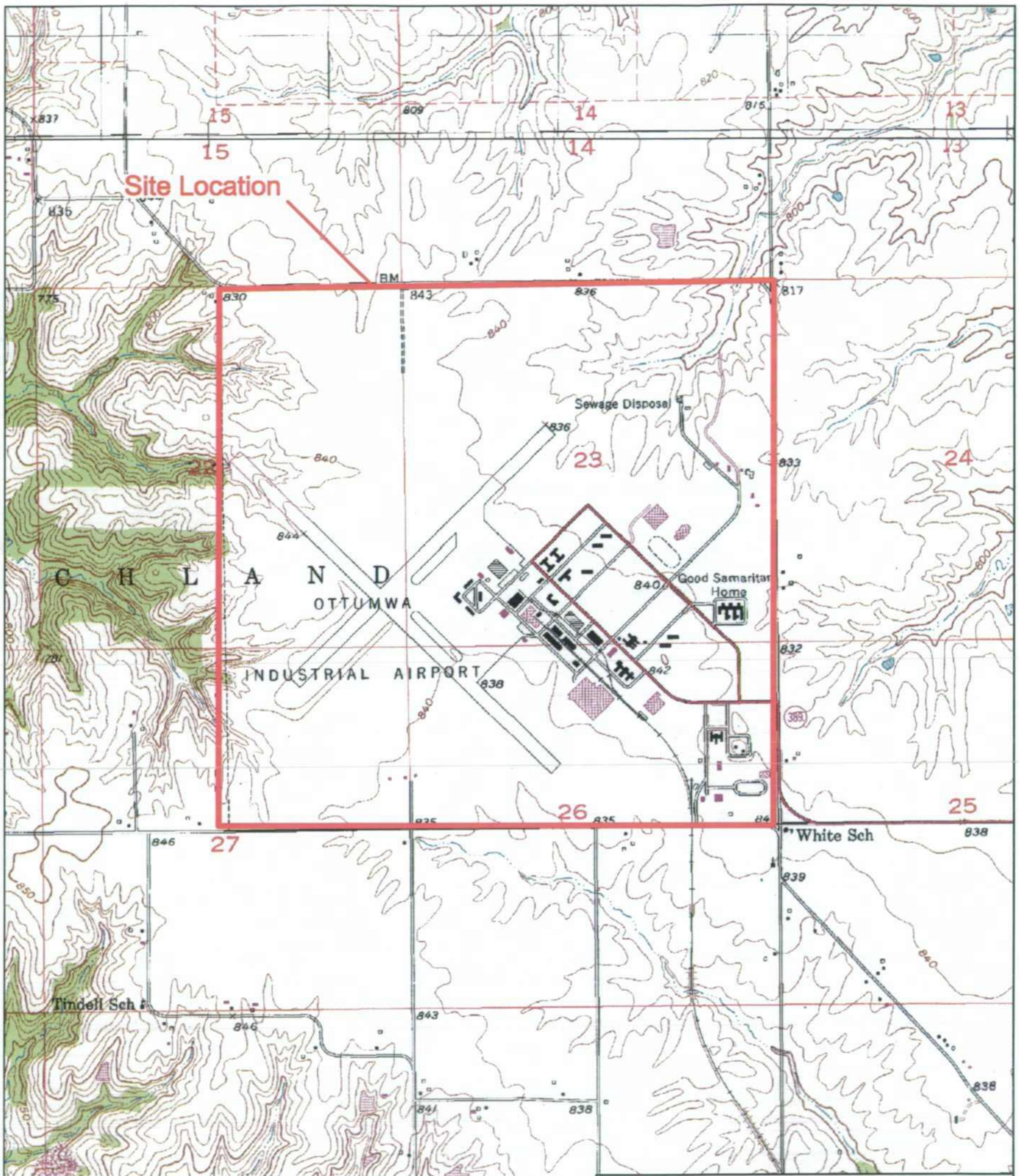
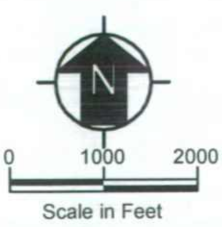
APPENDIX A

FIGURES





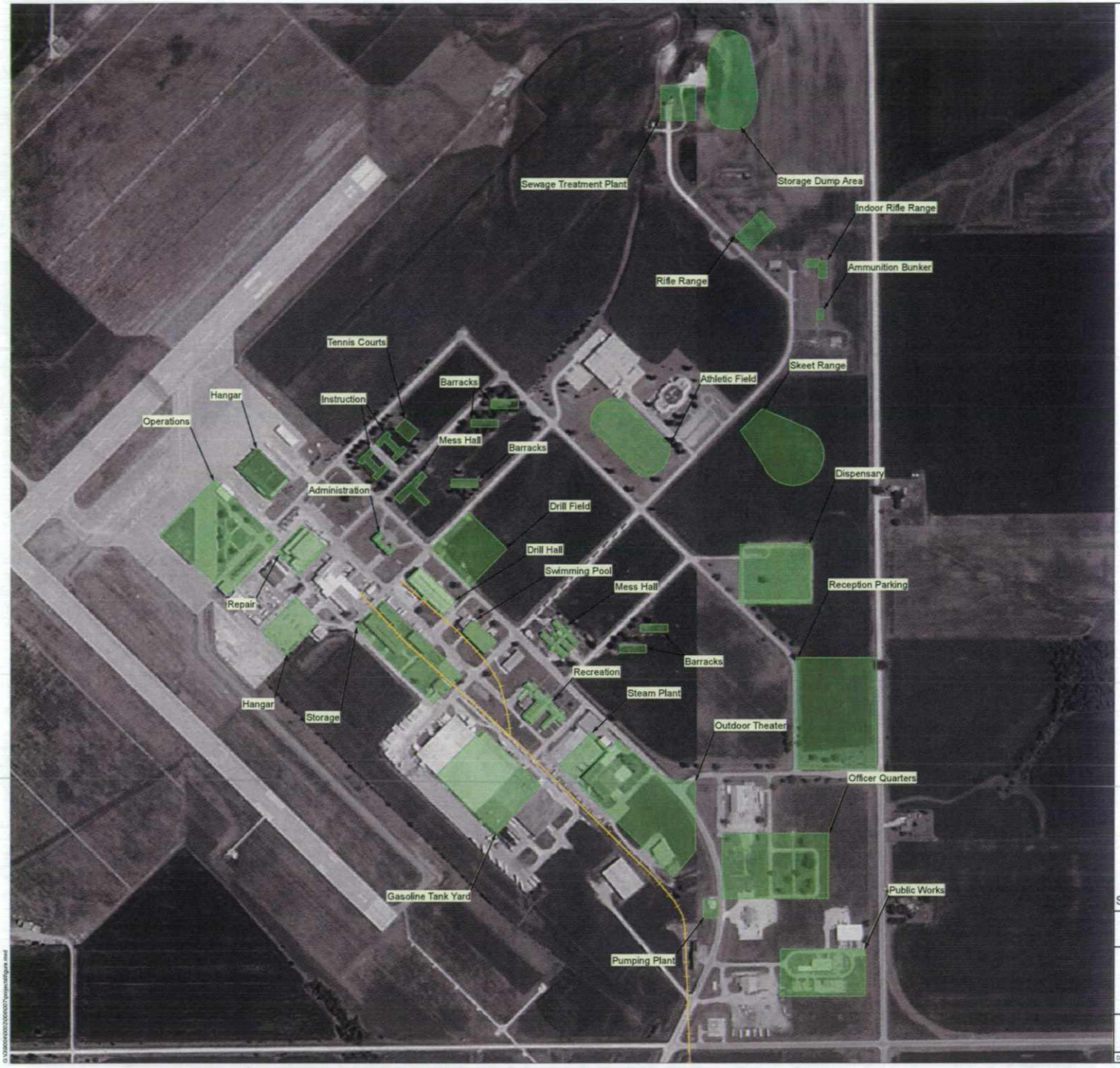
Ottumwa (ex) Naval Air Station
Ottumwa, Iowa

Figure 1
Site Location Map

Tetra Tech EM Inc.

Date: 03/23/06 | Drawn By: Bill Spiking | Project No: I9004.L06.0002.006.007

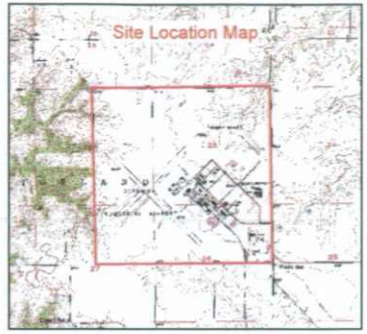
Source: USGS Fremont, IA 7.5 Minute Topo Quad, 1980
USGS Ottumwa North, IA 7.5 Minute Topo Quad, 1956, PR 1976



N

0 225 450

Scale in Feet



Legend

Former Rail Spur

NAS Facility Feature

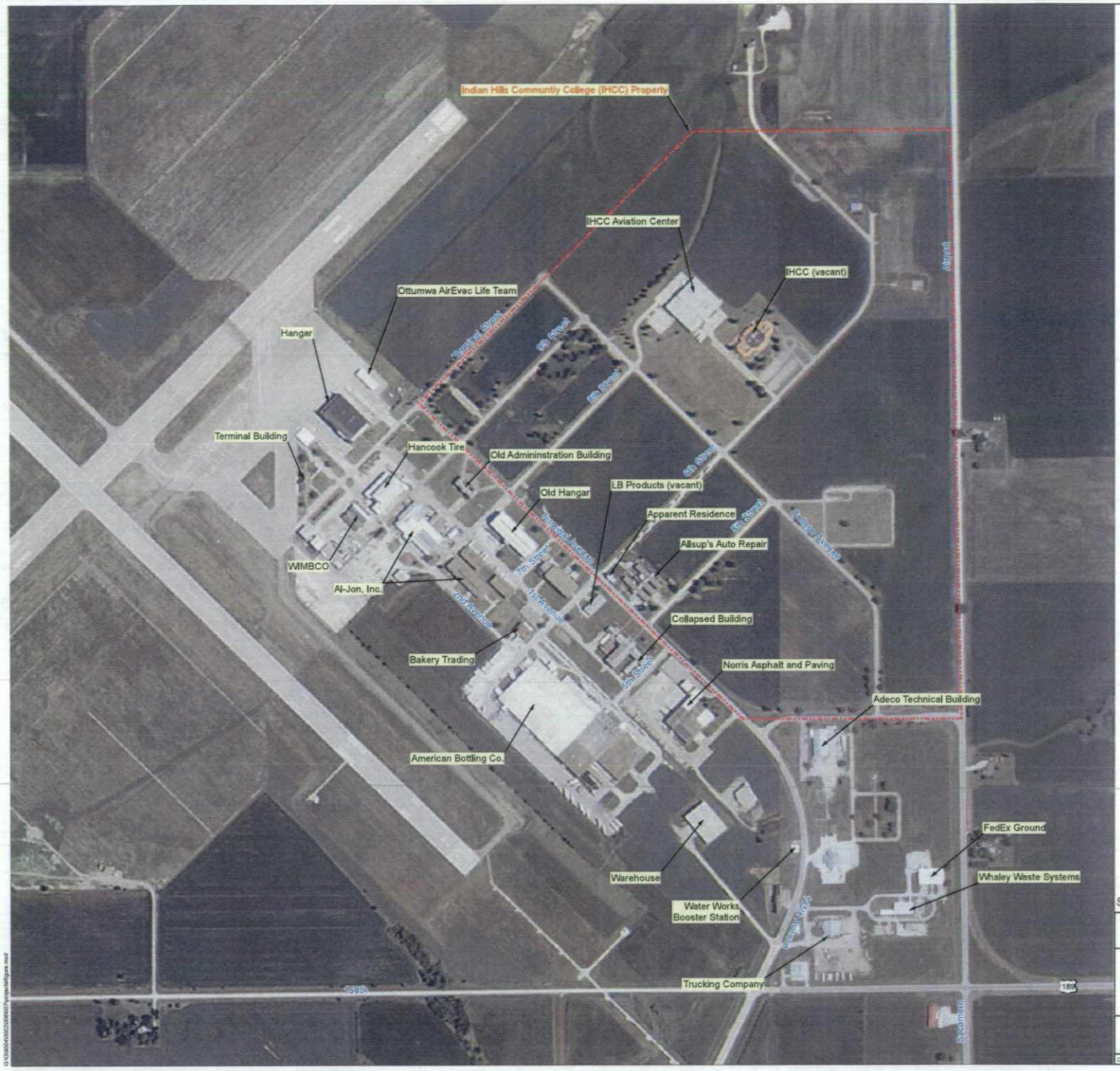
Source:Ottumwa, IA NE and NW DOQ, 1994 IDNR Imagery

Ottumwa (ex) Naval Air Station
Ottumwa, Iowa

Figure 2
1994 Aerial Image
Annotated with NAS Site Layout

Tetra Tech EM Inc.

Date: 7/12/07 Drawn By: Bill Spiking Project No: 69004.L.06.0002.006.007



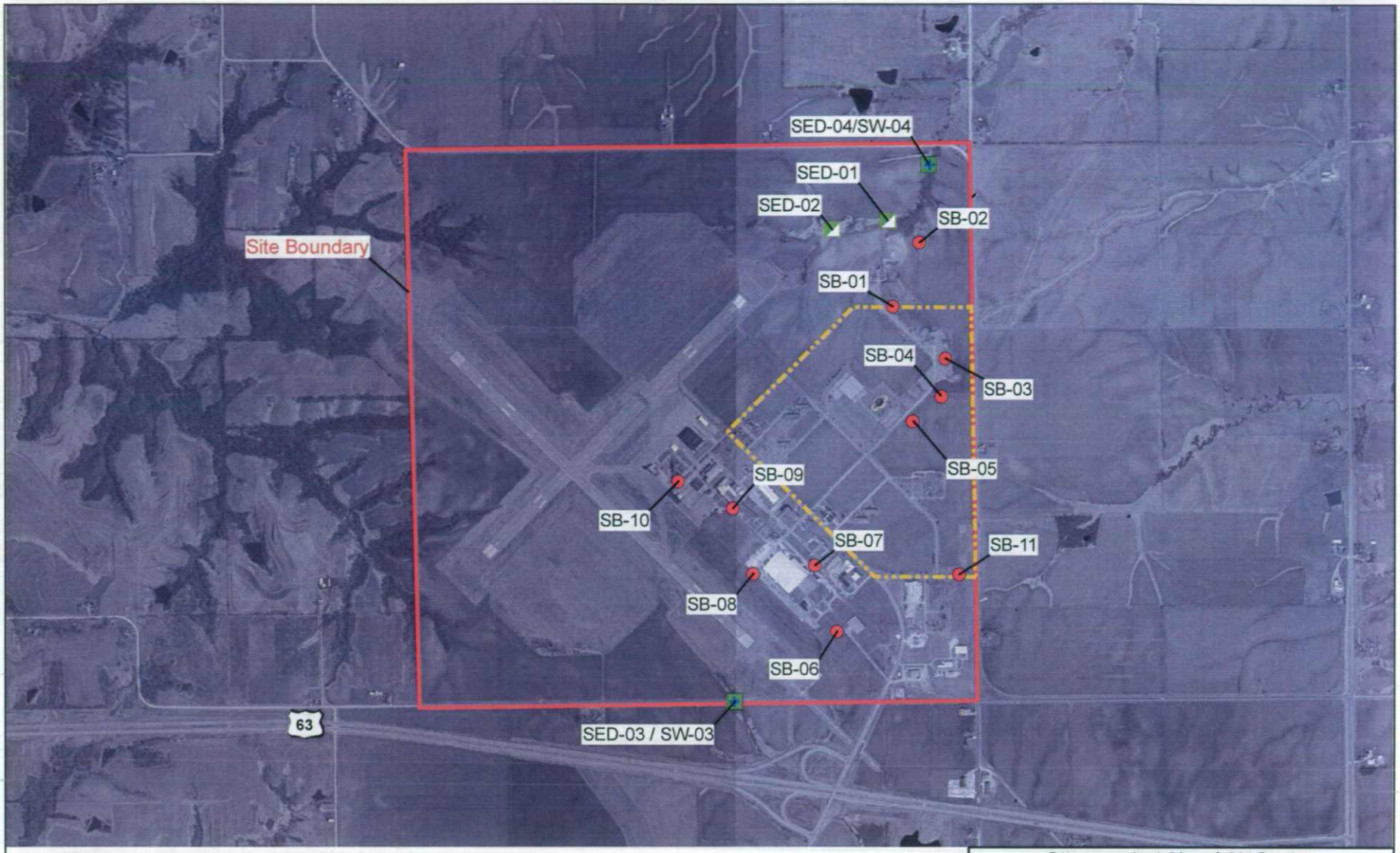
Source:Ottumwa, IA NE and NW DOQ, 2005 IDNR Imagery

Ottumwa (ex) Naval Air Station
Ottumwa, Iowa

Figure 3
Site Layout Map

Tetra Tech EM Inc.

Date: 7/12/07 Drawn By: Bill Spiking Project No: 69084.L.06.0002.006.007



Legend

- Soil boring sample location
- Sediment sample location
- Surface water and sediment sample location
- Indian Hills Community College Property

N

0 1,000 2,000

Scale in Feet

Source: Ottumwa County, Iowa NW and NE DOQQ, 2002 CIR Imagery

Ottumwa (ex) Naval Air Station
Ottumwa, Iowa

Figure 4
Sample Location Map

Tetra Tech EM Inc.

Date: 06/20/06 Drawn By: Roger Stull Project No: I9004.L06.0002.006.007

G:\G\9004\0002\006\007\projects\Figure2New.mxd

APPENDIX B

PHOTOGRAPHIC LOG

Ottumwa (ex) NAS Site
Ottumwa, Iowa

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: North	DESCRIPTION	This photograph shows SB-1 location with sewage treatment plant in background.	1
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: East	DESCRIPTION	This photograph shows drainage area north of sewage treatment plant where sediment (SED) -1 sample was collected.	2
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: West	DESCRIPTION	This photograph shows enlarged view of drainage area for background sample SED-2, northwest of sewage treatment plant.	3
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: West	DESCRIPTION	This photograph shows normal view of bean field northwest of sewage treatment plant.	4
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: East	DESCRIPTION	This photograph shows sewage treatment plant with bermed shooting range used by local law enforcement.	5
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

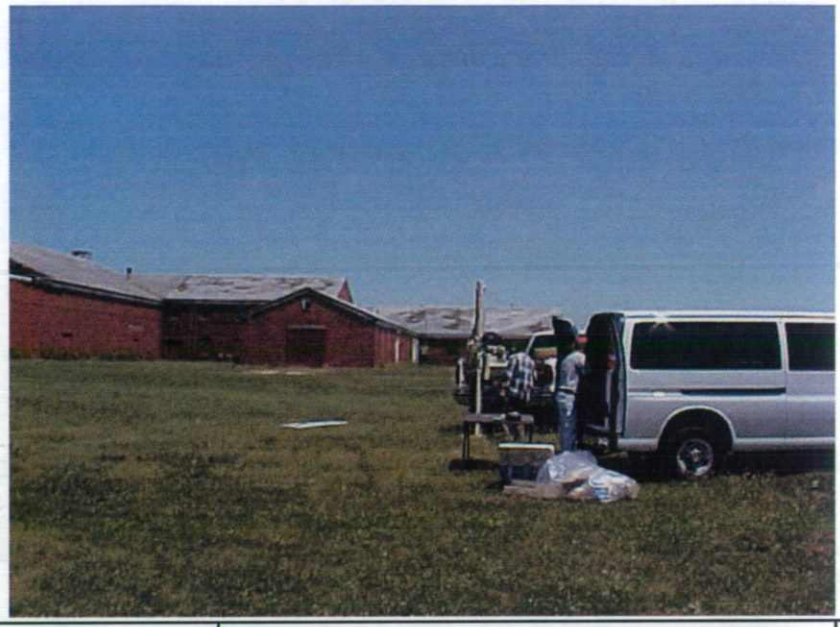
TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: South	DESCRIPTION	This photograph shows hand-dug soil boring (SB) location SB-3 in corn field at former rifle range area. Note building rubble.	6
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa

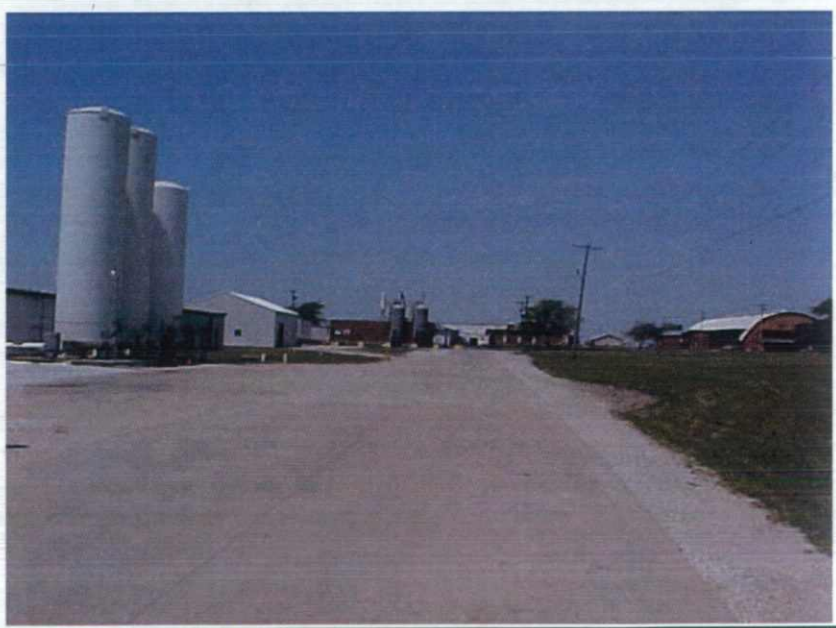
TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: --	DESCRIPTION	This photograph shows hole dug for collection of SB-3 sample. Note abundant brick and concrete building rubble.	7
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/12/06
	PHOTOGRAPHER	Jenna Mead	

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: Northeast	DESCRIPTION	This photograph shows location for collection of surface water and sediment sample at southern drainage from site.	8
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa



TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: -	DESCRIPTION	This photograph shows location SB-7 northeast of bottling plant (former tank yard).	9
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	



TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: Northwest	DESCRIPTION	This photograph shows view along former railspur towards Al-Jon Inc. Bottling plant is on left; SB-7 location is off the photo to right.	10
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: North	DESCRIPTION	This photograph shows SB-9 location on easement next to former motor repair shop (now Al-Jon) at 2nd Avenue and 8th Street.	11
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: West	DESCRIPTION	This photograph shows SB-10 location in easement southeast of Terminal Building.	12
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

Ottumwa (ex) NAS Site
Ottumwa, Iowa

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: Southeast	DESCRIPTION	This photograph shows drainage at Airport Road north of facility. Sample collected upstream due to construction on new bridge.	13
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

TETRA TECH PROJECT NO. G9004.06.0002.006.007 DIRECTION: East	DESCRIPTION	This photograph shows location for collection of surface water and sediment sample at northern drainage from site.	14
	CLIENT	Environmental Protection Agency - Region 7	DATE 06/13/06
	PHOTOGRAPHER	Jenna Mead	

APPENDIX C

FIELD LOGBOOK

"Outdoor writing products for outdoor writing people."

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"Rite In the Rain" - A unique All-Weather Writing paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather.

Available in a variety of standard and custom printed case-bound field books, loose leaf, spiral and stapled notebooks, multi-copy sets and copier paper.

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All-Weather Notebook
No. 311

Ottumwa(ek) NAS
Ottumwa, Iowa
69004/06.0002.006.007

4 5/8" x 7" - 48 Numbered Pages

6-12-06

1320 Arrive @ Ottumwa (ex) NAS stop @ airport entrance to mark location & call Tom Francis (airport) & Rick Fosdick (Indian Hills C.C. No answer @ Tom Francis. Rick sending maintenance guy out with map showing their property. Note: weather - clear ~ 82°

1340 Met up with IHCC guys got map start marking locations.

1420 Met Tom Francis. Have him show us burial/borrow area

1430 Staked location for a 2ft boring at burial area. Can't get rig back here

1445 Go w/ Tom to mark locations + meet utilities. Have Derrick Jones + Evan Do start borings at north near treatment plant

1600 Return to North end of airport. Derrick + Evan finishing SB-1, No water @ 30ft TD. SB-1 0.5-2ft OPID collected

6-12-06

at 1515 (3047-1) SB1 12-14ft OPID collected @ 1550 (3047-2) collect SB-2 0.5-2ft hand augered at debris area. Modify QAPP to add this surface soil location as couldn't drive back there without too much crop damage. SB-1 location lower elevation + was more likely to encounter water at <30' TD.

Note: Rural water guy here for utility mark said closest non-rural water resident he could think of is located 2 miles northeast on site up airport Rd (east side of site boundary). No apparent surface water noted so far at site.

1615 collect 3047-3 from debris area @ 0.5-2ft.

1720 advise Tom W/ airport that

6-12-06

former upset ~~that~~ he wasn't told we'd be sampling at debris area + having to cross his field. Made sure other fields weren't his. Collect Sed 1 in drainage area near SB-2 location but going by way of drainage way North-northeast of treatment plant not across field. Farmer spraying Liberty on corn crop. + will collect Sed 2 @ background (upstream) location NNW of treatment plant.

1730 Collect SED-1 3047-22
1745 Collect SED-2 (BKG) 3047-23
1825 Collect SB-3 (3047-~~B~~ 4) from north end of ammo/rifle range area lots of brick, concrete, asphalt + clay pipe debris in area
~~1825 Collect~~ Photos showing drums, building materials (bricks)
1840 Departing site
Jenna Pollard
6-12-06

6-13-06

0740 Arrive @ site to do hand boring SB-4 @ South side of former building ammo/rifle area.
0750 Collect 3047-5 SB-4 0.5-2' hand auger boring.
0810 Collect 3047-6 SB-5 0.5-2' from field where skeet range had been located. Gas guy said (yesterday) that he used to shoot skeet here + looked about right.
0900 Collect Surface water sample SW-3 (No SW1 + SW2) at drainage along 1500th Rd South of airport.
1007 Finished sampling/labeling + packing SW3/SED3. Gas guy called + OK @ 3 locations will have other 3 marked by underline.
1025 Collect SB-6 0.5-2 ft 3047-7 @ alfalfa field SE of bottom + Norris Asphalt Plant. Going to 30 ft were

6-13-06

to check for water. If no water (again) will not Try 3rd location

1040 Collect 3047-8 @ 12-14 ft saturated Clay, soft/plastic. water @ ~12 ft. will sample water @ 16-20 ft. No run

1120 No water @ 20 ft. Was just a saturated clay holding/trapping water ~ 12-14 ft. will not try deeper. Likely trapping water for field trapped at clay layer.

1250 Collect 3047-9 & 3047-9FD (also as MS/MSD) from SB-7 0.5-2 ft

1315 Collect 3047-11 from 12-14 ft @ SB-7. Location is between RR grade (now a road) & 1st Av to NW of 5th St.

1400 Done @ SB-7 move to SB 8

1420 Collect SB 8 0.5-2 ft 3047-12

1440 Collect SB 8 12-14 ft 3047-13

6-13-06

1520 Collect SB-9 0.5-2 ft. 3047-14. Note paint smell & fresh asphalt patch odor in area

1540 Collect SB-9 10-12 ft changed from usual 12-14 because more petroleum odor @ 10-12 ft interval water trapped by clay layer

1615 Move to terminal area to drill SB-10

1630 Collect SB-10 (0.5-2 ft) 3047-16

1653 water @ ~ 14-16 ft. Near water line (8" line @ 5.5 ft per marking by utility. Probably just more water trapped by clay but will try to get VOCs

1700 Collect 12-14' in saturated clay 3047-17. Will try to collect water @ 12-16 ft.

1710 No water @ 12-16 ft.

1727 Finish @ SB-10 move to SB 11 by old entrance to

6-13-06

Report for background SB 11 location

1745 Collect SB11 0.5-2ft 3047-18. Encountered buried concrete @ 1st attempt (~3ft north of SB11) Gas pipeline is ~10 ft north of location goes to regulator north of bushes @ entrance

1750 Jenn going to scout around for private wells (if any) in area

1807 Back @ SB-11. Did not see any wells for about 2 miles north of Terminal Av. Sample SB-11, 12-14 (collected @ 1805.

1835 Collect Field Blank. Packing 7 coolers.

1905 Depart site

Jenn Mead

6-14-06

0700 Pack coolers in Seagull geoprobe for Grant to take to lab. JHeus & D. Jones going to airport to make map + to drive around looking for private wells to sample

0730 Depart hotel for airport.

0805 House south of airport well not used in 20-25 years + no pump. Out in brush somewhere. Doesn't know anyone on well.

Spoke to man SW of airport has been on Rural Water 4 yrs. Doesn't know anyone on well around here.

0850 Drive behind airport all have Rural water meters except (possibly) one house that is all fenced off + obviously not inclined to receive visitors.

0855 looking for creek access @ north end of airport. cut up stream past working pit, up in new subdivision look for place to sample

6-15-06
JRM

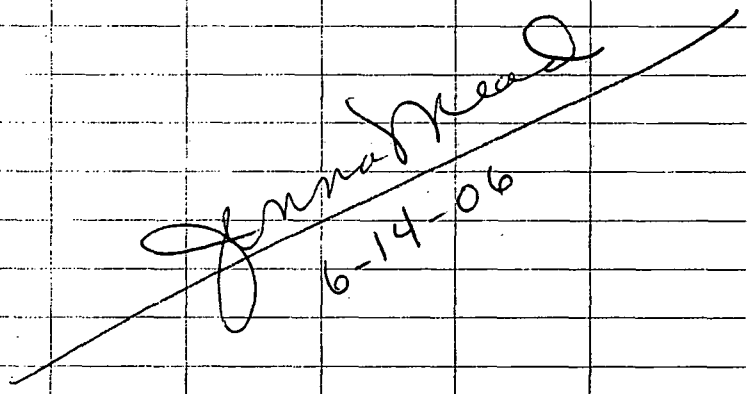
0920 Collect SW-4

0930 Collect SED-4 location south of where bridge is being drilled on ~~Richland~~ Airport North of airport. This is drainage from SED 1 & SED 2 But water there

1030 Stop at house. Used well up til about 2 years ago. Farmer said his uncle told him aircraft parts buried near treatment plant

1045 Back to airport. No wells found. House above was on road just north of where airport Road turns to west at bridge.

1100 Returning to Geneva.



APPENDIX D

FIELD SHEETS AND CHAIN-OF-CUSTODY RECORDS

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Ron King	Ottumwa(ex) NAS	12-13-06	1 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: CUBITAINER	BOTTLE	8oz BOTTLE	VOA Set BOTTLE 4	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
3047-1			3	1	1		X				
-2			3	1	1		X				
-3			3	1	1		X				
-4			3	1	1		X				
-5			3	1	1		X				
-6			3	1	1		X				
-7			3	1	1		X				
-8			3	1	1		X				
-9			3	1 Set of 8	1 Set of 4		X				MS/MSD
-9 FD			3	1	1		X				
-11			3	1	1		X				
-12			3	1	1		X				
-13			3	1	1		X				
-14			3	1	1		X				
-15			3	1	1		X				
-16			3	1	1		X				
-17			3	1	1		X				
-18			3	1	1		X				
-19			3	1	1		X				
-22			3	1	1			X			
-23			3	1	1			X			
-24			3	1	1			X			
-24 FD			3	1	1			X			
-27 FB					1			X			

DESCRIPTION OF SHIPMENT

7 PIECE(S) CONSISTING OF _____ BOX(ES)

X ICE CHEST(S): OTHER _____

MODE OF SHIPMENT

_____ COMMERCIAL CARRIER: _____

_____ COURIER

X SAMPLER CONVEYED

_____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
[signature] SEALED UNSEALED X	6.14.06	11:55	[signature] SEALED UNSEALED X	Analysis
RELINQUISHED BY SEALED UNSEALED	DATE	TIME	RECEIVED BY SEALED UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY SEALED UNSEALED	DATE	TIME	RECEIVED BY SEALED UNSEALED	REASON FOR CHANGE OF CUSTODY

*U.S. GPO: 2002-756-917/40053

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Ron King	Ottumwa (RK) NAS	13 / 06 / 06	2 of 2

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1L Cub CUBITAINER	1250BJ BOTTLE	5B BOTTLE	VOA set ~~BOTTLE~~	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
3047-107FB				1	1	X					
-301	2	3		1 set of 7	1 set of 4	X					
-301FD	2	2		1	1	X					
-207FB	2	2		1	1	X					
-208FB				1	1	X					

Received by Lab 6-13-06

Not Complete

Chr. Temps. Recd. bet. 2-3°c

DESCRIPTION OF SHIPMENT

1 PIECE(S) CONSISTING OF _____ BOX(ES)

X ICE CHEST(S): OTHER _____

MODE OF SHIPMENT

_____ COMMERCIAL CARRIER: _____

_____ COURIER

X SAMPLER CONVEYED

_____ (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
Ron King ☐ SEALED ☐ UNSEALED	6-14-06	11:55	Nicole Robles ☐ SEALED ☐ UNSEALED	Analysis
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY
RELINQUISHED BY ☐ SEALED ☐ UNSEALED	DATE	TIME	RECEIVED BY ☐ SEALED ☐ UNSEALED	REASON FOR CHANGE OF CUSTODY

*U.S. GPO: 2002-756-917/40053

CHAIN OF CUSTODY RECORD
ENVIRONMENTAL PROTECTION AGENCY REGION VII

ACTIVITY LEADER(Print)	NAME OF SURVEY OR ACTIVITY	DATE OF COLLECTION (DAY / MONTH / YEAR)	SHEET
Ron King	Ottumwa (RK) NAS	14 / 06 / 06	1 of 1

CONTENTS OF SHIPMENT

SAMPLE NUMBER	TYPE OF CONTAINERS: 1 L CUBITAINER	125 BOTTLE	500 BOTTLE	VOA Set BOTTLE	VOA SET (2 VIALS EA)	SAMPLED MEDIA: water	soil	sediment	dust	other	RECEIVING LABORATORY REMARKS/OTHER INFORMATION (condition of samples upon receipt, other sample numbers, etc.)
	NUMBERS OF CONTAINERS PER SAMPLE NUMBER										
3047-20			3		2		~~X~~	X			
3047-303	2	2		1	1	X					

Complete

Chr. Temp. Rec'd. bet. 1–2°C

DESCRIPTION OF SHIPMENT	MODE OF SHIPMENT
1 PIECE(S) CONSISTING OF ____ BOX(ES)	____ COMMERCIAL CARRIER: ____
1 ICE CHEST(S): OTHER ____	____ COURIER
	X SAMPLER CONVEYED (SHIPPING DOCUMENT NUMBER)

PERSONNEL CUSTODY RECORD

RELINQUISHED BY (SAMPLER)	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☒	6.15.06	12:15	SEALED ☐ UNSEALED ☒	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☐			SEALED ☐ UNSEALED ☐	
RELINQUISHED BY	DATE	TIME	RECEIVED BY	REASON FOR CHANGE OF CUSTODY
SEALED ☐ UNSEALED ☐			SEALED ☐ UNSEALED ☐	

*U.S. GPO: 2002-756-917/40053

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 1 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-1-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-1 0.5-2'

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 15:15

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:
(N/A)

~~Lab prepared trip blank sent~~

PID

City of Ottumwa - Airport
14802 Terminal St.
Ottumwa IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 2 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-2-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-1 12-14'

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 15:50

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A) OPID

City of Ottumwa - Airport
Tom Francis
14802 Terminal St,
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 3 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-3-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB2 . 0,5-2

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 1645

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: Debris burial / burn area @ PID
(N/A)

City of Ottumwa Airport
Tom Frances
14802 Terminal St
Ottumwa IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 4 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-4-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-3

Expected Conc: (or Circle One: ~~Low~~ Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 18:25

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: (N/A) OPID North end ammo/pyro/rifle range

~~City of Ottumwa - airport~~

Indian Hills Community College
Keith Sasseen
5252 Grandview Bldg 1
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 5 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-5-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-4 (0.5-2.0')

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 0750
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: PID hand dug
(N/A)
Indian Hills Community College
Keith Sasseen
5252 Grandview, Bldg. 1
Ottumwa IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 6 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-6-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-5 (0.5-2')

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/__ 0810
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:
(N/A)
Hand Aug OPID
Indian Hills Comm. College
Keith Sasseen
5252 Grandview, Bldg. 1
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 7 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-7-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-6 (0.5-2)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 10:25

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: alfalfa field East-southeast of Bottling Plant
(N/A)
City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 8 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-8-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-6 (12-14')

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 10:40
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: Alfalfa Field East-southeast of Bottling Plant
(N/A)
City of Ottumwa-Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 9 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-9-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-7 (0.5-2)

Expected Conc: (or Circle One) Low Medium High **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 12:50
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
4 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
4 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: Between former RR grade and 1st Av just NW of 5th St.
(N/A)

City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa, IA 52501

PID
MS/MSD

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** ~~10~~ 9 **QC Code:** FD **Matrix:** Solid **Tag ID:** 3047-~~10~~ 9 FD

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-7 (0.5-2')

Expected Conc: (or Circle One) (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 12:50

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28 Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14 Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14 Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14 Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments: Between Former RR grade & 1st Av just NW of 5th St,
(N/A) City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Dup of SB-7 (0.5-2')

OPID

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 11 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-11-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB-7 (12-14ft)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 13:15

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A) City of Ottumwa-Airport
14802 Terminal St.
Ottumwa, IA 52501
Attn: Tom Francis

@ PID

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 12 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-12-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB 8 (0.5-2')

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 14:20

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: PID South of Bottling Plant on City Property

(N/A) City of Ottumwa - Airport
14802 Terminal St
Ottumwa, IA 52501
Attn: Tom Francis

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 13 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-13-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB 8 12-14

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 14:40

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: City of Ottumwa Airport City prop south of Bottling Plant
(N/A) Tom Francis
14802 Terminal St
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 14 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-14-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB9 (0.5-2 ft)

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 15:20
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A) City of Ottumwa - Airport
Easement at N of intersection of 2nd Av & 8th St
by Al Jon.

City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Jon Kneen, Chairman
Al-Jon, Inc.
Requested copy of data
as left this property.
14599 2nd Av.
Ottumwa, IA 52501

OPID

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 15 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-15-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB9 (10-12' ~~12-14'~~ dup.)

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 15:40

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A) City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa IA 52501

2nd ~~St~~ 8TH St north easement
south of former Motor Vehicle Bldg.

Petroleum odor; PID = 561.6 ppm
~~QPID~~ new

Kneen
Jon ~~Keen~~, Chairman
Al-Jon, Inc
14599 2nd Av
Ottumwa, IA 52501-9281
requested copy of data
easement next to his
company

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 16 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-16-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB10 (0.5-2ft)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 16:30

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28 Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14 Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14 Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14 Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments: PID

(N/A)

City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Across (SE) of Terminal St. from Airport Terminal

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 17 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-17-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB 10 (12-14)

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 17:00
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:

(N/A) City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa, IA 52501

Across Terminal St from Terminal Bldg.

PID = 0

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 18 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-18-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: SB11 (0.5-2')

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 17:45
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14	Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: (N/A) Background location NW Terminal Av. ~ 200 ft west of Airport Rd. (~ 50' West of sign for airport)

City of Ottumwa - Airport
Tom Frances
14802 Terminal St.
Ottumwa, IA 52501

PID

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 19 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-19-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil sample

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 18:05

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap
1 - 8 oz glass	4 Deg C	180 Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28 Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14 Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14 Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14 Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:
(N/A)

Background Location N of terminal Av ~12-14 ft W of Airport Rd (~50' west of sign for Airport)

City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

& PID

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 20 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-20-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: ~~Soil~~ Sediment sample

External Sample Number: SED-4

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/14/06 09:30
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (~~preserved/tared~~)	4 Deg C, H2O ~~+ sodium bisulfate (in vial)~~	14 Days	1 VOC's in ~~Soil at Low Levels by GC/MS Closed System Purge-and-Trap~~ Solid Matrices by GC/MS
1 - 8 oz glass	4 Deg C	180 Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28 Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14 Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14 Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14 Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments: Downstream of SED1 + SED2

(N/A)
City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 21 **QC Code:** FB **Matrix:** Solid **Tag ID:** 3047-21-FB

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Soil 5035 VOA/TPH (OA-1) Trip Blank sample

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 05:00

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
2 - 40mL VOA vial (preserved/tared)	4 Deg C, H2O + sodium bisulfate (in vial)	14 Days	1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Sample Comments: Lab-prepared Trip blanks
(N/A)

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 22 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-22-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Sediment sample

External Sample Number: SED-1

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 17:30

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 VOCs in Solid Matrices by GC/MS
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in Soil by GC/MS
1 - 8 oz glass	4 Deg C	180 Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180 Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28 Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14 Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14 Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14 Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0 Days	1 Percent Solid

Sample Comments:
(N/A)

Sed location from drainage NNE of Treatment plant

City of Ottumwa - Airport
Tom Frances
14802 Terminal St.
Ottumwa IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 23 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-23-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Sediment sample

External Sample Number: SED-2

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/12/06 1745

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 VOCs in Solid Matrices by GC/MS
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:
(N/A)

Background NNW of treatment

City of Ottumwa - Airport
Tom Frances
14802 Terminal St,
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 24 **QC Code:** __ **Matrix:** Solid **Tag ID:** 3047-24-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Sediment sample

External Sample Number: SED-3

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 09:10

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 VOCs in Solid Matrices by GC/MS
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments:
(N/A) City of Ottumwa - airport Drainage south of airport
Tom Francis
14802 Terminal St,
Ottumwa IA 52501

Sample Collected By: JM

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 25 **QC Code:** FD **Matrix:** Solid **Tag ID:** 3047-~~25~~-24FD

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Sediment sample

External Sample Number: SED-3

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 09:10
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time		Analysis
2 - 40mL VOA vial	4 Deg C	14	Days	1 VOCs in Solid Matrices by GC/MS
2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in Soil by GC/MS
1 - 8 oz glass	4 Deg C	180	Days	1 Mercury in Soil or Sediment
1 - 8 oz glass	4 Deg C	180	Days	1 Metals in Solids by ICP
1 - 8 oz glass	4 Deg C	28	Days	1 Perchlorate in Soil by IC
1 - 8 oz glass	4 Deg C	14	Days	1 PCBs in Soil by GC/EC
1 - 8 oz glass	4 Deg C	14	Days	1 TPH Semi-Volatile in Soil by GC/FID
1 - 8 oz glass	4 Deg C	14	Days	1 Explosives in Soil by GC/ECD
0 -	4 Deg C	0	Days	1 Percent Solid

Sample Comments: SED 3 - Dup Drainage south of airport
(N/A)

City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa, IA. 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 27 **QC Code:** FB **Matrix:** Solid **Tag ID:** 3047-27-FB

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Sediment VOA/TPH (OA-1) Trip Blank sample

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High)

		Date	Time(24 hr)
Latitude: ___ ___ ___	**Sample Collection: Start:**	6/12/06	08:15
Longitude: ___ ___ ___	**End:**	__/__/__	__:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 VOCs in Solid Matrices by GC/MS
~~2 - 40mL VOA vial~~	~~4 Deg C~~	14 Days	1 TPH Volatiles-in-Soil by GC/MS

10 % solids
Only had one vial of VOAs

Sample Comments: Lab prepared trip blanks
(N/A)

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 107 **QC Code:** FB **Matrix:** Water **Tag ID:** 3047-107-FB

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Temp. Well GW LDL VOA/TPH (OA-1) Trip Blank sample

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/8/06 06:30
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in water by GC/MS
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments: Lab prepared trip blanks
(N/A)

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 207 **QC Code:** FB **Matrix:** Water **Tag ID:** 3047-207-FB

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: DW Field Blank sample

External Sample Number: Field Blank

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 18:35

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	4 Deg C	28 Days	1 Perchlorate in Water by IC
1 - 1 Liter Cubitainer	5 mL of HNO3/L to pH<2	28 Days	1 Mercury in Water
1 - 1 Liter Cubitainer	HNO3 acidify, 4 Deg C	180 Days	1 Metals in Water by ICP
1 - 128oz amber glass	4 Deg C	7 Days	1 Pesticides in Water by GC/EC
1 - 128oz amber glass	4 Deg C	7 Days	1 TPH Semi-volatile in Water by GC/FID
1 - 128oz amber glass	4 Deg C	7 Days	1 Explosives in Water by GC/ECD
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in water by GC/MS
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Drinking Water by GC/MS

Sample Comments:
Field Blank
(N/A)

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 208 **QC Code:** FB **Matrix:** Water **Tag ID:** 3047-208-FB

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: DW VOA/TPH (OA-1) Trip Blank sample

External Sample Number: _____

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/8/06 06:40

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in water by GC/MS
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Drinking Water by GC/MS

Sample Comments: Lab-prepared trip blank
(N/A)

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 301 **QC Code:** __ **Matrix:** Water **Tag ID:** 3047-301-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Surface water sample

External Sample Number: SW-3

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 09:00

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

	Container	Preservative	Holding Time		Analysis
	1 - 1 Liter Cubitainer	4 Deg C	28	Days	1 Perchlorate in Water by IC
1	1 - 1 Liter Cubitainer	5 mL of HNO3/L to pH<2	28	Days	1 Mercury in Water
1	1 - 1 Liter Cubitainer	HNO3 acidify, 4 Deg C	180	Days	1 Metals in Water by ICP
2	1 - 128oz amber glass	4 Deg C	7	Days	1 Pesticides in Water by GC/EC
2	1 - 128oz amber glass	4 Deg C	7	Days	1 TPH Semi-volatile in Water by GC/FID
	1 - 128oz amber glass	4 Deg C	7	Days	1 Explosives in Water by GC/ECD
4	2 - 40mL VOA vial	4 Deg C	14	Days	1 TPH Volatiles in water by GC/MS
7	4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14	Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments: MS/MSD South drainage from Airport

(N/A) City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet

US EPA Region 7
Kansas City, KS

301 ✓ 301 FD

ASR Number: 3047 **Sample Number:** ~~302~~ 301 **QC Code:** FD ✓ **Matrix:** Water **Tag ID:** 3047-~~302~~ 301 FD

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Surface water sample

External Sample Number: SW-3 Dup

Expected Conc: (or Circle One: Low Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/13/06 09:00
Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	4 Deg C	28 Days	1 Perchlorate in Water by IC
1 - 1 Liter Cubitainer	5 mL of HNO3/L to pH<2	28 Days	1 Mercury in Water
1 - 1 Liter Cubitainer	HNO3 acidify, 4 Deg C	180 Days	1 Metals in Water by ICP
1 - 128oz amber glass	4 Deg C	7 Days	1 Pesticides in Water by GC/EC
1 - 128oz amber glass	4 Deg C	7 Days	1 TPH Semi-volatile in Water by GC/FID
1 - 128oz amber glass	4 Deg C	7 Days	1 Explosives in Water by GC/ECD
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in water by GC/MS
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments:

(N/A)

Dup South drainage from airport

City of Ottumwa - Airport
Tom Francis
14802 Terminal St
Ottumwa, IA 52501

Sample Collected By: JM

Sample Collection Field Sheet
US EPA Region 7
Kansas City, KS

ASR Number: 3047 **Sample Number:** 303 **QC Code:** __ **Matrix:** Water **Tag ID:** 3047-303-__

Project ID: RKOTTEXNAS **Project Manager:** Ron King
Project Desc: Ottumwa (EX) NAS - PA sampling
City: Ottumwa **State:** Iowa
Program: Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00

Location Desc: Surface water sample

External Sample Number: SW-4

Expected Conc: (or Circle One: (Low) Medium High) **Date** **Time(24 hr)**

Latitude: ___ ___ ___ **Sample Collection: Start:** 6/14/06 09:20

Longitude: ___ ___ ___ **End:** __/__/__ __:__

Laboratory Analyses:

Container	Preservative	Holding Time	Analysis
1 - 1 Liter Cubitainer	4 Deg C	28 Days	1 Perchlorate in Water by IC
1 - 1 Liter Cubitainer	5 mL of HNO3/L to pH<2	28 Days	1 Mercury in Water
1 - 1 Liter Cubitainer	HNO3 acidify, 4 Deg C	180 Days	1 Metals in Water by ICP
1 - 128oz amber glass	4 Deg C	7 Days	1 Pesticides in Water by GC/EC
1 - 128oz amber glass	4 Deg C	7 Days	1 TPH Semi-volatile in Water by GC/FID
1 - 128oz amber glass	4 Deg C	7 Days	1 Explosives in Water by GC/ECD
2 - 40mL VOA vial	4 Deg C	14 Days	1 TPH Volatiles in water by GC/MS
4 - 40mL VOA vial	4 Deg C, HCL to pH<2	14 Days	1 VOCs in Water by GC/MS for Low Detection Limits

Sample Comments: Stream drainage from north of airport (downstream
(N/A) of SED1 & SED2) on Airport Road

City of Ottumwa - Airport
Tom Francis
14802 Terminal St.
Ottumwa, IA 52501

Sample Collected By: JM

APPENDIX E

ANALYTICAL RESULTS

United States Environmental Protection Agency
Region 7
901 N. 5th Street
Kansas City, KS 66101

Date: 19 JUL 2006

Subject: Transmittal of Sample Analysis Results for ASR #: 3047

Project ID: RKOTTEXNAS

Project Description: Ottumwa (EX) NAS - PA sampling

From: Dale I. Bates, Director
Regional Laboratory, Environmental Services Division

To: Ron King
SUPR/EFLR

Enclosed are the analytical data for the above-referenced Analytical Services Request (ASR) and Project. The Regional Laboratory has reviewed and verified the results in accordance with procedures described in our Quality Manual (QM). In addition to all of the analytical results, this transmittal contains pertinent information that may have influenced the reported results and documents any deviations from the established requirements of the QM.

Please contact us within 14 days of receipt of this package if you determine there is a need for any changes. Please complete the enclosed Customer Satisfaction Survey and Data Disposition/Sample Release memo for this ASR as soon as possible. The process of disposing of the samples for this ASR will be initiated 30 days from the date of this transmittal unless an alternate release date is specified on the Data Disposition/Sample Release memo.

If you have any questions or concerns relating to this data package, contact our customer service line at 913-551-5295.

Enclosures

cc: Analytical Data File.

Project Manager: Ron King **Org:** SUPR/EFLR **Phone:** 913-551-7568
Project ID: RKOTTEXNAS
Project Desc: Ottumwa (EX) NAS - PA sampling
Location: Ottumwa **State:** Iowa **Program:** Superfund
Site Name: Multi-Site - General **Site ID:** 07ZZ **Site OU:** 00
Purpose: Site Characterization

CERCLIS ID: IAN000703254

Explanation of Codes, Units and Qualifiers used on this report

Sample QC Codes: QC Codes identify the type of sample for quality control purpose.

__ = Field Sample
FB = Field Blank
FD = Field Duplicate

Units: Specific units in which results are reported.

% = Percent
mg/L = Milligrams per Liter
mg/kg = Milligrams per Kilogram
ug/L = Micrograms per Liter
ug/kg = Micrograms per Kilogram

Data Qualifiers: Specific codes used in conjunction with data values to provide additional information on the quality of reported results, or used to explain the absence of a specific value.

(Blank)= Values have been reviewed and found acceptable for use.
J = The identification of the analyte is acceptable; the reported value is an estimate.
U = The analyte was not detected at or above the reporting limit.
UJ = The analyte was not detected at or above the reporting limit. The reporting limit is an estimate.

ASR Number: 3047 **Sample Information Summary** **07/19/2006**

Project ID: RKOTTEXNAS **Project Desc:** Ottumwa (EX) NAS - PA sampling

Sample No	QC Code	Matrix	Location Description	External Sample No	Start Date	Start Time	End Date	End Time	Receipt Date
1 - __		Solid	Soil sample (SB-1, 0.5-2')		06/12/2006	15:15			06/14/2006
2 - __		Solid	Soil sample (SB-1, 12-14')		06/12/2006	15:50			06/14/2006
3 - __		Solid	Soil sample (SB-2, 0.5-2')		06/12/2006	16:45			06/14/2006
4 - __		Solid	Soil sample (SB-3)		06/12/2006	18:25			06/14/2006
5 - __		Solid	Soil sample (SB-4, 0.5-2.0')		06/13/2006	07:50			06/14/2006
6 - __		Solid	Soil sample (SB-5, 0.5-2')		06/13/2006	08:10			06/14/2006
7 - __		Solid	Soil sample (SB-6, 0.5-2')		06/13/2006	10:25			06/14/2006
8 - __		Solid	Soil sample (SB-6, 12-14')		06/13/2006	10:40			06/14/2006
9 - __		Solid	Soil sample (SB-7, 0.5-2')		06/13/2006	12:50			06/14/2006
9 - FD		Solid	Soil sample (SB-7, 0.5-2')/Field Duplicate of sample 9		06/13/2006	12:50			06/14/2006
11 - __		Solid	Soil sample (SB-7, 12-14')		06/13/2006	13:15			06/14/2006
12 - __		Solid	Soil sample (SB-8, 0.5-2')		06/13/2006	14:20			06/14/2006
13 - __		Solid	Soil sample (SB-8, 12-14')		06/13/2006	14:40			06/14/2006
14 - __		Solid	Soil sample (SB-9, 0.5-2')		06/13/2006	15:20			06/14/2006
15 - __		Solid	Soil sample (SB-9, 10-12')		06/13/2006	15:40			06/14/2006
16 - __		Solid	Soil sample (SB-10, 0.5-2')		06/13/2006	16:30			06/14/2006
17 - __		Solid	Soil sample (SB-10, 12-14')		06/13/2006	17:00			06/14/2006
18 - __		Solid	Soil sample (SB-11, 0.5-2')		06/13/2006	17:45			06/14/2006
19 - __		Solid	Soil background sample (North of Terminal Ave., 12-14')		06/13/2006	18:05			06/14/2006
20 - __		Solid	Sediment sample (SED-4)/Downstream of Sed 1 and 2		06/14/2006	09:30			06/15/2006
21 - FB		Solid	Soil 5035 VOA/TPH (OA-1) Trip Blank sample		06/12/2006	08:00			06/14/2006
22 - __		Solid	Sediment sample - 1 (from drainage NNE of treatment plant)		06/12/2006	17:30			06/14/2006
23 - __		Solid	Sediment sample - 2, background NNW of treatment		06/12/2006	17:45			06/14/2006
24 - __		Solid	Sediment sample - 3, Drainage South of airport		06/13/2006	09:10			06/14/2006
24 - FD		Solid	Sediment sample - 3/Field Duplicate of sample 24		06/13/2006	09:10			06/14/2006
27 - FB		Solid	Sediment VOA Trip Blank sample		06/12/2006	08:15			06/14/2006
107 - FB		Water	Temp. Well GW LDL VOA/TPH (OA-1) Trip Blank sample		06/08/2006	06:30			06/14/2006
207 - FB		Water	DW Field Blank sample		06/13/2006	18:35			06/14/2006
208 - FB		Water	DW VOA/TPH (OA-1) Trip Blank sample		06/08/2006	06:40			06/14/2006
301 - __		Water	Surface water sample - 3 (South drainage from airport)		06/13/2006	09:00			06/14/2006
301 - FD		Water	Surface water sample - 3/Field Duplicate of sample 301		06/13/2006	09:00			06/14/2006
303 - __		Water	Surface water sample - 4 (Stream drainage from North of airport)		06/14/2006	09:20			06/15/2006

Analysis	Comments About Results For This Analysis

1 Explosives in Soil by GC/ECD

Lab: REAP Contract Lab (Out-Source)

Method: Similar to EPA SW846 Method 8095 (see comments)

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:
(N/A)

1 Mercury in Soil or Sediment

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3121.23A

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:

1 Metals in Solids by ICP

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3122.3B

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:
Slight Antimony contamination was found in the laboratory method blank. Only samples containing this analyte at a level greater than ten times the contamination level of the blank are reported without being qualified. All samples that contained this analyte but at a level less than ten times the contamination in the blank have the result U-coded indicating that the reporting limit has been raised to the level found in the sample. Samples affected were: 22 & 24.

Potassium was J-coded in samples 1-9, 9FD and 11-19. Although the analyte in question has been positively identified in the samples, the quantitation is an estimate (J-coded) due to high recovery of this analyte in the laboratory control sample. The actual concentration for this analyte may be lower than the reported value.

Chromium was J-coded in samples 20, 22-24 and 24FD. Although the analyte in question has been positively identified in the samples, the quantitation is an estimate (J-coded) due to low

Analysis **Comments About Results For This Analysis**

recovery of this analyte in the laboratory control sample. The actual concentration for this analyte may be higher than the reported value.

Aluminum, Iron, Manganese and Zinc were J-coded in sample 1. Although the analytes in question have been positively identified in the sample, the quantitations are estimates (J-coded) due to poor precision obtained for these analytes in the laboratory matrix spike and matrix spike duplicate.

Thallium was UJ-coded in sample 1. This analyte was not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to poor precision obtained for this analyte in the laboratory matrix spike and matrix spike duplicate. The actual reporting limit for this analyte may be higher than the reported value.

Iron, Magnesium, Potassium and Sodium were J-coded in sample 20. Although the analytes in question have been positively identified in the sample, the quantitations are estimates (J-coded) due to high recovery of these analytes in the laboratory matrix spike. The actual concentrations for these analytes may be lower than the reported values.

1 PCBs in Soil by GC/EC

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3240.2F with Acid Cleanup

Samples:	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:

All Aroclors were UJ-coded in samples 1, 4, 18, 19, 20, 24 and 24FD. These analytes were not found in the samples at or above the reporting limits, however, the reporting limits are an estimate (UJ-coded) due to low recovery of the surrogate analyte. The actual reporting limits for these analytes may be higher than the reported values.

1 Percent Solid

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3142.9D

Samples:	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	21-FB
	22-__	23-__	24-__	24-FD	27-FB		

Comments:

(N/A)

1 Perchlorate in Soil by IC

Analysis	Comments About Results For This Analysis

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3135.9B

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:
(N/A)

1 TPH Semi-Volatile in Soil by GC/FID

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3270.1C

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	22-__
	23-__	24-__	24-FD				

Comments:
The extracts of the following samples were so darkly colored that the analyst diluted them prior to analysis in order to avoid damaging the instrument: 4, 18, 19, 20, 22, and 23. This increased the reporting limits by a factor of ten for these samples.

However, sample 1 was positive and showed a pattern somewhat indicative of diesel and motor oil. When preparing this sample, it was noted that it contained visible chunks of what appeared to be charcoal or tar.

Sample 2 also was positive and showed a pattern somewhat indicative of diesel and motor oil. Samples 24 and 24FD gave positive results, and although diesel fuel was used to quantitate the results, the chromatogram more closely resembled motor oil.

The other samples (3, 5 - 9, 9FD, 11 - 17) that were quantitated as positive did not show any characteristic pattern of any fuel that was available to the laboratory such as diesel, gasoline, motor oil, kerosene or jet fuel. It is more likely that the contamination is typical organic matter found in soil.

1 TPH Volatiles in Soil by GC/MS

Lab: Region 7 ESAT Contract Lab (In-House)

Method: EPA Region 7 RLAB Method 3230.19A

Samples:							
	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	20-__	21-FB
	22-__	23-__	24-__	24-FD			

Analysis **Comments About Results For This Analysis**

Comments:
The reporting limits were raised slightly due to sample weight and percent moisture.

TPH was UJ-coded in sample 9. These analytes were not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to poor precision obtained for these analytes in the laboratory matrix spike and matrix spike duplicate. The actual reporting limit for these analytes may be higher than the reported value.

In Sample 15, Ethyl Benzene was extremely high in comparison to the other TPH analytes. Sample 15 also contained interferring peaks. Sample 15 was J-coded. The elevated levels of the analytes are present but the results do not match the gasoline calibration pattern.

1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.16B

Samples:	1-__	2-__	3-__	4-__	5-__	6-__	7-__
	8-__	9-__	9-FD	11-__	12-__	13-__	14-__
	15-__	16-__	17-__	18-__	19-__	21-FB	

Comments:
A large dilution was necessary in order to obtain valid results due to matrix interferences for sample 15. This increased the reporting limits by a factor of 100 for this sample. The reporting limits for all samples were adjusted for sample weight and percent moisture.

Slight Acetone, Cyclohexane, and Methylcyclohexane contaminations were found in the laboratory method blanks. Only samples containing these analytes at a level greater than ten times the contamination level of the blank are reported without being qualified. All samples that contained these analytes but at a level less than ten times the contamination in the blank have the result U-coded indicating that the reporting limit has been raised to the level found in the sample. Samples affected for Acetone were: 1, 2, 7, 9, 9-fd, 16-19, and 21-fb. Samples affected for Methylcyclohexane were: 15, 16, 19, and 21-fb. Sample 15 was affected for Cyclohexane.

Naphthalene, 1,2,3-Trichlorobenzene, and 1,2,4-Trichlorobenzene were UJ-coded in samples 9 and 9-fd. These analytes were not found in the samples at or above the reporting limits, however, the reporting limits are estimates (UJ-coded) due to low recovery of these analytes in the laboratory matrix spike. The actual reporting limits for these analytes may be higher than the reported values.

1 VOCs in Solid Matrices by GC/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.15B

Samples:	20-__	22-__	23-__	24-__	24-FD	27-FB

Analysis **Comments About Results For This Analysis**

Comments:

2-Butanone was J-coded in sample 27-fb. Although the analyte in question has beer positively identified in the sample, the quantitation is an estimate (J-coded) due to the continuing calibration check not meeting accuracy specifications. The actual concentration for this analyte may be lower than the reported value.

Naphthalene, 1,2,3-Trichlorobenzene and 1,2,4-Trichlorobenzene were UJ-coded in samples 24 and 24-fd. These analytes were not found in the samples at or above the reporting limits, however, the reporting limits are estimates (UJ-coded) due to low recovery of these analytes in the laboratory matrix spike. The actual reporting limits for these analytes may be higher than the reported values.

1,3-Dichlorobenzene, Methyl Acetate, and Styrene were UJ-coded in samples 24 and 24-fd. These analytes were not found in the samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to poor precision obtained for these analytes in the laboratory matrix spike and matrix spike duplicate. The actual reporting limit for these analytes may be higher than the reported value.

1 Explosives in Water by GC/ECD

Lab: REAP Contract Lab (Out-Source)

Method: Similar to EPA SW846 Method 8095 (see comments)

Samples: 207-FB 301-__ 301-FD 303-__

Comments:

Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX) was UJ-coded in samples 3047-301, -301FD, 207FB, & -303. This analyte was not found in the sample at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery of this analyte in the laboratory MS and MSD. The actual reporting limit for this analyte may be higher than the reported value.

1 Mercury in Water

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3121.23A

Samples: 207-FB 301-__ 301-FD 303-__

Comments:

(N/A)

1 Metals in Water by ICP

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3122.3B

Samples: 207-FB 301-__ 301-FD 303-__

Comments:

Selenium was UJ-coded in samples 301, 301FD and 303. This analyte was not found in the

Analysis	Comments About Results For This Analysis

samples at or above the reporting limit, however, the reporting limit is an estimate (UJ-coded) due to low recovery of this analyte in the laboratory fortified blank. The actual reporting limit for this analyte may be higher than the reported value.

1 Perchlorate in Water by IC

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3135.9B

Samples: 207-FB 301-__ 301-FD 303-__

Comments:
(N/A)

1 Pesticides in Water by GC/EC

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3240.2F

Samples: 207-FB 301-__ 301-FD 303-__

Comments:
(N/A)

1 TPH Semi-volatile in Water by GC/FID

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3270.1C

Samples: 207-FB 301-__ 301-FD 303-__

Comments:
No sample exhibited a characteristic pattern of any standard maintained in the laboratory, including motor oil, gasoline, kerosene, jet fuel, diesel and mineral spirits. The positive hits are most likely organic content.

1 TPH Volatiles in water by GC/MS

Lab: Region 7 ESAT Contract Lab (In-House)

Method: EPA Region 7 RLAB Method 3230.19A

Samples: 107-FB 207-FB 208-FB 301-__ 301-FD 303-__

Comments:

1 VOCs in Drinking Water by GC/MS

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.9C

Samples: 207-FB 208-FB

Comments:

Analysis	Comments About Results For This Analysis

Chloromethane and 1,2-Dibromo-3-chloropropane were UJ-coded in samples 207-fb and 208-fb. These analytes was not found in the samples at or above the reporting limits, however, the reporting limits are estimates (UJ-coded) due to poor precision obtained for these analytes in the laboratory matrix spike and matrix spike duplicate. The actual reporting limits for these analytes may be higher than the reported values.

1 VOCs in Water by GC/MS for Low Detection Limits

Lab: Region 7 EPA Laboratory - Kansas City, Ks.

Method: EPA Region 7 RLAB Method 3230.13C

Samples: 107-FB 301-__ 301-FD 303-__

Comments:

Analysis/ Analyte	Units	1-___	2-___	3-___	4-___
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U	64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg	107 U	107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg	500 U	500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg	69 U	69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg	146 U	146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg	199 U	199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U	102 U	102 U	102 U
Nitrobenzene	ug/kg	42 U	42 U	42 U	42 U
Nitroglycerine	ug/kg	500 U	500 U	500 U	500 U
2-Nitrotoluene	ug/kg	102 U	102 U	102 U	102 U
3-Nitrotoluene	ug/kg	89 U	89 U	89 U	89 U
4-Nitrotoluene	ug/kg	162 U	162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U	394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg	545 U	545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg	92 U	92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U	134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg	100 U	100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.059	0.047	0.053	0.022
1 Metals in Solids by ICP					
Aluminum	mg/kg	11100 J	9560	14700	4970
Antimony	mg/kg	2 U	2 U	2 U	2 U
Arsenic	mg/kg	5 U	5 U	5 U	5 U
Barium	mg/kg	205	189	216	217
Beryllium	mg/kg	1 U	1 U	1 U	1 U
Cadmium	mg/kg	1 U	1 U	1 U	1 U
Calcium	mg/kg	2860	3660	3220	76600
Chromium	mg/kg	13.3	13.5	17.2	5.31
Cobalt	mg/kg	4.69	2.59	3.09	2.71
Copper	mg/kg	15.0	13.5	15.6	8.94
Iron	mg/kg	16300 J	8520	20200	13200
Lead	mg/kg	14.0	8.87	8.53	12.2
Magnesium	mg/kg	2360	3080	3610	13700
Manganese	mg/kg	181 J	51.8	132	372
Molybdenum	mg/kg	2 U	2 U	2 U	2 U
Nickel	mg/kg	11.1	9.94	17.5	9.58
Potassium	mg/kg	686 J	789 J	763 J	789 J
Selenium	mg/kg	10 U	10 U	11.2	10 U
Silver	mg/kg	2 U	2 U	2 U	2 U
Sodium	mg/kg	89.6	111	68.2	110
Thallium	mg/kg	10 UJ	10 U	10 U	10 U
Vanadium	mg/kg	28.9	11.5	29.5	13.7
Zinc	mg/kg	28.8 J	42.8	35.3	137
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	23 UJ	22 U	25 U	22 UJ

Analysis/ Analyte	Units	1-___	2-___	3-___	4-___
Aroclor 1221	ug/kg	23 UJ	22 U	25 U	22 UJ
Aroclor 1232	ug/kg	23 UJ	22 U	25 U	22 UJ
Aroclor 1242	ug/kg	23 UJ	22 U	25 U	22 UJ
Aroclor 1248	ug/kg	23 UJ	22 U	25 U	22 UJ
Aroclor 1254	ug/kg	12 UJ	11 U	12 U	11 UJ
Aroclor 1260	ug/kg	12 UJ	11 U	12 U	11 UJ
1 Percent Solid					
Solids, percent	%	82.9	81.7	80.4	91.0
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U	0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	180	32	20	43 U
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	58 U	60 U	63 U	54 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	31 U	6.7 U	35	55
Benzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Bromodichloromethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Bromoform	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Bromomethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
2-Butanone	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Carbon Disulfide	ug/kg	2.7 U	2.8 U	5.9 U	15
Carbon Tetrachloride	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Chlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Chloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Chloroform	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Chloromethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Cyclohexane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2-Dibromo-3-Chloropropane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Dibromochloromethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2-Dibromoethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2-Dichlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,3-Dichlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,4-Dichlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Dichlorodifluoromethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1-Dichloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2-Dichloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1-Dichloroethene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
cis-1,2-Dichloroethene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
trans-1,2-Dichloroethene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2-Dichloropropane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
cis-1,3-Dichloropropene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
trans-1,3-Dichloropropene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Ethyl Benzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
2-Hexanone	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U

Analysis/ Analyte	Units	1-__	2-__	3-__	4-__
Isopropylbenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Methyl Acetate	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Methyl tert-butyl ether	ug/kg	5.4 U	5.6 U	12 U	9.6 U
Methylcyclohexane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Methylene Chloride	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
4-Methyl-2-Pentanone	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Naphthalene	ug/kg	5.4 U	5.6 U	12 U	9.6 U
Styrene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1,2,2-Tetrachloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Tetrachloroethene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Toluene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2,3-Trichlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,2,4-Trichlorobenzene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1,1-Trichloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1,2-Trichloroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Trichloroethene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Trichlorofluoromethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
1,1,2-Trichlorotrifluoroethane	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
Vinyl Chloride	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
m and/or p-Xylene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U
o-Xylene	ug/kg	2.7 U	2.8 U	5.9 U	4.8 U

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U	64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg	107 U	107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg	500 U	500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg	69 U	69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg	146 U	146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg	199 U	199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U	102 U	102 U	102 U
Nitrobenzene	ug/kg	42 U	42 U	42 U	42 U
Nitroglycerine	ug/kg	500 U	500 U	500 U	500 U
2-Nitrotoluene	ug/kg	102 U	102 U	102 U	102 U
3-Nitrotoluene	ug/kg	89 U	89 U	89 U	89 U
4-Nitrotoluene	ug/kg	162 U	162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U	394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg	545 U	545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg	92 U	92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U	134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg	100 U	100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.041	0.029	0.069	0.045
1 Metals in Solids by ICP					
Aluminum	mg/kg	12100	12800	16500	10300
Antimony	mg/kg	2 U	2 U	2 U	2.01
Arsenic	mg/kg	7.64	5.84	5 U	5 U
Barium	mg/kg	296	217	215	262
Beryllium	mg/kg	1.02	1 U	1 U	1 U
Cadmium	mg/kg	1 U	1 U	1 U	1 U
Calcium	mg/kg	5200	4040	4180	4770
Chromium	mg/kg	13.2	14.4	18.0	15.6
Cobalt	mg/kg	8.96	8.53	4.41	12.6
Copper	mg/kg	14.2	12.6	16.5	20.5
Iron	mg/kg	18800	16800	19600	21900
Lead	mg/kg	22.2	17.8	11.7	19.1
Magnesium	mg/kg	2850	2720	4190	3990
Manganese	mg/kg	998	709	253	1260
Molybdenum	mg/kg	2 U	2 U	2 U	2 U
Nickel	mg/kg	13.6	13.4	13.8	30.8
Potassium	mg/kg	1020 J	1120 J	1020 J	683 J
Selenium	mg/kg	10 U	10 U	10 U	10 U
Silver	mg/kg	2 U	2 U	2 U	2 U
Sodium	mg/kg	53.3	73.9	63.0	120
Thallium	mg/kg	10 U	10 U	10 U	10 U
Vanadium	mg/kg	30.8	34.4	29.4	33.1
Zinc	mg/kg	42.9	37.2	46.5	46.1
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	23 U	22 U	24 U	23 U

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
Aroclor 1221	ug/kg	23 U	22 U	24 U	23 U
Aroclor 1232	ug/kg	23 U	22 U	24 U	23 U
Aroclor 1242	ug/kg	23 U	22 U	24 U	23 U
Aroclor 1248	ug/kg	23 U	22 U	24 U	23 U
Aroclor 1254	ug/kg	12 U	11 U	12 U	11 U
Aroclor 1260	ug/kg	12 U	11 U	12 U	11 U
1 Percent Solid					
Solids, percent	%	83.1	81.9	80.5	75.2
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U	0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	21	37	25	11
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	62 U	61 U	62 U	68 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	93	85	27 U	38
Benzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Bromodichloromethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Bromoform	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Bromomethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
2-Butanone	ug/kg	6.8	5.6 U	5.7 U	6.4 U
Carbon Disulfide	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Carbon Tetrachloride	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Chlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Chloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Chloroform	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Chloromethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Cyclohexane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Dibromochloromethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2-Dibromoethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2-Dichlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,3-Dichlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,4-Dichlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Dichlorodifluoromethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1-Dichloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2-Dichloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1-Dichloroethene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
cis-1,2-Dichloroethene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
trans-1,2-Dichloroethene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2-Dichloropropane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
cis-1,3-Dichloropropene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
trans-1,3-Dichloropropene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Ethyl Benzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
2-Hexanone	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U

Analysis/ Analyte	Units	5-__	6-__	7-__	8-__
Isopropylbenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Methyl Acetate	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Methyl tert-butyl ether	ug/kg	10 U	11 U	11 U	13 U
Methylcyclohexane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Methylene Chloride	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
4-Methyl-2-Pentanone	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Naphthalene	ug/kg	10 U	11 U	11 U	13 U
Styrene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1,2,2-Tetrachloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Tetrachloroethene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Toluene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2,3-Trichlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,2,4-Trichlorobenzene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1,1-Trichloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1,2-Trichloroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Trichloroethene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Trichlorofluoromethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
Vinyl Chloride	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
m and/or p-Xylene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U
o-Xylene	ug/kg	5.2 U	5.6 U	5.7 U	6.4 U

Analysis/ Analyte	Units	9-__	9-FD	11-__	12-__
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U	64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg	107 U	107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg	500 U	500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg	69 U	69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg	146 U	146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg	199 U	199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U	102 U	102 U	102 U
Nitrobenzene	ug/kg	42 U	42 U	42 U	42 U
Nitroglycerine	ug/kg	500 U	500 U	500 U	500 U
2-Nitrotoluene	ug/kg	102 U	102 U	102 U	102 U
3-Nitrotoluene	ug/kg	89 U	89 U	89 U	89 U
4-Nitrotoluene	ug/kg	162 U	162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U	394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg	545 U	545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg	92 U	92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U	134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg	100 U	100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.106	0.047	0.034	0.040
1 Metals in Solids by ICP					
Aluminum	mg/kg	17800	12500	18600	12200
Antimony	mg/kg	2 U	2 U	2 U	2 U
Arsenic	mg/kg	5 U	5 U	5 U	5 U
Barium	mg/kg	311	206	159	231
Beryllium	mg/kg	1.26	1 U	1 U	1 U
Cadmium	mg/kg	1 U	1 U	1 U	1 U
Calcium	mg/kg	4380	4080	3780	5490
Chromium	mg/kg	17.4	13.8	16.6	14.1
Cobalt	mg/kg	14.7	5.89	2.68	4.94
Copper	mg/kg	21.1	13.7	8.45	12.5
Iron	mg/kg	25100	16400	16500	12700
Lead	mg/kg	17.8	11.1	14.8	12.1
Magnesium	mg/kg	4350	3190	2710	2690
Manganese	mg/kg	808	361	36.2	142
Molybdenum	mg/kg	2 U	2 U	2 U	2 U
Nickel	mg/kg	27.8	12.3	6.30	11.7
Potassium	mg/kg	879 J	800 J	511 J	583 J
Selenium	mg/kg	10 U	10 U	10 U	10 U
Silver	mg/kg	2 U	2 U	2 U	2 U
Sodium	mg/kg	65.7	59.0	68.1	186
Thallium	mg/kg	10 U	10 U	10 U	10 U
Vanadium	mg/kg	33.8	29.5	46.7	22.6
Zinc	mg/kg	54.0	40.2	10.7	27.2
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	24 U	24 U	21 U	22 U

Analysis/ Analyte	Units	9-__	9-FD	11-__	12-__
Aroclor 1221	ug/kg	24 U	24 U	21 U	22 U
Aroclor 1232	ug/kg	24 U	24 U	21 U	22 U
Aroclor 1242	ug/kg	24 U	24 U	21 U	22 U
Aroclor 1248	ug/kg	24 U	24 U	21 U	22 U
Aroclor 1254	ug/kg	12 U	12 U	10 U	11 U
Aroclor 1260	ug/kg	12 U	12 U	10 U	11 U
1 Percent Solid					
Solids, percent	%	79.8	78.8	79.2	81.5
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U	0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	21	31	10	14
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	63 UJ	66 U	62 U	62 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	26 U	24 U	12 U	16 U
Benzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Bromodichloromethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Bromoform	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Bromomethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
2-Butanone	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Carbon Disulfide	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Carbon Tetrachloride	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Chlorobenzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Chloroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Chloroform	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Chloromethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Cyclohexane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Dibromochloromethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2-Dibromoethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2-Dichlorobenzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,3-Dichlorobenzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,4-Dichlorobenzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Dichlorodifluoromethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,1-Dichloroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2-Dichloroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,1-Dichloroethene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
cis-1,2-Dichloroethene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
trans-1,2-Dichloroethene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2-Dichloropropane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
cis-1,3-Dichloropropene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
trans-1,3-Dichloropropene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Ethyl Benzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
2-Hexanone	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U

Analysis/ Analyte	Units	9-__	9-FD	11-__	12-__
Isopropylbenzene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Methyl Acetate	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Methyl tert-butyl ether	ug/kg	11 U	11 U	10 U	12 U
Methylcyclohexane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Methylene Chloride	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
4-Methyl-2-Pentanone	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Naphthalene	ug/kg	11 UJ	11 UJ	10 U	12 U
Styrene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,1,2,2-Tetrachloroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Tetrachloroethene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Toluene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,2,3-Trichlorobenzene	ug/kg	5.6 UJ	5.6 U	5.0 U	6.1 U
1,2,4-Trichlorobenzene	ug/kg	5.6 UJ	5.6 UJ	5.0 U	6.1 U
1,1,1-Trichloroethane	ug/kg	5.6 U	5.6 UJ	5.0 U	6.1 U
1,1,2-Trichloroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Trichloroethene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Trichlorofluoromethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
Vinyl Chloride	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
m and/or p-Xylene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U
o-Xylene	ug/kg	5.6 U	5.6 U	5.0 U	6.1 U

Analysis/ Analyte	Units	13-__	14-__	15-__	16-__
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U	64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg	107 U	107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg	500 U	500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg	69 U	69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg	146 U	146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg	199 U	199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U	102 U	102 U	102 U
Nitrobenzene	ug/kg	42 U	42 U	42 U	42 U
Nitroglycerine	ug/kg	500 U	500 U	500 U	500 U
2-Nitrotoluene	ug/kg	102 U	102 U	102 U	102 U
3-Nitrotoluene	ug/kg	89 U	89 U	89 U	89 U
4-Nitrotoluene	ug/kg	162 U	162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U	394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg	545 U	545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg	92 U	92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U	134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg	100 U	100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.017	0.044	0.022	0.052
1 Metals in Solids by ICP					
Aluminum	mg/kg	12500	15500	13600	13200
Antimony	mg/kg	2 U	2 U	2 U	2 U
Arsenic	mg/kg	5 U	10.3	5 U	11.3
Barium	mg/kg	159	273	259	235
Beryllium	mg/kg	1.06	1.26	1.05	1.26
Cadmium	mg/kg	1 U	1 U	1 U	1 U
Calcium	mg/kg	4590	9220	3740	6120
Chromium	mg/kg	11.1	18.6	11.1	16.2
Cobalt	mg/kg	8.29	12.8	8.68	18.8
Copper	mg/kg	9.98	26.0	7.18	27.7
Iron	mg/kg	9700	25200	36400	21200
Lead	mg/kg	31.3	23.3	13.7	23.0
Magnesium	mg/kg	2260	5020	2230	4600
Manganese	mg/kg	292	1140	1250	697
Molybdenum	mg/kg	2 U	2 U	2 U	2 U
Nickel	mg/kg	7.39	30.3	9.14	35.7
Potassium	mg/kg	471 J	870 J	354 J	659 J
Selenium	mg/kg	10 U	10 U	10.4	10 U
Silver	mg/kg	2 U	2 U	2 U	2 U
Sodium	mg/kg	73.9	108	59.2	87.8
Thallium	mg/kg	10 U	10 U	10 U	10 U
Vanadium	mg/kg	30.5	40.6	53.3	37.3
Zinc	mg/kg	10.5	49.4	5 U	50.3
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	22 U	22 U	21 U	21 U

Analysis/ Analyte	Units	13-__	14-__	15-__	16-__
Aroclor 1221	ug/kg	22 U	22 U	21 U	21 U
Aroclor 1232	ug/kg	22 U	22 U	21 U	21 U
Aroclor 1242	ug/kg	22 U	22 U	21 U	21 U
Aroclor 1248	ug/kg	22 U	22 U	21 U	21 U
Aroclor 1254	ug/kg	11 U	11 U	11 U	11 U
Aroclor 1260	ug/kg	11 U	11 U	11 U	11 U
1 Percent Solid					
Solids, percent	%	79.5	80.9	78.5	82.7
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U	0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	15	9.9	14	13
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	64 U	63 U	1600 J	61 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	10 U	29 U	1700	16 U
Benzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Bromodichloromethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Bromoform	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Bromomethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
2-Butanone	ug/kg	5.2 U	5.1 U	5800	5.8 U
Carbon Disulfide	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Carbon Tetrachloride	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Chlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Chloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Chloroform	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Chloromethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Cyclohexane	ug/kg	5.2 U	5.1 U	1300 U	5.8 U
1,2-Dibromo-3-Chloropropane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Dibromochloromethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2-Dibromoethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2-Dichlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,3-Dichlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,4-Dichlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Dichlorodifluoromethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1-Dichloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2-Dichloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1-Dichloroethene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
cis-1,2-Dichloroethene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
trans-1,2-Dichloroethene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2-Dichloropropane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
cis-1,3-Dichloropropene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
trans-1,3-Dichloropropene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Ethyl Benzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
2-Hexanone	ug/kg	5.2 U	5.1 U	580 U	5.8 U

Analysis/ Analyte	Units	13-__	14-__	15-__	16-__
Isopropylbenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Methyl Acetate	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Methyl tert-butyl ether	ug/kg	10 U	10 U	1200 U	12 U
Methylcyclohexane	ug/kg	5.2 U	5.1 U	2900 U	6.7 U
Methylene Chloride	ug/kg	5.2 U	5.1 U	580 U	5.8 U
4-Methyl-2-Pentanone	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Naphthalene	ug/kg	10 U	10 U	1200 U	12 U
Styrene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1,2,2-Tetrachloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Tetrachloroethene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Toluene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2,3-Trichlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,2,4-Trichlorobenzene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1,1-Trichloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1,2-Trichloroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Trichloroethene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Trichlorofluoromethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
1,1,2-Trichlorotrifluoroethane	ug/kg	5.2 U	5.1 U	580 U	5.8 U
Vinyl Chloride	ug/kg	5.2 U	5.1 U	580 U	5.8 U
m and/or p-Xylene	ug/kg	5.2 U	5.1 U	580 U	5.8 U
o-Xylene	ug/kg	5.2 U	5.1 U	580 U	5.8 U

Analysis/ Analyte	Units	17-__	18-__	19-__	20-__
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U	64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg	107 U	107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg	500 U	500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg	69 U	69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg	146 U	146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg	199 U	199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U	102 U	102 U	102 U
Nitrobenzene	ug/kg	42 U	42 U	42 U	42 U
Nitroglycerine	ug/kg	500 U	500 U	500 U	500 U
2-Nitrotoluene	ug/kg	102 U	102 U	102 U	102 U
3-Nitrotoluene	ug/kg	89 U	89 U	89 U	89 U
4-Nitrotoluene	ug/kg	162 U	162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U	394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg	545 U	545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg	92 U	92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U	134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg	100 U	100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.028	0.033	0.031	0.027
1 Metals in Solids by ICP					
Aluminum	mg/kg	13000	14100	10500	10700
Antimony	mg/kg	2 U	2 U	2 U	2 U
Arsenic	mg/kg	6.96	9.90	5 U	5 U
Barium	mg/kg	215	247	211	188
Beryllium	mg/kg	1.07	1.12	1 U	1 U
Cadmium	mg/kg	1 U	1 U	1 U	1 U
Calcium	mg/kg	10500	10100	4110	9840
Chromium	mg/kg	12.7	15.6	10.9	11.5 J
Cobalt	mg/kg	12.6	19.5	23.1	7.25
Copper	mg/kg	11.1	19.4	12.3	12.9
Iron	mg/kg	22900	21100	16300	14000 J
Lead	mg/kg	15.7	37.9	12.7	16.5
Magnesium	mg/kg	4920	3270	2550	2980 J
Manganese	mg/kg	904	1380	1450	749
Molybdenum	mg/kg	2 U	2 U	2 U	2 U
Nickel	mg/kg	14.3	22.3	15.3	13.5
Potassium	mg/kg	591 J	1380 J	461 J	874 J
Selenium	mg/kg	10.4	10 U	10 U	10 U
Silver	mg/kg	2 U	2 U	2 U	2 U
Sodium	mg/kg	89.4	77.9	132	136 J
Thallium	mg/kg	10 U	10 U	10 U	10 U
Vanadium	mg/kg	62.1	38.6	36.5	29.6
Zinc	mg/kg	18.7	77.3	22.1	38.9
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	21 U	22 UJ	21 UJ	21 UJ

Analysis/ Analyte	Units	17-__	18-__	19-__	20-__
Aroclor 1221	ug/kg	21 U	22 UJ	21 UJ	21 UJ
Aroclor 1232	ug/kg	21 U	22 UJ	21 UJ	21 UJ
Aroclor 1242	ug/kg	21 U	22 UJ	21 UJ	21 UJ
Aroclor 1248	ug/kg	21 U	22 UJ	21 UJ	21 UJ
Aroclor 1254	ug/kg	11 U	11 UJ	10 UJ	10 UJ
Aroclor 1260	ug/kg	11 U	11 UJ	10 UJ	10 UJ
1 Percent Solid					
Solids, percent	%	76.0	86.6	77.7	67.9
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U	0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	4.8	44 U	42 U	41 U
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	65 U	57 U	65 U	72 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	5.4 U	160	9.4 U	
Benzene	ug/kg	4.8 U	5.5 U	5.9 U	
Bromodichloromethane	ug/kg	4.8 U	5.5 U	5.9 U	
Bromoform	ug/kg	4.8 U	5.5 U	5.9 U	
Bromomethane	ug/kg	4.8 U	5.5 U	5.9 U	
2-Butanone	ug/kg	4.8 U	14	5.9 U	
Carbon Disulfide	ug/kg	4.8 U	5.5 U	5.9 U	
Carbon Tetrachloride	ug/kg	4.8 U	5.5 U	5.9 U	
Chlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
Chloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
Chloroform	ug/kg	4.8 U	5.5 U	5.9 U	
Chloromethane	ug/kg	4.8 U	5.5 U	5.9 U	
Cyclohexane	ug/kg	4.8 U	5.5 U	5.9 U	
1,2-Dibromo-3-Chloropropane	ug/kg	4.8 U	5.5 U	5.9 U	
Dibromochloromethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,2-Dibromoethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,2-Dichlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
1,3-Dichlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
1,4-Dichlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
Dichlorodifluoromethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,1-Dichloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,2-Dichloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,1-Dichloroethene	ug/kg	4.8 U	5.5 U	5.9 U	
cis-1,2-Dichloroethene	ug/kg	4.8 U	5.5 U	5.9 U	
trans-1,2-Dichloroethene	ug/kg	4.8 U	5.5 U	5.9 U	
1,2-Dichloropropane	ug/kg	4.8 U	5.5 U	5.9 U	
cis-1,3-Dichloropropene	ug/kg	4.8 U	5.5 U	5.9 U	
trans-1,3-Dichloropropene	ug/kg	4.8 U	5.5 U	5.9 U	
Ethyl Benzene	ug/kg	4.8 U	5.5 U	5.9 U	
2-Hexanone	ug/kg	4.8 U	5.5 U	5.9 U	

Analysis/ Analyte	Units	17-__	18-__	19-__	20-__
Isopropylbenzene	ug/kg	4.8 U	5.5 U	5.9 U	
Methyl Acetate	ug/kg	4.8 U	5.5 U	5.9 U	
Methyl tert-butyl ether	ug/kg	9.6 U	11 U	12 U	
Methylcyclohexane	ug/kg	4.8 U	5.5 U	6.7 U	
Methylene Chloride	ug/kg	4.8 U	5.5 U	5.9 U	
4-Methyl-2-Pentanone	ug/kg	4.8 U	5.5 U	5.9 U	
Naphthalene	ug/kg	9.6 U	11 U	12 U	
Styrene	ug/kg	4.8 U	5.5 U	5.9 U	
1,1,2,2-Tetrachloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
Tetrachloroethene	ug/kg	4.8 U	5.5 U	5.9 U	
Toluene	ug/kg	4.8 U	5.5 U	5.9 U	
1,2,3-Trichlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
1,2,4-Trichlorobenzene	ug/kg	4.8 U	5.5 U	5.9 U	
1,1,1-Trichloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,1,2-Trichloroethane	ug/kg	4.8 U	5.5 U	5.9 U	
Trichloroethene	ug/kg	4.8 U	5.5 U	5.9 U	
Trichlorofluoromethane	ug/kg	4.8 U	5.5 U	5.9 U	
1,1,2-Trichlorotrifluoroethane	ug/kg	4.8 U	5.5 U	5.9 U	
Vinyl Chloride	ug/kg	4.8 U	5.5 U	5.9 U	
m and/or p-Xylene	ug/kg	4.8 U	5.5 U	5.9 U	
o-Xylene	ug/kg	4.8 U	5.5 U	5.9 U	
1 VOCs in Solid Matrices by GC/MS					
Acetone	ug/kg				6.4 U
Benzene	ug/kg				6.4 U
Bromodichloromethane	ug/kg				6.4 U
Bromoform	ug/kg				6.4 U
Bromomethane	ug/kg				6.4 U
2-Butanone	ug/kg				6.4 U
Carbon Disulfide	ug/kg				6.4 U
Carbon Tetrachloride	ug/kg				6.4 U
Chlorobenzene	ug/kg				6.4 U
Chloroethane	ug/kg				6.4 U
Chloroform	ug/kg				6.4 U
Chloromethane	ug/kg				6.4 U
Cyclohexane	ug/kg				6.4 U
1,2-Dibromo-3-Chloropropane	ug/kg				6.4 U
Dibromochloromethane	ug/kg				6.4 U
1,2-Dibromoethane	ug/kg				6.4 U
1,2-Dichlorobenzene	ug/kg				6.4 U
1,3-Dichlorobenzene	ug/kg				6.4 U
1,4-Dichlorobenzene	ug/kg				6.4 U
Dichlorodifluoromethane	ug/kg				6.4 U
1,1-Dichloroethane	ug/kg				6.4 U
1,2-Dichloroethane	ug/kg				6.4 U
1,1-Dichloroethene	ug/kg				6.4 U

Analysis/ Analyte	Units	17-__	18-__	19-__	20-__
cis-1,2-Dichloroethene	ug/kg				6.4 U
trans-1,2-Dichloroethene	ug/kg				6.4 U
1,2-Dichloropropane	ug/kg				6.4 U
cis-1,3-Dichloropropene	ug/kg				6.4 U
trans-1,3-Dichloropropene	ug/kg				6.4 U
Ethyl Benzene	ug/kg				6.4 U
2-Hexanone	ug/kg				6.4 U
Isopropylbenzene	ug/kg				6.4 U
Methyl Acetate	ug/kg				6.4 U
Methyl tert-butyl ether	ug/kg				13 U
Methylcyclohexane	ug/kg				6.4 U
Methylene Chloride	ug/kg				6.4 U
4-Methyl-2-Pentanone	ug/kg				6.4 U
Naphthalene	ug/kg				13 U
Styrene	ug/kg				6.4 U
1,1,2,2-Tetrachloroethane	ug/kg				6.4 U
Tetrachloroethene	ug/kg				6.4 U
Toluene	ug/kg				6.4 U
1,2,3-Trichlorobenzene	ug/kg				6.4 U
1,2,4-Trichlorobenzene	ug/kg				6.4 U
1,1,1-Trichloroethane	ug/kg				6.4 U
1,1,2-Trichloroethane	ug/kg				6.4 U
Trichloroethene	ug/kg				6.4 U
Trichlorofluoromethane	ug/kg				6.4 U
1,1,2-Trichlorotrifluoroethane	ug/kg				6.4 U
Vinyl Chloride	ug/kg				6.4 U
m and/or p-Xylene	ug/kg				6.4 U
o-Xylene	ug/kg				6.4 U

Analysis/ Analyte	Units	21-FB	22-__	23-__	24-__
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg		64 U	64 U	64 U
4-Amino-2,6-dinitrotoluene	ug/kg		107 U	107 U	107 U
3,5-Dinitroaniline	ug/kg		500 U	500 U	500 U
1,3-Dinitrobenzene	ug/kg		69 U	69 U	69 U
2,4-Dinitrotoluene	ug/kg		146 U	146 U	146 U
2,6-Dinitrotoluene	ug/kg		199 U	199 U	199 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg		102 U	102 U	102 U
Nitrobenzene	ug/kg		42 U	42 U	42 U
Nitroglycerine	ug/kg		500 U	500 U	500 U
2-Nitrotoluene	ug/kg		102 U	102 U	102 U
3-Nitrotoluene	ug/kg		89 U	89 U	89 U
4-Nitrotoluene	ug/kg		162 U	162 U	162 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg		394 U	394 U	394 U
Pentaerythritoltetranitrate	ug/kg		545 U	545 U	545 U
1,3,5-Trinitrobenzene	ug/kg		92 U	92 U	92 U
2,4,6-Trinitrophenylmethylnitramine	ug/kg		134 U	134 U	134 U
2,4,6-Trinitrotoluene	ug/kg		100 U	100 U	100 U
1 Mercury in Soil or Sediment					
Mercury	mg/kg		0.028	0.027	0.078
1 Metals in Solids by ICP					
Aluminum	mg/kg		13200	10800	7210
Antimony	mg/kg		2.37 U	2 U	2.25 U
Arsenic	mg/kg		5 U	5 U	5 U
Barium	mg/kg		180	173	168
Beryllium	mg/kg		1 U	1 U	1 U
Cadmium	mg/kg		1 U	1 U	1 U
Calcium	mg/kg		7510	4610	31400
Chromium	mg/kg		14.7 J	12.9 J	18.5 J
Cobalt	mg/kg		6.52	3.06	11.6
Copper	mg/kg		14.2	12.6	29.6
Iron	mg/kg		17800	13100	15700
Lead	mg/kg		17.4	12.4	165
Magnesium	mg/kg		2880	2600	3840
Manganese	mg/kg		580	253	1000
Molybdenum	mg/kg		2 U	2 U	2 U
Nickel	mg/kg		14.8	12.4	18.3
Potassium	mg/kg		1190	862	606
Selenium	mg/kg		10 U	10 U	16.5
Silver	mg/kg		2 U	2 U	2 U
Sodium	mg/kg		85.9	104	145
Thallium	mg/kg		10 U	10 U	10 U
Vanadium	mg/kg		32.0	24.1	21.3
Zinc	mg/kg		53.2	39.1	162
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg		24 U	24 U	22 UJ

Analysis/ Analyte	Units	21-FB	22-__	23-__	24-__
Aroclor 1221	ug/kg		24 U	24 U	22 UJ
Aroclor 1232	ug/kg		24 U	24 U	22 UJ
Aroclor 1242	ug/kg		24 U	24 U	22 UJ
Aroclor 1248	ug/kg		24 U	24 U	22 UJ
Aroclor 1254	ug/kg		12 U	12 U	11 UJ
Aroclor 1260	ug/kg		12 U	12 U	11 UJ
1 Percent Solid					
Solids, percent	%	96.3	80.1	80.8	71.1
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg		0.020 U	0.020 U	0.020 U
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg		48 U	49 U	100
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	52 U	62 U	62 U	70 U
1 VOC's in Soil at Low Levels by GC/MS Closed-System Purge-and-Trap					
Acetone	ug/kg	19 U			
Benzene	ug/kg	5.4 U			
Bromodichloromethane	ug/kg	5.4 U			
Bromoform	ug/kg	5.4 U			
Bromomethane	ug/kg	5.4 U			
2-Butanone	ug/kg	5.4 U			
Carbon Disulfide	ug/kg	5.4 U			
Carbon Tetrachloride	ug/kg	5.4 U			
Chlorobenzene	ug/kg	5.4 U			
Chloroethane	ug/kg	5.4 U			
Chloroform	ug/kg	5.4 U			
Chloromethane	ug/kg	5.4 U			
Cyclohexane	ug/kg	5.4 U			
1,2-Dibromo-3-Chloropropane	ug/kg	5.4 U			
Dibromochloromethane	ug/kg	5.4 U			
1,2-Dibromoethane	ug/kg	5.4 U			
1,2-Dichlorobenzene	ug/kg	5.4 U			
1,3-Dichlorobenzene	ug/kg	5.4 U			
1,4-Dichlorobenzene	ug/kg	5.4 U			
Dichlorodifluoromethane	ug/kg	5.4 U			
1,1-Dichloroethane	ug/kg	5.4 U			
1,2-Dichloroethane	ug/kg	5.4 U			
1,1-Dichloroethene	ug/kg	5.4 U			
cis-1,2-Dichloroethene	ug/kg	5.4 U			
trans-1,2-Dichloroethene	ug/kg	5.4 U			
1,2-Dichloropropane	ug/kg	5.4 U			
cis-1,3-Dichloropropene	ug/kg	5.4 U			
trans-1,3-Dichloropropene	ug/kg	5.4 U			
Ethyl Benzene	ug/kg	5.4 U			
2-Hexanone	ug/kg	5.4 U			

Analysis/ Analyte	Units	21-FB	22-__	23-__	24-__
Isopropylbenzene	ug/kg	5.4 U			
Methyl Acetate	ug/kg	5.4 U			
Methyl tert-butyl ether	ug/kg	11 U			
Methylcyclohexane	ug/kg	6.3 U			
Methylene Chloride	ug/kg	5.4 U			
4-Methyl-2-Pentanone	ug/kg	5.4 U			
Naphthalene	ug/kg	11 U			
Styrene	ug/kg	5.4 U			
1,1,2,2-Tetrachloroethane	ug/kg	5.4 U			
Tetrachloroethene	ug/kg	5.4 U			
Toluene	ug/kg	5.4 U			
1,2,3-Trichlorobenzene	ug/kg	5.4 U			
1,2,4-Trichlorobenzene	ug/kg	5.4 U			
1,1,1-Trichloroethane	ug/kg	5.4 U			
1,1,2-Trichloroethane	ug/kg	5.4 U			
Trichloroethene	ug/kg	5.4 U			
Trichlorofluoromethane	ug/kg	5.4 U			
1,1,2-Trichlorotrifluoroethane	ug/kg	5.4 U			
Vinyl Chloride	ug/kg	5.4 U			
m and/or p-Xylene	ug/kg	5.4 U			
o-Xylene	ug/kg	5.4 U			
1 VOCs in Solid Matrices by GC/MS					
Acetone	ug/kg		5.1 U	5.0 U	8.8
Benzene	ug/kg		5.1 U	5.0 U	5.5 U
Bromodichloromethane	ug/kg		5.1 U	5.0 U	5.5 U
Bromoform	ug/kg		5.1 U	5.0 U	5.5 U
Bromomethane	ug/kg		5.1 U	5.0 U	5.5 U
2-Butanone	ug/kg		5.1 U	5.0 U	5.5 U
Carbon Disulfide	ug/kg		5.1 U	5.0 U	5.5 U
Carbon Tetrachloride	ug/kg		5.1 U	5.0 U	5.5 U
Chlorobenzene	ug/kg		5.1 U	5.0 U	5.5 U
Chloroethane	ug/kg		5.1 U	5.0 U	5.5 U
Chloroform	ug/kg		5.1 U	5.0 U	5.5 U
Chloromethane	ug/kg		5.1 U	5.0 U	5.5 U
Cyclohexane	ug/kg		5.1 U	5.0 U	5.5 U
1,2-Dibromo-3-Chloropropane	ug/kg		5.1 U	5.0 U	5.5 U
Dibromochloromethane	ug/kg		5.1 U	5.0 U	5.5 U
1,2-Dibromoethane	ug/kg		5.1 U	5.0 U	5.5 U
1,2-Dichlorobenzene	ug/kg		5.1 U	5.0 U	5.5 U
1,3-Dichlorobenzene	ug/kg		5.1 U	5.0 U	5.5 UJ
1,4-Dichlorobenzene	ug/kg		5.1 U	5.0 U	5.5 U
Dichlorodifluoromethane	ug/kg		5.1 U	5.0 U	5.5 U
1,1-Dichloroethane	ug/kg		5.1 U	5.0 U	5.5 U
1,2-Dichloroethane	ug/kg		5.1 U	5.0 U	5.5 U
1,1-Dichloroethene	ug/kg		5.1 U	5.0 U	5.5 U

Analysis/ Analyte	Units	21-FB	22-__	23-__	24-__
cis-1,2-Dichloroethene	ug/kg		5.1 U	5.0 U	5.5 U
trans-1,2-Dichloroethene	ug/kg		5.1 U	5.0 U	5.5 U
1,2-Dichloropropane	ug/kg		5.1 U	5.0 U	5.5 U
cis-1,3-Dichloropropene	ug/kg		5.1 U	5.0 U	5.5 U
trans-1,3-Dichloropropene	ug/kg		5.1 U	5.0 U	5.5 U
Ethyl Benzene	ug/kg		5.1 U	5.0 U	5.5 U
2-Hexanone	ug/kg		5.1 U	5.0 U	5.5 U
Isopropylbenzene	ug/kg		5.1 U	5.0 U	5.5 U
Methyl Acetate	ug/kg		5.1 U	5.0 U	5.5 UJ
Methyl tert-butyl ether	ug/kg		10 U	10 U	11 U
Methylcyclohexane	ug/kg		5.1 U	5.0 U	5.5 U
Methylene Chloride	ug/kg		5.1 U	5.0 U	5.5 U
4-Methyl-2-Pentanone	ug/kg		5.1 U	5.0 U	5.5 U
Naphthalene	ug/kg		10 U	10 U	11 UJ
Styrene	ug/kg		5.1 U	5.0 U	5.5 UJ
1,1,2,2-Tetrachloroethane	ug/kg		5.1 U	5.0 U	5.5 U
Tetrachloroethene	ug/kg		5.1 U	5.0 U	5.5 U
Toluene	ug/kg		5.1 U	5.0 U	5.5 U
1,2,3-Trichlorobenzene	ug/kg		5.1 U	5.0 U	5.5 UJ
1,2,4-Trichlorobenzene	ug/kg		5.1 U	5.0 U	5.5 UJ
1,1,1-Trichloroethane	ug/kg		5.1 U	5.0 U	5.5 U
1,1,2-Trichloroethane	ug/kg		5.1 U	5.0 U	5.5 U
Trichloroethene	ug/kg		5.1 U	5.0 U	5.5 U
Trichlorofluoromethane	ug/kg		5.1 U	5.0 U	5.5 U
1,1,2-Trichlorotrifluoroethane	ug/kg		5.1 U	5.0 U	5.5 U
Vinyl Chloride	ug/kg		5.1 U	5.0 U	5.5 U
m and/or p-Xylene	ug/kg		5.1 U	5.0 U	5.5 U
o-Xylene	ug/kg		5.1 U	5.0 U	5.5 U

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
1 Explosives in Soil by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/kg	64 U			
4-Amino-2,6-dinitrotoluene	ug/kg	107 U			
3,5-Dinitroaniline	ug/kg	500 U			
1,3-Dinitrobenzene	ug/kg	69 U			
2,4-Dinitrotoluene	ug/kg	146 U			
2,6-Dinitrotoluene	ug/kg	199 U			
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/kg	102 U			
Nitrobenzene	ug/kg	42 U			
Nitroglycerine	ug/kg	500 U			
2-Nitrotoluene	ug/kg	102 U			
3-Nitrotoluene	ug/kg	89 U			
4-Nitrotoluene	ug/kg	162 U			
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/kg	394 U			
Pentaerythritoltetranitrate	ug/kg	545 U			
1,3,5-Trinitrobenzene	ug/kg	92 U			
2,4,6-Trinitrophenylmethylnitramine	ug/kg	134 U			
2,4,6-Trinitrotoluene	ug/kg	100 U			
1 Mercury in Soil or Sediment					
Mercury	mg/kg	0.086			
1 Metals in Solids by ICP					
Aluminum	mg/kg	5250			
Antimony	mg/kg	2 U			
Arsenic	mg/kg	5 U			
Barium	mg/kg	96.6			
Beryllium	mg/kg	1 U			
Cadmium	mg/kg	2.32			
Calcium	mg/kg	50400			
Chromium	mg/kg	13.2 J			
Cobalt	mg/kg	6.47			
Copper	mg/kg	31.5			
Iron	mg/kg	19200			
Lead	mg/kg	51.8			
Magnesium	mg/kg	3820			
Manganese	mg/kg	450			
Molybdenum	mg/kg	2 U			
Nickel	mg/kg	13.1			
Potassium	mg/kg	496			
Selenium	mg/kg	13.0			
Silver	mg/kg	2 U			
Sodium	mg/kg	87.9			
Thallium	mg/kg	10 U			
Vanadium	mg/kg	13.9			
Zinc	mg/kg	188			
1 PCBs in Soil by GC/EC					
Aroclor 1016	ug/kg	20 UJ			

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
Aroclor 1221	ug/kg	20 UJ			
Aroclor 1232	ug/kg	20 UJ			
Aroclor 1242	ug/kg	20 UJ			
Aroclor 1248	ug/kg	20 UJ			
Aroclor 1254	ug/kg	10 UJ			
Aroclor 1260	ug/kg	10 UJ			
1 Percent Solid					
Solids, percent	%	78.0	96.6		
1 Perchlorate in Soil by IC					
Perchlorate	mg/kg	0.020 U			
1 TPH Semi-Volatile in Soil by GC/FID					
Extractable TPH	mg/kg	72			
1 TPH Volatiles in Soil by GC/MS					
Purgeable TPH	ug/kg	65 U			
1 VOCs in Solid Matrices by GC/MS					
Acetone	ug/kg	6.3	28		
Benzene	ug/kg	4.4 U	4.8 U		
Bromodichloromethane	ug/kg	4.4 U	4.8 U		
Bromoform	ug/kg	4.4 U	4.8 U		
Bromomethane	ug/kg	4.4 U	4.8 U		
2-Butanone	ug/kg	4.4 U	5.5 J		
Carbon Disulfide	ug/kg	4.4 U	4.8 U		
Carbon Tetrachloride	ug/kg	4.4 U	4.8 U		
Chlorobenzene	ug/kg	4.4 U	4.8 U		
Chloroethane	ug/kg	4.4 U	4.8 U		
Chloroform	ug/kg	4.4 U	4.8 U		
Chloromethane	ug/kg	4.4 U	4.8 U		
Cyclohexane	ug/kg	4.4 U	4.8 U		
1,2-Dibromo-3-Chloropropane	ug/kg	4.4 U	4.8 U		
Dibromochloromethane	ug/kg	4.4 U	4.8 U		
1,2-Dibromoethane	ug/kg	4.4 U	4.8 U		
1,2-Dichlorobenzene	ug/kg	4.4 U	4.8 U		
1,3-Dichlorobenzene	ug/kg	4.4 UJ	4.8 U		
1,4-Dichlorobenzene	ug/kg	4.4 U	4.8 U		
Dichlorodifluoromethane	ug/kg	4.4 U	4.8 U		
1,1-Dichloroethane	ug/kg	4.4 U	4.8 U		
1,2-Dichloroethane	ug/kg	4.4 U	4.8 U		
1,1-Dichloroethene	ug/kg	4.4 U	4.8 U		
cis-1,2-Dichloroethene	ug/kg	4.4 U	4.8 U		
trans-1,2-Dichloroethene	ug/kg	4.4 U	4.8 U		
1,2-Dichloropropane	ug/kg	4.4 U	4.8 U		
cis-1,3-Dichloropropene	ug/kg	4.4 U	4.8 U		
trans-1,3-Dichloropropene	ug/kg	4.4 U	4.8 U		
Ethyl Benzene	ug/kg	4.4 U	4.8 U		
2-Hexanone	ug/kg	4.4 U	4.8 U		

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
Isopropylbenzene	ug/kg	4.4 U	4.8 U		
Methyl Acetate	ug/kg	4.4 UJ	4.8 U		
Methyl tert-butyl ether	ug/kg	8.8 U	9.5 U		
Methylcyclohexane	ug/kg	4.4 U	4.8 U		
Methylene Chloride	ug/kg	4.4 U	4.8 U		
4-Methyl-2-Pentanone	ug/kg	4.4 U	4.8 U		
Naphthalene	ug/kg	8.8 UJ	9.5 U		
Styrene	ug/kg	4.4 UJ	4.8 U		
1,1,2,2-Tetrachloroethane	ug/kg	4.4 U	4.8 U		
Tetrachloroethene	ug/kg	4.4 U	4.8 U		
Toluene	ug/kg	4.4 U	4.8 U		
1,2,3-Trichlorobenzene	ug/kg	4.4 UJ	4.8 U		
1,2,4-Trichlorobenzene	ug/kg	4.4 UJ	4.8 U		
1,1,1-Trichloroethane	ug/kg	4.4 U	4.8 U		
1,1,2-Trichloroethane	ug/kg	4.4 U	4.8 U		
Trichloroethene	ug/kg	4.4 U	4.8 U		
Trichlorofluoromethane	ug/kg	4.4 U	4.8 U		
1,1,2-Trichlorotrifluoroethane	ug/kg	4.4 U	4.8 U		
Vinyl Chloride	ug/kg	4.4 U	4.8 U		
m and/or p-Xylene	ug/kg	4.4 U	4.8 U		
o-Xylene	ug/kg	4.4 U	4.8 U		
1 Explosives in Water by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/L				0.49 U
4-Amino-2,6-dinitrotoluene	ug/L				0.48 U
3,5-Dinitroaniline	ug/L				0.65 U
1,3-Dinitrobenzene	ug/L				0.42 U
2,4-Dinitrotoluene	ug/L				0.48 U
2,6-Dinitrotoluene	ug/L				0.53 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/L				0.45 U
Nitrobenzene	ug/L				1.2
Nitroglycerine	ug/L				0.65 U
2-Nitrotoluene	ug/L				0.5 U
3-Nitrotoluene	ug/L				0.41 U
4-Nitrotoluene	ug/L				0.52 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/L				0.47 UJ
Pentaerythritoltetranitrate	ug/L				1.2 U
1,3,5-Trinitrobenzene	ug/L				0.53 U
2,4,6-Trinitrophenylmethylnitramine	ug/L				0.48 U
2,4,6-Trinitrotoluene	ug/L				0.61 U
1 Mercury in Water					
Mercury	ug/L				0.20 U
1 Metals in Water by ICP					
Aluminum	ug/L				50 U
Antimony	ug/L				50 U
Arsenic	ug/L				25 U

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
Barium	ug/L				5 U
Beryllium	ug/L				3 U
Cadmium	ug/L				3 U
Calcium	mg/L				2 U
Chromium	ug/L				15 U
Cobalt	ug/L				10 U
Copper	ug/L				5 U
Iron	ug/L				50 U
Lead	ug/L				50 U
Magnesium	mg/L				2 U
Manganese	ug/L				5 U
Molybdenum	ug/L				15 U
Nickel	ug/L				20 U
Potassium	mg/L				2 U
Selenium	ug/L				50 UJ
Silver	ug/L				25 U
Sodium	mg/L				5 U
Thallium	ug/L				50 U
Titanium	ug/L				20 U
Vanadium	ug/L				10 U
Zinc	ug/L				25 U
1 Perchlorate in Water by IC					
Perchlorate	ug/L				2.00 U
1 Pesticides in Water by GC/EC					
Aroclor 1016	ug/L				1 U
Aroclor 1221	ug/L				1 U
Aroclor 1232	ug/L				1 U
Aroclor 1242	ug/L				0.8 U
Aroclor 1248	ug/L				0.8 U
Aroclor 1254	ug/L				0.6 U
Aroclor 1260	ug/L				0.4 U
1 TPH Semi-volatile in Water by GC/FID					
Extractable TPH	mg/L				0.10 U
1 TPH Volatiles in water by GC/MS					
Purgeable TPH	ug/L			50 U	50 U
1 VOCs in Drinking Water by GC/MS					
Acetone	ug/L				10 U
Benzene	ug/L				0.50 U
Bromobenzene	ug/L				0.50 U
Bromochloromethane	ug/L				0.69
Bromodichloromethane	ug/L				0.50 U
Bromoform	ug/L				0.50 U
Bromomethane	ug/L				1.0 U
2-Butanone	ug/L				5.0 U
n-Butylbenzene	ug/L				0.50 U

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
sec-Butylbenzene	ug/L				0.50 U
tert-Butylbenzene	ug/L				0.50 U
Carbon Disulfide	ug/L				0.50 U
Carbon Tetrachloride	ug/L				0.50 U
Chlorobenzene	ug/L				0.50 U
Chloroethane	ug/L				0.50 U
Chloroform	ug/L				1.2
Chloromethane	ug/L				1.0 UJ
2-Chlorotoluene	ug/L				0.50 U
4-Chlorotoluene	ug/L				0.50 U
1,2-Dibromo-3-Chloropropane	ug/L				1.0 UJ
Dibromochloromethane	ug/L				0.50 U
1,2-Dibromoethane	ug/L				0.50 U
Dibromomethane	ug/L				0.50 U
1,2-Dichlorobenzene	ug/L				0.50 U
1,3-Dichlorobenzene	ug/L				0.50 U
1,4-Dichlorobenzene	ug/L				0.50 U
Dichlorodifluoromethane	ug/L				0.50 U
1,1-Dichloroethane	ug/L				0.50 U
1,2-Dichloroethane	ug/L				0.50 U
1,1-Dichloroethene	ug/L				0.50 U
cis-1,2-Dichloroethene	ug/L				0.50 U
trans-1,2-Dichloroethene	ug/L				0.50 U
1,2-Dichloropropane	ug/L				0.50 U
1,3-Dichloropropane	ug/L				1.0 U
2,2-Dichloropropane	ug/L				0.50 U
1,1-Dichloropropene	ug/L				0.50 U
cis-1,3-Dichloropropene	ug/L				0.50 U
trans-1,3-Dichloropropene	ug/L				0.50 U
Ethyl Benzene	ug/L				0.50 U
Hexachlorobutadiene	ug/L				0.50 U
2-Hexanone	ug/L				5.0 U
Isopropylbenzene	ug/L				0.50 U
p-Isopropyltoluene	ug/L				0.50 U
Methylene Chloride	ug/L				1.6
4-Methyl-2-Pentanone	ug/L				5.0 U
Naphthalene	ug/L				1.0 U
n-Propylbenzene	ug/L				0.50 U
Styrene	ug/L				0.50 U
1,1,1,2-Tetrachloroethane	ug/L				0.50 U
1,1,2,2-Tetrachloroethane	ug/L				1.0 U
Tetrachloroethene	ug/L				0.50 U
Toluene	ug/L				0.50 U
1,2,3-Trichlorobenzene	ug/L				0.50 U
1,2,4-Trichlorobenzene	ug/L				0.50 U

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
1,1,1-Trichloroethane	ug/L				0.50 U
1,1,2-Trichloroethane	ug/L				0.50 U
Trichloroethene	ug/L				0.50 U
Trichlorofluoromethane	ug/L				1.0 U
1,2,3-Trichloropropane	ug/L				0.50 U
1,2,4-Trimethylbenzene	ug/L				0.50 U
1,3,5-Trimethylbenzene	ug/L				0.50 U
Vinyl Chloride	ug/L				0.50 U
m and/or p-Xylene	ug/L				0.50 U
o-Xylene	ug/L				0.50 U
1 VOCs in Water by GC/MS for Low Detection Limits					
Acetone	ug/L			5.0 U	
Benzene	ug/L			1.0 U	
Bromodichloromethane	ug/L			1.0 U	
Bromoform	ug/L			1.0 U	
Bromomethane	ug/L			1.0 U	
2-Butanone	ug/L			5.0 U	
Carbon Disulfide	ug/L			1.0 U	
Carbon Tetrachloride	ug/L			1.0 U	
Chlorobenzene	ug/L			1.0 U	
Chloroethane	ug/L			1.0 U	
Chloroform	ug/L			1.0 U	
Chloromethane	ug/L			1.0 U	
Cyclohexane	ug/L			1.0 U	
1,2-Dibromo-3-Chloropropane	ug/L			5.0 U	
Dibromochloromethane	ug/L			1.0 U	
1,2-Dibromoethane	ug/L			1.0 U	
1,2-Dichlorobenzene	ug/L			1.0 U	
1,3-Dichlorobenzene	ug/L			1.0 U	
1,4-Dichlorobenzene	ug/L			1.0 U	
Dichlorodifluoromethane	ug/L			1.0 U	
1,1-Dichloroethane	ug/L			1.0 U	
1,2-Dichloroethane	ug/L			1.0 U	
1,1-Dichloroethene	ug/L			1.0 U	
cis-1,2-Dichloroethene	ug/L			1.0 U	
trans-1,2-Dichloroethene	ug/L			1.0 U	
1,2-Dichloropropane	ug/L			1.0 U	
cis-1,3-Dichloropropene	ug/L			1.0 U	
trans-1,3-Dichloropropene	ug/L			1.0 U	
Ethyl Benzene	ug/L			1.0 U	
2-Hexanone	ug/L			2.0 U	
Isopropylbenzene	ug/L			1.0 U	
Methyl Acetate	ug/L			5.0 U	
Methyl tert-butyl ether	ug/L			1.0 U	
Methylcyclohexane	ug/L			1.0 U	

Analysis/ Analyte	Units	24-FD	27-FB	107-FB	207-FB
Methylene Chloride	ug/L			1.0 U	
4-Methyl-2-Pentanone	ug/L			1.0 U	
Naphthalene	ug/L			2.0 U	
Styrene	ug/L			1.0 U	
1,1,2,2-Tetrachloroethane	ug/L			5.0 U	
Tetrachloroethene	ug/L			1.0 U	
Toluene	ug/L			1.0 U	
1,2,3-Trichlorobenzene	ug/L			1.0 U	
1,2,4-Trichlorobenzene	ug/L			1.0 U	
1,1,1-Trichloroethane	ug/L			1.0 U	
1,1,2-Trichloroethane	ug/L			1.0 U	
Trichloroethene	ug/L			1.0 U	
Trichlorofluoromethane	ug/L			1.0 U	
1,1,2-Trichlorotrifluoroethane	ug/L			1.0 U	
Vinyl Chloride	ug/L			1.0 U	
m and/or p-Xylene	ug/L			1.0 U	
o-Xylene	ug/L			1.0 U	

Analysis/ Analyte	Units	208-FB	301-__	301-FD	303-__
1 Explosives in Water by GC/ECD					
2-Amino-4,6-dinitrotoluene	ug/L		0.49 U	0.49 U	0.49 U
4-Amino-2,6-dinitrotoluene	ug/L		0.48 U	0.48 U	0.48 U
3,5-Dinitroaniline	ug/L		0.65 U	0.65 U	0.65 U
1,3-Dinitrobenzene	ug/L		0.42 U	0.42 U	0.42 U
2,4-Dinitrotoluene	ug/L		0.48 U	0.48 U	0.48 U
2,6-Dinitrotoluene	ug/L		0.53 U	0.53 U	0.53 U
Hexahydro-1,3,5-trinitro-1,3,5-triazine	ug/L		0.45 U	0.45 U	0.45 U
Nitrobenzene	ug/L		0.26 U	0.26 U	0.26 U
Nitroglycerine	ug/L		0.65 U	0.65 U	0.65 U
2-Nitrotoluene	ug/L		0.5 U	0.5 U	0.5 U
3-Nitrotoluene	ug/L		0.41 U	0.41 U	0.41 U
4-Nitrotoluene	ug/L		0.52 U	0.52 U	0.52 U
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	ug/L		0.47 UJ	0.47 UJ	0.47 UJ
Pentaerythritoltetranitrate	ug/L		1.2 U	1.2 U	1.2 U
1,3,5-Trinitrobenzene	ug/L		0.53 U	0.53 U	0.53 U
2,4,6-Trinitrophenylmethylnitramine	ug/L		0.48 U	0.48 U	0.48 U
2,4,6-Trinitrotoluene	ug/L		0.61 U	0.61 U	0.61 U
1 Mercury in Water					
Mercury	ug/L		0.20 U	0.20 U	0.20 U
1 Metals in Water by ICP					
Aluminum	ug/L		156	160	7410
Antimony	ug/L		50 U	50 U	50 U
Arsenic	ug/L		25 U	25 U	25 U
Barium	ug/L		178	175	299
Beryllium	ug/L		3 U	3 U	3 U
Cadmium	ug/L		3 U	3 U	3 U
Calcium	mg/L		96.1	94.3	86.7
Chromium	ug/L		15 U	15 U	15 U
Cobalt	ug/L		10 U	10 U	10 U
Copper	ug/L		5 U	5 U	5.25
Iron	ug/L		296	292	7410
Lead	ug/L		50 U	50 U	50 U
Magnesium	mg/L		31.7	31.1	28.6
Manganese	ug/L		90.3	88.8	649
Molybdenum	ug/L		15 U	15 U	15 U
Nickel	ug/L		20 U	20 U	20 U
Potassium	mg/L		2 U	2 U	2 U
Selenium	ug/L		50 UJ	50 UJ	50 UJ
Silver	ug/L		25 U	25 U	25 U
Sodium	mg/L		17.1	16.7	15.1
Thallium	ug/L		50 U	50 U	50 U
Titanium	ug/L		20 U	20 U	107
Vanadium	ug/L		10 U	10 U	20.6
Zinc	ug/L		25 U	25 U	30.5

Analysis/ Analyte	Units	208-FB	301-__	301-FD	303-__
1 Perchlorate in Water by IC					
Perchlorate	ug/L		2.00 U	2.00 U	2.00 U
1 Pesticides in Water by GC/EC					
Aroclor 1016	ug/L		1 U	1 U	1 U
Aroclor 1221	ug/L		1 U	1 U	1 U
Aroclor 1232	ug/L		1 U	1 U	1 U
Aroclor 1242	ug/L		0.8 U	0.8 U	0.8 U
Aroclor 1248	ug/L		0.8 U	0.8 U	0.8 U
Aroclor 1254	ug/L		0.6 U	0.6 U	0.6 U
Aroclor 1260	ug/L		0.4 U	0.4 U	0.4 U
1 TPH Semi-volatile in Water by GC/FID					
Extractable TPH	mg/L		0.12	0.11	0.12
1 TPH Volatiles in water by GC/MS					
Purgeable TPH	ug/L	50 U	50 U	50 U	50 U
1 VOCs in Drinking Water by GC/MS					
Acetone	ug/L	10 U			
Benzene	ug/L	0.50 U			
Bromobenzene	ug/L	0.50 U			
Bromochloromethane	ug/L	0.50 U			
Bromodichloromethane	ug/L	0.50 U			
Bromoform	ug/L	0.50 U			
Bromomethane	ug/L	1.0 U			
2-Butanone	ug/L	5.0 U			
n-Butylbenzene	ug/L	0.50 U			
sec-Butylbenzene	ug/L	0.50 U			
tert-Butylbenzene	ug/L	0.50 U			
Carbon Disulfide	ug/L	0.50 U			
Carbon Tetrachloride	ug/L	0.50 U			
Chlorobenzene	ug/L	0.50 U			
Chloroethane	ug/L	0.50 U			
Chloroform	ug/L	0.50 U			
Chloromethane	ug/L	1.0 UJ			
2-Chlorotoluene	ug/L	0.50 U			
4-Chlorotoluene	ug/L	0.50 U			
1,2-Dibromo-3-Chloropropane	ug/L	1.0 UJ			
Dibromochloromethane	ug/L	0.50 U			
1,2-Dibromoethane	ug/L	0.50 U			
Dibromomethane	ug/L	0.50 U			
1,2-Dichlorobenzene	ug/L	0.50 U			
1,3-Dichlorobenzene	ug/L	0.50 U			
1,4-Dichlorobenzene	ug/L	0.50 U			
Dichlorodifluoromethane	ug/L	0.50 U			
1,1-Dichloroethane	ug/L	0.50 U			
1,2-Dichloroethane	ug/L	0.50 U			
1,1-Dichloroethene	ug/L	0.50 U			
cis-1,2-Dichloroethene	ug/L	0.50 U			

Analysis/ Analyte	Units	208-FB	301-__	301-FD	303-__
trans-1,2-Dichloroethene	ug/L	0.50 U			
1,2-Dichloropropane	ug/L	0.50 U			
1,3-Dichloropropane	ug/L	1.0 U			
2,2-Dichloropropane	ug/L	0.50 U			
1,1-Dichloropropene	ug/L	0.50 U			
cis-1,3-Dichloropropene	ug/L	0.50 U			
trans-1,3-Dichloropropene	ug/L	0.50 U			
Ethyl Benzene	ug/L	0.50 U			
Hexachlorobutadiene	ug/L	0.50 U			
2-Hexanone	ug/L	5.0 U			
Isopropylbenzene	ug/L	0.50 U			
p-Isopropyltoluene	ug/L	0.50 U			
Methylene Chloride	ug/L	0.50 U			
4-Methyl-2-Pentanone	ug/L	5.0 U			
Naphthalene	ug/L	1.0 U			
n-Propylbenzene	ug/L	0.50 U			
Styrene	ug/L	0.50 U			
1,1,1,2-Tetrachloroethane	ug/L	0.50 U			
1,1,2,2-Tetrachloroethane	ug/L	1.0 U			
Tetrachloroethene	ug/L	0.50 U			
Toluene	ug/L	0.50 U			
1,2,3-Trichlorobenzene	ug/L	0.50 U			
1,2,4-Trichlorobenzene	ug/L	0.50 U			
1,1,1-Trichloroethane	ug/L	0.50 U			
1,1,2-Trichloroethane	ug/L	0.50 U			
Trichloroethene	ug/L	0.50 U			
Trichlorofluoromethane	ug/L	1.0 U			
1,2,3-Trichloropropane	ug/L	0.50 U			
1,2,4-Trimethylbenzene	ug/L	0.50 U			
1,3,5-Trimethylbenzene	ug/L	0.50 U			
Vinyl Chloride	ug/L	0.50 U			
m and/or p-Xylene	ug/L	0.50 U			
o-Xylene	ug/L	0.50 U			
1 VOCs in Water by GC/MS for Low Detection Limits					
Acetone	ug/L		5.0 U	5.0 U	5.0 U
Benzene	ug/L		1.0 U	1.0 U	1.0 U
Bromodichloromethane	ug/L		1.0 U	1.0 U	1.0 U
Bromoform	ug/L		1.0 U	1.0 U	1.0 U
Bromomethane	ug/L		1.0 U	1.0 U	1.0 U
2-Butanone	ug/L		5.0 U	5.0 U	5.0 U
Carbon Disulfide	ug/L		1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	ug/L		1.0 U	1.0 U	1.0 U
Chlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
Chloroethane	ug/L		1.0 U	1.0 U	1.0 U
Chloroform	ug/L		1.0 U	1.0 U	1.0 U

Analysis/ Analyte	Units	208-FB	301-__	301-FD	303-__
Chloromethane	ug/L		1.0 U	1.0 U	1.0 U
Cyclohexane	ug/L		1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-Chloropropane	ug/L		5.0 U	5.0 U	5.0 U
Dibromochloromethane	ug/L		1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	ug/L		1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	ug/L		1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	ug/L		1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	ug/L		1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L		1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L		1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	ug/L		1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	ug/L		1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L		1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L		1.0 U	1.0 U	1.0 U
Ethyl Benzene	ug/L		1.0 U	1.0 U	1.0 U
2-Hexanone	ug/L		2.0 U	2.0 U	2.0 U
Isopropylbenzene	ug/L		1.0 U	1.0 U	1.0 U
Methyl Acetate	ug/L		5.0 U	5.0 U	5.0 U
Methyl tert-butyl ether	ug/L		1.0 U	1.0 U	1.0 U
Methylcyclohexane	ug/L		1.0 U	1.0 U	1.0 U
Methylene Chloride	ug/L		1.0 U	1.0 U	1.0 U
4-Methyl-2-Pentanone	ug/L		1.0 U	1.0 U	1.0 U
Naphthalene	ug/L		2.0 U	2.0 U	2.0 U
Styrene	ug/L		1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	ug/L		5.0 U	5.0 U	5.0 U
Tetrachloroethene	ug/L		1.0 U	1.0 U	1.0 U
Toluene	ug/L		1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	ug/L		1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	ug/L		1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L		1.0 U	1.0 U	1.0 U
Trichloroethene	ug/L		1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	ug/L		1.0 U	1.0 U	1.0 U
1,1,2-Trichlorotrifluoroethane	ug/L		1.0 U	1.0 U	1.0 U
Vinyl Chloride	ug/L		1.0 U	1.0 U	1.0 U
m and/or p-Xylene	ug/L		1.0 U	1.0 U	1.0 U
o-Xylene	ug/L		1.0 U	1.0 U	1.0 U

APPENDIX F

REGISTERED WELLS WITHIN 4-MILES OF OTTUMWA (EX) NAVAL AIR STATION

Registered Wells Within 4-Miles of Ottumwa (ex) NAS Site

Township and Range Location	Section	Unknown, Private, Municipal	Irrigation or Livestock	Mineral Expl.	Depth to Bedrock	Total Depth (Feet)	Static Water Level (Feet)
Township 73 North, Range 14 West							
	1	0					
	2	1			135	168	
	3	0					
	4	1			72	190	80
	5	0					
	6	1		1	30	114-258	55
	7	0					
	8	1			35	137	87
	9	1			25	297	124
	10	2			40	52-333	15-110
	11	0					
	12	0					
	13	0					
	14	0					
	15	0					
	16	0					
	17	0					
	18	1		1	40	140-210	140
	19	0					
	20	1			15	150	70
	21	0					
	22	0					
	23	0					
	24	1			42	209	22
	25	0	1			339	
	26	1				34	
	27	0					
	28	0					
	29	0					
	30	0					
	31	0					
	32	0					
	33	1			70	181	67
	34	1			40	208	130
	35	4				30-39	30
	36	3				34-134	67

Registered Wells Within 4-Miles of Ottumwa (ex) NAS Site

Township and Range Location	Section	Unknown, Private, Municipal	Irrigation or Livestock	Mineral Expl.	Depth to Bedrock	Total Depth (Feet)	Static Water Level (Feet)
Township 73 North, Range 13 West							
	5	1			67	155	82
	6	0					
	7	0		1		222	
	8	0					
	9	0					
	16	0					
	17	0					
	18	0					
	19	0					
	20	3			86-175	163-400	55-80
	21	1			15	168	18
	28	1			47	230	65
	29	0					
	30	1				278	
	31	2		1		39-239	23
	32	0					
	33	0		2	40-65	200-1120	
Township 72 North, Range 13 West							
	5	2			45	34-51	
	6	2			29-33		
	7	6			33-103	100-362	57-350
	8	3				38-43	5.5-8
Township 72 North, Range 14 West							
	1	0					
	2	4			10-25	21-293	15-125
	3	2			20-24	106-155	18-100
	4	2			44-61	130-175	42-75
	5	2			25-50	165-200	35-90
	6	1			95	183	106.5
	8	1			13	16	
	9	0					
	10	2			46-70	155-200	13-29
	11	2			30-40	90-185	10-100
	12	0					
	13	0					
	14	1			27		5
	15	1	1		20	21-112	5-27
Totals		60	2	6	13-175	16-1120	5-350

Notes:

Reference: Iowa Department of Natural Resources, Geological Survey
On-line address: http://gsbdata.igsb.uiowa.edu/geosam/. Accessed July 11, 2006