State of Ohio
Environmental Protection Agency

Division of Emergency and Remedial Response

Kaiser Aluminum Fabricated Products, LLC Site Assessment Report

June 2007

Governor Ted Strickland
Director Chris Korleski

OHIO ENVIRONMENTAL PROTECTION AGENCY (OHIO EPA)
DIVISION OF EMERGENCY & REMEDIAL RESPONSE (DERR)

SITE ASSESSMENT REPORT

KAISER ALUMINUM FABRICATED PRODUCTS, LLC
LICKING COUNTY
DERR ID # 145-000435-003
U.S. EPA ID # OHD004298089

Prepared by: Raymond R. Moreno Date: 6/29/07

Raymond R. Moreno

Site Coordinator

Approved by: Kenneth Schultz Date: 6/21/07

Kenneth Schultz

CDO Supervisor

Approved by: Deborah Strayton Date: 6/29/07

Deborah Strayton

CDO Manager

EXECUTIVE SUMMARY

The Ohio EPA, Division of Emergency and Remedial Response, Central District Office (DERR, CDO) conducted a state site assessment of the Kaiser Aluminum Fabricated Products, LLC (Kaiser) facility in Heath, Licking County, Ohio. The site assessment included a field investigation in which soil, ground water, surface water and sediment samples were collected and submitted for laboratory analysis. The field investigation, conducted during October and November 2005, focused on a former landfill/disposal area that accepted industrial wastes and debris generated at the site from approximately 1949 to 1979. The landfill/disposal area is located at the northeast corner of the property along the banks of Ramp Creek, a tributary of the South Fork of the Licking River. The landfill/disposal area contained a former two cell oil disposal lagoon where, prior to 1970, oil was reportedly disposed of and periodically burned off according to Ohio EPA files. The landfill/disposal area also includes a ditch along its west side that slopes toward Ramp Creek. In addition to the former landfill/disposal area, overall site ground water quality at the site was assessed.

Ohio EPA conducted a U.S. EPA preliminary assessment (PA) at the site in 1984 and a state-lead revised PA in 1993. Based on the recommendations of the 1993 PA, Ohio EPA conducted a field investigation at the site in 1994 that consisted of collecting relatively shallow soil samples (collected by hand auger) at various areas of potential concern around the site and sediment samples from Ramp Creek. No ground water or surface water samples were collected during the 1994 field investigation.

Shallow soil samples collected around the vicinity of the former landfill/disposal area in 1994 contained detections of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, target analyte list (TAL) metals and polychlorinated biphenyls (PCBs). Sediment samples contained low concentrations of VOCs and metals.

Soil samples collected in the 2005 sampling event contained detections of VOCs, SVOCs, PCBs, TAL metals, and total petroleum hydrocarbons (TPH). Trichloroethene (TCE), vinyl chloride, benzo(a)pyrene (BaP), PCBs, and several metals were detected in soil in the vicinity of the former landfill/disposal area at concentrations above U.S. EPA Region 9 preliminary remediation goals (PRGs) for residential direct contact. TPH was detected in exceedance of Ohio Fire Marshal, Bureau of Underground Storage Tank Regulation (BUSTR) regulatory levels for petroleum in Class 2 soils.

Ground water contamination related to the disposal of wastes on site was detected in the vicinity of the former landfill/disposal area. Chlorinated solvents, cis-1, 2-dichloroethene (cis-1, 2-DCE) and vinyl chloride, were detected above U.S. EPA primary maximum contaminant levels (MCLs) for drinking water. Several TAL metals were also detected at concentrations above their respective MCLs or PRGs for tap water, however the ground water samples were turbid; therefore metals concentrations may be biased high. Based on site topography and flow direction data from adjacent sites, ground water flow direction is anticipated to be to the north/northeast discharging to Ramp Creek.

Ground water samples were also collected from two of Kaiser's on-site process water supply wells, which are used to supply water for production purposes and are completed in a deeper aquifer. Samples from the process wells yielded detections of several metals including arsenic above its MCL. No other analytes were detected in the process wells.

Surface water samples collected from Ramp Creek yielded detections of VOCs and metals but did not exceed state surface water criteria for these analytes. One surface water sampling location yielded detections of cis-1, 2-DCE, which was also detected in ground water at the site. Benzene and other petroleum compounds detected in surface water samples may originate from an off-site petroleum plume located on the opposite side of Ramp Creek emanating from the former Pure Oil site (aka Ramp Creek, DERR Project ID # 145-000654) located northwest of the site.

Sediment samples yielded low concentrations of VOCs, SVOCs, metals, TPH and PCBs. Petroleum-related VOCs and SVOCs may, in part, be due to off-site sources and metals may be naturally-occurring. Non-petroleum VOCs and PCBs may be site-related.

The landfill/disposal area does not appear to have an adequate cap. Demolition debris was observed protruding through the ground surface in one area during the 2005 field investigation. Erosion of the landfill/disposal area by Ramp Creek appears to have occurred in the past. Photographs of the stream banks by Ohio EPA personnel in 1994 documented active erosion with exposed wire, debris and granular material present in the eroding banks. Kaiser graded and armored the stream banks with rip rap in 1995.

There is potential for transport of contaminated soil/sediment, and surface water via the ditch on the west side of the landfill/disposal area to Ramp Creek. Buried utilities are also present near the south end of the landfill/disposal and ditch areas and may be in contact with waste material, contaminated soil or ground water. Excavation to perform maintenance of the utilities may result in exposure to and improper disposal of contaminated materials.

Based on the results and conclusions of this site assessment, Ohio EPA believes that additional investigation at the site particularly in the vicinity of the former landfill/disposal area and adjacent ditch under an authorizing/enforcement action is warranted. Ohio EPA recommends referral of the site to the DERR remedial response program. Additionally, PCBs, which were detected at the site, may be federally regulated under the Toxic Substances Control Act (TSCA) depending on the time of release/disposal and concentration.

1.0. INTRODUCTION

Ohio EPA conducted this state site assessment for the Kaiser site in Heath, Ohio to provide an update on site conditions since the last site assessment and field investigation were conducted in 1993 and 1994, respectively. Since that time, much of the facility acreage has been sold and commercial and residential development has been occurring around the site boundaries.

This site assessment included a field investigation conducted during October and November 2005. The field investigation focused on a former landfill/disposal area in the northeast corner of the site as well as overall ground water quality at the site perimeter in presumed downgradient locations. Soil and ground water samples were collected from the site. Surface water samples and sediment samples were collected from Ramp Creek. The field investigation was used as a screening event to determine if further investigation may be warranted at the site. The methods, results, conclusions and site recommendations are presented in this report.

2.0. BACKGROUND

Site Name: Kaiser Aluminum Fabricated Products, LLC.

Alias: Formerly, Kaiser Aluminum and Chemical Corporation

DERR I.D. No.: 145-000435-003

U.S. EPA I.D. No.: OHD004298089

District: Central District

County: Licking

Site Address: 600 Kaiser Drive, Heath Ohio 43056

Directions to Site: From Columbus, take Interstate Route 70 (I-70) east to State Route 79 (SR 79) and exit on SR 79 North. Continue north on SR 79 approximately 5.5 miles to Kaiser Drive. Turn left (west) on Kaiser Drive and proceed approximately 0.25 miles and turn right into plant entrance.

Latitude: N 40° 01' 07"

Longitude: W 82° 27' 30"

2.1. Map(s) Attached (List): Figure 1 - Site Location Map, Figure 2 - Site Features Map, Figure 3 - 2005 Sample Locations

2.2. Site Description

The Kaiser manufacturing facility is located at 600 Kaiser Drive in Heath, Ohio. The site is located west of State Route 79 and south of Irving Wick Drive. The northern property line of the site is located along Ramp Creek, a tributary of the South Fork of the Licking River. The site consists of the main manufacturing building, several support buildings, an electrical substation, a former boiler plant, a former wastewater treatment plant, and surrounding land that occupies approximately 142 acres according to a recent search of the Licking County Auditor website. The 1993 PA lists Kaiser's acreage at approximately 466 acres at that time. Much of the acreage has been sold off in recent years including approximately 252 acres south and west of the facility, which was sold to the Heath Newark Licking County Port Authority (Port Authority) in 2002 for the Central Ohio Aerospace and Technical Center (COATC), a newly developing industrial park.

A former landfill and waste disposal area occupies approximately 15 acres in the northeast corner of the site and was last used in approximately 1979. The landfill/disposal area also included a two cell oil lagoon that was used for the disposal of oil prior to 1970 according to the 1993 PA. This area was the primary focus of the 2005 field investigation.

2.3. Regulatory Information

The facility is a RCRA large quantity generator with designated on-site accumulation areas. According to their 2005 annual report submitted to the Ohio EPA Division of Hazardous Waste Management (DHWM), wastes generated include 2833 gallons of spent sodium hydroxide solution (EPA waste code D002, D008), 55 gallons of waste paint and related materials (D001, D035, F003, F005), 2284 gallons of spent mineral spirits (D001), and 91,520 pounds of hazardous waste solids NOS (lead furnace lining brick).

A March 2003 inspection by Ohio EPA DHWM reported similar quantities of materials with the above waste codes along with approximately 7000 gallons a month of oil and soluble oil/water mixture. The 2003 inspection noted four minor violations, which were corrected.

The 1993 PA noted that Kaiser generated waste codes D001, including mineral spirits and Stoddard Solvent; D002, including sulfuric acid, nitric acid, sodium hydroxide and caustic water; and F002, including Hexcel (contains methylene chloride) and 1,1,1 trichloroethane.

Ohio EPA, as authorized by U.S. EPA, conducted a PCB inspection on October 29, 1986 to determine compliance with TSCA regulations. The results of the inspection were documented in a report titled *Report on Inspection to Determine Compliance with the PCB Disposal and Marking Regulations*. The report found that Kaiser was not in compliance with all applicable TSCA regulations. The report noted a spill from an

induction furnace transformer and PCB contamination in a subsurface vault beneath the main electrical substation as well as marking and record keeping deficiencies. Kaiser entered into a consent agreement and final order with U.S. EPA for TSCA violations on June 7, 1988 and was assessed a civil penalty of $1700. The report also stated that remediation consisting of removing the vault and surrounding soils was to be completed in March 1987.

Permits held by the facility include a National Pollution Discharge Elimination System (NPDES) general storm water permit and a Title V air permit.

A search of DERR's spill database indicated that 30 spills have occurred at the facility between January 1, 1978 and March 28, 2007.

An asbestos abatement was conducted in the former administration building (on property sold to COATC) in 2002. During the abatement activities, the building was destroyed by fire and the building demolition debris was disposed of as asbestos-containing debris.

Past waste management methods, units and locations include:

- Former waste disposal area (landfill and lagoons) located northeast of facility accepted industrial and demolition wastes. The 1993 PA noted that Kaiser formerly disposed of up to 60,000 gallons of oil per month in a two cell lagoon also located in this area and that the oil was periodically burned off. The PA also stated that this practice was discontinued before 1970. According to the 1993 PA, waste disposal in the former landfill area was discontinued in 1979.

- Former drum storage area located on east side of facility. This area, consisting of a concrete pad and berm, is no longer used for drum storage.

- Former construction and demolition debris landfill located west of facility on property recently sold to Port Authority as part of the COATC.

- Former wastewater treatment plant (all wastewater is now discharged to the city of Heath municipal sanitary sewer as of July 15, 2005).

2.4. Site History

The facility was constructed in approximately 1942 by Alcoa and was operated by the Defense Plant Corporation of the Government Services Administration until approximately 1948 when ownership was transferred to Permanente Metals, the forerunner of Kaiser. Kaiser operates the facility for the casting, extrusion and fabrication of aluminum products. According to plant personnel, the facility currently employs approximately 220 people, down from approximately 2000 in the 1950s and 60s. Kaiser Aluminum Corporation and its subsidiary Kaiser Aluminum and Chemical Corporation entered bankruptcy in 2002. Kaiser emerged from bankruptcy in 2006 and

the Heath facility became part of Kaiser Aluminum Fabricated Products, LLC, a division of Kaiser Aluminum Corporation.

According to the 1993 PA, the Kaiser site was comprised of approximately 466 acres at that time. Much of the acreage since that time has been sold off. Acreage to the east of the site has been sold and developed as a church and retirement community. Approximately 252 acres of the western and southwestern portions of the site were sold to the Port Authority in 2002 to be incorporated into the COATC, a newly developing industrial park. The COATC acreage includes a closed construction and demolition debris landfill and former fill areas. The remainder of the site includes the manufacturing facility, which is still operated by Kaiser. Figures 1 and 2 display the site location and site features, respectively.

2.5 Redevelopment Activities

As discussed in Section 2.4, Site History, much of Kaiser's acreage has been sold in recent years. The remainder of the site, approximately 142 acres, is owned and operated by Kaiser as a manufacturing facility.

2.6. Previous Investigations

In July 1984, Ohio EPA completed a U.S. EPA PA of the Kaiser site. The PA noted that Kaiser filed a RCRA notification for the site on August 18, 1980 and generated hazardous wastes on site in containers and stored them for less than 90 days. The PA also noted that Kaiser filed a Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)103(c) form on June 9, 1981.

The 1984 PA noted that Kaiser disposed of an unknown quantity of hazardous waste and inert construction material on site and disposed of construction debris, acids and bases in an on-site three acre disposal site from 1949 to 1979. The report also noted a proposed 40 acre on-site landfill to be used only for the disposal of demolition debris and inert materials.

At the time of the 1984 PA, no water supply complaints or problems in the surrounding area had been raised to Ohio EPA. The site was ranked as a low priority site and did not appear at the time to be a candidate for inclusion on the federal National Priority List (NPL) or for state enforcement.

During Ohio EPA's October 1986 PCB inspection, samples were collected from six locations around the plant. According to the inspection report, a sample collected from residue near the opening of a subsurface vault at Kaiser's main electrical substation contained PCBs at a concentration of 18,000 mg/kg. A split of the vault sample collected by Kaiser yielded a detection result of 60,000 mg/kg. The inspection report stated that Kaiser planned to remove the vault and surrounding soil in March 1987 and collect verification samples in the soil to ensure that all the contamination was removed. Ohio

EPA files contain results from seven samples collected in May 1987 documenting PCB concentrations ranging from no detection to 2800 mg/kg; however, no follow up report was available in the files.

In April 1993, Ohio EPA completed a revised state-lead PA of the site. The 1993 PA provided an update of site conditions including hazardous waste information, identification of potentially contaminated areas, site characteristics, contaminant migration and receptors. The PA noted that Kaiser generated waste codes D001, including mineral spirits and Stoddard Solvent; D002, including sulfuric acid, nitric acid, sodium hydroxide, and caustic water; and F002, including Hexcel (contains methylene chloride) and 1,1,1 trichloroethane. Based on the findings of the 1993 PA, the site ranking was revised from low to medium priority with a recommendation that further investigation be conducted at the site.

Based on the recommendations of the 1993 PA, the Ohio EPA, DERR, CDO and Site Investigation Field Unit (SIFU) conducted sampling at the site in November 1994. Soil samples were collected from the vicinity of the former landfill/disposal area northeast of the facility and along the south bank of Ramp Creek (referred to as the three acre disposal site in the 1984 PA), a closed construction and demolition debris landfill west of the facility (referred to as the proposed demolition debris landfill in the 1984 PA) on land sold to the Port Authority in 2002, in the vicinity of the facility's wastewater treatment plant, a former oil above ground storage (AST) area on the north side of the facility, a former drum storage area on the east side of the facility and in a grass area north of the facility (See Figure 2 – Site Features). Sediment samples were collected from Ramp Creek upstream from the site and near the former landfill/disposal area. Samples were submitted for laboratory analysis for target compound list/target analyte list (TCL/TAL) VOCs, SVOCs, pesticides, PCBs and metals. Surface water samples were not collected from Ramp Creek due to low flow conditions. Ground water samples were not collected during the 1994 field investigation.

SVOCs consisting primarily of polynuclear aromatic hydrocarbons (PAHs) and pesticides were detected in site soils at the former landfill/disposal area, the former oil AST area, the former drum storage location and the closed construction and demolition debris landfill now located on COATC property. PCBs were detected in site soils at the former landfill/disposal area northeast of the facility and near the wastewater treatment plant. PCBs were detected at 210 milligrams per kilogram (mg/kg) in one soil sample from a ditch along the west side of the former landfill/disposal area. The ditch is located along the east side of the facility beginning near an electrical substation and continuing northward along the west side of the former landfill/disposal area toward Ramp Creek. According to plant personnel, the ditch has been filled in south of the landfill. VOCs (excluding low levels of potential laboratory contaminants, acetone and methylene chloride) were detected in the former landfill/disposal area. Various TAL metals were detected in all samples, however, background concentrations were not established. Of the four sediment samples submitted for laboratory analysis, two samples yielded detections of VOCs (excluding low levels of common laboratory contaminants, acetone

and methylene chloride), another sample yielded a detection of a pesticide and all samples had detections of various TAL metals. The highest detections of TAL metals, however, occurred in the upstream sample.

The 1993 PA also noted stream bank erosion and demolition debris, wire and a "greenish-blue substance" on the south bank of Ramp Creek in the vicinity of the former landfill/disposal area. In 1995, Kaiser placed rip rap along this stretch of Ramp Creek to stabilize the creek bank and prevent further erosion into the bank and former landfill/disposal area.

On March 13, 2003, Ohio EPA, DHWM, CDO conducted a site visit at the facility. The site visit included a tour of the casting, billet and extruding and rolling process areas, maintenance painting area, hazardous waste pad area and truck garage. Wastes generated at the time of the site visit are described in Section 2 of this report.

On January 19, 2005, Ohio EPA, DERR, CDO conducted a site visit and met with the plant environmental engineer and the facility's environmental consultant (Eco Unlimited, Inc.) to update information on site conditions from previously conducted preliminary assessments. The visit included a tour of the plant grounds.

On April 6, 2005, Ohio EPA, Division of Surface Water (DSW), CDO investigated a citizen complaint of scrap metal in the streambed near the confluence of Ramp Creek and the South Fork of the Licking River. The citizen, using a metal detector, had found numerous pieces of what appeared to be aluminum scrap and slag including one piece embossed with a Kaiser logo. The presence of the metal in the streambed along with the debris noted along the bank of Ramp Creek in the 1993 PA indicates that Ramp Creek may have eroded into the former landfill/disposal area releasing debris into Ramp Creek, which was then carried downstream to the South Fork of the Licking River.

On June 22, 2005, Ohio EPA CDO DERR visited the site to obtain permission for access to the site to conduct a field investigation and to discuss the purpose and scope of the proposed field investigation. Ohio EPA received a signed access agreement from Kaiser on September 15, 2005, which granted Ohio EPA voluntary access to conduct the field investigation during October and November 2005 described in Section 3 of this report.

2.7. Topography, Geology, Hydrogeology and Hydrology

The Newark-Heath area is located in south-central Licking County near the transitional boundary between the Till Plains Section of the Central Lowland Physiographic Province and the Glaciated Allegheny Section of the Appalachian Plateaus Physiographic Province (Brockman). The area is located in a broad, outwash-filled buried valley presently drained by the North and South Forks of the Licking River. Surficial deposits mapped in the vicinity of the site include Wisconsinan Age outwash and ground moraine with Recent alluvium along the streams. Several Wisconsinan outwash terrace levels

have been mapped in the Licking River Valley (Forsyth). Bedrock underlying the glacial deposits consists of Mississippian Age sandstones and shales.

The site topography is relatively flat with an average elevation of approximately 880 feet above mean sea level (amsl) in the vicinity of the plant and an average elevation of approximately 875 feet amsl in the vicinity of the former landfill/disposal area. Surface drainage at the northern, developed, portion of the site flows to Ramp Creek located along the northern boundary of the site. Ramp Creek is a tributary of the South Fork of the Licking River. The approximate elevation at the creek near the northeast corner of the site is 852 feet amsl. Drainage from the southern and western portions of the site, on much of the land now owned by the COATC, is to an unnamed tributary of the South Fork of the Licking River.

Three unconsolidated saturated zones (aquifers) have been identified in the vicinity of the site. These saturated zones consist predominantly of sands and/or gravels separated by till layers composed of silts and clays. The upper and middle aquifers were encountered in investigations performed at the former Newark Air Force Base (Dames & Moore) and the Heath municipal wellfield (Burgess & Niple, 2000). The top of the uppermost aquifer occurs at approximately six to 15 feet below ground surface (bgs) and is approximately ten to 20 feet thick at the former Newark Air Force Base. The top of the middle aquifer occurs at approximately 90 to 100 feet bgs and has a maximum thickness of approximately 50 feet. The top of the lower aquifer occurs at a depth of approximately 180 feet bgs and extends down to the bottom of the buried valley or more than 300 feet deep east of the Licking River.

The city of Heath provides municipal water service although some residential water wells may exist in the area. Residential wells may be completed at any interval but are most likely to be completed in a deeper saturated zone. Several residential water wells north of Ramp Creek were abandoned during the investigation of the petroleum plume from the former Pure Oil site.

Kaiser has six process water supply wells located on site completed in the middle aquifer at depths of 116 to 141 feet bgs. The Heath municipal wellfield is located approximately one mile east of State Route 79 and has supply wells completed in the lower buried valley aquifer. The western edge of the wellfield's five-year wellhead protection area is located approximately 3200 feet east of Kaiser's property line, east of the former landfill/disposal area.

Ground water flow direction in the shallow saturated zone was reported to be to the northeast, toward Ramp Creek, in ground water investigations conducted at the former Newark Air Force Base (Dames & Moore) and was reported to be to the east-northeast in a subsequent Phase II site assessment conducted at the former Kaiser property south and west of the facility that was sold to the Port Authority (Burgess & Niple, 2001).

2.8. Land Use and Demographic Information

The surrounding land use is a mixture of residential, commercial, industrial, and agricultural. The COATC, a newly developing industrial park, is located west and south of the facility and includes approximately 252 acres purchased from Kaiser as well as acreage from the former Newark Air Force Base, which is located immediately west of the Kaiser facility. The Newark-Heath Airport, former Koch Materials asphalt plant, and former Pure Oil refinery (now Marathon and Ashland bulk petroleum terminal) are located to the north/northwest of the site and Ramp Creek. The city of Heath recreation center, a church and residences are located east of the site. Residences are located north of the site on the north side of Irving Wick Drive.

Ground water contamination is known to be present at the former Newark Air Force Base (DERR Project ID # 145-001140) to the west and at the former Pure Oil site (aka Ramp Creek, DERR Project ID #145-000654) to the north/northwest.

3.0. FIELD INVESTIGATION METHODS

3.1. Sampling Locations and Rationale

Ohio EPA conducted a field investigation at the site during October and November 2005. Ohio EPA, DERR, CDO and SIFU personnel conducted a site reconnaissance visit on October 21, 2005 to determine the suitability and accessibility of sample locations. Soil and sediment samples were collected from Ramp Creek and ground water samples from two of the Kaiser process water supply wells on October 31, 2005. Soil and ground water samples were collected on November 2 and 3, 2005.

Sample locations were selected to focus on the potential impacts to receptors from the former landfill/disposal area and to determine overall site-wide ground water quality. Eight Geoprobe® borings were completed at the site. Three hand auger borings were completed in the ditch along the west side of the former landfill/disposal area. Three surface water and sediment sample locations were selected on Ramp Creek upstream from the former landfill/disposal area, near the former wastewater plant outfall and downstream of the former landfill/disposal area near the northeast property corner. Additionally, samples were collected from two of Kaiser's process water supply wells. The 2005 sample locations are displayed on Figure 3. The 2005 sample results are presented on Tables 1 through 7.

Samples collected by Ohio EPA were analyzed by Ohio EPA's contract laboratory, Kemron Environmental Services, Inc. of Marietta, Ohio. Soil, sediment, surface water and ground water samples were analyzed by U.S. EPA SW 846 Methods for VOCs (8260B), SVOCs (8270C), pesticides (8081), PCBs (8082), TAL metals (6000/7000 Series) and cyanide (9014). Soil and sediment samples were also analyzed by U.S. EPA Method 8015B for TPH in the middle (C10-C20) and heavy (C20-C34) distillate fractions and the C10-C28 fraction. Two soil samples collected from GP-08 were also analyzed

for TPH in the light (C6-C12) distillate fraction. One soil sample collected from GP-08 was analyzed for toxicity characteristic leaching procedure (TCLP) VOCs, SVOCs and metals. Surface water and ground water samples were analyzed by U.S. EPA Water and Waste Methods for ammonia (350.1) and chloride (325.2). At the request of Kaiser, samples were also split with Eco Unlimited, the facility's environmental consultant, for analysis by Kaiser's contract laboratory.

3.2. Sampling Methods

Soil: Soil samples were collected with Ohio EPA's Geoprobe® drilling rig at sample locations designated GP-01 through GP-08 with the exception of GP-07 from which only a ground water sample was taken. Sample GP-DUP is a duplicate of the sample collected from GP-06. Additionally, three shallow hand auger samples, designated HA-01 through HA-03, were collected from the ditch located on the west side of the former landfill/disposal area.

At each Geoprobe® boring location, a Macrocore® sampler with dedicated four feet polyacetate liners was used to collect soil samples to depths up to 24 feet bgs. The soil samples were described and logged in a field notebook and screened with a photoionization detector (PID). Soil samples were collected from each boring (except GP-07) for laboratory analysis based on PID reading, visual observation or stratigraphic position. The Geoprobe® field core logs are included in Attachment 1.

Ground Water: Ground water samples, designated with a GW prefix, were collected at each Geoprobe® boring location by advancing a second borehole approximately one foot away from the soil boring location to a depth where ground water was encountered and could be readily sampled. A duplicate sample of GW-04 was also collected and designated GW-DUP. The depths at which the borings were completed ranged from 18 feet to 35 feet bgs. At each location a length of dedicated polyethylene tubing with a check valve was inserted through the Geoprobe® rods. Approximately one half gallon of water was purged at each location before filling the laboratory-supplied glassware.

Ground water samples were also collected from two of Kaiser's six process water supply wells. The samples were collected in each well's pump house. The samples were collected from a sample port after first disconnecting a potassium permanganate drip feed and allowing raw water to flush through the port for approximately five minutes. The process water supply well samples are designated with a PW prefix.

Sediment: Sediment samples were collected from three locations in Ramp Creek. The locations, one downstream of the landfill (SE-01), one sample and a duplicate sample upstream of the landfill and former wastewater outfall (SE-02 and Duplicate SE-03) and one near the upstream end of the property (SE-04), are displayed on Figure 3. At each location fine grained sediments were collected along the stream bank with a shovel or trowel and placed in laboratory-supplied glassware.

Surface Water: At each sediment sample location a corresponding surface water sample was collected. The corresponding surface water samples were designated with an SW prefix instead of an SE prefix. SW-03 is a duplicate of SW-02. Each sample was collected slightly upstream and near the center of the stream after the corresponding sediment sample was collected along the bank. The samples were collected by immersing the sample containers slowly to avoid losing preservative.

4.0. FIELD INVESTIGATION RESULTS

4.1. Geologic Characterization

Eight Geoprobe® borings were completed as part of the 2005 field investigation. Seven borings were completed along the east and northeast sides of the site and one boring was completed northwest on the west side of the site northwest of the main plant. The boring locations are displayed on Figure 3.

The borings encountered five to 16 feet of silt, clayey silt and silty clay with some sand and gravel layers overlying silty sand and gravel. Ground water was encountered in GP-01 on the west side of the site at approximately 14 feet bgs, at greater than 30 feet bgs in GP-02 and GP-03 along the east side of the site and approximately 24 to 28 feet bgs along Ramp Creek in the vicinity of the former landfill/disposal area.

Samples collected around the former landfill/disposal area encountered some waste materials as described in the Geoprobe® core logs. Samples collected from GP-08 in the former landfill/disposal area consisted of dark gray to black oily silt and muck with elevated headspace readings. The location of the boring appears to be consistent with the location of a former pond or water feature noted on the U.S. Geological Survey quadrangle map and may represent the location of the former oil disposal lagoon.

4.2. Sampling Results

Soil: Soil samples contained detections of VOCs, SVOCs, PCBs, TPH (middle and heavy distillate fractions) and several TAL metals. VOCs detected included chlorinated solvents and petroleum compounds. Samples collected from GP-08, possibly located in or near the former oil disposal lagoon, contained concentrations of TCE up to 742 micrograms per kilogram (ug/kg), TPH in the heavy distillate range up to 94,000 mg/kg and PCBs at 22,500 ug/kg (22.5 mg/kg). Three hand-augered samples collected from a ditch along the west side of the landfill contained detections of PCBs up to 7.68 mg/kg and TPH (heavy distillate range) up to 110,000 mg/kg.

Ground Water: Ground water samples in the vicinity of the former landfill/disposal area contained several chlorinated VOCs. The highest detections of chlorinated VOCs were reported from GW-06 with concentrations of 158 micrograms per liter (ug/L) for vinyl chloride and 2060 ug/L for cis-1, 2- DCE. TAL metals were also detected in the ground

water samples. No SVOCs, pesticides or PCBs were detected in any of the ground water samples collected during the 2005 sampling event.

Samples collected from two of Kaiser's process water supply wells screened in a lower aquifer did not contain detections of any sampled analytes except metals.

Surface Water: Surface water samples collected from Ramp Creek in 2005 contained detections of several VOCs. Petroleum compounds were detected in surface water samples from Ramp Creek including benzene at SE-01 (9.12 ug/L) and low concentrations of toluene and xylenes in SE-01, SE-02 and SE-03, however these detections are likely to be from the documented petroleum plume emanating from the former Pure Oil site located northwest of the Kaiser site on the opposite side of Ramp Creek from the site. A chlorinated compound, cis-1, 2-DCE, was also detected in low concentrations and has also been detected in ground water at the site.

Sediment: Sediment samples collected from corresponding locations in Ramp Creek contained low detections of VOCs including cis-1, 2-DCE that are likely originating from the site. Benzene and toluene detected in sediment may also be attributable to the off-site petroleum plume. SVOCs (PAHs) may be attributable from on or off site sources. PCBs, also detected in soil from the former landfill/disposal area and ditch that discharges to Ramp Creek, were detected in low concentrations in the sediment samples. TAL metals were also detected in sediment but at concentrations that may be naturally occurring.

4.3. Comparison of Sampling Results to Screening Level Criteria

Soil: Soil sample results for TCL/TAL analytes were compared to U.S. EPA Region 9 PRGs for residential soils for screening purposes. The PRGs for analytes with a non-cancer basis were adjusted with a 0.1 multiplier. The PRGs for analytes with a cancer basis were not adjusted. TPH results were compared to BUSTR petroleum standards for Class 2 soils. Samples collected from GP-08 yielded detections of TCE up to 742 ug/kg and PCBs up to 22,500 ug/kg (22.5 mg/kg), which are above their respective PRGs of 53 ug/kg and 220 ug/kg, respectively. A soil sample from this same boring yielded a detection of TPH in the heavy distillate range of 94,000 mg/kg which is above the BUSTR action level of 20,000 mg/kg. Two hand augered soil samples collected from the ditch along the west side of the former landfill/disposal area, HA-01 and HA-02, and one sample from GP-D (duplicate sample of GP-06) yielded detections of PCBs up to 7680 ug/kg. TPH in the heavy distillate range was also detected in HA-03 at 110,000 mg/kg. Two soil samples, GP-D (duplicate of GP-06 located on the north side of the former landfill/disposal area) and HA-03 (from the ditch on the west side of the former landfill/disposal area) contained detections of BaP at 268 ug/kg and 281J ug/kg, respectively, which exceed the PRG of 62 ug/kg. Several metals were detected above their respective PRGs.

One soil sample, GP-08 (20-22 feet), submitted for analysis for TCLP, VOCs, SVOCs and metals, yielded detections of TCE, vinyl chloride, m, p cresols and barium; however, the detections were below TCLP regulatory limits.

PCBs were detected at concentrations up to 22.5 mg/kg in soil during the 2005 field investigation and 210 mg/kg in soil during the 1994 field investigation. A PCB sample collected from residue in a subsurface vault near an electrical substation during the 1986 PCB inspection yielded a detection of 18,000 mg/kg. A split of this sample collected by Kaiser yielded a detection of 60,000 mg/kg. Additional PCB samples collected in May 1987 ranged from no detection to 2800 mg/kg. U. S. EPA may regulate PCBs under TSCA at this concentration depending on the time of the release/disposal (the burden of proof is upon the owner) and concentration.

Ground Water: Ground water sample results were compared to U.S. EPA MCLs for drinking water. Additionally, analytes that do not have MCLs were compared to U.S. EPA Region 9 PRGs for tap water. The PRGs for analytes with a non-cancer basis were adjusted with a 0.1 multiplier. The PRGs for analytes with a cancer basis were not adjusted. Three ground water samples collected from borings in the vicinity of the former landfill/disposal area contained detections of vinyl chloride above the MCL of 2 ug/L; GW-05 (3.49 ug/L), GW-06 (158 ug/L) and GW-08 (43.1 ug/L). One ground water sample, GW-06, also contained a detection of cis-1, 2- DCE above the MCL of 70 ug/L with a concentration of 2060 ug/L.

All of the ground water samples contained detections of several TAL metals above their respective MCLs or PRGs, although the metals concentrations may be biased high due to sample turbidity. For comparison, split samples collected by Eco-Unlimited were field-filtered for metals except for GW-01 and only GW-01 yielded metals results above MCLs. Arsenic was detected above its 10 ug/l MCL in the two process well samples with detections of 15.8 ug/l and 20.4 ug/l occurring in PW-01 and PW-02, respectively. Vanadium and manganese were also detected above their respective PRGs in the process wells. Metals detections in the process wells, however, may be representative of naturally occurring conditions.

No SVOCs, pesticides or PCBs were detected in any of the ground water samples. It should be noted however that, although not detected, the method detection limits for certain SVOCs including, certain PAH compounds, hexachlorobenzene and pentachlorophenol were elevated above their respective MCLs or PRGs.

Surface Water: Surface water samples were compared to Ohio River Basin aquatic life outside mixing zone average (OMZA) and human health non-drinking water standards. There were no detections above the standards although the method detection limits were elevated above standards for several PAH compounds.

Sediment: Sediment sample results were compared to U.S. EPA Region 5 RCRA Ecological Screening Levels (ESLs) and U.S. EPA Region 9 PRGs for direct contact with

residential soils. The PRGs for analytes with a non-cancer basis were adjusted with a 0.1 multiplier. The PRGs for analytes with a cancer basis were not adjusted. Additionally, results for metals analyses were compared to Ohio sediment reference values (SRVs) for statewide or regional background concentrations.

Several PAH compounds were detected in sediments above their respective ESLs. Two PAHs, B(a)P and benzo(b) fluoranthene, also exceeded their respective residential soil PRGs in two samples and a duplicate sample. Arsenic was detected in one sample slightly above its ESL and above its residential PRG in all samples, however, the arsenic concentrations were below the SRV for all samples. Silver was detected in two samples and a duplicate sample slightly above its ESL and SRV. Cyanide was detected above its ESL in two samples and a duplicate sample. Acetone was detected in one sample and its duplicate slightly above its ESL, however acetone is a common laboratory contaminant.

5.0 DISCUSSION

5.1. Migration and Exposure Pathways

Soil Exposure Pathway: VOCs, PAHs, metals, PCBs and TPH were detected in site soils near the former landfill/disposal area northeast of the facility. Soil exposure in the former landfill/disposal area is not expected to be significant provided the soil and grass cover on the landfill is adequately maintained. Exposure through direct contact could be a concern, however, if erosion occurs or if excavation activities associated with construction or utility repair occurs in this area. Water and sewer lines are located along the south side of the former landfill/disposal area.

PCBs and TPH were detected in shallow soil samples collected from the ditch along the west side of the former landfill/disposal area. Contaminated soil in the ditch could pose a direct contact threat especially if erosion occurs over time exposing more contaminated material.

Ground Water Exposure Pathway: Ground water grab samples collected during the 2005 field investigation confirmed the presence of ground water contamination in the upper aquifer at the site. Results of the ground water sampling yielded detections of chlorinated solvents; vinyl chloride and cis-1, 2- DCE, at concentrations exceeding MCLs. Several metals were also detected at concentrations exceeding MCLs or PRGs. The chlorinated compounds were detected in the vicinity of the former landfill/disposal area. Metals were detected in all shallow ground water samples but the concentrations may be elevated due to sample turbidity.

Raw water samples were also collected from two of the Kaiser process water supply wells during the 2005 field investigation. The process water supply wells are screened in the middle aquifer and are used for production purposes and not for potable water. Several TAL metals were detected in the process well samples including arsenic above

its MCL and manganese and vanadium above their respective PRGs. Metals detected in the process wells may be naturally-occurring. No other sampled constituents were detected in the 2005 sampling event. In previous compliance sampling of the process wells, trace VOCs and inorganics have been detected in raw and finished water, respectively, including antimony in one sample event that was detected above its MCL. The origin of these detections is unknown.

Shallow ground water flow direction in the vicinity of the former landfill/disposal area is anticipated to be to the north/northeast toward Ramp Creek. Investigations conducted at the former Newark Air Force Base to the west of the site and the former Pure Oil site to the north/northwest of the site indicate that shallow ground water flow direction is toward Ramp Creek. Ground water flow direction, however, can only be confirmed with the installation of ground water monitoring wells.

Shallow ground water in the vicinity of the site is not known to be used for potable purposes. (Residential wells north of Ramp Creek were abandoned during remedial activities associated with the former Pure Oil site.) However, non-potable exposure pathways, such as direct contact to excavation or utility workers or vapor intrusion to structures on adjacent properties from chlorinated solvents, could potentially exist if there is a ground water flow component from the former landfill/disposal area to the east.

The Heath municipal wellfield is located approximately one mile to the east/northeast of the site. The delineated five-year time of travel boundary for the Heath municipal wellfield is approximately 3500 feet east of the former landfill/disposal area. The municipal wells, however, are screened in the deep aquifer.

Surface Water / Sediment Exposure Pathway: Surface water samples were collected from Ramp Creek during the 2005 field investigation. Benzene detected in surface water is believed to originate from a plume of petroleum-contaminated ground water emanating from the former Pure Oil site to the northwest of the site. No surface water samples were collected from Ramp Creek during the 1994 sampling event due to low flow conditions. Numerous historical spills discharging to Ramp Creek are documented in DERR files. The landfill has experienced erosion by Ramp Creek as evidenced by exposed debris along the banks and finding metal scrap downstream. Kaiser installed rip rap along a portion of the stream bank in 1995 to stabilize the bank against erosion. Further erosion into the former landfill/disposal area could potentially release debris, waste materials and contaminated soil to Ramp Creek. Sediment samples collected from Ramp Creek yielded detections of PCBs, which have been detected in site soils from the former landfill/disposal area and in the ditch along the west side of the former landfill/disposal area that joins Ramp Creek. PAHs detected in the sediments may be attributable to site and/or off-site sources.

Air Exposure Pathway: The site is mostly paved or vegetated. The air exposure pathway is not considered to be significant; however, disturbing soil could release dust-borne contaminants locally. As long as adequate cover is maintained on the former

landfill/disposal area, exposure to airborne or dust-borne contaminants should not be significant.

Ecological Targets: The northern property boundary of the site is located along Ramp Creek, which flows into the South Fork of the Licking River approximately 0.7 miles downstream from the site. Ohio EPA's *Biological and Water Quality Study of the Licking River and Select Tributaries*, published in 1995 noted that Ramp Creek and the nearby Licking River were in attainment with warm water habitat criteria. Ramp Creek had been actively eroding the stream bank in the vicinity of the former landfill/disposal area releasing debris into the stream. Kaiser placed rip rap along this segment of Ramp Creek in 1995 to prevent further erosion of the bank into the former landfill/disposal area. Contaminants from within the former landfill/disposal area may have also been released to Ramp Creek. Because of the relatively high gradient of Ramp Creek, soil, debris and contaminants could possibly have been carried downstream to relatively quiet backwater areas further downstream such as in the South Fork of the Licking River.

6.0. CONCLUSIONS

Soil and groundwater contamination related to the disposal of wastes on site was detected in the vicinity of the former landfill/disposal area. Wastes generated at the facility were buried or burned in the former landfill/disposal area in the northeast corner of the site from approximately 1949 to 1979. The area also included a former two cell oil disposal lagoon where oil was reportedly disposed of and periodically burned prior to 1970.

TCE, vinyl chloride, B(a)P, PCBs and metals above U.S. EPA Region 9 were detected in soil samples collected in and around the former landfill/disposal area. High concentrations of TPH were detected in one boring, which may correlate with the location of a former on-site oil disposal lagoon. The potential for site worker, construction worker or trespasser exposure exists if the cover is eroded or disturbed. Buried utilities are present along the south side of the landfill/disposal area and ditch and may be in contact with waste material or contaminated soil or ground water. Excavation to perform maintenance of the utilities may result in exposure to or improper disposal of contaminated materials.

The former landfill/disposal area does not appear to have an adequate cap as demolition debris was observed protruding through the ground surface in one area. Erosion of the former landfill/disposal area appears to have occurred in the past. Photographs of the south stream bank taken by Ohio EPA in 1994 documented exposed wire, debris and granular material present in the eroding banks. In 1995, Kaiser graded and armored the stream bank with rip rap. Metal scrap was found downstream in Ramp Creek and the South Fork of the Licking River by a Heath resident in 2005, including a piece of metal embossed with an older Kaiser logo. There is also a potential for the migration of contaminated soil/sediment or runoff to Ramp Creek via the ditch on the west side of the former landfill/disposal area.

PCBs were detected in site soils in the vicinity of the former landfill/disposal area and adjacent ditch in the 1994 and 2005 field investigations. One sample collected from the ditch in 1994 yielded a detection of 210 mg/kg. Low concentrations of PCBs were also detected in Ramp Creek sediments adjacent to the former landfill/disposal area in 1994. Depending on the time of the release (the burden of proof is upon the owner) and concentration, U.S. EPA may regulate the PCB release under TSCA.

One soil sample was submitted for TCLP analysis for VOCs, SVOCs and metals. None of the TCLP analytes exceeded TCLP regulatory limits. It should be noted that the one sample may not be representative of site conditions, therefore, if any excavated waste or soil is removed for disposal off-site, TCLP analysis should be performed to determine if disposal at a hazardous waste facility is required.

Ground water contamination from chlorinated solvents detected in the vicinity of the former landfill/disposal area is present in the shallow aquifer. The chlorinated solvents, cis-1, 2-DCE and vinyl chloride, were detected above U.S. EPA MCLs for drinking water. Several TAL metals were also detected above their respective MCLs or PRGs; however, the metals concentrations may be biased high due to sample turbidity. Based on site topography and flow direction data from adjacent sites, the shallow ground water flow direction is anticipated to be to the north/northeast discharging to Ramp Creek. The shallow aquifer is not known to be used as a potable water source in the vicinity of the site, however, shallow ground water flow direction should be confirmed through the installation of monitoring wells to determine if there is a potential for off-site migration and non-potable exposure to adjacent properties.

7.0. RECOMMENDATIONS

Based on the results and conclusions of this site assessment, Ohio EPA believes that additional investigation at the site in the vicinity of the former landfill/disposal area and adjacent ditch under an authorizing/enforcement action is warranted. It should be noted that, although the focus of the 2005 field investigation was the former landfill/disposal area and ditch, there may be other areas of potential concern at the site. Ohio EPA therefore recommends referral of the site to the DERR remedial response program.

8.0. REFERENCES

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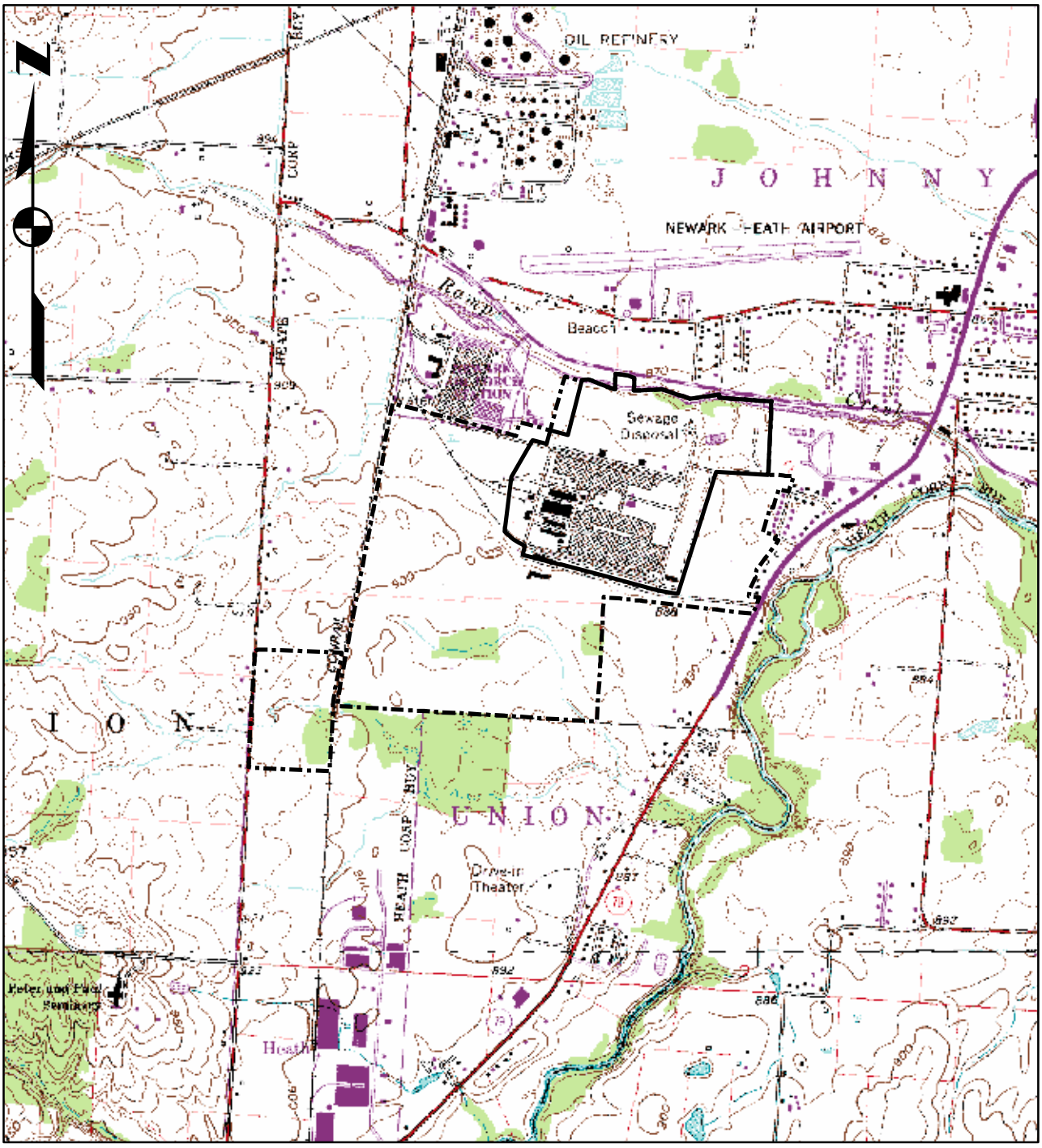
FIGURES



0 625 1,250 2,500 3,750 5,000
Feet

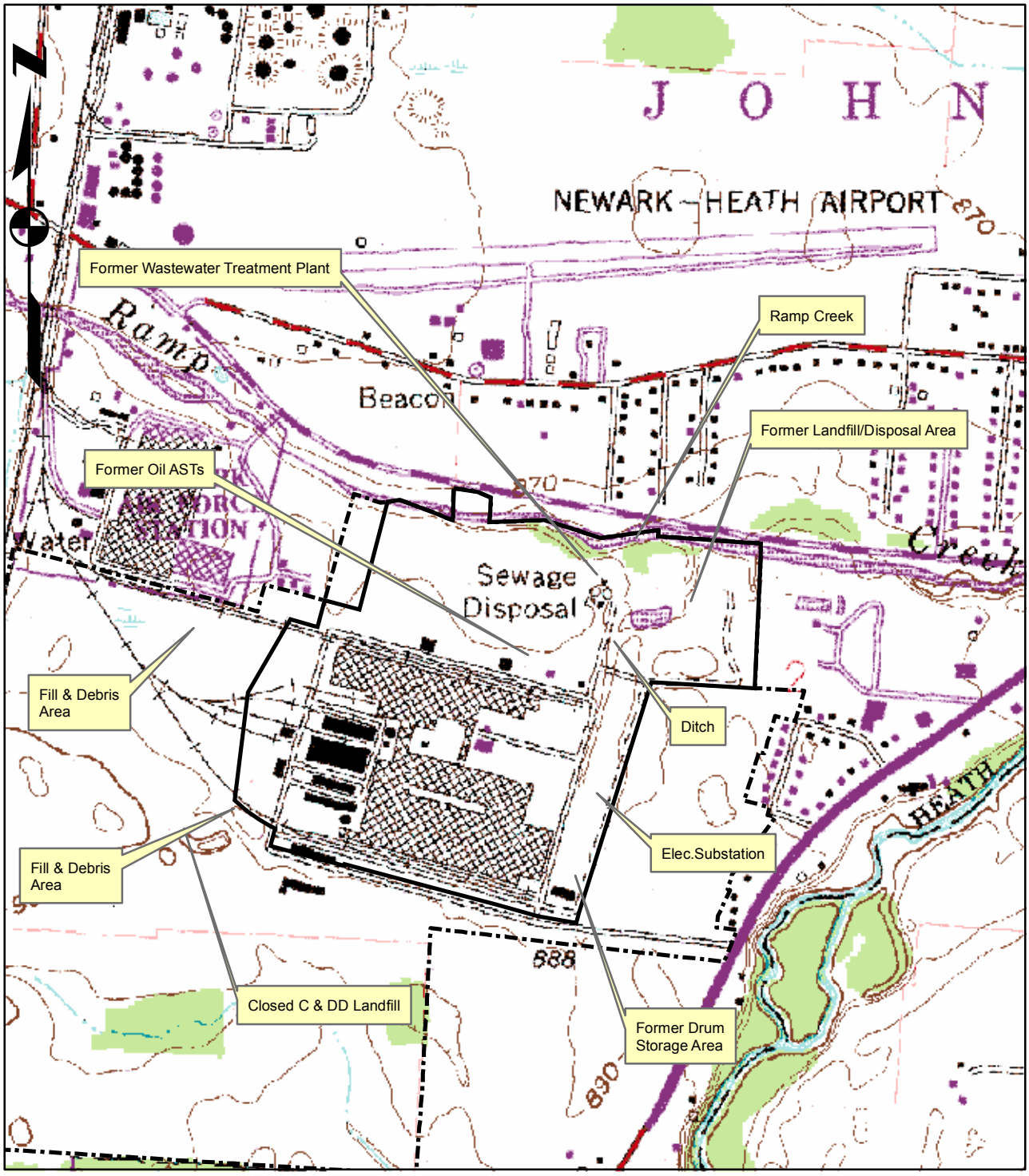
Legend

- Approx. Current Kaiser Property
- Approx. 1993 Kaiser Property

Ohio EPA

State Site Assessment
Kaiser Aluminum
Fabricated Products, Inc.
Site Map

Figure 1



0 500 1,000 2,000 3,000 Feet

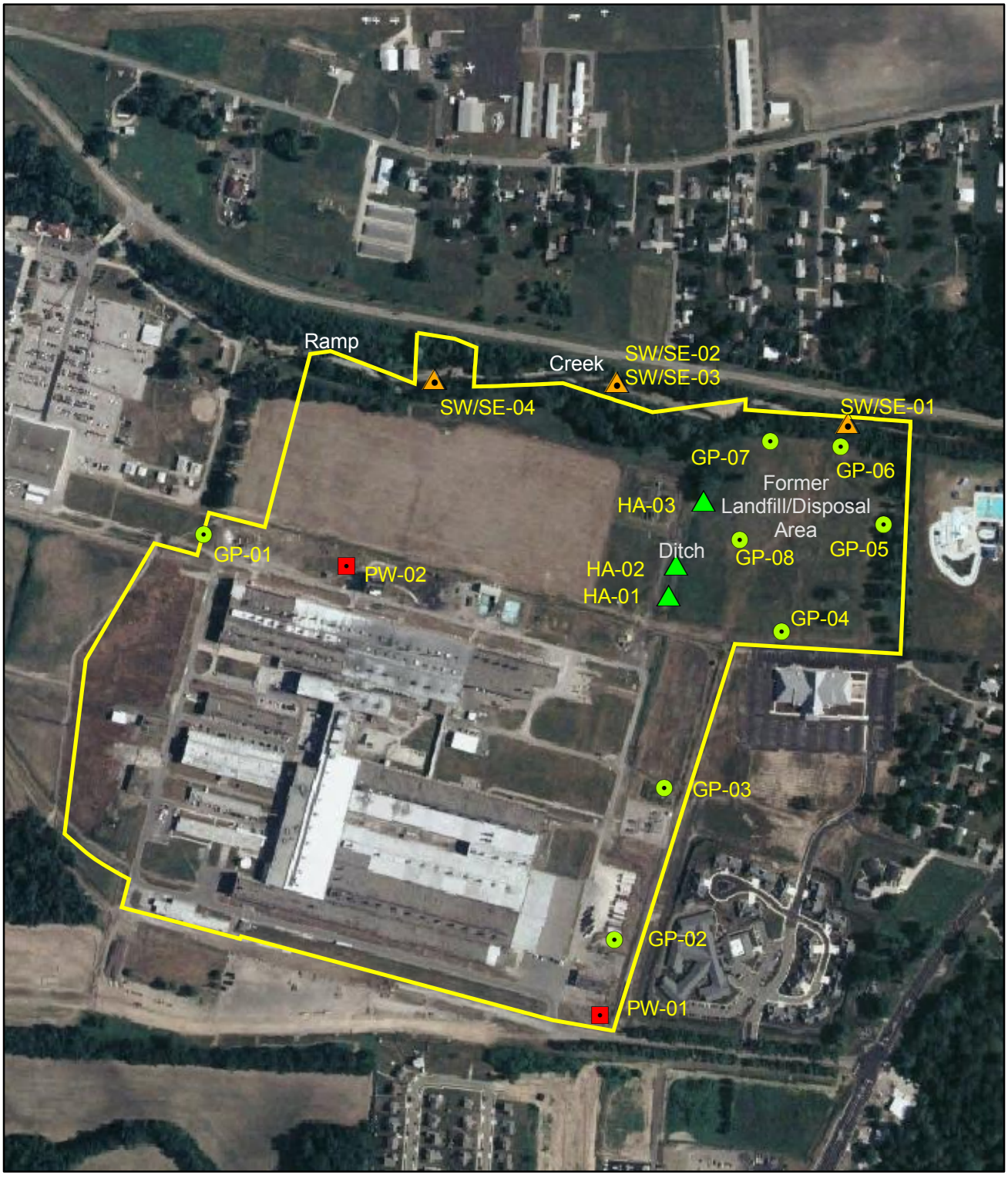
Legend

- Approx. 1993 Kaiser Property
- Approx. Current Kaiser Property

Ohio EPA

State Site Assessment
Kaiser Aluminum
Fabricated Products, LLC
Site Features

Figure 2



Ohio EPA

State Site Assessment
Kaiser Aluminum
Fabricated Products, LLC
2005 Sample Locations

Figure 3

TABLES

Table 1

Kaiser Aluminum Fabricated Products, LLC - Soil Analytical Results Summary Table - November 2 - 3, 2005

BORING NO.	UNITS	GP-01	GP-02	GP-03	GP-04	GP-05	GP-05	GP-06	GP-D	GP-08	GP-08	GP-08	HA-01	HA-02	HA-03	PRG	BUSTR (TPH)
DEPTH		10 - 12'	0 - 2'	0 - 2'	10 - 12'	0 - 2'	19 - 21'	4 - 8'		12 - 16'	20 - 22'	22 - 24'	14" -16"	12"	5"- 7"	(Residential)	(Class 2 Soil)
VOCs	ug/kg																
Acetone		<5.54	<5.99	<6.13	<5.38	<8.54	6.25J	<6.50	17.2J	<612	<617	<566	<7.13	NA	NA	1,400,000	
Benzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	0.713J	<61.2	<61.7	<56.6	<0.713	NA	NA	640(ca)	
n-Butylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	335J	494J	586	<0.713	NA	NA	24,000	
sec-Butylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	107J	161J	238J	<0.713	NA	NA	22,000	
Carbon disulfide		<0.554	<0.599	<0.613	<0.538	<0.854	0.983J	<0.650	<0.614	<61.2	<61.7	56.6	<0.713	NA	NA	36,000	
1,1-Dichloroethene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	<61.2	<61.7	74.1J	<0.713	NA	NA	12,000	
cis-1,2-Dichloroethene		<0.554	<0.599	<0.613	1.84J	<0.854	0.888J	<0.650	0.833J	15700	9890	141000	<0.713	NA	NA	4,300	
trans-1,2-Dichloroethene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	89.9J	<61.7	1470	<0.713	NA	NA	6,900	
Isopropylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	<61.2	<61.7	68.6J	<0.713	NA	NA	57,000	
p-Isopropyltoluene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	182J	237J	241J	<0.713	NA	NA	---	
Naphthalene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	131J	159J	111J	<0.713	NA	NA	5,600	
n-Propylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	78.1J	109J	288J	<0.713	NA	NA	24,000	
Tetrachloroethene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	0.922J	1.29J	67.0J	69.2J	225J	1.62J	NA	NA	480(ca)	
Toluene		<0.554	<0.599	<0.613	0.555J	<0.854	<0.536	<0.650	0.780J	<61.2	<61.7	68.7J	<0.713	NA	NA	52,000	
Trichloroethene		<0.554	<0.599	<0.613	0.830J	<0.854	<0.536	0.788J	3.87J	**336J**	**742**	**359J**	<0.713	NA	NA	53(ca)	
1,2,4-Trimethylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	933	1290	2530	<0.713	NA	NA	5,200	
1,3,5-Trimethylbenzene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	253J	331J	722	<0.713	NA	NA	2,100	
Vinyl Chloride		<1.11	<1.20	<1.23	<1.08	<1.71	<1.07	<1.30	<1.23	<122	<123	**200J**	<1.43	NA	NA	79(ca)	
o-Xylene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	<61.2	<61.7	96.8J	<0.713	NA	NA	27,000	
m,p-Xylene		<0.554	<0.599	<0.613	<0.538	<0.854	<0.536	<0.650	<0.614	<61.2	<61.7	99.2J	<0.713	NA	NA	27,000	
SVOCs	ug/kg																
Benzo(a)anthracene		<91.5	NA	<101	<96.1	NA	<89.7	140J	332	<1890	NA	NA	<5320	<4970	389	620(ca)	
Benzo(a)pyrene		<91.5	NA	<101	<96.1	NA	<89.7	115J	**268**	<1890	NA	NA	<5320	<4970	**281J**	62(ca)	
Benzo(b)fluoranthene		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	346	<1890	NA	NA	<5320	<4970	441	620(ca)	
Benzo(k)fluoranthene		<91.5	NA	<101	<96.1	NA	<89.7	156J	147J	<1890	NA	NA	<5320	<4970	<191	6200(ca)	
Benzo(g,h,i)perylene		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	131J	<1890	NA	NA	<5320	<4970	<191	---	
Chrysene		<91.5	NA	<101	<96.1	NA	<89.7	151J	344	<1890	NA	NA	<5320	<4970	372J	62000(ca)	
2,4-Dimethylphenol		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	<103	43100	NA	NA	<5320	<4970	<191	120,000	
Fluoranthene		<91.5	NA	116J	<96.1	NA	<89.7	289	654	<1890	NA	NA	<5320	<4970	777	230,000	
Hexachlorobenzene		<91.5	NA	<101	<96.1	NA	<89.7	150J	243	<1890	NA	NA	<5320	<4970	<191	310(ca)	
Indeno(1,2,3-cd)pyrene		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	122J	<1890	NA	NA	<5320	<4970	<191	620(ca)	
3,4-Methylphenol		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	<103	52500	NA	NA	<5320	<4970	<191	31,000	
Phenanthrene		<91.5	NA	<101	<96.1	NA	<89.7	220	458	3780	NA	NA	<5320	<4970	542	---	
Phenol		<91.5	NA	<101	<96.1	NA	<89.7	<98.8	<103	19300	NA	NA	<5320	<4970	<195	1,800,000	
Pyrene		<91.5	NA	102J	<96.1	NA	<89.7	245	538	2480	NA	NA	<5320	<4970	681	230,000	

Notes:

PRG - US EPA Region 9 Preliminary Remediation Goal for residential soil direct contact. Value adjusted by 0.1 multiplier for non-cancer PRGs.

PRG Exceedance: **1270** (ca) - PRG carcinogen

ND - Not Detected. See laboratory analytical reports for individual analyte detection limits.

J - Analyte positively identified, but the quantitation was below the laboratory reporting limit.

GP-D is a duplicate of GP-06 (4-8') * - PRG for total xylenes ** - PRG for unspecified mixture, high risk, e.g., Aroclor 1254

Table 1

Kaiser Aluminum Fabricated Products, LLC - Soil Analytical Results Summary Table - November 2 - 3, 2005

BORING NO.	UNITS	GP-01	GP-02	GP-03	GP-04	GP-05	GP-05	GP-06	GP-D	GP-08	GP-08	GP-08	HA-01	HA-02	HA-03	PRG	BUSTR (TPH)
DEPTH		10 - 12'	0 - 2'	0 - 2'	10 - 12'	0 - 2'	19 - 21'	4 - 8'		12 - 16'	20 - 22'	22 - 24'	14" -16"	12"	5"- 7"	(Residential)	(Class 2 Soil)
PCBs	ug/kg																
Arochlor 1248		<9.17	NA	<9.95	<8.79	<12.9	<9.08	420	**1720**	<9.64	NA	NA	<10.7	<10.2	<9.82	220**(ca)	
Arochlor 1254		<9.17	NA	<9.95	<8.79	<12.9	<9.08	<9.78	<10.1	**22500**	NA	NA	**7680**	**1910**	<9.82	220**(ca)	
Arochlor 1260		<9.17	NA	<9.95	<8.79	118	<9.08	262	233	<9.64	NA	NA	<10.7	<10.2	297	220**(ca)	
Pesticides	ug/kg	ND	NA	ND	ND	NA	ND	ND	ND	ND	NA	NA	ND	NA	NA		
TPH	mg/kg																
C6-C10		NA	NA	NA	NA	NA	NA	NA	NA	1.91	1.17	NA	NA	NA	NA	---	5000
C10-C28		45.3	NA	5.55J	5.09J	NA	<2.19	9.35J	12.7	10300	7570	NA	6530	1430	489	---	---
C10-C20		39	NA	<2.44	7.3	NA	<2.25	2.7J	3.4J	3100	3500	NA	77	940	2.4J	---	10,000
C20-C34		330	NA	240	77	NA	<2.25	260	350	**94000**	**93000**	NA	550	**110000**	620	---	20,000
Metals	mg/kg																
Aluminum		5710	NA	NA	5250	**69500**	3600	**53700**	**47800**	**14400**	NA	NA	**41500**	NA	NA	7,600	
Antimony		<0.112	NA	<0.122	<0.108	0.944	<0.113	0.166J	0.244J	<0.113	NA	NA	0.139J	NA	NA	3.1	
Arsenic		**4.45**	NA	**5.89**	**14.5**	**9.77**	**7.15**	**11.4**	**20.3**	**10.5**	NA	NA	**15.6**	NA	NA	0.39(ca)	
Barium		21.2	NA	NA	24	127	12.1	90.6	107	72.5	NA	NA	86.2	NA	NA	540	
Beryllium		0.376J	NA	NA	0.317J	1.54	<0.239J	0.483J	0.565J	0.613	NA	NA	7.03	NA	NA	15	
Cadmium		1.31	NA	NA	0.656	1.97	0.6	3	2.8	0.72	NA	NA	1.51	NA	NA	3.7	
Calcium		56100	NA	NA	74900	6530	37000	9720	27200	10000	NA	NA	4340	NA	NA	---	
Chromium		8.4	NA	NA	10.3	87.5	5.82	81.3	106	**268**	NA	NA	100	NA	NA	210(ca)	
Cobalt		7.59	NA	NA	6.46	18.2	5.16	13.6	14.5	9.00	NA	NA	7.82	NA	NA	900(ca)	
Copper		25.8	NA	NA	22.3	**5700**	16.6	**3150**	**1870**	237	NA	NA	**2990**	NA	NA	310	
Iron		**22000**	NA	NA	**18100**	**28500**	**12000**	**53000**	**80200**	**23900**	NA	NA	**20800**	NA	NA	2,300	
Lead		10.9	NA	17	12.7	282	8.42	300	234	101	NA	NA	**1270**	NA	NA	400	
Magnesium		11200	NA	NA	21900	4600	11800	4140	11200	4660	NA	NA	3330	NA	NA	---	
Manganese		132	NA	NA	**325**	**693**	**189**	**356**	**400**	**331**	NA	NA	**305**	NA	NA	180	
Mercury		0.0228J	NA	0.0355J	0.0198J	0.0508J	0.0123J	1.66	1.83	0.100J	NA	NA	0.121J	NA	NA	2.3	
Nickel		25.5	NA	NA	19.6	82.9	17.8	**301**	**217**	42	NA	NA	36	NA	NA	160	
Potassium		1170	NA	NA	1070	2900	936	910	944	1280	NA	NA	1410	NA	NA	---	
Selenium		5.11	NA	NA	3.16	31	3.74	35.8	**39.1**	6.22	NA	NA	15.5	NA	NA	39	
Silver		1.06J	NA	NA	1.10J	2.41J	0.641J	4.28	4.51	0.942J	NA	NA	1.33J	NA	NA	39	
Sodium		74.4	NA	NA	83.2	387	75	316	242	891	NA	NA	124	NA	NA	---	
Thallium		0.488	NA	0.239	0.353	<1.92	**0.534**	<1.45	<0.307	<1.41	NA	NA	<3.25	NA	NA	0.52	
Vanadium		**28.7**	NA	NA	**38.9**	**82.9**	**16.6**	**49.6**	**35.3**	**32**	NA	NA	**36.9**	NA	NA	7.8	
Zinc		91.9	NA	NA	78.1	**5330**	63.4	1990	1950	182	NA	NA	728	NA	NA	2,300	
Cyanide	mg/kg	<0.277	NA	NA	<0.266	0.706J	<0.262	<0.298	<0.294	<0.279	NA	NA	0.332J	NA	NA	120	

Notes:

PRG - US EPA Region 9 Preliminary Remediation Goal for residential soil direct contact. Value adjusted by 0.1 multiplier for non-cancer PRGs.

PRG Exceedance: **1270** (ca) - PRG carcinogen.

ND - Not Detected. See laboratory analytical reports for individual analyte detection limits.

J - Analyte positively identified, but the quantitation was below the laboratory reporting limit.

GP-D is a duplicate of GP-06 (4-8') * - PRG for total xylenes ** - PRG for unspecified mixture, high risk, e.g., Aroclor 1254

Table 1A
Kaiser Aluminum Fabricated Products, LLC - Soil TCLP Results
GP-08 (20-22')
November 2, 2005

Analyte	Units	Result	TCLP Limit
VOCs	ug/L		
Trichloroethene		46.3J	500
Vinyl Chloride		8.34J	200
SVOCs	ug/L		
m, p Cresols		605	200,000
Metals	mg/L		
Barium		0.848J	100

Notes:
TCLP - Toxicity Characteristic Leaching Procedure
J - Analyte positively identified, but the quantitation was below the laboratory reporting limit.

Table 2

Kaiser Aluminum Fabricated Products, LLC - Ground Water Analytical Results Summary Table - November 2-3, 2005

SAMPLE ID	UNITS	GW-01	GW-02	GW-03	GW-04	GW-D *	GW-05	GW-06	GW-07	GW-08	MCL / *(PRG)*
VOCs	ug/l										
1,1-Dichloroethene		<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	0.789J	<0.500	<0.500	7
cis-1,2-Dichloroethene		<0.250	<0.250	<0.250	<0.250	<0.250	0.325J	**2060**	<0.250	22.2	70
trans-1,2-Dichloroethene		<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	44.9	<0.250	1.05	100
1,1,1-Trichloroethane		<0.250	0.397J	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	200
1,2,3-Trichlorobenzene		<0.125	<0.125	<0.125	<0.125	<0.125	<0.125	8.96J	<0.125	<0.125	--
Vinyl Chloride		<0.250	<0.250	<0.250	<0.250	<0.250	**3.49**	**158**	<0.250	**43.1**	2
SVOCs	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
PCBs	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Pesticides	ug/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	*
Chloride	mg/l	13.5	31.3	9.14	29.0	28.5	38.7	20.0	63.7	10.5	--
Ammonia	mg/l	0.254	0.0855J	0.103	0.131	0.115	1.32	0.182	0.132	0.182	--
Metals (Total)	ug/l										
Aluminum		***69000***	***102000***	***53900***	***60500***	***49200***	***107000***	***49900***	***19900***	***44800***	*(3600)*
Antimony		**12.7**	**11.3**	**10.0**	**12.3**	**9.7**	**19.1**	**10.2**	**7.44**	**8.75**	6
Arsenic		**102**	**179**	**72.9**	**95.9**	**84.5**	**184**	**105**	**56.1**	**97.2**	10**
Barium		673	613	250	471	380	463	437	231	233	2000
Beryllium		3.41J	**4.91J**	1.18J	1.19J	0.752J	2.05J	<0.25	<0.25	1.42J	4
Cadmium		**16.7**	**17.1**	**10.1**	**12.9**	**9.45J**	**25.2**	**9.57J**	3.48J	**7.49J**	5
Calcium		586000	1510000	589000	710000	507000	998000	540000	280000	465000	--
Chromium		**209**	**199**	**166**	**165**	**175**	**227**	**149**	65.4	**120**	100
Cobalt		68.8	122	64.3	66.3	58.1	112	59.4	21.3	56.1	*(730ca)*
Copper		261	489	219	253	199	522	184	75.2	164	1300
Iron		***205000***	***330000***	***165000***	***274000***	***223000***	***525000***	***307000***	***88700***	***172000***	*(1100)*
Lead		**202**	**250**	**150**	**192**	**137**	**337**	**123**	**52.6**	**121**	15
Magnesium		155000	661000	200000	178000	159000	282000	168000	79000	123000	--
Manganese		***4500***	***4330***	***2560***	***5180***	***3610***	***9530***	***4790***	***1300***	***3920***	*(88)*
Mercury		0.189J	0.55	<0.100	0.186J	<0.100	0.381	0.155J	<0.100	0.226	2
Nickel		***305***	***476***	***277***	***263***	***250***	***435***	***253***	***84.3***	***209***	*(73)*
Potassium		20700	30300	18000	20500	16800	37000	19600	13000	18200	--
Selenium		<5.0	**92.9**	17.0	<5.0	<5.0	<5.0	<100	<5.0	6.75J	50
Silver		6.13J	<5.0	5.43J	7.39J	9.09J	16.5	11.7	<5.0	6.73J	*(18)*
Sodium		12600	16800	10600	16100	15600	17400	28900	32600	11400	--
Thallium		**9.23**	**8.54**	**7.31**	**7.87**	**4.57**	**9.49**	**5.48**	**2.0**	**4.14**	2
Vanadium		***320***	***680***	***336***	***340***	***279***	***560***	***308***	***120***	***254***	*(3.6)*
Zinc		***1480***	***1570***	***749***	***947***	***795***	***1610***	***788***	***320***	***652***	*(1100)*
Cyanide	mg/l	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	200

Notes:

MCL = U.S. EPA Primary Maximum Contaminant Level for drinking water.

PRG = U.S. EPA Region 9 Preliminary Remediation Goal for tap water. PRG value adjusted by 0.1 multiplier for non-cancer PRGs.

(3600) = PRG ca - PRG carcinogen

MCL Exceedance - **12.7** PRG Exceedance - ***320***

ND = No Detections in this category. See laboratory analytical report for individual analyte detection limits.

J = Analyte was positively identified, but the quantitation was below the laboratory reporting limit.

*No detections in this category. See MCLs for individual analyte MCL.

** Arsenic MCL was revised from 50 ug/l to 10 ug/l on January 23, 2006.

GW-D is a duplicate of GW-04

Table 3

Kaiser Aluminum Fabricated Products, LLC - Process Well Analytical Results

October 31, 2005

SAMPLE ID	UNITS	PW-01	PW-02	MCL / *(PRG)*
VOCs	ug/l	ND	ND	*
SVOCs	ug/l	ND	ND	*
PCBs	ug/l	ND	ND	*
Pesticides	ug/l	ND	ND	*
Metals	ug/l			
Aluminum		<50	<50	*(3600)*
Antimony		<0.25	<0.25	6
Arsenic		**15.8**	**20.4**	10**
Barium		205	426	2000
Beryllium		<0.25	<0.25	4
Cadmium		<2.5	<2.5	5
Calcium		105000	92800	--
Chromium		<2.5	<2.5	100
Cobalt		<2.5	<2.5	*(730ca)*
Copper		<5.0	<5.0	1300
Iron		1200	2210	*(1100)*
Lead		<2.5	<2.5	15
Magnesium		34800	30000	--
Manganese		***415***	***115***	*(88)*
Mercury		<0.1	0.131J	2
Nickel		<5.0	<5.0	*(73)*
Potassium		2730	1600	--
Selenium		<5.0	<5.0	50
Silver		<5.0	<5.0	*(18)*
Sodium		16400	18400	--
Thallium		<0.05	0.213	2
Vanadium		***6.95J***	***6.25J***	*(3.6)*
Zinc		16.4J	<5.0	*(1100)*
Cyanide	mg/l	<0.005	<0.005	200

Notes:

MCL - U.S. EPA Primary Maximum Contaminant Level for drinking water.

PRG - U.S. EPA Region 9 Preliminary Remediation Goal for tap water

PRG value adjusted by 0.1 multiplier for non-cancer PRGs. ca - PRG carcinogen.

(3600) = PRG

MCL Exceedance: **15.8** PRG Exceedance: ***415***

ND - Not Detected - See laboratory analytical reports for individual analyte detection limits.

J - Analyte positively identified, but the quantitation was below the laboratory reporting limit.

* No detections in this category. See MCL list for individual analyte MCL or PRG.

** Arsenic MCL was revised from 50 ug/l to 10 ug/l effective January 23, 2006.

Table 4

Kaiser Aluminum Fabricated Products, LLC - Surface Water Analytical Results - October 31, 2005

SAMPLE ID	UNITS	SW-01	SW-02	SW-03	SW-04	Aquatic Life	Human Health
VOCs	ug/l			(Dup)		**OMZA**	**Non-Drink**
Benzene		9.12	2.28	2.37	<0.125	160	710
cis-1,2-Dichloroethene		<0.250	0.408J	0.394J	<0.250	970	---
Toluene		0.303J	<0.250	<0.250	<0.250	62	200,000
m,p-Xylene		0.717J	<0.500	<0.500	<0.500	27	---
SVOCs	ug/l	ND	ND	ND	ND	***	***
PCBs	ug/l	ND	ND	ND	ND	***	***
Pesticides	ug/l	ND	ND	ND	ND	***	***
Metals	ug/l						
Aluminum		<50	<50	<50	<50	---	---
Antimony		0.351J	<0.25	<0.25	<0.25	190	4300
Arsenic		5.33J	6.43J	7.23J	6.40J	150	---
Barium		82.4	77.1	79.3	68.7	220	---
Beryllium		<0.25	<0.25	<0.25	<0.25	51*	280
Cadmium		<2.5	<2.5	<2.5	<2.5	5.2*	---
Calcium		100000	97800	98500	92300	---	---
Chromium		<2.5	<2.5	<2.5	<2.5	48*	---
Cobalt		<2.5	<2.5	<2.5	<2.5	24	---
Copper		<5.0	<5.0	<5.0	<5.0	21*	1300
Iron		548	209	197	145	---	---
Lead		<2.5	<2.5	<2.5	<2.5	22*	---
Magnesium		27500	27900	27100	25300	---	---
Manganese		57.6	41.4	41.8	25.9	---	---
Mercury		<0.1	<0.1	<0.1	<0.1	0.91	0.012
Nickel		<5.0	<5.0	<5.0	<5.0	104*	4600
Potassium		2720	2710	2630	2560	---	---
Selenium		<5.0	<5.0	<5.0	<5.0	5	11,000
Silver		<5.0	<5.0	<5.0	<5.0	1.3	---
Sodium		25600	25700	25800	24800	---	---
Thallium		0.263	0.247	0.236	0.269	17	6.3
Vanadium		6.47J	7.54J	7.10J	6.02J	44	---
Zinc		<5.0	<5.0	<5.0	<5.0	53*	69,000
Cyanide	mg/l	<0.005	<0.005	<0.005	<0.005	12	220,000
Chloride	mg/l	51.7	47.1	46.7	46.6	---	---
Ammonia	mg/l	0.07J	0.0811J	0.107	0.0730J	2.0**	---

Notes:

SW-03 is a duplicate of SW-02

ND - Not Detected - See laboratory reports for individual analyte detection limits.

J - Analyte was positively identified, but the quantitation was below the laboratory reporting limit.

OMZA - Outside Mixing Zone Average for Ohio River Basin

Non-Drink - Non-drinking water source criteria

* Based on total hardness of 260 mg/l measured on 4/11/05

** 30 Day Average based on mean pH and temperature measurements from 10/31/05

*** See surface water criteria for individual compound limits

Table 5

Kaiser Aluminum Fabricated Products, LLC - Sediment Analytical Results - October 31, 2005

SAMPLE ID	UNITS	SE-01	SE-02	SE-03	SE-04	ESL	PRG	Ohio SRV
VOCs	ug/kg			Dup			(Residential)	
Acetone		<7.84	15.9J	11.9J	<12.2	9.9	1,400,000	---
Benzene		1.1J	1.22J	<0.809	<1.22	142	640(ca)	---
2-Butanone		<3.92	4.51	<4.05	<6.09	42.4	2,200,000	---
cis-1,2-Dichloroethene		1.35J	<0.732	<0.809	<1.22	---	4300	---
Toluene		8.86	3.63J	2.69J	<1.22	1220	52,000	---
SVOCs	ug/kg							---
Benzo(a)anthracene		600	531J	577	<226	108	620(ca)	---
Benzo(a)pyrene		*546*	*477J*	*492J*	<226	150	62(ca)	---
Benzo(b)fluoranthene		*871*	*750*	*775*	228J	10,400	620(ca)	---
Benzo(k)fluoranthene		279J	309J	338J	<226	240	6200(ca)	---
Chrysene		707	655	670	<226	166	62000(ca)	---
Fluoranthene		1320	1210	1290	404J	423	230,000	---
Indeno(1,2,3-cd)pyrene		264J	<288	<287	<226	200	620(ca)	---
Phenanthrene		630	594	668	237J	204	---	---
Pyrene		1120	1030	1090	327J	195	230,000	---
PCBs	ug/kg							
Aroclor 1260		60.2	30.4	19.8J	<20.1	59.8*	220**(ca)	---
Pesticides	ug/kg	ND	ND	ND	ND			---
Metals	mg/kg							
Aluminum		4520	4400	4450	5130	---	7,600	28,000
Antimony		<0.158	<0.151	<0.150	<0.259	---	3.1	0.84
Arsenic		*8.4*	*7.69*	*10.6*	*9.45*	9.79	0.39(ca)	11
Barium		43.7	34.5	38.5	50.2	---	540	210
Beryllium		0.265J	0.285J	0.271J	0.285J	---	15	0.8
Cadmium		0.690J	0.531J	0.495J	0.814J	0.99	3.7	0.96
Calcium		40700	29600	33500	50200	---	---	110,000
Chromium		7.60	7.29	7.29	8.53	43.4	210(ca)	51
Cobalt		5.53	5.22	4.99	5.77	50	900(ca)	12
Copper		18.4	14.3	16.7	17.4	31.6	310	42
Iron		16600	15000	14700	15600	---	2,300	44,000
Lead		10.9	12.9	15.2	17.2	35.8	400	47
Magnesium		7830.0	7970	8620	9090	---	---	29,000
Manganese		330	193	199	344	---	180	1000
Mercury		<0.0158	<0.0131	<0.0137	<0.0222	0.174	2.3	0.12
Nickel		14.7	13.9	13.5	15.5	22.7	160	36
Potassium		806	796	799	961	---	---	12,000
Selenium		<0.789	<0.645	<0.569	<1.17	---	39	1.4
Silver		1.50J	0.623J	0.686J	<0.586	0.50	39	0.43
Sodium		80.6	65.6	67.9	110	---	---	---
Thallium		0.34	0.328	0.353	0.396	---	0.52	4.7
Vanadium		16.3	17.2	18.3	17.3	---	7.8	40
Zinc		96.8	67.2	57.2	90.1	121	2,300	190
Cyanide	mg/kg	0.638J	13.1	9.18	<0.583	0.0001	120	---
TPH	mg/kg							
C10-C28		10.6	17.7	30.9	72.3	---	---	---
C10-C20		0.92	9.5	8.8	17	---	---	---
C20-C34		69	260	210	510	---	---	---
Solids	%	63.4	66.2	66.6	40.3			

Notes:

Analytical results reported on a dry weight basis. SE-03 is a duplicate of SE-02

ND - Not Detected - See laboratory reports for individual analyte detection limits.

J - Analyte was positively identified, but the quantitation was below the laboratory reporting limit.

ESL - U.S. EPA Region 5 Ecological Screening Level

PRG - U.S. EPA Region 9 Preliminary Remediation Goal for Direct Contact with Residential Soils

PRG value adjusted by 0.1 multiplier for non-cancer PRGs. (ca) - PRG carcinogen

SRV - Ohio Sediment Reference Value - Statewide (Be, Co, Pb, Hg, Ag, Tl, V) or Huron Erie Lake Plain (other metals)

ESL Exceedance: 600 PRG Exceedance: *871* ESL/PRG Exceedance: *546*

* - ESL for Total PCBs ** - PRG for unspecified mixture, high risk, e.g. Aroclor 1254

Table 6
Kaiser Aluminum Fabricated Products, LLC - Trip Blanks
October 30 - November 2, 2005

Trip Blank	Units	TB-PW	TB-SW	TB-SE	TB-1	TB-2	TB-3	TB-4	TB-5
VOCs	ug/l								
Acetone		<2.50	<2.50	<2.50	9.57J	9.17J	6.95J	<2.50	<2.50
Benzene		<0.125	<0.125	<0.125	<0.125	0.131J	<0.125	<0.125	<0.125
Chloroform		<0.125	<0.125	<0.125	0.233J	<0.125	<0.125	<0.125	<0.125
Toluene		<0.250	<0.250	<0.250	0.441J	0.316J	0.295J	<0.250	<0.250

Notes:
J - Analyte was positively identified, but the quantitation was the below laboratory reporting limit.

Table 7
Kaiser Aluminum Fabricated Products, LLC - Field Parameters
October 31 - November 2, 2005

Sample ID	Medium	pH	Specific Cond.	Temperature
Units		(s.u.)	(uS/cm)	°C
SW-01	SW	7.63	542	10.6
SW-02/03	SW	7.82	710	11.7
SW-04	SW	8.19	693	12.8
PW-01	GW	7.74	739	13.9
PW-02	GW	7.36	734	15.7
GW-01	GW	(7.03)	(7.11)	---
GW-02	GW	(7.10)	(805)	---
GW-03	GW	6.85	875	14.1
GW-04	GW	7.10	1046	12.9
GW-05	GW	7.02	1054	---
GW-06	GW	7.01	998	15.2
GW-07	GW	6.91	1120	14.2
GW-08	GW	6.88	877	15.1

Notes:
SW - surface water, GW - ground water
(7.03) - laboratory measurement

GEOPROBE® CORE LOGS

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/2/2005

Location Description: **GP-01**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 42"

0 - 8" Topsoil - dark brown silty CLAY with gravel and roots
8 - 21" Dark brown silty CLAY, trace sand & fine gravel, moist
21 - 42" Brown-gray silty CLAY to clayey SILT w/ orange mottling, trace sand & gravel, moist

Core B (4-8 ft) Recovery: 42"

Brown-gray clayey SILT w/ orange mottling, little sand & gravel, moist

Core C (8-12 ft) Recovery: 37"

0 - 8" Brown-gray clayey SILT w/ orange mottling, little sand & gravel, moist
8 - 37" Brown fine to coarse SAND & fine GRAVEL, trace silt, core wet @ 36"

Core D (12-16 ft) Recovery: 30"

0 - 18" Brown-gray poorly sorted SAND & fine GRAVEL, trace silt, wet
18 - 30" Brown-gray fine SAND, some fine gravel, little silt, wet

EOB - 16'

Core E (16-20 ft) Recovery:

Core F (20-24 ft) Recovery:

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/2/2005

Location Description: **GP-02**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 42"

0 - 7" Brown TOPSOIL & SAND
7 - 11" Black CINDERS & SAND
11 - 42" Red-brown soft clayey SILT, trace sand, moist

Core B (4-8 ft) Recovery: 39"

Red-brown clayey SILT, trace sand & gravel, cobbles, moist

Core C (8-12 ft) Recovery: 39"

0 - 17" Red-brown clayey SILT, trace sand & gravel, cobbles, moist
17 - 22" Red-brown SILT, wet
22 - 39" Red-brown poorly sorted SAND & GRAVEL, dry

Core D (12-16 ft) Recovery: 39"

Gray-brown poorly sorted SAND & GRAVEL, dry

Core E (16-20 ft) Recovery: 42"

Gray-brown poorly sorted Sand & Gravel, little silt, slightly damp

Core F (20-24 ft) Recovery: 43"

Gray-brown poorly sorted Sand & Gravel, little silt, slightly damp

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/2/2005

Location Description: **GP-03**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 48"

0 - 9" Dark brown silty TOPSOIL w/ roots & gravel, moist
9 - 48" Red-brown clayey SILT, trace sand & fine gravel, moist

Core B (4-8 ft) Recovery: 32"

0 - 16" Red-brown clayey SILT, trace sand & fine gravel, moist
16 - 32" Red-brown silty & clayey coarse SAND, moist

Core C (8-12 ft) Recovery: 15"

Gray-brown poorly sorted SAND & fine GRAVEL, little silt,dry

Core D (12-16 ft) Recovery: 17"

Gray-brown poorly sorted SAND & fine GRAVEL, little silt,damp

Core E (16-20 ft) Recovery: 22"

Gray-brown poorly sorted SAND & fine GRAVEL, little silt,damp

Core F (20-24 ft) Recovery: 48"

Gray-brown poorly sorted SAND & fine GRAVEL, little silt,damp
EOB - 24'

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/2/2005

Location Description: **GP-04**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 33"

0 - 8" Top soil, dark brown clayey SILT w/ gravel & roots, moist
8 - 25" Brown poorly sorted SAND & GRAVEL, dry
25 - 33" Red-brown clayey SILT, trace sand & gravel, moist

Core B (4-8 ft) Recovery: 20"

0 - 8" Brown poorly sorted SAND & fine GRAVEL, little silt, moist
8 - 12" Brown SILT, wet
12 - 20" Brown poorly sorted SAND & fine GRAVEL, little silt, moist

Core C (8-12 ft) Recovery: 31"

Gray-brown poorly sorted SAND, GRAVEL & COBBLE fragments, little silt, dry

Core D (12-16 ft) Recovery: 48"

Gray-brown poorly sorted SAND, GRAVEL & COBBLE fragments, little silt, dry

Core E (16-20 ft) Recovery: 48"

Gray-brown poorly sorted SAND, GRAVEL & COBBLE fragments, little silt, damp at 39"
Interval may contain some slough from borehole collapse.

Core F (20-24 ft) Recovery: 48"

Gray-brown poorly sorted SAND, GRAVEL & COBBLE fragments, little silt, damp
Interval may contain some slough from borehole collapse.
EOB - 24'

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/3/2005

Location Description: **GP-05**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 42"

0 - 8" Dark brown topsoil - clayey SILT w/ gravel & roots, moist
8 - 16" Brown clayey SILT & whitish-blue GRANULAR MATERIAL
16 - 42" Brown clayey SILT, trace sand, gravel & cobbles, dry

Core B (4-8 ft) Recovery: 40"

Brown SILT, little sand & gravel, trace clay, dry

Core C (8-12 ft) Recovery: 42"

0 - 18" Brown sandy SILT, little gravel, dry
18 - 42" Brown silty SAND & GRAVEL, dry

Core D (12-16 ft) Recovery: 40"

Brown sandy SILT, little gravel & cobble fragments, dry

Core E (16-19 ft) Recovery: 36"

0 - 29" Brown sandy SILT, little gravel & cobble fragments, dry
29 - 36" Brown fine to medium SAND, trace SILT & fine GRAVEL, dry
Interval included some slough due to partial borehole collapse

Core F (19-21 ft) Recovery: 18"

0 - 7" Medium to coarse SAND, damp
7 - 18" Gray SILT, wet
EOB - 21'

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/3/2005

Location Description: **GP-06**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 36"

0 - 8" Black CINDERS, little clayey silt & roots, dry
8 - 29" Brown clayey SILT, trace sand & gravel, dry
29 - 33" Black CINDERS & bluish GRANULAR MATERIAL
33 - 36" Brown clayey SILT, trace sand & gravel, moist

Core B (4-8 ft) Recovery: 24"

Brown clayey SILT, black & orange to tan CINDERS & blue GRANULAR MATERIAL, dry

Core C (8-12 ft) Recovery: 12"

Brown clayey SILT, black & orange to tan CINDERS & blue GRANULAR MATERIAL, dry
Rock in tip of sampler

Core D (12-16 ft) Recovery: 20"

0 - 8" Brown clayey SILT, black & orange to tan CINDERS & blue GRANULAR MATERIAL, dry
8 - 11" Brown clayey SILT, wet
11 - 18" Brown clayey SILT, some gravel, moist
18 - 20" Brown silty medium to coarse SAND, trace gravel, damp

Core E (16-20 ft) Recovery: 24"

Brown-gray silty fine to medium SAND, little fine gravel, dry

Core F (20-22ft) Recovery: 24"

0 - 22" Brown-gray fine to coarse SAND, trace fine gravel, dry
22 - 24" Orange-brown fine SAND, damp
EOB - 22'

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/3/2005

Location Description: **GP-07**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery:

Soil samples not collected or logged at this location - blind drilling for collection of ground water sample only

Core B (4-8 ft) Recovery:

Core C (8-12 ft) Recovery:

Core D (12-16 ft) Recovery:

Core E (16-20 ft) Recovery:

Core F (20-24 ft) Recovery:

Geoprobe Core Log Sheet

Site: Kaiser Aluminum Date/Time: 11/3/2005

Location Description: **GP-08**

Latitude/Longitude: Logger: RRM

Core A (0-4 ft) Recovery: 35"

0 - 13" Dark brown top soil - clayey SILT, trace sand & gravel, roots
13 - 35" Gray to tan to brown BRICK FRAGMENTS, bluish-white GRANULAR MATERIAL &
tan PASTE-LIKE MATERIAL

Core B (4-8 ft) Recovery: 25"

Black stained SAND & SILT, slight oily odor, moist

Core C (8-12 ft) Recovery: 27"

0 - 8" Dark gray to black clayey SAND, moist
8 - 27" Dark gray soft silty CLAY, slight oily odor, moist

Core D (12-16 ft) Recovery: 38"

0 - 16" Dark gray to black stained coarse SAND & soft silty CLAY, oily odor, moist
16 - 30" Dark gray soft clayey SILT, moist
30 - 38" Dark gray clayey SILT, moist

Core E (16-20 ft) Recovery: 48"

0 - 28" Dark gray stained soft clayey SILT, little sand & fine gravel, oily odor, moist to wet
28 - 48" Brown-gray poorly sorted SAND & fine GRAVEL, damp

Core F (20-24 ft) Recovery: 48"

0 - 40" Very soft black clayey SILT to MUCK, oily odor, wet - possible slough from partial borehole collapse
40 - 48" Brown-gray poorly sorted SAND & fine GRAVEL, oily odor, damp
EOB - 24'