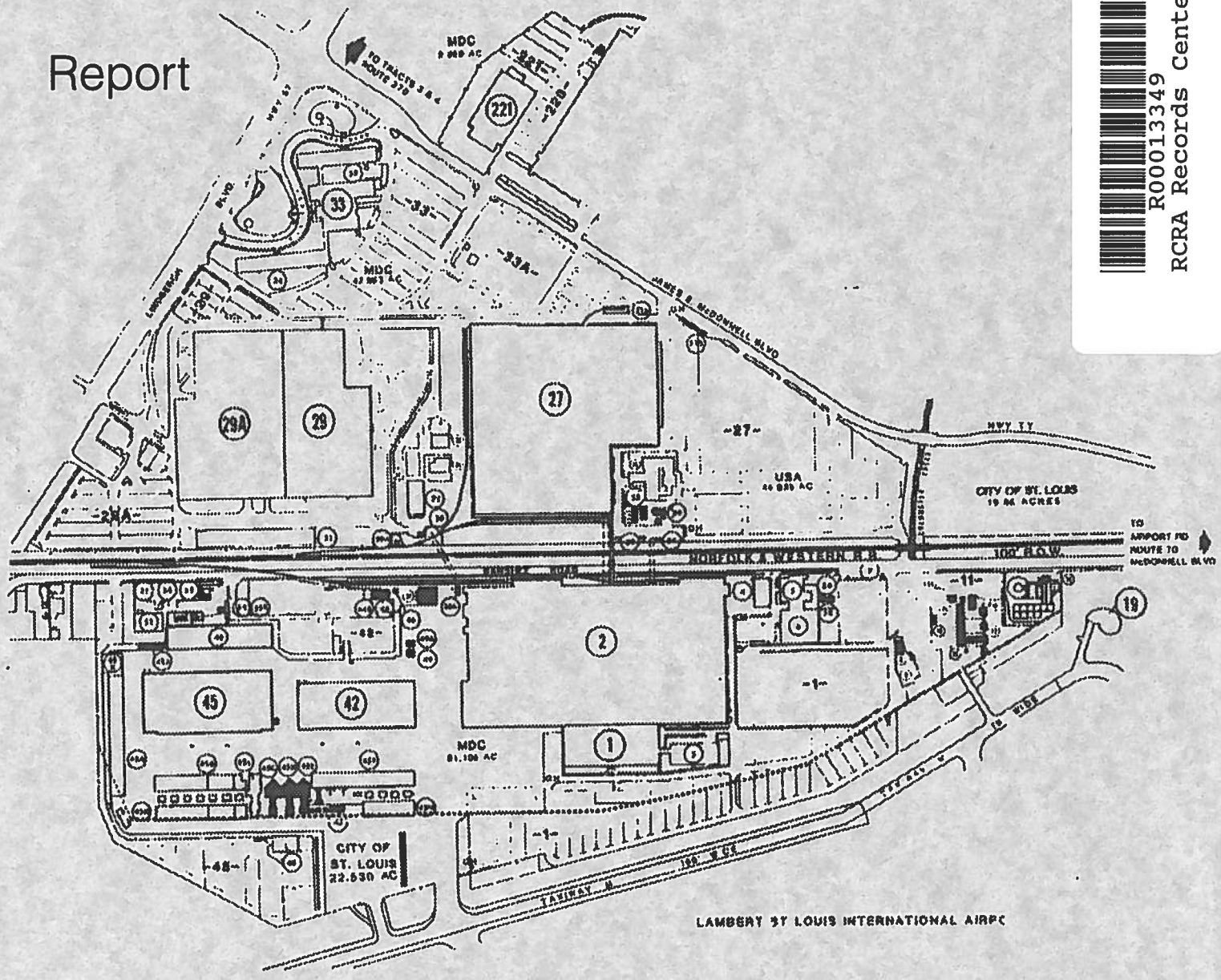
RCRA Facility Assessment
McDonnell-Douglas Corporation
Hazelwood, Missouri

Report



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RCRA FACILITY ASSESSMENT
McDONNELL-DOUGLAS CORPORATION
HAZELWOOD, MISSOURI

REPORT

EPA Contract No. 68-W4-0005
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726 Minnesota Avenue
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ACRONYM LIST

AOC	Area of concern
BLS	Below land surface
BNAE	Base/neutral acid extractable organic
BTEX	Benzene, toluene, ethylbenzene, and xylenes
CEI	Compliance Evaluation Inspection
CM	Corrective measures
DCE	Dichloroethylene
ESP	Environmental Services Program
FSP	Field Sampling Plan
gpm	gallons per minute
HDPE	High density polyethylene
HPLC	High pressure liquid chromatography
IWTP	Industrial Wastewater Treatment Plant
LUST	Leaking Underground Storage Tank
M&E	Metcalf & Eddy, Inc.
MCD	McDonnell-Douglas
MDC	Missouri Department of Conservation
MDNR	Missouri Department of Natural Resources
MEK	Methyl ethyl ketone
MIBK	Methyl isobutyl ketone
NPDES	National Pollutant Discharge Elimination System
O.D.	Outside diameter
PAH	Polynuclear aromatic hydrocarbon
PCB	Polychlorinated biphenol
PCE	Perchloroethylene (aka tetrachloroethylene)
PID	Photoionization detector
POTW	Publicly-owned treatment works
PR	Preliminary Review
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
REPA	RCRA Enforcement and Permitting Assistance
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI/FS	Remedial Investigation/Feasibility Study
SAIC	Science Applications International Corporation
SLAPS	St. Louis Airport Site
SWMU	Solid waste management unit
TCE	Trichloroethylene
TCLP	Toxicity characteristics leachate procedure
TDS	Total dissolved solids
TES	Technical Enforcement Support
TPH	Total petroleum hydrocarbons

USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOC	Volatile organic compound
VSI	Visual Site Inspection

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EXECUTIVE SUMMARY

A Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was conducted at the McDonnell-Douglas (MCD) Tract I facility (U.S. EPA I.D. No. MOD000818963) in Hazelwood,. Missouri. Metcalf & Eddy conducted the first two phases of the RFA, the Preliminary Review (PR) and the Visual Site Inspection (VSI), under the Technical Enforcement Support X Contract for the United States Environmental Protection Agency and the Missouri Department of Natural Resources. Science Applications International Corporation conducted the third phase, a sampling visit to collect soil and groundwater samples at eight solid waste management units (SWMUs).

This report presents the findings of all three RFA phases and closure investigations conducted by MCD at 10 units. Included in this report are descriptions of all SWMUs identified at the facility, synopses of the closure investigation and sampling visit activities, findings of the closure investigations and sampling visit, and evaluations for each unit of the potential for releases of hazardous waste or hazardous constituents to the environment.

The MCD facility in Hazelwood, Missouri, has been in continuous operation since 1941. The present activities include the manufacturing of fighter aircraft, space systems, and missiles. Processes include the fabrication of aluminum, titanium, composite structures, and other air frame material. The manufacturing processes also include metal cutting, metal forming and grinding, degreasing, painting, and aircraft fueling.

The facility is permitted to treat, store and dispose of hazardous waste under RCRA permit number OSO 62284002. The facility also is permitted to transport hazardous wastes from other MCD facilities for management and solvent recycling.

MCD generates approximately 48 different waste streams that the facility considers to be hazardous waste. The largest quantities of wastes generated consist of emulsified cutting oil, paint solids, solvent and paint waste, wastewater treatment sludge, and acid and caustic waste. MCD stores hazardous waste in drums, dumpsters, and tanks at various locations around the facility. MCD stores on-site-generated waste in drums at three less-than-90-day storage areas. Waste solvents, paints, and oils are accumulated in drums at numerous satellite accumulation locations. When full, the containers are transferred to one of the less-than-90-day storage areas. Non-petroleum liquid wastes are either transported off-site for disposal, or neutralized and processed through the industrial wastewater treatment plant (IWTP). Liquids pretreated in the IWTP are discharged to the Metropolitan St. Louis Sewer District publicly-owned treatment works under an industrial discharge permit. Petroleum wastes are stored in tanks, or drums, and either blended and used as fuel for the boilers or transported to a disposal facility. Sludge from the IWTP is transported to a disposal facility.

The facility is located adjacent to the St. Louis Airport, approximately 10 miles from the confluence of the Missouri and Mississippi Rivers. Subsurface geologic units are unconsolidated sediments overlying bedrock. There are aquifers in the unconsolidated and bedrock units at

facilities adjacent to the Hazelwood facility, but the groundwater system at the Hazelwood facility is not fully characterized.

A total of 32 SWMUs were identified during the PR and VSI:

SWMU 1	Waste Sodium Hydroxide Solution Storage, Tanks H19 and H20, Building 52
SWMU 2	Waste Nitric and Hydrofluoric Acid Solution Storage, Tanks H12, H13, H14, Building 52
SWMU 3	Wastewater Sludge Collection Tank, Building 14
SWMU 4	Leaked or Spilled Jet Aircraft Fuel Storage Tank, Building 28
SWMU 5	Current Reactive Cyanide and Sulfide-Bearing Waste Storage, Area 2
SWMU 6	Former Reactive Cyanide and Sulfide-bearing Waste Storage, Area 2
SWMU 7	Explosive Waste Storage, Area 3
SWMU 8	Scrap Dock Shelter, Area 1
SWMU 9	Waste Nitric and Hydrofluoric Acid Solution Storage, Tanks H1, H2, H3, H4
SWMU 10	Current Waste Oil Tank, Building 6
SWMU 11	Former Waste Oil Tank, Building 6
SWMU 12	Waste Jet Aircraft Fuel and Hydraulic System Spillage Storage Tank, F-18 Silencer
SWMU 13	Waste Jet Aircraft And Hydraulic System Spillage Storage Tank, Hush House
SWMU 14	Waste Jet Aircraft Fuel Storage Tanks, Fuel Pits #3 and #4
SWMU 15	Waste Jet Fuel Storage Tank, Ramp Station 1 and 2
SWMU 16	Methyl Ethyl Ketone/Methyl Isobutyl Ketone Recovery Unit, Building 48
SWMU 17	Perchloroethylene Recovery Unit, Building 51
SWMU 18	Methyl Ethyl Ketone/ Methyl Isobutyl Ketone Recovery Unit, Building 27
SWMU 19	Drum Storage Areas and Related Satellite Accumulation Areas
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SWMU 23	Less-Than-90-Day Storage Area, Buildings 45C and 45D
SWMU 24	Less-Than-90-day Storage Area, Building 2
SWMU 25	Less-Than-90-day Storage Area, Building 51
SWMU 26	Former Less-Than-90-Day Storage Area, Building 40
SWMU 27	Nitric and Hydrofluoric Acid Scrubber Saddles Storage, Building 52
SWMU 28	Leaking Transformer, Building 26
SWMU 29	Waste Ferracoat, Methyl Ethyl Ketone, and Trichloroethylene Drum Storage, Building 29A
SWMU 30	Chemical Etching Spill Containment Area, Building 27
SWMU 31	Maintenance Shop Waste Oil Tank, Building 22
SWMU 32	PCB Storage Area

Closure investigations were completed on Units 1, 2, 3, 4, 6, 7, 12, 13, 14, and 15. Soil samples were collected during the RFA sampling visit at Units 8, 10, 17, 21, 22, 26, 27, and 31. Air, soil, soil gas, surface water, and groundwater were the potential migration pathways investigated for releases from the SWMUs. Documented releases have been identified from numerous units based on the analytical results for the sampling visit and the closure investigations.

1.0 INTRODUCTION

This report presents the findings of a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) at the McDonnell-Douglas (MCD) Tract I facility located in Hazelwood, Missouri, U.S. Environmental Protection Agency (USEPA) ID No. MOD000818963. Metcalf & Eddy, Inc. (M&E) prepared a Draft RFA Report for this facility presenting the findings of the preliminary review (PR) and visual site inspection (VSI) for USEPA Region VII under the Technical Enforcement Support (TES) X Contract.

Science Applications International Corporation (SAIC) prepared this Revised Draft RFA Report under the RCRA Enforcement and Permitting Assistance (REPA) 5 Contract. This revised draft presents the findings of the sampling visit and revises M&E's PR and VSI findings in the draft report only per Missouri Department of Natural Resources (MDNR) and USEPA comments. To respond to MDNR and USEPA comments, SAIC performed additional review of MDNR and MCD files concurrent with the sampling visit. The scope of this work assignment did not allow complete revision of the draft document, reevaluation of solid waste management units (SWMUs) identified by M&E not undergoing closure or sampled during the sampling visit, or evaluation of additional SWMUs not already identified. The format established by M&E for the draft report is maintained in this document.

The RFA is the initial stage in the three-stage RCRA Corrective Action Program. "The primary objective of the Corrective Action Program is to clean up releases of hazardous waste or hazardous constituents that threaten human health or the environment."[28] The purpose of an RFA is to compile existing information on a facility, evaluate SWMUs and other areas of concern (AOCs) with respect to the potential for releases to the environment, make preliminary determinations regarding the need for further investigation or interim measures at the facility, and screen those SWMUs or AOCs from further investigation that do not pose a threat to human health or the environment. [28]

Additional investigation of the facility is accomplished in the second stage, the RCRA Facility Investigation (RFI). The RFI is intended to fully characterize the extent of any releases from the facility. The third stage in the Corrective Action Program is the determination of the need for corrective measures (CM) and the implementation of the appropriate measures for all problems identified. [28]

The three stages of an RFA are the PR, the VSI, and the sampling visit, if necessary. The PR focuses on evaluating existing information on the facility from USEPA, State, and municipality files. The information reviewed may include inspection reports, permit applications, permits, historical monitoring data, and interviews with State personnel familiar with the facility. The VSI entails onsite collection of visual information and specific details on the operating history and status for each SWMU or AOC to acquire confirming evidence of a release. Information not available during the PR, such as recent modifications to a unit or impending closure of the unit by the facility, also is collected during a VSI. The sampling visit fills data gaps that remain upon completion of the PR and VSI by obtaining sampling and field data. [28]

In conducting the PR, documents from MDNR, Missouri Department of Conservation (MDC), and USEPA Region VII were reviewed, as well as documents from specific regulatory divisions within MDNR and USEPA. Aerial photographs from USEPA files also were reviewed. During the followup file review SAIC reviewed additional documents from MDNR, which became final after the PR.

M&E personnel, Mr. James Aycock and Mr. Dave Lowry, conducted the VSI at MCD on October 21 and 22, 1993. Upon arrival at the facility, M&E representatives met with MCD representatives Mr. Joe Haake, Group Manager, David Shanks, Environmental and Hazardous Materials Services, Robert Kaatman, Manager Environmental and Hazardous Materials Services, and Bryan Kury, Pollution Prevention Specialist. Messrs. Aaron Schmidt and Steve Jaques, Environmental Engineers for MDNR, also were present for the VSI.

Mr. Ed Moriarty, SAIC, and Mr. Aaron Schmidt conducted the sampling visit at the facility November 9-11 and 14-17, 1994. McDonnell-Douglas personnel, including Mr. Kury, Mr. Haake, and Mr. Elmer Dwyer, were present during sampling. Mr. Kaatman and Mr. Gary S. Sczepanski, Senior Specialist Environmental Engineering, were consulted for additional information on some SWMUs, and Mr. Dale Ascoli, Technical Specialist - Facilities Services, assisted in locating underground utilities. Ms. Bonnie Lockhart, Occupational Safety and Environmental Health Specialist, assisted with health and safety issues related to the sampling activities.

Background information obtained during the PR, the SAIC follow up file review, the VSI, and the sampling visit are presented in Sections 2.0 and 3.0 of this report. The sampling procedures followed during the sampling visit are described in Section 4.0. The SWMUs identified during the PR and VSI and the potential for releases from these units are discussed in detail in Section 5.0. References cited in the text are designated with a unique number corresponding to the references listed in Section 6.0. The report is supplemented with appendices containing photographs taken during the VSI (Appendix A) and the sampling visit (Appendix B), the field log for the sampling visit (Appendix C), summaries of investigations conducted by McDonnell-Douglas and associated analytical data (Appendix D), analytical data from the sampling visit, and for the SLAPS background samples (Appendix E), copies of relevant permits (except the RCRA permit, which is too lengthy) issued to the facility (Appendix F), and diagrams of the industrial waste treatment plant (IWTP) (Appendix G).

2.0 SITE BACKGROUND

This section describes the facility, summarizes the facility's history and operation, discusses past investigations both onsite and offsite, and details the facility's compliance history.

2.1 Facility Identification

Facility Name:	McDonnell Douglas Corporation (MCD)
USEPA ID No.:	MOD000818963
Haz. Waste Generator ID No.:	001001
Haz. Waste Transporter ID No.:	H-1039
Haz. Waste Storage Permit No.:	0S0 062284 002
Industrial Discharge Permit No.:	80140327-00 (Metropolitan St. Louis Sewer District)
NPDES Permit No:	MO-0004782
Resource Recovery Permit No.:	RR0268-A, Classification U
Address:	McDonnell Blvd. at Lindbergh P. O. Box 516, Dept. 891C Tract I Hazelwood, Missouri 63166
Telephone Number:	(314) 232-3319
Facility Contact:	Joe Haake, Group Manager, Environmental and Compliance

2.2 Facility Description

The McDonnell Douglas Tract I facility is located in St. Louis County on the northwest outskirts of St. Louis, Missouri (Figure 1). MCD manufactures combat aircraft, transport aircraft, space systems and missiles, and information systems. The primary product produced at this facility is combat aircraft, including the F-15 Eagle, the F/A-18 Hornet, and the AV-8B Harrier. Other products produced at the facility include the T45TS trainer, missile systems, and components for the C-17 transport plane. [2]

Banshee Road divides the facility into two areas: Tract I North and Tract I South (Figure 2). Tract I North encompasses approximately 53 acres. Operations in this area include chemical processing, machining of parts, composite manufacturing, parts degreasing, and painting. Tract I South encompasses approximately 81 acres. Operations in this area include chemical processing, aircraft assembly, aircraft painting, aircraft testing (flight ramps), industrial wastewater pretreatment and a boiler house.

The facility occupies approximately 80 buildings that contain approximately 4 million square feet (gross) or 3,950,127 square feet (net) of floor space. MCD owns 53 of the buildings, which contain 3,245,791 square feet (gross) or 3,192,933 square feet (net) of floor space. MCD leases 11 buildings from the U. S. Government which contain approximately 758,000 square feet

(gross) or 745,478 square feet (net) of floor space. MCD leases 17 buildings from other sources. These buildings contain approximately 11,700 square feet of floor space. All 17 buildings leased from other sources are identified as trailers. The following table delineates ownership of each of the buildings located on Tract I [4]:

TRACT I BUILDING OWNERSHIP (BY BUILDING NUMBER)

McDonnell Douglas	U.S. Government	Other
1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 11A, 12, 14, 14A, 16, 21, 25, 25B, 25C, 25T-A, 27T-F, 27T-G, 27T-H, 29, 29A, 32, 33, 34, 40, 41, 42, 42A, 43, 44, 45, 45C, 45D, 45E, 45J, 45K, 45L, 46, 48, 49, 49A, 51, 52, 54, 55, 56, 220, 221	20, 22, 24, 26, 27, 27V, 28, 30/30A, 39, 211, 212	27T-A, 27T-B, 27T-C, 27T-D, 27T-E, 29T-A, 29T-B, 29T-C, 29T-D, 29T-E, 29T-F, 29T-G, 45T-1A, 45T-1B, 45T-B, 45T-C, 45T-D

Access to the facility is strictly controlled. The facility is surrounded by a chain-link fence and is patrolled by a security force 24 hours a day, 365 days per year. Employees and visitors must go through security gates at the main entrance to the facility before entering any building. The security force employs approximately 225 persons, and an onsite fire department employs approximately 30 persons. [3]

2.3 Facility Operations

MCD began operations in 1941 and presently employs approximately 8,000 people. Currently, the facility operates 24 hours a day, Monday through Friday. [1] Activities performed in support of MCD operations include chemical processing, metal cutting, metal forming and grinding, degreasing, painting, aircraft assembly, aircraft fueling, and aircraft flight testing. [5]

MCD is a large quantity generator of hazardous waste. MCD generates approximately 48 different waste streams that the facility considers to be hazardous waste. [6] The largest quantities of wastes generated consist of emulsified cutting oil, paint solids, solvent and paint waste, wastewater treatment sludge, and acid and caustic waste. [1]

MCD Tract I has permitted storage facilities for wastes generated both onsite and at 10 offsite MCD facilities in and around the St. Louis area. MCD is also a permitted transporter (ID # H-1039, see Appendix F) for wastes from other MCD facilities to Tract I. MCD stores hazardous waste in drums, dumpsters, and tanks at various locations around the facility. Drums of hazardous waste generated onsite are stored at one of three less-than-90-day storage areas. These areas are located on the east side of Building 2, at Building 45E, and at Building 51. Waste solvents, paints, and oils are accumulated in drums at numerous satellite accumulation locations (mainly in Buildings 2, 27, 29A, 42, 48, and 220). When full, the containers are transferred to one of the less-than-90-day storage areas.

Paint solids are accumulated in red, 2-cubic-yard dumpsters at various locations throughout the facility (mainly in Buildings 2, 27, 29, 45, 48, and 220). When full, these dumpsters are emptied into two roll-off dumpsters/compactors, which are located at the north side of Building 27 and the north side of Building 48. The contents of these dumpsters are hauled off-site approximately once every 2 weeks.

At present, MCD uses and has used the following tanks to store hazardous waste:

- One open, in-ground 120,000-gallon tank, located at Building 14, that stores wastewater treatment sludge prior to dewatering. This is the only tank used to store waste for more than 90 days (see Section 5.3 of this report).

- Two 10,000-gallon above-ground tanks (H19 and H20) located at Building 52, that store waste sodium hydroxide from the chemical milling of aluminum (see Section 5.1 of this report).

- Five 500-gallon above-ground tanks (H12-H16) located at Building 52, which were used to store waste nitric acid and hydrofluoric acid from the chemical milling of titanium. These tanks, removed in 1986, were replaced with three, 850-gallon polyolefin tanks (H12-H14) see Section 5.2 of this report).

- Six 750-gallon above-ground tanks (H1-H6), located at Building 52, which were used to store waste nitric acid and hydrofluoric acid from the chemical milling of titanium. These tanks, removed in 1986, are undergoing closure under the oversight of MDNR (see Section 5.9 of this report).

- One 375-gallon above-ground tank located near Building 6, used to store waste oil. MCD had previously used a 1,000-gallon underground tank at this location. The 1,000-gallon tank was removed in 1989 (see Section 5.10 of this report).

- One 3,380-gallon underground tank, located near the Hush House, which was used to store waste jet fuel and hydraulic fluid spillage. The tank was removed in 1989 after discovery of a 14-gallon per hour leak (See Section 5.13 of this report).

- Two 2,000-gallon underground tanks, which were located at Fuel Pits #3 and #4, which was used to store waste jet fuel that leaked or spilled during fueling operations. These tanks were removed in 1992 (see Section 4.14 of this report).

- One 2,000-gallon underground tank, located near the F-18 Silencer, which was used to store waste jet fuel and hydraulic oil. This tank was removed in 1992 (see Section 5.12 of this report).

- One 5,000-gallon underground tank, located at Building 28, which was used to store waste jet fuel that leaked or spilled during testing aircraft fuel systems. The tank was

removed and replaced in 1989 with a 1,000-gallon, double-walled, below-grade steel tank (see Section 5.4 of this report).

- One 4,380-gallon underground tank, located at Ramp Stations 1 and 2, which was used to store waste jet fuel that leaked or spilled during aircraft fuel system repair. This tank was removed in 1993 (see Section 5.15 of this report).

- One 750-gallon above-ground waste oil tank, located at the Building 22 maintenance garage (see Section 5.31 of this report).

MCD also has three solvent distillation units that are certified as resource recovery units by MDNR. MCD resource recovery ID number is RR0268-A (certification is presented in Appendix F). Two of the distillation units are used to recover spent methyl ethyl ketone (MEK) and methyl isobutyl ketone (MIBK). The distillation units are located at the painting areas in Buildings 27 and 48, respectively. Distillation bottoms are collected in 55-gallon drums and are disposed of as hazardous waste. The third distillation unit is a steam stripping carbon adsorption bed unit that recovers spent perchloroethylene (PCE). This unit is located in Building 51. Prior to chemical milling, a maskant coating that contains PCE is applied to metal parts. As the parts dry, the PCE evaporates, and the PCE-laden air is collected and run through the carbon adsorption unit. The PCE is stripped from the carbon beds with steam and is collected for reuse as an ingredient in new maskant production. [1]

2.4 Regulatory Compliance History/RCRA Status

The following is a brief history of regulatory compliance for MCD's Tract I facility. This list was compiled from documents from USEPA and MDNR files.

October 30, 1974	MCD received a National Pollutant Discharge Elimination System (NPDES) permit (No. MO 0054062) to discharge single use cooling water, cooling tower and spray pond cooling system blowdown, and air conditioning condensate into Coldwater Creek. This permit expired October 29, 1979.
July 1, 1980	MCD submitted an application for a License to Transport Hazardous Waste to MDNR.
August 18, 1980	MCD filed a Notification of Hazardous Waste Activity with USEPA that identified the facility as a generator and a treatment and disposal facility. MCD was issued USEPA ID No. MOD000818963.
August 20, 1980	MCD received License to Transport Hazardous Waste (Permit No. H-1039).

March 29, 1982	USEPA acknowledged MCD's interim status.
October 6, 1982	MCD submitted a Part A Permit Application to USEPA for hazardous waste storage in drums and storage tanks.
May 17, 1983	A compliance evaluation inspection (CEI) conducted by MDNR noted no "unsatisfactory findings."
July 6, 1983	PEDCo Environmental, Inc. conducted a CEI. The findings of this inspection included waste storage drums rusted and in bad condition, and the waste had not been determined as hazardous or not hazardous. The containment system in Storage Area 2 had been breached and the sump was full-there was also evidence of runoff. The containment system for tanks H1 through H6 had been breached by what appeared to have been a rupture of the drainage system piping. Tank H20 had a pinhole leak. Building 14 sludge holding tank had approximately eight cracks that appeared to penetrate the entire thickness of the walls. There was no evidence of leakage from this tank.
August 1, 1984	MCD received a RCRA permit to operate a hazardous waste storage facility. The permit was effective through August 1, 1994. The current permit has been extended, and the facility has applied for a new permit (see below).
August 30, 1984	A CEI was conducted by MDNR. No unsatisfactory features were observed.
March 12, 1985	A CEI was conducted by USEPA. Violations included failure to list home and office addresses of emergency coordinators; failure to ensure annual personnel training; failure to include job description for identified position, including skill and education; curbing in tank containment areas H19 and H20 and H1 through H6 was cracked and in need of repair; inadequate aisle space in drum storage areas; and waste containers stored without rims in place.
August 9, 1985	MDNR issued a letter of warning to MCD to maintain job description for hazardous waste-related position and maintain and inspect sump in Area 2 on a regular basis to ensure proper performance.
August 20, 1985	A CEI was conducted by MDNR. Violations observed included the number of storage containers in the storage area exceeded the

	maximum inventory set forth in the Waste Facility Permit, containers of incompatible hazardous waste at the storage site were not maintained in separate areas, and two containers of hazardous waste were not closed.
August 26, 1985	An emergency directive was issued to MCD authorizing the transportation, temporary storage, and treatment of 948 pounds of explosive reactive waste. The directive was active through October 10, 1985. GSX Services, Inc., of Reidsville, North Carolina, was responsible for the transport, storage, and treatment of the waste.
April 14, 1985	A letter of warning was issued to MCD concerning exceedance of permitted inventory, incompatible wastes not properly segregated, wastes stored in excess of the 90-day limit, and adequacy of daily inspection and corrective action.
September 4, 1986	A CEI was conducted by MDNR. No violations were observed at the facility.
April 8, 1987	A CEI was conducted of Building No. 2 by MDNR. No violations were observed.
September 17, 1987	A CEI was conducted by MDNR. Violations included leak detection systems for Fuel Pits #3 and #4 underground storage tank (UST), Ramp Station 1 and 2 UST, F-18 Silencer waste UST, and the Hush House waste UST were not operational; the facility contingency plan was not current; and a Resource Recovery Certification had not been applied for.
December 15, 1987	MCD received Resource Recovery certification No. RR0268-A to operate a tetrachloroethylene (PCE) recovery unit (in Building 27). The certification was valid for 2 years.
May 27, 1988	MCD submitted an application for re-certification of Resource Recovery certification No. RR0268-A to add a distillation unit for recovery of MEK and MIBK.
September 27, 1988	MCD received re-certification for Resource Recovery Certificate No. RR0268-A. The certification was valid for 2 years.
June 15 and 16, 1989	A CEI conducted by MDNR noted the following violations: no alternate directions for delivery on several manifests, no notification of land disposal restrictions for four shipments of

	applicable waste and an incomplete notification for another, and a drum in a satellite storage area was not properly labeled or dated.
November 28, 1989	MCD submitted an application for renewal of Resource Recovery Certification No. RR0268-A (for PCE distillation unit in Building 27) and applications for certification of solvent distillation units (PCE and MEK/MIBK) located in Buildings 48 and 101.
March 6, 1990	MDNR Emergency Response received an anonymous phone call claiming that approximately 100 gallons of waste oil were discharged into Coldwater Creek from failed oil/water separator. Heritage Environmental vacuumed oil off the top of the water. MCD personnel also reported approximately 200 gallons of jet fuel discharges from Lambert Field storm sewer.
May 29, 1990	MCD received renewal of Resource Recovery Certification No. RR0268-A for recovery units located in Buildings 27, 48 and 51. The certification was valid for two years.
December 14, 1990	A CEI conducted by MDNR cited a drum of chlorinated solvent in poor condition as the only violation.
January 9, 1991	EPA conducted a polychlorinated biphenyl (PCB) inspection at MCD. The facility was selected using the Regional Neutral Scheme as a random selection mechanism. Deviations from PCB regulations included preparation of the 1989 annual document after the deadline, storage of combustible materials within a transformer enclosure, improper disposal of PCBs due to leaking PCB transformers, and use of a PCB transformer within a commercial building after October 1, 1990.
November 5-8, 1991	USEPA conducted a Level 2 air compliance inspection at MCD.
December 16, 1991	MCD submitted hazardous waste storage permit modifications to MDNR for approval.
February 19, 1992	MCD submitted Resource Recovery Certification applications for recovery units located in Buildings 27, 48, and 51.
August 20, 1992	MCD received Resource Recovery Certification for recovery units located in Buildings 27, 48, and 51. Certification was valid for 2 years.

March 23-25, 1993	MDNR conducted a Missouri Hazardous Waste Transporter Compliance Audit of MCD. Unsatisfactory features included: improper vehicle inspection, repair, and maintenance records; failure to provide and document hazardous materials/waste training at least annually; and failure to document the results of controlled substance testing in the driver qualification file.
March 31, 1993	MDNR issued a letter of warning to MCD as a result of the March 23-25 Hazardous Waste Transporter Compliance Audit.
June 10 and 11, 1993	A CEI was conducted by MDNR. Violations reported included open drums of waste paint or solvent in satellite accumulation areas (Building 27 paint shop, Building 220 trim area, Building 2 small paint booth, and Building 48 paint area), and a dumpster overfilled with paint solids in Building 2.
June 30, 1993	Hazardous Waste Transporter License was approved and issued to MCD for six vehicles.
September 17, 1993	MDNR issued a NPDES permit (No. MO-0004782) for discharge of stormwater and non-contact cooling water to Coldwater Creek from seven outfalls. The permit expires on June 30, 1998.
December 16, 1993	MCD requested permission to submit an application for renewal of hazardous waste permit no. MOD000818963 (OSO 062284 002) on March 1, 1994, which is later than the submittal deadline of 180 days before the permit expiration date (August 1, 1994).
January 10, 1994	MDNR approved MCD's request for an extension of the deadline for hazardous waste permit application submission.
February 25, 1994	MCD submitted Part B of the application for renewal of the RCRA hazardous waste permit to MDNR.
March 22-23, 1994	MDNR conducted a CEI of MCD.
March 28, 1994	MDNR issued a Notice of Violation to MCD for violations identified during the March 22-23 CEI. Violations identified included storage of hazardous waste for more than 90 days, open containers of waste oil, containers of hazardous waste in satellite accumulation areas not marked or dated, reclamation of waste oil onsite conducted without resource recovery certification, facility summary reports for resource recovery not submitted, and failure

to operate hazardous waste facility in accordance with the terms and conditions of the permit.

2.5 Receptor Information

The facility is surrounded by Lambert-St. Louis International Airport on the south, commercial and industrial facilities on the west and north, and residential areas on the east. According to information obtained from the Missouri Department of Natural Resources Division of Geology and Land Survey, no wells are located within a 1-1/2-mile radius of the facility. Surface water drainage from the facility is to Coldwater Creek, which flows along the facility's eastern boundary (Figure 3). Section 3.1 provides additional information on surface drainage at the facility. [22, 23]

3.0 ENVIRONMENTAL SETTING

The McDonnell-Douglas Hazelwood facility is located approximately 10 to 15 miles from the confluence of the Mississippi and Missouri Rivers and approximately 5 miles south of the Missouri River (Figure 1). The topography in the vicinity of the facility is mostly level to gently rolling with local surface elevations ranging from 545 feet to 555 feet above mean sea level. [22] Unconsolidated sedimentary deposits underlie the facility. [25]

3.1 Surface Drainage

General surface water drainage at the facility is by overland flow to storm sewer intakes located across the facility or to open drainage ditches that drain to storm sewers. The storm sewers discharge into Coldwater Creek at several locations (Figure 3). Coldwater Creek flows northeast within an underground culvert from the southwest side of Lambert-St. Louis International Airport, across the central portion of the airport, and the eastern most part of Tract I South. The creek flows within an open culvert north of Banshee Road along the eastern boundary of Tract I North. [22] Coldwater Creek then flows northeast within this open culvert for several miles until it rejoins its original channel. [22] The creek eventually discharges into the Missouri River. The Missouri River, at it closest point to the facility, is 3 miles to the northwest. [22, 23]

3.2 Climate

The climate of the St. Louis area is classified as modified continental. The average daily temperature ranges from 45.4°F to 65.5°F. The highest average monthly temperature is 89°F in July and the lowest is 19.9°F in January. Normal annual precipitation is slightly more than 35 inches. Average annual snowfall is 26.3 inches. Prevailing winds tend to be from the south in the summer and fall at average speeds of 8.7 miles per hour (mph), and from the west and west-northwest in the winter and spring, averaging 11 mph. [27]

3.3 Regional and Local Geologic Setting

The facility is located within the Central Stable Physiographic Province (which is considered technically inactive) but lies in proximity to the New Madrid seismic zone of the Mississippi Embayment Region. The Mississippi Embayment Region is known to experience earthquake activity of varying frequency and intensity. The facility is situated at the southwestern edge of the former Lake Brussels. The shoreline of the former lake reached approximately the 550-foot contour interval, which runs through the site. [43] Subsurface geologic units in the area of the facility include wind-, river-, or lake-deposited sediments overlying nearly flat-lying sedimentary bedrock formations. [25]

3.3.1 Unconsolidated Deposits

Regionally, the unconsolidated deposits are highly stratified sequences of gravel, sand, silt, and clay ranging in thickness from 10 to more than 100 feet. Regionally, the unconsolidated deposits become progressively finer grained towards the land surface. The variability in thickness of the unconsolidated sediment is the result of being deposited over the irregular surface of the underlying bedrock. Erosion on the bedrock in the area of the facility produced steep-walled valleys and at least one small lake. [25] Unconsolidated deposits fill these valleys and depressions and blanket the ridges. Iron staining, most likely associated with groundwater, occurs locally throughout the finer grained units. [25]

Unconsolidated deposits in the area of the facility have been delineated by hydrogeologic studies at the James River Paper Company (formerly Crown-Zellerbach), located approximately 1,200 feet northwest of the Hazelwood facility, and at the St. Louis Airport Site (SLAPS), which adjoins the Hazelwood facility to the east, along Coldwater Creek. The uppermost unconsolidated deposits consist of interbedded silty clay and clayey silt both with some fine-grained sand and organic matter. [3, 25, 29-32, 42, 47] Discontinuous lenses of silty sand may be present within the silty strata. [3, 25, 29-32, 42, 47] A dense, plastic, brown to gray-green clay unit is present beneath the interbedded silty deposits. At SLAPS, more of the silty deposits are present beneath the clay, and these deposits coarsen downward into a coarse-grained gravel, sand, and sandy gravel unit that forms the basal unit (above the bedrock) of the unconsolidated deposits. [29-32, 42, 47] This gravel unit is found regionally, and is likely of glacial origin. [42] At the James River facility, the clay unit forms the basal unit of the unconsolidated sequence. Based on the findings at the adjacent facilities, the coarse-grained basal unit at SLAPs may only be present in the eastern half of the facility, pinching out to the west and northwest.

In areas at both facilities, up to 14 feet of clayey silt or silty clay fill material is present over the unconsolidated sequence. [42, 47] The fill material is composed of material either excavated at the site or brought in as clean fill during plant construction and modification.

3.3.2 Bedrock and Structural Geology

Regionally, bedrock units have a slight northeast dip, which has been modified by several minor northwest to southeast trending folds or flexures. Axies of several folds exist in the vicinity of the facility, including the Cheltenham Syncline, Dupo Anticline, and North St. Louis Syncline underlying the city of St. Louis and the Eureka-House Springs Anticline, approximately 25 miles southwest of the facility. [26, 27] The Florrisant Dome, a broad, irregularly shaped structural dome, is approximately 4 miles northeast of the facility. [26]

The uppermost bedrock encountered in the area of the facility is the undifferentiated Pleasanton, Marmaton, and Cherokee Groups of Pennsylvanian age. Shales, siltstones, sandstones, coal beds, and thin limestone beds are the dominant lithology of these three groups. The Pennsylvanian-age groups have a total thickness ranging from 10 to 300 feet thick, regionally, but boring logs indicate the Pennsylvanian strata may be absent or very thin beneath the facility.

Underlying the Pennsylvanian strata is Mississippian-age limestone. The St. Genevieve Formation (0 to 160 feet thick), St. Louis Limestone (0 to 180 feet thick), Salem Formation (0 to 180 feet thick), and Warsaw Formation (0 to 110 feet thick) are all argillaceous to arenaceous limestones and compose the upper portion of the Mississippian-age bedrock. The Burlington-Keokuk Limestone (cherty limestone 0 to 210 feet thick) and Fern Glen Formation (red limestone and shale 0 to 105 feet thick) comprise the middle Mississippian. The undifferentiated Chouteau Group (limestone, dolomitic limestone, shale, and siltstone 0 to 122 feet thick) is the bottom Mississippian-age unit.

The upper Devonian ranges in thickness from 10 to 110 feet and comprises the Bushberg Sandstone (limestone and sandstone), Glen Park Limestone (limestone and sandstone), and the Grassy Creek Shale (limestone, dolomitic limestone, shale, and siltstone). The lower Devonian is not present in this area.

An undifferentiated, Silurian-age, cherty limestone layer separates the Devonian and Ordovician-age bedrock systems. This layer ranges in thickness from 0 to 200 feet.

The Ordovician comprises 14 formations in this region. The Maquoketa Shale (silty, calcareous or dolomitic shale) and Cape Limestone (argillaceous limestone) are typically 0 to 200 feet thick and make up the upper portion of the Ordovician system. The Kimmswick Formation (massive limestone), Decorah Formation (shale with interbedded limestone), Plattin Formation (finely crystalline limestone), Rock Levee Formation (dolomite and limestone, some shale), Joachim Dolomite (primarily argillaceous dolomite), St. Peter Sandstone (silty sandstone), and Everton Formation (cherty limestone grading upward into quartzose sandstone) make up the middle Ordovician. Together these formations range in thickness from 150 to 950 feet.

Lower Ordovician-age formations include the Powell Dolomite, Cotter Dolomite, Jefferson City Dolomite (all three sandy and cherty dolomites that total 150 to 650 feet thick), Roubidoux

Formation (sandstone 0 to 177 feet thick), and the Gasconade Dolomite Gunter Sandstone Member (sandy and cherty dolomite 0 to 280 feet thick).

Underlying the Ordovician system are the Cambrian-age formations. The formations include the Eminence Dolomite, Potosi Dolomite, Derby-Doerun Dolomite, Davis Formation, Bonneterre Formation, and Lamottee Sandstone. The upper three formations are cherty dolomites, the Davis and Bonneterre are siltstones, and the Lamotte is a sandstone with some shale. The Cambrian-age formations have thicknesses ranging from 100 to 1,000 feet.

Precambrian igneous and metamorphic rock forms the basement complex underlying the sedimentary rock formations.

3.4 Hydrogeology and Regional Water Use

Water supplies in the St. Louis Area are obtained primarily from the Mississippi, Missouri, and Meramec Rivers. Approximately 82 percent of the water is pumped from the Mississippi River, and approximately 12 percent is pumped from the Missouri and Meramec Rivers. [24] Aquifers exist in both the bedrock and unconsolidated deposits along the Mississippi and Missouri Rivers. These aquifers account for approximately 3 percent of the water supply. [24]

3.4.1 Regional Hydrogeology

The major groundwater aquifer in the region is within the sands and gravels in the basal part of the unconsolidated deposits. [24, 25] Alluvial aquifers exist along the Mississippi, Missouri and Meramec Rivers under unconfined and semi-confined conditions. In areas near the Missouri and Mississippi Rivers, water levels in the alluvial aquifers are directly related to river stage levels. During high river stages, the groundwater flow is from the river into the aquifer. When the river is at low stage, groundwater flow is from the aquifer into the river. Regionally, total dissolved solids concentrations for the alluvial aquifer averages 596 mg/L and hardness averages 513 mg/L. [24]

Regionally, wells in the unconsolidated deposits yield 50 to 1,000 gallons per minute (gpm). [25] The variability in yield is due mainly to the thickness of the saturated interval and the percentage of fine material (silt and clays) present. Alluvial aquifers along the Mississippi, Missouri, and Meramec Rivers have thick saturated units with a low percentage of fine material and, therefore, produce large quantities of water.

Principal bedrock aquifers in the region consist of large sequences of water-bearing rock units or formations, called aquifer groups. Regionally, bedrock units are subdivided into five large aquifer groups of similar lithology, geographic distribution, and water quality. Each aquifer group is bounded by confining beds, which restrict the flow of groundwater from one aquifer group to the next. [24] The bedrock aquifer group in the area of the facility is known as the Post-Maquoketa Group. It is the shallowest of the five aquifer groups. Thickness of the group is unknown, but the depths of wells in this group range from 220 to 790 feet. [24] Generally,

the water in wells drilled in this group is not potable. Yields in wells producing potable water are generally less than 50 (gpm). [24]

3.4.2 Hydrogeology near the Hazelwood Facility

Substantial hydrogeologic information has been collected at both the James River Paper Company (formerly Crown Zellerbach), located approximately 1,200 feet northwest of the Hazelwood facility, and at the St. Louis Airport Site (SLAPS), which adjoins the Hazelwood facility to the east along Coldwater Creek. However, very little information exists on the hydrogeologic conditions in the subsurface unconsolidated deposits and bedrock units directly beneath the Hazelwood facility.

At the James River Paper Company, 19 groundwater monitoring wells were installed into the regional aquifer in the unconsolidated deposits and 1 well was installed into the bedrock aquifer. [47] At the SLAPS, numerous monitoring wells have been installed into aquifers in both the unconsolidated deposits and bedrock. [47] The wells installed in the unconsolidated deposits at the James River facility are screened in the uppermost portion of the water-bearing unit. Most are screened above the clay unit, but several are within the clay. [47]

At both facilities, the bedrock aquifer is under confined conditions, and the alluvial aquifer is under unconfined conditions. Depths to the water table in the alluvial aquifer have ranged from 14 to 18 feet below land surface (BLS) at the James River facility and 10 to 15 feet BLS at the SLAPS facility. [47] The potentiometric surface of the bedrock aquifer at both sites is only 2 to 4 feet lower than the water table in the alluvial aquifer. Groundwater flow at the James River facility is to the southeast, toward Coldwater Creek. Groundwater flow at the SLAPS also is toward the creek. [47]

A conceptual model of the groundwater flow at the SLAPS (Figure 4) shows groundwater recharge in the alluvial aquifer (upper groundwater system) from precipitation and the aquifer recharging to Coldwater Creek. Groundwater from the bedrock units are shown recharging the lower units of the alluvial aquifer. [47] There is no such conceptual groundwater flow model for the James River facility, but the shallow groundwater systems at both sites probably behave similarly because they are composed of comparable deposits. Because the plastic clay unit forms the base of the sequence of unconsolidated deposits at the James River facility, the relationship between the deep (bedrock) aquifer system may not be the same as that at the SLAPS. However, the report of findings for the James River facility investigation indicates that the clay unit may be a "leaky aquitard." Because the SLAPS is adjacent to the Hazelwood facility, the shallow groundwater flow system shown on Figure 4 is likely to be the same at both facilities, and flow in the deeper aquifer system may behave the same in the eastern portion of the facility.

At the McDonnell-Douglas facility, 27 monitoring and remediation wells have been installed in the shallow subsurface (to approximately 10 feet BLS) in the Ramp Area (Figure 5). In this area, groundwater was encountered from 2 to 8 feet BLS within fine-grained, silty sand strata. As shown on Figure 5, groundwater flow at the Ramp Area is almost due south. [40] According

to MCD communication with MDNR, the groundwater in the Ramp Area is not potable, and the low permeability of the saturated unit (because the deposits are so fine-grained) limits its use as a water source. [3]

The shallow depth to groundwater in the wells and the southerly groundwater flow (not towards Coldwater Creek, to the east) at the ramp area suggests the water-bearing zone there may be a local perched system recharged by precipitation and not connected to the regional aquifer identified at the SLAPS and James River facilities. However, so little is known about the groundwater system at beneath the facility, it is unknown whether the groundwater encountered at the Ramp Area is local mounding of the groundwater in the regional aquifer, a perched system separated from the regional aquifer by an aquitard, or a shallow system hydraulically connected to the regional aquifer.

A very low-producing zone of saturated silty sand was encountered at approximately 30 feet BLS in a groundwater probe installed at the IWTP (Figure 2, Building 14) during the sampling visit conducted by SAIC (see details in Section 4 of this report), but shallower saturated zones were not observed at this location. An interview with the IWTP operator during the sampling visit revealed that during repair of the settling tanks at the IWTP, a trench (approximately 20 feet deep) was dug along the north wall of the tanks. The operator recalled that the trench had no groundwater infiltration the entire time it was left open. [3] From the slow recharge rate observed in the groundwater probe, and the information provided by the plant operator, it was suspected that the probe was driven into a saturated zone not connected with other saturated zones at the facility, or the regional aquifer.

4.0 SAMPLING VISIT

A sampling visit was conducted at the Hazelwood facility November 15 through 17, 1994. A total of 25 soil samples and one groundwater sample were collected from the eight SWMUs, listed in Table 1. Figures 6 through 9 illustrate the location of the SWMUs described in Section 5.0 of this report. The sample locations discussed in Sections 4.1 and 4.2 are presented in Figures 10 through 13. The soil samples were collected using a push sampling system. The groundwater sample was collected from a temporary groundwater probe.

The field manager supervised the sampling activities and managed all samples collected for laboratory analysis. The sampling visit was conducted in accordance with the approved site-specific Field Sampling Plan and Quality Assurance Project Plan (FSP/QAPP), and with Chapters 4 through 9 of the RFA guidance (OSWER Directive 9502.00-05). The sampling visit was coordinated with USEPA Region VII, MDNR, the USEPA Region VII regional laboratory contact, and personnel from the McDonnell-Douglas facility.

The samples were analyzed for the parameters shown in Table 1. All samples were delivered to the Region VII laboratory for analysis. The samples were shipped, by overnight courier to

the Region VII laboratory under chain-of-custody procedures detailed in the FSP/QAPP. Samples were shipped in coolers, with samples iced to 4°C.

4.1 Sample Collection Procedures

Soil samples and the groundwater sample were collected from eight SWMUs. The SWMUs sampled were known to have released, were suspected to have released, or showed the potential to release hazardous constituents to the environment. These SWMUs were selected based on the PR and VSI phases of the RFA. The sampling approach and numbers of samples collected from each SWMU are provided in Table 2. Photographs taken during the sampling visit are included in Appendix B.

Before sampling activities were begun at the Hazelwood facility, the Field Manager coordinated with the Facility Services personnel to locate and mark the positions of all underground utilities (electrical, telephone, sanitary and storm sewers, and other facility-related systems). This step ensured that sampling activities would not adversely interfere with the day-to-day operations at the facility and that the sampling staff were not endangered by encountering these utilities.

During the week of November 7, 1994, SAIC conducted a file review and interviewed MCD personnel to gather additional background information. This background information included, but was not limited to, permits, closure reports, and previous site investigation reports. In addition, SAIC tried to resolve questions presented by USEPA Region VII and MDNR regarding their review of the Draft RFA Report submitted by M&E, February 8, 1994.

The MCD Environmental and Hazardous Materials Services group conducted a site orientation the week of November 7, 1995. During the orientation (November 9, 1994), sample locations were selected for the sampling visit to be conducted November 15 through November 17, 1994. SAIC and MDNR, after conferring with MCD personnel, selected sample locations based upon accessibility, location relative to the SWMU to be investigated, and any utilities situated in the area of the SWMU. All sample locations were approved by McDonnell-Douglas Facilities Services personnel.

All operations related to the collection, custody, and shipment of soil samples were documented using field logbooks and photographs. The photo log is provided in Appendix B, the field log book is provided in Appendix C. The order of sampling was established based on the following: the rate at which samples were collected, MCD's requirements for clearance of field personnel onto the facility, which units required coring of asphalt or concrete to collect the soil samples, and anticipated field or site conditions. The sample collection log (located in the back of the field log in Appendix C) chronicles the order the samples were collected. In addition, Table 2 demonstrates the relationship between investigated SWMUs and the associated samples collected during the sampling visit.

4.1.1 Collection of Soil Samples

At most soil sampling locations, two samples were collected - one from 0 to 12 inches (surficial) and one from 12 to 24 inches (subsurface) BLS. The sampling locations selected for each unit were at area(s) where there was the highest likelihood of a release from the unit (e.g. as cracked or damaged concrete, visible staining, breaches in berm).

Soil samples were obtained by driving a 24-inch by 1-3/8-inch outside diameter nickel-plated sampler fitted with a removable Teflon® liner (having a volume of 320 mL). At each sampling location, the assembled sampler was connected to the leading end of a 3-foot-long rod and driven or pushed hydraulically from land surface to a depth of 24 inches into the soil at the sampling location. The sample was recovered by removing the rod and sampler from the hole. The Teflon® liner was extracted from the sampler and cut in half. The ends of each half were sealed with end caps and taped into place. The time and the sampler's name were placed on the field log sheet and sample label, which was affixed to each Teflon® liner. Sealed sample tubes were placed in a cooler containing ice and a trip blank and maintained at 4°C. The laboratory was responsible for removing each soil sample from the Teflon® tube and aliquoting it for the analytical tests requested.

4.1.2 Collection of the Groundwater Sample

The groundwater sample was collected from a temporary groundwater probe installed downgradient from the subgrade settling tanks S-1 through S-4 (SWMU 21) at the IWTP. The sample location was designated 14-2. The temporary groundwater probe consisted of a stainless steel screen point sampler driven into the saturated zone. Groundwater was encountered at 30 feet BLS. Groundwater entered the probe via the screen.

The groundwater sample was collected using a disposable flexible tube similar in design to a bailer. This tube (with a check valve at the bottom) was guided down the temporary probe to the groundwater. Groundwater entered the tube and was prevented from exiting because of the check valve. The tube was lifted out of the temporary probe and poured into sample containers. The field parameters temperature, pH, and specific conductance were not measured in the field. The groundwater sample was not collected in the presence of fumes or vapors (e.g. as automobile or forklift engine exhausts), which might have contaminated the sample.

4.1.3 Field Quality Control

Sampling equipment was decontaminated before beginning field work, between each sample location, and at the conclusion of each day, in accordance with decontamination procedures described in the FSP. Sample collection tubes and the temporary groundwater probe were pre-decontaminated prior to installation. All decontamination activity occurred at the IWTP (located at Building 14). Liquid wastes generated from decontamination were processed through the IWTP.

Samples were handled and managed in accordance with the specifications of the FSP. Field quality control samples (duplicates, blanks, except trip blanks prepared by the laboratory) were collected in accordance with the FSP, and additional volume for laboratory quality control also were collected in accordance with the analytical methods and the FSP. Table 3 summarizes the field and laboratory quality control samples collected and links them with the associated environmental samples. Table 4 provides analytical results for the quality control samples.

4.2 Deviations From the Field Sampling Plan

Groundwater samples were to be collected from two temporary groundwater probes installed downgradient from the settling tanks at the IWTP (SWMU 21). Per the approved FSP, the groundwater probe would be driven into the ground until contact was made with a producing aquifer. Based on the findings of the hydrogeologic study at the Ramp Area (see Section 3.4 of this report), the first saturated zone was expected to be encountered at 8 to 10 feet BLS. However, at the first sampling location (14-1) at the IWTP, the groundwater probe was driven 40 feet BLS without contacting a producing aquifer. USEPA Region VII and MDNR were consulted at this point, and USEPA Region VII decided that 40 feet would be the terminating depth of the groundwater probes. If groundwater was not encountered, the probe would be abandoned. No groundwater was encountered to a depth of 40 feet in the first probe, and the decision was made to abandon the hole. Therefore, groundwater was not collected at location 14-1. A thin saturated zone was encountered at location 14-2 at a depth of 30 feet BLS. Also at the request of USEPA Region VII, a soil sample was collected from location 14-2 at 20 to 21 feet BLS.

An interview with the IWTP operator revealed that during construction repair of the settling tanks, a trench (approximately 20 feet deep) was dug along the north wall of the tanks. The operator recalled that the trench had no groundwater infiltration the entire time it was left open. From the slow recharge rate observed in the groundwater probe, and the information provided by the plant operator, it was suspected that the probe was driven into a saturated zone not connected with other saturated zones at the facility.

The FSP stated that groundwater probes would be purged before samples were collected. Because of the observed low recharge rate of the saturated zone at this location, the probe was not purged prior to sampling. There was concern that if the groundwater probe were purged, it would recharge too slowly to allow collection of a sample within the tight work schedule for the sampling visit. The Field Manager, in agreement with USEPA Region VII and MDNR, decided to collect any groundwater that entered the probe. Insufficient sample volume was collected to perform all the parameters specified in the FSP/QAPP. Consequently, the laboratory was instructed to analyze the groundwater sample only for total metals plus mercury, and cyanide, per the methods specified in the FSP. It should be noted that the groundwater sample submitted to the laboratory was turbid and unfiltered.

The groundwater sample at location 14-2 was not collected in accordance with the procedure described in the approved FSP. It was anticipated that groundwater would be encountered from

10 to 15 feet BLS at this unit, but it was encountered at 30 feet BLS. The peristaltic pump described in the FSP was not capable of lifting the groundwater column from 30 feet BLS to the surface. The sample collection procedures used are detailed in Section 4.1.2.

The FSP also specified the collection of a soil sample from SWMU 28, Leaking Transformer. This sample was not collected, however, because of inadequate space for the sampling van. The sampling van required a minimum amount of space for the hydraulic press and associated tools. This particular SWMU was adjacent to three building walls and surrounded by a chain-link fence. In addition, the facility was concerned about the number of underground lines associated with the transformer. Based on these issues, MDNR decided to remove SWMU 28 from the FSP/QAPP list of SWMUs to be sampled for the RFA. MDNR instructed SAIC to photograph SWMU 28 to document the condition of the leaking transformer.

The FSP called for high pressure liquid chromatography (HPLC) water as the source for water blanks generated in the field for organic analysis. HPLC-type water is manufactured to be organic free and, therefore, represents an indicator of potential organic contamination to the samples. SAIC learned only after mobilizing to the field that the Region VII laboratory was unfamiliar with HPLC grade water. As a result, the laboratory, which was supposed to supply the HPLC grade water for the sampling effort, was unable to do so. SAIC used the analyte-free-grade water supplied by USEPA Region VII to prepare all blanks specified in the FSP.

5.0 SOLID WASTE MANAGEMENT UNITS

This section contains detailed information for each SWMU identified during the PR and VSI, including a description and history of the unit, wastes managed, and potential for release to the various media from the specific SWMU. If the unit is undergoing closure or samples were collected during the sampling visit, brief descriptions of those closure activities or activities during the sampling visit are provided for each unit, and analytical results for samples collected during closure or the sampling visit are included. In addition, the consequences of findings from closure investigations or the sampling visit, with respect to potentials for release, are discussed. Details of closure activities are provided in Appendix D, and details on sampling methodology, sample handling, and sampling activities are presented in Section 4.0 of this report. For units undergoing closure, the information on closure activities are from reports prepared by the facility contractors conducting the closure investigation at a specific SWMU.

The potential for release from any unit was determined based on analytical results from closure investigations or the sampling visit, and/or on the history of the activities at the unit. A release of organic contaminants was documented if any organic contaminants were detected in soil samples from the unit or if concentrations of organic contaminants in groundwater exceeded the maximum contaminant limits (MCLs). A release of inorganic contaminants was documented if concentrations of contaminant(s) in groundwater exceeded the MCLs, or if concentrations of contaminants in soils were well in excess of concentrations in background samples collected during the closure investigation and/or in background samples collected as part of the SLAPS

investigation. [48] Because a number of inorganic contaminants exceeded the SLAPS background concentrations in most of the samples collected during the sampling visit, additional criteria were applied in documenting a release of inorganic contaminants based on samples from the sampling visit. These criteria included a contaminant detected at a specific unit that was not typically detected in samples from other units or did not exceed the SLAPS background concentration at most units; or several contaminants detected at the highest concentrations of those contaminants for all samples.

The SLAPS background samples were collected at Sacred Heart Cemetery, located 1-1/2 miles north of the SLAPS and approximately 2 miles northwest of the Hazelwood facility. These samples were analyzed to determine the local background concentrations for volatile organic compounds (VOCs), base/neutral and acid extractable (BNAE) organics, and metals. The SLAPS background samples were collected offsite in a nonindustrialized location to ensure that no onsite contamination contributed to background levels. Toluene was the only organic contaminant (VOCs, BNAEs) detected in any of the SLAPS background samples that was not also detected in the laboratory blanks (i.e., the contamination is attributable to the laboratory and not the sample). [48]

Ten background soil samples for SLAPS were collected at 2-foot intervals from 0 to 2 feet BLS to 10 to 12 feet BLS. The samples were collected using a stainless steel split spoon sampler. Only results for four background samples collected from 0 to 2 feet BLS were used for comparison with the sampling visit and closure investigation samples. The complete analytical data set for the 10 SLAPS samples is provided in Appendix E. All tables presenting analytical results for closure investigations or the sampling visit provide the range of concentrations in the SLAPS background samples for each contaminant. [48]

At the request of MDNR (personal conversation with Aaron Schmidt, November 7, 1994), SAIC maintained the same format and SWMU identifications made by M&E in the draft report. [41] Thus, only the SWMUs identified by M&E are discussed in this section. There may be additional SWMUs at the facility that are not evaluated in this document.

5.1 Unit 1, Waste Sodium Hydroxide Storage, Tanks H19 and H20, Building 52 Regulatory Status: Active, former tanks undergoing closure

A. Unit Description

Waste sodium hydroxide has been managed at this unit since 1966. The unit is located approximately 80 feet east of Building 52 (Figure 9). Currently, the wastes are stored in two above-ground waste storage tanks. Each tank is 16 feet high and has a 10,000-gallon capacity. The tanks and associated piping are constructed of carbon steel. The tanks sit on a 6-inch-thick concrete pad on top of a 6-inch-thick asphalt spill pad. The asphalt pad is surrounded by a 9-inch-high asphalt curb and underlain by 6 to 12 inches of crushed limestone base rock over

clayey backfill. [33] The area inside the curb is drained (drain is located at the east end of the curbed area) to the IWTP (Appendix A, Roll 1, Photographs 12 and 13).

The tanks are filled and emptied by an enclosed system. The inlet to these tanks is directly connected to the process tanks that generate the waste. The outlet of these tanks is piped directly to a pump that is used for loading the solution to disposal vehicles. The tanks are protected from transport vehicle damage by the placement of 4-inch diameter, concrete-filled pipe guards on the traffic lane sides of this area.

The current tanks at this unit have been in place since May 1988. From 1966 until May 1988, when they were removed, two steel 10,000-gallon tanks were used for storage of waste sodium hydroxide at this unit. A CEI conducted by PEDCo Environmental, Inc., on July 6, 1983, indicated that former tank H20 appeared to have a small leak. [2] MCD repaired the small hole and stopped the leak.

Closure of the former tanks is ongoing under MDNR Hazardous Waste Program (HWP) Permits section oversight. A closure investigation on the former tanks was conducted concurrently at this unit and SWMU 2 on December 6, 1993. This investigation included the collection of shallow soil samples (6 to 12 inches BLS) from four locations outside the asphalt berm, a deeper soil sample (2.5 to 3.0 feet BLS) from the sampling location adjacent to the drain, and a background soil sample midway between this unit and SWMU 2. Details of the sampling procedures are summarized in Appendix D. Table 5 provides the analytical results for the samples collected during the closure investigation.

The analytical results for the soil samples collected during the 1993 investigation are compared to those for the background sample for the closure investigation, and the SLAPS background samples. The closure report indicated that the background sample was representative of backfill that was brought in during the construction of buildings in the area. [33] The background concentrations were within the range of those for SLAPS background soil samples except cadmium was not detected in the SLAPS samples and was in the investigation sample, mercury was not analyzed for in the SLAPS sample, and chromium in the closure investigation sample was higher than the range of chromium concentrations in the SLAPS samples.

All samples but the deep sample from the southern sampling point had concentrations of at least one metal above background. Silver in both the western and eastern samples exceeded background, chromium in the northern sample exceeded background, and arsenic, cadmium, lead, and mercury exceeded background in the southern sample. The lead concentration in the southern sample (2,260 ppm) exceeded the background range (5.9 to 30.9 ppm) by two orders of magnitude.

Because of the high lead concentration in the one soil sample, additional soil borings are being conducted as part of the closure process to determine the full extent of contamination. [43] Information on the additional sampling was not available during the sampling visit and associated

file search. With the concurrence of MDNR, the additional sampling information has not been included in this report.

B. Waste Characteristics

This unit manages waste sodium hydroxide solution (D002, D003, D007) from chemical milling of aluminum conducted in Building 52. The wastes are stored at this unit for less than 90 days.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

There is no history of spills, and the only known release from this SWMU is the small hole in the tank identified during the 1983 CEI. This release was within the bermed area of the unit. The concrete and asphalt currently beneath the tanks are in good condition, and it is anticipated that any minor spills or releases from the current tanks would be contained by the asphalt berm and drain to the IWTP. However the lead, cadmium, and silver contamination in the shallow samples collected from outside the bermed area (discussed in Section 5.1 Part A) during the 1993 closure investigation documents that soil contamination has occurred. This contamination is probably the result of spills during removal of wastes from these or the former tanks.

If there have been spills outside the berm, contaminants could reach the surface water pathway (Coldwater Creek) via the storm sewers. The contaminants are not volatile, so it is unlikely that they exist in the subsurface gas. The likelihood of these contaminants migrating to the groundwater is low because subsurface soils are silty and clayey across the facility, and the contaminants detected (metals) have an affinity for clay and are not mobile in the subsurface.

Surface Water: low to moderate potential for release.

Soils: documented release of metals to soils inside and outside of the asphalt berm.

Groundwater: low potential for release.

Subsurface Soil Gas: low potential for release.

Air: no potential for release; transfer system is sealed.

5.2 Unit 2, Waste Nitric and Hydrofluoric Acid Solution Storage, Tanks H12, H13, H14, Building 52
Regulatory Status: Active, former tanks undergoing closure

A. Unit Description

Unit 2 consists of three 850-gallon, above-ground, cylindrical, storage tanks located adjacent to the east wall of Building 52 (Figure 9). Each tank is approximately 12 feet tall. The tanks are

constructed of polyolefin and are heated to maintain an internal temperature of 130°F. They were installed in 1986. The tanks are supported on a wooden platform constructed of 6-inch by 6-inch wooden beams. The platform is raised about 4 feet above the ground and supported on concrete piers. The area beneath the tanks is surrounded on three sides by a 6-inch high asphalt curb. The curb abuts the foundation wall of Building 52. The spill containment area within the asphalt curb and building foundation is underlain by 6 to 12 inches of crushed limestone base rock over bentonite lining of unknown thickness. The piers extend into the bentonite to a depth of approximately 3 feet. The spill area slopes from the perimeter to a PVC drain located in the center of the curbed area. The drain is connected to the IWTP. Inside the curb is a layer of crushed limestone thickening from 4 inches deep at the perimeter to approximately 3 feet by the drain. Vents on each tank are routed to the fume scrubbing system of the process tanks they are servicing. (Appendix A, Roll 2, Photographs 1 and 2)

The inlet to these tanks is directly connected to the process tanks in Building 52 that generate the waste solution stored in the tanks. The outlet of each tank is connected to a common manifold drain line that terminates within the curb area. This manifold system is used for emptying the tanks. Tank overflows are interconnected to allow an overfilled tank to flow into another. The area is equipped with a leak detection system consisting of a pH sensor and alarm. [1]

Before October 1986, five 500-gallon polyethylene tanks were used to store the nitric and hydrofluoric waste. The former tanks were removed and replaced by the three current tanks. The former tanks were designated H12, H13, H14, H15, and H16, and had been in operation since 1968. [1,20]

A closure investigation of the former tanks was conducted concurrently at this unit and SWMU 1 on December 6, 1993. This investigation included the collection of shallow (6 to 12 inches BLS) and deep (2.5 to 3.0 feet BLS) soil samples from locations south and east of the tanks outside the asphalt berm, a sample of the crushed limestone at the drain (1.5 to 3.0 feet BLS), and a background soil sample midway between this unit and SWMU 1. Details of the sampling procedures are summarized in Appendix D. Analytical results for the samples collected are discussed in Section 5.2, Part C. Closure of these tanks is being conducted under the oversight of the MDNR HWP Permits section. The Permits section has made a preliminary decision to accept closure certification for the former tanks. [43]

B. Waste Characteristics

The current tanks at this unit are used for less-than-90 day storage of waste nitric acid (57 percent) and hydrofluoric acid (8 percent) solution (D002) from chemical milling of titanium. Although the former tanks are undergoing closure, the current tanks will continue to receive wastes on a less-than 90-day basis.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Table 6 provides analytical results for soil samples collected at this unit during the closure investigation. The results for the soil samples are compared to those for the closure investigation background sample and the SLAPS background sample. The closure report indicated that the background sample was representative of backfill that was brought in during the construction of buildings in the area. [33] The background concentrations were comparable to those for SLAPS background soil samples except cadmium was not detected in the SLAPS samples and was in the investigation sample, mercury was not analyzed for in the SLAPS sample, and chromium in the closure investigation sample was higher than the range of chromium concentrations in the SLAPS samples.

All environmental samples had concentrations of metals, fluoride, and nitrate/nitrogen above the background levels. In the samples from the southern sampling location, arsenic, cadmium, chromium, silver, and fluoride concentrations were above background in the shallow sample and fluoride and nitrate/nitrogen concentrations were above background in the deeper sample. In the samples from the eastern location, chromium, silver and fluoride concentrations were above background in the shallow sample and barium, fluoride, and nitrate/nitrogen were above background in the deeper sample. Only fluoride was elevated above background in the sample of limestone from above the drain.

There is no history of spills or releases from this unit. It is anticipated that any minor spills or releases from the tanks within the bermed area would be contained by the asphalt berm and drain to the IWTP. However the soil contamination in the samples collected from outside the bermed area during the 1993 closure investigation documents that there is metals contamination in the soil. This contamination is probably the result of spills outside of the berm during removal of wastes from these or the former tanks. The types of contaminants detected in the soil samples are consistent with this unit being the source of contamination.

If there have been spills outside the berm, contaminants could reach the surface water pathway (Coldwater Creek) via the storm sewers. The contaminants are not volatile, so it is unlikely that they have partitioned from the soil into the subsurface gas. The likelihood of these contaminants migrating to the groundwater is low because subsurface soils are silty and clayey across the facility, and the contaminants detected (metals) have an affinity for clay and are not mobile in the subsurface.

Surface Water: moderate potential for release; no known spills, good containment, but releases to soil have been documented.

Soils: documented release of metals and fluoride to soils outside of asphalt berm.

Groundwater: low potential for release; metals released to soil are not mobile in subsurface.

Subsurface Soil Gas: low potential for release: metals in soil samples are not volatile.

Air: no potential for release; transfer system is sealed.

5.3 Unit 3, Wastewater Sludge Collection and Holding Tank, Building 14
Regulatory status: Active, Undergoing Closure

A. Unit Description

Unit 3 is a 120,000-gallon tank located outside of the IWTP in Building 14 (Figure 7). The tank is used for holding sludge prior to dewatering. It is constructed of 12-inch steel reinforced concrete with straight sides and a conical bottom. There is a drain at the apex of the cone from which the sludge is pumped into a centrifuge (located within Building 14) for dewatering. The tank is 25-feet high from the drain. The diameter of the tank above the conical bottom is approximately 14 feet. The top of the tank extends 12 feet above natural grade, but an earthen mound encapsulates all but the upper 3 feet of the tank (Appendix A, Roll 5, Photographs 11 and 12). [30]

A plant operator is assigned to the IWTP. The operator pumps sludge through an underground piping system from settling tanks at the IWTP (SWMU 21) to this storage tank. When the tank becomes full, the plant operator pumps the sludge into the centrifuge. The dewatered sludge is shipped off-site as hazardous waste. The water returns to the pretreatment plant. The operator requests sludge removal service based on operational activities.

The tank has been in operation since 1941. In 1988, the tank was drained for inspection, and cracks were observed in the wall of the tank. In November 1989, a 60 millimeter high density polyethylene (HDPE) liner was installed on the inside of the tank. [1,4,16,20] Other than installation of this liner, the tank has always been configured as it is today. [43]

As part of the RCRA permit renewal process for the Hazelwood facility, the facility decided to remove this tank from the RCRA permit but continue to operate the unit. MDNR determined that the tank can be removed from the permit because it meets the following criteria established by the State for exemption from RCRA permitting: 1) it is part of a wastewater treatment facility subject to the Clean Water Act, 2) it stores a wastewater treatment sludge that is a listed hazardous waste (F006 and F019 electroplating wastes), and 3) it meets the RCRA definition of a tank. [36] However, MDNR also ruled that because the sludge holding tank was not claimed as exempt on the 1984 RCRA permit application, the tank is subject to the conditions of the RCRA permit until deemed closed. MDNR informed McDonnell-Douglas that the tank could be subject to a conditional exemption provided for in a 1990 amendment to the Missouri hazardous waste regulations, because the unit receives only hazardous waste generated onsite, if the following criteria could be met:

A. There is sufficient evidence that the tank is not leaking.
B. The tank is structurally sound, and there is no evidence that the unit will fail or collapse.

C. There are no incompatible wastes being placed in the tank.
D. The owner/operator has been in compliance with all present and prior permits and authorizations issued to the owner/operator.
E. There is no evidence of past release from the unit. [36]

In order to address items A, B, and E, MCD collected soil samples from an angled soil boring drilled to the base of the tank (approximately 35 feet angular depth) in September 1994. At that time the tank was drained and visually inspected by engineering contractors. The soil samples were logged every 5 feet of angular depth; Appendix D provides a boring log. Soil samples submitted for laboratory analysis included a background sample collected from 6 to 7 feet angular depth (vertical depth approximately 5 to 6 feet), one from 15 to 20 feet angular depth (vertical depth 13.9 to 18.5 feet) believed to be the water table, and one from 30 to 35 feet angular depth (vertical depth 27.8 to 32.5 feet), which was the estimated depth of the tank. Both soil samples submitted for laboratory analysis were split with MDNR. Details of the soil sampling and visual inspection are provided in Appendix D.

There were several limitations to the soil sampling and physical inspection conducted at this unit. The exact specifications for the tank were not obtained until the visual inspection, which was conducted after drilling the angled boring. Consequently, the true depth of the tank was unknown at the time of sampling, and the deeper sample, although directly beneath the tank, was approximately 18 to 22 feet below the bottom of the tank. The soil sample collected at 15 to 20 feet angular depth submitted to the laboratory was collected at the actual depth of the tank bottom but approximately 10 feet to the side of the tank. The visual inspection of the exterior of the tank was limited to the exposed portions of the tank, which included the upper 3 feet of the tank walls and a portion of the tank exposed by a maintenance access.

Table 7 presents analytical results for soil samples collected at this unit during the 1994 closure investigation. The results for splits of the soil samples for both MDNR and MCD are compared to those for the closure investigation background sample and background soil data from the SLAPS. The background sample had concentrations of metals comparable to those for the SLAPS background samples except that chromium in the investigation background sample exceeded the range of chromium concentrations in the SLAPS samples.

All samples had concentrations of analytes above background levels. With the exception of chromium in both sample sets, the concentrations of contaminants above background are not comparable between the MCD and MDNR split samples.

Since the 1994 investigation, further investigation has been conducted at this unit under the oversight of MDNR HWP Permits section. Vertical soil borings were drilled to define any release to soils surrounding this tank. Details on the soil boring procedures and analytical results for any samples collected were not available at the time of the sampling visit and file search. With MDNR concurrence, the information on the recent soil boring activities has not been included in this document.

B. Waste Characteristics

The tank accumulates water-insoluble sludge from the settling (S-series) tanks (SWMU 21) at the IWTP. The IWTP receives wastewater from electroplating operations; therefore, the sludge in this unit is a listed hazardous waste (F006, F019).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The visual inspection of the tank revealed no defects or evidence of wear in the liner or seams. Despite the presence of several shrinkage cracks, there was no evidence of structural defects or leakage from the portion of the concrete walls examined. These findings were presented to MDNR in a letter from the engineers performing the inspection. [34]

The concentrations of contaminants above the background levels indicate a release to the soil. The cracks observed in the walls of the tank before the liner was installed could be the conduit for the release. The lack of volatility of the contaminants decreases the likelihood of a release to subsurface gas. The soil sample collected from 15 to 20 feet angular depth (13.9 to 18.5 feet vertical depth) was believed to have been from the groundwater table, based on the saturated appearance of the soil. [30] Contaminants were detected above background levels in this sample, suggesting a possible release to the groundwater. However, the metals detected in the soil samples are not particularly mobile in the subsurface and probably were adsorbed to the soil particles and not dissolved in the interstitial water. Regardless, this apparently saturated zone in this area is not laterally extensive because it was not encountered at the same depth in either boring at SWMU 21 during the soil sampling as part of this RFA (summarized in Sections 4.0 and 5.21 of this report). A saturated zone was encountered approximately 15 feet deeper near the IWTP treatment tanks.

The potential for a release to surface water (Coldwater Creek) is low because no overflows are known to have occurred from this unit. In addition, a release to Coldwater Creek via the groundwater system is not likely, given the low permeability and apparent lack of continuity of the shallow groundwater system at this location.

Surface Water: low potential for release.

Soils: documented release of metals to soils.

Groundwater: high potential for release to perched groundwater based on sampling results.

Subsurface Soil Gas: low potential for release because of low volatility of contaminants.

Air: low potential for release; tank is open to the atmosphere, but hazardous wastes contained in this tank are not highly volatile.

5.4 Unit 4, Leaked or Spilled Jet Aircraft Fuel Storage Tank, Building 28 Regulatory Status: Active, Former Tank Undergoing Closure

A. Unit Description

Unit 4 is located approximately 15 feet north of Building 28 (Figure 6). It currently consists of a 5,000-gallon, double-walled, below-grade tank constructed of 1/4-inch steel. The tank is 8 feet in diameter, and approximately 14-feet long. The top of the tank is approximately 4 feet BLS, so the total depth of the tank is 12-feet BLS. The tank is covered and surrounded with packed river gravel and capped by 3 inches of asphalt and 8 inches of concrete. It was installed in 1989. A leak detection system is installed in the gravel, and the tank has a leak detection system between the double walls (Appendix A, Roll 8, Photograph 7).

Before 1989, a 5,000-gallon, horizontal, below-grade carbon steel tank was used at this location. This tank had been in operation since 1954. The tank was constructed of 1/4-inch-thick carbon steel with three 4-inch-wide steel channel braces welded to the external surface of each end. A concrete slab covered the tank, as well as the general area where the tank was located. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to this tank. This hydrocarbon sensing system was removed with the tank.

Wastes from this tank are pumped into a portable tanker and taken to the Building 5 boiler-house USTs. It is blended with off-spec jet fuel and used to fuel the boiler for the facility heating system.

Closure of the former tank is ongoing under MDNR HWP Permits section oversight. The closure investigation for the former tank was conducted concurrently with that for SWMU 7. The investigation at SWMU 4 involved the collection of soil samples from boreholes on the north and south sides of the existing tank. [29] Sample depths corresponded to the bottom of the tank and the predetermined level of groundwater in the area. Based on water levels in two monitoring wells in the ramp area, groundwater was estimated at 4.5 to 5.0 feet BLS. [29] Therefore, soil samples were collected at depths of 4.5 to 5.0 feet and 11.5 to 12 feet BLS. Details of the sampling procedures are summarized in Appendix D. Analytical results for the samples collected are discussed in Section 5.4, Part C.

B. Waste Characteristics

This tank provides less-than-90-day storage for waste jet aircraft fuels (D001) collected from leaks or spills that occurred during the testing of aircraft fuel systems.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Analytical results for soil samples collected at this unit during the closure investigation are provided in Table 8. The results for the soil samples are compared to those for the background soil samples from SLAPS. Only toluene was detected in the background samples, at

concentrations ranging from (0.002 to 0.034 mg/Kg). The samples were analyzed for total petroleum hydrocarbons (TPH) and benzene, ethylbenzene, toluene, and xylenes (BTEX). TPH concentrations in the samples ranged from 164 to 73 mg/Kg. TPH concentrations were higher in the samples from the north side of the tank. BTEX compounds were detected only in the deeper sample from the north side of the tank.

Based on the presence of BTEX and TPH in the soil samples, there has been a release of hydrocarbons to soils from the tank. Since the bottom of the tank is within the water table, and samples from that depth are contaminated with TPH and BTEX, the likelihood is high that there has been a release from this unit to groundwater. The contaminants are volatile, increasing the likelihood that there has been a release to subsurface gas. Although the tanks were below grade, a release to the surface water (Coldwater Creek) via the storm sewers and air pathways could have occurred if there were surface spills during removal of the waste fuel from the tanks. Considering the low permeability and apparent lack of continuity of the shallow groundwater at this facility, the likelihood of a release to Coldwater Creek from the shallow groundwater is negligible but possible if contaminants have reached the alluvial aquifer.

Surface Water: low to moderate potential for release during removal of wastes from tank.

Soils: documented release of TPH and BTEX compounds.

Groundwater: high potential for release; TPH and BTEX compounds were detected at depths where groundwater was present.

Subsurface Soil Gas: high potential for release due to volatility of contaminants detected.

Air: low potential for release during removal of wastes from tank.

5.5 Unit 5, Current Reactive Cyanide and Sulfide-Bearing Waste Storage, Area 2 Regulatory Status: SWMU, Active

A. Unit Description

Unit 5 is a fully enclosed, prefabricated storage building located between Buildings 27 and 29 (Figure 6). The building is Model 15 manufactured by Safety Storage, Inc. The steel constructed building has inside dimensions of 14 feet 7-1/2 inches by 8 feet 3/8 inch by 7 feet 1/2 inch, and has a capacity of twentyeight 55-gallon drums. The drums sit upon a wire mesh floor under which is a spill containment system. This building is enclosed with doors (Appendix B, Roll 2, Photograph 2).

The spill containment capacity is 380 gallons (Appendix A, Roll 7, Photograph 13). [1, 6, 20] A visual inspection of the building on November 12, 1994, determined that the spill containment system was intact. The floor was dry and showed no evidence of staining or corrosion.

The storage building has been used since 1989. It replaced the former storage area (SWMU 6) for this waste.

B. Waste Characteristics

Building is used for less-than-90-day storage of 55-gallon drums containing cyanide and sulfide-bearing waste (D006, D010, F006, F009, F011).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

This prefabricated storage building provides an enclosed storage area and spill containment system. The secondary containment is in excellent condition.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.6 Unit 6, Former Reactive Cyanide and Sulfide-bearing Waste Storage, Area 2 Regulatory Status: Closed

A. Unit Description

Unit 6, the former storage unit for cyanide and sulfide-bearing waste, is located adjacent to the new cyanide and sulfide-bearing waste storage unit (SWMU 5) between Buildings 22 and 29 (Figure 6). The building is a prefabricated 22- by 10-foot structure with a concrete floor. The east side of the building is open; the west wall is a 53-inch high concrete retaining wall topped with 31 inches of corrugated galvanized steel. The north and south walls are 7-feet high by 22-feet wide and constructed of corrugated galvanized steel. The roof also is constructed of corrugated galvanized steel, is 7 feet above ground level, and supported by six beams. The roof overhangs the exterior walls of the building on the north, south, and east sides. There is a 6-inch high curb surrounding the waste storage area. A 3-1/2-foot deep sump is located in the northeast corner of the building. The area had a storage capacity of 31 drums (Appendix A, Roll 7, Photograph 14; Roll 8, Photographs 1 and 2).

The area surrounding the building on the north, south, and east sides is asphalt-covered concrete. On the west side, a steep, vegetated embankment slopes upward from the building to a gravel driveway adjacent to Building 29.

This unit was placed into service in 1977. A CEI conducted July 6, 1983, by PEDCo Environmental, Inc., a contractor representing the USEPA, indicated that the containment system for this unit had been breached and there was evidence of runoff reaching the storm sewer. An August 20, 1985, CEI conducted by Joe Haake (MDNR's SLRO) indicated that water had leaked through the back wall of the storage area during periods of heavy rain. The water collected in the spill containment sump and was then pumped into 55-gallon drums and managed as a hazardous waste. Storage of waste in this area was discontinued in 1989 because water seepage into the shelter after heavy rains or snowmelt became a regular problem, and the facility wanted to eliminate the potential hazard of water combining with reactive cyanide wastes. [5] The water seeped in as a result of hydraulic pressure on the back retaining wall. The water flowed across the floor of the shelter, under the skids of waste containers, and into the spill containment sump.

Closure of this unit was conducted under MDNR HWP Permits section oversight during July-September 1989. Closure activities entailed removal of all containers to SWMU 5, high-pressure washing of the walls and floor with a solution of sodium hypochlorite, and collection and analysis of samples of the concrete flooring and underlying soil, as well as soil outside the building. [5, 6, 37] Wash water drained to the spill containment sump. This water was transferred to two 55-gallon drums. A composite water sample from both drums was collected and submitted to a laboratory for analysis for pH and total cyanide. [37] The total cyanide concentration was 22,750 mg/L, and the pH was 10.4. [37]

A letter from MCD to MDNR describing the proposed closure activities indicated that if the wash water was determined to be contaminated, the building would be rewashed until analyses of the wash water indicated no cyanide contamination. [5] Subsequent correspondence from MCD to MDNR does not indicate that rewashing occurred, however. [37] The drummed wash water was placed in the new reactive cyanide and sulfide storage area (SWMU 5) for storage prior to offsite treatment. The containment sump was filled with sand and sealed with concrete. [37] A summary of sampling activities is provided in Appendix D, analytical results of the samples are discussed in Section 5.6, Part C. MDNR HWP Permits section certified this unit as closed on November 9, 1993. [31] At present, this unit is used to store equipment and general machinery (e.g., front end loaders, carts, etc.) associated with day-to-day activities at the facility. [43]

B. Waste Characteristics

This unit was used to store of 55-gallon drums containing cyanide and sulfide-bearing waste (D006, D010, F006, F009, F011).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Analytical results for samples of the floor material, subfloor soils, and exterior soils are provided in Table 9. The results for the samples are compared to risk-based action levels used by USEPA Region VII. None of the contaminants tested for was detected in any of the samples. Although the sampling results indicate that no releases occurred to the soil through cracks in the

floor of this unit, there is a high potential that there were releases to surface water (Coldwater Creek) via storm sewers. Considering the concentration of cyanide in the wash water that collected in the sump, there must have been spills within the unit in the past. The 1983 CEI noted a cracked berm and evidence of runoff from this unit to the storm sewer. Also, the building is open to the air so any spills could have resulted in releases of cyanide to the air pathway.

Surface Water: moderate potential for a past release based on 1983 CEI.

Soils: no evidence of a release because samples did not have contamination, yet evidence of past spills and cracked flooring suggest the potential was high.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: low potential for release; this unit open to the air, and apparently spills occurred in the past.

5.7 Unit 7, Explosive Waste Storage, Area 3 Building 10
Regulatory Status: Inactive

A. Unit Description

Storage Area 3, located within Building 10 (Figure 7), contained explosive waste used in military aircraft (e.g., gas generators, rocket motors, ammunition, etc), as well as a small amount of raw explosive material (black powder, smokeless powder) used for research purposes. [29] Building 10 is 20-feet wide by 40-feet long with a sealed concrete floor, 8-inch thick concrete block walls, and an asbestos roof. Area 3 occupied a 12- by 20-foot area at the southern end of the building. [29] (Appendix A, Roll 6, Photographs 2, 3, and 4)

Storage of explosive waste in Area 3 was discontinued in December 1985. Closure of the unit was conducted in 1993 under the oversight of the MDNR HWP Permits section. Closure of Area 3 entailed mopping the area with hot water and then sweeping with a shop vacuum. After the cleaning, wipe samples were collected at six different locations: one on each of the four walls and at each end (west and east) of the rectangular floor. Wall samples were collected at a point approximately 2 feet from the floor. A summary of sampling activities is provided in Appendix D, analytical results of the samples are discussed in Section 5.7, Part C. Currently, the unit is being used to store of electrical equipment, as well as maintenance and heavy equipment.

B. Waste Characteristics

Area 3 contained explosive waste including gas generators, rocket motors, shielded mild detonating cores, and 20-mm ammunition. A small amount of raw explosive material (black powder and smokeless powder) used for research purposes was also stored in the building.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Analytical results for the wipe samples are provided in Table 10. The results for the samples are compared to the results for wipe blanks. Wipe blanks were prepared by wetting gauze pads with the solvent used to wet the pads for collecting the samples.

Nitrocellulose was not detected in any of the wipe samples or the blank. Concentrations of potassium and nitrate in samples from the east wall and floor and from the west wall and floor were above those in the blanks. Nitrate concentrations in the samples from the east wall and west floor also were below that detected in the blank. Only the samples from the east floor and the west wall had concentrations of both potassium and nitrate in excess of the blank concentration.

Most likely, there is no potential for releases of explosives to the environment from this unit via any of the pathways. Although contaminants were detected on the walls and floor of the building after it was thoroughly cleaned, the storage area was fully contained inside the concrete building. The concrete was in good condition, and no cracks were observed.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.8 Unit 8, Scrap Dock Shelter, Area 1, Building 27
Regulatory Status: Active

A. Unit Description

Unit 8 is located west of Building 27 (Figure 6) and is MCD's permitted hazardous waste storage facility. The unit is used to store containers (drums/carboys) of various hazardous wastes for more than 90 days. MCD's environmental compliance program provides an operator

for this facility who is responsible for receiving and supervising all the containerized waste in this area (Appendix A, Roll 6, Photographs 10 through 13, Roll 7, Photographs 1 through 4).

A 6-inch-high curb divides the scrap dock shelter into two sections. Each section has a 3- by 3- by 2-foot deep sump to accumulate any leakage. Containers of acids, alkalis, and unwashed empty drums that previously had been used for hazardous waste storage are in one section of this shelter. The other section of the shelter stores paint sludges, oils, solvents, and unwashed empty drums that previously held oils or solvents. [1]

During the VSI, several areas of the asphalt floor appeared, to have sustained damage that had been repaired. In addition, stains on the floor indicated that small spills might have occurred in the past. Based on these observations, soil samples were collected at this unit during the sampling visit. A total of six samples were collected from three sampling locations: the middle, the south end, and the north end of the unit (Appendix B, Roll 1, Photographs 15, 16, 17; Roll 2, Photographs 13 through 16). Two samples were collected from each location, one from 0 to 12 inches and one from 12 to 24 inches BLS. Details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the samples are provided in Table 1 and discussed in Section 5.8 Part C.

B. Waste Characteristics

The scrap dock shelter is used to store containers (drums/carboys) that hold a variety of hazardous waste generated from the different manufacturing processes throughout MCD's facilities. These wastes include: paint wastes and sludges, solvent still bottoms, waste oils, and acid and alkali solutions. The facility did not provide a specific list of wastes managed at this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Staining on the asphalt and possible past damage to the asphalt observed during the VSI suggest past releases to the environment from this unit. A curb that surrounds the area for spill containment and a sump on the inside will collect any spilled material. Thus, the potential for a release to surface water is low.

To evaluate whether releases to the soil, subsurface gas, and groundwater had occurred, samples from soil beneath areas of apparent past damage were collected during the sampling visit. Data for the soil samples are provided in Table 4. Concentrations of inorganic contaminants are compared to those in SLAPS background samples. VOCs were detected in shallow samples from two locations. Trichloroethylene (TCE) (62 μg/Kg), PCE (290 μg/Kg), toluene (51 μg/Kg), and 1,2-dichloroethylene (DCE) (36 μg/Kg) were the VOCs detected. All inorganic contaminants except cobalt, lead, antimony, thallium, and zinc were detected at concentrations above SLAPS background concentrations. Arsenic (8.96 to 28.2 mg/Kg), barium (53.1 to 306 mg/Kg), beryllium (0.451 to 0.997 mg/Kg), cadmium (<0.487 to 2.52 mg/Kg), chromium (13.7 to 22.7 mg/Kg), manganese (141 to 2,520 mg/Kg), nickel (12.6 to 31.9 mg/Kg), selenium

(<3.09 to 42.2 mg/Kg), calcium (23,700 to 90,100 mg/Kg), magnesium (4,750 to 22,000 mg/Kg), and sodium (303 to 342 mg/Kg) were detected at concentrations well in excess of the SLAPS background ranges. Although concentrations of most inorganics at this unit were comparable to those in samples from other units at the facility, cadmium, copper, manganese, and nickel were not detected above background at most units sampled during the sampling visit, and the highest concentration of barium, cadmium, chromium, iron, and selenium were the highest detected at the facility during the sampling visit.

These analytical results confirm a release of VOCs and inorganics to the soil. A release to subsurface gas in the vadose zone also can be confirmed because VOCs will partition to the soil gas. The mobility of VOCs in soil indicates a high potential that a release to the groundwater pathway has occurred. The storage area is open to the atmosphere on one side permitting fumes from spilled material to be released to the air.

Surface Water: no potential for release.

Soils: documented release of TCE, PCE, toluene, and 1,2-DCE and metals.

Groundwater: high potential for release of VOCs.

Subsurface Soil Gas: high potential for release of VOCs.

Air: high potential for release of VOCs.

5.9 Unit 9, Waste Nitric and Hydrofluoric Acid Solution Storage, Tanks H1, H2, H3, H4, H5, and H6, Building 52
Regulatory Status: Closed

A. Unit Description

Unit 9 consisted of six 750-gallon above-ground storage tanks located adjacent to the south wall of Building 52 (Figure 7). All six tanks were open top, cylindrical, one piece molded high density, black polyethylene plastic. Each tank was approximately 6 feet in height and 55 inches in diameter. The inlet to these tanks was directly connected to the process tank that generated the waste. The outlet of each tank was connected to a common manifold drain line that terminated within the curb area. This manifold system was used to empty the tanks (Appendix A, Roll 2, Photograph 3). The tanks were structurally supported on a wooden platform. The area under the tanks and platform was sealed with a 3-inch-thick asphalt pad. This pad was surrounded by a 6-inch-high asphalt curb. Inside the curb was a 4-inch-thick layer of crushed limestone and a drain to the IWTP. Any overflow from these tanks would have been collected within the curb and drain system.

The tanks, in operation from 1980 to October 1986, were used only to store waste nitric and hydrofluoric acid solution. In October 1986, the tanks and piping were dismantled and decontaminated and the platforms and supports removed. As part of closure operations, soil in the area beneath the tanks was excavated and sampled. Analysis of initial soil samples from this area revealed concentrations of fluoride, nitrate, lead, barium, and chromium above background samples (Table 11 provides all analytical data). Based on these initial sample results, approximately 120 cubic yards of soil were excavated from the area beneath the tank, and an additional soil sample was collected. The final analysis revealed nitrate concentrations to be below the levels in the initial samples. [7,8,9,10,20] MDNR HWP Permits section accepted closure certification for this unit. [43]

B. Waste Characteristics

Waste nitric acid (40% concentration) and hydrofluoric acid (4% concentration) solution (D002) from chemical milling of titanium were managed in this unit. An analysis of spent nitric and hydrofluoric acid performed in February 1989 detected the following metals and associated concentrations: arsenic (non-detect [<1]), barium (293.3 mg/L), cadmium (0.1 mg/L), total chromium (33.7 mg/L), lead (509.2 mg/L), mercury (<0.05 mg/L), selenium (1.7 mg/L), and silver (0.1 mg/L). [9]

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The sampling results, provided in Table 11, indicate past releases of fluoride and metals to soils. Concentrations of lead, barium, and chromium in both the initial and post closure samples are above the SLAPS background concentrations, and the concentrations in background samples for the closure investigation. The contaminants are not particularly volatile; therefore the potential is low that they have been released to subsurface gas or groundwater. This unit is in the Ramp Area where depths to the shallow groundwater are 2 to 8 feet BLS. Metals were detected in samples of soil collected from these depths, but metals are likely to adsorb to soil particles, especially the silty and clayey type particles in the shallow subsurface, and not partition to the groundwater. The curb-and-drain containment system probably prevented any surficial spills from reaching surface water (Coldwater Creek) via the storm sewers. In addition, a release to Coldwater Creek via the groundwater system is not likely, given the direction of groundwater flow, low permeability of the shallow aquifer, and apparent lack of continuity of the shallow groundwater system. Releases to air from these units are highly likely because they were open-top tanks.

Surface Water: low to moderate potential for past or ongoing release.

Soils: documented release(s) of metals, fluoride, and nitrates to soils.

Groundwater: moderate potential for a past release.

Subsurface Soil Gas: low potential of a release.

Air: high potential for a past release.

5.10 Unit 10, Current Waste Oil Tank, Building 5
Regulatory Status: Active

A. Unit Description

Since December 23, 1988, Unit 10 has consisted of a 375-gallon above-ground portable tank (Safe-T-Tank Model ST2-375-R-R-WRC) located outside Building 5 (Figure 7). The tank rests on asphalt underlain with concrete. There is a 4-inch asphalt berm surrounding the tank, but the bermed area does not appear large enough to control any large spill or overflow from the tank. The tank is 60-inches long, 48-inches wide, and 34-inches high. It is double-walled and constructed of 1/2-inch-thick steel. Openings in the tank include a 2-inch vent, a 2-inch emergency vent, a 1-1/2-inch inlet for hard pipe connection, a 1-1/2-inch gauge, a 2-inch outlet with cap, and a 1-inch fitting for overfill probe. The tank is used to store oil that has been separated from condensate of an oil-lubricated, steam-operated air compressor located inside Building 5 (Appendix A, Roll 6, Photographs 6, 7, and 8).

The tank is filled automatically from an oil-water separator associated with the compressor. When the oil in the separator reaches a certain level, the liquid is pumped into the tank. The inlet pipe for the tank comes through the wall of Building 5 and into the top of the tank. This piping is schedule 40 seamless carbon steel. Oil is removed from the tank manually when it is full (every 3 to 5 months, according to MCD) via the 2-inch outlet, which is at the top. [1, 20]

When the tank becomes full, the contents are transferred to a 500-gallon mobile tank. The mobile tank is taken to the permitted hazardous waste storage area (Scrap Dock Shelter, SWMU 8) where the oil is transferred to a tanker truck for transportation to an offsite fuel blending facility. McDonnell-Douglas reports that, at one time, the oil-water separator did not function properly, and the waste oil tank would receive a lot of water. During the time of the malfunction, when the mobile tank was filled, it was taken to the IWTP and the water was pumped off and treated. The oil then was taken to the hazardous waste storage area as described above. [39]

MCD reported that approximately 100 gallons of waste oil were spilled during an overflow of this tank in March 1990. Oil stains and oil residue around the tank indicate that spills have occurred. In addition, during the VSI, small cracks were observed in the asphalt pavement around the tank and in the berm. Based on these observations, four soil samples were collected from two locations at this unit during the sampling visit. Sampling locations were 3 feet from the berm and 25 feet from the tank (Appendix B, Roll 1, Photographs 3 and 4; Roll 2, Photograph 26). Two samples were collected from each location, one from 0 to 12 inches and one from 12 to 24 inches BLS. Details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the samples are provided in Table 4, and discussed in Section 5.10, Part C, below.

B. Waste Characteristics

This tank is used to store waste oil (D001) that has been separated from condensate of an oil lubricated, steam-operated air compressor.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The potential for release(s) to surface water is high, based on the past spill history, observed damage to the asphalt and berm during the VSI, and surface drainage in this area to the storm water drainage system that discharges to Coldwater Creek (Figure 3). The past spill history makes the potential for a release to the air pathway high, as well.

To evaluate whether releases to the soil, subsurface gas, and groundwater occurred, samples from soil beneath areas of apparent past damage were collected during the sampling visit. Data for the soil samples are provided in Table 4. Polynuclear aromatic hydrocarbons (PAHs) (including anthracene, benzo(a)anthracene, benzo(k)fluoranthene, benzo(g,h,i)perylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluoranthene, ideno91,2,3-cd)pyrene, phenanthrene, and pyrene) and PCE were the only organics detected in the samples, and they were detected in both samples and field blanks from the location closest to the tank. PCE (50 μg/Kg) was detected in the 0 to 12-inch sample from that location.

All samples had concentrations of at least one inorganic contaminants above SLAPS background. Cadmium, cobalt, manganese, nickel, lead, antimony, selenium, thallium, and magnesium were not detected at concentrations above SLAPS background. Aluminum (8,000 to 14,400 mg/Kg), arsenic (19.8 to 37.5 mg/Kg), barium (94.8 to 186 mg/Kg), beryllium (0.705 to 1.15 mg/Kg), chromium (12.9 to 17.2 mg/Kg), iron (9,850 to 26,100 mg/Kg), vanadium (24.1 to 37.3 mg/Kg), calcium (7,050 to 27,000 mg/Kg), sodium (684 to 839 mg/Kg), and potassium (664 to 1,060 mg/Kg) were detected at concentrations well in excess of the SLAPS background ranges. Concentrations of inorganics at this unit were comparable to those in samples from other units at the facility.

These findings document a release of organic contaminants to the soil at this unit. PAHs are not very volatile and have an affinity for soils, decreasing the likelihood they have been released to subsurface gas or groundwater. However, PCE is volatile and mobile in the subsurface; thus, the potential is very high that PCE has partitioned to the subsurface gas, and migrated to the groundwater. Although PCE was not detected in the deeper soil sample from this location, samples were collected from only one location at this unit, so it is unknown whether PCE contamination exists at higher concentrations and at greater depths elsewhere at this unit.

Surface Water: high potential for release.

Soils: documented release of PAHs and PCE.

Groundwater: very high potential for release.

Subsurface Soil Gas: very high potential for release.

Air: high potential for release.

5.11 Unit 11, Former Waste Oil Tank, Building 6
Regulatory Status: Closed

A. Unit Description

Unit 11 consists of a 1,000-gallon horizontal, below-grade carbon steel tank located at Building 6 (Figure 7). The tank was an Air Manufacturing Company Model 10 1/2 UG, constructed of 10 gauge carbon steel with an outer coating of black asphaltum. The tank was strapped to a subsurface concrete pad on which it rested. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to the tank (Appendix A, Roll 6, Photograph 5).

The tank and the associated hydrocarbon sensing system, in operation since 1970, were removed on December 23, 1988. On May 9, 1989, soil samples were collected from a borehole drilled below the subsurface pad on which the tank had been strapped. The samples were analyzed for EP toxicity metals, petroleum hydrocarbons, and volatile organics. Details of the sampling procedures are summarized in Appendix D. Analytical results for the samples collected are discussed in Section 5.11, Part C. Based on the data, the contaminant concentrations detected did not justify further sampling, and MDNR certified this unit closed after a visual inspection of the area during the VSI. [10, 11, 20]

B. Waste Characteristics

This unit was used to store oil that had been separated from condensate (D001) of an oil-lubricated, steam-operated air compressor.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Analytical results for soil samples collected at this unit during the closure investigation are provided in Table 12. Toluene (17 μg/Kg) was detected in the soil sample 5 feet below the pad (approximately 11 feet BLS), but no other VOCs were detected. This concentration of toluene is well above the concentration in the SLAPS background sample. TPH concentrations in the soil beneath the pad were 45 μg/g immediately beneath the pad (approximately 6 feet BLS) and 22 μg/g approximately 5 feet below the pad (approximately 11 feet BLS). Concentrations of EP toxicity metals were below detection limits, except for barium in the sample immediately beneath the pad. The concentration of barium in this sample is much lower than the EP Toxicity limit.

The presence of TPH immediately beneath the pad, and TPH and toluene 5 feet beneath the pad document past releases of waste oil to the soil, which have migrated over time. Because

hydrocarbons have volatile fractions and are quite mobile in the subsurface, their volatile fractions readily partition to the subsurface gas and migrate to groundwater. However, the contaminant concentrations detected are relatively low, so the potential is only moderate for a release from the soil to the groundwater and/or subsurface gas. The potential for a release to Coldwater Creek via the groundwater, which is hydraulically connected to the creek, is moderate, based on the distance from this unit to the creek and the relatively low concentrations of contaminants detected. The tank was below ground, so releases to surface water (Coldwater Creek) via storm sewers or to the air pathways are unlikely, unless spills occurred during removal of the waste oil.

Surface Water: moderate potential for a past release.

Soils: documented past release(s) of oil to soils.

Groundwater: moderate potential for a past release.

Subsurface Soil Gas: moderate potential for past release(s).

Air: low potential for a past release.

5.12 Unit 12, Waste Jet Aircraft and Hydraulic System Spillage, F-18 Silencer Regulatory Status: Closed

A. Unit Description

Unit 12 was a 2,000-gallon horizontal, below-grade tank located east of the Hush House (Figure 9). This tank received waste fuel from the F-18 Silencer building. If a fuel system failed on an engine undergoing testing, any leaked fuel flowed through a drain to an oil-water separator and then into the tank.

The tank was an Owens Corning Fiberglass Model 2000 D-2 storage tank (Appendix A, Roll 3, Photograph 8). A concrete slab covered the tank, as well as the general area where the tank was located. The tank was equipped with a liquid level sensing system that flashed an alarm when the tank was approximately 75 percent full. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to the tank. A CEI conducted on September 17, 1987, indicated that this leak detection system was not working and had not been operational since July 1987. [13] McDonnell-Douglas reports that the system was placed back into service in November 1987 and operated with minor down time for repairs until removal at the time the tanks were removed. [39]

The tank was used from 1978 until December 30, 1992, when it was removed. No visible contamination was reported at the time of the tank removal, and a photoionization detector (PID) did not identify any vapors. Soil samples were collected from the bottom and sides of the

excavation and from beneath the center of the fuel line. These samples were analyzed for VOCs, TPH, PCBs, toxicity characteristics leachate procedure (TCLP) constituents, lead, and oil and grease. [12] Analytical results for the samples are discussed in Section 5.12, Part C. The excavation was backfilled with excavated soils and pea gravel and compacted to grade. A monitoring well equipped with a 5-foot screen was installed to a depth of approximately 10 feet in the excavation. [12] This well is not routinely monitored because the soil samples in the area did not show evidence of contamination from this tank. MDNR approved the area as closed. [20]

Before removal, the tank was emptied and remaining residue was removed from the tank and piping. The residues were processed through an oil-water separator. MCD transported product recovered from the tank to the point of use. Sludge was placed into two 55-gallon drums for shipment by MDC to a hazardous waste fuel blender. Before scrapping, the tank was cleaned with high pressure water. Rinsewater was drummed and pretreated at the facility IWTP. After the product was removed and the tank cleaned, the associated piping was cut and plugged. [12]

B. Waste Characteristics

This tank provided storage for waste jet aircraft and hydraulic system spillage (D001).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Although the leak detection system was not working in 1987, analysis of soil samples collected during tank removal showed concentrations of all analytes tested for to be below detection limits. Based on these data, there is low to no potential for releases to the soil, groundwater, or subsurface gas pathways. Because the tank was installed below ground with a concrete slab over the top, the potential for releases to the surface water (via storm sewers) or air pathways is negligible.

Surface Water: no potential for a past release.

Soils: low potential for a past release.

Groundwater: low potential for a past release.

Subsurface Soil Gas: low potential for a past release.

Air: no potential for a past release.

5.13 Unit 13, Waste Jet Aircraft Fuel and Hydraulic System Spillage Storage Tank, Hush House

Regulatory Status: Undergoing Closure Activities Within the Leaking Underground Storage Tank Program

A. Unit Description

There have been two underground storage tanks at this unit, which is located south of the Hush House (Figure 9; Appendix A, Roll 2, Photographs 12 and 13). Both tanks were used to store waste jet aircraft fuel and hydraulic system spillage from the Hush House. From 1963 to 1983, there was a 3,000-gallon horizontal, below-grade tank at this unit; from 1983 to 1989, there was a reinforced plastic tank designated as "Hush House Waste Tank" at this unit.

Both tanks were strapped to a subsurface concrete pad and completely surrounded with river sand. A concrete slab covered the entire area where the tanks were located. Both tanks were equipped with a liquid level sensing system that indicated when the tank was approximately 80-percent full. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to the tanks. A CEI conducted on September 24, 1987, indicated that this leak detection system was not operational and had not been functioning since July 1987. McDonnell-Douglas reports that the system was back in service in November 1987 and operated with minor downtime for repairs until removal at the time the tank was removed. [39]

A leak of 14 gallons per hour was discovered in the plastic tank on May 21, 1989, and it was taken out of service. An excavation to the top of the fuel tank was conducted on May 31, 1989, and a 16.5-inch gash was discovered in the top of the tank. Fuel-contaminated soil surrounding the tank was observed at this time. The plastic tank was removed later in 1989, and the excavation was back-filled with gravel. [35, 40]

A hydrogeologic assessment of the "Ramp Area" (SWMUs 12-15) was conducted in 1988 to determine the extent of contamination resulting from leaking tanks and a ruptured fuel line. As part of this investigation, six monitoring wells were installed in the area of the removed tank. [40] Groundwater was found from 2 to 8 feet BLS. The wells are sampled twice per year, and samples are analyzed for BTEX and TPH. Initial groundwater monitoring results from May 1990, indicated that TPH concentrations in the groundwater ranged from 113 to 4,370 ppm and total BTEX concentrations ranged from 59 to 933 ppb. All groundwater sample results are provided in Table 13. [38]

Remediation activities at this unit are being conducted under the oversight of MDNR Environmental Services Program (ESP), LUST division. Until 1994, remediation included gauging the wells weekly for depth to product, depth to groundwater, and groundwater temperature, followed by vacuuming for 30 minutes or until dry to remove impacted groundwater and any free product. After 4 years of remediation, TPH and BTEX concentrations in all wells at this unit dropped to below detection limits (April 1994 groundwater samples in Table 13). Because the concentrations of target compounds in groundwater samples from this

unit have been below detection limits, the wells have monitored, vacuumed and sampled only once per year since 1994. [38]

An oil-water separator is now in place to process waste fuel that has leaked or been spilled at this unit. The separated water is piped to the IWTP from this system. Separated fuel is pumped from the separator into a cart and transported to Building 5, where it is placed into underground storage tanks and burned as boiler fuel (Appendix A, Roll 2, Photograph 13; Roll 3, Photograph 1). [1, 3, 4, 13, 14, 20, 21]

B. Waste Characteristics

These tanks were used to store waste jet aircraft fuel and hydraulic system spillage (D001).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Based on the findings of the Hydrogeologic Assessment (discussed in Part A), there are documented releases of hydrocarbons from this unit to the soils and shallow groundwater. The likelihood is high that the contaminants have partitioned from the soil to the subsurface gas, considering the volatility of jet fuels. The tanks were underground, so a release to surface water via the stormwater system is not possible. If spills occurred during removal of the wastes from either tank, releases to the air and surface water (via the storm sewers) may have occurred. In addition, if the shallow groundwater is hydraulically connected to Coldwater Creek, the probability is high that there has been a release to surface water via the groundwater system.

Surface Water: moderate to high potential for a past release to surface water.

Soils: documented past release.

Groundwater: documented past release.

Subsurface Soil Gas: very high potential for past release.

Air: low to moderate potential for a past release.

5.14 Unit 14, Waste Jet Aircraft Fuel Storage Tanks, Fuel Pits #3 and #4 Regulatory Status: Undergoing Closure Activities Within the Leaking Underground Storage Tank Program

A. Unit Description

Unit 14 consisted of two 2,000-gallon, vertical, below-grade tanks within fuel pits located approximately 40-feet south of Building 45 (Figure 9). The tanks were constructed of 1/4-inch-thick carbon steel with an ASME-approved coal tar epoxy outer coating. Each tank had a

nominal capacity of 3,000 gallons, but the bottom third of each was filled with concrete. Fuel pit #3 tank was installed in 1977 (Appendix A, Roll 2, Photograph 11). Fuel pit #4 tank was installed in 1983 (Appendix A, Roll 2, Photograph 10). Both tanks were removed in August 1992.

The fuel pits are concrete-lined subgrade excavations that house the pumps and filters used for fueling and defueling aircraft. While the tanks were in place, whenever the pumps in the fuel pits were turned on, a valve opened so that any spilled fuel would automatically go into the tank. A concrete slab covered the tanks and the entire area where the tanks were located. Each tank was equipped with a liquid level indicating system that sounded an alarm when the tank was approximately 75-percent full. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to the tanks. A CEI conducted on September 24, 1987, indicated that this leak detection system was not operational and had not been functioning since July 1987. MCD reports that the system was back in service in November 1987 and operated with minor downtime for repairs until removal at the time the tanks were removed. [39]

During tank removal, soil samples were collected from within and downgradient of both excavations (sampling methodology not provided by facility). The samples were analyzed for TPH and BTEX. Analytical results for the samples are provided in Table 14. Benzene, toluene, and TPH were detected in the Fuel Pit #3 samples, and all analytes were detected in the Fuel Pit #4 samples.

A hydrogeologic assessment of the Ramp Area (SWMUs 12-15) was conducted in 1988 to determine the extent of contamination resulting from leaking tanks and a ruptured fuel line. As part of this investigation, three monitoring wells were installed in the area of the former tanks. [40] Groundwater was encountered at approximately 8 feet BLS. An additional seven remediation wells were installed south of Building 45 since the hydrogeologic investigation (Figure 14) Groundwater from all wells is sampled twice per year, and the samples are analyzed for BTEX and TPH. Analytical results for all 11 wells since May 1990 (Table 13), indicate that TPH concentrations in the groundwater ranged from 49 to 68,960 ppm and total BTEX concentrations ranged from non-detect to 124,500 ppb. [38]

Remediation activities at this unit are being conducted under the oversight of MDNR ESP, LUST division. As part of the remediation, the remediation wells are monitored weekly. Monitoring consists of gauging the wells for depth to product, depth to groundwater, and groundwater temperature. After monitoring, the wells are vacuumed for 30 minutes or until dry, removing impacted groundwater and any free product. Vacuum hoses are secured to the well casing after the wells at this site are monitored. Results of groundwater samples collected from wells at this unit in April 1994 (after 4 years of remediation) indicated that TPH and BTEX concentrations in eight of the wells were below detection limits. In three of the wells, TPH concentrations ranged from 10 to 70 ppm, and total BTEX concentrations ranged from 44 to 837 ppb in December 1993 (Table 13). [38]

Currently, any fuel spilled or leaked collects in the fuel pits. These pits act as blind sumps, holding the spilled fuel. During routine maintenance of the pumps and filters, any spilled fuel is pumped into portable tanks. The fuel is then transported to an oil-water separator located at Building 41. Water from the separator is discharged via pipeline to the IWTP. Separated fuel is pumped from the separator into a cart and transported to the Building 5 boiler-house USTs where it is blended with off-spec jet fuel and used to fuel the boiler for the facility heating system. [13,3,20,21]

B. Waste Characteristics

These tanks were used to store jet aircraft fuel that spilled during fueling or defueling operations (D001).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Based on the findings of the soil sampling during tank removal, and groundwater sampling during the Hydrogeologic Assessment and subsequent monitoring (discussed in Section 5,14, Part A), there are documented releases of hydrocarbons from this unit to the soils and groundwater. In addition, the likelihood is high that the contaminants have partitioned to the subsurface gas, considering the volatility of jet fuels. The tanks were underground, so a release to surface water via the stormwater system is not possible. However if spills occurred during removal of the wastes from either tank, releases to the air and surface water (via the storm sewers) may have occurred. If the shallow groundwater is hydraulically connected to Coldwater Creek, a release to surface water (Coldwater Creek) via the groundwater system is very likely.

Surface Water: moderate to high potential for past release.

Soils: documented past release.

Groundwater: documented past release.

Subsurface Soil Gas: high potential for past release.

Air: low to moderate potential for past release.

5.15 Unit 15, Waste Jet Fuel Storage Tank, Ramp Station 1 and 2 Regulatory Status: Undergoing Closure Activities Within the Leaking Underground Storage Tank Program

A. Unit Description

Unit 12 was a 4,380-gallon fiberglass UST, located at Building 45K (Figure 9). The tank was used from 1983 to June 1993 to store jet aircraft fuel that had leaked or been spilled during the

repair of aircraft fuel systems (Appendix A, Roll 2, Photographs 8 and 9). A CEI conducted on September 24, 1987, indicated that the leak detection system was not operational and had not been functional since July 1987. MCD reports that the system was back in service in November 1987 and operated with minor downtime for repairs until removal at the time the tank was removed. [39]

An integrity test conducted on December 22, 1992, indicated that the tank had a leak rate of .0563 gpm, and MCD stopped storing fuel in the tank at that time. The tank was removed in August 1993. During removal, there were visible signs of product leakage in the soils and free hydrocarbons present on the groundwater. The hydrocarbons on the groundwater were removed using oil-absorbent pads. Three soil samples were collected in the excavation from locations under the tank and from the sidewall. A groundwater sample also was collected. Depths of sample collection and sampling methodology were not provided. [45]

The soil samples were analyzed for BTEX and TPH. Analytical results for the samples are provided in Table 15. Benzene and toluene were not detected in any of the samples.

A hydrogeologic assessment of the Ramp Area (SWMUs 12 through 15) was conducted in 1988 to determine the extent of contamination resulting from leaking tanks and a ruptured fuel line. As part of this investigation, five monitoring wells were installed in the area of the former tank at this unit (Figure 14). [40] Groundwater was encountered at 2 to 8 feet BLS. Groundwater is sampled twice per year, and the samples are analyzed for BTEX and TPH. Analytical results from May 1990 indicated that TPH concentrations in the groundwater ranged from 32 to 44,440 ppm (MW-A19 having 44,440 ppm TPH) and total BTEX of 145 ppb in MW-19A only. Total BTEX in the other four wells was below detection limits. All groundwater sample results are provided in Table 13. [38]

Remediation activities at this unit are being conducted under the oversight of MDNR ESP, LUST division. Until 1994, remediation included gauging the wells weekly for depth to product, depth to groundwater, and groundwater temperature, followed by vacuuming for 30 minutes or until dry to remove impacted groundwater and any free product. Results of groundwater samples collected from wells at this unit in April 1994 (after 4 years of remediation) indicated that TPH concentrations in all five wells and BTEX concentrations in all but MW-19A were below detection limits. Total BTEX in MW-19a was 53 ppb. [38] Because the concentrations of target compounds in groundwater samples from this unit are below Missouri guidelines, the wells are monitored, vacuumed and sampled only once per year since 1994.

On October 4, 1993, MCD installed an oil-water separator system that now collects any jet aircraft fuel spilled in this building. The fuel capacity of the system is 800 gallons. An alarm is activated when the system is two-thirds full. Fuel is then pumped from the separator into a cart and transported to Building 5 where it is placed in USTs and burned for boiler fuel. Water is discharged from the separator via pipeline to the IWTP (Appendix A, Roll 2, Photograph 9). [1,13,15,3,20,21]

B. Waste Characteristics

This tank was used to store jet aircraft fuel that had leaked or been spilled during the repair of aircraft fuel systems (D001).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Based on the findings of the soil and water sampling during tank removal, and the Hydrogeologic Assessment (discussed in Section 5.15, Part A), there are documented releases of hydrocarbons from this unit to the soils and groundwater. The likelihood also is high that the contaminants have partitioned to the subsurface gas, considering the volatility of jet fuels. The tanks were underground, so a release to surface water via the stormwater system is not possible. However if spills occurred during removal of the wastes from either tank, releases to the air and surface water (via the storm sewers) may have occurred. If the shallow groundwater system is hydraulically connected to Coldwater Creek (the vertical and horizontal extent of the groundwater system in the ramp area has yet to be determined), a release to surface water via the shallow groundwater system is very likely.

Surface Water: moderate to high potential for past release.

Soils: documented past release.

Groundwater: documented past release.

Subsurface Soil Gas: high potential for past release.

Air: low to moderate potential for past release.

5.16 Unit 16, Methyl Ethyl Ketone/Methyl Isobutyl Ketone Recovery Unit, Building 48 Regulatory Status: Active

A. Unit Description

Unit 16 is a MEK, and MIBK, recycling/recovery unit located within Building 48 (Figure 9). These solvents are used to clean spray painting guns, lines, and equipment. The system is enclosed in an inner room with concrete floors and stainless steel walls. There is no evidence of cracks in the floor or other areas that could potentially release spilled material.

Spent solvent is accumulated in a 55-gallon drum and automatically pumped into the Recyclene RX-35 Recovery System for distillation. The distilled MEK or MIBK is collected in 55-gallon drums and used again for equipment cleanup. Residue from the distillation process is accumulated in a disposable bag that lines the boiler. The still bottom residue from the recovery process is collected in 55-gallon drums. The waste is then shipped directly from the satellite

collection area associated with this building to a permitted facility for treatment and disposal or is transported to one of the three less-than-90-day container storage areas at the facility (SWMUs 23 through 25) for storage prior to offsite treatment and disposal (Appendix A, Roll 5, Photograph 1). [17]

B. Waste Characteristics

Spent MEK (F005) and MIBK (F003) are recycled in this recovery unit. Waste still bottoms are collected in drums

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Because the system is enclosed in an inner room with concrete floors and stainless steel walls and there is no evidence of cracks in the floor or other areas where spilled materials could be released, there is no potential for release to any of the media.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.17 Unit 17, Perchloroethylene Recovery Unit, Building 51 Regulatory Status: Active

A. Unit Description

Unit 17, located within Building 51 (Figure 9), recovers PCE (aka tetrachloroethylene) from maskant applied to sections of metal parts prior to chemical milling. MCD began using the PCE recovery unit on June 22, 1993, and it is still in use. [18]

The maskant product is a mixture of rubber-like polymers in a PCE carrier or thinner. This paint-like mixture is applied to metal parts and allowed to dry. As the parts dry, the PCE evaporates and is captured in a vapor recovery hood. The hood discharges to a carbon adsorption unit, where the PCE vapors are separated from the air and then transferred to a condenser, where it is recovered. The recovered PCE flows to a 55-gallon tank that cycles it to a 750-gallon recovered-PCE holding tank. Recovered PCE is transferred from the 750-gallon holding tank into 350-gallon portable tanks. These tanks are shipped to A/C Products in California to be used directly as an ingredient in new maskant. According to MCD

representatives, the PCE is recovered in a purity equivalent to virgin solvent, and PCE sent back to the maskant supplier is sampled and analyzed by MCD to determine the percent purity. However, no analytical results were provided by MCD. In 1986, USEPA Region VII notified MCD that the recovered PCE is considered a listed hazardous waste and must be managed appropriately. [46] A/C Products sells new maskant to MCD and the resource recovery process repeats.

The PCE-laden air comes to the unit from the chemical milling operations only. The system is designed to draw air from this masking operation only. No incompatible waste could be mistakenly added to the air flow system. The air is drawn from the totally enclosed part dipping, heating, and drying operations.

The 55-gallon tank that receives the PCE from the separation cycle of the process is installed inside a stainless steel pan with 12-inch-high sides. The 750-gallon tank that stores the PCE transferred from the 55-gallon tank is located inside a concrete curb with 12-inch-high sides. The 350-gallon portable tanks are filled in an area next to the 750-gallon tank. Although these tanks sit on concrete, no spill containment is provided in this area. Shovels and absorbent are available to clean up any PCE spills outside the curbed area. During the VSI, evidence of past spills in the area where the 350-gallon portable tanks are filled was observed. Asphalt around the transfer area has been damaged (Appendix A, Roll 1, Photographs 2 through 6).

The contaminated activated granular carbon is the only residue generated in the recovery process. The carbon should last approximately 3 years. In 1996, the facility will ship the contaminated residue to LWD in Calvert City, Illinois for incineration.

The damage to the asphalt in the transfer area observed during the VSI suggests that PCE was spilled in the past. Based on these observations during the sampling visit, two soil samples were collected where the asphalt was most damaged (Appendix B, Roll 1, Photograph 8; Roll 2, Photograph 23). The samples were collected from 0 to 12 inches and from 12 to 24 inches BLS. Details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the samples are provided in Table 4, and discussed in Section 5.17, Part C.

B. Waste Characteristics

This unit recovers waste PCE and granular carbon contaminated with PCE during the recovery process (F001 and F002).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The asphalt damage at this unit observed during the VSI suggests that spills occurred during transfer of the PCE. The transfer point is within a building, and PCE is so volatile that any spills likely would evaporate before running off. Therefore, the potential for release to surface water is low.

To evaluate whether releases to the soil, subsurface gas, and groundwater had occurred, samples from soil beneath areas of apparent past damage were collected during the sampling visit. Data for the soil samples are provided in Table 4. PCE (760 to 290,000 μg/Kg), acetone (88 to 140 μg/Kg), total xylenes (11 to 32 μg/Kg), and 1,2-DCE (14 to 44 μg/Kg) were the organics detected in the samples and duplicates. The shallower sample had the highest concentration of PCE, but the field duplicate for this sample had a PCE concentration of 40,000 μg/Kg. Some inorganic contaminants were detected in the soil samples at concentrations above SLAPS background in both samples from the sampling visit. Selenium (4.02 mg/Kg), calcium (14,600 mg/Kg), magnesium (39,600 mg/Kg), and sodium (348 mg/Kg) concentrations were elevated well above slaps background in the shallower sample, and aluminum (21,800 mg/Kg), arsenic (46.3 mg/Kg), barium (183 mg/Kg), beryllium (1.4 mg/Kg), chromium (19.7 mg/Kg), iron (30,500 mg/Kg), lead (33.1 mg/Kg), vanadium (44.2 mg/Kg), calcium (16,400 mg/Kg), and sodium (206.0 mg/Kg) concentrations were elevated well above the SLAPS background in the deeper sample. The concentrations of aluminum and beryllium in the deeper sample were the highest detected for those compounds in the sampling visit samples. With the exception of aluminum and beryllium, concentrations of most inorganics at this unit were comparable to those in samples from other units at the facility.

The sampling visit data document a release(s) of VOCs and probably inorganics, to the soil and provide evidence that spills have occurred during transfer of the PCE to the 350-gallon containers. Partitioning of the VOCs from the soil to the subsurface gas is strongly suspected because of the high volatility of the contaminants detected. The compounds detected also are highly mobile in the subsurface, so is highly likely that they have migrated to the groundwater. Releases to the air pathway during spills also are highly likely because of the volatility of the contaminants detected in the soil samples.

Surface Water: low potential for release.

Soils: documented release of PCE, acetone, xylenes, and DCE.

Groundwater: very high potential for release.

Subsurface Soil Gas: very high potential for release.

Air: very high potential for release.

5.18 Unit 18, Methyl Ethyl Ketone/Methyl Isobutyl Ketone Recovery Unit, Building 27 Regulatory Status: Active

A. Unit Description

Unit 18, located within Building 27 (Figure 6), recycles/recovers MEK and MIBK. These solvents are used to clean spray painting guns, lines, and equipment. The system is enclosed

in an inner room with concrete floors and stainless steel walls. There is no evidence of cracks in the floor or other areas that could potentially release spilled material.

Spent solvent is accumulated in a 55-gallon drum and automatically pumped into the Recyclene RX-35 Recovery System for distillation. The distilled MEK or MIBK is collected in 55-gallon drums and used again for equipment cleanup. Residue from the distillation process is accumulated in a disposable bag that lines the boiler. The still bottom residue from the recovery process is collected in 55-gallon drums. The waste is then either shipped directly from the satellite collection area associated with this building to a permitted facility for treatment and disposal or is transported to one of the three less-than-90-day container storage areas at the facility (SWMUs 23 through 25) for storage prior to offsite treatment and disposal (Appendix A, Roll 8, Photograph 12). [17]

B. Waste Characteristics

Spent MEK (F005) and MIBK (F003) are recycled in this recovery unit, and waste still bottoms are generated.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Because the system is enclosed in an inner room with concrete floors and stainless steel walls, and there is no evidence of cracks in the floor or other areas where spilled solvent potentially could be released, there is no potential for release to any of the media.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.19 Unit 19, Drum Storage Areas and Related Satellite Accumulation Areas Regulatory Status: Active

A. Unit Description

Unit 19 consists of drum storage areas located at numerous satellite locations (mainly within Buildings 17, 27, 29, 220, 2, 22F, 40, 42, and 48) (Figure 2). Spent solvents, waste paints, and oils are accumulated in the drums. When full, the drums are transferred to one of the less-than-90-day storage areas at the facility (SWMUs 23 through 25) (Appendix A, Roll 3,

Photographs 9, 11, and 12; Roll 4, Photograph 2; Roll 5, Photographs 2 and 3; Roll 8, Photographs 11, 13, and 14; Roll 9, Photographs 9, 10, 11, 12, 13, 17, and 19).

B. Waste Characteristics

These storage and accumulation areas manage spent solvents (F005 and F003), waste paints, and oils (D001) from cleaning spray painting guns, lines, and equipment.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Because the drums are stored inside manufacturing buildings, it is highly unlikely that a release would escape to the outside environment. Thus, the potential for release to the any of the pathways is very low or nonexistent.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.20 Unit 20, Paint Solids Satellite Accumulation Areas Regulatory Status: Active

A. Unit Description

Unit 20 consists of 55-gallon drums and 2-cubic yard red dumpsters that receive waste paint solids, and two roll-off bins/trash compactors located at the north side of Building 27 and the north side of Building 48, respectively. The dumpsters and drums are located throughout the facility (mainly within Buildings 27, 220, 29, 2, 45, and 48) (Figure 2).

Rags used to wipe solvents and paint off metal parts are placed in red trash cans located at the immediate work areas. At the end of each day, these cans are emptied into the nearest 2-yard satellite dumpster or drum. Full drums are emptied into dumpsters. When full, these dumpsters are transported to one of the roll-off bins/trash compactors. The 2-cubic yard accumulation dumpsters are emptied into the roll-off dumpsters by forklift. Peoria Disposal Company transports the roll-off dumpsters to Custom Environmental for incineration of the contents approximately once every 2 weeks (Appendix A, Roll 3, Photograph 13; Roll 4, Photograph 1 and 3; Roll 9, Photographs 23, 24, and 25).

B. Waste Characteristics

The drums and dumpsters contain waste paint solids and rags with small amounts of solvent absorbed in them (D001, F003, and F005).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The 2-cubic yard dumpsters are located inside MCD manufacturing buildings where the contents would not come in contact with any of the migration pathways if a spill occurred. Although the roll-off dumpsters are located outside where potential spills could be released to soil and surface water (via stormsewers), there is no evidence of a past spill having occurred from them. In addition, the wastes managed primarily are solids, which are less likely to leach residues that could migrate to surface water or soils. The potential for a release from the roll-off dumpsters to the air pathway is high because the wastes managed are volatile. Lids on the roll-off dumpsters are opened frequently, and the seal is not tight when the lids are closed.

Surface Water: low potential for release.

Soils: low potential for release.

Groundwater: low to no potential for release.

Subsurface Soil Gas: low potential for release.

Air: high potential for release.

5.21 Unit 21, Industrial Wastewater Treatment Plant Tanks, S-1, S-2, S-3, S-4, and E-1, E-2, E-3, Building 14
Regulatory Status: Active

A. Unit Description

Unit 21 has in-ground, open-top tanks that are located at the IWTP (Figure 7). The tanks have 4-inch-thick reinforced concrete floors and 6-inch-thick concrete walls (Appendix A, Roll 5, Photographs 4 through 10). The tanks are connected in series from S-1 to E-3. The S-series tanks are settling tanks where sludge settles out and is separated from the water. These tanks have a system of rakes and pumps to collect the sludge. The sludge from these tanks is pumped to the Sludge Collection Tank (SWMU 3). The E-series tanks are for pH adjustment (E-1) and additional settling. Any sludge that accumulates in them must be removed by draining the tank and manually pumping the sludge out. A diagram indicating the flow path of wastes through the IWTP is provide in Appendix G.

The capacity of tanks S-1 and S-2 is 51,897 gallons, tanks S-3 and S-4, of 124,936 gallons, tank E-1, 82,931 gallons, tank E-2, 131,200 gallons, and tank E-3, 323,100 gallons. Appendix G contains an as-built diagram of the tanks which also depicts the flow path of waste through the system.

Discharge of wastewater from the plant is to the Metropolitan St. Louis Sewer District publicly-owned treatment works (POTW) under industrial discharge permit No. 80140327-00. The permit was issued September 1, 1992, and is valid until April 30, 1995. A diagram indicating the sources of industrial wastes processed by the IWTP is provided in Appendix G.

MCD purchased the IWTP from Metropolitan St. Louis Sanitary District and converted it for wastewater treatment. Operations began at the IWTP in July 1970. In October 1993, tanks E-2 and E-3 were drained to repair cracks that had formed in the floor. [1,21] Because soil contamination was suspected beneath the tanks but the soil could not be easily sampled, two groundwater probes were planned to be installed downgradient of the tank during the sampling visit. Groundwater samples were to be collected from both probes to evaluate whether there had been a release to groundwater from this unit. As discussed in Section 4 of this report, groundwater was not encountered to 40 feet BLS, and only a thin saturated zone of silty sand was encountered at 30 feet BLS in the other groundwater probe location. As noted in Section 4 of this report, this probe was not purged before collection of the groundwater sample because of the low rate of recharge of the geologic formation. A groundwater sample was collected, but only enough volume was available for metals analysis. This sample was turbid and unfiltered. Details on the probe installation and sampling procedures are provided in Section 4 of this report. Analytical results are discussed in Section 5.21, Part C. A soil sample from the saturated zone also was collected.

B. Waste Characteristics

Rinsewater and overflows from electroplating and chemical processing operations are received at the treatment plant. Hazardous waste codes assigned to solutions used in these operations include D002, D004, D005, D006, D007, D008, and D010.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

This unit does not have a history of overflow or spills. However, the tanks are open on top, there is no listed freeboard for the tanks or level detectors, and no containment system. If the tanks were to overflow, a release to surface water could occur. As shown on Figure 2, this unit is adjacent to Coldwater Creek.

Data for the soil and groundwater samples collected during the sampling visit are provided in Table 4. Organic contaminants were not detected in the soil sample. Inorganic contaminants were detected at concentrations above SLAPS background, and aluminum (12,900 mg/Kg), arsenic (23.3 mg/Kg), beryllium (1.1 mg/Kg), chromium (19.8 mg/Kg), vanadium (38.7 mg/Kg), and sodium (110 mg/Kg) concentrations were well above SLAPS background

concentrations. Concentrations of all inorganics were comparable to those in samples from other units. Cyanide was detected (0.162 mg/Kg) in the soil sample. Cyanide was not detected in any other soil samples collected at this facility during the sampling visit. The SLAPS background sample was not analyzed for cyanide.

Numerous inorganic contaminants were detected in the groundwater, some of which were at concentrations above MCLs or Subpart S proposed rule action levels. The following compounds were detected in the groundwater in excess of either standard:

COMPOUND	CONCENTRATION (μg/L)	ACTION LEVEL (μg/L)
Arsenic	3,380	20[1]
Barium	14,500	1,000[1]
Chromium	2,660	50[1]
Copper	2,530	1,300[2]
Manganese	56,000	NA
Nickel	7,780	7,000[1]
Lead	2,640	50[1]
Antimony	391	100[1]
Vanadium	2,910	NA

1 Subpart S proposed action levels
2 MCL
NA Not available as an MCL or in Subpart S proposed rule.

These sampling visit data indicate there has been a release of metals from this unit to groundwater. Considering the concentrations of these metals in the groundwater, the fact that metals typically adsorb to soil particles and are not particularly mobile in the subsurface, and groundwater is at approximately 30 feet BLS at this unit, it is highly suspected that the soil around the tanks also must have been affected by the release. The lack of significant contamination in the one soil sample collected at this sampling location (which is downgradient of the tanks) suggests that the contamination is migrating vertically to groundwater, rather than horizontally. It is possible that the hydraulic head from the tanks promotes the vertical migration of contaminants, or perhaps there is a subsurface geologic feature that acts as a conduit for the contamination. Because metals are not highly volatile, it is unlikely that they partitioned from the soil or groundwater to the subsurface gas.

Surface Water: moderate potential for release in the event of an overflow.

Soils: high potential for release of metals based on groundwater results.

Groundwater: documented release of metals.

Subsurface Soil Gas: low potential for release of metals.

Air: low to moderate potential for release. The tanks are open on top and, thus, open to the surrounding atmosphere. However, materials contained in this tank are not known to have low vapor pressures and, thus, are not easily released into the air.

5.22 Unit 22, Paint Booth Satellite Accumulation Drum, Building 2
Regulatory Status: Active

A. Unit Description

A 55-gallon drum, located outside the northwest corner of Building 2 (Figure 8), is used for satellite accumulation of wastes from painting operations conducted in the Building 2 paint booth. A drum of paint waste is generated at this unit every 10 to 14 days. Full drums are transported by forklift to the less-than-90-day waste storage area at Building 2 (SWMU 24) (Appendix A, Roll 9, Photograph 22). This location has been a satellite accumulation point for spent paint solvents from the Building 2 painting booth since September 11, 1990.

During the VSI, evidence of small paint spills and drips were present on the concrete surrounding the drum, and the concrete surrounding the drum was observed to have small cracks. Based on these observations, a soil sample was collected at this unit during the sampling visit. The sample was collected from a depth interval of 0 to 24 inches BLS at a location below the largest crack (Appendix B, Roll 1, Photograph 7; Roll 2, Photograph 27). Originally, two samples were planned for this location, but the sample compacted and only one could be collected. The sample from this location smelled of hydrocarbons and was black with streaks. A down-hole measurement using the PID after the sample was collected registered 3 to 4 ppm. Further details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the sample are provided in Table 4 and discussed in Section 5.22, Part C.

During the sampling visit, a 4-foot by 5-foot area adjacent to the building was observed to be covered by wooden timbers (Appendix B, Roll 1, Photograph 7). The timbers were flush with the ground surface and fit tightly together into the rectangular area so that the area beneath them could not be observed. The timbers were substantially thick so that it could not be determined whether the area beneath them had been excavated. In addition, during the sampling activities (described below) a sample could not be collected at the initial sampling location near these timbers because of the presence of a subsurface pipe that MCD personnel were not aware of. MCD personnel cannot determine why the timbers are there, what is beneath them, or the purpose of the pipe. [39]

B. Waste Characteristics

Wastes managed at this unit are spent paint solvents (F005, F008) used in painting operations conducted in the Building 2 paint booth.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

The drum remains closed when not being filled. However, small paint spills and drips were observed on the concrete during the VSI, which suggests there could be a release to surface water via runoff of stormwater to Coldwater Creek. In addition, the presence of cracks at this unit during the VSI suggests that releases to the soil, subsurface gas and groundwater also might have occurred. To evaluate whether such releases occurred, a soil sample from this unit was collected during the sampling visit. Data for the soil sample is provided in Table 4. The sample was discolored, and the down-hole PID reading indicated the presence of organic contaminants. Total xylenes was the only organic contaminant detected in the sample at 12 μg/Kg. Some inorganic contaminants were detected in the soil samples at concentrations above SLAPS background in the sample collected. Arsenic (25.2 mg/Kg), beryllium (0.806 mg/Kg), iron (18,200 mg/Kg), vanadium (44.2 mg/Kg), calcium (23,700 mg/Kg), magnesium (14,100 mg/Kg), sodium (128 mg/Kg), and potassium (1,230 mg/Kg) concentrations were elevated well above SLAPS background. Concentrations of inorganics detected at this unit were comparable to those in samples from other units at the facility, however.

These data document the release of paint residue to the soil. Xylene is a common solvent for paints sprayed on to metal surfaces. Xylenes are quite volatile and are mobile in the subsurface, so it is highly likely that they have migrated to the groundwater, and partitioned into the subsurface gas. Releases to the air pathway as a result of spills also are highly likely because of the volatility of the xylene.

Surface Water: low to moderate potential for release.

Soils: documented release of xylene.

Groundwater: high potential for release.

Subsurface Soil Gas: high potential for release of xylene.

Air: high potential for release.

5.23 Unit 23, Less-Than-90-Day Storage Area, Buildings 45C and 45D
Regulatory Status: Active

A. Unit Description

Unit 23 is a prefabricated steel storage building located south of Buildings 45C and 45D in the Ramp Area (Figure 9). It has inside dimensions of 14 feet, 7-1/2 inches by 8 feet, 3/8 inches by 7 feet, 1/2 inches, and has a capacity of twentyeight 55-gallon drums. The storage unit is open in front and enclosed on the other three sides (Appendix A, Roll 3, Photograph 2). The area around this building is paved.

A sunken floor to this storage building provides a spill containment capacity of 380 gallons. A visual inspection of the storage building during the sampling visit (November 12, 1994) determined that the spill containment system was intact. The floor was wet from rainwater and had algae on it, but no evidence of staining or corrosion was observed.

Wastes generated in Building 40 and at other satellite areas are placed in 55-gallon drums. When full, the drums are transferred to this storage area. Once per week, drums are picked up and transferred to the permitted storage area at Building 27 (SWMU 8). This storage building has been used at this location since July 1993. Prior to this, the storage unit was located outside the northwest corner of Building 40. The former storage area is SWMU 26.[21]

B. Waste Characteristics

Waste solvents, paints, and oils are stored at this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Any leaks or spills would be contained by the spill containment system, which was determined to be in good condition during the sampling visit. No spills are known to have occurred and there is no evidence of any releases from this unit. However, the storage unit is not fully enclosed, and any spilled or leaked material collected in the containment system would be open to the surrounding atmosphere.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: low potential for release.

5.24 Unit 24, Less-Than-90-Day Storage Area, Building 2
Regulatory Status: Active

A. Unit Description

Unit 24 is a prefabricated storage building located outside the east side of Building 2 (Figure 8). The steel-constructed building has inside dimensions of 14 feet 7-1/2 inches by 8 feet 3/8 inches by 7 feet 1/2 inches and has a capacity of twentyeight 55-gallon drums. The storage unit is open in front and enclosed on the other three sides (Appendix A, Roll 4, Photographs 4 and 5). The area around this building is paved.

A sunken floor provides a spill containment capacity of 380 gallons. A visual inspection of this building during the sampling visit (November 12, 1994) determined the spill containment system was intact. The floor was wet from rainwater and had algae on it, but no evidence of staining or corrosion was observed.

Waste solvents, paints, and oils generated in Building 2 are placed in 55-gallon drums throughout the building. When full, the drums are transferred to this storage area, as well as drums from the satellite accumulation areas. Once per week, drums are picked up and transferred to the permitted storage area at Building 27 (SWMU 8). The storage building has been used at this location since September 1990. [21] MCD reports that for a short period of time, the storage building was moved approximately 50 feet north of its current is location to allow resurfacing of the asphalt beneath it. [39]

B. Waste Characteristics

Waste solvents, paints, and oils are stored in this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Any leaks or spills would be contained by the spill containment system, which was determined to be in good condition during the sampling visit. No spills are known to have occurred and there is no evidence of any releases from this unit. However, the storage unit is not fully enclosed, and any spilled or leaked material collected in the containment system would be open to the surrounding atmosphere.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: low potential for release.

5.25 Unit 25, Less-Than-90-Day Storage Area, Building 51
Regulatory Status: Active

A. Unit Description

Unit 25 is a prefabricated storage building located outside the east side of Building 51 (Figure 9). The steel-constructed building has dimensions of 14 feet 7-1/2 inches by 8 feet 3/8 inches by 7 feet 1/2 inches and has a capacity of twentyeight 55-gallon drums. The storage unit is open on all sides and has a corrugated steel roof (Appendix A, Roll 1, Photograph 7).

A sunken floor provides a spill containment capacity of 380 gallons. A visual inspection of this building during the sampling visit (November 12, 1994) revealed the spill containment system to be intact. The floor was wet from rainwater and had algae on it, but no evidence of staining or corrosion was observed.

Waste solvents, paints and oils generated in Building 51 are placed in 55-gallon drums throughout the building. When full, the drums are transferred to this storage, area as well as drums from satellite accumulation areas. Once per week, drums are picked up and transferred to the permitted storage area at Building 27 (SWMU 8). The Unit 25 storage building has been used at this location since June 1989. [21]

B. Waste Characteristics

MCD stores waste solvents, paints, and oils at this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Any leaks or spills would be contained by the spill containment system, which was in good condition during the sampling visit. No spills are known to have occurred, and there is no evidence of any releases from this unit. However, the storage unit is not enclosed, and any spilled or leaked material collected in the containment system would be open to the surrounding atmosphere.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: low potential for release.

5.26 Unit 26, Former Less-Than-90-Day Storage Area, Building 40 Regulatory Status: Removed

A. Unit Description

Unit 26 was a prefabricated storage building located outside on the northwest side of Building 40 (Figure 9). The steel-constructed building had inside dimensions of 14 feet 7-1/2 inches by 8 feet 3/8 inches by 7 feet 1/2 inches and had a capacity of twentyeight 55-gallon drums. The storage unit was open in front and enclosed on the other three sides (Appendix A, Roll 3, Photographs 4 through 7). A sunken floor provided a spill containment capacity of 380 gallons.

Waste solvents, paints and oils generated in Building 40 were placed in 55-gallon drums throughout the building. When full, the drums were transferred to this storage area, as well as drums from other satellite accumulation areas. The storage building was used at this location from November 1990 until July 1993, when it was moved to its current location south of Building 45, in the Ramp Area (and now is SWMU 23, Figure 9). The facility has placed another prefabricated building at this location and it is being used for storage of virgin product associated with equipment use and maintenance (oil, gasoline, oil filtration units, etc.) [39, 43]

A visual inspection of the building formerly at this location (now SWMU 23) during the sampling visit (November 12, 1994) determined that the spill containment system was intact. The floor was wet from rainwater, and there was algae on the floors, but no evidence of staining or corrosion was observed.

During the VSI, stains on and cracking of the concrete paving around the area were observed. The staining associated with the cracking suggested that there had been a release from this unit in the past. Based on these observations, four soil samples were collected at this unit during the sampling visit. Samples were collected from depths of 0 to 12 and 12 to 24 inches BLS at two locations: one along a crack next the building and one along a seam in the concrete (Appendix B, Roll 1, Photographs 11 and 32). Further details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the sample are provided in Table 4, and discussed in Section 5.26, Part C, below.

B. Waste Characteristics

MCD stored waste solvents, paints, and oils generated in Building 40 at this less-than-90-day storage area.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Although staining and cracking of the concrete at this unit observed during the VSI suggested there had been a release from this unit in the past, a visual inspection of the secondary containment for the building formerly at this location was conducted during the sampling visit. The building appeared to be in good condition. Facility representatives stated during the sampling visit that after the building was moved, tugs used to tow equipment used on the facility were parked in this area, and the staining was from the machinery parked in this location, not from the former SWMU.

Regardless of whether the staining is from the former storage unit (i.e., from spills outside the storage building) or the machinery parked in the area after the prefabricated building was removed, there is a moderate to high potential for releases to surface water (Coldwater Creek, via stormwater). The potential for a release from this unit to air is moderate because the building was open at one end, although there is no history or evidence that spills from this unit occurred.

To evaluate whether releases to soil, subsurface gas and, by migration, groundwater occurred, soil samples were collected at this unit during the sampling visit. Data for the samples are provided in Table 4. No organic contaminants were detected in any of the samples. All inorganic contaminants except cadmium, antimony, selenium, thallium and zinc were detected at concentrations above SLAPS background concentrations. Aluminum (17,200 to 18,000 mg/Kg), arsenic (35.6 to 44.8 mg/Kg), barium (201 to 303 mg/Kg), beryllium (< 1.20 to 1.37 mg/Kg), chromium (15.1 to 19.5 mg/Kg), manganese (949 to 2,580 mg/Kg), lead (27.7 to 34.1 mg/Kg), vanadium (32.5 to 41.0 mg/Kg), and sodium (431 to 519 mg/Kg) were detected at concentrations well in excess of the SLAPS background ranges. Although concentrations of most inorganics at this unit were comparable to those in samples from other units at the facility, lead and manganese, were not detected above background at most units sampled during the sampling visit, the arsenic concentrations detected in the samples from this unit were among the highest for the sampling visit samples, and mercury, which was not analyzed for in the SLAPS samples was detected in three of the four samples from this unit in concentrations well above mercury concentrations at other units. Based on these findings, there is evidence of a release of metals to the soil from this unit. However, metals adsorb to soils, and are not very mobile in the subsurface, so the likelihood is low that there has been a release to subsurface gas or groundwater from this unit.

Surface Water: moderate to high potential for a past release.

Soils: documented past release.

Groundwater: low potential for a past release.

Subsurface Soil Gas: no potential for a past release.

Air: moderate potential for a past release.

5.27 Unit 27, Waste Nitric and Hydrofluoric Acid Scrubber Saddles Drums Storage, Building 52
Regulatory Status: Inactive

A. Unit Description

Unit 27 consisted of ten 55-gallon drums located outside the southeast corner of Building 52 (Figure 9). The drums contained waste plastic packing saddles used in the nitric and hydrochloric acid fume scrubber within the building. The plastic packing saddles were rinsed prior to being drummed (Appendix A, Roll 2, Photographs 4 through 7). [39]

MCD personnel indicated that the drums were placed at this location in fall 1990 and were removed in November 1993. The packing saddles were sent to a sanitary landfill with other facility trash for disposal. The drums also were crushed and sent to the landfill. [39]

The area where the drums were placed is paved with asphalt and concrete. There was no spill containment system for this storage area. During the VSI and sampling visit, some of the asphalt at this location showed signs of decay. Also during the VSI, one drum was observed to have holes in the bottom, and there was evidence of leaking. Based on the observations from the VSI, four soil samples were collected at this unit during the sampling visit. The samples were collected from depths of 0 to 12 and 12 to 24 inches BLS at locations outside a wooden fence and between the parking posts (Appendix B, Roll 1, Photographs 9 and 10; Roll 2, Photographs 22, 24, and 25). Further details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the sample are provided in Table 4, and discussed in Section 5.27, Part C, below.

B. Waste Characteristics

This unit contained rinsed waste plastic packing saddles used in the nitric and hydrofluoric acid fume scrubbers in Building 52.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

During the VSI, one drum was observed to have holes in the bottom, and there was evidence of leaking. The drums were located outside, and no containment system was provided. To evaluate whether releases to surface water, soil, subsurface gas and, by migration, groundwater occurred, soil samples were collected from this unit during the sampling visit. Data for the samples are provided in Table 4. PCE (26 μg/Kg) was the only organic contaminant detected, and only in the shallow sample from between the parking posts. All inorganic contaminants except manganese, nickel, antimony, selenium, and thallium were detected at concentrations above SLAPS background concentrations. Aluminum (14,200 to 18,900 mg/Kg), arsenic (29.9

to 60.4 mg/Kg), barium (129 to 254 mg/Kg), beryllium (0.943 to 1.27 mg/Kg), cadmium (<0.487 to 2.19 mg/Kg), cobalt (4.32 to 11.2 mg/Kg), chromium (15.8 to 20.2 mg/Kg), copper (13.0 to 93.0 mg/Kg), lead (22.6 to 140.0 mg/Kg), vanadium (31.6 to 39.3 mg/Kg), calcium (3,780 to 16,000 mg/Kg), magnesium (1,980 to 7,510 mg/Kg), sodium (1,340 to 2,930 mg/Kg), and potassium (1,100 to 2,210 mg/Kg) were detected at concentrations well in excess of the SLAPS background ranges. Concentrations of most inorganics in three of the four samples from this unit were comparable to those in samples from other units at the facility. However, the sodium and potassium concentrations detected in the samples from this unit were among the highest for the sampling visit samples. In addition, for the shallow sample from between the parking posts, cadmium, copper, lead, manganese, and zinc, were at concentrations above background although they were not detected above background at most units sampled during the sampling visit, mercury was detected at a concentration (0.112 mg/Kg) well above the other samples from the sampling visit, and the concentrations of arsenic, copper and lead were the highest detected during the sampling visit. Based on these findings, there is evidence of a release of PCE and metals to the soil around the parking posts.

The metals detected in these soils (except some species of mercury) are not mobile and will not tend to partition to the subsurface gas, but the PCE and some species of mercury are mobile and will partition to subsurface gas. Therefore, the potential is high that there has been a release of PCE, and possibly, mercury to both subsurface gas and groundwater from this unit. Although MCD reported that the scrubber saddles were rinsed before being placed into the drums, metals contamination was detected in the soils, suggesting the saddles were contaminated when placed in the drums. Since one of the drums was observed leaking, the potential for release to surface water (Coldwater Creek) via storm sewers is moderate. The potential for release to the air also is low to moderate, because leaked liquids could volatize.

Surface Water: low to moderate potential of past release.

Soils: documented release of PCE and metals.

Groundwater: high potential for a release of PCE and possibly mercury.

Subsurface Soil Gas: high potential for a release of PCE and possibly mercury based on soil findings.

Air: low to moderate potential for release.

5.28 Unit 28, Leaking Transformer, Building 6
Regulatory Status: Active

A. Unit Description

Unit 28 is a transformer system located outside the northeast corner of Building 6 (Figure 7). One transformer in the system exhibited evidence of leaking during the VSI (October 22, 1993). The transformer is on a concrete slab surrounded by gravel but has no containment system (Appendix A, Roll 6, Photograph 9). The transformer oil was sampled on December 7, 1982. [21]

B. Waste Characteristics

The unit contains transformer oil (D098). Analytical results for the 1982 sample of transformer oil (provided in Appendix E) indicate that the oil contains the PCB Aroclor 1260 at 44.0.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

There is an apparent ongoing release of transformer oil containing PCBs from this unit. Based on this evidence, soil sample collection was planned during the sampling visit. However, it was determined that sampling at the unit during the sampling visit was infeasible. There is a fence surrounding the transformers that allows approximately 6 inches of clearance, which is too narrow to allow access with the sampling equipment. In addition, the lateral extent of the concrete pad that the transformer sits on and the locations of underground utilities in the proposed sampling location were unknown. These two factors made collecting soil samples very risky.

Because of this apparent release, potential migration of oil and PCBs to the surface water (via storm sewers) is high. The potential release of both transformer oil and PCBs to soil is high. PCBs have an affinity for soils, however, and probably will not partition to subsurface gas or groundwater (via soils), but the oil is mobile in the subsurface, and probably will migrate to the groundwater. Volatile portions of the oil are highly likely to partition to subsurface gas. The volatile components in oils also will be released to the air.

Surface Water: high potential for release of oil and PCBs.

Soils: high potential for release of oil and PCBs.

Groundwater: high potential for release of volatile/mobile components in oil.

Subsurface Soil Gas: high potential for a release of volatile components in oil.

Air: high potential for release.

5.29 Unit 29, Waste Ferracoat, Methyl Ethyl Ketone, and Trichloroethylene Drum Storage, Building 29A
Regulatory Status: Active

A. Unit Description

Unit 29 is a small room within Building 29A in the northwest corner (Figure 6). The room is used for less-than-90-day storage of several 55-gallon drums containing waste materials (Appendix A, Roll 9, Photographs 14, 15, and 16). During the VSI, stains were observed in and around the room, although the concrete floors were observed to be in good condition with no cracks.

B. Waste Characteristics

Drums contain waste Ferracoat, and spent MEK and TCE (F001, F005) generated from manufacturing processes in Building 29A are managed in this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Stains in and around the room indicate that spills have occurred in the past. Because the unit is inside the manufacturing building and the concrete floors are in good condition there is little to no potential for releases to the environment to occur.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

5.30 Unit 30, Chemical Etching Spill Containment Area, Building 27
Regulatory Status: Active

A. Unit Description

Unit 30 is the spill containment system for the area within Building 27 (Figure 6), where metal parts are chemically etched. The process uses several open-top tanks. The metal parts are dipped into tanks that contain a variety of chemicals (Appendix A, Roll 9, Photographs 1 through 7). One of the process tanks holds potassium dichromate solution. The solution is filtered to extend its life. MCD reports that when the filters are spent, they are placed into

drums for management as hazardous wastes. [39] According to MCD, there are no less-than-90-day storage areas associated with this chemical etching process. [39]

The containment system consists of a 6- to 8-inch curb on the concrete floor below the tanks and a floor drain within the curbing. The floor within the curb is rinsed with water to flush any spilled or dripped liquids into the drain. All liquids from the drain are discharged to the IWTP at Building 14.

B. Waste Characteristics

Any chemicals that spill out of the chemical etching tanks (D002, D004, D005, D007, D008 and D010) are managed in this unit.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

While the potential for release to the environment from the containment system is unknown, it can be considered low to moderate. The chemical etching tanks and containment area are located inside a manufacturing building, and there is adequate containment of the spill area. Although the integrity of the piping carrying the wastes to the IWTP is unknown, the waste stream is likely to be dilute because the spill area is rinsed. Also, the shallow subsurface soils at this facility are very silty and clayey, limiting the mobility of any wastes that might leak from the piping. In addition, metals are not very mobile in the subsurface because they tend to adsorb to soils, especially to clay particles within the soils.

Surface Water: no potential for release; the containment system is within a building or underground.

Soils: moderate potential for release.

Groundwater: low potential for release.

Subsurface Soil Gas: low potential for release.

Air: no potential for release; the containment system is within a building or underground.

5.31 Unit 31, Maintenance Shop Waste Oil Tank, Building 22
Regulatory Status: Active

A. Unit Description

Unit 31 is a 740-gallon, above-ground steel tank located outside of Building 22 (Figure 6) and adjacent to the prefabricated building used to store reactive sulfide and cyanide-bearing waste (SWMU 5). The tank is used to collect and store (for less than 90 days) waste oil generated

from maintenance activities conducted in Building 22. This tank sits on an asphalt pad surrounded by a 6-inch asphalt berm. During the sampling visit, the berm appeared newly installed (Appendix A, Roll 8, Photographs 3, 4, 5, and 6). [21]

During the VSI, it was noted that an overflow of oil from the tank had occurred. The asphalt pad supporting the tank was observed to have minor cracks. To evaluate whether leaked oil had reached the underlying soils through the cracks, four soil samples were collected at this unit during the sampling visit. The samples were collected from depths of 0 to 12 and 12 to 24 inches BLS at two locations on the largest cracks: 2 feet from the middle of the prefabricated building, and 8 feet southwest of the prefabricated building (Appendix B, Roll 1, Photographs 12, 13, and 14; Roll 2, Photographs 17 through 21). Further details on the sampling visit activities are provided in Section 4 of this report. Analytical results for the sample are provided in Table 4, and discussed in Section 5.31, C.

B. Waste Characteristics

This tank contains waste oil generated from Building 22 operations.

C. Migration Pathway, Evaluation of Release, and Exposure Potential

Evidence that overflows of oil from the tank had occurred was noted during the VSI, and no secondary containment for this tank was observed. Based on these observations, the potential for past migration of overflowed oil to surface water (Coldwater Creek) via storm sewers is high. The potential for releases to the air also is high because the oil contains volatile components.

Cracks in the asphalt pad supporting the tank could allow small amounts of waste oil to reach the underlying soils, subsurface gas, and possibly groundwater (via the soil). Fluoranthene (520 μg/Kg), pyrene (500 μg/Kg), and PCE (10 to 15 μg/Kg) were the organic contaminants detected in the soil samples collected during the sampling visit. All three contaminants were detected in the deeper sample closer to the tank. Only PCE was detected in the shallow sample from the location farther from the tank. All inorganic contaminants except antimony and thallium were detected at concentrations above SLAPS background concentrations. Aluminum (10,200 to 12,700 mg/Kg), arsenic (31.7 to 40.0 mg/Kg), barium (158 to 200 mg/Kg), beryllium (1.12 to 1.34 mg/Kg), cadmium (<0.487 to 1.86 mg/Kg), cobalt (8.20 to 15.1 mg/Kg), chromium (17.8 to 21.2 mg/Kg), copper (17.2 to 28.1 mg/Kg), iron (15,700 to 21,100 mg/Kg) manganese (300 to 4,310 mg/Kg), nickel (24.5 to 62.3 mg/Kg), lead (25.7 to 32.7 mg/Kg), selenium (<3.09 to 3.57 mg/Kg), vanadium (38.0 to 47.7 mg/Kg), calcium (5,380 to 11,100 mg/Kg), magnesium (3,740 to 7,200 mg/Kg), sodium (484 to 1,510 mg/Kg), and potassium (687 to 1,080 mg/Kg) were detected at concentrations well in excess of the SLAPS background ranges. Concentrations of most inorganics in samples from this unit were comparable to those in samples from other units at the facility. However, the magnesium concentrations detected in the samples from this unit were among the highest for the sampling visit samples. In addition, cadmium, cobalt, copper, lead, manganese, nickel, selenium, and zinc, were at concentrations above

background although they were not detected above background at most units sampled during the sampling visit, and the concentrations of cobalt, manganese, nickel, and vanadium were the highest detected during the sampling visit.

The presence of PAHs (fluoranthene, pyrene), PCE, and metals in the samples indicates that there has been a release to soil from this unit. The PAHs and metals are not volatile and likely will not partition to the subsurface gas or migrate to groundwater, but the PCE is mobile in the subsurface and will partition to subsurface gas. Therefore, a release of PCE to groundwater and subsurface gas is very likely, and explains the more widespread distribution of PCE than the PAHs. Because PCE was detected in the soil samples, it is probably a component of the waste oil and has been released to the air from the overflows.

Surface Water: high potential for past release based on lack of containment for spills and overflows.

Soils: documented release of PCE, PAHs, and metals.

Groundwater: high potential for release of PCE.

Subsurface Soil Gas: high potential for release of PCE.

Air: high potential for release of PCE.

5.32 Unit 32, PCB Storage Area
Regulatory Status: Active

A. Unit Description

Unit 32 is a prefabricated storage building located between Buildings 27 and 29 (Figure 6). The building is a Model 15 safety storage container manufactured by Safety Storage, Inc. The steel-constructed building has inside dimensions of 14 feet 7-1/2 inches x 8 feet 3/8 inch x 7 feet 1/2 inches, and has a capacity of twentyeight 55-gallon drums. The drums sit on a wire mesh floor, under which is a spill containment system. The building is completely enclosed by doors. There is no cooling system for the building. The storage building has been used since December 1987 (Appendix A, Roll 7, Photographs 6 through 9). [1,6,21]

The spill containment capacity is 380 gallons. A visual inspection of this building during the sampling visit (November 12, 1994) determined that the spill containment system was intact. No evidence of staining or corrosion was observed.

B. Waste Characteristics

This building is used for less-than-90-day storage of 55-gallon drums containing PCB oil from transformers at MCD (D098).

C. Migration Pathway, Evaluation of Release, and Exposure Potential

There is no potential for releases to the environment from this unit. It is fully enclosed, and the spill containment system is in good shape.

Surface Water: no potential for release.

Soils: no potential for release.

Groundwater: no potential for release.

Subsurface Soil Gas: no potential for release.

Air: no potential for release.

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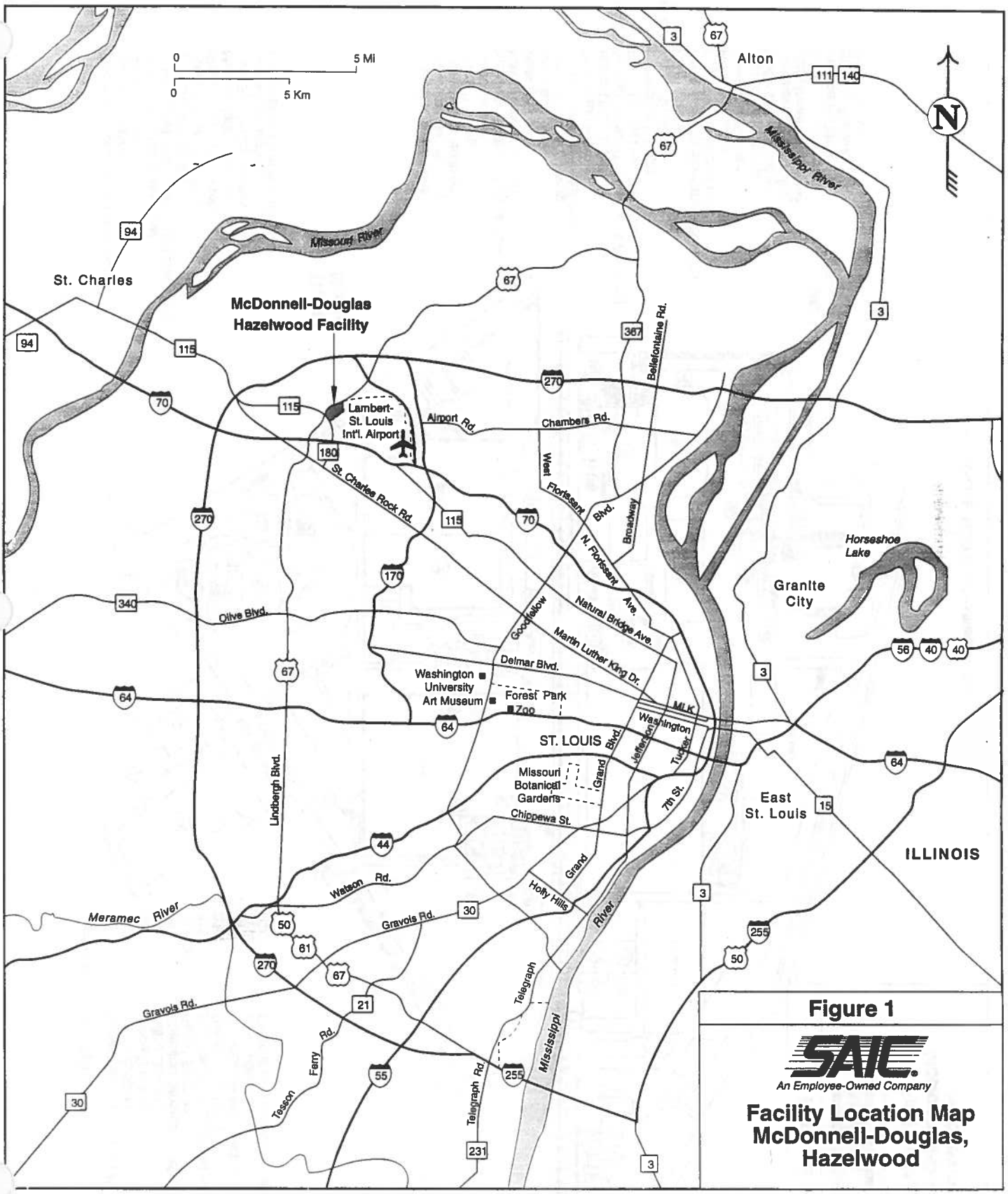


Figure 1

SAIC
An Employee-Owned Company

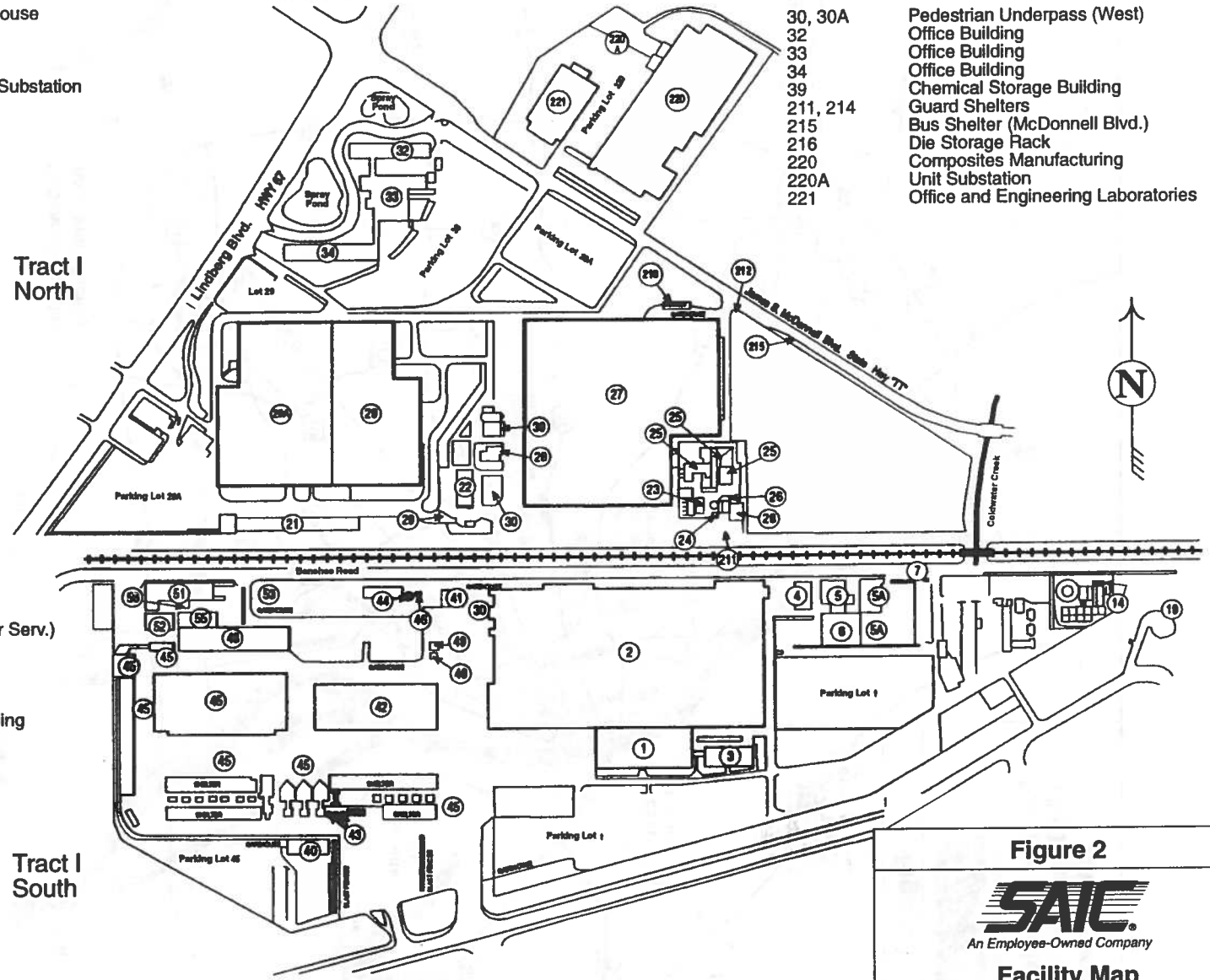
Facility Location Map
McDonnell-Douglas,
Hazelwood

604B-01

Building No.	Description
20, 30A	Electrical Substation & Pump House
22	Garage Building
23	Cooling Tower
24	Pedestrian Underpass (East)
25, 25A	Wind Tunnel (Low Speed) Unit Substation
25B	V/STOL Test Facility
26	Pump House (Fire Protection)
26A	Storage Tank (Fire Protection)
27	Manufacturing Building
28	Fuel System Laboratory
29	Fabrication Building
29A	Composites Manufacturing

Building No.	Description
30, 30A	Pedestrian Underpass (West)
32	Office Building
33	Office Building
34	Office Building
39	Chemical Storage Building
211, 214	Guard Shelters
215	Bus Shelter (McDonnell Blvd.)
216	Die Storage Rack
220	Composites Manufacturing
220A	Unit Substation
221	Office and Engineering Laboratories

1	Administrative Offices
2	Manufacturing Building
3	Office Annex Building
4	Office Building
5	Boiler House
5A, B	Sprinkler System Storage Tank
6	Maintenance Building
7	Gate House
19	Compass Rose
40	Ramp Service Building
41	Chemical Storage Building
42	Production Hangar
43	Ramp Utilities Building
43A, B, C, D	Storage Tanks (Ramp H_2O & Air Serv.)
44	Pump House (Fire Protection)
45	Production Hangar
45A, B, F, G	Ramp Shelters
45C, D, E, L	Hush Houses
45J	Radar Cooling Equipment Building
45K	Fuel System Work Facility
45L	Hush House #4
46	Fuel-Filter Building
48	Ramp Paint Booths
49, 49A	Water Check Facility
51	Manufacturing Building
52	Manufacturing Building
53	Boiler House
55	Service Building
55A	Storage Building
56	Boiler House



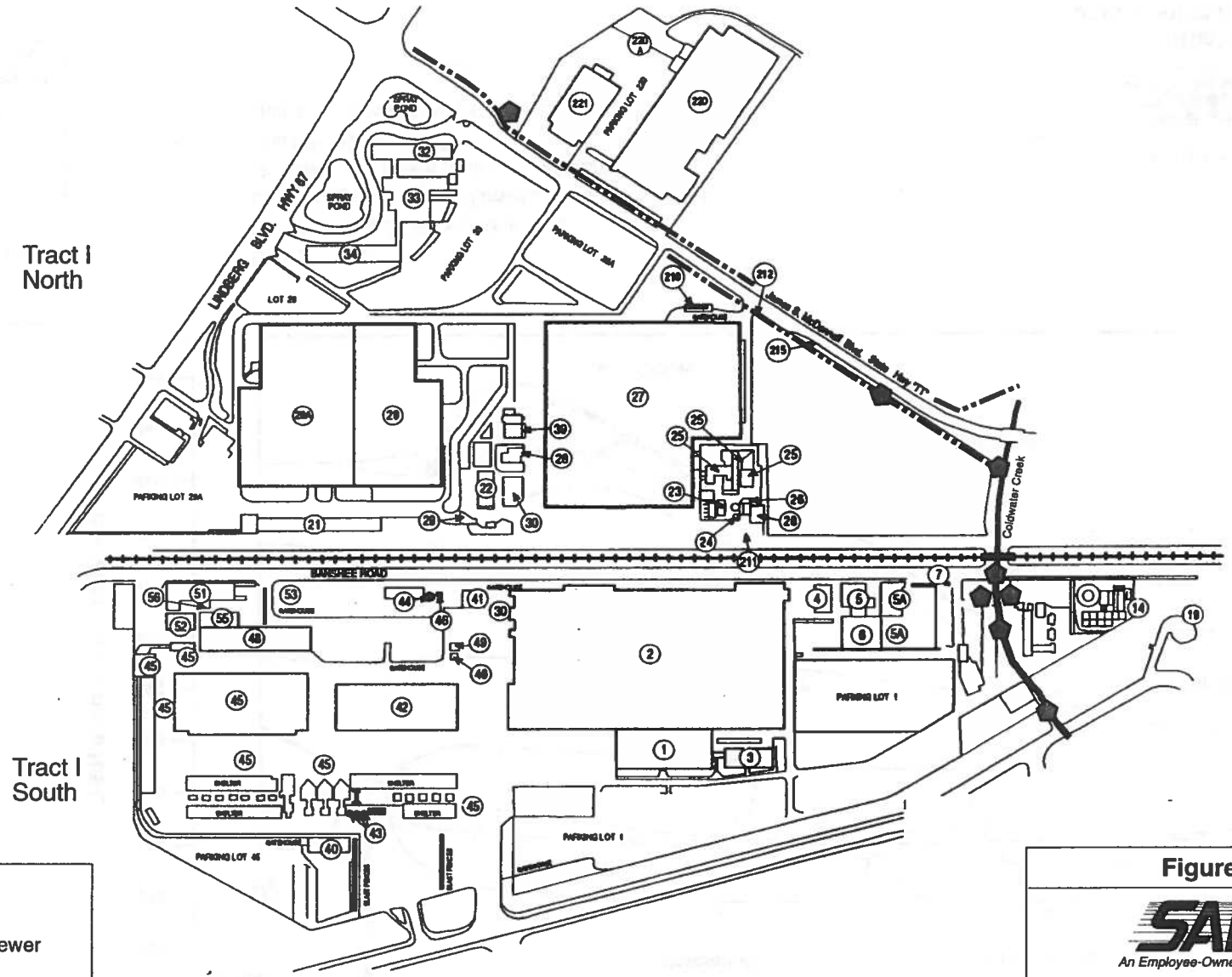
Source: MCD Map Modified by SAIC

Figure 2

SAIC
An Employee-Owned Company

Facility Map
McDonnell-Douglas
Hazelwood

604B-04



Legend

- Ditch/Storm Sewer
- Discharge Point
- Coldwater Creek in Culvert

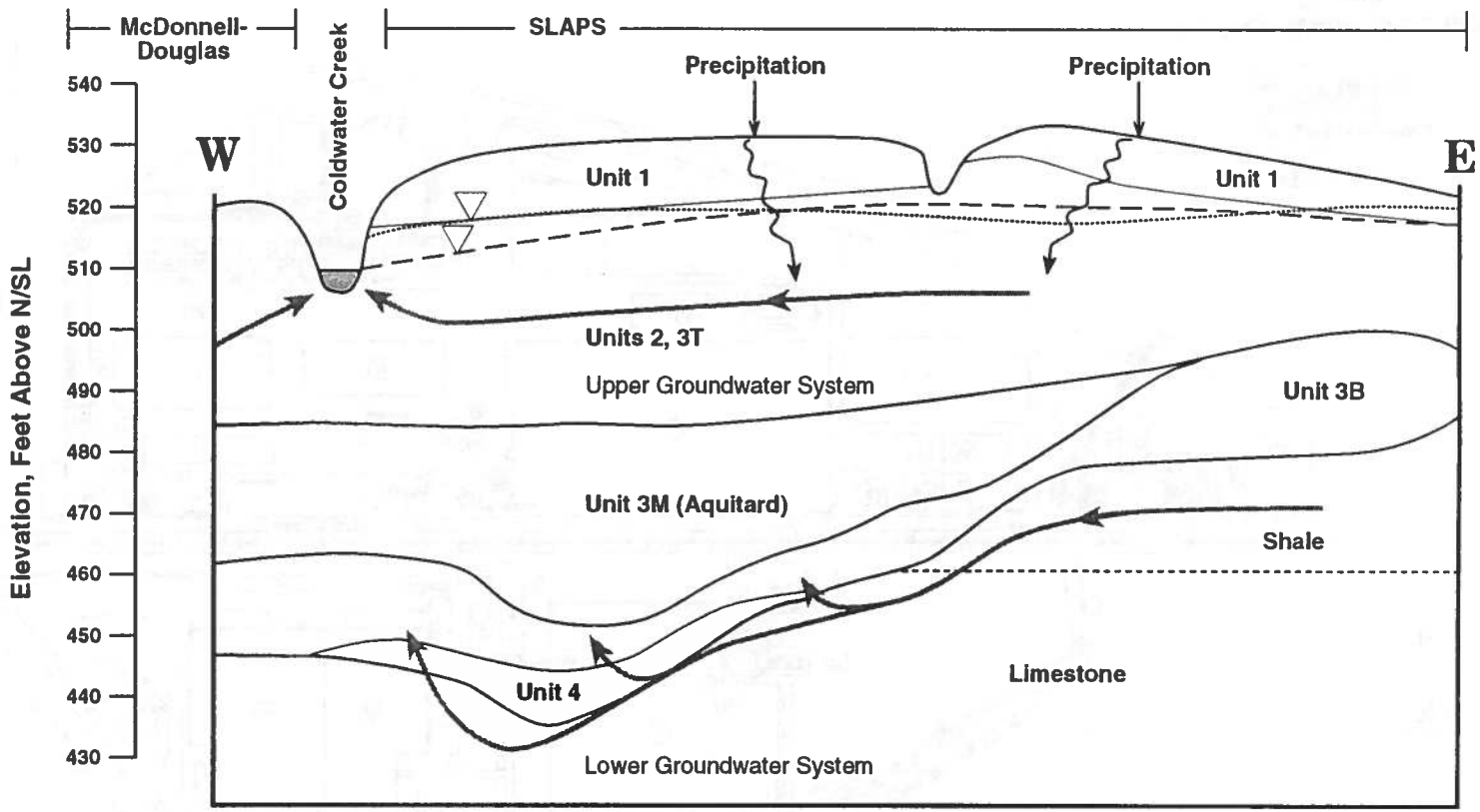
Source: MCD Map Modified by SAIC

Figure 3

SAIC
An Employee-Owned Company

Surface Water Discharge Points McDonnell-Douglas Hazelwood

604B-03



Legend

- Water Table Surface Upper System, 8/24/90
- Potentiometric Surface Lower System, 8/3/90
- General Direction of Gorundwater Flow

0 200 400 Feet
0 50 100 Meters

Unit 1: Fill
Unit 2: Clayey Silt and Fine Sand
Unit 3T: Silty Clay with Organic Material and Peat
Unit 3M: Alternating Dark and Light Clay
Unit 3B: Similar to 3T
Unit 4: Glacial Clayey Gravel, Sand and Sandy Gravel

Source: Site Suitability Study for St. Louis Airport Site, FUSRAP/DOE, 1994

Figure 4

SAIC
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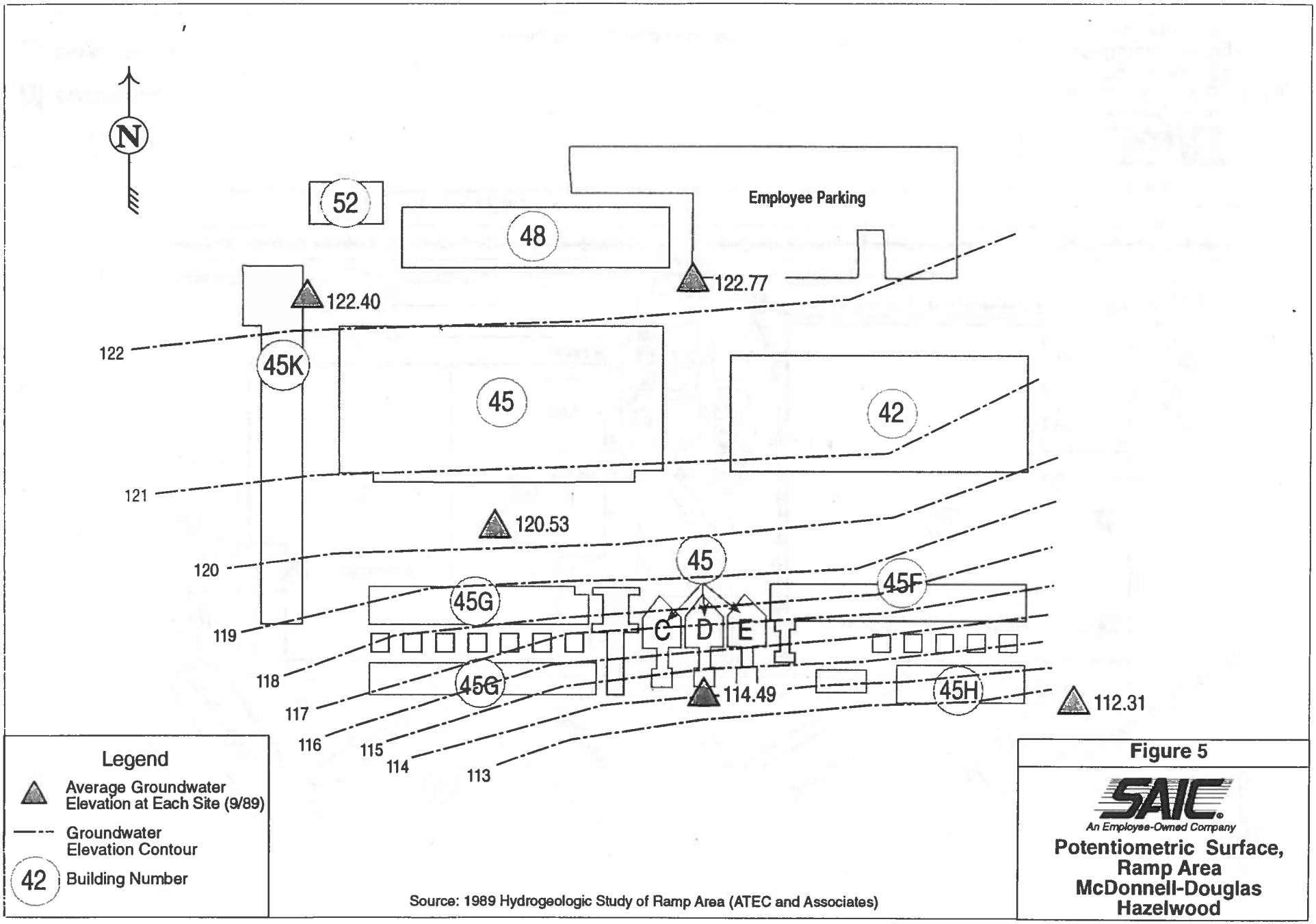
Conceptual Model of Groundwater Flow at SLAPS

604B-29



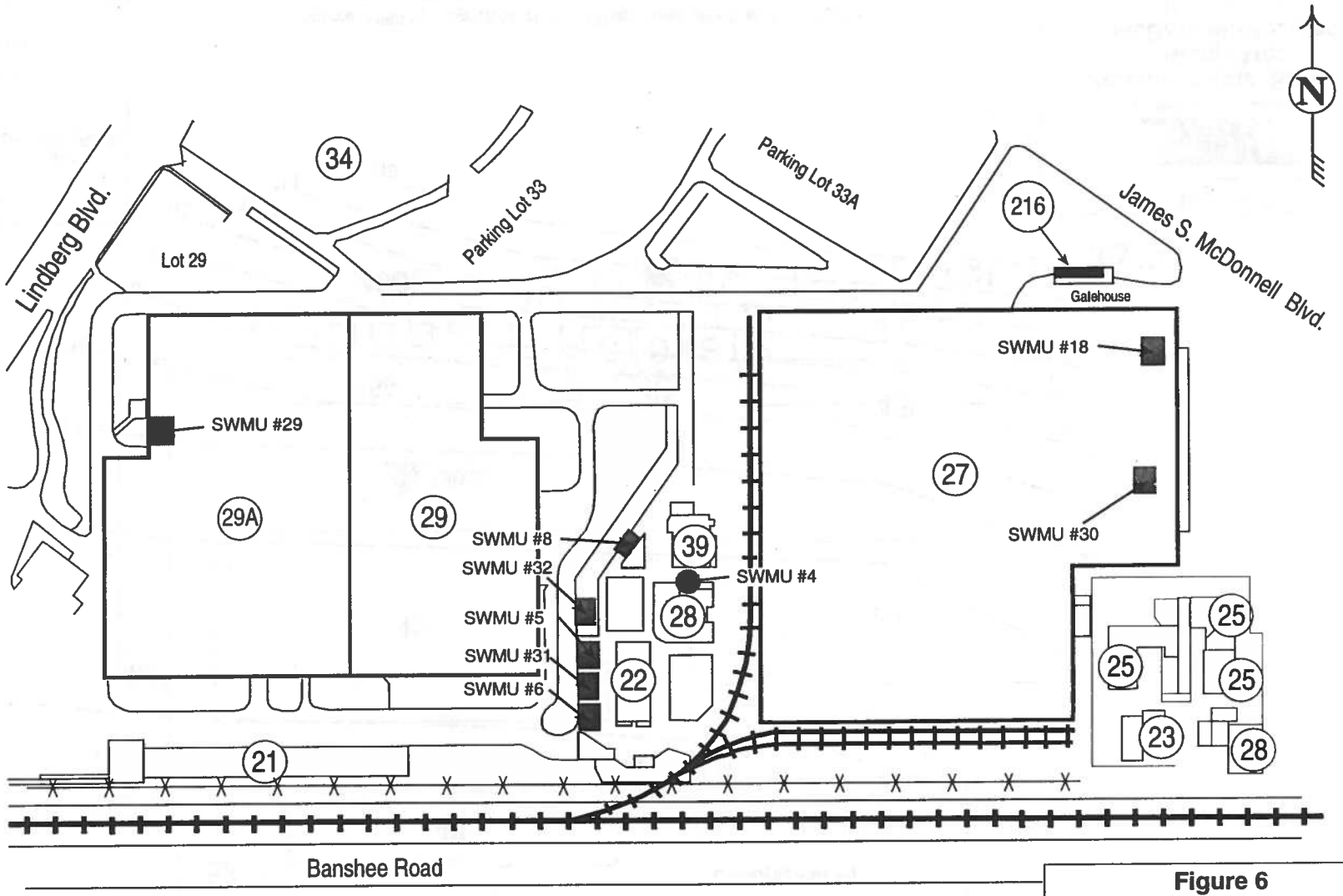
Source: 1989 Hydrogeologic Study of Ramp Area (ATEC and Associates)

Figure 5

SAIC
An Employee-Owned Company

Potentiometric Surface, Ramp Area McDonnell-Douglas Hazelwood

604B-10



Legend

SWMU Location

Building Number

Source: MCD Map Modified by SAIC

Figure 6

SAIC
An Employee-Owned Company

SWMUs # 4, 5, 6, 8, 18, 29, 30, 31, and 32
McDonnell-Douglas
Hazelwood

604B-08

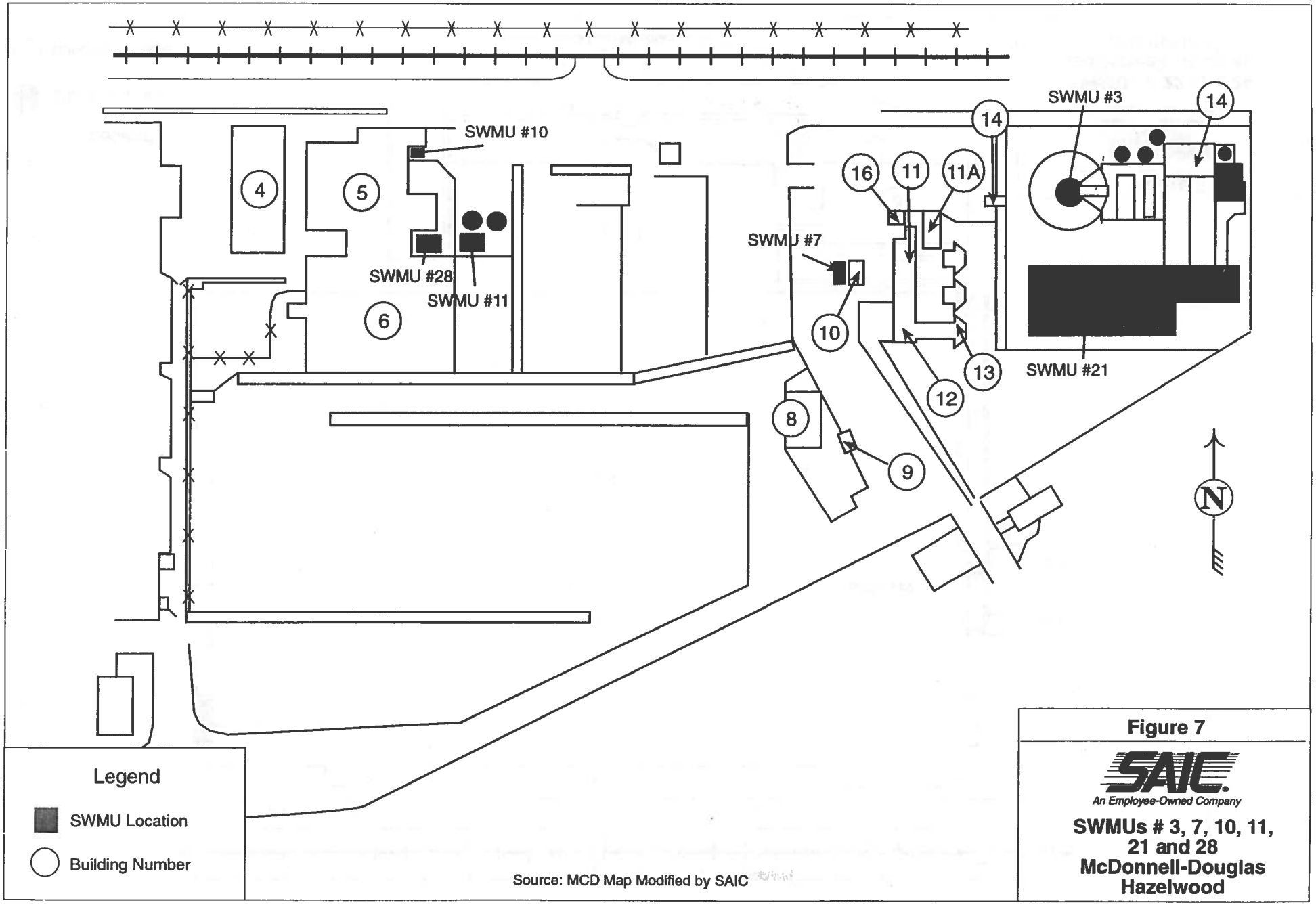
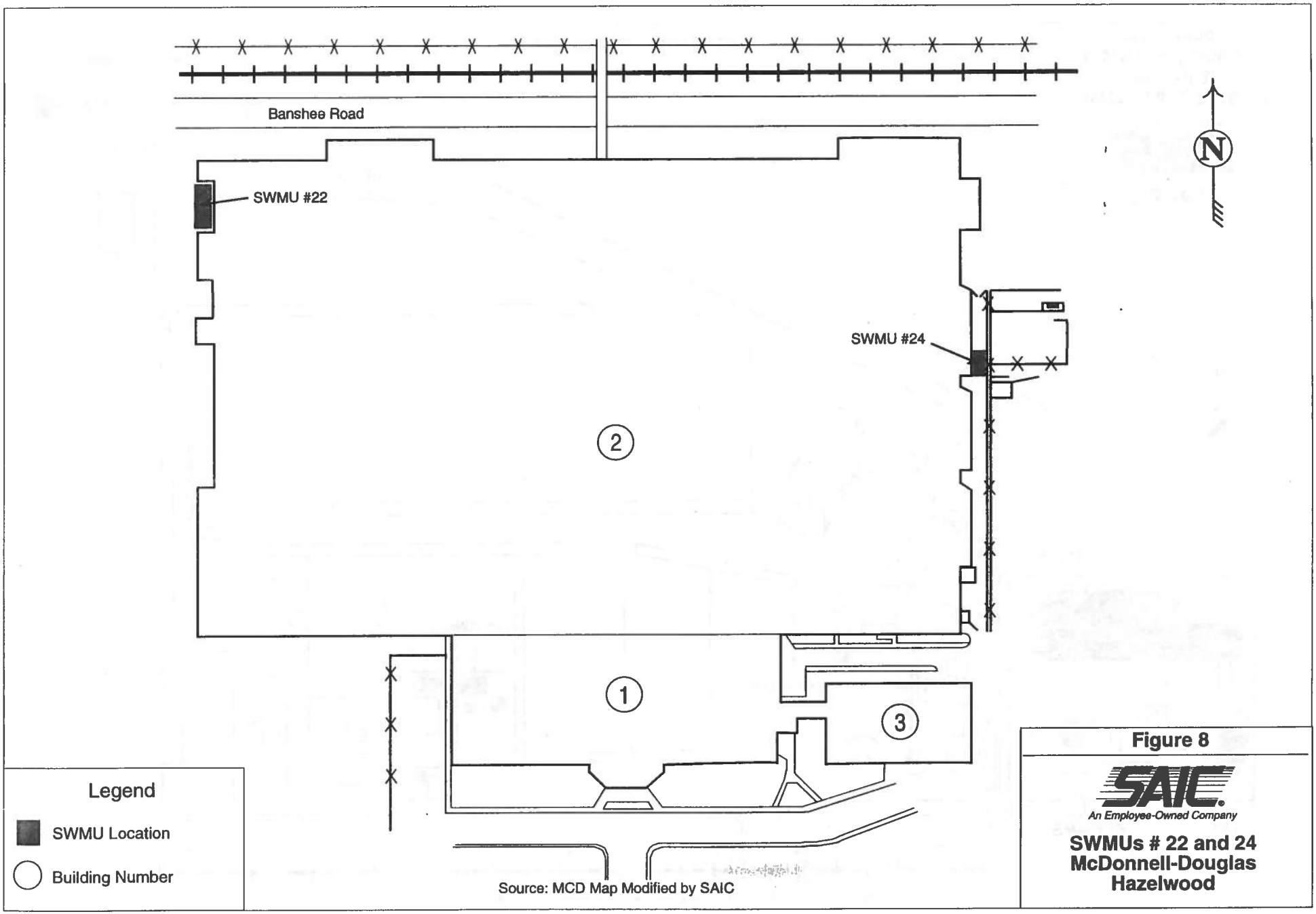


Figure 7

SAIC
An Employee-Owned Company

SWMUs # 3, 7, 10, 11, 21 and 28
McDonnell-Douglas
Hazelwood

604B-07



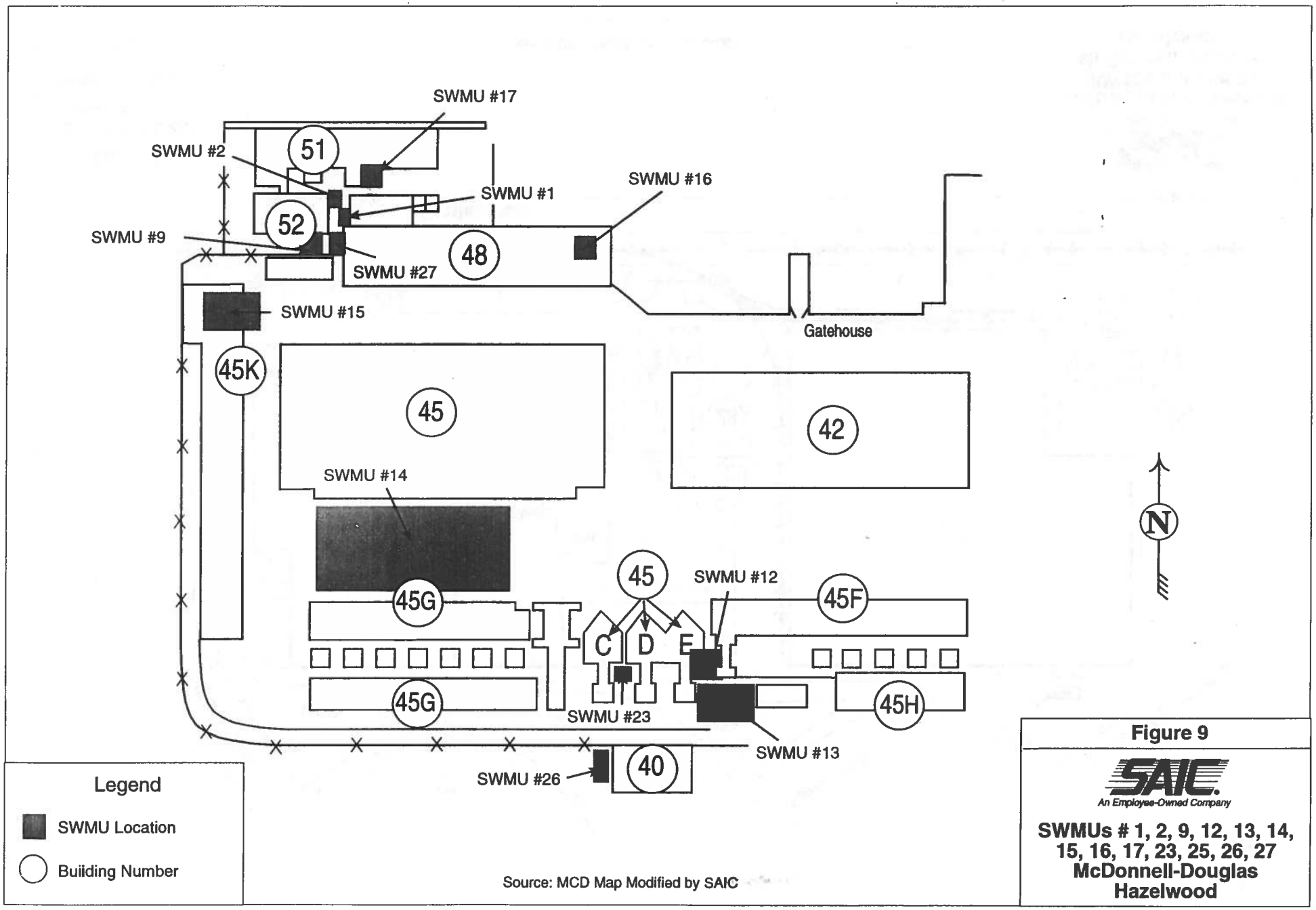
Source: MCD Map Modified by SAIC

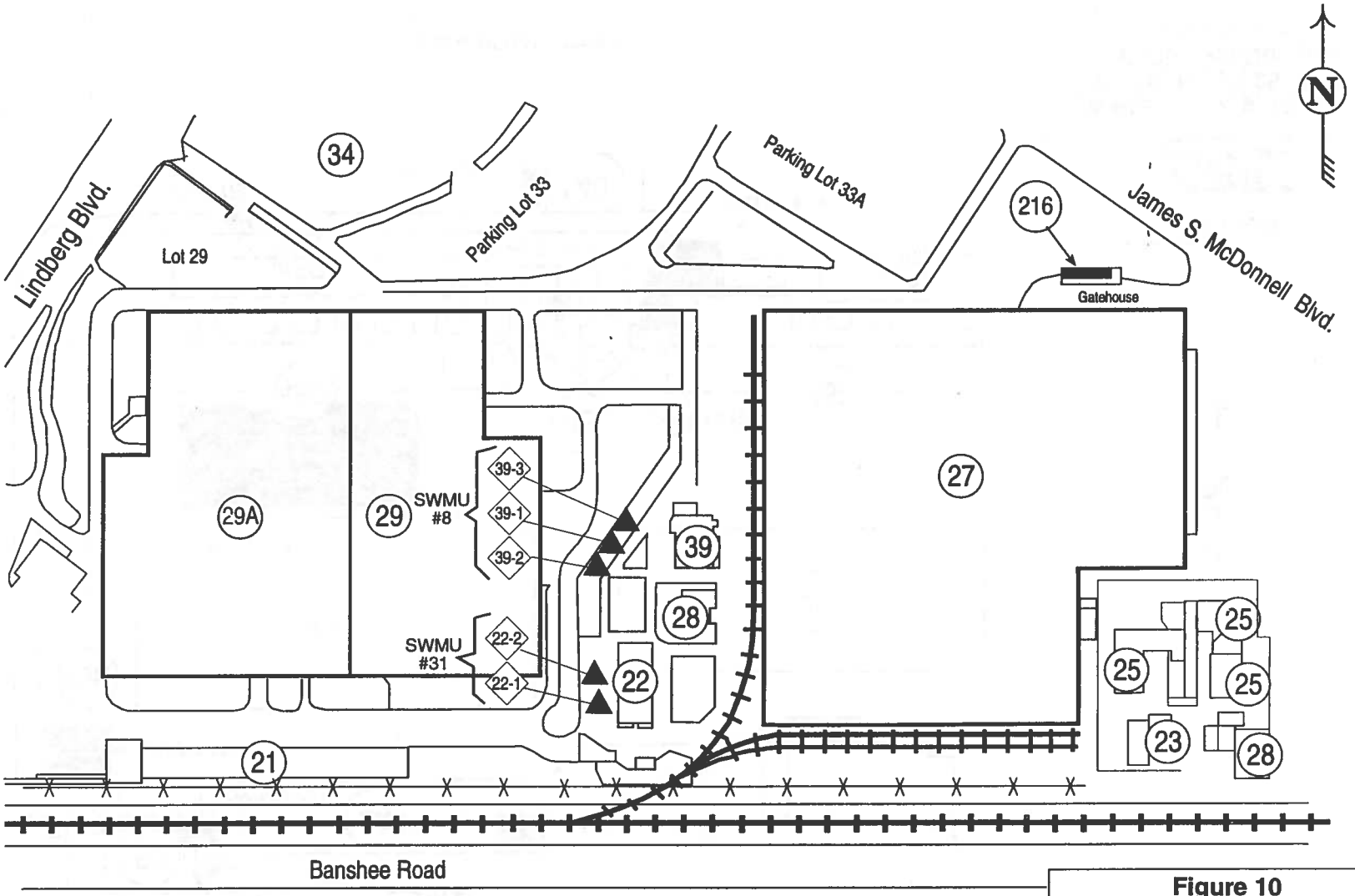
Figure 8

SAIC
An Employee-Owned Company

SWMUs # 22 and 24
McDonnell-Douglas
Hazelwood

604B-06


SWMU #17
SWMU #2
51
SWMU #1
SWMU #16
52
SWMU #9
48
SWMU #27
SWMU #15
Gatehouse
45K
45
42
SWMU #14
N
45
SWMU #12
45G
45F
C
D
E
45G
45H
SWMU #23
SWMU #13
40
SWMU #26
Legend
SWMU Location
Building Number
Source: MCD Map Modified by SAIC
Figure 9
SAIC
An Employee-Owned Company
SWMUs # 1, 2, 9, 12, 13, 14, 15, 16, 17, 23, 25, 26, 27
McDonnell-Douglas
Hazelwood
604B-09



Legend

- Soil Sample Location Numbers
- Building Number
- Soil Sampling Point

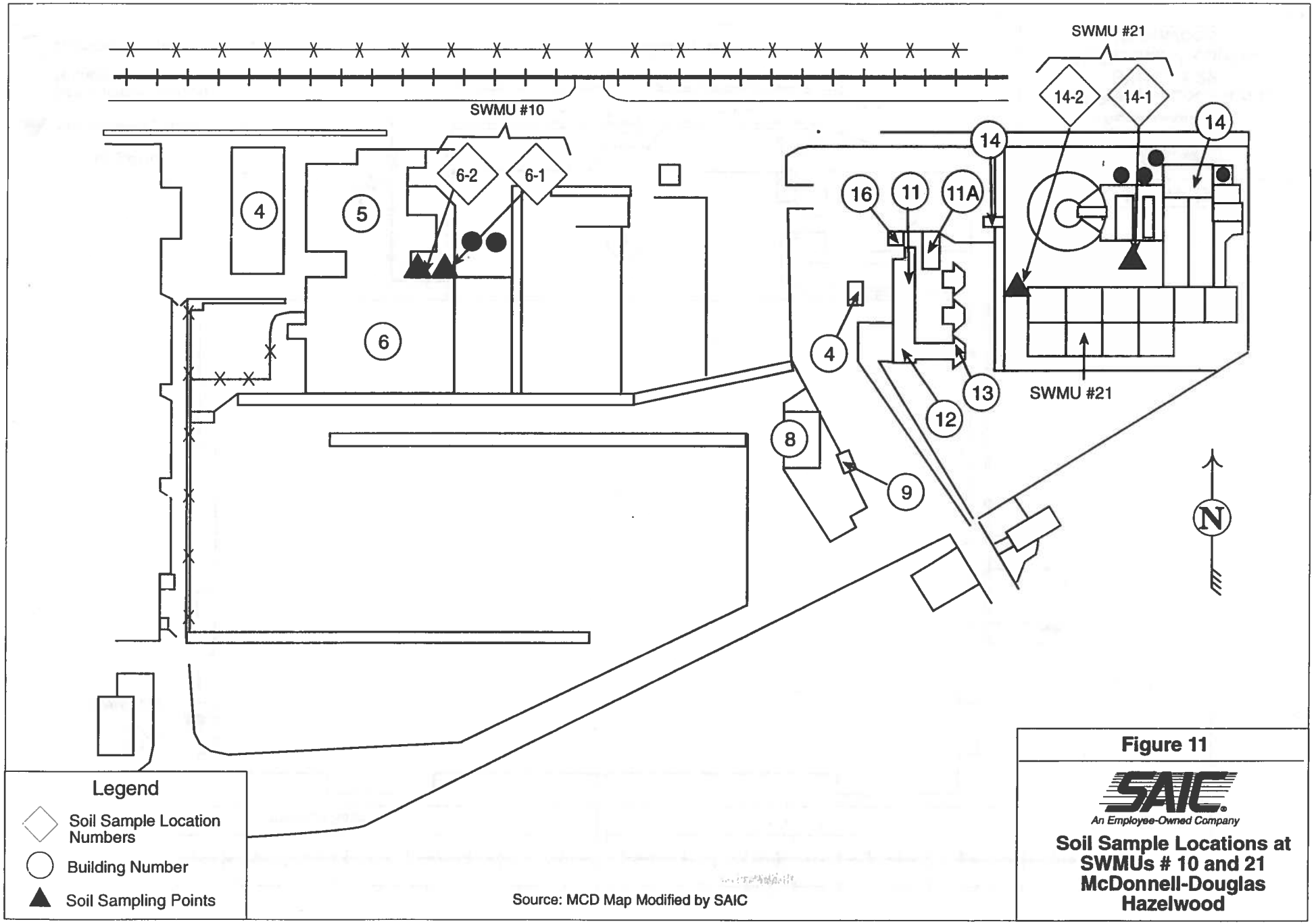
Source: MCD Map Modified by SAIC

Figure 10

SAIC
An Employee-Owned Company

Soil Sample Locations at SWMUs # 8 and 31 McDonnell-Douglas Hazelwood

604B-05



Source: MCD Map Modified by SAIC

Figure 11

SAIC
An Employee-Owned Company

Soil Sample Locations at SWMUs # 10 and 21 McDonnell-Douglas Hazelwood

604B-12

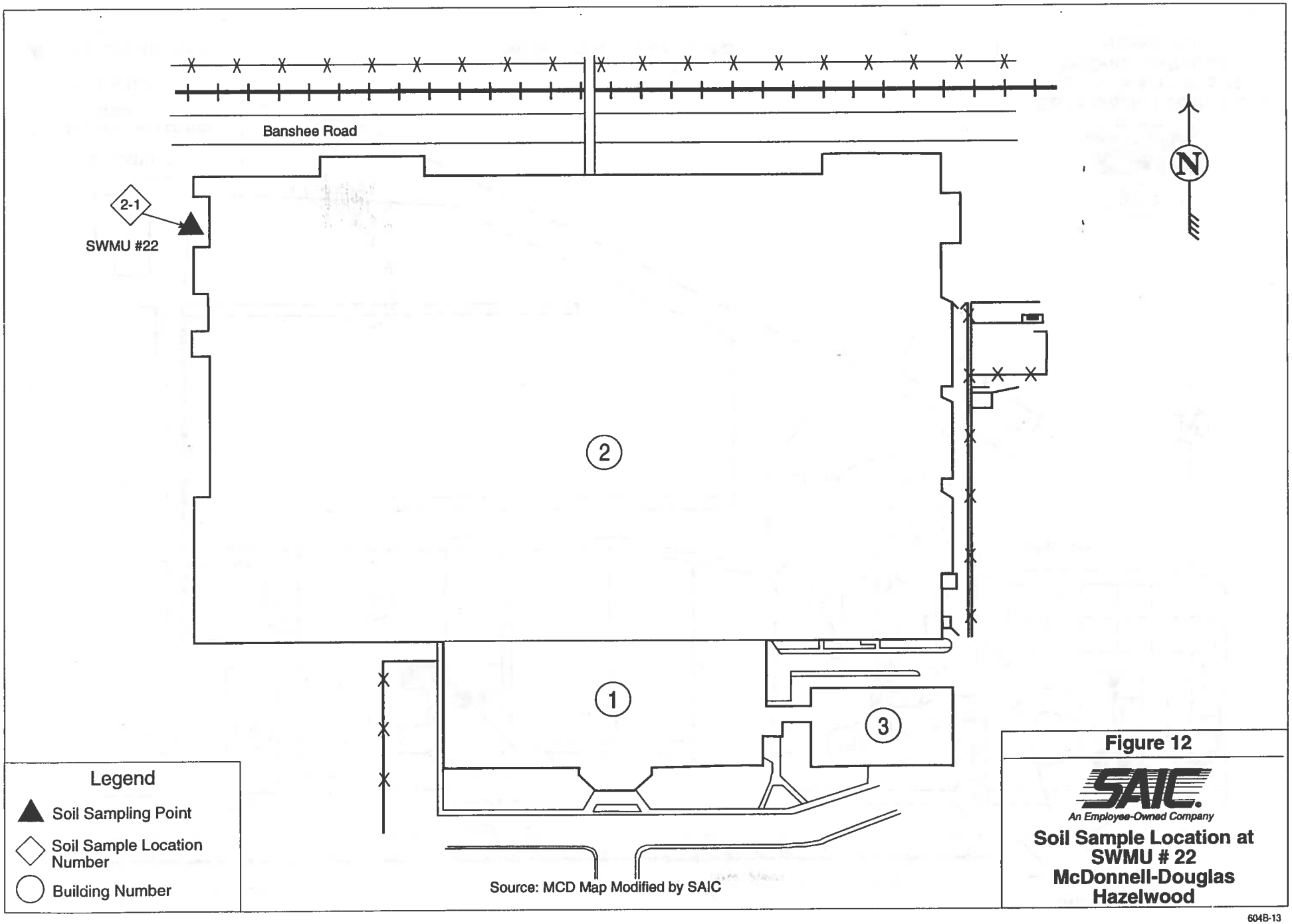


Figure 12

SAIC
An Employee-Owned Company

Soil Sample Location at SWMU # 22 McDonnell-Douglas Hazelwood

604B-13

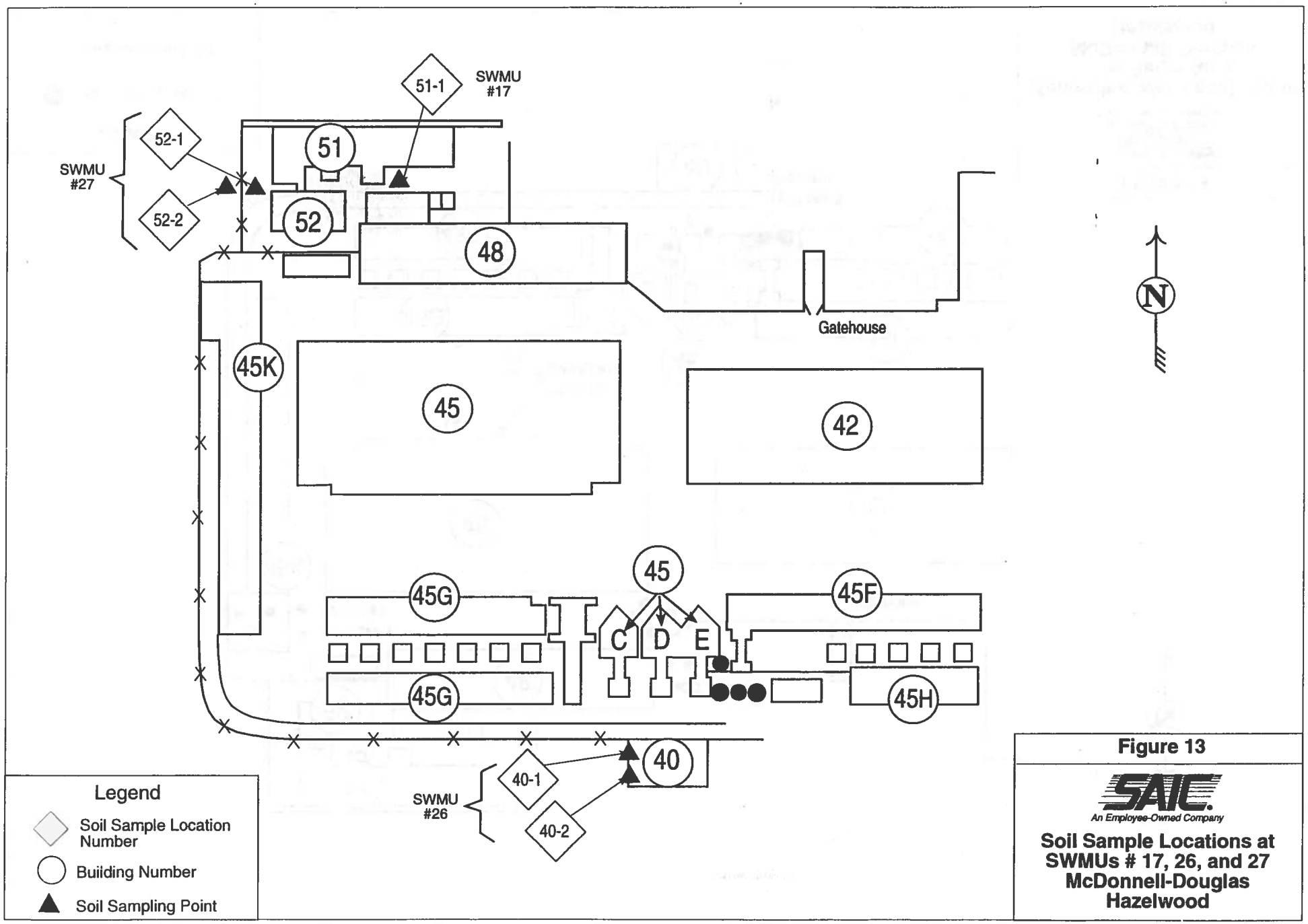
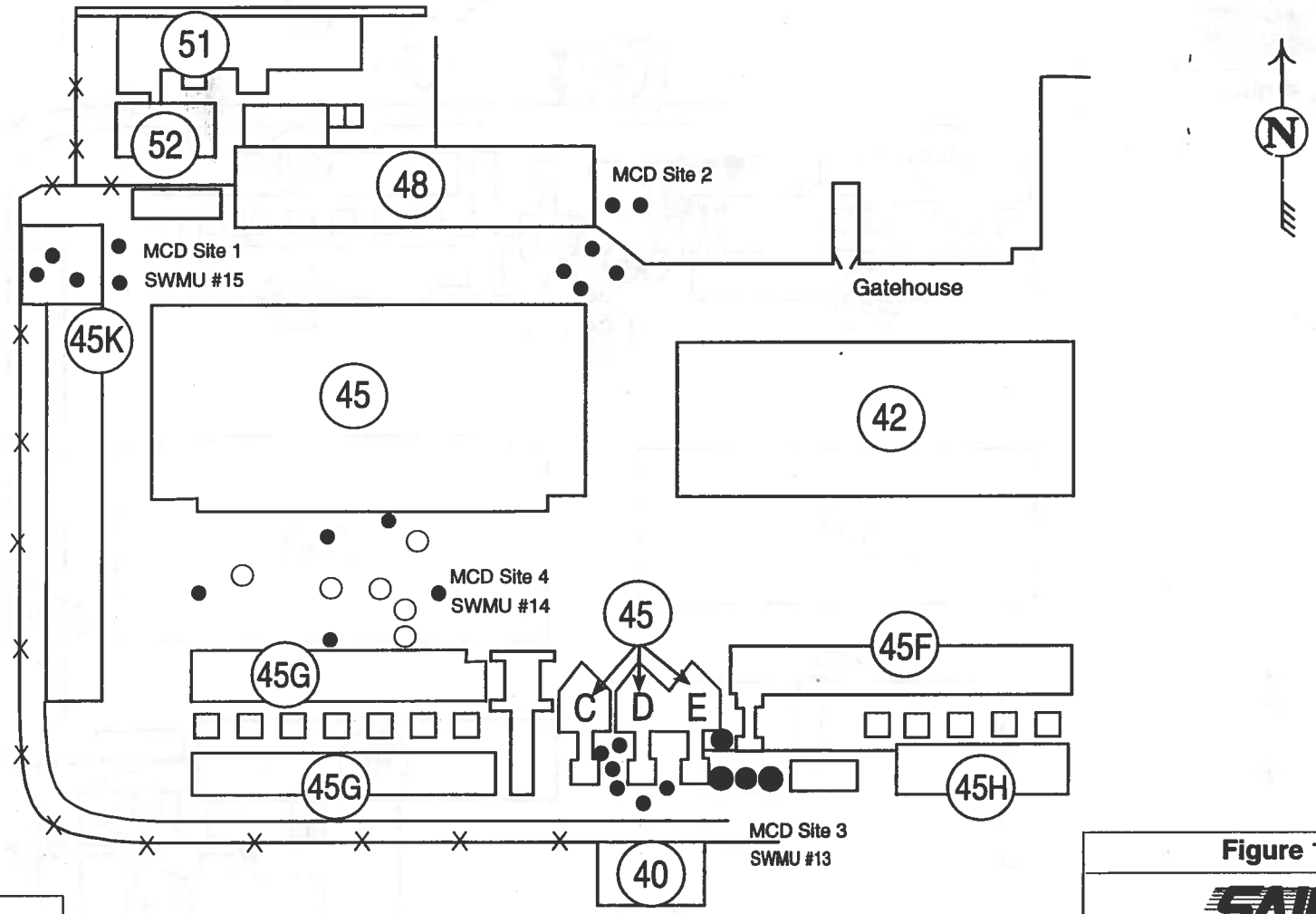


Figure 13

SAIC
An Employee-Owned Company

Soil Sample Locations at SWMUs # 17, 26, and 27 McDonnell-Douglas Hazelwood

604B-14



Legend

- Monitoring Well
- Remediation Well

Figure 14

SAIC
An Employee-Owned Company

Monitoring Well Locations in the Ramp Area McDonnell-Douglas Hazelwood

604B-15

Tables

TABLE 1. SUMMARY OF ANALYTICAL PARAMETERS FOR SAMPLES COLLECTED AT SWMUS

SOLID WASTE MANAGEMENT UNIT	MEDIA SAMPLED	NUMBER OF SAMPLES COLLECTED	ANALYSES REQUESTED FOR SAMPLES		
			VOLATILES	SEMI-VOLATILES	METALS & CYANIDE
SWMU 8 - SCRAP DOCK SHELTER, STORAGE AREA 1	SOIL	6	X	X	X
SWMU 10 - CURRENT WASTE OIL TANK, BUILDING 5	SOIL	3	X	X	X
SWMU 17 - PERCHLORETHYLENE RECOVERY UNIT, BUILDING 51	SOIL	2	X	X	X
SWMU 21 - INDUSTRIAL WASTEWATER TREATMENT PLANT TANKS S-1, S-2, S-3, S-4, E-1, E-2, E-3, BUILDING	GROUNDWATER	1			X
	SOIL	1	X	X	X
SWMU 22 - BUILDING 2 PAINT BOOTH SATELLITE ACCUMULATION DRUM	SOIL	1	X	X	X
SWMU 26 - FORMER LESS-THAN-90-DAY STORAGE AREA, BUILDING 40	SOIL	4	X	X	X
SWMU 27 - WASTE NITRIC AND HYDROFLUORIC SCRUBBERS DRUM STORAGE, BUILDING 52	SOIL	4	X	X	X
SWMU 31 - MAINTENANCE SHOP WASTE OIL TANK, BUILDING 22	SOIL	4	X	X	X

TABLE 2. SAMPLES COLLECTED AT THE MCDONNELL-DOUGLAS HAZELWOOD FACILITY

SWMU	SAMPLE LOCATIONS	NUMBER OF SAMPLES COLLECTED	[1] LOCATION; FIELD NUMBER/LABORATORY NUMBER
SWMU 8 - SCRAP DOCK SHELTER, STORAGE AREA 1	Three - in front of the building at the midpoint (39-1), the south end of the building (39-2), and the north end of the building (39-3)	Six - two samples each location, one from the surface interval (0-12") and one subsurface (12-24"); six samples total	39-1: 39-10012 and 39-11224/002 and 003 39-2: 39-20012 and 39-21224/004 and 005 39-3: 39-30012 and 39-31224/006 and 007
SWMU 10 - CURRENT WASTE OIL TANK, BUILDING 5	Two - 25 feet east of unit (6-1), 3 feet east of the berm at the unit (6-2); field duplicate/lab QA collected	Three - one sample (0 to 24") at 6-1; two samples, one from the surface interval (0-12") one subsurface (12-24") at 6-2.	[2] 6-1: 6-10024/020 6-2: 6A-20012 and 6A-21224/026 and 027 6-2: 6B-20012 and 6B-21224/028 and 029
SWMU 17 - PERCHLORETHYLENE RECOVERY UNIT, BUILDING 51	One - where the asphalt showed the most evidence of damage (51-1); field duplicate/lab QA collected.	Two samples - one surficial (0 to 12") and one subsurface (12" to 24")	51-1: 51A-10012 and 51A-11224/014 and 015 51-1: 51B-10012 and 51B-11224/016 and 017
SWMU 21 - INDUSTRIAL WASTEWATER TREATMENT PLANT TANKS	One - downgradient of tanks (S-1 through S-4)	One groundwater sample and one subsurface soil sample (20-21 feet)	[3] 14-2 (soil): 14-22021/001 14-2 (gw): 14-2/031
SWMU 22 - BUILDING 2 PAINT BOOTH SATELLITE ACCUMULATION DRUM	One - at the largest crack (2-1)	One sample (0 to 24")	[2] 2-1: 2-10024/021
SWMU 26 - FORMER LESS-THAN-90-DAY STORAGE AREA, BUILDING 40	Two - along crack next to building (40-1) and along the seam (40-2)	Four - two samples at each location, one surficial (0 to 12") and one subsurface (12" to 24")	40-1: 40-10012 and 40-11224/022 and 023 40-2: 40-20012 and 40-21224/024 and 025 **At 40-2 PID measured 360 ppm.**
SWMU 27 - WASTE NITRIC AND HYDROFLUORIC SCRUBBERS DRUM STORAGE, BUILDING 52	Two - outside wooden fence (52-1) and between parking ballards (52-2).	Four - two samples at each location, one surficial (0-12") and one subsurface (12-24") at each location	52-1: 52-10012 and 52-11224/012 and 013 52-2: 52-20012 and 52-21224/018 and 019
SWMU 31 - MAINTENANCE SHOP WASTE OIL TANK, BUILDING 22	Two - in the two largest cracks mid-line just outside of prefab building (22-1) and 8 feet SW of prefab building (22-2).	Four - two samples at each location, one surficial (0-12"), one subsurface (12-24")	22-1: 22-10012 and 22-11224/008 and 009 22-2: 22-20012 and 22-21224/010 and 011

[1] The field number format (XX-YZZZZ), is defined as follows:

a) The first set of numbers (XX), are a reference to the nearest building.

b) The next number (Y), is a reference to the sampling location.

c) The remaining numbers (ZZZZ) determine the sampling interval in inches.

Example: A sample collected from building 39, the first sample location, and the sampling interval 0 to 12 inches would be reported as follows: 39-10012.

- Field duplicates have a letter (A or B) as the designation after the building number.
- Lab QC has no field designation since these are considered additional aliquots of the original sample.

[2] This sample compacted, so the entire interval (0-24 inches) was submitted.

[3] This sample was collected from the interval 20 to 21 feet below ground surface.

TABLE 3. FIELD QUALITY CONTROL SAMPLE SUMMARY

QC SAMPLE	FREQUENCY	QUANTITY	ASSOCIATED SWMU
FIELD REPLICATE/ DUPLICATE	One per 20 environmental samples per matrix	Two soils; could not collect one for water because of inadequate volume	SWMU 10 AND 17
EQUIPMENT BLANK	One per day, per equipment type	Two for soil sampling equipment, one for water sampling equipment	SWMU 21: for the groundwater sample SWMUs 8, 10, 17, 22, 26, 27, and 31: for soil samples
FIELD BLANK	One per day	Three total	SWMUs 8, 10, 17, 22, 26, 27, and 31: for soil samples
TRIP BLANK	One per cooler containing samples for VOC analyses	Three for soil samples, one for water samples	SWMUs 8, 10, 17, 22, 26, 27, and 31: for soil samples
WATER BLANK	One per source of water	One for the potable water source and one for the deionized water source[1]	SWMUs 8, 10, 17, 22, 26, 27, and 31: for soil samples

[1] Blank actually collected during sampling visit at St. Charles MCD facility conducted concurrently with sampling visit at this facility. Source of deionized water for both investigations is the same. Data for blank are in Table 4, but not in Appendix E, because data are in raw data set for St. Charles Facility.

TABLE 4. MCDONNELL-DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

SLAPS INORGANIC BACKGROUND CONCENTRATION RANGES

Compound	SLAPS Background Soil Results [1] (mg/Kg)
Silver	<2.4 - 2.6
Aluminum	4140 - 6090
Arsenic	1.7 - 6.8
Barium	63.9 - 154
Beryllium	0.3 - 0.5
Cadmium	<1.7 - 1.8
Cobalt	5.6 - 9.3
Chromium	8.6 - 11.0
Copper	9.2 - 15.6
Iron	7970 - 14500
Manganese	449 - 1050
Nickel	8.5 - 23.4
Lead	8.0 - 30.9
Antimony	14.6 - 15.3
Selenium	<0.5
Thallium	0.5 - 13.0
Vanadium	8.5 - 13.4
Zinc	29.8 - 52.8
Calcium	2810 - 3770
Magnesium	1610 - 2430
Sodium	51.8 - 66.5
Potassium	562 - 807

[1] Concentration range for four SLAPS background soil samples, collected from 0.0 to 2.0 foot interval. [48]

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		002	003	004	005	006	007
ELD SAMPLE NUMBER		39–10012	39–11224	39–20012	39–21224	39–30012	39–31224
C DESIGNATION							
SOLID WASTE MANAGEMENT UNIT		8	8	8	8	8	8
Compound	Unit						
Percent Solids	%	83.1	83.1	93.2	80.9	83.7	82.8
Silver	mg/Kg	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U
Aluminum	mg/Kg	8770	8230	3930	8690	8950	9430
Arsenic	mg/Kg	21.1	28.2	8.95	23.6	20.0	21.4
Barium	mg/Kg	74.1	306.0	53.1	66.0	66.0	104
Beryllium	mg/Kg	0.822	0.997	0.451	0.781	0.781	0.809
Cadmium	mg/Kg	0.550	2.52	0.487 U	0.487 U	0.487 U	0.487 U
Cobalt	mg/Kg	5.2	10.1	5.23	5.47	5.47	6.05
Chromium	mg/Kg	15.2	16.9	22.7	13.7	13.7	15.5
Copper	mg/Kg	15.2	21.9	17.8	13.3	13.3	14.0
Iron	mg/Kg	22100	42400	8650	11600	11600	15800
Manganese	mg/Kg	230	2520	141	240	240	549
Nickel	mg/Kg	15.7	31.9	26.2	12.6	12.6	17.9
Lead	mg/Kg	20.0	27.9	12.8	19.8	19.8	20.9
Antiminy	mg/Kg	4.31	7.94	2.04	2.48	2.48	3.50
Selenium	mg/Kg	3.66	5.65	3.09 U	3.09 U	3.09 U	3.09 U
Thallium	mg/Kg	3.15 U	3.15 U	3.15 U	3.15 U	3.15 U	3.15 U
Vanadium	mg/Kg	33.1	42.2	20.0	29.2	29.2	33.2
Zinc	mg/Kg	46.2	52.6	45.5	38.9	38.9	46.3
Calcium	mg/Kg	26800	23700	90100	42200	42200	24300
Magnesium	mg/Kg	14900	14300	4750	22000	22000	13100
Sodium	mg/Kg	342	311	320	303	303	296
assium	mg/Kg	775	690	613	922	922	852
ercury	mg/Kg	0.0251	0.0217	0.00389 U	0.0287	0.0287	0.0240
Phenol	ug/Kg	400 U	400 U	350 U	410 U	410 U	400 U
Bis(2–chloroethyl) ether	ug/Kg	400 U	400 U	350 U	410 U	410 U	400 U
2–Chlorophenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
1,3–Dichlorobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
1,4–Dichlorobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzyl alcohol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
1,2–Dichlorobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Ortho(2–methylphenol) cresol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Bis(2–Chloroisopropyl) ether	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Para(4–methylphenol) cresol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
N–Nitrosodipropylamine	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Hexachloroethane	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Nitrobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Isophorone	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2–Nitrophenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,4–Dimethylphenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzoic acid	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
Bis(2–chloroethyoxy) methane	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,4–dichlorophenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
1,2,4–Trichlorobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Naphthalene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
4–Chloroaniline	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Hexachlorobutadiene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
4–Chloro–3–methyl phenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
methylnaphthalene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
exachlorocyclopentadiene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		002	003	004	005	006	007
FIELD SAMPLE NUMBER		39–10012	39–11224	39–20012	39–21224	39–30012	39–3122
QC DESIGNATION							
SOLID WASTE MANAGEMENT UNIT		8	8	8	8	8	8
Compound	Unit						
2,4,6–Trichlorophenol	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,4,5–Trichlorophenol	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
2–Chloronaphthalene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2–Nitroaniline	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
Dimethylphthalate	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Acenaphthylene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
3–Nitroaniline	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
Acenaphthene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,4–Dinitrophenol	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
4–Nitrophenol	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
Dibenzofuran	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,4–Dinitrotoluene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
2,6–Dinitrotoluene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Diethylphthalate	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
4–Chlorophenyl phenyl ether	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Fluorene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
4–Nitroaniline	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
4,6–Dinitro–2–methylphenol	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	2100 U
N–Nitrosodiphenylamine	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
4–Bromophenyl phenyl ether	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Hexachlorobenzene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Pentachlorophenol	ug/Kg	2000 U	2000 U	1800 U	2100 U	2000 U	210
Phenanthrene	ug/Kg	400 U	400 U	350 U	410 U	390 U	40
Anthracene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Di–N–butyl–phthalate	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Fluoranthene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Pyrene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Butyl benzyl phthalate	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
3,3–Dichlorobenzidine	ug/kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzo(a) anthracene	ug/kg	400 U	400 U	350 U	410 U	390 U	400 U
Bis(2–ethylhexyl) phthalate	ug/kg	400 U	400 U	350 U	410 U	390 U	400 U
Chrysene	ug/kg	400 U	400 U	350 U	410 U	390 U	400 U
Di–N–octyl–phthalate	ug/kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzo(b) fluoranthene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzo(k) fluoranthene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzo(a) pyrene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Indeno(1,2,3–cd) pyrene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Dibenzo(a,h) anthracene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Benzo(g,h,i) perylene	ug/Kg	400 U	400 U	350 U	410 U	390 U	400 U
Cyanide, Total	mg/Kg	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Chloromethane	ug/Kg	20 U	16 U	19 U	15 U	14 U	18 U
Bromomethane	ug/Kg	39 U	31 U	26 U	30 U	27 U	35 U
Vinyl chloride	ug/Kg	30 U	23 U	19 U	22 U	20 U	26 U
Chloroethane	ug/Kg	30 U	23 U	19 U	22 U	20 U	26 U
Methylene chloride	ug/Kg	20 U	16 U	13 U	15 U	14 U	18 U
1,1–Dichloroethylene	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
1,1–Dichloroethane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Chloroform	ug/Kg	10 U	8 U	6 U	7 U	7 U	9
1,2–Dichloroethane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9
1,1,1–Trichloroethane	ug/Kg	17 U	8 U	6 U	7 U	7 U	9 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		002	003	004	005	006	007
FIELD SAMPLE NUMBER		39–10012	39–11224	39–20012	39–21224	39–30012	39–31224
QC DESIGNATION							
SOLID WASTE MANAGEMENT UNIT		8	8	8	8	8	8
Compound	Unit						
Carbon tetrachloride	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Bromodichloromethane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
1,2–Dichloropropane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Benzene	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Trans–1,3 dichloropropylene	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Trichloroethylene	ug/Kg	10 U	8 U	6 U	7 U	62	9 U
Cis–1,3 Dichloropropylene	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Dicromochloromethane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
1,1,2–Trichloroethane	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Bromoform	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Tetrachloroethylene	mg/Kg	10 U	8 U	6 U	7 U	290	19 U
Toluene	ug/Kg	51	8 U	6 U	7 U	7 U	9 U
1,1,2,2,–Tetrachloroethane	ug/Kg	1 U	8 U	6 U	7 U	7 U	9 U
Chlorobenzene	ug/Kg	1 U	8 U	6 U	7 U	7 U	9 U
Ethyl benzene	ug/Kg	1 U	8 U	6 U	7 U	7 U	9 U
Acetone	ug/Kg	20 U	30 U	13 U	15 U	14 U	18 U
Carbon disulfide	ug/Kg	1 U	8 U	6 U	7 U	7 U	9 U
Methyl ethyl ketone	ug/Kg	40 U	16 U	14 U	15 U	14 U	18 U
2–hexanone	ug/Kg	20 U	16 U	13 U	15 U	14 U	18 U
4–methyl–2 pentanone (MIBK)	ug/Kg	20 U	16 U	13 U	15 U	14 U	18 U
Styrene	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
Total xylenes	ug/Kg	10 U	8 U	6 U	7 U	7 U	9 U
–dichloroethylene (Total)	ug/Kg	10 U	8 U	6 U	7 U	36	9 U
CB–Aroclor 1016	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		020	026	028	027	029
FIELD SAMPLE NUMBER		6–10024	6A–20012	6B–20012	6A–21224	6B–21224
QC DESIGNATION				Field Dup		Field Dup
SOLID WASTE MANAGEMENT UNIT		10	10	10	10	10
Compound	Unit					
Percent Solids	%	80.3	80.5	78.0	79.5	77.7
Silver	mg/Kg	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U
Aluminum	mg/Kg	14400	8000	15300	11100	10500
Arsenic	mg/Kg	32.8	19.8	31.6	37.5	32.1
Barium	mg/Kg	186	94.8	182	142	129
Beryllium	mg/Kg	1.15	0.705	1.03	0.98	0.976
Cadmium	mg/Kg	0.487 U	0.487 U	0.487 U	0.487 U	0.487 U
Cobalt	mg/Kg	7.71	5.52	6.09	6.19	6.27
Chromium	mg/Kg	17.2	12.9	15.3	15.5	17.4
Copper	mg/Kg	18.5	11.1	13.0	15.5	15.4
Iron	mg/Kg	21700	9850	17600	26100	22100
Manganese	mg/Kg	537	464	356	543	814
Nickel	mg/Kg	21.3	13.7	16.4	21.9	17.4
Lead	mg/Kg	29.3	28.0	22.7	22.7	35.8
Antiminy	mg/Kg	4.33	2.04	1.76	3.53	3.73
Selenium	mg/Kg	3.09 U	3.09 U	3.09 U	3.09 U	3.09 U
Thallium	mg/Kg	3.15 U	3.15 U	3.15 U	3.15 U	3.15 U
Vanadium	mg/Kg	37.3	24.1	28.6	33.0	34.9
Zinc	mg/Kg	57.7	134	44.8	47.6	98.6
Calcium	mg/Kg	12900	27000	6000	7050	24000
Magnesium	mg/Kg	3160	4720	2370	5030	5250
Sodium	mg/Kg	684	839	1030	829	951
Potassium	mg/Kg	1060	664	1060	777	884
Mercury	mg/Kg	0.0285	0.0534	0.0258	0.0277	0.0312
Phenol	ug/Kg	413 U	4100 U	845 U	416.0 U	426 U
Bis(2–chloroethyl) ether	ug/Kg	413 U	4100 U	845 U	416.0 U	426 U
2–Chlorophenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
1,3–Dichlorobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
1,4–Dichlorobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Benzyl alcohol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
1,2–Dichlorobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Ortho(2–methylphenol) cresol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Bis(2–Chloroisopropyl) ether	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Para(4–methylphenol) cresol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
N–Nitrosodipropylamine	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Hexachloroethane	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Nitrobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Isophorone	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2–Nitrophenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,4–Dimethylphenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Benzoic acid	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
Bis(2–chloroethyoxy) methane	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,4–dichlorophenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
1,2,4–Trichlorobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Naphthalene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
4–Chloroaniline	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Hexachlorobutadiene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
4–Chloro–3–methyl phenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2–methylnaphthalene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Hexachlorocyclopentadiene	ug/Kg	413 U	4100 U	845 U	416 U	426 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

ABORATORY SAMPLE NUMBER		020	026	028	027	029
ELD SAMPLE NUMBER		6–10024	6A–20012	6B–20012	6A–21224	6B–21224
QC DESIGNATION				Field Dup		Field Dup
SOLID WASTE MANAGEMENT UNIT		10	10	10	10	10
Compound	Unit					
2,4,6–Trichlorophenol	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,4,5–Trichlorophenol	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
2–Chloronaphthalene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2–Nitroaniline	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
Dimethylphthalate	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Acenaphthylene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
3–Nitroaniline	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
Acenaphthene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,4–Dinitrophenol	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
4–Nitrophenol	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
Dibenzofuran	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,4–Dinitrotoluene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
2,6–Dinitrotoluene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Diethylphthalate	ug/Kg	413 U	4100 U	845 U	416 U	426 U
4–Chlorophenyl phenyl ether	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Fluorene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
4–Nitroaniline	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
4,6–Dinitro–2–methylphenol	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
N–Nitrosodiphenylamine	ug/Kg	413 U	4100 U	845 U	416 U	426 U
4–Bromophenyl phenyl ether	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Hexachlorobenzene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
ntachlorophenol	ug/Kg	2090 U	20700 U	4280 U	2100 U	2150 U
enanthrene	ug/Kg	413 U	4300	1290	416 U	1680
Anthracene	ug/Kg	413 U	4100 U	845 U	416 U	650
Di–N–butyl–phthalate	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Fluoranthene	ug/Kg	413 U	5640	1860	416 U	2960
Pyrene	ug/Kg	413 U	6570	1550	416 U	2530
Butyl benzyl phthalate	ug/Kg	413 U	4100 U	845 U	416 U	426 U
3,3–Dichlorobenzidine	ug/kg	825 U	8200 U	1690 U	832 U	851 U
Benzo(a) anthracene	ug/kg	413 U	4100	986	416 U	1760
Bis(2–ethylhexyl) phthalate	ug/kg	413 U	4100 U	845 U	416 U	426 U
Chrysene	ug/kg	413 U	4250	858	416 U	1550
Di–N–octyl–phthalate	ug/kg	413 U	4100 U	845 U	416 U	426 U
Benzo(b) fluoranthene	ug/Kg	413 U	4100 U	845 U	416 U	426 U
Benzo(k) fluoranthene	ug/Kg	413 U	11200	2710	416 U	5230
Benzo(a) pyrene	ug/Kg	413 U	5000	1170	416 U	1180
Indeno(1,2,3–cd) pyrene	ug/Kg	413 U	4100 U	845 U	416 U	1220
Dibenzo(a,h) anthracene	ug/Kg	413 U	4100 U	845 U	416 U	504
Benzo(g,h,i) perylene	ug/Kg	413 U	4100	903	416 U	1080
Cyanide, Total	mg/Kg	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Chloromethane	ug/Kg	19 U	21 U	23 U	17 U	35 U
Bromomethane	ug/Kg	39 U	42 U	46 U	35 U	70 U
Vinyl chloride	ug/Kg	29 U	31 U	34 U	26 U	53 U
Chloroethane	ug/Kg	29 U	31 U	34 U	26 U	53 U
Methylene chloride	ug/Kg	19 U	21 U	23 U	17 U	35 U
1,1–Dichloroethylene	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,1–Dichloroethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
loroform	ug/Kg	10 U	10 U	11 U	9 U	18 U
–Dichloroethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,1,1–Trichloroethane	ug/Kg	10 U	10 U	11 U	9 U	18 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		020	026	028	027	029
FIELD SAMPLE NUMBER		6–10024	6A–20012	6B–20012	6A–21224	6B–21224
QC DESIGNATION				Field Dup		Field Dup
SOLID WASTE MANAGEMENT UNIT		10	10	10	10	10
Compound	Unit					
Carbon tetrachloride	ug/Kg	10 U	10 U	11 U	9 U	18 U
Bromodichloromethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,2–Dichloropropane	ug/Kg	10 U	10 U	11 U	9 U	18 U
Benzene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Trans–1,3 dichloropropylene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Trichloroethylene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Cis–1,3 Dichloropropylene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Dicromochloromethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,1,2–Trichloroethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
Bromoform	ug/Kg	10 U	10 U	11 U	9 U	18 U
Tetrachloroethylene	mg/Kg	13 U	10 U	50	9 U	18 U
Toluene	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,1,2,2,–Tetrachloroethane	ug/Kg	10 U	10 U	11 U	9 U	18 U
Chlorobenzene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Ethyl benzene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Acetone	ug/Kg	40 U	21 U	25 U	40 U	53 U
Carbon disulfide	ug/Kg	10 U	10 U	11 U	9 U	18 U
Methyl ethyl ketone	ug/Kg	19 U	10 U	23 U	9 U	35 U
2–hexanone	ug/Kg	19 U	21 U	23 U	17 U	35 U
4–methyl–2 pentanone (MIBK)	ug/Kg	19 U	21 U	23 U	17 U	35 U
Styrene	ug/Kg	10 U	10 U	11 U	9 U	18 U
Total xylenes	ug/Kg	10 U	10 U	11 U	9 U	18 U
1,2–dichloroethylene (Total)	ug/Kg	10 U	10 U	11 U	9 U	18 U
PCB–Aroclor 1016	ug/Kg	ND	ND	ND	ND	36 U
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND	31 U
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND	10.0 U
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND	9.9 U
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND	14 U
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND	4.6 U
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND	6.4 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

ABORATORY SAMPLE NUMBER		014	016	015	017	001	021
ELD SAMPLE NUMBER		51A–10012	51B–10012	51A–11224	51B–11224	14–22021	2–10024
QC DESIGNATION			FIELD DUP		FIELD DUP		
SOLID WASTE MANAGEMENT UNIT		17	17	17	17	21	22
Compound	Unit						
Percent Solids	%	94.0	96.5	78.1	78.1	78.4	77.4
Silver	mg/Kg	0.615 U	0.615 U	0.615 U	0.615 U	0.615	0.615 U
Aluminum	mg/Kg	4790	1650	21800	22700	12900	8300
Arsenic	mg/Kg	9.9	4.09	46.3	43.1	23.3	25.2
Barium	mg/Kg	46.2	21	183	219	81.8	85.5
Beryllium	mg/Kg	0.362	0.173	1.40	1.46	1.1	0.806
Cadmium	mg/Kg	0.565	1.67	0.487 U	0.487 U	0.487 U	0.487 U
Cobalt	mg/Kg	2.66	1.12	9.57	13.1	6.3	6.94
Chromium	mg/Kg	6.15	6.09	19.7	18.5	19.8	14.4
Copper	mg/Kg	5.65	4.64	17.7	19.0	12.9	15.0
Iron	mg/Kg	5550	2110	30500	34200	14900	18200
Manganese	mg/Kg	481	79	747	2070	266	740
Nickel	mg/Kg	9.07	5.49	25.2	31.1	15.3	19.2
Lead	mg/Kg	8.37	4.55	33.1	35.5	21.9	20.1
Antiminy	mg/Kg	0.830	0.561 U	4.50	4.44	2.7	2.66
Selenium	mg/Kg	4.02	3.09 U	3.09 U	3.09 U	3.09 U	3.09 U
Thallium	mg/Kg	3.15 U	3.43	3.15 U	3.15 U	3.15 U	3.15 U
Vanadium	mg/Kg	12.1	9.52	44.2	46.7	38.7	28.3
Zinc	mg/Kg	24.4	22.3	51.8	47.2	32.0	41.8
Calcium	mg/Kg	14600	14500	16400	3850	3280	23700
Magnesium	mg/Kg	39600	15900	3790	3210	2820	14100
dium	mg/Kg	348	138	206.0	203	110	128
assium	mg/Kg	755	442	1120.0	992	519	1230
Mercury	mg/Kg	0.0142	0.0050	0.0331	0.0341	0.0406	0.0338
Phenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Bis(2–chloroethyl) ether	ug/Kg	703 U	3420 U	854 U	422 U	420 U	430 U
2–Chlorophenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
1,3–Dichlorobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
1,4–Dichlorobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzyl alcohol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
1,2–Dichlorobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Ortho(2–methylphenol) cresol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Bis(2–Chloroisopropyl) ether	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Para(4–methylphenol) cresol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
N–Nitrosodipropylamine	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Hexachloroethane	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Nitrobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Isophorone	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2–Nitrophenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,4–Dimethylphenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzoic acid	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
Bis(2–chloroethyoxy) methane	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,4–dichlorophenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
1,2,4–Trichlorobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Naphthalene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
4–Chloroaniline	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Hexachlorobutadiene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Chloro–3–methyl phenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
methylnaphthalene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Hexachlorocyclopentadiene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		014	016	015	017	001	021
FIELD SAMPLE NUMBER		51A–10012	51B–10012	51A–11224	51B–11224	14–22021	2–10024
QC DESIGNATION			FIELD DUP		FIELD DUP		
SOLID WASTE MANAGEMENT UNIT		17	17	17	17	21	22
Compound	Unit						
2,4,6–Trichlorophenol	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,4,5–Trichlorophenol	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
2–Chloronaphthalene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2–Nitroaniline	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
Dimethylphthalate	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Acenaphthylene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
3–Nitroaniline	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
Acenaphthene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,4–Dinitrophenol	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
4–Nitrophenol	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
Dibenzofuran	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,4–Dinitrotoluene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
2,6–Dinitrotoluene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Diethylphthalate	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
4–Chlorophenyl phenyl ether	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Fluorene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
4–Nitroaniline	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
4,6–Dinitro–2–methylphenol	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
N–Nitrosodiphenylamine	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
4–Bromophenyl phenyl ether	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Hexachlorobenzene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Pentachlorophenol	ug/Kg	3560 U	17300 U	4280 U	2140 U	2200 U	2200 U
Phenanthrene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Anthracene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Di–N–butyl–phthalate	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Fluoranthene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Pyrene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Butyl benzyl phthalate	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
3,3–Dichlorobenzidine	ug/kg	1410 U	3420 U	1690 U	422 U	420 U	430 U
Benzo(a) anthracene	ug/kg	703 U	3420 U	845 U	422 U	420 U	430 U
Bis(2–ethylhexyl) phthalate	ug/kg	703 U	3420 U	845 U	422 U	420 U	430 U
Chrysene	ug/kg	703 U	3420 U	845 U	422 U	420 U	430 U
Di–N–octyl–phthalate	ug/kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzo(b) fluoranthene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzo(k) fluoranthene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzo(a) pyrene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Indeno(1,2,3–cd) pyrene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Dibenzo(a,h) anthracene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Benzo(g,h,i) perylene	ug/Kg	703 U	3420 U	845 U	422 U	420 U	430 U
Cyanide, Total	mg/Kg	0.040 U	0.040 U	0.040 U	0.040 U	0.162	0.040 U
Chloromethane	ug/Kg	15 U	14 U	19 U	25 U	14 U	15 U
Bromomethane	ug/Kg	30 U	28 U	38 U	50 U	29 U	30 U
Vinyl chloride	ug/Kg	23 U	21 U	29 U	37 U	21 U	22 U
Chloroethane	ug/Kg	23 U	21 U	29 U	37 U	21 U	22 U
Methylene chloride	ug/Kg	15 U	14 U	19 U	25 U	14 U	15 U
1,1–Dichloroethylene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,1–Dichloroethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Chloroform	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,2–Dichloroethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,1,1–Trichloroethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		014	016	015	017	001	021
FIELD SAMPLE NUMBER		51A–10012	51B–10012	51A–11224	51B–11224	14–22021	2–10024
QC DESIGNATION			FIELD DUP		FIELD DUP		
SOLID WASTE MANAGEMENT UNIT		17	17	17	17	21	22
Compound	Unit						
Carbon tetrachloride	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Bromodichloromethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,2–Dichloropropane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Benzene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Trans–1,3 dichloropropylene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Trichloroethylene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Cis–1,3 Dichloropropylene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Dicromochloromethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,1,2–Trichloroethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Bromoform	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Tetrachloroethylene	mg/Kg	290000	40000	880	760	7 U	24 U
Toluene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
1,1,2,2,–Tetrachloroethane	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Chlorobenzene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Ethyl benzene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Acetone	ug/Kg	140	88	130	25 U	14 U	15 U
Carbon disulfide	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Methyl ethyl ketone	ug/Kg	44 U	30 U	51 U	25 U	14 U	15 U
2–hexanone	ug/Kg	15 U	14 U	19 U	25 U	14 U	15 U
4–methyl–2 pentanone (MIBK)	ug/Kg	15 U	14 U	19 U	25 U	14 U	15 U
Styrene	ug/Kg	8 U	7 U	10 U	12 U	7 U	7 U
Total xylenes	ug/Kg	32	11	10 U	12 U	7 U	12
–dichloroethylene (Total)	ug/Kg	44	14	17	12 U	7 U	7 U
PCB–Aroclor 1016	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		022	023	024	025
FIELD SAMPLE NUMBER		40–10012	40–11224	40–20012	40–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		26	26	26	26
Compound	Unit				
Percent Solids	%	79.3	77.4	79.7	78.1
Silver	mg/Kg	0.615 U	0.615 U	0.615 U	0.615 U
Aluminum	mg/Kg	17300	18000	17200	21900
Arsenic	mg/Kg	43.3	43.0	35.6	44.8
Barium	mg/Kg	212	245	303	201
Beryllium	mg/Kg	1.34	1.37	1.20 U	1.31
Cadmium	mg/Kg	0.487 U	0.487 U	0.487 U	0.487 U
Cobalt	mg/Kg	11.0	10.4	11.6	6.54
Chromium	mg/Kg	19.5	18.5	15.1	19.2
Copper	mg/Kg	15.5	16.1	12.8	14.0
Iron	mg/Kg	24700	23600	23700	25300
Manganese	mg/Kg	949	1280	2580	546
Nickel	mg/Kg	23.6	28.7	21.4	18.6
Lead	mg/Kg	34.1	30.5	27.7	27.4
Antiminy	mg/Kg	4.35	4.21	3.54	3.92
Selenium	mg/Kg	3.09 U	3.09 U	3.09 U	3.09 U
Thallium	mg/Kg	3.15 U	3.15 U	3.15 U	3.15 U
Vanadium	mg/Kg	41.0	40.7	32.5	40.1
Zinc	mg/Kg	42.0	46.5	36.6	44.1
Calcium	mg/Kg	5420	3370	3970	3540
Magnesium	mg/Kg	2970	3140	2750	3240
Sodium	mg/Kg	519	497	431	453
Potassium	mg/Kg	858	742	657	929
Mercury	mg/Kg	0.0260	0.4900	0.2430	0.404
Phenol	ug/Kg	420.0 U	430 U	410 U	420 U
Bis(2–chloroethyl) ether	ug/Kg	420.0 U	430 U	410 U	420 U
2–Chlorophenol	ug/Kg	420 U	430 U	410 U	420 U
1,3–Dichlorobenzene	ug/Kg	420 U	430 U	410 U	420 U
1,4–Dichlorobenzene	ug/Kg	420 U	430 U	410 U	420 U
Benzyl alcohol	ug/Kg	420 U	430 U	410 U	420 U
1,2–Dichlorobenzene	ug/Kg	420 U	430 U	410 U	420 U
Ortho(2–methylphenol) cresol	ug/Kg	420 U	430 U	410 U	420 U
Bis(2–Chloroisopropyl) ether	ug/Kg	420 U	430 U	410 U	420 U
Para(4–methylphenol) cresol	ug/Kg	420 U	430 U	410 U	420 U
N–Nitrosodipropylamine	ug/Kg	420 U	430 U	410 U	420 U
Hexachloroethane	ug/Kg	420 U	430 U	410 U	420 U
Nitrobenzene	ug/Kg	420 U	430 U	410 U	420 U
Isophorone	ug/Kg	420 U	430 U	410 U	420 U
2–Nitrophenol	ug/Kg	420 U	430 U	410 U	420 U
2,4–Dimethylphenol	ug/Kg	420 U	430 U	410 U	420 U
Benzoic acid	ug/Kg	2100 U	2200 U	2100 U	2200 U
Bis(2–chloroethyoxy) methane	ug/Kg	420 U	430 U	410 U	420 U
2,4–dichlorophenol	ug/Kg	420 U	430 U	410 U	420 U
1,2,4–Trichlorobenzene	ug/Kg	420 U	430 U	410 U	420 U
Naphthalene	ug/Kg	420 U	430 U	410 U	420 U
4–Chloroaniline	ug/Kg	420 U	430 U	410 U	420 U
Hexachlorobutadiene	ug/Kg	420 U	430 U	410 U	420 U
4–Chloro–3–methyl phenol	ug/Kg	420 U	430 U	410 U	420 U
2–methylnaphthalene	ug/Kg	420 U	430 U	410 U	420 U
Hexachlorocyclopentadiene	ug/Kg	420 U	430 U	410 U	420 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

ABORATORY SAMPLE NUMBER		022	023	024	025
ELD SAMPLE NUMBER		40–10012	40–11224	40–20012	40–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		26	26	26	26
Compound	Unit				
2,4,6–Trichlorophenol	ug/Kg	420 U	430 U	410 U	420 U
2,4,5–Trichlorophenol	ug/Kg	2100 U	2200 U	2100 U	2200 U
2–Chloronaphthalene	ug/Kg	420 U	430 U	410 U	420 U
2–Nitroaniline	ug/Kg	2100 U	2200 U	2100 U	2200 U
Dimethylphthalate	ug/Kg	420 U	430 U	410 U	420 U
Acenaphthylene	ug/Kg	420 U	430 U	410 U	420 U
3–Nitroaniline	ug/Kg	2100 U	2200 U	2100 U	2200 U
Acenaphthene	ug/Kg	420 U	430 U	410 U	420 U
2,4–Dinitrophenol	ug/Kg	2100 U	2200 U	2100 U	2200 U
4–Nitrophenol	ug/Kg	2100 U	2200 U	2100 U	2200 U
Dibenzofuran	ug/Kg	420 U	430 U	410 U	420 U
2,4–Dinitrotoluene	ug/Kg	420 U	430 U	410 U	420 U
2,6–Dinitrotoluene	ug/Kg	420 U	430 U	410 U	420 U
Diethylphthalate	ug/Kg	420 U	430 U	410 U	420 U
4–Chlorophenyl phenyl ether	ug/Kg	420 U	430 U	410 U	420 U
Fluorene	ug/Kg	420 U	430 U	410 U	420 U
4–Nitroaniline	ug/Kg	2100 U	2200 U	2100 U	2200 U
4,6–Dinitro–2–methylphenol	ug/Kg	2100 U	2200 U	2100 U	2200 U
N–Nitrosodiphenylamine	ug/Kg	420 U	430 U	410 U	420 U
4–Bromophenyl phenyl ether	ug/Kg	420 U	430 U	410 U	420 U
Hexachlorobenzene	ug/Kg	420 U	430 U	410 U	420 U
ntachlorophenol	ug/Kg	2100 U	2200 U	2100 U	2200 U
enanthrene	ug/Kg	420 U	430 U	410 U	420 U
Anthracene	ug/Kg	420 U	430 U	410 U	420 U
Di–N–butyl–phthalate	ug/Kg	420 U	430 U	410 U	420 U
Fluoranthene	ug/Kg	420 U	430 U	410 U	420 U
Pyrene	ug/Kg	420 U	430 U	410 U	420 U
Butyl benzyl phthalate	ug/Kg	420 U	430 U	410 U	420 U
3,3–Dichlorobenzidine	ug/kg	4200 U	430 U	410 U	420 U
Benzo(a) anthracene	ug/kg	420 U	430 U	410 U	420 U
Bis(2–ethylhexyl) phthalate	ug/kg	420 U	430 U	410 U	420 U
Chrysene	ug/kg	420 U	430 U	410 U	420 U
Di–N–octyl–phthalate	ug/kg	420 U	430 U	410 U	420 U
Benzo(b) fluoranthene	ug/Kg	420 U	430 U	410 U	420 U
Benzo(k) fluoranthene	ug/Kg	420 U	430 U	410 U	420 U
Benzo(a) pyrene	ug/Kg	420 U	430 U	410 U	420 U
Indeno(1,2,3–cd) pyrene	ug/Kg	420 U	430 U	410 U	420 U
Dibenzo(a,h) anthracene	ug/Kg	420 U	430 U	410 U	420 U
Benzo(g,h,i) perylene	ug/Kg	420 U	430 U	410 U	420 U
Cyanide, Total	mg/Kg	0.040 U	0.040 U	0.040 U	0.040 U
Chloromethane	ug/Kg	19 U	26 U	19 U	20 U
Bromomethane	ug/Kg	39 U	52 U	39 U	40 U
Vinyl chloride	ug/Kg	29 U	39 U	29 U	30 U
Chloroethane	ug/Kg	29 U	39 U	29 U	30 U
Methylene chloride	ug/Kg	19 U	26 U	19 U	20 U
1,1–Dichloroethylene	ug/Kg	10 U	13 U	10 U	10 U
1,1–Dichloroethane	ug/Kg	10 U	13 U	10 U	10 U
loroform	ug/Kg	10 U	13 U	10 U	10 U
–Dichloroethane	ug/Kg	10 U	13 U	10 U	10 U
1,1,1–Trichloroethane	ug/Kg	10 U	13 U	10 U	10 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		022	023	024	025
FIELD SAMPLE NUMBER		40–10012	40–11224	40–20012	40–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		26	26	26	26
Compound	Unit				
Carbon tetrachloride	ug/Kg	10 U	13 U	10 U	10 U
Bromodichloromethane	ug/Kg	10 U	13 U	10 U	10 U
1,2–Dichloropropane	ug/Kg	10 U	13 U	10 U	10 U
Benzene	ug/Kg	10 U	13 U	10 U	10 U
Trans–1,3 dichloropropylene	ug/Kg	10 U	13 U	10 U	10 U
Trichloroethylene	ug/Kg	10 U	13 U	10 U	10 U
Cis–1,3 Dichloropropylene	ug/Kg	10 U	13 U	10 U	10 U
Dicromochloromethane	ug/Kg	10 U	13 U	10 U	10 U
1,1,2–Trichloroethane	ug/Kg	10 U	13 U	10 U	10 U
Bromoform	ug/Kg	10 U	13 U	10 U	10 U
Tetrachloroethylene	mg/Kg	10 U	13 U	10 U	10 U
Toluene	ug/Kg	10 U	13 U	10 U	10 U
1,1,2,2,–Tetrachloroethane	ug/Kg	10 U	13 U	10 U	10 U
Chlorobenzene	ug/Kg	10 U	13 U	10 U	10 U
Ethyl benzene	ug/Kg	10 U	13 U	10 U	10 U
Acetone	ug/Kg	19 U	27 U	48 U	25 U
Carbon disulfide	ug/Kg	10 U	13 U	10 U	10 U
Methyl ethyl ketone	ug/Kg	27 U	13 U	10 U	10 U
2–hexanone	ug/Kg	27 U	26 U	19 U	20 U
4–methyl–2 pentanone (MIBK)	ug/Kg	27 U	26 U	19 U	20 U
Styrene	ug/Kg	10 U	13 U	10 U	10 U
Total xylenes	ug/Kg	10 U	13 U	10 U	10 U
1,2–dichloroethylene (Total)	ug/Kg	10 U	13 U	10 U	10 U
PCB–Aroclor 1016	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

ABORATORY SAMPLE NUMBER		012	013	018	019
IELD SAMPLE NUMBER		52–10012	52–11224	52–20012	52–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		27	27	27	27
Compound	Unit				
Percent Solids	%	77.0	77.8	85.1	77.6
Silver	mg/Kg	0.615 U	0.615 U	0.615 U	0.615 U
Aluminum	mg/Kg	14200	17400	14200	18900
Arsenic	mg/Kg	30.7	34.5	60.4	29.9
Barium	mg/Kg	201	254	129	173
Beryllium	mg/Kg	1.13	1.27	0.943	1.08
Cadmium	mg/Kg	0.487 U	0.487 U	2.19	0.487 U
Cobalt	mg/Kg	4.56	11.2	4.42	4.32
Chromium	mg/Kg	16.1	17.5	20.2	15.8
Copper	mg/Kg	15.1	13.0	93.0	13.0
Iron	mg/Kg	14600	19600	21900	21600
Manganese	mg/Kg	143	613	249	444
Nickel	mg/Kg	15.2	19.9	14.0	13.9
Lead	mg/Kg	29.2	30.5	140.00	22.6
Antiminy	mg/Kg	3.40	3.63	4.95	3.16
Selenium	mg/Kg	3.09 U	3.09 U	3.09 U	3.09 U
Thallium	mg/Kg	3.15 U	3.15 U	3.15 U	3.15 U
Vanadium	mg/Kg	32.5	39.3	34.1	31.6
Zinc	mg/Kg	45.6	44.1	219	38.0
Calcium	mg/Kg	8400	3780	16000	5050
Magnesium	mg/Kg	1980	2530	7510	2560
dium	mg/Kg	2930	1830	1340	1580
tassium	mg/Kg	1260	1100	2210	1140
Mercury	mg/Kg	0.0330	0.02600	0.112	0.0231
Phenol	ug/Kg	430 U	426 U	3840 U	422 U
Bis(2–chloroethyl) ether	ug/Kg	430 U	426 U	3840 U	422 U
2–Chlorophenol	ug/Kg	430 U	426 U	3840 U	422 U
1,3–Dichlorobenzene	ug/Kg	430 U	426 U	3840 U	422 U
1,4–Dichlorobenzene	ug/Kg	430 U	426 U	3840 U	422 U
Benzyl alcohol	ug/Kg	430 U	426 U	3840 U	422 U
1,2–Dichlorobenzene	ug/Kg	430 U	426 U	3840 U	422 U
Ortho(2–methylphenol) cresol	ug/Kg	430 U	426 U	3840 U	422 U
Bis(2–Chloroisopropyl) ether	ug/Kg	430 U	426 U	3840 U	422 U
Para(4–methylphenol) cresol	ug/Kg	430 U	426 U	3840 U	422 U
N–Nitrosodipropylamine	ug/Kg	430 U	426 U	3840 U	422 U
Hexachloroethane	ug/Kg	430 U	426 U	3840 U	422 U
Nitrobenzene	ug/Kg	430 U	426 U	3840 U	422 U
Isophorone	ug/Kg	430 U	426 U	3840 U	422 U
2–Nitrophenol	ug/Kg	430 U	426 U	3840 U	422 U
2,4–Dimethylphenol	ug/Kg	430 U	426 U	3840 U	422 U
Benzoic acid	ug/Kg	2200 U	2150 U	19400 U	2140 U
Bis(2–chloroethyoxy) methane	ug/Kg	430 U	426 U	3840 U	422 U
2,4–dichlorophenol	ug/Kg	430 U	426 U	3840 U	422 U
1,2,4–Trichlorobenzene	ug/Kg	430 U	426 U	3840 U	422 U
Naphthalene	ug/Kg	430 U	426 U	3840 U	422 U
4–Chloroaniline	ug/Kg	430 U	426 U	3840 U	422 U
Hexachlorobutadiene	ug/Kg	430 U	426 U	3840 U	422 U
-Chloro–3–methyl phenol	ug/Kg	430 U	426 U	3840 U	422 U
–methylnaphthalene	ug/Kg	430 U	426 U	3840 U	422 U
Hexachlorocyclopentadiene	ug/Kg	430 U	426 U	3840 U	422 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		012	013	018	019
FIELD SAMPLE NUMBER		52–10012	52–11224	52–20012	52–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		27	27	27	27
Compound	Unit				
2,4,6–Trichlorophenol	ug/Kg	430 U	426 U	3840 U	422 U
2,4,5–Trichlorophenol	ug/Kg	2200 U	2150 U	19400 U	2140 U
2–Chloronaphthalene	ug/Kg	430 U	426 U	3840 U	422 U
2–Nitroaniline	ug/Kg	2200 U	2150 U	19400 U	2140 U
Dimethylphthalate	ug/Kg	430 U	426 U	3840 U	422 U
Acenaphthylene	ug/Kg	430 U	426 U	3840 U	422 U
3–Nitroaniline	ug/Kg	2200 U	2150 U	19400 U	2140 U
Acenaphthene	ug/Kg	430 U	426 U	3840 U	422 U
2,4–Dinitrophenol	ug/Kg	2200 U	2150 U	19400 U	2140 U
4–Nitrophenol	ug/Kg	2200 U	2150 U	19400 U	2140 U
Dibenzofuran	ug/Kg	430 U	426 U	3840 U	422 U
2,4–Dinitrotoluene	ug/Kg	430 U	426 U	3840 U	422 U
2,6–Dinitrotoluene	ug/Kg	430 U	426 U	3840 U	422 U
Diethylphthalate	ug/Kg	430 U	426 U	3840 U	422 U
4–Chlorophenyl phenyl ether	ug/Kg	430 U	426 U	3840 U	422 U
Fluorene	ug/Kg	430 U	426 U	3840 U	422 U
4–Nitroaniline	ug/Kg	2200 U	2150 U	19400 U	2140 U
4,6–Dinitro–2–methylphenol	ug/Kg	2200 U	2150 U	19400 U	2140 U
N–Nitrosodiphenylamine	ug/Kg	430 U	426 U	3840 U	422 U
4–Bromophenyl phenyl ether	ug/Kg	430 U	426 U	3840 U	422 U
Hexachlorobenzene	ug/Kg	430 U	426 U	3840 U	422 U
Pentachlorophenol	ug/Kg	2200 U	2150 U	19400 U	2140 U
Phenanthrene	ug/Kg	430 U	426 U	3840 U	422 U
Anthracene	ug/Kg	430 U	426 U	3840 U	422 U
Di–N–butyl–phthalate	ug/Kg	430 U	426 U	3840 U	422 U
Fluoranthene	ug/Kg	430 U	426 U	3840 U	422 U
Pyrene	ug/Kg	430 U	426 U	3840 U	422 U
Butyl benzyl phthalate	ug/Kg	430 U	426 U	3840 U	422 U
3,3–Dichlorobenzidine	ug/kg	430 U	426 U	7680 U	845 U
Benzo(a) anthracene	ug/kg	430 U	426 U	3840 U	422 U
Bis(2–ethylhexyl) phthalate	ug/kg	430 U	426 U	3840 U	422 U
Chrysene	ug/kg	430 U	426 U	3840 U	422 U
Di–N–octyl–phthalate	ug/kg	430 U	426 U	3840 U	422 U
Benzo(b) fluoranthene	ug/Kg	430 U	426 U	3840 U	422 U
Benzo(k) fluoranthene	ug/Kg	430 U	426 U	3840 U	422 U
Benzo(a) pyrene	ug/Kg	430 U	426 U	3840 U	422 U
Indeno(1,2,3–cd) pyrene	ug/Kg	430 U	426 U	3840 U	422 U
Dibenzo(a,h) anthracene	ug/Kg	430 U	426 U	3840 U	422 U
Benzo(g,h,i) perylene	ug/Kg	430 U	426 U	3840 U	422 U
Cyanide, Total	mg/Kg	0.040 U	1.000 U	0.040 U	0.040 U
Chloromethane	ug/Kg	20 U	29 U	21 U	25 U
Bromomethane	ug/Kg	40 U	57 U	42 U	49 U
Vinyl chloride	ug/Kg	30 U	43 U	32 U	37 U
Chloroethane	ug/Kg	30 U	43 U	32 U	37 U
Methylene chloride	ug/Kg	20 U	29 U	21 U	25 U
1,1–Dichloroethylene	ug/Kg	10 U	14 U	10 U	12 U
1,1–Dichloroethane	ug/Kg	10 U	14 U	10 U	12 U
Chloroform	ug/Kg	10 U	14 U	10 U	12 U
1,2–Dichloroethane	ug/Kg	10 U	14 U	10 U	12 U
1,1,1–Trichloroethane	ug/Kg	10 U	14 U	10 U	12 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		012	013	018	019
FIELD SAMPLE NUMBER		52–10012	52–11224	52–20012	52–21224
QC DESIGNATION					
SOLID WASTE MANAGEMENT UNIT		27	27	27	27
Compound	Unit				
Carbon tetrachloride	ug/Kg	10 U	14 U	10 U	12 U
Bromodichloromethane	ug/Kg	10 U	14 U	10 U	12 U
1,2–Dichloropropane	ug/Kg	10 U	14 U	10 U	12 U
Benzene	ug/Kg	10 U	14 U	10 U	12 U
Trans–1,3 dichloropropylene	ug/Kg	10 U	14 U	10 U	12 U
Trichloroethylene	ug/Kg	10 U	14 U	10 U	12 U
Cis–1,3 Dichloropropylene	ug/Kg	10 U	14 U	10 U	12 U
Dicromochloromethane	ug/Kg	10 U	14 U	10 U	12 U
1,1,2–Trichloroethane	ug/Kg	10 U	14 U	10 U	12 U
Bromoform	ug/Kg	10 U	14 U	10 U	12 U
Tetrachloroethylene	mg/Kg	12	14 U	26	15 U
Toluene	ug/Kg	10 U	14 U	11 U	12 U
1,1,2,2,–Tetrachloroethane	ug/Kg	10 U	14 U	10 U	12 U
Chlorobenzene	ug/Kg	10 U	14 U	10 U	12 U
Ethyl benzene	ug/Kg	10 U	14 U	10 U	12 U
Acetone	ug/Kg	20 U	29 U	38 U	41 U
Carbon disulfide	ug/Kg	10 U	14 U	10 U	12 U
Methyl ethyl ketone	ug/Kg	20 U	29 U	21 U	25 U
2–hexanone	ug/Kg	20 U	29 U	21 U	25 U
4–methyl–2 pentanone (MIBK)	ug/Kg	20 U	29 U	21 U	25 U
Styrene	ug/Kg	10 U	14 U	10 U	12 U
Total xylenes	ug/Kg	10 U	14 U	10 U	12 U
–dichloroethylene (Total)	ug/Kg	10 U	14 U	10 U	12 U
PCB–Aroclor 1016	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		008	009	010	011	003F	005F
FIELD SAMPLE NUMBER		22–10012	22–11224	22–20012	22–21224		
QC DESIGNATION						TRIP BLANK	TRIP BLANK
SOLID WASTE MANAGEMENT UNIT		31	31	31	31	11/15/94	11/15/94
Compound	Unit						
Percent Solids	%	79.0	76.8	79.1	78.8	98.2	76.7
Silver	mg/Kg	0.615 U	0.615	0.615 U	0.615 U	ND	ND
Aluminum	mg/Kg	12700	10400	11500	10200	ND	ND
Arsenic	mg/Kg	37.0	40.1	31.7	34.5	ND	ND
Barium	mg/Kg	199.0	200	168	158	ND	ND
Beryllium	mg/Kg	1.340	1.14	1.12	1.13	ND	ND
Cadmium	mg/Kg	1.860	0.487 U	0.487 U	0.487 U	ND	ND
Cobalt	mg/Kg	14.80	15.1	8.42	8.20	ND	ND
Chromium	mg/Kg	20.8	17.8	21.2	18.7	ND	ND
Copper	mg/Kg	28.1	25.5	17.2	27.2	ND	ND
Iron	mg/Kg	21100	19300	17500	15700	ND	ND
Manganese	mg/Kg	4310	1540	771	300	ND	ND
Nickel	mg/Kg	62.3	49.4	28.4	24.5	ND	ND
Lead	mg/Kg	32.7	26.5	26.1	25.7	ND	ND
Antiminy	mg/Kg	5.51	3.52	4.09	3.77	ND	ND
Selenium	mg/Kg	3.57	3.09 U	3.09 U	3.09 U	ND	ND
Thallium	mg/Kg	3.15 U	3.15 U	3.15 U	3.15 U	ND	ND
Vanadium	mg/Kg	47.7	45.2	38.0	45.2	ND	ND
Zinc	mg/Kg	67.5	60.3	58.3	67.2	ND	ND
Calcium	mg/Kg	7680	9320	5310	11100	ND	ND
Magnesium	mg/Kg	3810	6100	3740	7200	ND	ND
Sodium	mg/Kg	1510	801	1410	484	ND	ND
Potassium	mg/Kg	1080	687	897	696	ND	ND
Mercury	mg/Kg	0.0487	0.0318	0.0529	0.0388	ND	ND
Phenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Bis(2–chloroethyl) ether	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2–Chlorophenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
1,3–Dichlorobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
1,4–Dichlorobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Benzyl alcohol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
1,2–Dichlorobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Ortho(2–methylphenol) cresol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Bis(2–Chloroisopropyl) ether	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Para(4–methylphenol) cresol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
N–Nitrosodipropylamine	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Hexachloroethane	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Nitrobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Isophorone	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2–Nitrophenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,4–Dimethylphenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Benzoic acid	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
Bis(2–chloroethyoxy) methane	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,4–dichlorophenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
1,2,4–Trichlorobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Naphthalene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
4–Chloroaniline	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Hexachlorobutadiene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
4–Chloro–3–methyl phenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2–methylnaphthalene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Hexachlorocyclopentadiene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		008	009	010	011	003F	005F
FIELD SAMPLE NUMBER		22–10012	22–11224	22–20012	22–21224		
QC DESIGNATION						TRIP BLANK	TRIP BLANK
SOLID WASTE MANAGEMENT UNIT		31	31	31	31	11/15/94	11/15/94
Compound	Unit						
2,4,6–Trichlorophenol	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,4,5–Trichlorophenol	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
2–Chloronaphthalene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2–Nitroaniline	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
Dimethylphthalate	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Acenaphthylene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
3–Nitroaniline	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
Acenaphthene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,4–Dinitrophenol	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
4–Nitrophenol	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
Dibenzofuran	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,4–Dinitrotoluene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
2,6–Dinitrotoluene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Diethylphthalate	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
4–Chlorophenyl phenyl ether	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Fluorene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
4–Nitroaniline	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
4,6–Dinitro–2–methylphenol	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
N–Nitrosodiphenylamine	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
4–Bromophenyl phenyl ether	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Hexachlorobenzene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Pentachlorophenol	ug/Kg	2200 U	2200 U	2100 U	2200 U	ND	ND
Phenanthrene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Anthracene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Di–N–butyl–phthalate	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Fluoranthene	ug/Kg	420 U	520	420 U	420 U	ND	ND
Pyrene	ug/Kg	420 U	500	420 U	420 U	ND	ND
Butyl benzyl phthalate	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
3,3–Dichlorobenzidine	ug/kg	420 U	430 U	420 U	420 U	ND	ND
Benzo(a) anthracene	ug/kg	420 U	430 U	420 U	420 U	ND	ND
Bis(2–ethylhexyl) phthalate	ug/kg	420 U	430 U	420 U	420 U	ND	ND
Chrysene	ug/kg	420 U	430 U	420 U	420 U	ND	ND
Di–N–octyl–phthalate	ug/kg	420 U	430 U	420 U	420 U	ND	ND
Benzo(b) fluoranthene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Benzo(k) fluoranthene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Benzo(a) pyrene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Indeno(1,2,3–cd) pyrene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Dibenzo(a,h) anthracene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Benzo(g,h,i) perylene	ug/Kg	420 U	430 U	420 U	420 U	ND	ND
Cyanide, Total	mg/Kg	0.040 U	0.040 U	0.040 U	0.040 U	14 U	13 U
Chloromethane	ug/Kg	20 U	20 U	18 U	20 U	29 U	25 U
Bromomethane	ug/Kg	41 U	39 U	37 U	41 U	21 U	19 U
Vinyl chloride	ug/Kg	31 U	30 U	28 U	31 U	21 U	19 U
Chloroethane	ug/Kg	31 U	30 U	28 U	31 U	14 U	13 U
Methylene chloride	ug/Kg	20 U	20 U	18 U	20 U	7 U	6 U
1,1–Dichloroethylene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,1–Dichloroethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Chloroform	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,2–Dichloroethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,1,1–Trichloroethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) ANALYTICAL RESULTS

LABORATORY SAMPLE NUMBER		008	009	010	011	003F	005F
FIELD SAMPLE NUMBER		22–10012	22–11224	22–20012	22–21224		
QC DESIGNATION						TRIP BLANK	TRIP BLANK
SOLID WASTE MANAGEMENT UNIT		31	31	31	31	11/15/94	11/15/94
Compound	Unit						
Carbon tetrachloride	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Bromodichloromethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,2–Dichloropropane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Benzene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Trans–1,3 dichloropropylene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Trichloroethylene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Cis–1,3 Dichloropropylene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Dicromochloromethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,1,2–Trichloroethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Bromoform	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Tetrachloroethylene	mg/Kg	10 U	15	10	10 U	7 U	6 U
Toluene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,1,2,2,–Tetrachloroethane	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Chlorobenzene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Ethyl benzene	ug/Kg	10 U	10 U	9 U	10 U	14 U	13 U
Acetone	ug/Kg	20 U	20 U	18 U	20 U	7 U	6 U
Carbon disulfide	ug/Kg	10 U	10 U	9 U	10 U	14 U	13 U
Methyl ethyl ketone	ug/Kg	20 U	20 U	18 U	20 U	14 U	13 U
2–hexanone	ug/Kg	20 U	20 U	18 U	20 U	14 U	13 U
4–methyl–2 pentanone (MIBK)	ug/Kg	20 U	20 U	18 U	20 U	7 U	6 U
Styrene	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
Total xylenes	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
1,2–dichloroethylene (Total)	ug/Kg	10 U	10 U	9 U	10 U	7 U	6 U
PCB–Aroclor 1016	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1221	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1232	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1242	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1248	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1252	ug/Kg	ND	ND	ND	ND	ND	ND
PCB–Aroclor 1260	ug/Kg	ND	ND	ND	ND	ND	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL-DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

Laboratory Sample Number		034	035	022SC	036
Field Sample Number		ER-3	Tap-2	D1-1	14-2
QC Designation		Equip Rinse	Tap Water	D1 Blank	
Solid Waste Mamagement Unit					21
Compound	Unit				
Silver by ICAP	ug/L	7.88 U	7.88 U	7.88 U	ND
Aluminum by ICAP	ug/L	50.7 U	50.7 U	50.7 U	ND
Barium by ICAP	ug/L	3.94 U	3.94 U	3.94 U	ND
Beryllium by ICAP	ug/L	0.995 U	0.995 U	0.995 U	ND
Cadmium by ICAP	ug/L	3.69 U	3.69 U	3.69 U	ND
Cobalt by ICAP	ug/L	5.31 U	5.31 U	5.31 U	ND
Chromium	ug/L	14.2 U	14.2 U	14.2 U	ND
Copper	ug/L	8.32 U	8.32 U	8.32 U	ND
Iron	ug/L	65.9 U	65.9 U	65.9 U	ND
Manganese	ug/L	1.53 U	1.53 U	1.53 U	ND
Molybdenum by ICAP	ug/L	5.62 U	5.62 U	5.62 U	ND
Nickel	ug/L	11.5 U	26.7	11.5	ND
Lead	ug/L	ND	ND	ND	ND
Antimony	ug/L	ND	ND	ND	ND
Titanium by ICAP	ug/L	15.2 U	15.2 U	15.2 U	ND
Vanadium	ug/L	2.51 U	2.51 U	2.51 U	ND
Zinc	ug/L	21.4 U	28.0 U	17.9 U	ND
Calcium	mg/L	1.10 U	1.10 U	1.1 U	ND
Magnesium	mg/L	1.03 U	1.03 U	1.03 U	ND
Sodium	mg/L	1.66	1.66	1.61	ND
Potassium	mg/L	1.04 U	1.04 U	1.04 U	ND
Arsenic by AA	ug/L	1.66 U	1.66 U	1.66 U	ND
Lead by AA	ug/L	0.557 U	0.70 U	0.557 U	ND
Antimony by AA	ug/L	4.37 U	4.37 U	4.37 U	ND
Selenium by AA	ug/L	2.00	1.81 U	1.81 U	ND
Thallium by AA	ug/L	1.44 U	1.44 U	1.44 U	ND
Mercury by Cold Vapor AA	ug/L	0.100 U	0.100 U	0.100 U	ND
Phenol	ug/L	10.0 U	10.0 U	10.0 U	ND
Bis(2-chloroethyl) ether	ug/L	10.0 U	10.0 U	10.0 U	ND
2-Chlorophenol	ug/L	10.0 U	10.0 U	10.0 U	ND
1,3-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
1,4-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzyl alcohol	ug/L	10.0 U	10.0 U	10.0 U	ND
1,2-Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
Cresol - ortho(2-methylphenol)	ug/L	10.0 U	10.0 U	10.0 U	ND
Bis(2-chloroisopropyl) ether	ug/L	10.0 U	10.0 U	10.0 U	ND
Cresol - para(4-methylphenol)	ug/L	10.0 U	10.0 U	10.0 U	ND
N-Nitrosodipropylamine	ug/L	10.0 U	10.0 U	10.0 U	ND
Hexachloroethane	ug/L	10.0 U	10.0 U	10.0 U	ND
Nitrobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
Isophorone	ug/L	10.0 U	10.0 U	10.0 U	ND
2-Nitrophenol	ug/L	10.0 U	10.0 U	10.0 U	ND
2,4-Dimethylphenol	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzoic acid	ug/L	50.0 U	50.0 U	50.0 U	ND
Bis(2-chloroethyoxy) methane	ug/L	10.0 U	10.0 U	10.0 U	ND
2,4-Dichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	ND
1,2,4-Trichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
Naphthalene	ug/L	10.0 U	10.0 U	10.0 U	ND
4-Chloroaniline	ug/L	10.0 U	10.0 U	10.0 U	ND
Hexachlorobutadiene	ug/L	10.0 U	10.0 U	10.0 U	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

LABORATORY SAMPLE NUMBER		034	035	022SC	036
FIELD SAMPLE NUMBER		ER–3	Tap–2	D1–1	14–2
QC DESIGNATION		Equip Rinse	Tap Water	D1 Blank	
SOLID WASTE MANAGEMENT UNIT					21
Compound	Unit				
4–Chloro 3–methyl phenol	ug/L	10.0 U	10.0 U	10.0 U	ND
2–methylnaphthalene	ug/L	ND	ND	10.0 U	ND
Hexachlorocyclopentadiene	ug/L	ND	ND	10.0 U	ND
2,4,6–Trichlorophenol	ug/L	ND	ND	10.0 U	ND
2,4,5–Trichlorophenol	ug/L	50.0 U	50.0 U	50.0 U	ND
2–Chloronaphthalene	ug/L	10.0 U	10.0 U	10.0 U	ND
2–(ortho) nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	ND
Dimethylphthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
Acenaphthylene	ug/L	10.0 U	10.0 U	10.0 U	ND
3–Nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	ND
Acenaphthene	ug/L	10.0 U	10.0 U	10.0 U	ND
2,4–Dinitrophenol	ug/L	50.0 U	50.0 U	50.0 U	ND
4–Nitrophenol	ug/L	50.0 U	50.0 U	50.0 U	ND
Dibenzofuran	ug/L	10.0 U	10.0 U	10.0 U	ND
2,4–Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	ND
2,6–Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	ND
Diethylphthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
4–Chlorophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	ND
Fluorene	ug/L	10.0 U	10.0 U	10.0 U	ND
4–Nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	ND
4,6–Dinitro–2–methylphenol	ug/L	50.0 U	50.0 U	50.0 U	ND
N–Nnitrosodiphenylamine	ug/L	10.0 U	10.0 U	10.0 U	ND
4–Bromophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	ND
Hexachlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	ND
Pentachlorophenol	ug/L	50.0 U	50.0 U	50.0 U	ND
Phenanthrene	ug/L	10.0 U	10.0 U	10.0 U	ND
Anthracene	ug/L	10.0 U	10.0 U	10.0 U	ND
Di–N–butyl–phthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
Fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	ND
Pyrene	ug/L	10.0 U	10.0 U	10.0 U	ND
Butyl benzyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
3,3–Dichlorobenzidine	ug/L	20.0 U	20.0 U	20.0 U	ND
Benzo(a) anthracene	ug/L	10.0 U	10.0 U	10.0 U	ND
Bis(2–ethylhexyl) phthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
Chrysene	ug/L	10.0 U	10.0 U	10.0 U	ND
Di–N–octyl–phthalate	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzo(b) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzo(k) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzo(a) pyrene	ug/L	10.0 U	10.0 U	10.0 U	ND
Indeno(1,2,3–cd) pyrene	ug/L	10.0 U	10.0 U	10.0 U	ND
Dibenzo(a,h) anthracene	ug/L	10.0 U	10.0 U	10.0 U	ND
Benzo(g,h,i) perylene	ug/L	10.0 U	10.0 U	10.0 U	ND
Cyanide	mg/L	0.002 U	0.002 U	0.002 U	0.002 U
Chloromethane	ug/L	10 U	10 U	10 U	ND
Bromomethane	ug/L	20 U	20 U	20 U	ND
Vinyl chloride	ug/L	15 U	15 U	15 U	ND
Chloroethane	ug/L	15 U	15 U	15 U	ND
Methylene chloride	ug/L	10 U	10 U	29 U	ND
1,1–Dichloroethylene	ug/L	5 U	5 U	5 U	ND
1,1–Dichloroethane	ug/L	5 U	5 U	5 U	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

LABORATORY SAMPLE NUMBER		034	035	022SC	036
FIELD SAMPLE NUMBER		ER–3	Tap–2	D1–1	14–2
QC DESIGNATION		Equip Rinse	Tap Water	D1 Blank	
SOLID WASTE MANAGEMENT UNIT					21
Compound	Unit				
1,2–Dichloroethylene (Total)	ug/L	5 U	5 U	5 U	ND
Chloroform	ug/L	5 U	5 U	5 U	ND
1,2–Dichloroethane	ug/L	5 U	5 U	5 U	ND
1,1,1–Trichloroethane	ug/L	5 U	5 U	5 U	ND
Carbon tetrachloride	ug/L	5 U	5 U	5 U	ND
Bromodichloromethane	ug/L	5 U	5 U	5 U	ND
1,2–dichloropropane	ug/L	5 U	5 U	5 U	ND
Benzene	ug/L	5 U	5 U	5 U	ND
Trichloroethylene	ug/L	5 U	5 U	5 U	ND
Cis–1,3 Dichloropropylene	ug/L	5 U	5 U	5 U	ND
Dibromochloromethane	ug/L	5 U	5 U	5 U	ND
1,1,2–Trichloroethane	ug/L	5 U	5 U	5 U	ND
Bromoform	ug/L	5 U	5 U	5 U	ND
Tetrachloroethylene	ug/L	5 U	5 U	5 U	ND
Toluene	ug/L	5 U	5 U	5 U	ND
1,1,2,2,–Tetrachloroethane	ug/L	5 U	5 U	5 U	ND
Chlorobenzene	ug/L	5 U	5 U	5 U	ND
Ethyl benzene	ug/L	5 U	5 U	5 U	ND
Acetone	ug/L	10 U	10 U	10 U	ND
Carbon disulfide	ug/L	5 U	5 U	5 U	ND
Methyl ethyl ketone	ug/L	10 U	10 U	11 U	ND
2–hexanone	ug/L	10 U	10 U	10 U	ND
4–methyl–2 pentanone (MIBK)	ug/L	10 U	10 U	10 U	ND
Styrene	ug/L	5 U	5 U	5 U	ND
Total xylenes	ug/L	5 U	5 U	5 U	ND
Trans–1,3–Dichloropropylene	ug/L	5 U	5 U	5 U	ND

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

LABORATORY SAMPLE NUMBER		037	032F	033F	038
FIELD SAMPLE NUMBER		ER–4	FB–2	FB–3	FB–4
QC DESIGNATION		Equip Rinse	Field Blank	Field Blank	Field Blank
SOLID WASTE MANAGEMENT UNIT					
Compound	Unit				
Silver by ICAP	ug/L	7.88 U	7.88 U	7.88 U	7.88 U
Aluminum by ICAP	ug/L	56.2	50.7	50.7	50.7 U
Barium by ICAP	ug/L	14.5	3.94 U	3.94 U	3.94 U
Beryllium by ICAP	ug/L	0.995 U	0.995 U	0.995 U	0.995 U
Cadmium by ICAP	ug/L	3.69 U	3.69 U	3.69 U	3.69 U
Cobalt by ICAP	ug/L	5.31 U	5.31 U	5.31 U	5.31 U
Chromium	ug/L	14.2 U	14.2 U	14.2 U	14.2 U
Copper	ug/L	9.61	8.32 U	8.32 U	8.32 U
Iron	ug/L	65.9 U	65.9 U	65.9 U	65.9 U
Manganese	ug/L	1.53 U	1.53 U	1.53 U	1.53 U
Molybdenum by ICAP	ug/L	5.62 U	5.62 U	5.62 U	5.62 U
Nickel	ug/L	11.5 U	11.5 U	11.5 U	26.7
Lead	ug/L	ND	ND	ND	ND
Antimony	ug/L	ND	ND	ND	ND
Titanium by ICAP	ug/L	15.2 U	15.2 U	15.2 U	15.2 U
Vanadium	ug/L	2.51 U	2.51 U	2.51 U	2.51 U
Zinc	ug/L	56.8 U	18.9 U	14.7 U	29.9 U
Calcium	mg/L	17.3	1.10 U	1.10 U	1.10 U
Magnesium	mg/L	12.0	1.03 U	1.03 U	1.03 U
Sodium	mg/L	28.9	1.61 U	1.61 U	1.61
Potassium	mg/L	3.63	1.04 U	1.04 U	1.04 U
Arsenic by AA	ug/L	1.66 U	1.66 U	1.66 U	1.66 U
Lead by AA	ug/L	1.08	0.557 U	0.557 U	0.557 U
Antimony by AA	ug/L	4.37 U	4.37 U	4.37 U	4.37 U
Selenium by AA	ug/L	1.85	1.81 U	1.81 U	1.81 U
Thallium by AA	ug/L	1.44 U	1.44 U	1.44 U	1.44 U
Mercury by Cold Vapor AA	ug/L	0.304	0.100 U	0.100 U	0.100 U
Phenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2–chloroethyl) ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2–Chlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
1,3–Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
1,4–Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Benzyl alcohol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
1,2–Dichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Cresol – ortho(2–methylphenol)	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2–chloroisopropyl) ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Cresol – para(4–methylphenol)	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
N–Nitrosodipropylamine	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Hexachloroethane	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Nitrobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Isophorone	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2–Nitrophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4–Dimethylphenol	ug/L	10.0 U	50.0 U	50.0 U	10.0 U
Benzoic acid	ug/L	50.0 U	10.0 U	10.0 U	50.0 U
Bis(2–chloroethyoxy) methane	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4–Dichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
1,2,4–Trichlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Naphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
4–Chloroaniline	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobutadiene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

LABORATORY SAMPLE NUMBER		037	032F	033F	038
FIELD SAMPLE NUMBER		ER–4	FB–2	FB–3	FB–4
QC DESIGNATION		Equip Rinse	Field Blank	Field Blank	Field Blank
SOLID WASTE MANAGEMENT UNIT					
Compound	Unit				
4–Chloro 3–methyl phenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2–methylnaphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorocyclopentadiene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4,6–Trichlorophenol	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4,5–Trichlorophenol	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
2–Chloronaphthalene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2–(ortho) nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
Dimethylphthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Acenaphthylene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
3–Nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
Acenaphthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4–Dinitrophenol	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
4–Nitrophenol	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
Dibenzofuran	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,4–Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
2,6–Dinitrotoluene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Diethylphthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
4–Chlorophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Fluorene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
4–Nitroaniline	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
4,6–Dinitro–2–methylphenol	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
N–Nnitrosodiphenylamine	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
4–Bromophenyl phenyl ether	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Hexachlorobenzene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Pentachlorophenol	ug/L	50.0 U	50.0 U	50.0 U	50.0 U
Phenanthrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Di–N–butyl–phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Butyl benzyl phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
3,3–Dichlorobenzidine	ug/L	20.0 U	20.0 U	20.0 U	20.0 U
Benzo(a) anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Bis(2–ethylhexyl) phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Chrysene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Di–N–octyl–phthalate	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(b) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(k) fluoranthene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(a) pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Indeno(1,2,3–cd) pyrene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Dibenzo(a,h) anthracene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Benzo(g,h,i) perylene	ug/L	10.0 U	10.0 U	10.0 U	10.0 U
Cyanide	mg/L	0.002 U	0.002 U	0.002	0.002
Chloromethane	ug/L	10 U	10.0 U	10.0 U	10 U
Bromomethane	ug/L	20 U	20.0 U	20.0 U	20 U
Vinyl chloride	ug/L	15 U	15.0 U	15.0 U	15 U
Chloroethane	ug/L	15 U	15.0 U	15.0 U	15 U
Methylene chloride	ug/L	14 U	10.0 U	10.0 U	18 U
1,1–Dichloroethylene	ug/L	5 U	5.0 U	5.0 U	5 U
1,1–Dichloroethane	ug/L	5 U	5.0 U	5.0 U	5 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 4. McDONNELL–DOUGLAS HAZELWOOD FACILITY (SAMPLING VISIT) LABORATORY RESULTS

LABORATORY SAMPLE NUMBER		037	032F	033F	038
FIELD SAMPLE NUMBER		ER–4	FB–2	FB–3	FB–4
QC DESIGNATION		Equip Rinse	Field Blank	Field Blank	Field Blank
SOLID WASTE MANAGEMENT UNIT					
Compound	Unit				
1,2–Dichloroethylene (Total)	ug/L	5 U	5.0 U	5.0 U	5 U
Chloroform	ug/L	5 U	5.0 U	5.0 U	5 U
1,2–Dichloroethane	ug/L	5 U	5.0 U	5.0 U	5 U
1,1,1–Trichloroethane	ug/L	5 U	5 U	5 U	5 U
Carbon tetrachloride	ug/L	5 U	5 U	5 U	5 U
Bromodichloromethane	ug/L	5 U	5 U	5 U	5 U
1,2–dichloropropane	ug/L	5 U	5 U	5 U	5 U
Benzene	ug/L	5 U	5 U	5 U	5 U
Trichloroethylene	ug/L	5 U	5 U	5 U	5 U
Cis–1,3 Dichloropropylene	ug/L	5 U	5 U	5 U	5 U
Dibromochloromethane	ug/L	5 U	5 U	5 U	5 U
1,1,2–Trichloroethane	ug/L	5 U	5 U	5 U	5 U
Bromoform	ug/L	5 U	5 U	5 U	5 U
Tetrachloroethylene	ug/L	5 U	5 U	5 U	5 U
Toluene	ug/L	5 U	5 U	5 U	5 U
1,1,2,2,–Tetrachloroethane	ug/L	5 U	5 U	5 U	5 U
Chlorobenzene	ug/L	5 U	5 U	5 U	5 U
Ethyl benzene	ug/L	5 U	5 U	5 U	5 U
Acetone	ug/L	10 U	10 U	12 U	12 U
Carbon disulfide	ug/L	5 U	5 U	5 U	5 U
Methyl ethyl ketone	ug/L	10 U	10 U	10 U	10 U
2–hexanone	ug/L	10 U	10 U	10 U	10 U
4–methyl–2 pentanone (MIBK)	ug/L	10 U	10 U	10 U	10 U
Styrene	ug/L	5 U	5 U	5 U	5 U
Total xylenes	ug/L	5 U	5 U	5 U	5 U
Trans–1,3–Dichloropropylene	ug/L	5 U	5 U	5 U	5 U

NOTE: Qualifier codes and abbreviation definitions are given at the end of the table.

TABLE 5. SWMU 1 CLOSURE INVESTIGATION SOIL SAMPLING RESULTS

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (mg/Kg)	CLOSURE INVESTIGATION BACKGROUND RESULTS [2] (ppm)	ANALYTICAL RESULTS (ppm) PER SAMPLE				
			H19-W-A	H19-S-A	H19-N-A	H19-E-A	H19-E-B
ARSENIC	1.7 - 6.8	3.94	3.05	**33**	2.22	2.45	2.03
BARIUM	63.9 - 154	115.0	9.33	50.1	33.7	9.35	121
CADMIUM	<1.7	0.67	0.73	**20.2**	0.75	0.74	0.53
CHROMIUM	8.6 - 11.0	26.6	9.66	15.2	**40.4**	6.75	24.2
LEAD	8.0 - 30.9	5.9	<4.0	**2260**	22.0	7.0	<9.7
MERCURY	NA	<0.050	<0.050	0.021	<0.050	<0.050	<0.050
SELENIUM	<0.5	<1.0	<1.5	<1.0	<1.0	<1.3	<1.0
SILVER	<2.4 - 2.6	1.21	**3.2**	1.91	2.51	**3.25**	1.36
pH	NA	8.72	9.46	10.08	9.58	9.81	10.47

NOTES:
Values in bold indicate concentrations above USEPA risk-based action levels; values underlined indicate concentrations above background.
The suffix "A" indicates shallow samples, "B" indicates deeper sample (see text). Letters "N," "S," "E," and "W" indicate compass direction with respect to the tanks for each sample location.

[1] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

[2] Closure Investigation Report. [33]

TABLE 6. SWMU 2 CLOSURE INVESTIGATION SOIL SAMPLING RESULTS

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (mg/Kg)	CLOSURE INVESTIGATION BACKGROUND RESULTS [2] (ppm)	ANALYTICAL RESULTS (ppm) PER SAMPLE				
			H12-E-A	H12-E-B	H12-S-A	H12-S-B	H12-DRAIN
ARSENIC	1.7 - 6.8	3.94	0.57	2.18	**7.76**	2.14	5.84
BARIUM	63.9 - 154	115.0	22.2	**176**	14.9	133	133
CADMIUM	<1.7	0.67	0.38	0.15	**0.96**	0.18	0.29
CHROMIUM	8.6 - 11.0	26.6	**60.6**	15.4	**74.7**	26.3	14.1
LEAD	8.0 - 30.9	5.9	<4.0	<4.0	12.9	<4.0	<4.0
MERCURY	NA	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
SELENIUM	<0.5	<1.0	<1.2	<1.0	<1.2	<1.0	<1.0
SILVER	<2.4 - 2.6	1.21	**3.41**	0.38	**2.73**	0.29	0.34
FLUORIDE	NA	141	**347**	**166**	**423**	**157**	**153**
NITRATE/ NITROGEN	NA	<10.0	<10.0	**29**	<10.0	**38**	<10.0
pH	NA	8.72	9.46	9.05	9.59	7.43	10.16

NOTES:
Values in bold indicate concentrations above USEPA risk-based action levels; values underlined indicate concentrations above background.
The suffix "A" indicates shallow samples, "B" indicates deeper sample (see text). Letters "S"and "E" indicate compass direction with respect to the tanks for each sample location.

[1] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

[2] Closure Investigation Report. [33]

TABLE 7. SWMU 3 SOIL SAMPLING RESULTS (MCDONNELL-DOUGLAS AND MDNR SPLITS)

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (mg/Kg)	CLOSURE INVESTIGATION BACKGROUND RESULTS [2] (μg/g)	ANALYTICAL RESULTS (μg/g) PER SAMPLE SPLIT			
			BLDG 14 15-20 (MCD SPLIT)	BLDG 14 15-20 (MDNR SPLIT)	BLDG 14 30-35 (MCD SPLIT)	BLDG 14 30-35 (MDNR SPLIT)
ARSENIC	1.7 - 6.8	5.51	**8.98**	<6.50	1.07	<6.10
BARIUM	63.9 - 154	94.3	90.3	71.4	85.5	129.0
CADMIUM	<1.7	<0.100	<0.100	**0.300**	<0.100	NA
COPPER	9.2 - 15.6	13.8	10.8	10.4	10.0	7.2
CHROMIUM	8.6 - 11.0	18.8	**18.2**	**18.8**	**21.1**	**22.3**
LEAD	8.0 - 30.9	8.39	6.49	16.0	7.95	18.0
MERCURY	NA	<0.040	**0.095**	**0.142**	<0.040	**0.126**
NICKEL	8.5 - 23.4	15.5	10.6	14.8	13.2	19.9
SELENIUM	<0.5	<1	<1	<5.8	<1	<5.50
SILVER	<2.4 - 2.6	0.450	0.400	NA	0.520	NA
ZINC	29.8 - 52.8	41.2	34.9	NR	37.2	NR
CYANIDE (TOTAL)	N/A	0.16	**5.42**	**0.2**	**0.35**	**0.2**
pH	N/A	6.98	**7.86**	NA	**8.53**	NA

NOTES:
Values in bold indicate concentrations above USEPA risk-based action levels; values underlined indicate concentrations above background.
N/A = not available; NA = not analyzed for; NR = no result.
[1] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]
[2] Closure Investigation Report. [30]

TABLE 8. SWMU 4 CLOSURE INVESTIGATION SOIL SAMPLING RESULTS

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (mg/Kg)	ANALYTICAL RESULTS (mg/Kg) PER SAMPLE			
		B28-N-C	B28-N-D	B28-S-C	B28-S-D
TPH	N/A	164	110	85	73
BENZENE	<0.013	<5	**4**	<5	<5
E-BENZENE	<0.013	<5	**2**	<5	<5
TOLUENE	0.002J - 0.034	<5	**8**	<5	<5
XYLENES (TOTAL)	<0.013	<15	<15	<15	<15

NOTES:
TPH = Total Petroleum Hydrocarbons; E-BENZENE = Ethylbenzene; N/A = not available
[1] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

TABLE 9. SWMU 6 CLOSURE INVESTIGATION SAMPLING RESULTS

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (mg/Kg)	ANALYTICAL RESULTS (mg/Kg)		
		MAC-1 (FLOOR)	MAC-2 (SUB-FLOOR SOIL)	MAC-3 (OUTSIDE SOIL)
REACTIVE CYANIDE	N/A	<10	<10	<10
REACTIVE SULFIDE	N/A	<25	<25	<25

NOTES:
Values in bold indicate concentrations above USEPA risk-based action level.
N/A = not available
[1] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

TABLE 10. SWMU 7 CLOSURE INVESTIGATION WIPE SAMPLING RESULTS

ANALYTE	ANALYTICAL RESULTS (μg/wipe) PER SAMPLE						
	B10-N-W	B10-E-W	B10-E-F	B10-S-W	B10-W-W	B10-W-F	BLANK[1]
POTASSIUM	24.3	**51.2**	**186**	33.3	**54.8**	**119**	41.6
NITRATE	23.7	38.8	**95.6**	31.4	**53.5**	18.9	51.3
NITROCELLULOSE	<100	<100	<100	<100	<100	<100	<100

NOTES:
Values in bold are above the concentration of the analyte in the blank.
[1] Results for blank wipe samples wetted with solvent used in wipe sample collection.

TABLE 11. SWMU 9 SOIL SAMPLING RESULTS

INITIAL SAMPLES FOR CLOSURE

SAMPLE NUMBER	DATE	DEPTH	ANALYTICAL RESULTS												
			F (μg/g)	N (μg/g)	pH	Pb (μg/g)	EP Pb (mg/L)	Ba (μg/g)	EP Ba (mg/L)	Cr (μg/g)	EP Cr (mg/L)	Cr^{+6} (μg/g)	EP Cr^{+6} (mg/L)	Se (μg/g)	EP Se (mg/L)
1-A	6/30/88	0-6"	228	345	5.85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-B	6/30/88	6-12"	79	348	7.04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-C	6/30/88	12-18"	664	238	5.95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-D	6/30/88	18-24"	315	514	5.76	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-E	6/30/88	24-30"	533	722	5.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1-F	6/30/88	30-36"	562	846	5.71	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-A	6/30/88	0-6"	181	81	5.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-B	6/30/88	6-12"	281	70	4.85	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-C	6/30/88	12-18"	195	405	5.52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-D	6/30/88	18-24"	220	431	5.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-E	6/30/88	24-30"	199	328	5.47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-F	6/30/88	30-36"	240	362	5.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-A	6/30/88	0-6"	142	43	8.27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-B	6/30/88	6-12"	248	386	6.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-C	6/30/88	12-18"	35	721	5.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-D	6/30/88	18-24"	129	795	5.82	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-E	6/30/88	24-30"	178	577	5.51	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-F	6/30/88	30-36"	125	700	5.70	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BKGD	6/30/88	0-3'	17	44	8.60	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

TABLE 11. SWMU 9 SOIL SAMPLING RESULTS (continued)

INITIAL SAMPLES FOR CLOSURE

SAMPLE NUMBER	DATE	DEPTH	ANALYTICAL RESULTS												
			F (μg/g)	N (μg/g)	pH	Pb (μg/g)	EP Pb (mg/L)	Ba (μg/g)	EP Ba (mg/L)	Cr (μg/g)	EP Cr (mg/L)	Cr^{+6} (μg/g)	EP Cr^{+6} (mg/L)	Se (μg/g)	EP Se (mg/L)
COMP. WEST PIT	3/10/89	5'	1.20 % w/w	51.4	6.16	42.4	<0.021	297	<0.50	52.3	0.086	<0.10	<0.050	<0.30	<0.014
COMP. EAST PIT	3/10/89	5'	0.41 % w/w	43.3	6.56	27.2	<0.022	200	<0.50	41.6	0.078	<0.10	<0.50	<0.30	<0.014
BKGD [1]	3/10/89	0-18"	232	44.6	7.98	14.9	<0.025	137	<0.50	18.8	0.061	<0.10	<0.050	<0.30	<0.012
BKGD [1]	3/10/89	18-36"	155	38.9	6.94	21.8	<0.021	151	<0.50	21.4	0.061	<0.10	<0.050	<0.30	<0.013
SLAPS Background Soil Results (mg/Kg) [2]		0-2"	NA	NA	NA	8.0 - 30.9	NA	63.9 -154	NA	8.6 - 11	NA	NA	NA	<0.5	NA

NOTES: F=fluoride, N=nitrate as N, Pb=lead, Ba=barium, Cr=Chromium, Cr^{+6}=hexavalent chromium, Se=selenium, NA=not analyzed, BKGD=background sample

[1] Closure Investigation Reports. [7, 8, 9 and 10]

[2] Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

POST REMOVAL SAMPLE

SAMPLE DATE	SAMPLE DEPTH	ANALYTICAL RESULTS (ppm)									
		FLUORIDE	NITRATE	LEAD	BARIUM	CHROMIUM	SELENIUM	ARSENIC	CADMIUM	MERCURY	SILVER
05/08/89	12'	190	32	34	700	33	<20	<20	<5	0.15	<20

TABLE 12. SWMU 11 CLOSURE INVESTIGATION SOIL SAMPLING RESULTS

ANALYTE	SLAPS BACKGROUND SOIL RESULTS [1] (µg/g)	ANALYTICAL RESULTS (µg/g) PER SAMPLE	
		#001 (0-3 in. below pad)	#002 (60-63 in. below pad)
TPH	N/A	45	22
BENZENE	<0.013	<0.625	<0.625
BROMODICHLOROMETHANE	<0.013	<0.625	<0.625
BROMOFORM	<0.013	<0.625	<0.625
BROMOMETHANE	<0.013	<1.25	<1.25
CARBON TETRACHLORIDE	<0.013	<0.625	<0.625
CHLOROBENZENE	<0.013	<0.625	<0.625
CHLOROETHANE	<0.013	<1.25	<1.25
2-CHLOROETHYL VINYL ETHER	26,000	<1.25	<1.25
CHLOROFORM	<0.013	<0.625	<0.625
CHLOROMETHANE	<0.013	<1.25	<1.25
DIBROMOCHLOROMETHANE	<0.013	<0.625	<0.625
1,1-DICHLOROETHANE	<0.013	<0.625	<0.625
1,2-DICHLOROETHANE	<0.013	<0.625	<0.625
1,1-DICHLOROETHYLENE	<0.013	<0.625	<0.625
TRANS-1,2-DICHLOROETHYLENE	<0.013	<0.625	<0.625
1,2-DICHLOROPROPANE	<0.013	<0.625	<0.625
CIS-1,3-DICHLOROPROPYLENE	<0.013	<0.625	<0.625
TRANS-1,3-DICHLOROPROPYLENE	<0.013	<0.625	<0.625
ETHYLBENZENE	<0.013	<0.625	<0.625
METHYLENE CHLORIDE	<0.013	<0.625	<0.625
1,1,2,2-TETRACHLOROETHANE	<0.013	<0.625	<0.625
TETRACHLOROETHYLENE	0.002J - 0.034	<0.625	<0.625
TOLUENE	<0.013	<0.625	1.7
1,1,1-TRICHLOROETHANE	<0.013	<0.625	<0.625
1,1,2-TRICHLOROETHANE	<0.013	<0.625	<0.625
TRICHLOROETHYLENE	<0.013	<0.625	<0.625
VINYL CHLORIDE	<0.013	<1.25	<1.25
XYLENES (TOTAL)	<0.013	<1.25	<1.25

TABLE 12. SWMU 11 CLOSURE INVESTIGATION SOIL SAMPLING RESULTS (Continued)

ANALYTE	EP TOXICITY REGULATORY LIMIT (mg/L)	ANALYTICAL RESULTS (mg/L) PER SAMPLE	
		#001 (0-3 in. below pad)	#002 (60-63 in. below pad)
EP ARSENIC	5.0	<0.5	<0.5
EP BARIUM	100.0	0.68	<0.5
EP CADMIUM	1.0	<0.1	<0.1
EP CHROMIUM	5.0	<0.5	<0.5
EO LEAD	5.0	<0.5	<0.5
EP MERCURY	0.2	<0.2	<0.02
EP SELENIUM	1.0	<0.2	<0.2
EP SILVER	5.0	<0.2	<0.5

TABLE 13. RAMP AREA (SWMUS 13-15) GROUNDWATER MONITORING DATA

TPH ANALYTICAL RESULTS (ppm)
(NOTE: NO USEPA RISK-BASED ACTION LEVEL FOR TPH)

WELL NO.	SAMPLING DATE: 5/90	11/90	4/91	12/91	5/92	10/92	6/93	12/93	4/94
MCD SITE #3, SWMU 13									
MW-A1	285	1789	5090	Late	945	233	N/A	<10	
MW-A2	4370	1212	6620	572	4.3	389	20	N/A	<10
MW-A3	113	49	370	20.5	<2	367	<10	<10	<10
MW-A17	575	198	6	1.6	<2	436	<10	<10	<10
MW-A18	1880	576	145	11.8	<2	217	N/A	<10	<10
MW-A21	1765	1109	19340	124		462	N/A	N/A	
MCD SITE #4, SWMU 14									
MW-A5	27460	20130	5020	135.5	843	36010	540	N/A	10
MW-A14	68960	48380	30360	Well	Well	Well	N/A	N/A	
MW-A15	17480	10330	7340	67.5	22.9	6509	136	10	<10
MW-A22	7423	4670	4770	677	17.9	3303	76	<10	<10
MW-A23	55060	41232	32400	2113	512.6	14000	360	31	70
MW-A24	8465	4386	2781	92	104.5	1715	64	12	<10
MW-A25	120	68	24	<1.0	<2	176	<10	<10	<10
MW-A26	254	129	40	5.5	<2	320	<10	<10	<10
MW-A27	154	139	125	1.5	<2	64	58	<10	<10
MW-A28	14000	9856	6910	102	277.4	7342	1490	<10	42
MW-A29	49	27	9	1.8	<2	268	<10	<10	<10
MCD SITE #1, SWMU 15									
MW-A6	770	51	27	2.1	<2	22	<10	N/A	
MW-A7	60	49	10	1.1	<2	<10	<10	<10	<10
MW-A8	37	36	35	<1.0	<2	<8	<10	<10	<10
MW-A16	32	19	14	<1.0	<2	<10	<10	<1.25	<10
MW-A19	44440	1179	734	2815	310	3606	990	<1.25	<10

TABLE 13. RAMP AREA (SWMUS 12-15) GROUNDWATER MONITORING (Continued)

WELL NO.	SAMPLING DATE: 5/90	11/90	4/91	12/91	5/92	10/92	6/93	12/93	4/94
MCD SITE #2, NO ASSOCIATED SWMU									
MW-A10	15550	13759	28680	99.7	10.3	402	657	<10	32
MW-A11	120	98	139	Late	3.9	324	N/A	<10	11
MW-A12	5110	759	19620	145	187	1085	<10	<10	<10
MW-A13	120	79	788	51.7	3	283	250	<10	21
MW-A20	210	132	21	1.1	<2	71	18	<10	<10

TOTAL BTEX ANALYTICAL RESULTS (ppb)
(NOTE: NO USEPA RISK-BASED ACTION LEVEL FOR TOTAL BTEX)

WELL NO.	SAMPLING DATE: 5/90	11/90	4/91	12/91	5/92	10/92	6/93	12/93	4/94
MCD SITE #3, SWMU 13									
MW-A1	285	205	<30	*	885	<30	<30	<30	<30
MW-A2	933	760	<30	*	4	3			<30
MW-A3	<30	not sampled	<30	*	3	<30	<30	313	<30
MW-A17	<30	not sampled	<30	<20	ND	<30	<30	<30	<30
MW-A18	149	not sampled	110	<20	ND	<30	<30	<30	<30
MW-A21	59	not sampled	<30	<20	ND	34			
MCD SITE #4, SWMU 14									
MW-A5	58640	8940	3684	867.5	29000	68030	<30		
MW-A14	124500	12700	300	well damaged	*	*			
MW-A15	45600	12500	215	375.5	2150	8173	6140	538	1547
MW-A22	8315	1250	25	580	29	1419	<30	102	<30
MW-A23	27600	21600	225	1570.5	15900	14720	15500	44	4022
MW-A24	12705	9280	<30	510.3	810	134	256	<30	<30

TABLE 13. RAMP AREA (SWMUS 12-15) GROUNDWATER MONITORING (Continued)

WELL NO.	SAMPLING DATE: 5/90	11/90	4/91	12/91	5/92	10/92	6/93	12/93	4/94
MW-A25	<30	<30	<30	<20	ND	<19	<30	<30	<30
MW-A26	<30	<30	<30	<20	ND	<5	<30	<30	<30
MW-A27	<30	<30	<30	<20	ND	<30	<30	<30	<30
MW-A28	29030	21100	2725	255	10400	7279	7420	837	2380
MW-A29	<30	<30	<30	<20	ND	<30	<93	<33	<30
MCD SITE #1, SWMU 15									
MW-A6	<30	<30	<30	<20	ND	<30	<30		
MW-A7	<30	<30	<30	<20	3	<30	<30	<30	<30
MW-A8	<30	<30	<30	<20	ND	<30	<30	<30	<30
MW-A16	<30	<30	<30	<20	ND	<8	<30		<30
MW-A19	145	1110	110	1470	574	596	75		53
MCD SITE #2, NO ASSOCIATED SWMU									
MW-A10	2275	1770	<30	610	25	400	<87	<30	<150
MW-A11	7540	4610	<30	Late	2500	2021		46	<150
MW-A12	300	115	<30	92	110	450	<30	<30	<30
MW-A13	26100	12320	<30	<30	41	101	5760	505	3810
MW-A20	<30	<30	<30	<20	ND	<30	<30	<30	<30

TABLE 14. SWMU 14 TANK EXCAVATION SOIL SAMPLING RESULTS

SAMPLE	BENZENE (ppm)	TOLUENE (ppm)	E. BENZENE (ppm)	XYLENES (ppm)	TPH (ppm)
SLAPS BACKGROUND SOIL RESULTS [1]	< 13.0 mg/Kg	2.0 J - 34 mg/Kg	< 13.0 mg/Kg	< 13.0 mg/Kg	NA
Fuel Pit 3 - middle	**139**	**20**	< 5	< 15	117
Fuel Pit 3 - east end	**150**	**75**	< 5	< 15	49
Fuel Pit 3 - downgradient	**128**	**26**	< 5	< 15	61
Fuel Pit 4 - composite	**53.2**	**89.6**	**145**	**2,400**	6
Fuel Pit 4 - downgradient	**258**	**3,980**	**663**	**2,970**	13

Notes:
TPH = total petroleum hydrocarbons; E. BENZENE = ethylbenzene; NA = not available
1 Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]

TABLE 15. SWMU 15 TANK EXCAVATION SOIL SAMPLING RESULTS

SAMPLE	BENZENE (μg/Kg)	TOLUENE (μg/Kg)	E. BENZENE (μg/Kg)	XYLENES (μg/Kg)	TPH (mg/Kg)
SLAPS BACKGROUND SOIL RESULTS [1]	< 0.013 μg/Kg	2.0 J - 0.034 μg/Kg	< 0.013 μg/Kg	< 0.013 μg/Kg	NA
Under Tank	< 5	< 5	**472**	**3,080**	14,890
Sidewall	< 5	< 5	**57**	**331**	640
Water	< 10[2]	< 10[2]	**44**[2]	**280**[2]	21,570[2]

Notes:
TPH = total petroleum hydrocarbons; E. BENZENE = ethylbenzene; NA = not available
1 Concentration range for four SLAPS background soil samples, collected from the 0.0 to 2.0 foot interval. [48]
2 Water sample concentrations reported by the laboratory in mg/Kg or μg/Kg.

APPENDIX A

VISUAL SITE INSPECTION PHOTO LOG
MCDONNELL-DOUGLAS HAZELWOOD FACILITY

ROLL 1 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 0950
Subject: Gate 48 entrance to McDonnell Douglas Tract I.

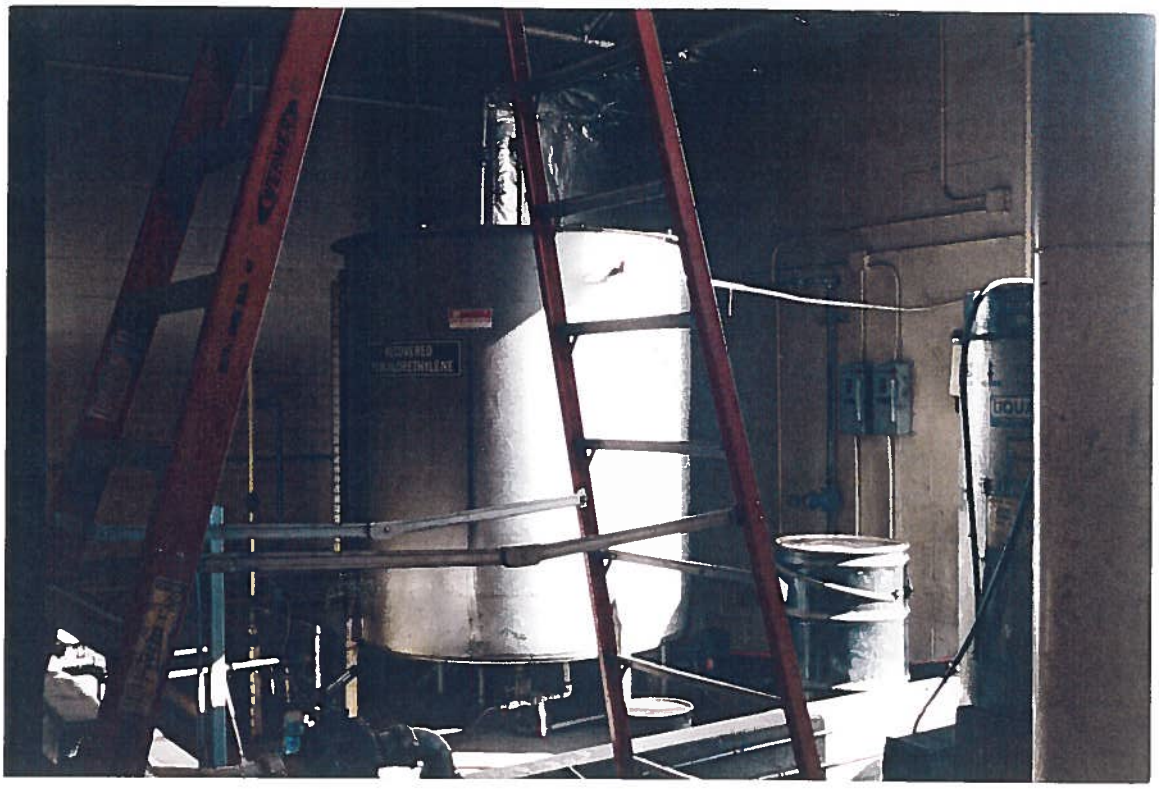
ROLL 1 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1005
Subject: SWMU #17 - 55-gallon recovered perchloroethylene tank located in Building 51.

ROLL 1 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1007
Subject: SWMU #17 - Small crack in concrete floor underneath steel containment for 55-gallon recovered perchloroethylene tan located in Building 51.

ROLL 1 PHOTO 4



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1007
Subject: SWMU #17 - 750-gallon recovered perchloroethylene storage tank located in Building 51.

ROLL 1 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1008
Subject: SWMU #17 - 350-gallon recovered perchloroethylene storage tanks located in Building 51.

ROLL 1 PHOTO 6

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1010
Subject: SWMU #17 - Concrete floor underneath the 350-gallon recovered perchloroethylene tanks (Building 51).

ROLL 1 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1011
Subject: SWMU #25 - Less-than-90-day storage area located at southeast corner of Building 51.

ROLL 1 PHOTO 8

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1012
Subject: SWMU #25 - Possible spill area on the west side of the less-than-90-day storage area outside of Building 51.

PHOTO 9

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1012
Subject: SWMU #25 - Area between less-than-90 day storage area and Buildings 51 outside wall.

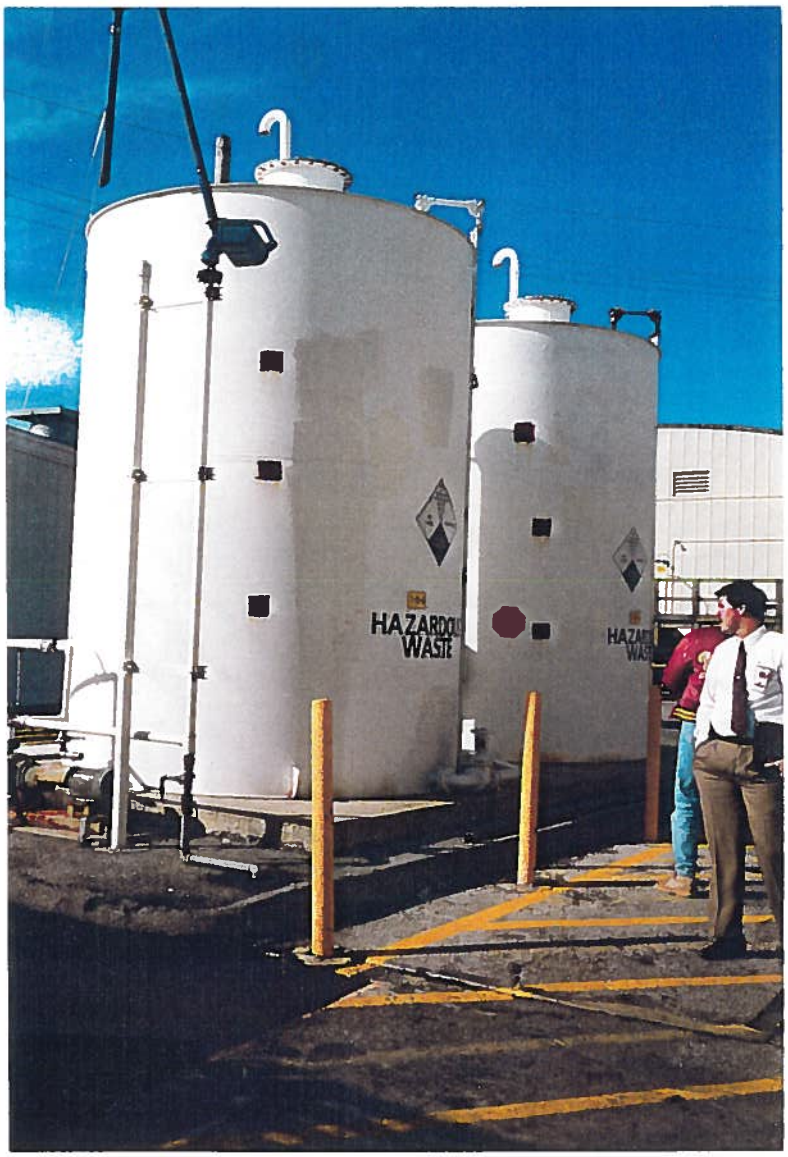
ROLL 1 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1014
Subject: SWMU #17 - Damaged asphalt in front of the Building 51 350-gallon recovered perchloroethylene tank transport area.

ROLL 1 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1024
Subject: SWMU #17 - Asphalt containment area for 350-gallon recovered perchloroethylene tanks. The tanks are stored in th area (approximately 60' southwest of Building 51) while awaiting transport off site.

ROLL 1 PHOTO 12



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1026
Subject: SWMU #1 - Waste sodium hydroxide storage Tanks H19 foreground and H20 background.

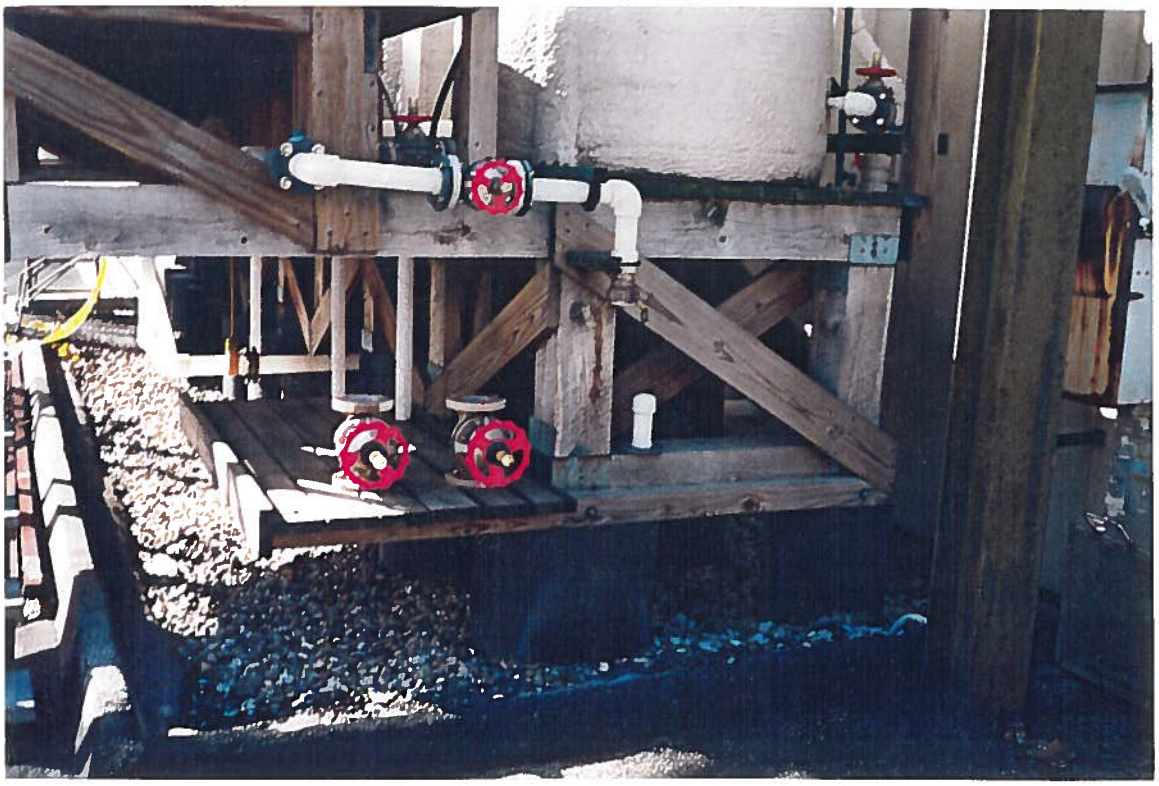
ROLL 1 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1026
Subject: SWMU #1 - Crack in the concrete pad on which tank H19 sits.

ROLL 2 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1034
Subject: Waste nitric and hydrofluoric acid solution storage tanks H12, H13 and H14.

ROLL 2 PHOTO 2

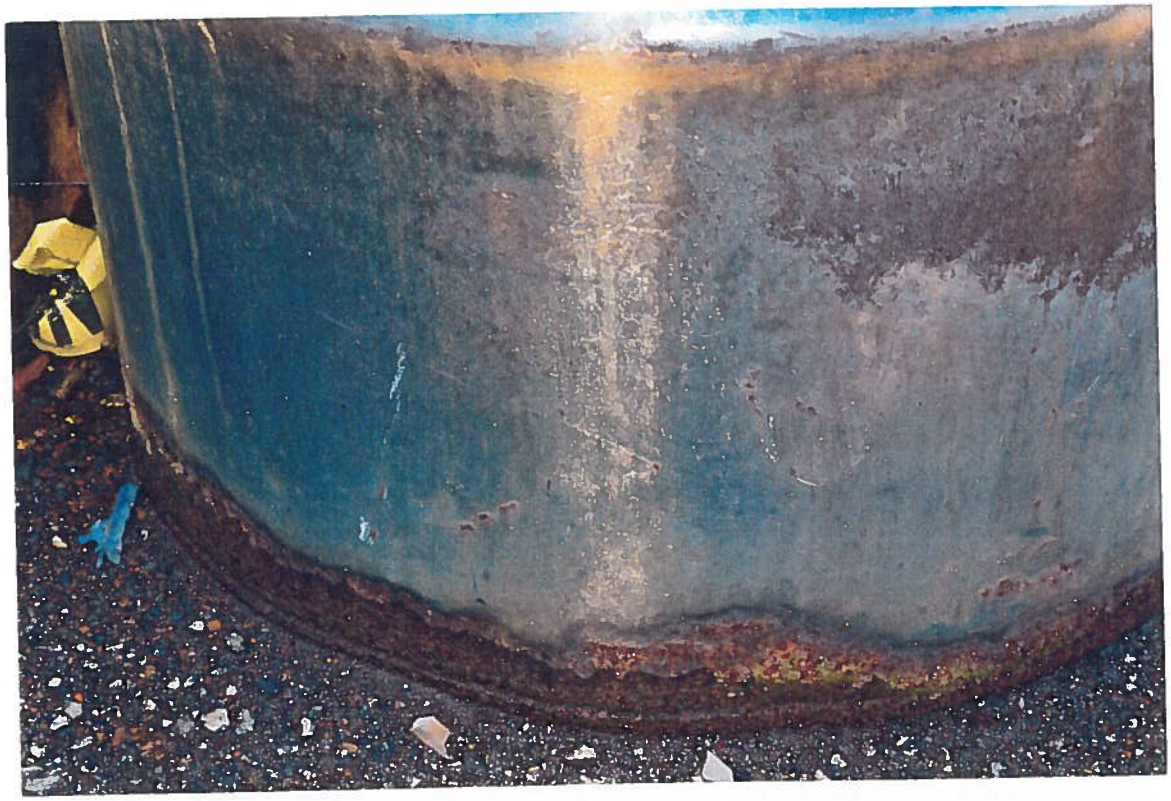


Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1037
Subject: Waste nitric and hydrofluoric acid solution storage tank H12, and spill containment area.

ROLL 2 PHOTO 5

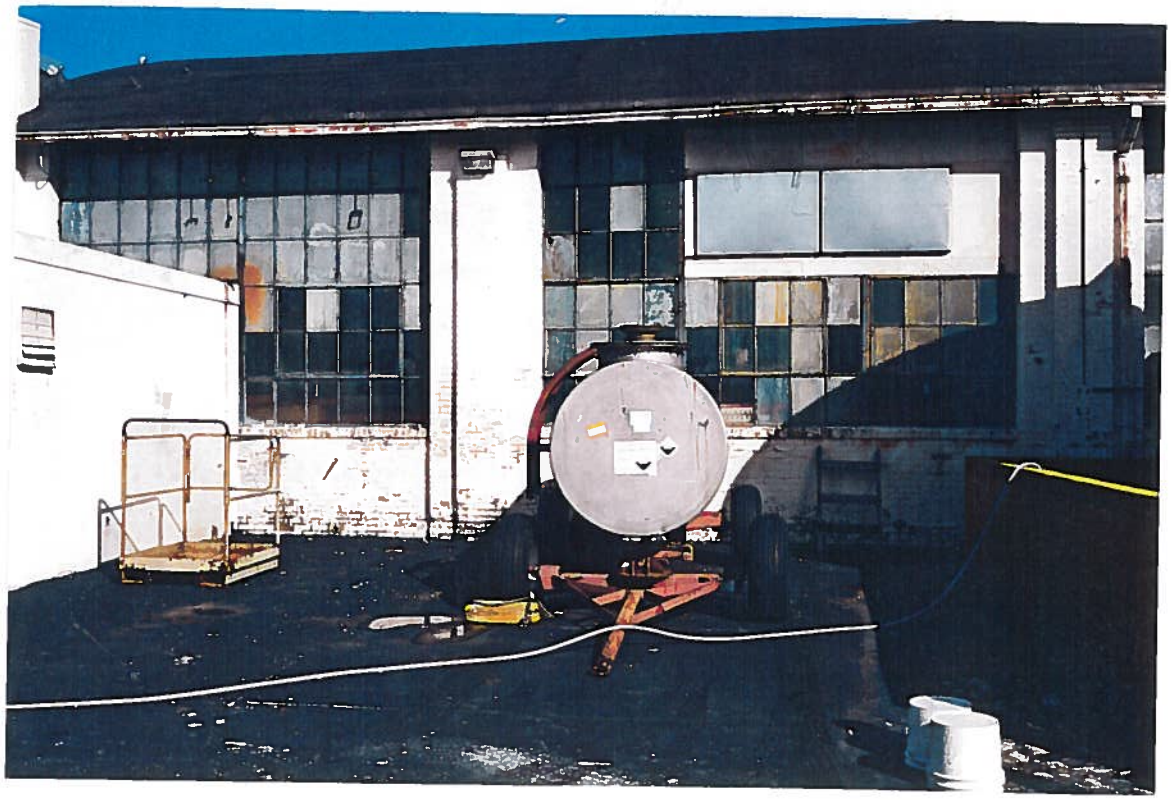
Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1053
Subject: SWMU #27 - Holes in 55-gallon drum containing waste nitric and hydrofluoric acid scrubbers.

ROLL 2 PHOTO 6



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1054
Subject: SWMU #27 - Rusted bottom of 55-gallon drum containing waste nitric and hydrofluoric acid scrubbers.

ROLL 2 PHOTO 3



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1041
Subject: Former location of waste nitric and hydrofluoric acid solution Tanks H1 through H6 (below asphalt surface).

ROLL 2 PHOTO 4

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1053
Subject: 55-gallon drums containing nitric and hydrofluoric acid scrubbers.

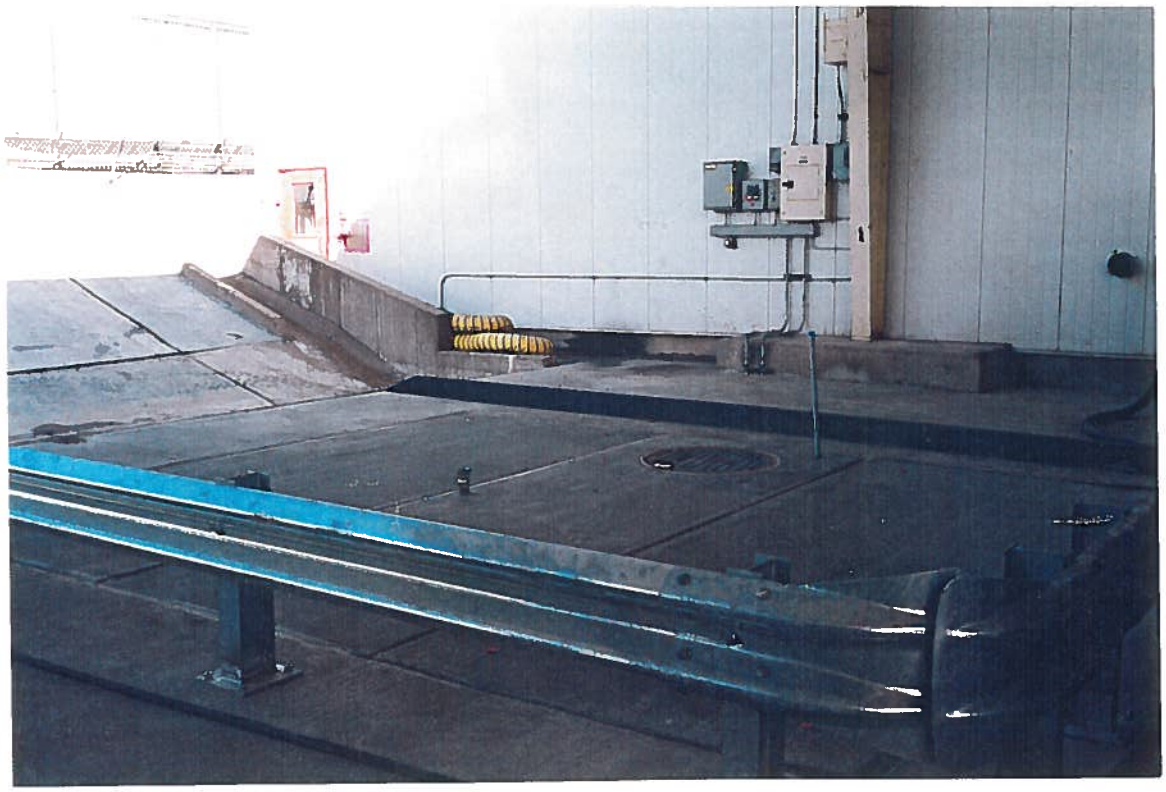
ROLL 2 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1056
Subject: SWMU #27 - Stain on asphalt surface underneath 55-gallon drum. It is unknown if stain is related to scrubbers stored this area.

ROLL 2 PHOTO 8

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1114
Subject: Former location of Ramp Station 1 and 2 waste tank (underneath new concrete surface).

ROLL 2 PHOTO 9



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1115
Subject: New oil-water separator (underneath concrete) on south side of Ramp Station 1 and 2 buildings.

ROLL 2 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1115
Subject: Location of waste jet aircraft fuel storage pit #4.

ROLL 2 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1116
Subject: Location of waste jet aircraft fuel storage pit #3.

ROLL 2 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1118
Subject: SWMU #12 - Former location of Hush House waste tank (foreground underneath concrete).

ROLL 2 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1120
Subject: SWMU #12 - Waste jet aircraft fuel and hydraulic oil dump station at the Hush House. Drain is in lower left corner photograph.

ROLL 3 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1125
Subject: SWMU #13 - Location of oil-water separator (underneath concrete) that is now in place at the Hush House.

ROLL 3 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1128
Subject: SWMU #23 - Less-than-90-day storage area located on the east side of the Hush House.

ROLL 3 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1129
Subject: SWMU #19 - Hydraulic waste oil satellite accumulation drum near less-than-90-day storage east of Hush House.

ROLL 3 PHOTO 4

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1130
Subject: SWMU #26 - Currently this is a Product storage area. Former less-than-90-day storage area west side of Building 40.

ROLL 3 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1135
Subject: SWMU #26 - Location of former Building 40 less-than-90-day storage. Building 40 in background.

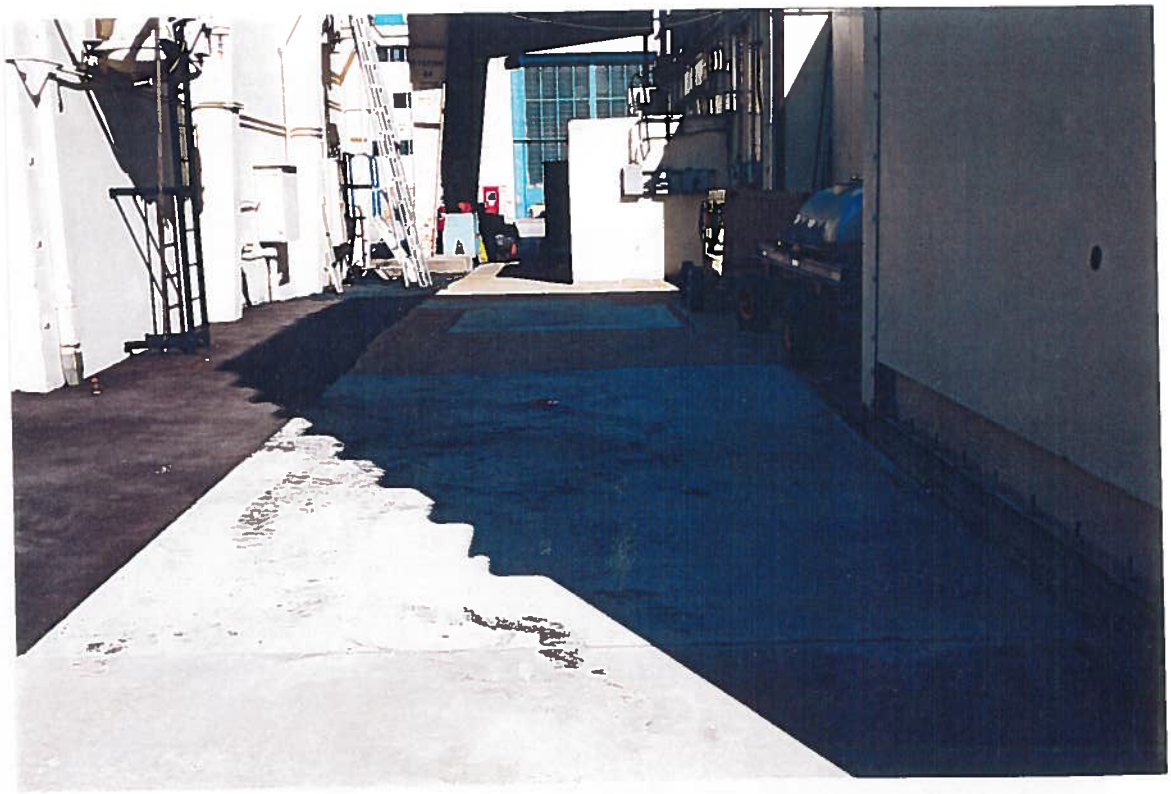
ROLL 3 PHOTO 6

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1135
Subject: SWMU #26 - Crack in concrete surfacing at the location of former Building 40 less-than-90-day storage area.

ROLL 3 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1136
Subject: SWMU #26 - Concrete paving at former Building 40 less-than-90-day storage area.

ROLL 3 PHOTO 8



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1138
Subject: SWMU #12 - Former location of the F18 silencer waste tank (underneath new concrete surfacing).

ROLL 3 PHOTO 9

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1144
Subject: SWMU #19 - Waste hydraulic oil satellite accumulation drum located inside Building 40.

ROLL 3 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1145
Subject: SWMU #19 - Safety-Kleen parts washer located inside Building 40.

ROLL 3 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1315
Subject: SWMU #19 - Liquid paint waste satellite accumulation drum located in Building 2 area 22F.

ROLL 3 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1316
Subject: SWMU #19 - Liquid paint waste satellite accumulation drum in Building 2 area 22F.

ROLL 3 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1318
Subject: SWMU #20 - Dumpster used for satellite accumulation of solid wastes. Located in Building 2, floor 2.

ROLL 4 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1324
Subject: SWMU #20 - Dumpsters in Building 2, 1st floor. Red dumpster (far left) used for satellite accumulation of solid pai wastes.

ROLL 4 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1326
Subject: SWMU #19 - Waste oil satellite accumulation area, Building 2, 1st floor.

ROLL 4 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1332
Subject: SWMU #20 - Dumpster used for satellite accumulation of solid wastes. Located in Building 2, floor 2.

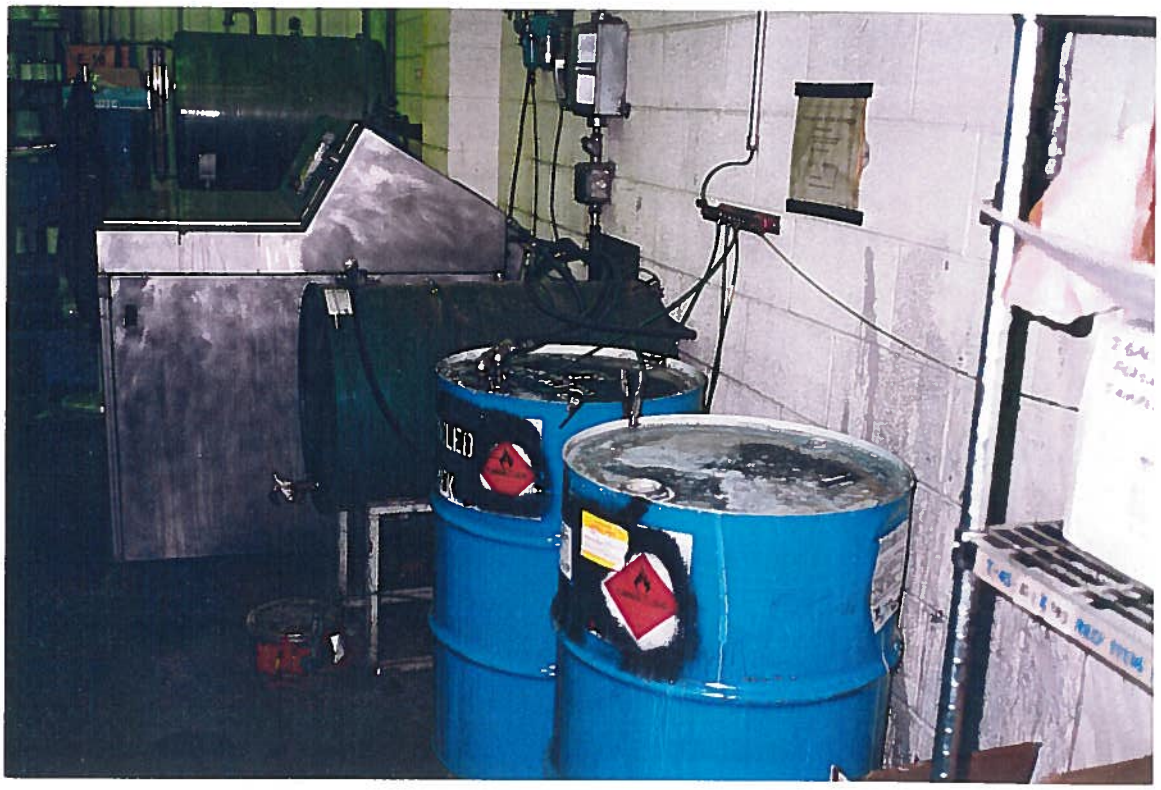
ROLL 4 PHOTO 4

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1336
Subject: SWMU #24 - Less-than-90-day storage area located on the east side of Building 2.

ROLL 4 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1337
Subject: SWMU #24 - Former location of Building 2 less-than-90-day storage area approximately 50' north of Roll 4 Photo location.

ROLL 5 PHOTO 1



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1431
Subject: SWMU #16 - MEK and MIBK recycling unit located in Building 48 mix room.

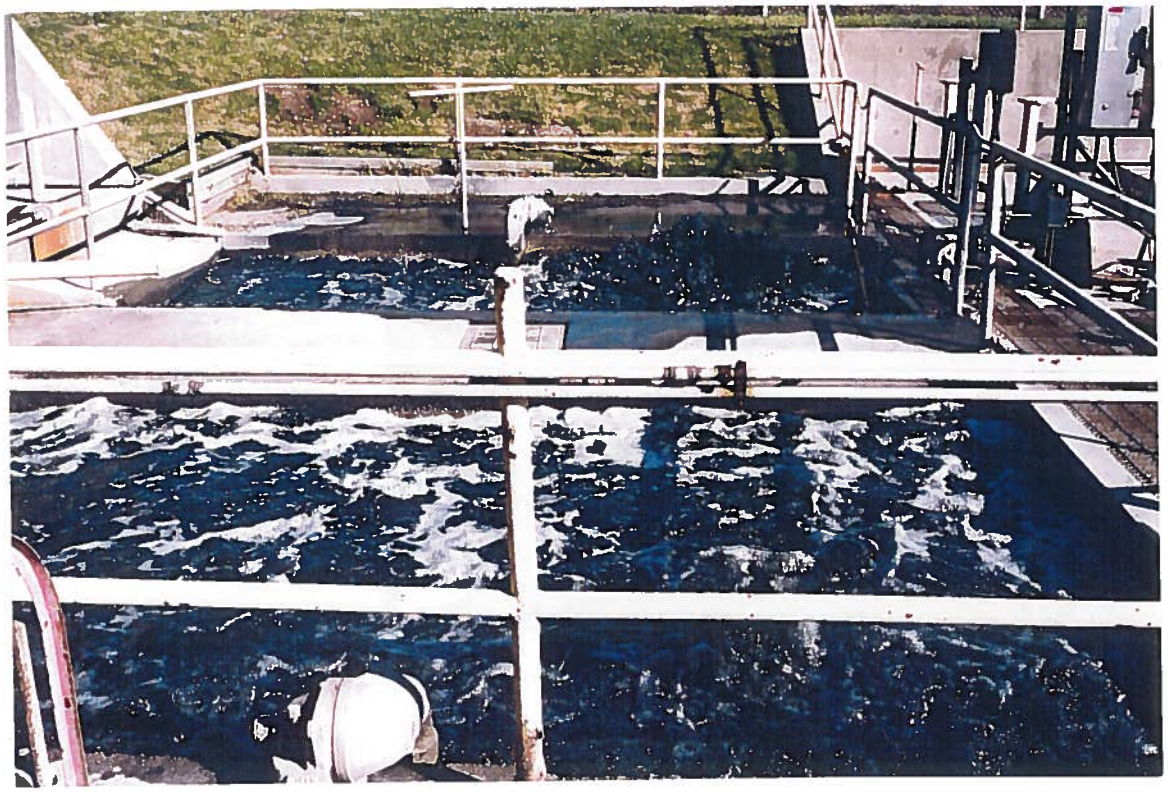
ROLL 5 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1433
Subject: SWMU #19 - MEK satellite accumulation area in Building 48 mix room.

ROLL 5 PHOTO 3

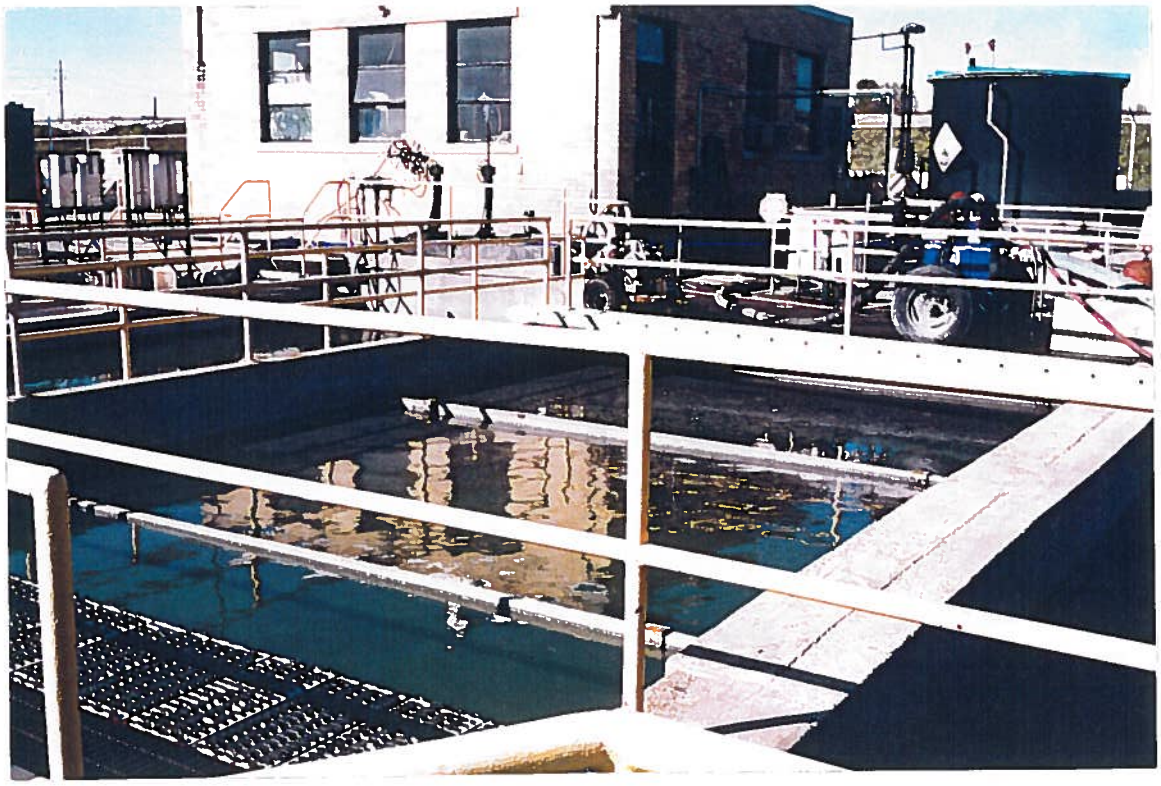
Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1434
Subject: SWMU #19 - Liquid paint waste satellite accumulation area in Building 48 mix room.

ROLL 5 PHOTO 4



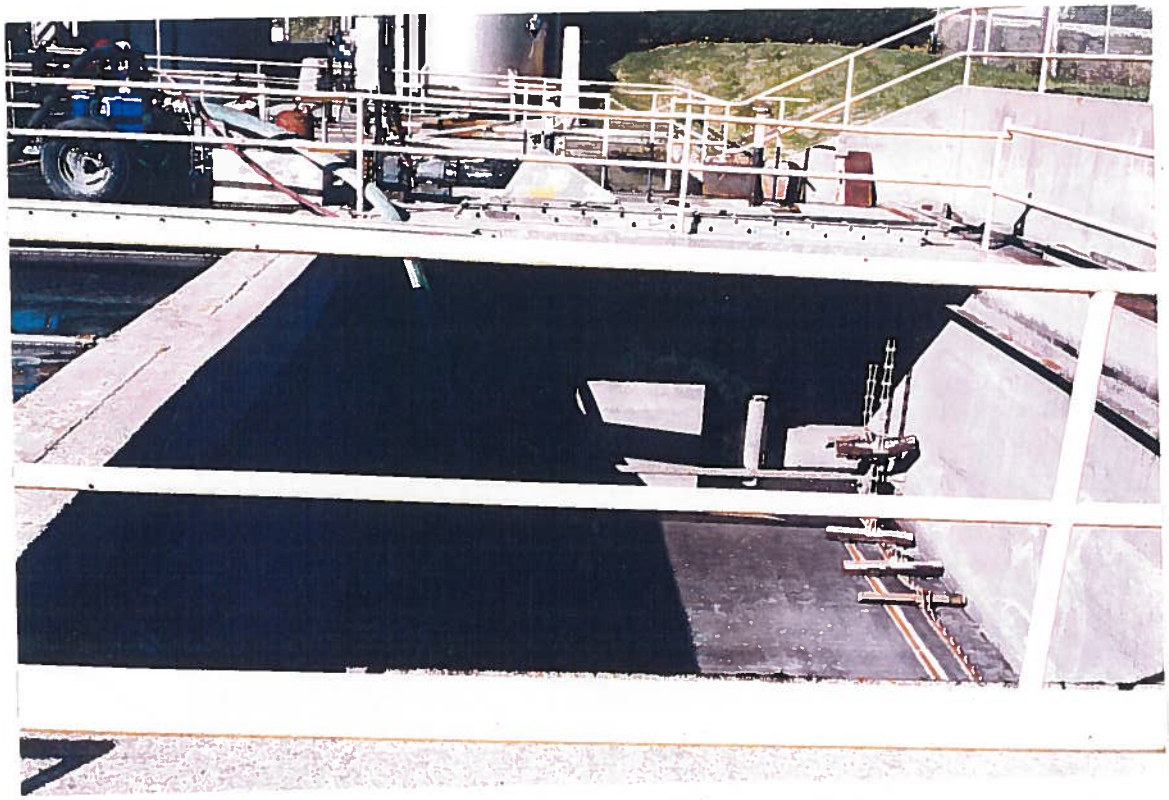
Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1455
Subject: SWMU #21 - Wastewater treatment plant sludge setting tanks.

ROLL 5 PHOTO 5



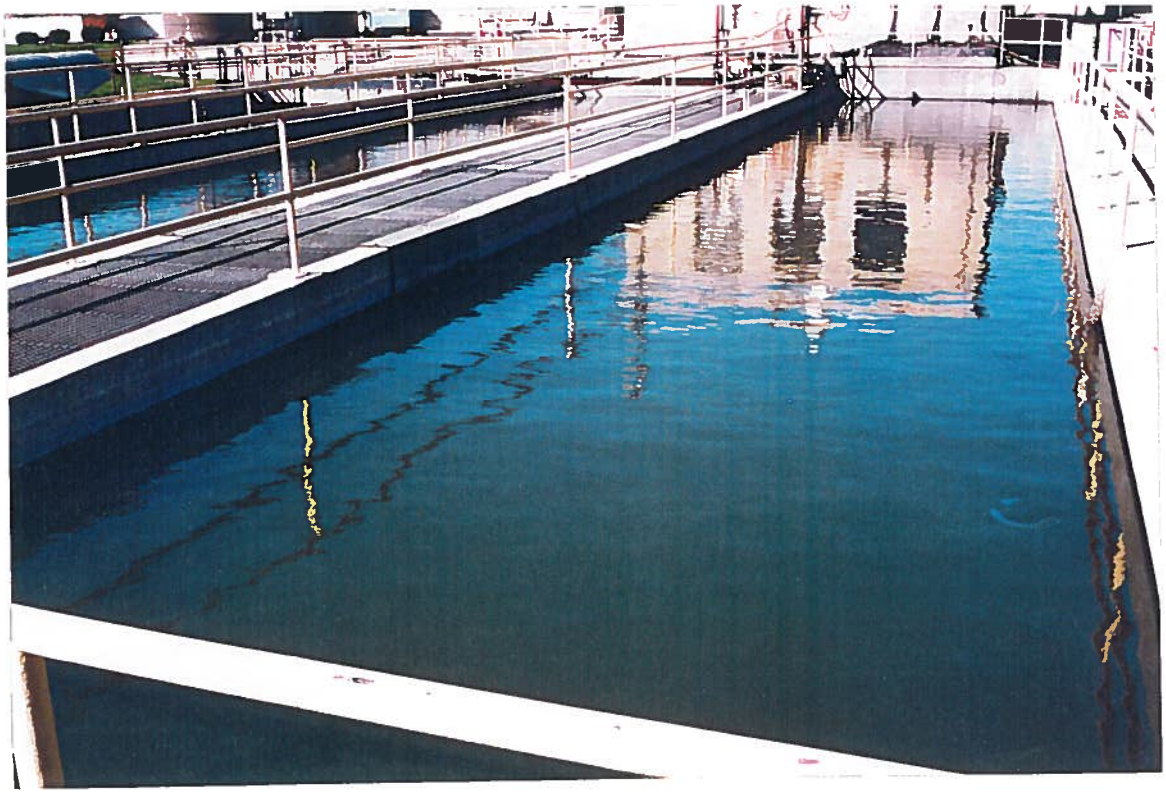
Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1455
Subject: SWMU #21 - Wastewater treatment plant sludge setting tanks.

ROLL 5 PHOTO 6



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1456
Subject: SWMU #21 - Wastewater treatment plant sludge setting tank under repair.

ROLL 5 PHOTO 7



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1456
Subject: SWMU #21 - Wastewater treatment plant sludge setting tanks.

ROLL 5 PHOTO 8

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1458
Subject: SWMU #21 - Tank E1 at MCD wastewater treatment plant.

ROLL 5 PHOTO 9

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1459
Subject: SWMU #21 - Wastewater treatment plant tank undergoing repair. Tank E2 in foreground.

ROLL 5 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1503
Subject: SWMU #21 - Wastewater treatment tank plant undergoing repair. Tank E3 in foreground.

ROLL 5 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1504
Subject: SWMU #3 - Sludge-holding tank at wastewater treatment plant.

ROLL 5 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1511
Subject: SWMU #3 - Sludge holding tank at wastewater treatment plant.

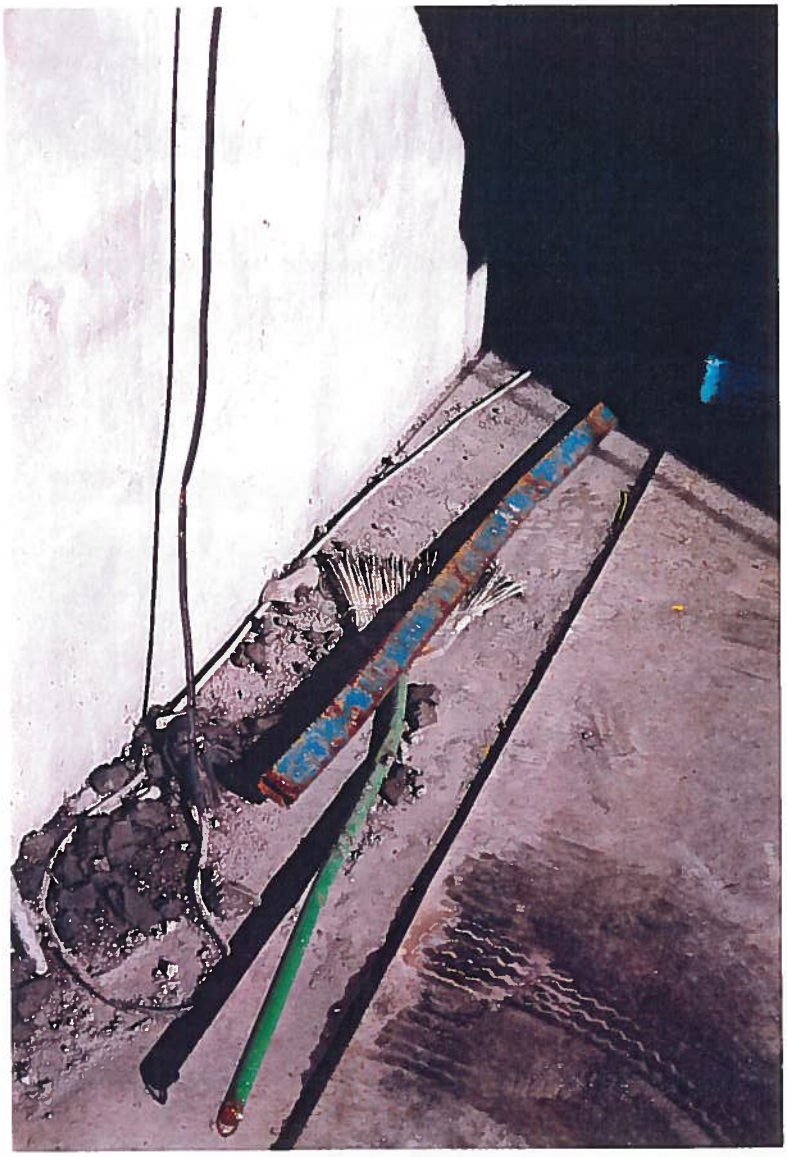
ROLL 5 PHOTO 14

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1516
Subject: SWMU #3 - Residue along the inside wall of sludge collection area.

ROLL 5 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1516
WMU #3 - Sludge collection area located underneath the sludge centrifuge.

ROLL 6 PHOTO 1



Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1517
Subject: SWMU #3 - Residue along the inside wall of sludge collection area.

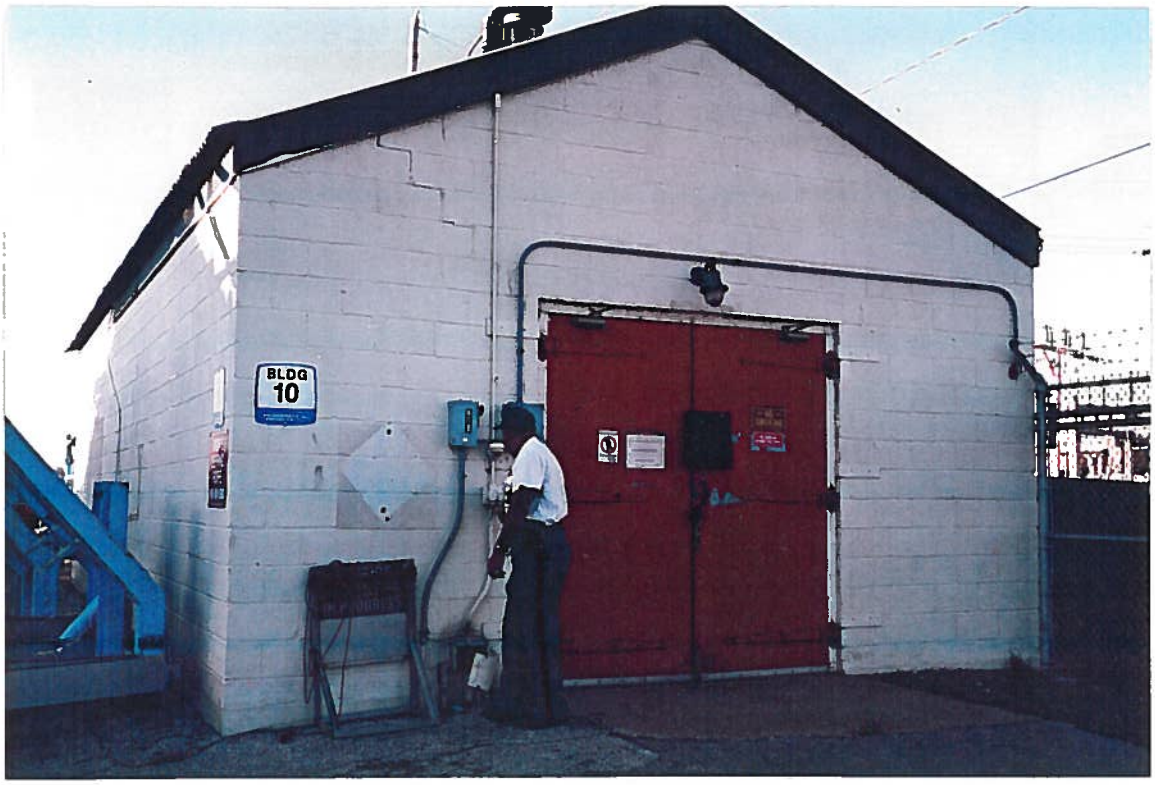
ROLL 6 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0822
Subject: SWMU #7 - Blast wall in Building 10, former explosives storage area. Explosives were stored on the other side of wa

ROLL 6 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0823
Subject: SWMU #7 - Explosives were stored along this wall (now covered with shelves) in Building 10.

ROLL 6 PHOTO 4

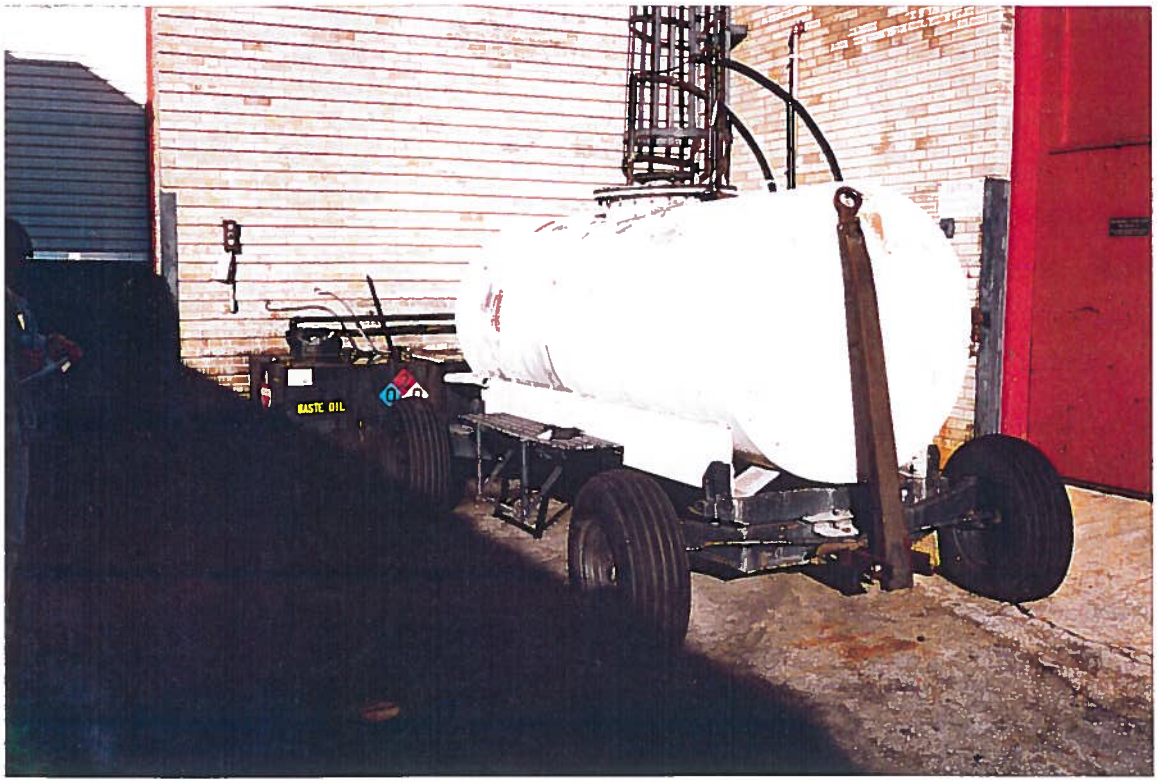


Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0824
Subject: SWMU #7 - Building 10, location of former explosives storage area.

ROLL 6 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0826
Subject: SWMU #11 - Former location (underneath concrete inside of Building 6) of Building 6 waste oil storage tank.

ROLL 6 PHOTO 6



McDonnell Douglas Tract I **Date:** October 22, 1993
Hazelwood, Missouri **Time:** 0851
SWMU #10 - Waste oil storage tank located on the east side of Building 5 (black tank in background).

ROLL 6 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0852
Subject: SWMU #10 - Residue around bottom of the waste oil storage tank located at the east side of Building 5.

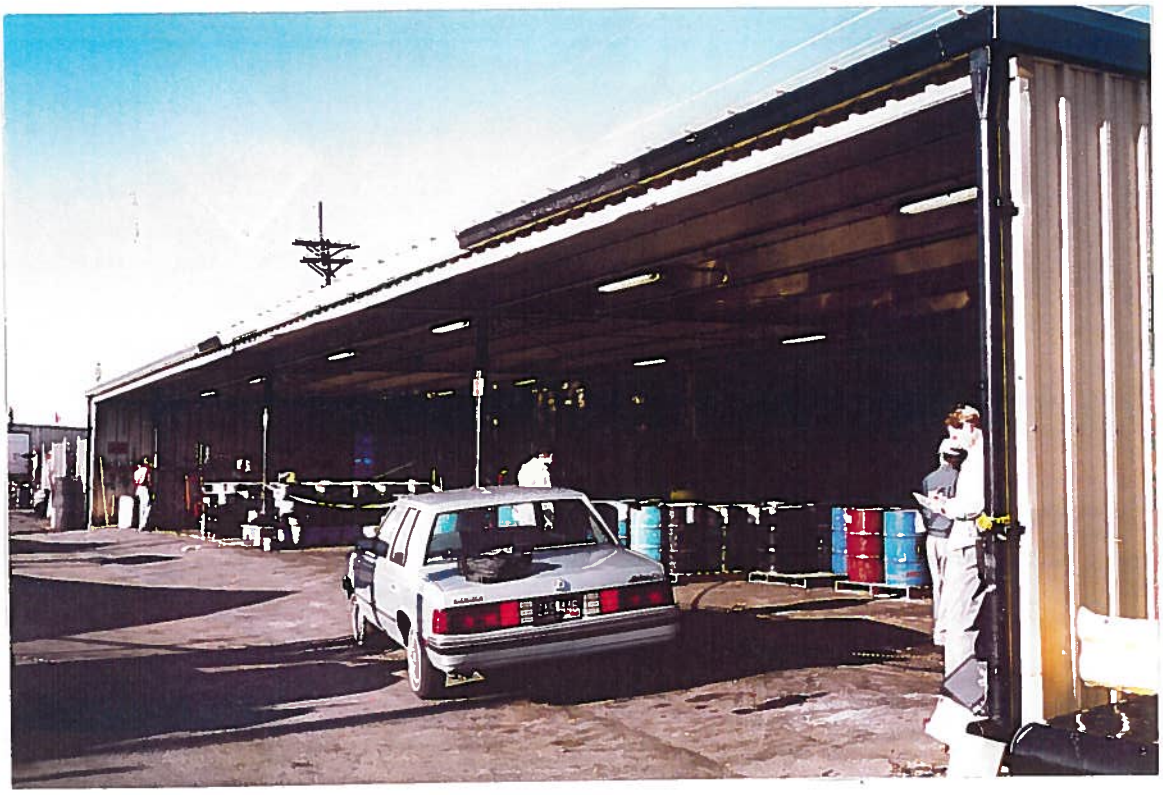
ROLL 6 PHOTO 8

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0853
Subject: SWMU #10 - Conditions around the bottom of the waste oil storage tank located at the east side of Building 5.

ROLL 6 PHOTO 9

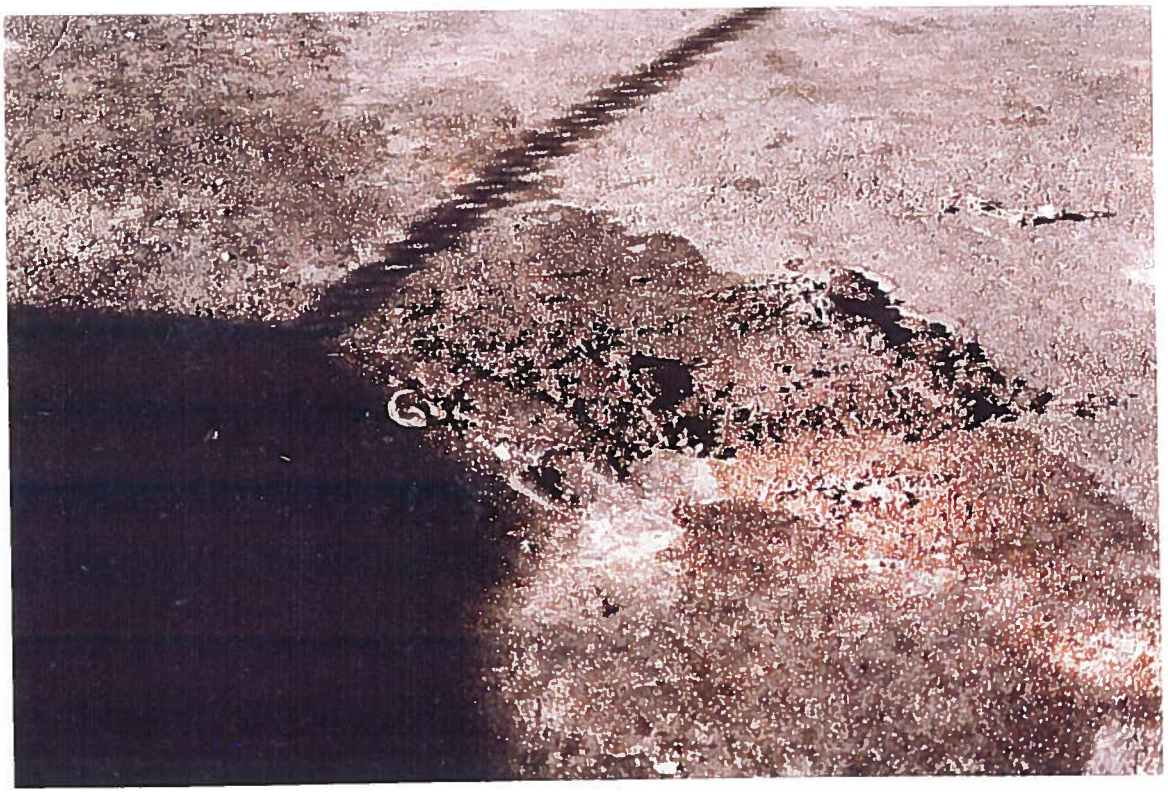
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0857
Subject: SWMU #28 - Transformers located at the west side of Building 6. Note possible leak around bottom of transformer.

ROLL 6 PHOTO 10



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0907
Subject: SWMU #8 - Scrap Dock Shelter west of Building 27.

ROLL 6 PHOTO 11

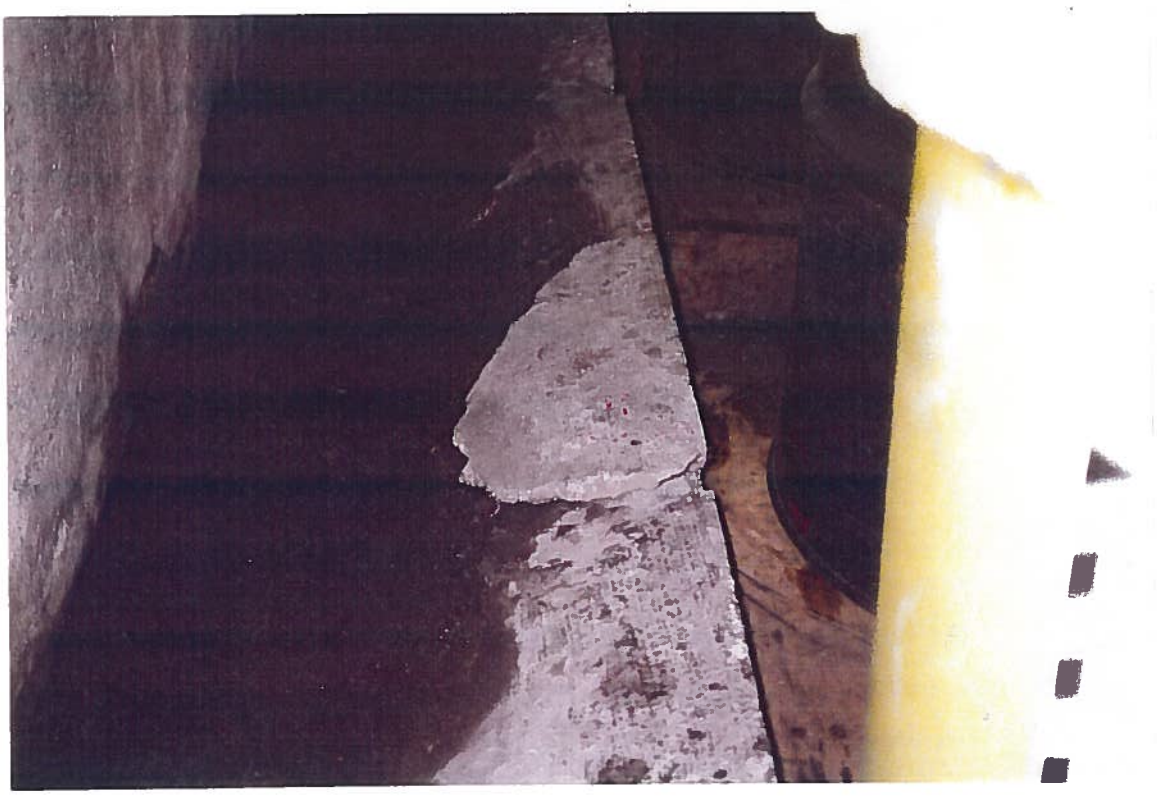


Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0910
Subject: SWMU #8 - Damaged asphalt floor inside Scrap Dock Shelter.

ROLL 6 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0911
Subject: SWMU #8 - Damaged asphalt flooring inside Scrap Dock Shelter.

ROLL 6 PHOTO 13



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0912
Subject: SWMU #8 - Broken cement drain along the back (west) wall of the permitted storage building (area 1).

ROLL 7 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0916
Subject: SWMU #8 - Stains in the asphalt floor of the scrap dock shelter.

ROLL 7 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0916
Subject: SWMU #8 - Stains in the asphalt adjacent to the scrap dock shelter.

ROLL 7 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0918
Subject: SWMU #8 - Damaged concrete drain along the back wall of the scrap dock shelter.

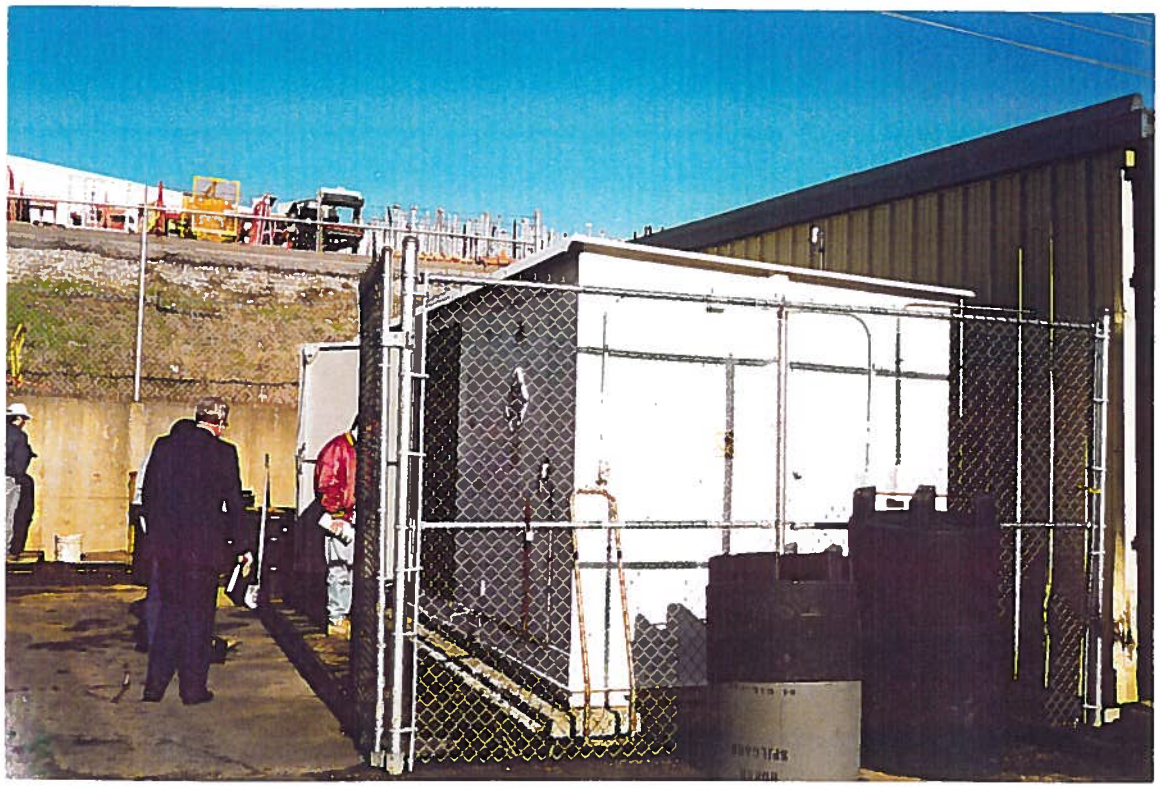
ROLL 7 PHOTO 4

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0920
Subject: SWMU #8 - Stains in asphalt floor at the sound end of the Scrap Dock Shelter.

ROLL 7 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0920
Subject: SWMU #8 - 55 - gallon drums located in southwest corner of the Scrap Dock Shelter.

ROLL 7 PHOTO 6



McDonnell Douglas Tract I **Date:** October 22, 1993
Hazelwood, Missouri **Time:** 0935
SWMU #32 - PCB storage building. Located west of Building 27 and south of the permitted storage building (building in foreground of photograph)

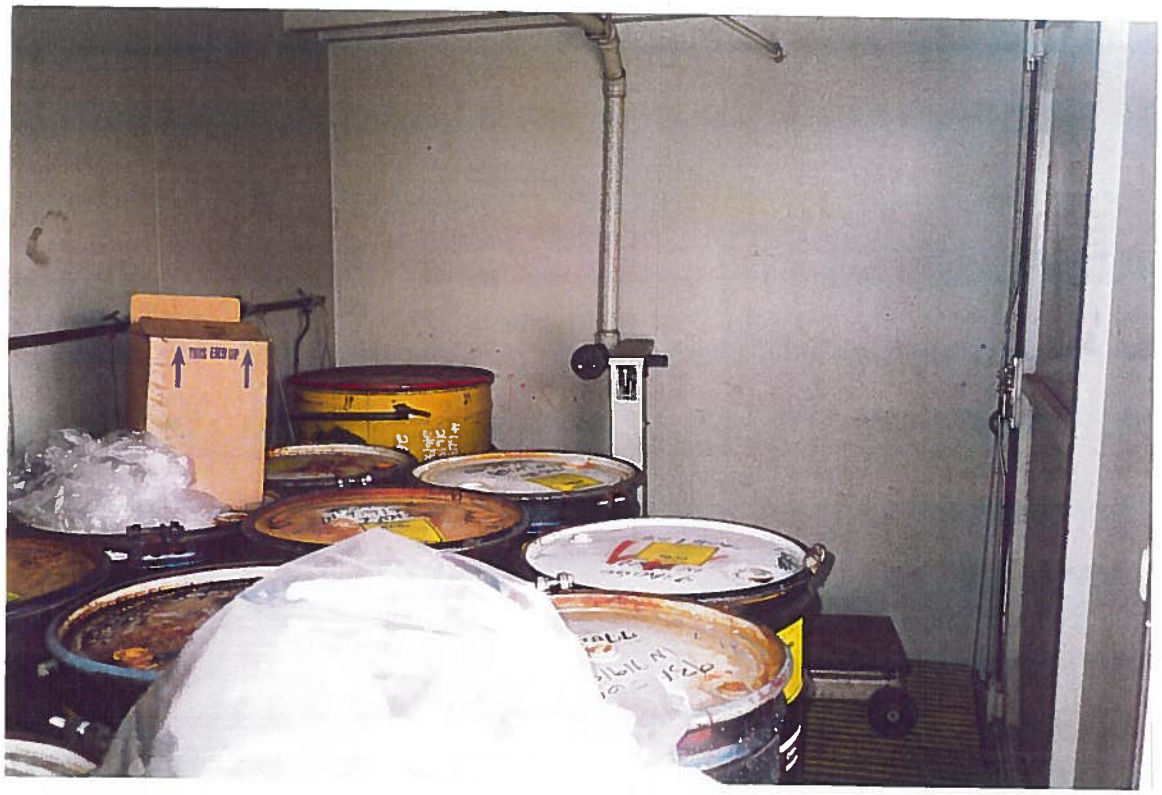
ROLL 7 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0936
Subject: SWMU #32 - Empty solid waste dumpsters located in the PCB storage building area.

ROLL 7 PHOTO 8

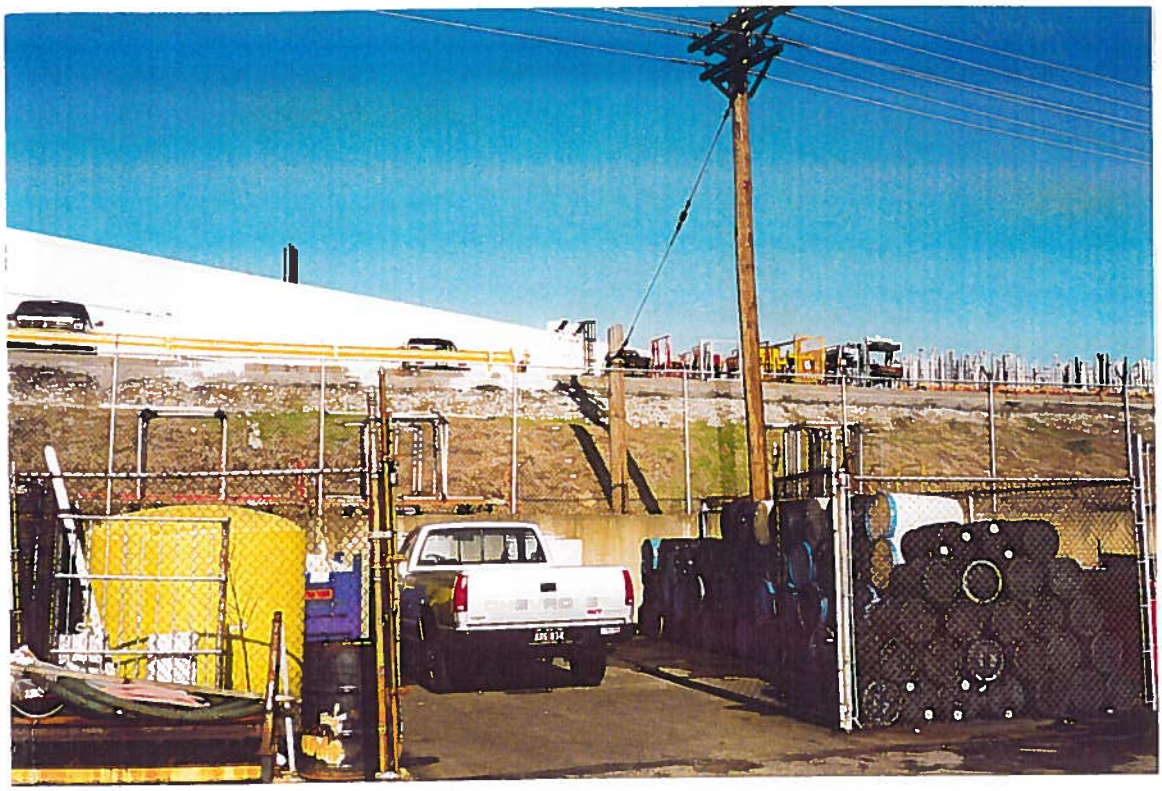
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0937
Subject: SWMU #32 - 55-gallon drums inside PCB storage building.

ROLL 7 PHOTO 9



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0937
Subject: SWMU #32 - 55-gallon drums inside PCB storage building.

ROLL 7 PHOTO 10



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0945
Subject: SWMU #32 - Storage area (south of the PCB storage building) with two tanks used to store Biocool 500 (white tanks front of truck).

ROLL 7 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0946
Subject: SWMU #8 - Empty 55-gallon drums stored at the Scrap Dock Shelter.

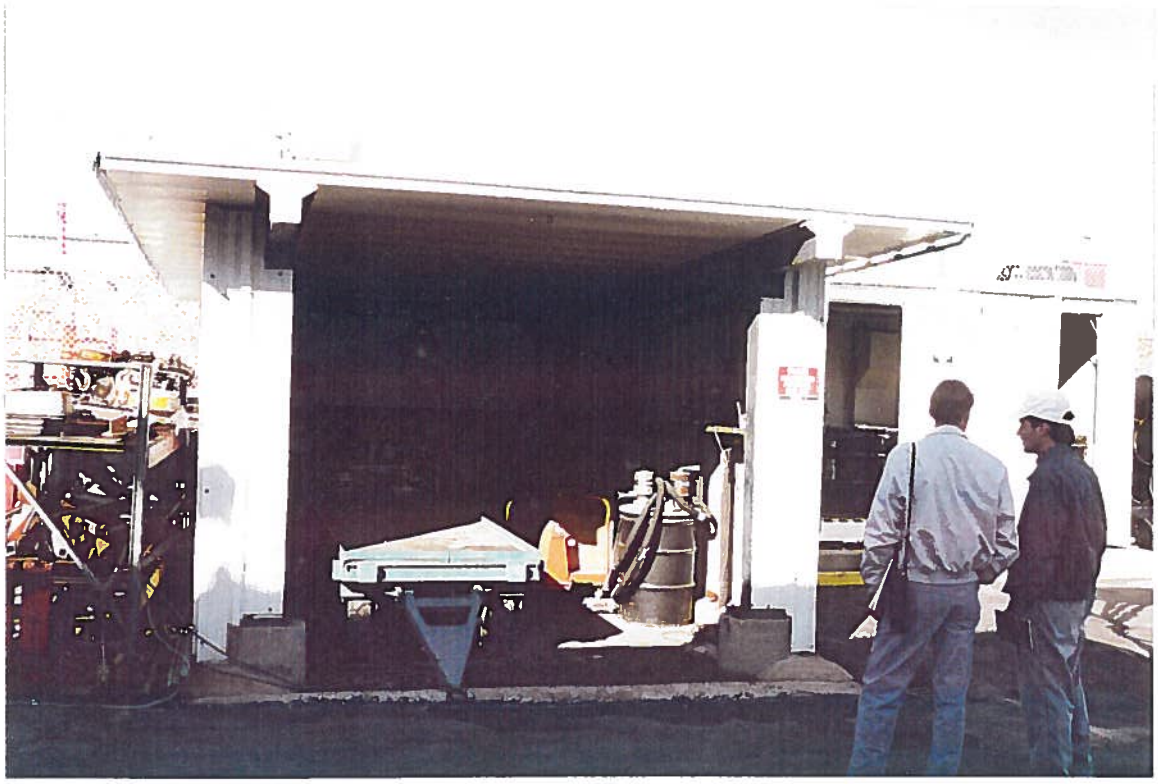
ROLL 7 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0947
Subject: SWMU #8 - Empty drums stored at the Scrap Dock Shelter.

ROLL 7 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0948
Subject: SWMU #5 - Reactive sulfide and cyanide storage building, area 2.

ROLL 7 PHOTO 14



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0949
Subject: SWMU #6 - Former storage building for reactive sulfide and cyanide bearing waste.

ROLL 8 PHOTO 1

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0950
Subject: SWMU #6 - Broken concrete and crack in containment curb at the former reactive sulfide and cyanide bearing was storage area.

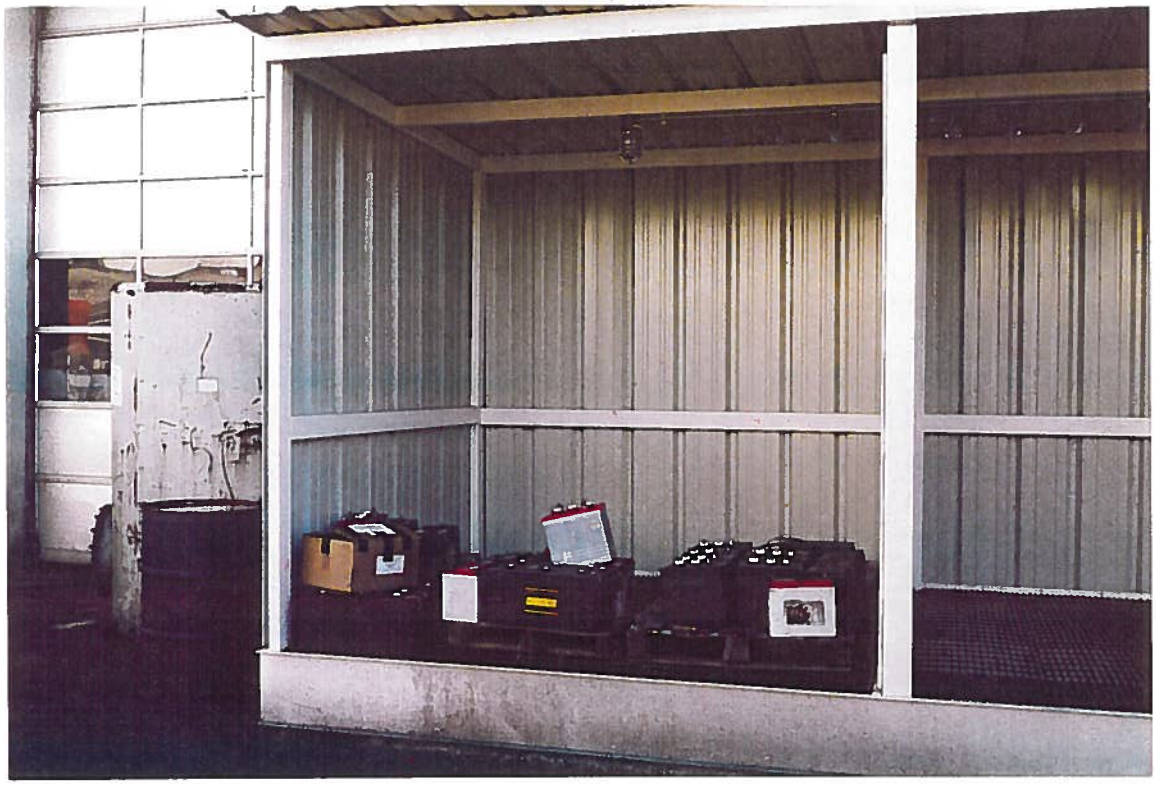
D L L 8 PHOTO 2

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0951
Subject: SWMU #6 - Crack in concrete floor inside the former reactive sulfide and cyanide bearing waste storage area.

ROLL 8 PHOTO 3

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0956
Subject: SWMU #31 - Waste oil storage tank, 740-gallon capacity, located west of Building 22 area.

ROLL 8 PHOTO 4

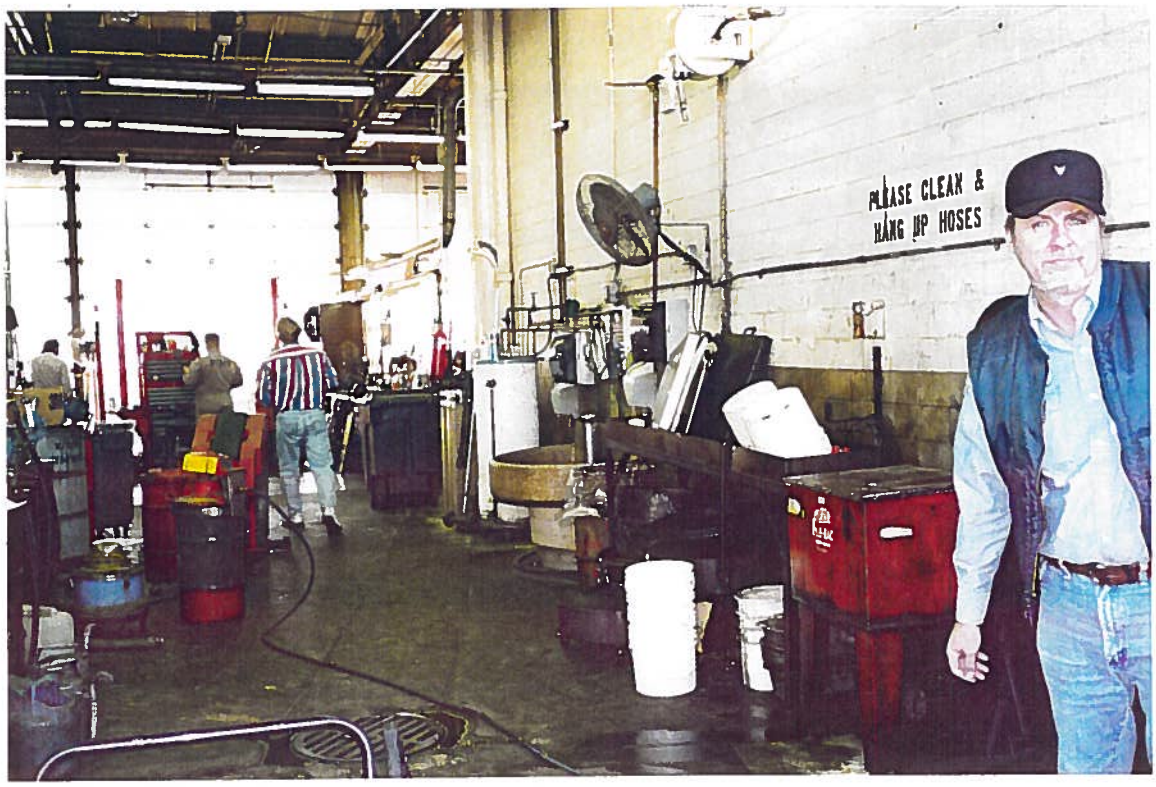


Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0959
Subject: SWMU #31 - Battery storage in building located at the west side of Building 22.

ROLL 8 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 0959
Subject: SWMU #31 - Overflow of waste oil from the waste oil storage tank located at Building 22 garage.

ROLL 8 PHOTO 6

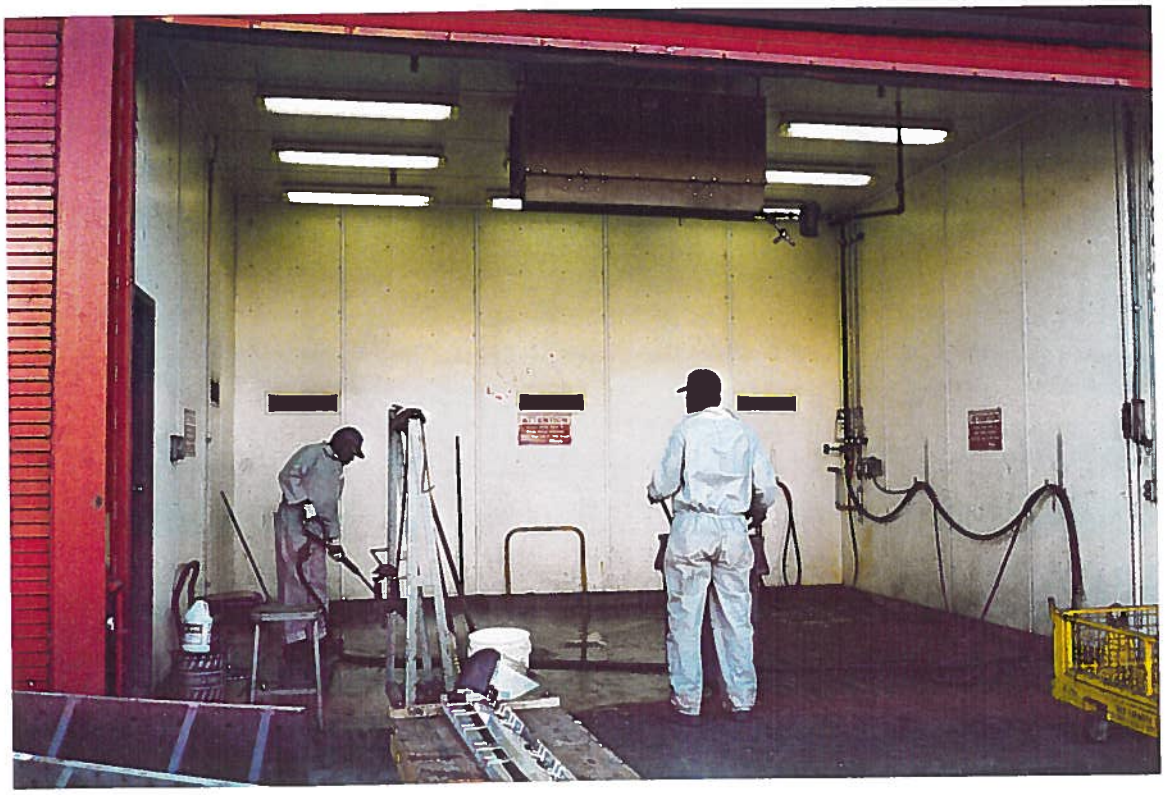


Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1001
Subject: SWMU #31 - Inside of Building 22 garage.

ROLL 8 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1003
Subject: SWMU #4 - Building 28 waste jet aircraft fuel storage tank.

ROLL 8 PHOTO 8



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1010
Subject: Room used for steam cleaning. Located at west side of Building 27.

ROLL 8 PHOTO 9

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1010
Subject: Glass bead blasting machine located inside Building 27.

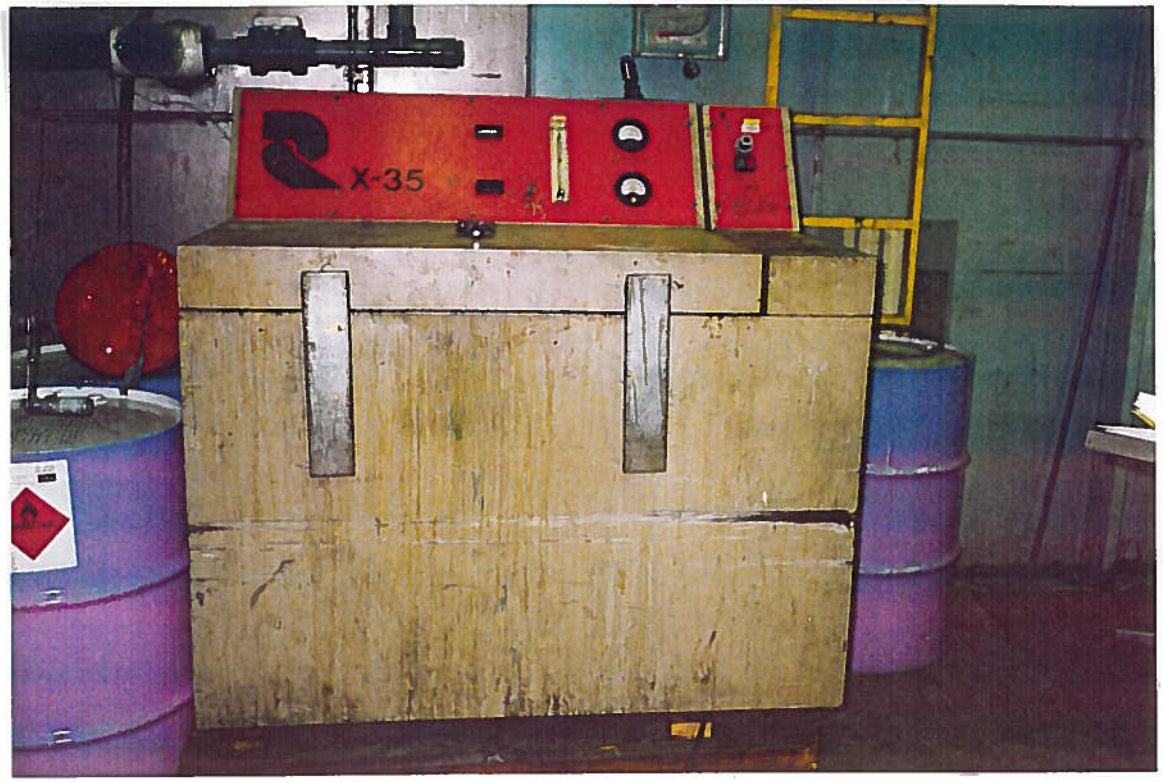
ROLL 8 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1022
Subject: SWMU #19 - Satellite accumulation area (for waste oil) inside Building 27.

ROLL 8 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1031
Subject: SWMU #19 - Satellite accumulation area at the plating shop inside Building 27.

ROLL 8 PHOTO 12



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1033
Subject: SWMU #18 - MEK/MIBK recovery system, Building 27, Department 162.

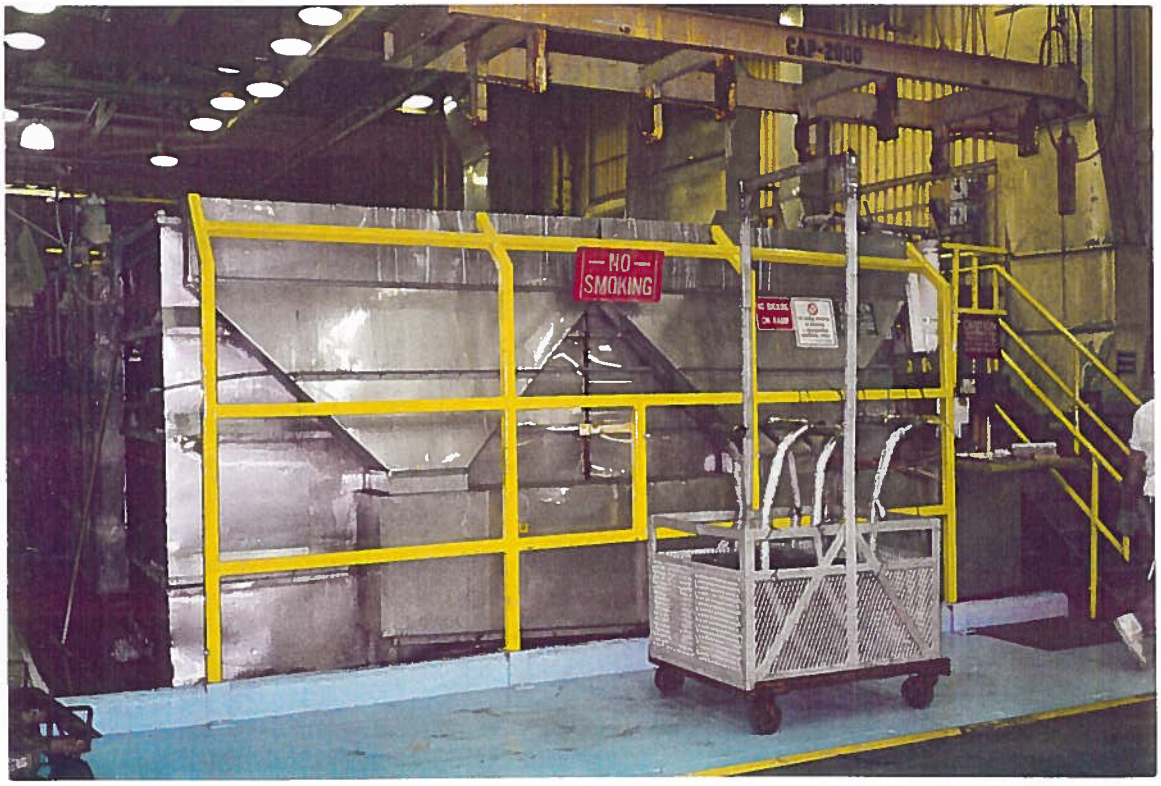
ROLL 8 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1035
Subject: SWMU #19 - Waste paint satellite accumulation area, Building 27, Department 162.

ROLL 8 PHOTO 14

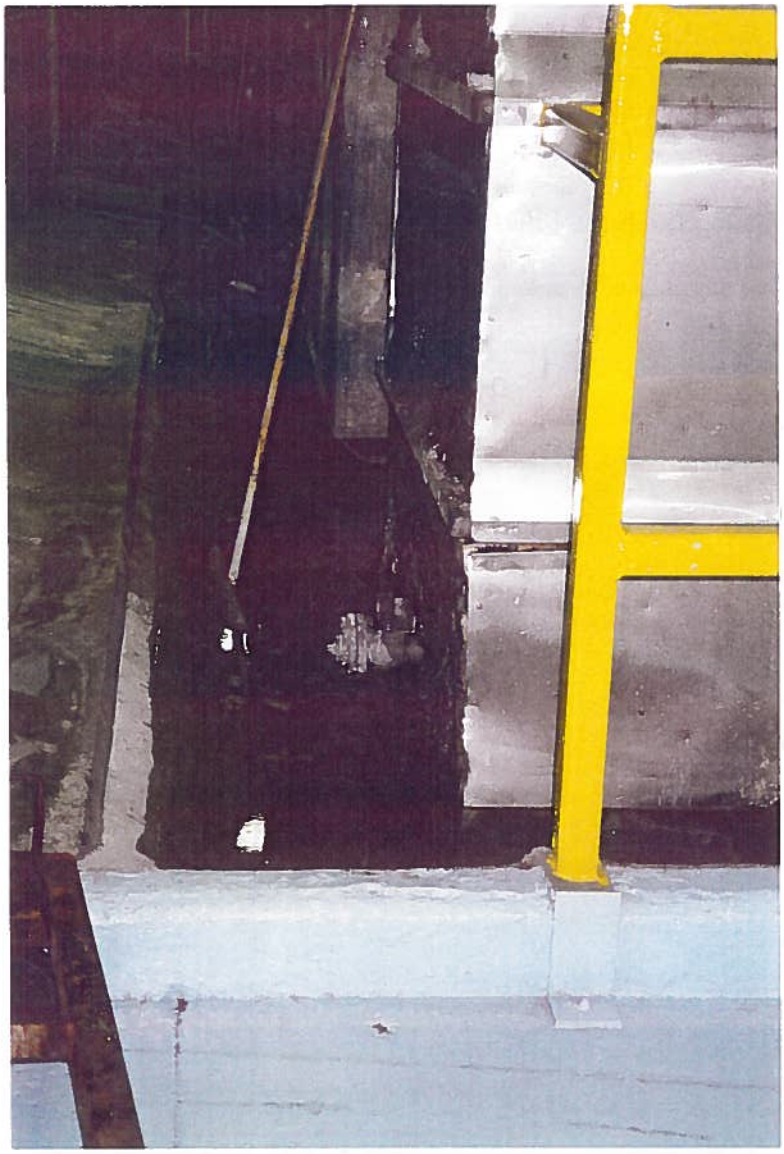
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1037
Subject: SWMU #19 - Waste solvent satellite accumulation area, Building 27, Department 162.

ROLL 9 PHOTO 1



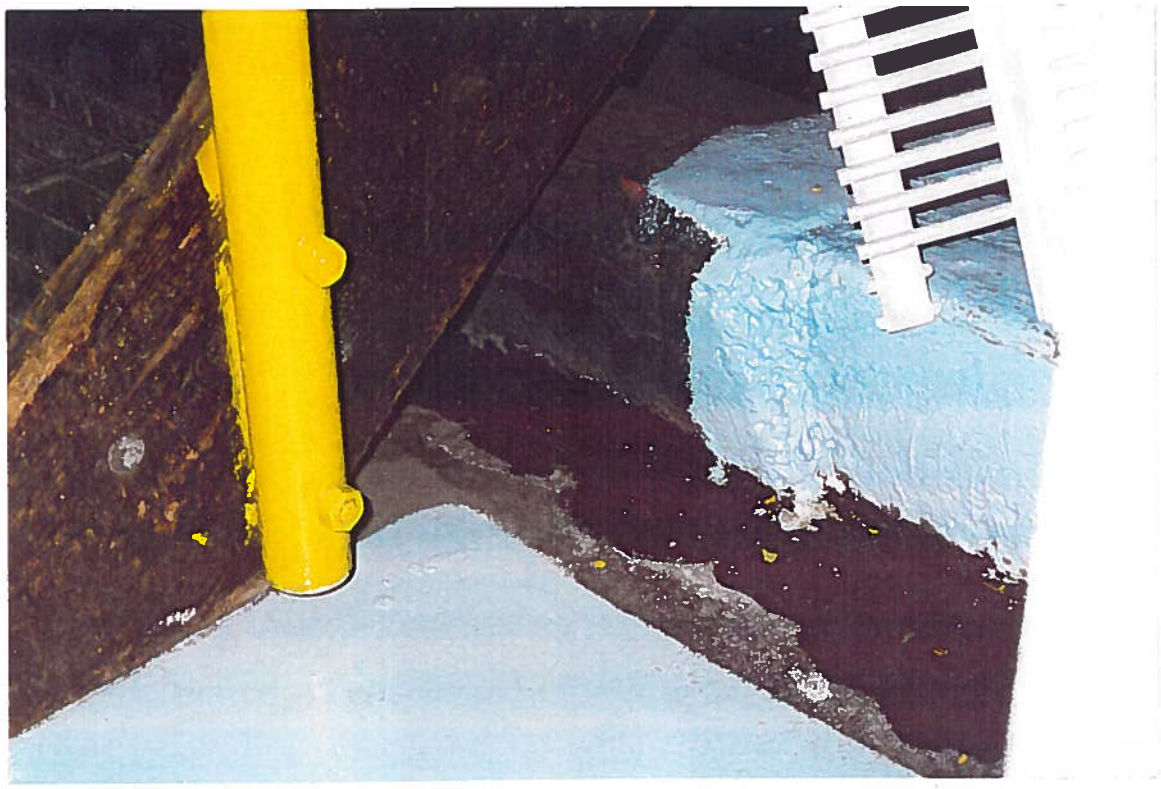
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1045
Subject: SWMU #30 - Chemical etching operations area located inside Building 27.

ROLL 9 PHOTO 2



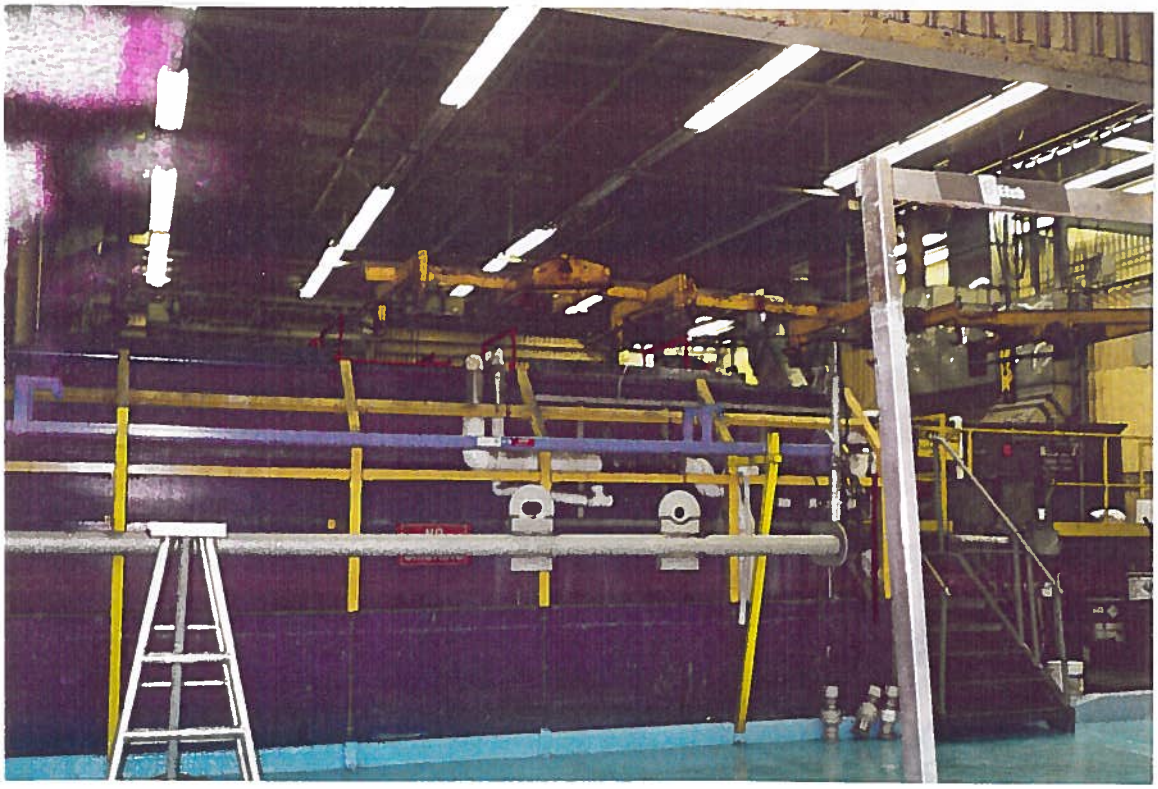
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1045
Subject: SWMU #30 - Leak/spill collection area underneath Building 27 chemical etching tanks.

ROLL 9 PHOTO 3



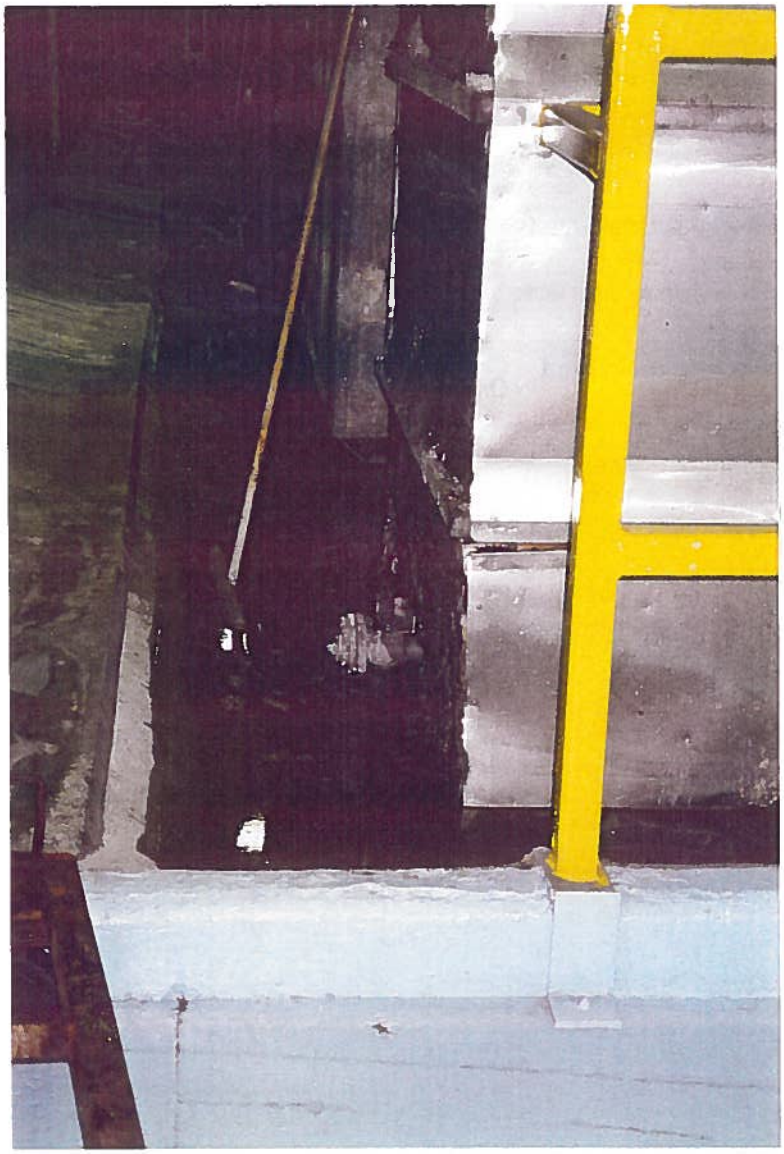
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1046
Subject: SWMU #30 - Repaired section of containment curb underneath Building 27, chemical etching tanks. Note stained concrete in front of the repaired area.

ROLL 9 PHOTO 4



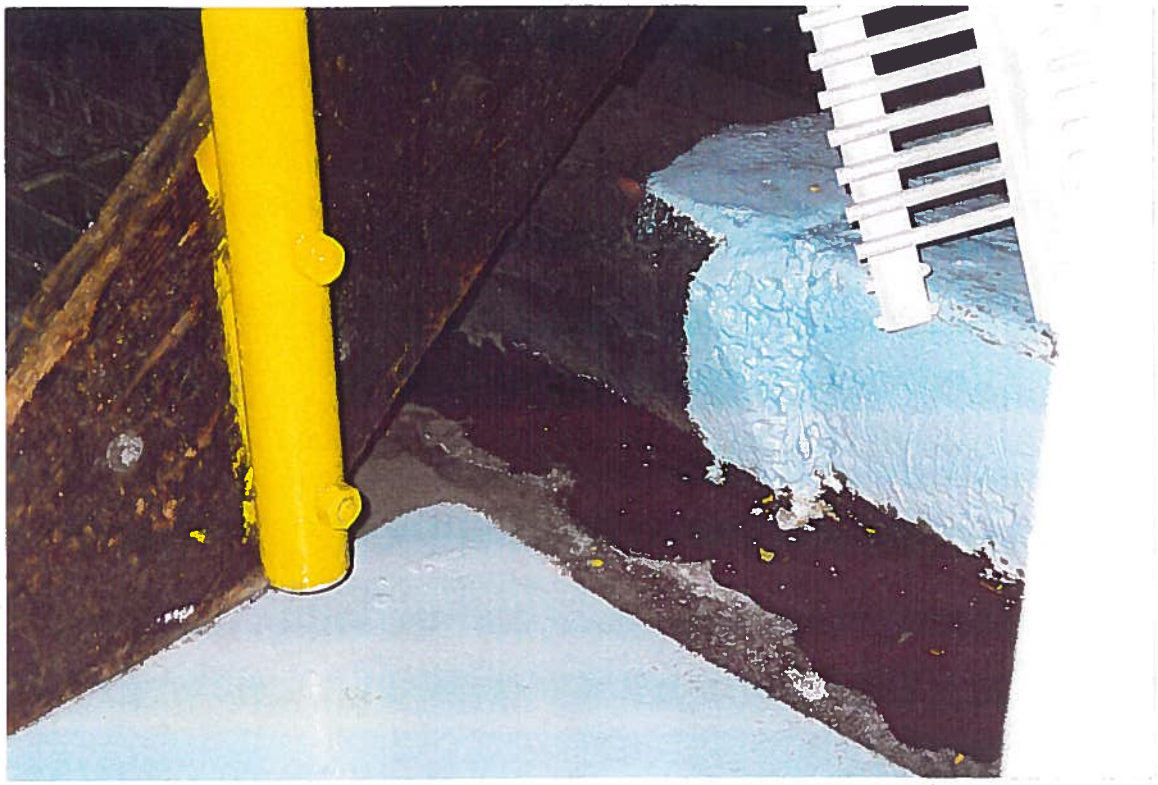
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1047
Subject: SWMU #30 - Building 27 chemical etching area.

ROLL 9 PHOTO 2



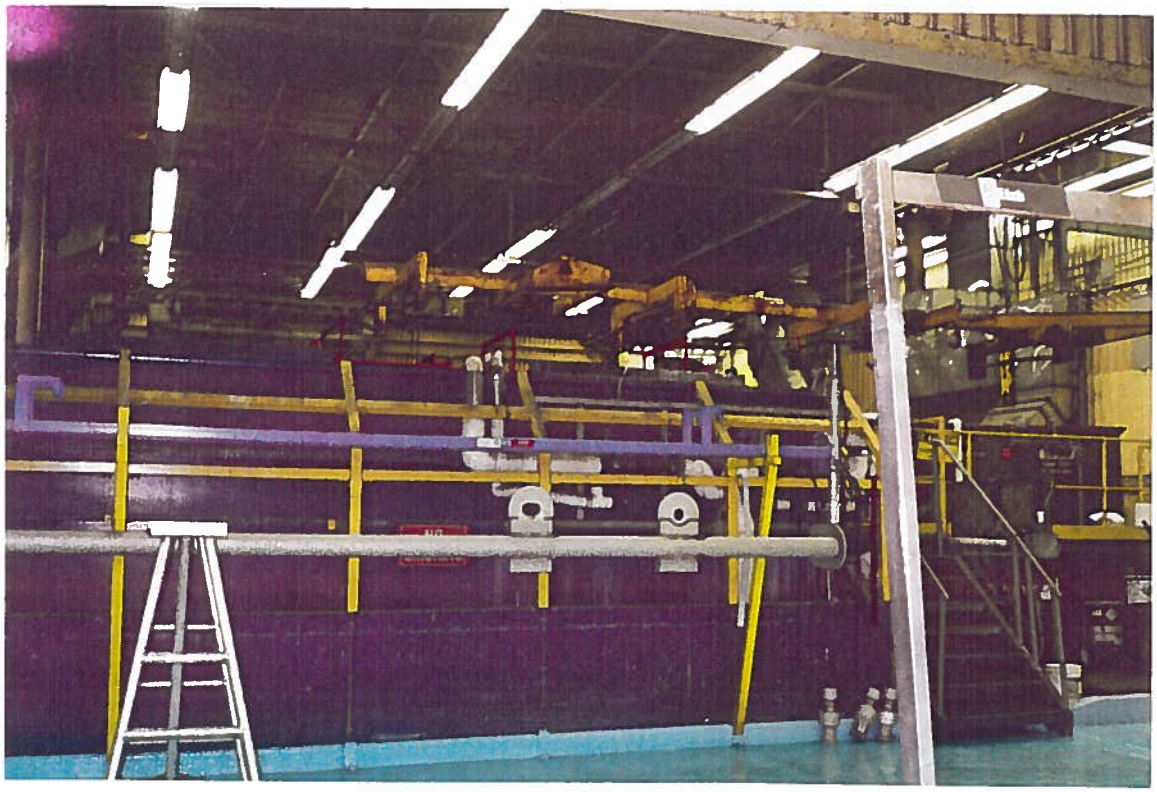
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1045
Subject: SWMU #30 - Leak/spill collection area underneath Building 27 chemical etching tanks.

ROLL 9 PHOTO 3



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1046
Subject: SWMU #30 - Repaired section of containment curb underneath Building 27, chemical etching tanks. Note stained concrete in front of the repaired area.

ROLL 9 PHOTO 4



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1047
Subject: SWMU #30 - Building 27 chemical etching area.

ROLL 9 PHOTO 5

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1048
Subject: SWMU #30 - Building 27 chemical etching spill containment area underneath tanks.

ROLL 9 PHOTO 6

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1048
Subject: SWMU #30 - Floor between chemical etching area and etching area wall.

ROLL 9 PHOTO 7

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1051
Subject: SWMU #30 - Drums containing used potassium dichromate filters. Located at the chemical etching area in Building 2

ROLL 9 PHOTO 8

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1057
Subject: SWMU #19 - Hydraulic oil satellite accumulation area in Building 27, Area 21MM.

ROLL 9 PHOTO 9

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1058
Subject: SWMU #19 - Waste oil satellite accumulation area, at Building 27, Area 21MM.

ROLL 9 PHOTO 10

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1100
Subject: SWMU #19 - Satellite accumulation drum with pinhole leak at Building 27, area 21mm.

ROLL 9 PHOTO 11

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1117
Subject: SWMU #19 - Waste oil satellite accumulation area in Building 17, oil room.

ROLL 9 PHOTO 12

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1120
Subject: SWMU #19 - Satellite accumulation drums at Building 29, area 2ES.

ROLL 9 PHOTO 13

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1120
Subject: SWMU #19 - Satellite accumulation drums at Building 29, area 2ES.

ROLL 9 PHOTO 14

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1125
Subject: SWMU #29 - Waste ferracoat and TCE drum storage area inside Building 29A.

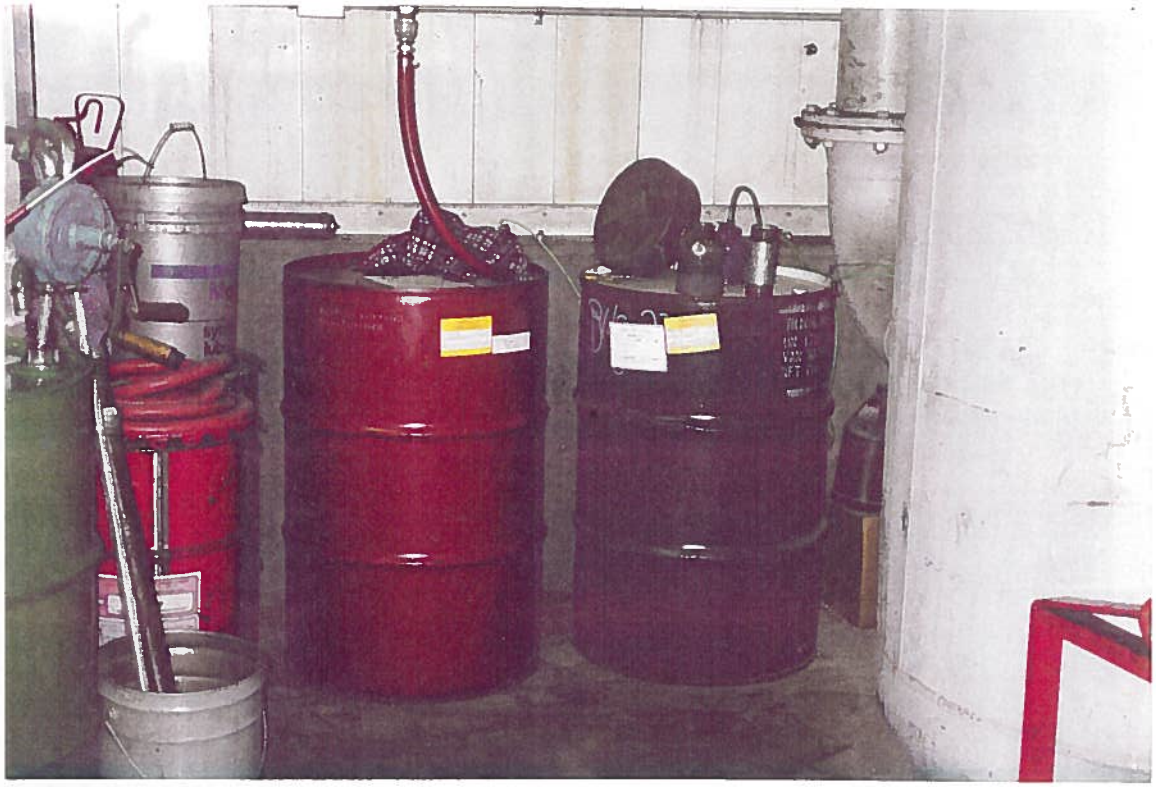
ROLL 9 PHOTO 15

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1125
Subject: SWMU #29 - Bottom of drum containing waste ferracoat inside Building 29A.

ROLL 9 PHOTO 16

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1126
Subject: SSWMU #29 - Stains on concrete floor at the southeast corner of the waste ferracoat and TCE storage area inside Buildi
29A.

ROLL 9 PHOTO 17



Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1129
Subject: SWMU #19 - Waste oil satellite accumulation area in Building 29A, maintenance shop.

ROLL 9 PHOTO 18

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1251
Subject: SWMU #19 - Waste oil satellite accumulation area in Building 220, area A11N.

ROLL 9 PHOTO 19

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1251
Subject: SWMU #19 - Waste solvent satellite accumulation area, Building 220, Area K11.

ROLL 9 PHOTO 20

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1335
Subject: Storm water discharge paint into Coldwater Creek.

ROLL 9 PHOTO 21

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1343
Subject: Waste ferric chloride storage area inside Building 2, area 44B.

ROLL 9 PHOTO 24

PHOTOGRAPH AND PHOTOGRAPH NEGATIVE RETURNED TO MCD DUE TO SENSITIVE ITEMS I PICTURE.

Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1356
Subject: SWMU #20 - Satellite accumulation dumpsters located outside at the northwest corner of Building 2.

ROLL 9 PHOTO 25

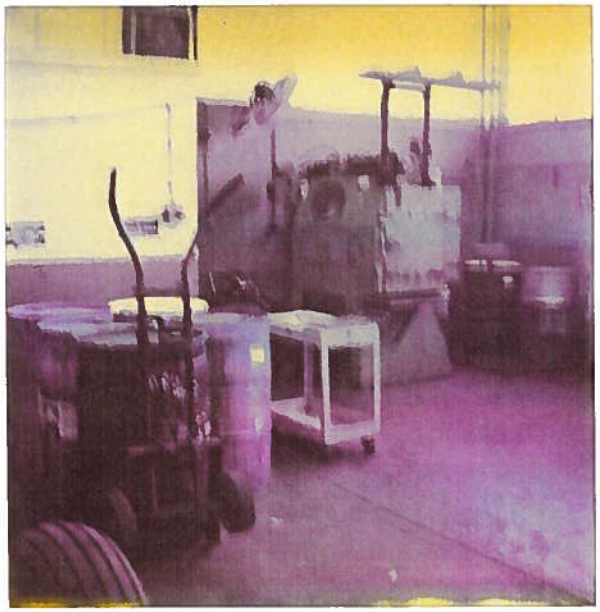
Facility: McDonnell Douglas Tract I **Date:** October 22, 1993
Location: Hazelwood, Missouri **Time:** 1357
Subject: SWMU #20 - Closeup of leaking satellite accumulation dumpster located outside at the northwest corner of Building 2

ROLL - PHOTO 1

1

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1346
Subject: 500-gallon waste ferric chloride accumulation tank located at area 44B inside Building 2.

ROLL - PHOTO 2



2

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1347
Subject: Drum storage area for waste ferric chloride. Note wooden floor area that was placed over railway tracks.

ROLL - PHOTO 3

3

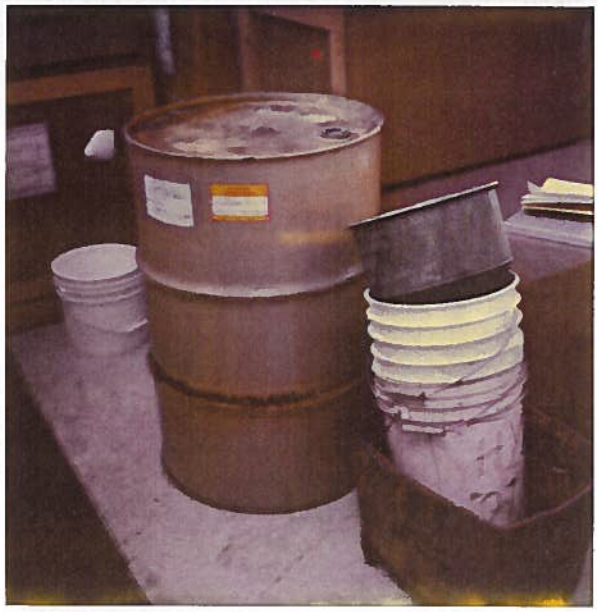
Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1355
Subject: SWMU #19 - Waste solvent collection barrels at satellite accumulation point, inside Building 2 at area 38AB.

ROLL - PHOTO 4

4

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1406
Subject: SWMU #22 - Waste paint satellite accumulation drum located outside at northwest corner of Building 2.

ROLL - PHOTO 5



5

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1419
Subject: SWMU #19 - Waste hydraulic oil satellite accumulation post A5, Building 42.

ROLL - PHOTO 6

6

Facility: McDonnell Douglas Tract I **Date:** October 21, 1993
Location: Hazelwood, Missouri **Time:** 1419
Subject: SWMU #19 - Waste hydraulic oil satellite accumulation area J7, Building 42.

Appendix B

APPENDIX B

SAMPLING VISIT PHOTO LOG
MCDONNELL-DOUGLAS HAZELWOOD FACILITY

NOVEMBER 1994

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-01
Subject: SWMU #21 - Second groundwater sample location.

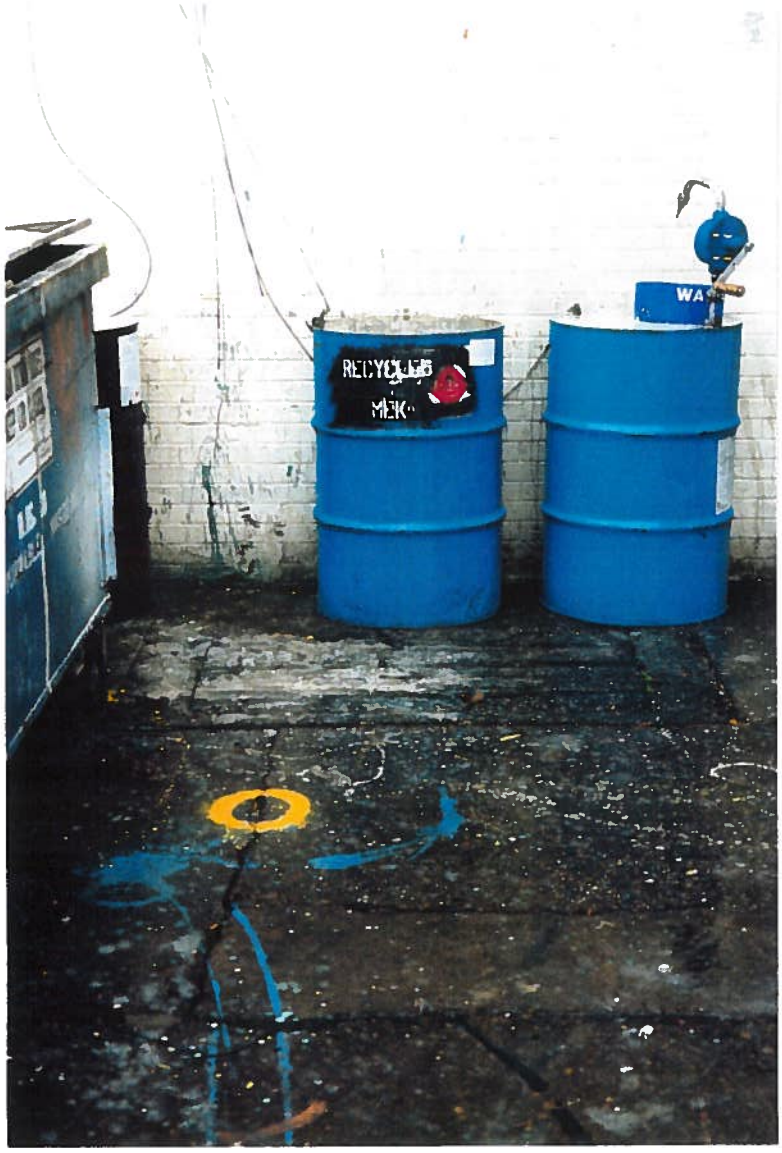
Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-02
Subject: SWMU #21 - First groundwater sample location.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-03
Subject: SWMU #10 - Sample Location #2 approximately eight yards from the stationary waste oil tank. Stationary tank locate behind portable tank.

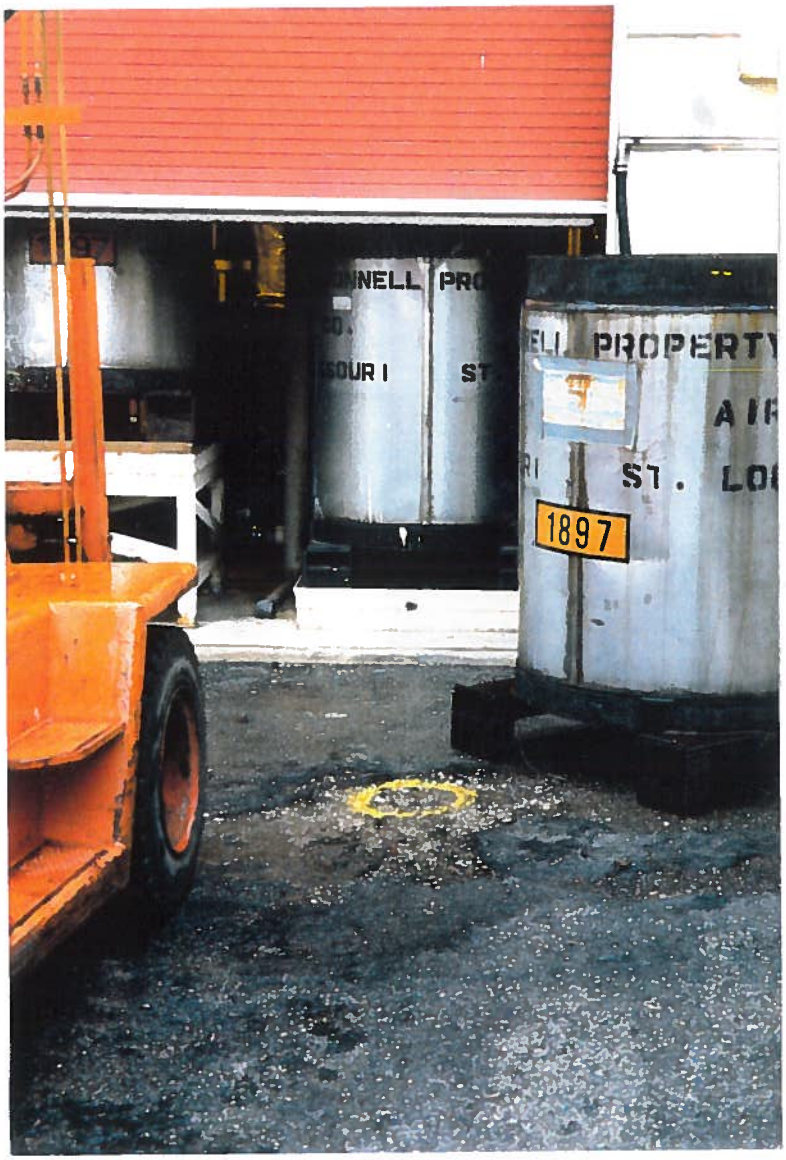
Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-04
Subject: SWMU #10 - Sample location #2 approximately one yard off the left corner of berm.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-05
Subject: SWMU #28 - Close up of the stain on the lower front corner of the transformer, and on gravel.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-06
Subject: SWMU #28 - Wide view of the transformer and oil stain.



Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-07
Subject: SWMU #22 - Approximately one foot from the unknown pit cover, the sample location is identified by the yellow marl on left.



Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-08
Subject: SWMU #17 - Bldg. 51, approximate location for soil sample at the perchloroethylene tank.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-09
Subject: SWMU #27 - Primary sample location #1 between the posts in the foreground.

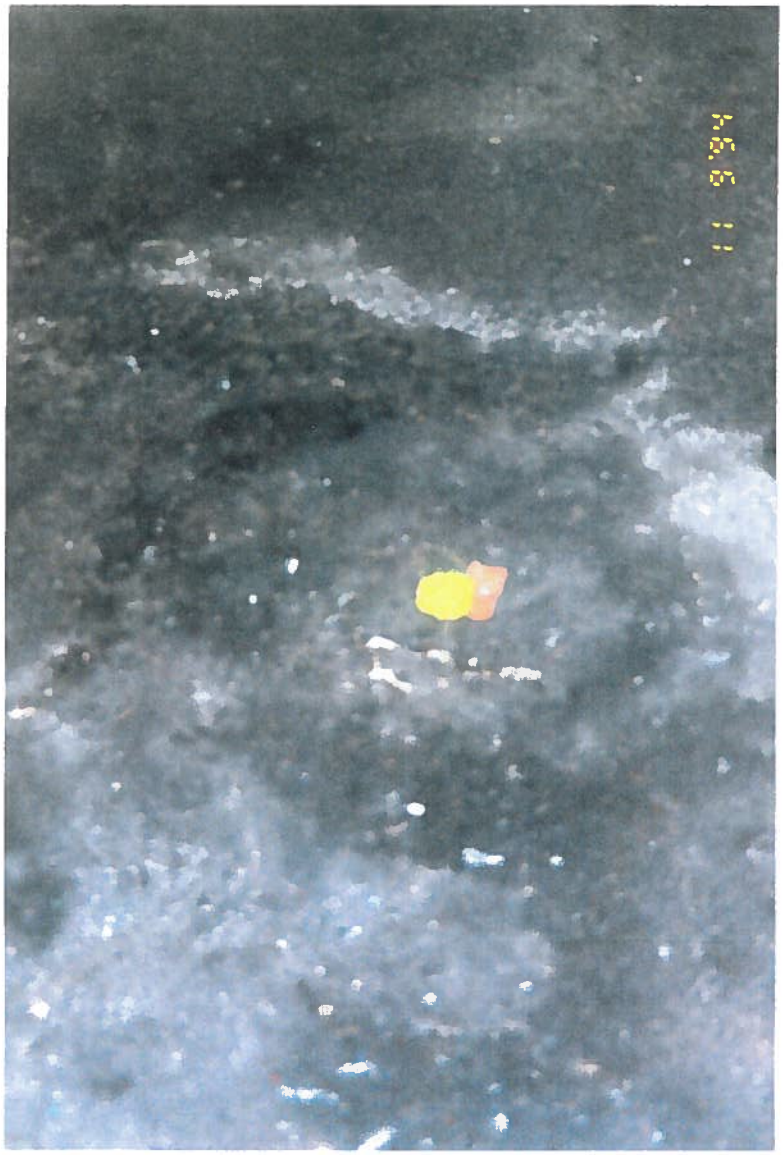
Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-10
Subject: SWMU #27 - Primary sample location #2 on the right side of the fence of BLDG. 52, (sample location is at yellow pain on ground).

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-11
Subject: SWMU #26 - Both sample locations identified by yellow marks.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-12
Subject: SWMU #31 - Sample location #1 in the middle of the prefabricated building.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-14
Subject: SWMU #31 - Both sample locations facing north for orientation.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-15
Subject: SWMU #8 - Approximate sample location #3 at north end sump facing north.



Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-17
Subject: SWMU #8 - Approximate sample location #1 at the soft patch in the middle of the shelter (note yellow paint).

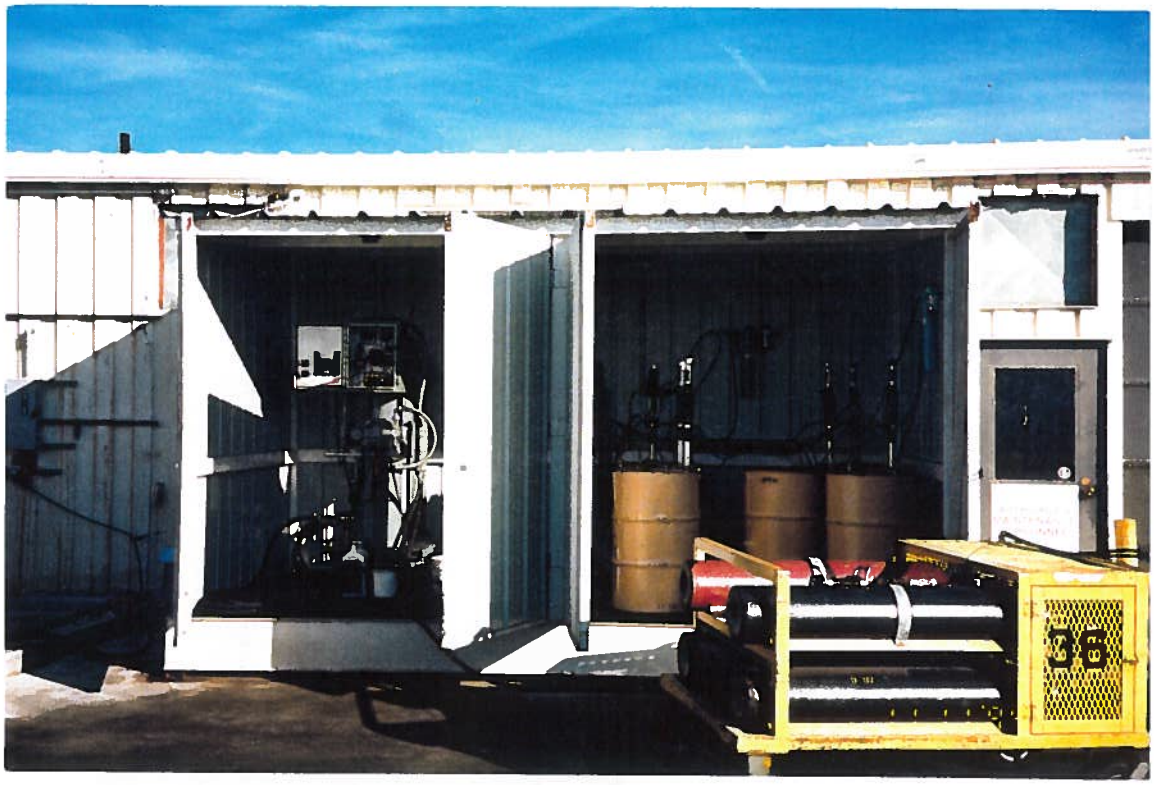
Facility: McDonnell-Douglas, Hazelwood **Date:** 11/09/94
Location: Hazelwood, Missouri **Photo #:** R1-16
Subject: SWMU #8 - Approximate sample location #2 at south end of the sump.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R1-30
Subject: SWMU #24 - Prefabricated hazardous waste storage building.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R1-31
Subject: SWMU #25 - Bldg. 51, the prefabricated hazardous waste storage building.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R1-32
Subject: SWMU #26 - Hush House across from Bldg. 40, former less-than-90-day storage area located at Bldg. 40.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R2-02
Subject: SWMU #5 - Bldg. 29, Prefabricated less-than-90-day storage building for sulfide waste on the concrete pad.



Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R1-33
Subject: SWMU #23 - Current prefabricated hazardous waste less-than-90-day storage building located at Bldg. 40.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/11/94
Location: Hazelwood, Missouri **Photo #:** R2-01
Subject: SWMU #32 - Prefabricated PCB storage building on the concrete pad.

Facility: McDonnell-Douglas, Hazelwood
Location: Hazelwood, Missouri
Subject: SWMU #21 - Sample location 14-2.

Date: 11/15/94
Photo #: R2-11

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/15/94
Location: Hazelwood, Missouri **Photo #:** R2-12
Subject: SWMU #21 - Pumping groundwater from sample location 14-2.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/15/94
Location: Hazelwood, Missouri **Photo #:** R2-13
Subject: SWMU #8 - Coring through concrete at sample location 39-1.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/15/94
Location: Hazelwood, Missouri **Photo #:** R2-14
Subject: SWMU #8 - Coring through concrete at sample location 39-2.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-15
Subject: SWMU #8 - Soil sample collection at 39-2.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-16
Subject: SWMU #8 - Coring through concrete at sample location 39-3.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-17
Subject: SWMU #31 - Preparing to core at sample location 22-1.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-18
Subject: SWMU #31 - Coring through concrete at sample location 22-1.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-19
Subject: SWMU #31 - Collecting soil sample 22-1.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-20
Subject: SWMU #31 - Coring through the concrete at the sample location 22-2.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-21
Subject: SWMU #31 - Collecting a soil sample at location 22-2.

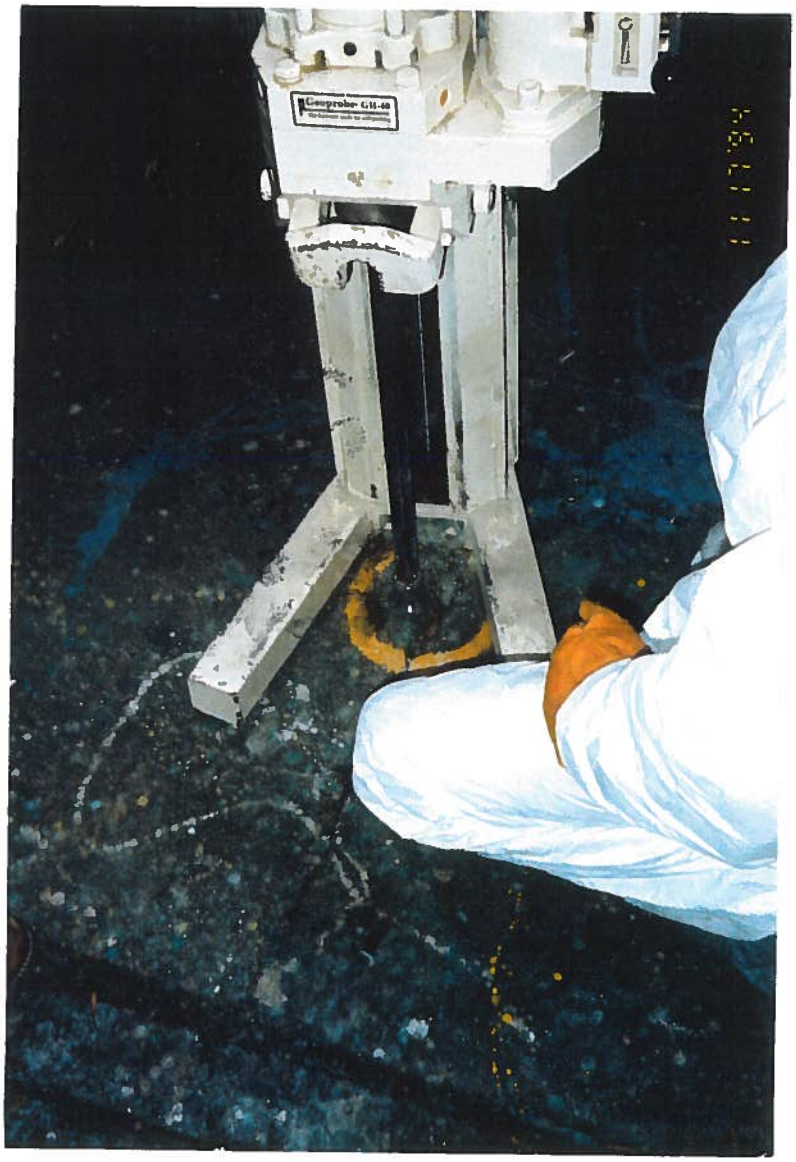
Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-22
Subject: SWMU #27 - Collecting a soil sample at location 52-1 next to the wooden fence.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-23
Subject: SWMU #17 - Collecting a soil sample at location 51-1 next to the perchloroethlene tank.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-24
Subject: SWMU #27 - Coring at sample location 52-2 between the posts.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-25
Subject: SWMU #27 - Collecting a soil sample at location 52-2.

Facility: McDonnell-Douglas, Hazelwood **Date:** 11/16/94
Location: Hazelwood, Missouri **Photo #:** R2-26
Subject: SWMU #10 - Coring through the asphalt at sample location 6-1.



Facility: McDonnell-Douglas, Hazelwood **Date:** 11/17/94
Location: Hazelwood, Missouri **Photo #:** R2-27
Subject: SWMU #22 - Coring through the concrete at sample location 2-1.

Appendix C

APPENDIX C

SAMPLING VISIT FIELD LOG BOOK
MCDONNELL-DOUGLAS HAZELWOOD FACILITY

NOVEMBER 1994

Notes:

1) Sample number format is as follows XX - XXXX
   a) First "XX" refers to the building of the sample location
   b) Second number "YZZZZ" refers to the sample interval

Ex: A sample collected from Bldg. # 1, from the interval 12" to 24" would be labeled as follows
01-11224

2) A field duplicate will have a letter "A" or "B" following the first number
Ex: 01A-1224 orig sample
01B-1224 field duplicate

c) the first value "Y" in the second number designates the sample location at a building

It was agreed by SAIC + IP that if the concrete is +8 inches thick a corer would help to prevent down time (slow periods)

11/15/94

Arrived on site at 7:05 a.m. Met with Elmer Dwyer, proceeded to Bldg 14 waste water treatment tanks for g.w. probe installation. Partly cloudy, drizzle.

0725 Arrived at Bldg 14 (WWTP) SAIC et al will setup at the first GW sampling location (14-01), next to the operation building.

• Calibration

GGI - ok problem w/ battery recharging during the night

HNu - 100 ppm isobut, span 7.52

0735 Sample location mobilized, coring of asphalt begins. Asphalt estimated at 2½ inches in thickness.

CGI - negative (background ~ 0)
HNu - negative

Segments in 3' intervals. Checking the static water levels begins at the 12'

12' - no water detected
15' - water detected (possibly perched)
18' - no water detected
20' - no water detected (screened at 18')

15/94

...ching for g.w. interval changed to 2'.

22' - No water detected

24 - No water detected

26' - Detectable amount of water

28 - Detectable amount of water

30 - Detectable amount of water

32 -

34-36 interval no water in screen

36-39 interval no water in screen

39-42 " "

42-45 " "

45-48 "

Contacted Pat Beitz via cellphone. Was told approximately 40' BGS sufficient to cease probing and eliminate the sample location, due to lack of g.w.

0830 - Hole extraction begins.

0838 - Sealing bore hole

0850 IP moved to the second gw sampling location, west of the E3 tank. MDNR proposed collecting a soil sample in addition to, or in place of the gw sample.

11/15/94

The soil sample will be collected from the interval 19-25 BGS. The sample will be divided in to 1' sections and split w/MDD. This soil sample will be analyzed for Metals + Hg, and CN.

0851 IP started to probe at sample location 14-02.

0855 IP reached the soil sampling interval

0905 Collected 14-2021 interval which is the deep sample interval. IP will now try to get groundwater

16-18 - No gw detected

19-21 - Detectable amount (insufficient flow)

22-24 - " " "

23-25 - (1 ft interval)

1000 IP/SAIC will pump the gw probe, and collect a metals aliquot. If the probe produces H_2O ~~will~~ continue to sample + split w/MDD. Sample priority is Metals + Hg → CN → SVOC then VOC

11/15/94

gw will be collected by pumping the screened interval with a peristaltic pump into the metals container

IP billing $90 for the first gw sampling location, and 128 for the second. This would not include down time (~1 hour today so far)

1012 IP started to pump the gw probe at 11-2

1046 The pump was turned off to allow the water column to settle down. During the first attempt to pump ~~the gw was the~~ no gw was brought up to the surface. May be in a perched aquifer IP will move over to tank 51 and clean the rods

1115 IP started the pump after completing decon. Approx 5 ml of gw burped up to the tube, and nothing else.
- Reasons for lack of sample include total limit of pump capacity

11/15/94

or that air bubbles in water the gw in the tube, and thus cause the gw not to lift.

1130 ENT MOD for lunch, will return to site, and collect soil samples from the north side of tract I. Will also attempt to get gw sample

1233 SAIC et al returned from lunch to the Bldg 14 WWTP. John Upscraft (IP) suggested putting a screen on the end of the sampling tube, lifting the rod up a 2' and leaving the screen + sample in the bottom of the ~~hole~~ hole. This would provide a large area for gw infiltration

1254 IP will drill down to 40' looking for gw in two foot intervals. The WWTP operator stated that when E3 was drained for maintenance, the outside of the tank was excavated to 20'. The excavation was all clay, and no standing water

11/15/94

1300 IP completed the 0" → 30" interval.

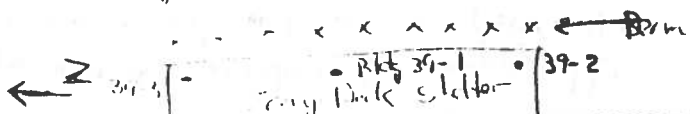
1333 IP found water, and prepared to sample. At the interval, the water is drawn up in the tube by ~~bouncing~~ bouncing the sample tube up + down. A check valve holds the water in, and the pumps pulk the water into the bottle.

1337 the well went dry after ~ 600 mls of sample. SAIC et al. will move to the scrap yard to collect soil samples, then return to get MDD's split for metals.

1337 Collected 14-2 metals.

1345 Exited Bldg. 14 for SWMU #8 Scrap Dock Shelter, Bldg. 39.

1358 Arrived at Bldg. 39 Scrap Dock Shelter. IP will drill through the asphalt + concrete prior to setting up the probe.



11/15/94

1410

Photo 13: Scrap dock inner sample, coring through concrete. Sampling from 00" to 24", 1 foot

Sample 39-1-0012, 39-1-1224 attained.

HNu negative

CGI - negative

Hole patched w/ bentonite slurry mix

1420

Mobilized to sample location 39-2, located ~~about~~ South of 39-1 sample. Photo 14 - initiating coring at 39-2. Sampling from 00" to 24", 1 foot interval.

1435 - Geoprobe bit lost in hole due to weight shifting of rig. Second hole drilled 3 inches south of original. Hole to be plugged with bit in place. Asphalt/Concrete measured to be 14".

(1426 Field Blank prepared. FB-2 labeled.)

1452 - 39-2 location cored. Sample collected (0-12") (12"-24")

Photo 15 - Sample collection 39-2.

HNu - 0-2 ppm

CGI - Negative

11/15/94

1502 Exited Bldg 39 Scrap Yard to collect a gw sample and decon equipment

1510 Collected approx 20 mls of gw for the MDD split. IP continued to decon equipment.

1600 Exited Bldg 14 for day
SAIC & MDNR will return to hotel to label samples & deliver to Fed Ex.

846 Call to Kate Fox - SAIC WAM updated her on the following:
1) Both wells seem to be dry
- collected 1 metal, will try to split w/ MDD on Wednesday
2) Collected two soils in the scrap dock shelter

2216 Delivered St Charles samples to Fed Ex

AINA #17

Ed Moriarty Paul Jones
Aaron Schmidt Elmer Dwyer
Bill Elwell

11/16/94

0625 SAIC et. al. arrived at the MDD WWTP. The following activities will occure:
1) Collect the remainder of a split for MDD - metals
2) Collect soil samples

Temp is ~ 40°C
Sky is clear
Low humidity
HNu 8.84 ppm at 100 ppm

0633 Collected the MDD split for metals analysis

0642 Exited Waste water treatment Plant Bldg 14 for the Scrap Dock Shelter Bldg 39.

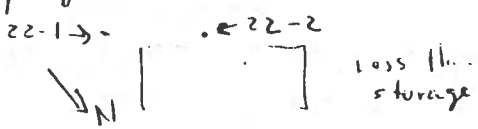
0650 Arrived at Bldg 39 Scrap Dock shelter. IP will set up to collect the third + final sample from the location 39-3 at the north end

0658 - Photo 16 ~ 39-3 sample location North of 39-1 location. Photo shows coring of the sample

11/16/94

0701 Collected sample 39-30012 and 39-31224. HNu measured 0 ppm

0725 Arrived at Bldg 22 for the next sampling locations: 22-1 and 22-2



IP will set up to core 22-1 prior to sampling

0735 Collected sample 22-10012 and sample 22-11224. HNu measured 0 ppm

Note: CGF was put out of service because the battery failed to recharge. A new CGF will be delivered today

0750 IP started to core sample location 22-2. MDD will split samples with SAIC at this location. Therefore two holes will be cored, and each sample interval will be split

11/16/94

0755 IP collected samples 22-20012 and 22-21224

0804 Collected the split sample at location 22-2. This sample location will be split with MDD

HNu measured ~ 3-4 ppm over background

0820 IP picked up drill cuttings from Bldgs 39 & 22. Exited North side of Tract I for Bldg 14 WWTP to collect Blanks & decon.

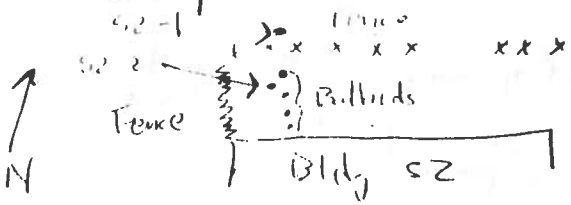
0830 MDD has not received clearance for utilities at two locations on Tract I. While they wait, SAIC will prep Blanks, and IP will decon system used today.

0830 - FB-3 collected
0918 - ER-3 collected
0918 - TAP-2 (Hardwood) collected

0935 Exited Bldg 14 Waste Water Treatment Unit for Bldg 52 Former Sandblasting Location

11/16/94

0945 Arrived at Bldg 52 to collect sample 52-1 and 52-2



0955 IP started to push through the Asphalt.

0958 Collected samples 52-10012 and 52-11224 from the west side of the wooden fence. HNu measured at 4 ppm, and background was zero. I will wait for MDD to move equipment so the van will have access to sample location 52-2

1015 Exited Bldg 52 to collect a sample at Bldg 51. Then will return to Bldg 52 to collect the second sample

1015 Arrived at Bldg 51 the Perch Tank

11/16/94

IP will set up for punching this sample location 51-1. This sample will also be split with MDD, and SAIC will collect a field duplicate

1025 Collected sample 51-10012 and 51-11224. SAIC will collect a field duplicate and split (for MDD)

1041 Collected the field dup 51-10012D and 51-11224D. A small plug fell out from the tube (~ 3 4 ") the soil was black, and had a ~~smell~~ slight organic smell. HNu measured the plug at 5 ppm. the hole measured 200 ppm.

1050 Collected lab QC for 51-1

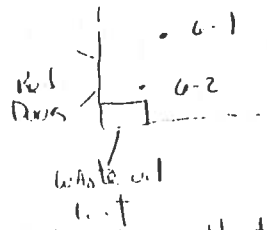
1055 Returned to Bldg 52 to collect sample 52-2. IP will core the hole then collect a sample.

1108 Collected sample 52-20012 and 52-21224

11/16/94

17 Exited Bldg 52, and moved over to Bldg 6 to collect samples from the waste oil tank. HNu measured 6 ppm at 52-2.

1127 Arrived at Bldg 6, and prepared to core at the first sample location 6-1. ◯ - water tanks (very large)



Attempted to collect ~~[illegible]~~ ~~collected~~ 6A1 at Bldg 6, and a field duplicate 6B-1. HNu at the hole was ~1 ppm. There was no sample recovery because a rock was jammed in the cutting shoe. Will close this hole, and start again after lunch.

1200 Exited Bld, 6, Waste Oil Tank for lunch

11/16/94

1303 Returned to Bldg 14 (WWTP). SAIC picked up HPLC and a new CGE from the hotel. IP stopped at a hardware store to pick up cold patch. IP will decon the sample tubes, while SAIC calibrates the CGE.
- Will Fax a copy of the COC for ST Charles to Reg VII Lab

1400 Returned to Bldg 6 to collect sample at the waste oil tank. IP will core the concrete, then use a guard the first few inches in soil to get past gravel. Once past the gravel, the guard will be withdrawn, and sampling will continue

1422 Collected sample ~~6A~~ 6-10024. This sample had poor recovery, and will be submitted as one interval. There will be no dup sample at this location. IP tried to hand probe the hole, and detected a hard surface below the concrete.

11/16/94

Therefore this hole was ~~abandon~~ terminated.

1443 Started to move out G-2, but stopped work in order to return to the WWTP (Bldg 14 by 1500). Will start w/ Bldg 6 Tomorrow.

1452 Arrived at the Bldg 14 (WWTP)
- Will collect a gw sample (CN)
- Will collect the equipment Rinsate for the gw sample ER-2
- I.P. will clean equipment

1505 Collected the gw sample 14-2 for CN.

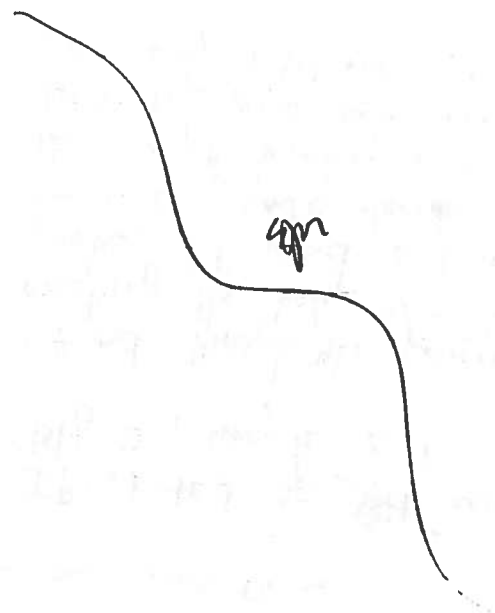
1510 ~~1500 hrs~~, Collected ER-2 for the gw sampling equipment

1530 Exited the MUD facility for the day. SAIC will return to the Holiday Inn, and pack samples.

11/16/94

2015 Completed packing samples, and delivered 4 coolers with samples. In addition, 5 coolers were returned to the laboratory.
Fed Ex
Airbill # 3185189324

Called Dave Jucks (Reg 7 Lab) with sample information



11/17/94
0606 Arrived at Bldg 14 (WWTD)
Ed Moriarty - SAIC
Aaron Schmidt - MDNR
Will prep the field Blank
and custody seals

0630 Prepared FB-4 for today's sampling
activity. IP arrived on site

0700 MDD finally arrived at the
WWTP. (½ hour late which
[illegible] down time for IP.).
- Will collect a gw sample
(CN) for MDD and close
the 14-2 hole.
- Collect soil from Bldg 6,
Bldgs 40 and 2 on the
ramp.
- Bldg 6 will provide the
Field dup + Lab QC. MDD
has requested a split from
Bldg 6 sample 6-2.
- Departed for Bldg 6, Waste Oil
Tank

11/17/94 HNu 7.6 span at 100ppm
CGI ok
Gray ~~Clear~~ skys, Temp ~45°
0706 - Bldg 6 gate broken. Relocating to Bldg
2, Paint Booth Drum.

0721 IP started to ~~drill~~ core at
Bldg 2, sample 2-1.

0727 IP cut through the concrete. While
checking the hole w/ a hand
probe, IP found a hard surface
a ~2'. SAIC decided to move
the sample location out 2'. MDD
will try and determine if there
are any utilities at this location

0734 Collected sample 2-1 at Bldg 2
only 50% recovery from the hole.
HNu measured 3-4ppm, the CGI
was ~~negative [illegible]~~ nothing above
background. Slight organic smell
to sample. Core black w/streaks

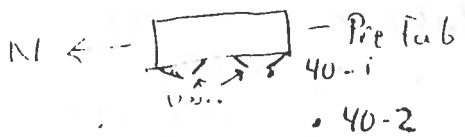
0742 IP started to clean up their drill
cuttings, and patch the holes. MDD
is trying to find out how we'll
access Bldg 40.

11/17/94

0751 - Exited Bldg 2 Waste Paint Booth for Bldg 40, Former 90-Day Storage Area

0803 Arrived at security gate to Bldg 40. SAIC et. al, will have to wait for a security guard to arrive and open the gate.

IP started to core at the first sample location (40-1)



No photos will be taken at Bldg 40 for security reasons

0829 Collected sample 40-10012 and 40-11224. HNu measured 2 ppm, and all reading with the CGI were at background

11/17/94

0840 IP filled the hole at sample location 40-1, and started to core 40-2.

0845 Collected samples 40-20012 and 40-21224. HNu measured at 300 ppm in the hole, and the LEL alarm sounded. No measurement recorded.

0859 Exited Bldg 40 for the next sampling location Bldg 6. IP patched both holes at Bldg 40

0910 Arrived at Bldg 6 to attempt to collect sample 6-2, a field dup, lab QC, and a split for MDD. Rain is starting to fall.

0912 IP is preparing to core the first location.

11/17/94

725. Collected sample ~~6A-20012~~ 6A-20012 and sample 6A-21224. MDD received a split from this location

0949 Collected the field duplicate sample 6B-20012 and 6B-21224.

1002 Collected the lab QC sample for 6A-2.

Exit Bldg 6 sample location for Bldg 14 WWTP.
- Will collect the CN split for MDD and decon equipment.

1015 Returned to WWTP @ Bldg 14.

1023 Collected the CN sample split from 14-2.
- After the sample was collected, the hole was backfilled with granular bentonite
- IP then started to decon their equipment.

11/17/94

~~11:19~~ Departing for Lunch. IP now turned loose for remainder of project.
- Will deliver some equipment to Fed Ex

1328 SAIC & MDNR returned to MDD Bldg 110 to meet with Bob Kaatman.

- Provide a C.O.C of sample splits to MDD for Elmer Dwyer

MDD asked ~~about what~~ what was observed ~~on~~ on site. SAIC/MDNR reported ~~on~~ what activities occured (HHh hit at Bldg 40 ect ect)

MDD asked what is the next step for EPA et al and them selves (MDD)

1411 Departed MDD for Hotel to pack samples.

11/17/94

1518 Called Kate Fox - SAIC WMM, and gave her an update on todays activity.

1531 Called Diane Jacks with shipment information

1730 Delivered samples to Fed Ex Air bill # 3185191623

APPENDIX D

SUMMARY OF CLOSURE ACTIVITIES/INVESTIGATIONS AT MCDONNELL-DOUGLAS HAZELWOOD FACILITY

Information provided in this appendix was obtained from closure investigation reports, sampling plans, or letters from McDonnell-Douglas to MDNR summarizing closure and sampling activity. The references cited in this appendix are listed in Section 6.0 of the report. Figures D-1 through D-5 are at the end of this appendix, other cited figures and tables are after the text of the main report.

D.1 SWMU 1, SODIUM HYDROXIDE WASTE TANKS H19 AND H20

This unit is located approximately 80 feet east of Building 52, and SWMU 2 (Figure 8). In May 1988, two steel 10,000-gallon tanks, previously used for sodium hydroxide waste storage at this location, were removed. These tanks had been in operation since 1966. The tanks were replaced with aboveground waste storage tanks that sit on a 6-inch-thick concrete pad on top of a 6-inch-thick asphalt spill pad. The asphalt pad is surrounded by a 9-inch-high asphalt curb, and underlain by 6 to 12 inches of crushed limestone base rock over clayey backfill. The area inside the curb is drained (drain is located at the east end of the curbed area) to the McDonnell Douglas industrial wastewater treatment plant (IWTP).

The closure investigation for tanks at SWMUs 1 and 2 was conducted concurrently. The closure investigation for the former tanks at this unit consisted of soil sampling around the perimeter of the asphalt containment curb for the current tanks. [3 (enclosure 3), 33] Samples were collected from 6 to 12 inches depth below the asphalt berm at four locations, one on each side of the berm area (Figure D-1). A fifth sample was collected at a depth of the drain pipe for the berm area (2.5 to 3.0 feet) at the sampling location adjacent to the drain pipe (location H19-E on Figure D-1). The sample numbering scheme for this SWMU included a prefix H19, followed by a letter indicating compass direction from the tank area (N, S, E, or W), followed by an "A" for a shallow sample or a "B" for a deep sample. [33]

A background soil sample was collected approximately 30 feet to the west of SWMU 1 (the sample depth was not noted in the investigation report). According to the closure investigation report, this sample location was selected because it was believed to be out of the potential area of influence of SWMU 1 and would represent the preconstruction condition of the backfill brought in during construction of buildings in the area. [33]

Samples were collected from boreholes drilled at each sampling location using hollow-stem augers. Shallow samples were obtained using a stainless steel hand auger. The deep sample was collected using a sample hammer unit with a stainless steel collection tube. All sampling equipment was steam cleaned between samples and all augers steam cleaned between boreholes to prevent cross-contamination. Sampling personnel changed gloves between samples. [33]

Soil samples were analyzed for total concentrations of the eight RCRA heavy metals and pH. The background sample was analyzed for the same parameters, and fluorides and nitrates. [33]

Analytical results for the five soil samples from this SWMU were compared by the contractor with those for the background sample and to TCLP regulatory levels. Analytical results for the

five samples and the background sample are provided and discussed in Section 5.1 of this report.

D.2 SWMU 2, WASTE NITRIC AND HYDROFLUORIC ACID SOLUTION STORAGE TANKS, H12, H13, H14, H15, H16

This SWMU is located adjacent to the east wall of Building 52 (Figure 8), and approximately 45 feet west of SWMU 1. Before October 1986, there were five 500-gallon polyethylene tanks (H12-16) at this location, used to store the nitric and hydrofluoric waste. The five tanks had been in operation since 1968. They were removed and replaced by three 850-gallon aboveground tanks (H12-14). The current tanks are polyolefin cylindrical tanks heated to maintain an internal temperature of 130°F. The tanks sit on a wooden platform constructed of 6-inch by 6-inch wooden beams. The platform is raised about 4 feet above the ground and supported on concrete piers. The area beneath the tanks is surrounded by a 6-inch-high asphalt curb, and underlain by 6 to 12 inches of crushed limestone base rock over bentonite lining of unknown thickness. The piers extend into the bentonite to a depth of approximately 3 feet. The spill pad slopes from the perimeter to a PVC drain located in the center of the curbed area. The drain is connected to the McDonnell-Douglas IWTP. Inside the curb is a layer of crushed limestone thickening from 4 inches deep at the perimeter to approximately 3 feet by the drain.

The closure investigation for SWMUs 1 and 2 was conducted concurrently. The closure investigation for the five former tanks at SWMU 2 consisted of soil sampling performed around the perimeter of the asphalt containment curb for the tanks. [3 (enclosure 3), 33] Samples were collected from 6 to 12 inches depth and 2.5 to 3.0 feet below the asphalt berm on the east and south sides. Samples could not be collected on the north and west sides because Building 52 forms the western perimeter of the unit, and there was a network of pipes and conduits on the north side that limited drilling access to the area (Figure D-1). [33] A sample of the gravel adjacent to the drain was collected at a depth of 2.5 to 3.0 feet. The sample numbering scheme for this SWMU included a prefix H12, followed by a letter indicating compass direction from the tank area (N, S, E, or W), followed by an "A" for a shallow sample or a "B" for a deep sample. [33]

A background soil sample was collected approximately 20 feet to the east of SWMU 2 (the sample depth was not noted in the investigation report). According to the closure investigation report, this sample location was selected because it was believed to be out of the potential area of influence of this SWMU and would represent the preconstruction condition of the backfill brought in during construction of buildings in the area. [33]

Samples were collected from boreholes drilled at each sampling location using hollow-stem augers. Shallow samples were obtained using a stainless steel hand auger. The deep sample was collected using a sample hammer unit with a stainless steel collection tube. All sampling equipment was steam cleaned between samples and all augers steam cleaned between boreholes to prevent cross-contamination. Sampling personnel changed gloves between samples. [33] Soil

samples (including the background sample) were analyzed for total concentrations of the eight RCRA heavy metals, pH, and fluorides and nitrates. [33]

Analytical results for the five soil samples from this SWMU were compared with those for the background sample and to TCLP regulatory levels. Analytical results for the five samples and the background sample are provided and discussed in Section 5.2 of this report.

D.3 SWMU 3, WASTEWATER SLUDGE COLLECTION AND HOLDING TANK, BUILDING 14

This unit is a 120,000-gallon tank, constructed of 12-inch steel reinforced concrete. It has straight sides and a conical bottom. In 1989, a 60-millimeter high density polyethylene (HDPE) liner was installed on the inside of the tank. There is a drain at the bottom of the tank from which the sludge is pumped into a centrifuge at the industrial wastewater pretreatment plant for dewatering. The height of the tank from the drain is 25 feet. The tank is buried approximately 13 feet below natural grade. The top of the tank extends 12 feet above natural grade, but an earthen mound encapsulates all but the upper three feet of the tank. [30]

For the closure investigation to remove this unit from the RCRA permit, soil samples were collected, and the tank was inspected. For the soil sampling, a borehole angled 22 degrees from vertical was drilled to the approximate base of the tank. At the time of sampling, it was believed that the tank was 36 feet deep from the top of the wall to the drain. The actual size of the tank could not be verified at the time of sampling because the tank was not empty. The drill angle and borehole depth were based on the preexisting information and a survey of elevations around the tank conducted prior to drilling. [30]

The borehole was drilled using a conventional drill rig, set up for angled drilling. Samples were collected at five-foot intervals during drilling for the purposes of logging and for laboratory analysis. The following samples were submitted to the laboratory:

- A background sample at an angular depth of 6 to 7 feet (vertical depth approximately 5 to 6 feet), believed to be above the groundwater table (and any potential contaminant migration), deep enough not to have been affected by any past spills, and shallow enough and distant enough from the tank not to have been affected by any past tank releases.

- A sample at an angular depth of 15 to 20 feet (vertical depth 13.9 to 18.5 feet), from a subsurface zone that was soft and showed signs of moisture (thought to be at the water table).

- A sample at an angular depth of 30 to 35 feet (vertical depth 27.8 to 32.5 feet) from the top of the boring believed to have been the approximate base of the tank. [30]

Sample positions with respect to the tank are shown on Figure D-2. All samples were analyzed for total concentrations of the eight RCRA heavy metals plus copper, nickel, zinc, cyanide, and pH.

Sampling equipment was cleaned between samples to prevent cross-contamination. The subcontractor report did not specify the cleaning procedure. [30] Sampling personnel changed gloves between samples to prevent cross-contamination.

Analytical results for the soil sample from this SWMU are provided and discussed in Section 5.3 of this report. A copy of the subsurface log provided by McDonnell-Douglas' contractor is included at the end of this appendix.

The tank inspection was conducted several months after the sampling. For the inspection, the tank was drained. At this time, the actual size specifications for the tank (provided above) were obtained. Both the liner and outer concrete walls above the earth mound were inspected. The liner walls and seams were inspected for defects and material wear, and the concrete walls for leakage and cracks. A small portion of the eastern tank wall exposed by a maintenance access also was inspected. No defects or evidence of wear were noted in the liner or seams. Despite the presence of several shrinkage cracks, there was no evidence of structural defects or leakage from the concrete walls. These findings were presented to MDNR in a letter from the engineers performing the inspection. [34]

D.4 SWMU 4, LEAKED OR SPILLED JET AIRCRAFT FUEL STORAGE, BUILDING 28

This unit is located approximately 15 feet north of Building 28 (Figure 5). It currently consists of a 100-gallon double-walled below-grade steel tank installed in 1989. The tank is 8 feet in diameter and approximately 14 feet long. It is used for less-than-90-day storage of waste jet aircraft fuels collected from leaks or spills occurring during the testing of aircraft fuel systems. The top of the tank is approximately 4 feet below the land surface (BLS).

From 1954 until 1989, a 5,000-gallon horizontal below-grade carbon steel tank was used for the same purposes at this location. The former tank was constructed of 1/4-inch-thick carbon steel with three 4-inch wide steel channel braces welded to the external surface of each end. A concrete slab covered the tank as well as the general area where the tank was located. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent this tank.

The closure investigation for the former tank was conducted concurrently with that for SWMU 7. The investigation at SWMU 4 involved the collection of soil samples from boreholes on the north and south sides of the existing tank. Boreholes were created using solid, two-inch augers. Sample depths corresponded to the bottom of the tank and the predetermined level of groundwater in the area. Based on water levels in two monitoring wells in the area,

groundwater was established at 4.5 to 5.0 feet BLS. [29] Therefore, samples were collected at depths of 4.5 to 5.0 feet and 11.5 to 12 feet BLS.

Soil samples were collected with either a stainless steel hand auger (for shallow samples) or sample hammer unit equipped with a stainless steel sample collection tube. Sampling equipment was washed with Alconox solution and rinsed clean between samples. Augers were cleaned between boreholes to prevent cross-contamination. Sampling personnel changed gloves between samples.

Samples were analyzed for total concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX) and for total petroleum hydrocarbons. Analytical results for the soil sample from this SWMU are provided and discussed in Section 5.4 of this report.

D.5 SWMU 6, FORMER REACTIVE CYANIDE AND SULFIDE-BEARING WASTE STORAGE, AREA 2

The former storage unit used for storage of reactive cyanide and sulfide-bearing waste is a building located between Buildings 29 and 27, just north of Building 22. The building is prefabricated, measuring 22 x 10 feet, with a concrete floor, a 53-inch-high concrete retaining wall topped by 31 inches of corrugated galvanized steel on the west side, and a 6-inch-high curb surrounding the storage area. The building is open to the east. The building has a corrugated metal roof 7 feet above ground level, supported by six beams. A 3-foot-6-inch-deep containment sump is located in the northeast corner of the unit. The area had a storage capacity of 31 drums. The unit was closed because of water seepage into the shelter after heavy rainfall or snowmelt resulting from hydraulic pressure on the back retaining wall. [5] The water would flow across the floor of the shelter, under the skids of waste containers and into the sump. This water flow into the shelter posed a potential hazard of combining with the reactive cyanide waste. [5] The shelter was replaced by a prefabricated unit adjacent to this building (SWMU 5).

Closure of this unit entailed removal of all containers to SWMU 5, high-pressure washing of the walls and floor with a solution of sodium hypochlorite, collection and analysis of samples of the concrete flooring and underlying soil, as well as soil outside the building. [5, 6, 37] Wash water collected in the spill containment sump and was transferred to two 55-gallon drums. A composite water sample from both drums was collected and submitted to a laboratory for analysis for cyanide. The water sample had a total cyanide concentration of 22,750 mg/L, and a pH of 10.4. [37] A letter from MCD to MDNR describing the proposed closure activities, indicated that if the wash water was found to be contaminated, the building would be rewashed until analyses of the wash water indicated no cyanide contamination. [5] However, there is no indication in subsequent correspondence from MCD to MDNR that this occurred. [37] The drummed wash water was placed in the new reactive cyanide and sulfide storage area for storage prior to off-site treatment. The containment sump was filled with sand and sealed with concrete. [37]

The sampling location for the interior of the building was at the intersection of two cracks in the

concrete flooring. The sample of flooring (identified MAC-1) was obtained using an electric hammer drill equipped with a 1-1/4-inch diameter bit. As the bit penetrated the floor, the powdered concrete cuttings were collected and placed into a 40 mL glass vial. The soil sample under the floor (identified as MAC-2) was collected by advancing a one-inch diameter thin-walled metal tube approximately 12 inches into the underlying soil. The soil was extracted from the tube and placed in a 250 mL glass jar. The outside soil sample was collected from the top 3 to 6 inches of soil, after vegetation was removed. The outside sample (identified as MAC-3) was collected using a hand trowel. [6] Figure D-4 shows the sampling locations. The soil and concrete sampling equipment was cleaned in a nonfoaming detergent solution of trisodium phosphate and hot tap water, rinsed in distilled water, and allowed to air dry.

Samples were analyzed for reactive cyanide and reactive sulfide. Analytical results are presented in Section 5.6 of the report.

D.6 SWMU 7, EXPLOSIVE WASTE STORAGE, AREA 3

Area 3, located within Building 10, contained explosives used in military aircraft (gas generators, rocket motors, ammunition, etc), as well as a small amount of raw explosive material (black powder, smokeless powder) used for research purposes. [29] Storage of explosives in Area 3 was discontinued in December 1985. Building 10 is 20 feet wide by 40 feet long with a sealed concrete floor, 8-inch-thick painted concrete block walls, and an asbestos roof. Area 3 occupied a 12- by 20-foot area at the southern end of the building. [29]

Closure of Area 3 entailed mopping the area with hot water and then sweeping with a shop vacuum. After the cleaning, wipe samples were collected at six different locations: one on each of the four walls, and at each end (west and east) of the rectangular floor (Figure D-5). Wall samples were collected at a point approximately two feet from the floor.

Two samples were collected from each location. [29] Samples were collected on 2-inch square sterile cotton gauze pads. The pads were moistened either with deionized water (for potassium nitrate analysis) or acetone (for nitrocellulose analysis). Each pad was used to wipe a 100 square centimeter area outlined by a template. [29]

Samples were immediately placed in glass jars and stored in coolers to prevent mishandling. [29] Samplers changed gloves between samples to prevent cross-contamination. The sample numbering scheme used at this location included a prefix (Bldg. 10), followed by a letter indicating compass direction from the tank area (N, S, E, or W), followed by a "W" for a wall sample or an "F" for a floor sample. [29] Analytical results for the wipe sample from this SWMU are provided and discussed in Section 5.4 of this document.

D.7 SWMU 11, FORMER WASTE OIL TANK, BUILDING 6

This unit consisted of a 1,000-gallon, horizontal, below-grade carbon steel tank, located adjacent to Building 6. The tank was constructed of 10-gauge carbon steel with an outer coating of black asphaltum. The tank was strapped to the concrete pad on which it rested. Leaks were monitored by a hydrocarbon sensing system that was installed in a monitoring well adjacent to the tank. The tank had been in operation from 1970 until December 1988, when it was removed. The concrete pad the tank was strapped to was left in place, and the hole filled with clean backfill. [10]

The closure investigation for this tank included the collection of soil samples from beneath the concrete pad that had supported the tank. These samples were obtained by drilling a borehole through the clean fill and the pad. After drilling through the pad, three consecutive 24-inch split spoon samples were collected. Each split spoon sample was divided into eight 3-inch lengths. Each length was placed in a separate container. A total of 21 3-inch lengths (or 63 inches of soil) were collected and placed in containers. Of the 21 samples collected, two samples, the one from 0 to 3-inch depth and the one from 60 to 63-inch depth, were sent to the laboratory for analysis. [10]

Samples were analyzed for EP toxicity, total petroleum hydrocarbons, and volatile organic carbon (VOC). Analytical results are provided and discussed in Section 5.11 of the report.

D.8 RAMP AREA: SWMU 13, WASTE JET AIRCRAFT AND HYDRAULIC SYSTEM SPILLAGE, HUSH HOUSE WASTE TANK, SWUM 14, WASTE JET AIRCRAFT FUEL STORAGE, FUEL PIT #3 AND FUEL PIT #4 WASTE TANKS, AND SWMU 15, WASTE JET FUEL STORAGE, RAMP STATION 1 AND 2 WASTE TANK

These three units are located in the "Ramp Area" of the facility. This area is shown on Figures 8, and 13. In 1989, McDonnell-Douglas performed a hydrogeologic investigation of the entire area, to determine the extent of groundwater contamination. For the purposes of remediation, the facility has grouped these three units together, because they are in close proximity, and the genesis of the contamination at each is the same. Thus, they are discussed together in this section.

SWMU 13 consisted of a steel 3,000-gallon horizontal below-grade tank used to store waste jet aircraft fuel and hydraulic system spillage. This tank was in use from 1963 until 1983. In 1983, it was replaced with a reinforced plastic tank. Both tanks were located south of the Hush House. A leak of 14-gallons per hour was discovered in the plastic tank on May 21, 1989. On May 31, 1989, an excavation to the top of the tank revealed a 16.5-inch gash in the tank. [35] Fuel-contaminated soil also was discovered in this excavation. [35] The plastic tank was removed in 1989, and the hole was filled in. Free liquid in the hole also was removed. [35]

SWMU 14 consisted of two 2,000-gallon vertical below-grade tanks constructed of 1/4-inch-thick carbon steel with an ASME-approved coal tar epoxy outer coating. Each tank had a nominal capacity of 3,000 gallons, but the bottom third of each was filled with concrete. Fuel pit #3 tank was installed in 1977. Fuel pit #4 tank was installed in 1983. Both tanks were removed in August 1992 because groundwater samples collected in 1990 from monitoring wells installed around the tanks revealed TPH and BTEX contamination.

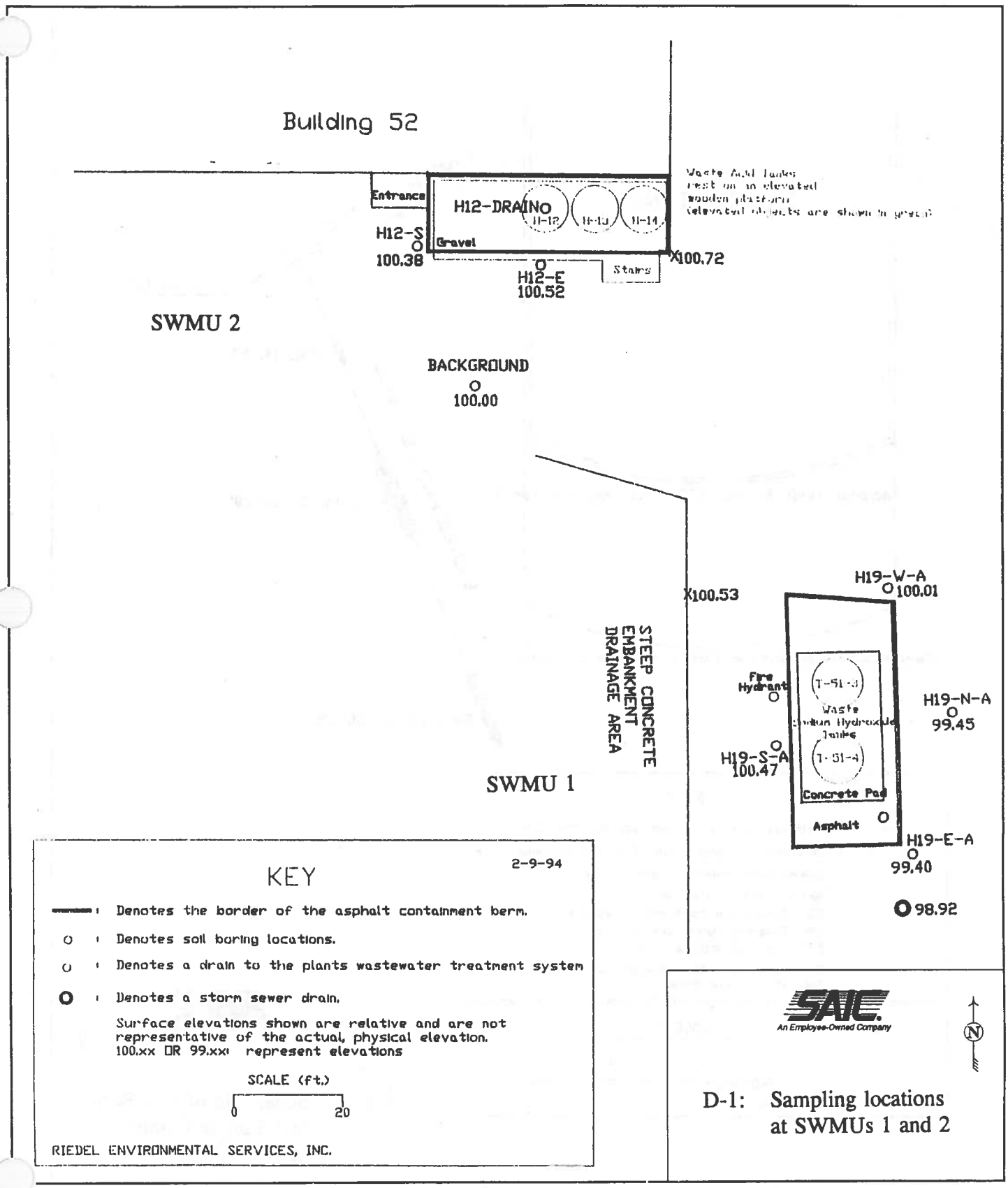
Soil samples were collected from SWMU 14 at the time of removal of both tanks. Three samples were collected from the the excavation for the Fuel Pit 3 tank, and two samples were collected from the excavation for the Fuel Pit 4 tank. Two of the samples from the Fuel Pit 3 tank excavation were collected at 16 feet BLS from the middle and the east end of the excavation. The third sample was collected at 15 feet BLS from a location downgradient of the tank. A composite sample was collected of soil from 4 locations in the Fuel Pit 4 tank excavation at a depth of 16 feet BLS. The other sample at Fuel Pit 4 was from a downgradient location at 15 feet BLS. The samples were analyzed for BTEX and TPH. Analytical results are provided and discussed in Section 5.11 of the report.

SWMU 15 consisted of a 4,380-gallon fiberglass underground storage tank that been used from 1983 until June, 1993 for storage of jet aircraft fuel that had leaked or been spilled during the repair of aircraft fuel systems. Groundwater samples collected in May 1990 from monitoring wells installed around the tank revealed contamination with TPH. An integrity test conducted on December 22, 1992 indicated that the tank had a leak rate of .0563 gpm and MCD stopped storing fuel in the tank at that time. [15]

A hydrogeologic assessment of the "Ramp Area" (SWMUs 12-15) was conducted in 1988 to determine the extent of contamination resulting from leaking USTs and a ruptured fuel line. As part of this investigation, 27 monitoring and/or remediation wells were installed in the Ramp Area. [40] Groundwater was found from 2 to 8 feet BLS. Each well is sampled twice per year and samples are analyzed for BTEX and TPH. Groundwater monitoring results for each unit are presented in Table 13 and discussed in Sections 5.13, 5.14, and 5.15 of this document.

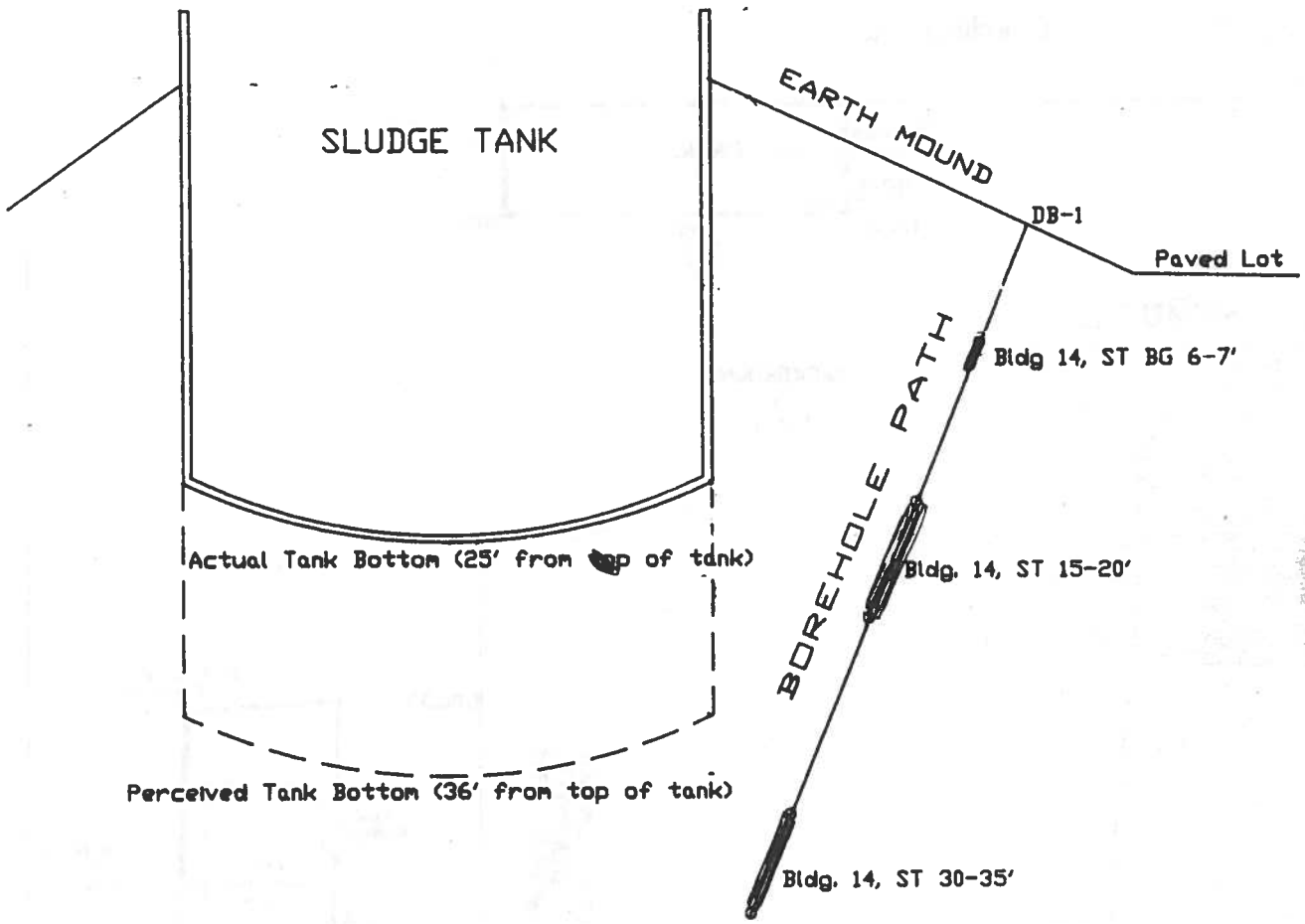
Remediation activities at the Ramp Area are being conducted under the oversight of MDNR Environmental Services Program (ESP), Leaking Underground Storage Tanks (LUST) division. Until 1994, remediation included gauging the wells weekly for depth to product, depth to groundwater, and groundwater temperature, followed by vacuuming for 30 minutes or until dry, to remove impacted groundwater and any free product. Since early 1994, wells at units having concentrations of the contaminants below detection limits are monitored, vacuumed and sampled once per year. [38]

APPENDIX D - FIGURES, AND BORING LOG FOR SWMU 6 CLOSURE SAMPLING



D-1: Sampling locations at SWMUs 1 and 2

Source: Building 52 Soil Sampling Activites, Reidel Environmental Services, Inc.



KEY 5-25-94

— — — : Denotes the perceived size of the tank.

o : Denotes the end point of a soil sampling zone.

Green text denotes sample ID's.

ABBREVIATED NOTATION:

BG: Denotes a background sample

DB: Denotes directional boring

ST: Denotes sludge tank

Depths denote the angular depth from the top of the borehole.

Borehole was drilled at an angle of 22 degrees from vertical

SCALE (ft.)

0 10

Diagram is not completely to scale.

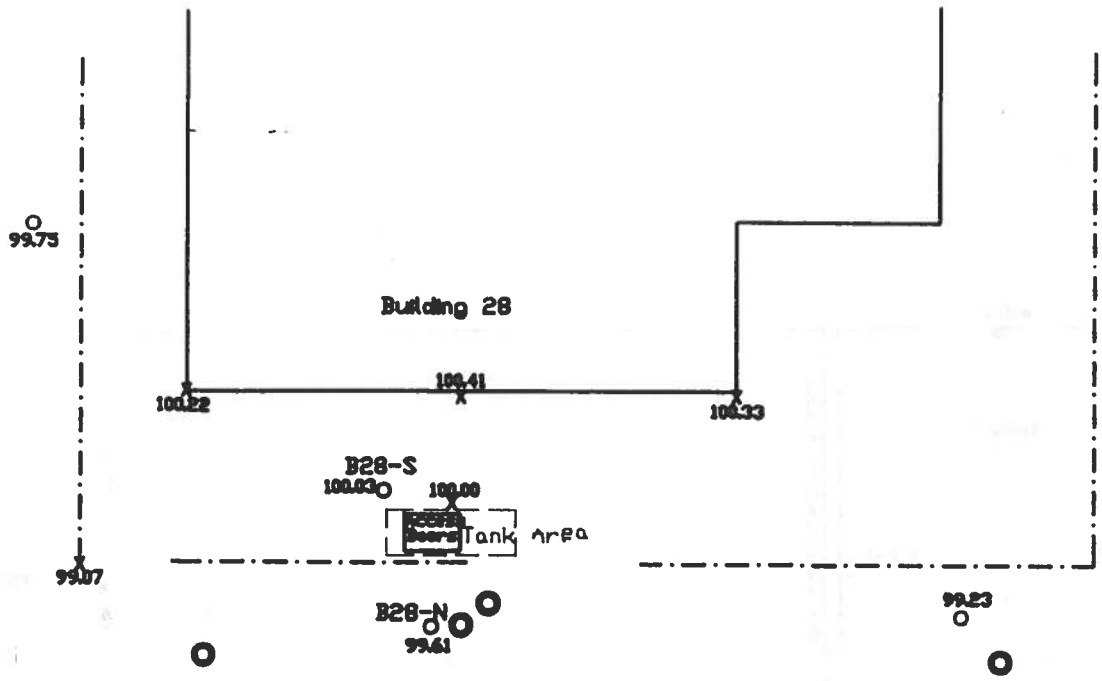
Riedel Environmental Services, Inc.

SAIC An Employee-Owned Company

N

D-2: Schematic of Soil Boring and Sample Depths at SWMU 3

Source: RCRA Closure Activities, Reidel Environmental Services, Inc.



2-9-94

KEY

O : Denotes a soil boring location.
O : Denotes a monitoring well location.
O : Denotes the location of wastewater treatment manholes.
O : Denotes the location of storm sewer drains.
—·—·— : Denotes a security fence.

Surface elevations shown are relative, and are not representative of the actual, physical elevation.
100.xx or 99.xx represent elevations at the marked (X) location

SCALE (ft.)
0 20

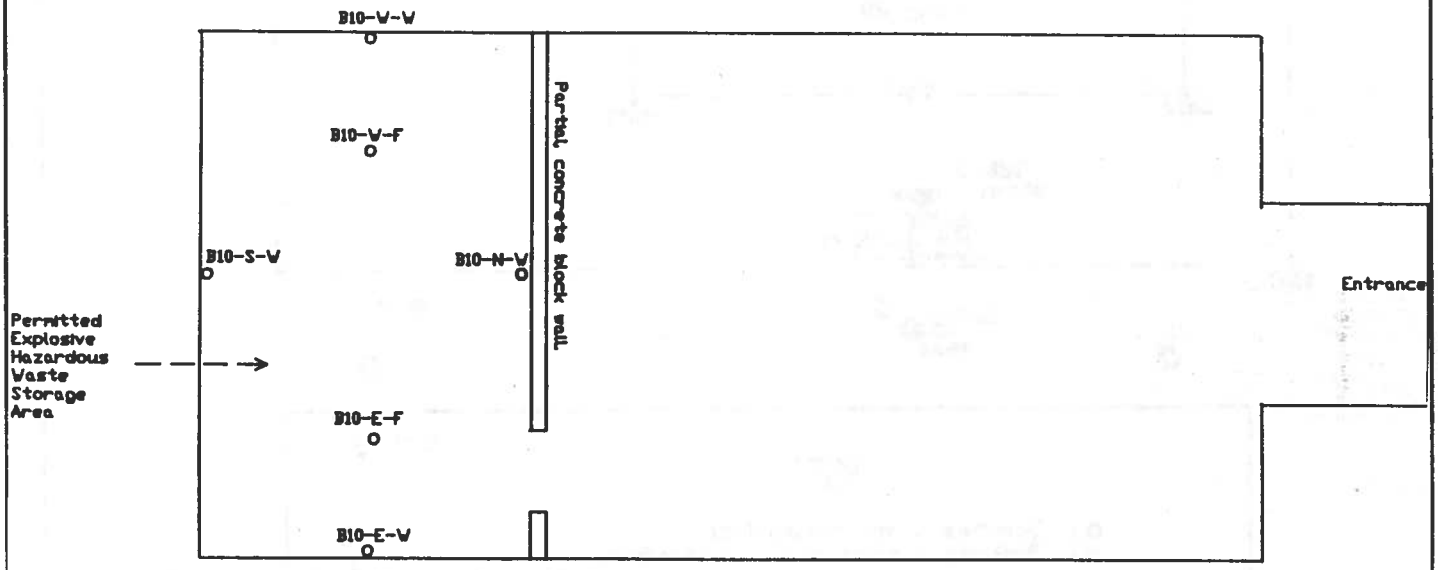
RIEDEL ENVIRONMENTAL SERVICES, INC.

SAIC
An Employee-Owned Company

N

D-3: Sampling Locations at SWMU 4

Source: Closure Activities Report, Reidel Environmental Services, Inc.



KEY 2-2-94

Drawing not to scale
Building dimensions: 20 x 40 feet
Room dimensions: 20 x 12 feet
O : Denotes a wipe sample location
N,S,E,W: Denote directions
F: Suffix used to denote floor samples
W: Suffix used to denote wall samples

SAIC
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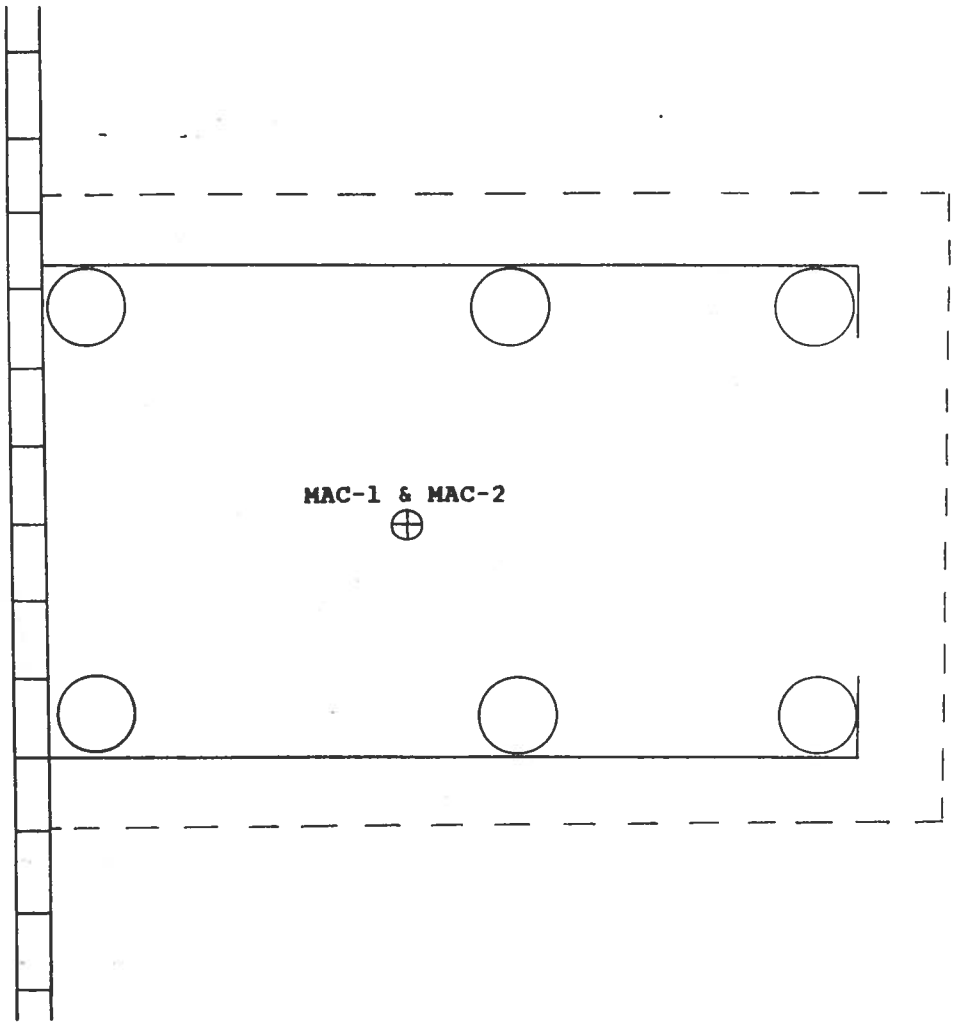
N

D-4: Sampling Locations at SWMU 6

Source: Testing and Closure Report, Cyanide Storage, ATEC and Associates



BUILDING SCHEMATIC

⊕ MAC-1 Sample Location

Retaining Wall

Roof Overhang

SAIC
An Employee-Owned Company

N

D-5: Sampling Locations at SWMU 7

Source: Closure Activities Report, Reidel Environmental Services, Inc.

APPENDIX E

SAMPLING VISIT ANALYTICAL DATA, SWMU 28 SAMPLE DATA, AND SLAPS BACKGROUND DATA MCDONNELL-DOUGLAS HAZELWOOD FACILITY

HAZARDOUS WASTE CHEMICAL ANALYSIS

DATE REQUESTED 12-7-82
SAMPLE I.D. 687-28-5699113

REQUEST A CHEMICAL ANALYSIS AS FOLLOWS:

MATERIAL/SOLUTION NAME Electrical Transformer Dielectric Fluid

DEPARTMENT MAINT. BUILDING/LOCATION Bldg. 6 Tr. I

NOW IN TANK NO. _____ ORIGINAL TANK NO. _____

MISCELLANEOUS INFORMATION OR IDENTIFICATION _____

TEST ONLY ITEMS CHECKED

Non PCB transformer

- [ ] SPECIFIC GRAVITY _____
- [ ] pH _____
- [ ] COLOR _____
- [ ] FLASH POINT (PMCC) _____ ° CENTIGRADE
- [ ] % SOLUBILITY (REFERENCE _____) _____
- [x] PCB'S [TYPE(S) Aroclor 1260] 44.0 PPM (W/W) PCB isomers
- [ ] % BY WT VOLATILES AT 100 °C _____
- [ ] % BY WT VOLATILES AT 600 °C _____
- [ ] % OIL/GREASE _____
- [ ] CHLORINE AS _____ mg/l Cl^-
- [ ] AMMONIA AS _____ mg/l N^{+3}
- [ ] CYANIDE AS _____ % BY WT CN
- [ ] HEX CHROMIUM AS _____ % BY WT Cr^{+6}
- [ ] HYDRO FLUORIC ACID AS _____ % BY WT HF
- [ ] NITRIC ACID AS _____ % BY WT HNO_3
- [ ] SODIUM HYDROXIDE AS _____ % BY WT NAOH
- [ ] ORGANIC CHLORIDES AS _____ mg/l OR % BY WT Cl^-
- [ ] SULFIDES _____ % BY WT S^-
- [ ] TOTAL CHROMIUM _____ mg/l
- [ ] INORGANIC CHLORIDES _____ % BY WT Cl^-
- [ ] INORGANIC FLUORIDES _____ % BY WT F^-
- [ ] INORGANIC NITRATES _____ % BY WT NO_3^-
- [ ] INORGANIC PHOSPHATES _____ % BY WT PO_4^{-3}
- [ ] INORGANIC SULFATES _____ % BY WT SO_4^{-2}
- [ ] SULFURIC ACID AS _____ % BY WT H_2SO_4

TESTED BY Jim Turchell EMPLOYE NO. 181994

DATE TESTED 1/24/83

METHOD USED electron capture gas chromatography

RETURN COMPLETED FORM TO ENVIRONMENTAL POLLUTION CONTROL

Table 3-38 Field Sampling Plan Sampling Data
Background Chemical Concentrations in Soil Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00101	SCH001	4527	7436	0.0 - 2.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,2,4-TRICHLOROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,2-DICHLOROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,3-DICHLOROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	1,4-DICHLOROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A00101	SCH001	4527	7436	"	2,4,6-TRICHLOROPHENOL	420.0	UG/KG		U

BNI Flags:
- J Estimated quantity
- N Presumptive evidence (tentative identification)
- NJ Presumptive evidence as an estimated quantity
- Q No analytical result (organics only)
- R Rejected, Data are unusable
- U Undetected
- UJ Undetected estimate
- Z No analytical result (inorganics only)

Weston Flags:
- = Equal to
- U Analyzed, not detected
- J Present below detection limit
- B Present in blank
- NR Not requested
- NS Not spiked
- D Diluted out
- E Out of calibration range
- I Interference
- NA Not applicable
- * Outside of QC limits
- NC Not calculated

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00101	SCH001	4527	7436	0.0 - 2.0	2,4-DICHLOROPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2,4-DIMETHYLPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2,4-DINITROPHENOL	1000	UG/KG		U
A00101	SCH001	4527	7436	"	2,4-DINITROTOLUENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2,6-DINITROTOLUENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-BUTANONE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-CHLORONAPHTHALENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-CHLOROPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-HEXANONE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-METHYLNAPHTHALENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-METHYLPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	2-NITROANILINE	1000	UG/KG		U
A00101	SCH001	4527	7436	"	2-NITROPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	3,3'-DICHLOROBENZIDINE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	3-NITROANILINE	1000	UG/KG		U
A00101	SCH001	4527	7436	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A00101	SCH001	4527	7436	"	4-BROMOPHENYL-PHENYLETHER	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-CHLORO-3-METHYLPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-CHLOROANILINE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-CHLOROPHENYL-PHENYLETHER	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-METHYLPHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	4-NITROANILINE	1000	UG/KG		U
A00101	SCH001	4527	7436	"	4-NITROPHENOL	1000	UG/KG		U
A00101	SCH001	4527	7436	"	ACENAPHTHENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	ACENAPHTHYLENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	ACETONE	13.0	UG/KG	U	JB
A00101	SCH001	4527	7436	"	ANTHRACENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	Aluminum, Total	5480	MG/KG		=
A00101	SCH001	4527	7436	"	Antimony, Total	14.8	MG/KG	UJ	U
A00101	SCH001	4527	7436	"	Arsenic, Total	6.8	MG/KG	J	=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00101	SCH001	4527	7436	0.0 - 2.0	BENZENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	BENZO(A)ANTHRACENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BENZO(A)PYRENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BENZO(B)FLUORANTHENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BENZO(G,H,I)PERYLENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BENZO(K)FLUORANTHENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BIS(2-CHLOROETHOXY)METHANE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BIS(2-CHLOROETHYL)ETHER	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BIS(2-CHLOROISOPROPYL)ETHER	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	BIS(2-ETHYLHEXYL)PHTHALATE	420.0	UG/KG	U	JB
A00101	SCH001	4527	7436	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	BROMOFORM	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	BROMOMETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	BUTYLBENZYLPHTHALATE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	Barium, Total	102.0	MG/KG	J	=
A00101	SCH001	4527	7436	"	Beryllium, Total	0.5	MG/KG		=
A00101	SCH001	4527	7436	"	Boron, Total	2.5	MG/KG		U
A00101	SCH001	4527	7436	"	CARBAZOLE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	CARBON DISULFIDE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	CHLOROBENZENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00101	SCH001	4527	7436	"	CHLOROFORM	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	CHLOROMETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	CHRYSENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Cadmium, Total	1.7	MG/KG		U
A00101	SCH001	4527	7436	"	Calcium, Total	2810	MG/KG	J	=
A00101	SCH001	4527	7436	"	Chromium, Total	11.0	MG/KG		=
A00101	SCH001	4527	7436	"	Cobalt, Total	8.2	MG/KG		=
A00101	SCH001	4527	7436	"	Copper, Total	15.6	MG/KG		=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00101	SCH001	4527	7436	0.0 - 2.0	DI-N-BUTYLPHTHALATE	420.0	UG/KG	U	JB
A00101	SCH001	4527	7436	"	DI-N-OCTYLPHTHALATE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	DIBENZ(A,H)ANTHRACENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	DIBENZOFURAN	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	DIETHYLPHTHALATE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	DIMETHYLPHTHALATE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	ETHYLBENZENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	FLUORANTHENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	FLUORENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	HEXACHLOROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	HEXACHLOROBUTADIENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	HEXACHLOROCYCLOPENTADIENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	HEXACHLOROETHANE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	INDENO(1,2,3-CD)PYRENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	ISOPHORONE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	Iron, Total	14500	MG/KG	J	=
A00101	SCH001	4527	7436	"	Lead, Total	14.3	MG/KG	J	=
A00101	SCH001	4527	7436	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Magnesium, Total	2280	MG/KG		=
A00101	SCH001	4527	7436	"	Manganese, Total	682.0	MG/KG	J	=
A00101	SCH001	4527	7436	"	Molybdenum, Total	11.5	MG/KG		=
A00101	SCH001	4527	7436	"	N-NITROSO-DI-N-PROPYLAMINE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	N-NITROSODIPHENYLAMINE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	NAPHTHALENE	24.0	UG/KG		J
A00101	SCH001	4527	7436	"	NITROBENZENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	Nickel, Total	16.6	MG/KG		=
A00101	SCH001	4527	7436	"	PENTACHLOROPHENOL	1000	UG/KG		U
A00101	SCH001	4527	7436	"	PHENANTHRENE	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	PHENOL	420.0	UG/KG		U
A00101	SCH001	4527	7436	"	PYRENE	420.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00101	SCH001	4527	7436	0.0 - 2.0	Potassium, Total	647.0	MG/KG		=
A00101	SCH001	4527	7436	"	STYRENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Selenium, Total	0.5	MG/KG		U
A00101	SCH001	4527	7436	"	Silver, Total	2.5	MG/KG		U
A00101	SCH001	4527	7436	"	Sodium, Total	59.9	MG/KG		=
A00101	SCH001	4527	7436	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	TOLUENE	30.0	UG/KG		=
A00101	SCH001	4527	7436	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Thallium, Total	0.5	MG/KG	UJ	U
A00101	SCH001	4527	7436	"	VINYL CHLORIDE	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Vanadium, Total	13.4	MG/KG		=
A00101	SCH001	4527	7436	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00101	SCH001	4527	7436	"	Zinc, Total	43.7	MG/KG		=
A00102	SCH001	4527	7436	4.0 - 6.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,2,4-TRICHLOROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,2-DICHLOROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,3-DICHLOROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	1,4-DICHLOROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2,4,5-TRICHLOROPHENOL	1100	UG/KG		U
A00102	SCH001	4527	7436	"	2,4,6-TRICHLOROPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2,4-DICHLOROPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2,4-DIMETHYLPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2,4-DINITROPHENOL	1100	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00102	SCH001	4527	7436	4.0 - 6.0	2,4-DINITROTOLUENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2,6-DINITROTOLUENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-BUTANONE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-CHLORONAPHTHALENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-CHLOROPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-HEXANONE	13.0	UG/KG	UJ	U
A00102	SCH001	4527	7436	"	2-METHYLNAPHTHALENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-METHYLPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	2-NITROANILINE	1100	UG/KG		U
A00102	SCH001	4527	7436	"	2-NITROPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	3,3'-DICHLOROBENZIDINE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	3-NITROANILINE	1100	UG/KG		U
A00102	SCH001	4527	7436	"	4,6-DINITRO-2-METHYLPHENOL	1100	UG/KG		U
A00102	SCH001	4527	7436	"	4-BROMOPHENYL-PHENYLETHER	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-CHLORO-3-METHYLPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-CHLOROANILINE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-CHLOROPHENYL-PHENYLETHER	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-METHYLPHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	4-NITROANILINE	1100	UG/KG		U
A00102	SCH001	4527	7436	"	4-NITROPHENOL	1100	UG/KG		U
A00102	SCH001	4527	7436	"	ACENAPHTHENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	ACENAPHTHYLENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	ACETONE	13.0	UG/KG	U	JB
A00102	SCH001	4527	7436	"	ANTHRACENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	Aluminum, Total	4260	MG/KG		=
A00102	SCH001	4527	7436	"	Antimony, Total	15.0	MG/KG	UJ	U
A00102	SCH001	4527	7436	"	Arsenic, Total	2.4	MG/KG	J	=
A00102	SCH001	4527	7436	"	BENZENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	BENZO(A)ANTHRACENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BENZO(A)PYRENE	430.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00102	SCH001	4527	7436	4.0 - 6.0	BENZO(B)FLUORANTHENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BENZO(G,H,I)PERYLENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BENZO(K)FLUORANTHENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BIS(2-CHLOROETHOXY)METHANE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BIS(2-CHLOROETHYL)ETHER	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BIS(2-CHLOROISOPROPYL)ETHER	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	BIS(2-ETHYLHEXYL)PHTHALATE	430.0	UG/KG	U	JB
A00102	SCH001	4527	7436	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	BROMOFORM	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	BROMOMETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	BUTYLBENZYLPHTHALATE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	Barium, Total	113.0	MG/KG	J	=
A00102	SCH001	4527	7436	"	Beryllium, Total	0.5	MG/KG		=
A00102	SCH001	4527	7436	"	Boron, Total	2.5	MG/KG		U
A00102	SCH001	4527	7436	"	CARBAZOLE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	CARBON DISULFIDE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	CHLOROBENZENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00102	SCH001	4527	7436	"	CHLOROFORM	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	CHLOROMETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	CHRYSENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Cadmium, Total	1.7	MG/KG		U
A00102	SCH001	4527	7436	"	Calcium, Total	3300	MG/KG	J	=
A00102	SCH001	4527	7436	"	Chromium, Total	10.0	MG/KG		=
A00102	SCH001	4527	7436	"	Cobalt, Total	8.0	MG/KG		=
A00102	SCH001	4527	7436	"	Copper, Total	13.1	MG/KG		=
A00102	SCH001	4527	7436	"	DI-N-BUTYLPHTHALATE	430.0	UG/KG	U	JB
A00102	SCH001	4527	7436	"	DI-N-OCTYLPHTHALATE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	DIBENZ(A,H)ANTHRACENE	430.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00102	SCH001	4527	7436	4.0 - 6.0	DIBENZOFURAN	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	DIETHYLPHTHALATE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	DIMETHYLPHTHALATE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	ETHYLBENZENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	FLUORANTHENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	FLUORENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	HEXACHLOROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	HEXACHLOROBUTADIENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	HEXACHLOROCYCLOPENTADIENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	HEXACHLOROETHANE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	INDENO(1,2,3-CD)PYRENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	ISOPHORONE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	Iron, Total	11200	MG/KG	J	=
A00102	SCH001	4527	7436	"	Lead, Total	8.9	MG/KG	J	=
A00102	SCH001	4527	7436	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Magnesium, Total	2490	MG/KG		=
A00102	SCH001	4527	7436	"	Manganese, Total	740.0	MG/KG	J	=
A00102	SCH001	4527	7436	"	Molybdenum, Total	8.9	MG/KG		=
A00102	SCH001	4527	7436	"	N-NITROSO-DI-N-PROPYLAMINE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	N-NITROSODIPHENYLAMINE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	NAPHTHALENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	NITROBENZENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	Nickel, Total	13.9	MG/KG		=
A00102	SCH001	4527	7436	"	PENTACHLOROPHENOL	1100	UG/KG		U
A00102	SCH001	4527	7436	"	PHENANTHRENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	PHENOL	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	PYRENE	430.0	UG/KG		U
A00102	SCH001	4527	7436	"	Potassium, Total	436.0	MG/KG		=
A00102	SCH001	4527	7436	"	STYRENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Selenium, Total	0.5	MG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00102	SCH001	4527	7436	4.0 - 6.0	Silver, Total	2.5	MG/KG		U
A00102	SCH001	4527	7436	"	Sodium, Total	67.8	MG/KG		=
A00102	SCH001	4527	7436	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	TOLUENE	26.0	UG/KG		=
A00102	SCH001	4527	7436	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Thallium, Total	0.5	MG/KG	UJ	U
A00102	SCH001	4527	7436	"	VINYL CHLORIDE	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Vanadium, Total	12.4	MG/KG		=
A00102	SCH001	4527	7436	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00102	SCH001	4527	7436	"	Zinc, Total	37.0	MG/KG		=
A00103	SCH001	4527	7436	10.0 - 12.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,2,4-TRICHLOROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,2-DICHLOROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,3-DICHLOROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	1,4-DICHLOROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2,4,5-TRICHLOROPHENOL	1100	UG/KG		U
A00103	SCH001	4527	7436	"	2,4,6-TRICHLOROPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2,4-DICHLOROPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2,4-DIMETHYLPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2,4-DINITROPHENOL	1100	UG/KG		U
A00103	SCH001	4527	7436	"	2,4-DINITROTOLUENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2,6-DINITROTOLUENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2-BUTANONE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00103	SCH001	4527	7436	10.0 - 12.0	2-CHLORONAPHTHALENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2-CHLOROPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2-HEXANONE	13.0	UG/KG	UJ	U
A00103	SCH001	4527	7436	"	2-METHYLNAPHTHALENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2-METHYLPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	2-NITROANILINE	1100	UG/KG		U
A00103	SCH001	4527	7436	"	2-NITROPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	3,3'-DICHLOROBENZIDINE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	3-NITROANILINE	1100	UG/KG		U
A00103	SCH001	4527	7436	"	4,6-DINITRO-2-METHYLPHENOL	1100	UG/KG		U
A00103	SCH001	4527	7436	"	4-BROMOPHENYL-PHENYLETHER	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-CHLORO-3-METHYLPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-CHLOROANILINE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-CHLOROPHENYL-PHENYLETHER	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-METHYLPHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	4-NITROANILINE	1100	UG/KG		U
A00103	SCH001	4527	7436	"	4-NITROPHENOL	1100	UG/KG		U
A00103	SCH001	4527	7436	"	ACENAPHTHENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	ACENAPHTHYLENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	ACETONE	13.0	UG/KG	U	JB
A00103	SCH001	4527	7436	"	ANTHRACENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	Aluminum, Total	5790	MG/KG		=
A00103	SCH001	4527	7436	"	Antimony, Total	15.7	MG/KG	UJ	U
A00103	SCH001	4527	7436	"	Arsenic, Total	0.8	MG/KG	J	=
A00103	SCH001	4527	7436	"	BENZENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	BENZO(A)ANTHRACENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BENZO(A)PYRENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BENZO(B)FLUORANTHENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BENZO(G,H,I)PERYLENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BENZO(K)FLUORANTHENE	440.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00103	SCH001	4527	7436	10.0 - 12.0	BIS(2-CHLOROETHOXY)METHANE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BIS(2-CHLOROETHYL)ETHER	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BIS(2-CHLOROISOPROPYL)ETHER	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	BIS(2-ETHYLHEXYL)PHTHALATE	440.0	UG/KG	U	JB
A00103	SCH001	4527	7436	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	BROMOFORM	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	BROMOMETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	BUTYLBENZYLPHTHALATE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	Barium, Total	78.2	MG/KG	J	=
A00103	SCH001	4527	7436	"	Beryllium, Total	0.5	MG/KG		=
A00103	SCH001	4527	7436	"	Boron, Total	2.6	MG/KG		U
A00103	SCH001	4527	7436	"	CARBAZOLE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	CARBON DISULFIDE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	CHLOROBENZENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00103	SCH001	4527	7436	"	CHLOROFORM	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	CHLOROMETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	CHRYSENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Cadmium, Total	1.8	MG/KG		U
A00103	SCH001	4527	7436	"	Calcium, Total	2320	MG/KG	J	=
A00103	SCH001	4527	7436	"	Chromium, Total	10.0	MG/KG		=
A00103	SCH001	4527	7436	"	Cobalt, Total	6.9	MG/KG		=
A00103	SCH001	4527	7436	"	Copper, Total	12.3	MG/KG		=
A00103	SCH001	4527	7436	"	DI-N-BUTYLPHTHALATE	440.0	UG/KG	U	JB
A00103	SCH001	4527	7436	"	DI-N-OCTYLPHTHALATE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	DIBENZ(A,H)ANTHRACENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	DIBENZOFURAN	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	DIETHYLPHTHALATE	440.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00103	SCH001	4527	7436	10.0 - 12.0	DIMETHYLPHTHALATE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	ETHYLBENZENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	FLUORANTHENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	FLUORENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	HEXACHLOROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	HEXACHLOROBUTADIENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	HEXACHLOROCYCLOPENTADIENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	HEXACHLOROETHANE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	INDENO(1,2,3-CD)PYRENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	ISOPHORONE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	Iron, Total	8780	MG/KG	J	=
A00103	SCH001	4527	7436	"	Lead, Total	7.3	MG/KG	J	=
A00103	SCH001	4527	7436	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Magnesium, Total	2080	MG/KG		=
A00103	SCH001	4527	7436	"	Manganese, Total	68.3	MG/KG	J	=
A00103	SCH001	4527	7436	"	Molybdenum, Total	6.9	MG/KG		=
A00103	SCH001	4527	7436	"	N-NITROSO-DI-N-PROPYLAMINE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	N-NITROSODIPHENYLAMINE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	NAPHTHALENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	NITROBENZENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	Nickel, Total	10.1	MG/KG		=
A00103	SCH001	4527	7436	"	PENTACHLOROPHENOL	1100	UG/KG		U
A00103	SCH001	4527	7436	"	PHENANTHRENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	PHENOL	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	PYRENE	440.0	UG/KG		U
A00103	SCH001	4527	7436	"	Potassium, Total	476.0	MG/KG		=
A00103	SCH001	4527	7436	"	STYRENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Selenium, Total	0.5	MG/KG		U
A00103	SCH001	4527	7436	"	Silver, Total	2.6	MG/KG		U
A00103	SCH001	4527	7436	"	Sodium, Total	54.0	MG/KG		=
A00103	SCH001	4527	7436	"	TETRACHLOROETHYLENE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00103	SCH001	4527	7436	10.0 - 12.0	TOLUENE	12.0	UG/KG		J
A00103	SCH001	4527	7436	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Thallium, Total	0.5	MG/KG	UJ	U
A00103	SCH001	4527	7436	"	VINYL CHLORIDE	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Vanadium, Total	16.3	MG/KG		=
A00103	SCH001	4527	7436	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00103	SCH001	4527	7436	"	Zinc, Total	33.5	MG/KG		=
A00104	SCH002	4609	7446	0.0 - 2.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,2,4-TRICHLOROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,2-DICHLOROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,3-DICHLOROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	1,4-DICHLOROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A00104	SCH002	4609	7446	"	2,4,6-TRICHLOROPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2,4-DICHLOROPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2,4-DIMETHYLPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2,4-DINITROPHENOL	1000	UG/KG		U
A00104	SCH002	4609	7446	"	2,4-DINITROTOLUENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2,6-DINITROTOLUENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-BUTANONE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-BUTANONE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-CHLORONAPHTHALENE	420.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00104	SCH002	4609	7446	0.0 - 2.0	2-CHLOROPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-HEXANONE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-HEXANONE	13.0	UG/KG	UJ	U
A00104	SCH002	4609	7446	"	2-METHYLNAPHTHALENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-METHYLPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	2-NITROANILINE	1000	UG/KG		U
A00104	SCH002	4609	7446	"	2-NITROPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	3,3'-DICHLOROBENZIDINE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	3-NITROANILINE	1000	UG/KG		U
A00104	SCH002	4609	7446	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A00104	SCH002	4609	7446	"	4-BROMOPHENYL-PHENYLETHER	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-CHLORO-3-METHYLPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-CHLOROANILINE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-CHLOROPHENYL-PHENYLETHER	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-METHYLPHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	4-NITROANILINE	1000	UG/KG		U
A00104	SCH002	4609	7446	"	4-NITROPHENOL	1000	UG/KG		U
A00104	SCH002	4609	7446	"	ACENAPHTHENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	ACENAPHTHYLENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	ACETONE	13.0	UG/KG	U	JB
A00104	SCH002	4609	7446	"	ACETONE	17.0	UG/KG	J	B
A00104	SCH002	4609	7446	"	ANTHRACENE	31.0	UG/KG		J
A00104	SCH002	4609	7446	"	Aluminum, Total	5670	MG/KG		=
A00104	SCH002	4609	7446	"	Antimony, Total	15.3	MG/KG	UJ	U
A00104	SCH002	4609	7446	"	Arsenic, Total	5.9	MG/KG	J	=
A00104	SCH002	4609	7446	"	BENZENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	BENZO(A)ANTHRACENE	170.0	UG/KG		J
A00104	SCH002	4609	7446	"	BENZO(A)PYRENE	150.0	UG/KG		J
A00104	SCH002	4609	7446	"	BENZO(B)FLUORANTHENE	210.0	UG/KG		J
A00104	SCH002	4609	7446	"	BENZO(G,H,I)PERYLENE	84.0	UG/KG		J

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00104	SCH002	4609	7446	0.0 - 2.0	BENZO(K)FLUORANTHENE	180.0	UG/KG		J
A00104	SCH002	4609	7446	"	BIS(2-CHLOROETHOXY)METHANE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	BIS(2-CHLOROETHYL)ETHER	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	BIS(2-CHLOROISOPROPYL)ETHER	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	BIS(2-ETHYLHEXYL)PHTHALATE	420.0	UG/KG	U	JB
A00104	SCH002	4609	7446	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	BROMOFORM	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	BROMOMETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	BUTYLBENZYLPHTHALATE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	Barium, Total	131.0	MG/KG	J	=
A00104	SCH002	4609	7446	"	Beryllium, Total	0.5	MG/KG		=
A00104	SCH002	4609	7446	"	Boron, Total	2.6	MG/KG		U
A00104	SCH002	4609	7446	"	CARBAZOLE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	CARBON DISULFIDE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	CHLOROBENZENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00104	SCH002	4609	7446	"	CHLOROFORM	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	CHLOROMETHANE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	CHRYSENE	190.0	UG/KG		J
A00104	SCH002	4609	7446	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Cadmium, Total	1.8	MG/KG		U
A00104	SCH002	4609	7446	"	Calcium, Total	3770	MG/KG	J	=
A00104	SCH002	4609	7446	"	Chromium, Total	10.0	MG/KG		=
A00104	SCH002	4609	7446	"	Cobalt, Total	6.0	MG/KG		=
A00104	SCH002	4609	7446	"	Copper, Total	12.8	MG/KG		=
A00104	SCH002	4609	7446	"	DI-N-BUTYLPHTHALATE	420.0	UG/KG	U	JB
A00104	SCH002	4609	7446	"	DI-N-OCTYLPHTHALATE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	DIBENZ(A,H)ANTHRACENE	35.0	UG/KG		J
A00104	SCH002	4609	7446	"	DIBENZOFURAN	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00104	SCH002	4609	7446	"	DIETHYLPHTHALATE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	DIMETHYLPHTHALATE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	ETHYLBENZENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	FLUORANTHENE	410.0	UG/KG		J
A00104	SCH002	4609	7446	"	FLUORENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	HEXACHLOROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	HEXACHLOROBUTADIENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	HEXACHLOROCYCLOPENTADIENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	HEXACHLOROETHANE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	INDENO(1,2,3-CD)PYRENE	130.0	UG/KG		J
A00104	SCH002	4609	7446	"	ISOPHORONE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	Iron, Total	9670	MG/KG	J	=
A00104	SCH002	4609	7446	"	Lead, Total	30.9	MG/KG	J	=
A00104	SCH002	4609	7446	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Magnesium, Total	1610	MG/KG		=
A00104	SCH002	4609	7446	"	Manganese, Total	508.0	MG/KG	J	=
A00104	SCH002	4609	7446	"	Molybdenum, Total	7.7	MG/KG		=
A00104	SCH002	4609	7446	"	N-NITROSO-DI-N-PROPYLAMINE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	N-NITROSODIPHENYLAMINE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	NAPHTHALENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	NITROBENZENE	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	Nickel, Total	10.5	MG/KG		=
A00104	SCH002	4609	7446	"	PENTACHLOROPHENOL	1000	UG/KG		U
A00104	SCH002	4609	7446	"	PHENANTHRENE	180.0	UG/KG		J
A00104	SCH002	4609	7446	"	PHENOL	420.0	UG/KG		U
A00104	SCH002	4609	7446	"	PYRENE	340.0	UG/KG		J
A00104	SCH002	4609	7446	"	Potassium, Total	807.0	MG/KG		=
A00104	SCH002	4609	7446	"	STYRENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Selenium, Total	0.5	MG/KG		U
A00104	SCH002	4609	7446	"	Silver, Total	2.6	MG/KG		=
A00104	SCH002	4609	7446	"	Sodium, Total	51.8	MG/KG		=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00104	SCH002	4609	7446	0.0 - 2.0	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	TOLUENE	13.0	UG/KG	R	U
A00104	SCH002	4609	7446	"	TOLUENE	150.0	UG/KG	R	=
A00104	SCH002	4609	7446	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Thallium, Total	0.5	MG/KG	UJ	U
A00104	SCH002	4609	7446	"	VINYL CHLORIDE	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Vanadium, Total	11.3	MG/KG		=
A00104	SCH002	4609	7446	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00104	SCH002	4609	7446	"	Zinc, Total	52.8	MG/KG		=
A00105	SCH002	4609	7446	8.0 - 10.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,2,4-TRICHLOROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,2-DICHLOROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,3-DICHLOROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	1,4-DICHLOROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A00105	SCH002	4609	7446	"	2,4,6-TRICHLOROPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2,4-DICHLOROPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2,4-DIMETHYLPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2,4-DINITROPHENOL	1000	UG/KG		U
A00105	SCH002	4609	7446	"	2,4-DINITROTOLUENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2,6-DINITROTOLUENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-BUTANONE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00105	SCH002	4609	7446	8.0 - 10.0	2-CHLORONAPHTHALENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-CHLOROPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-HEXANONE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-METHYLNAPHTHALENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-METHYLPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	2-NITROANILINE	1000	UG/KG		U
A00105	SCH002	4609	7446	"	2-NITROPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	3,3'-DICHLOROBENZIDINE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	3-NITROANILINE	1000	UG/KG		U
A00105	SCH002	4609	7446	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A00105	SCH002	4609	7446	"	4-BROMOPHENYL-PHENYLETHER	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-CHLORO-3-METHYLPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-CHLOROANILINE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-CHLOROPHENYL-PHENYLETHER	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-METHYLPHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	4-NITROANILINE	1000	UG/KG		U
A00105	SCH002	4609	7446	"	4-NITROPHENOL	1000	UG/KG		U
A00105	SCH002	4609	7446	"	ACENAPHTHENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	ACENAPHTHYLENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	ACETONE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	ANTHRACENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	Aluminum, Total	4490	MG/KG		=
A00105	SCH002	4609	7446	"	Antimony, Total	14.8	MG/KG	UJ	U
A00105	SCH002	4609	7446	"	Arsenic, Total	2.1	MG/KG	J	=
A00105	SCH002	4609	7446	"	BENZENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	BENZO(A)ANTHRACENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BENZO(A)PYRENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BENZO(B)FLUORANTHENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BENZO(G,H,I)PERYLENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BENZO(K)FLUORANTHENE	410.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00105	SCH002	4609	7446	8.0 - 10.0	BIS(2-CHLOROETHOXY)METHANE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BIS(2-CHLOROETHYL)ETHER	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BIS(2-CHLOROISOPROPYL)ETHER	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	BIS(2-ETHYLHEXYL)PHTHALATE	410.0	UG/KG	U	JB
A00105	SCH002	4609	7446	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	BROMOFORM	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	BROMOMETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	BUTYLBENZYLPHTHALATE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	Barium, Total	40.7	MG/KG	J	=
A00105	SCH002	4609	7446	"	Beryllium, Total	0.4	MG/KG		=
A00105	SCH002	4609	7446	"	Boron, Total	2.5	MG/KG		U
A00105	SCH002	4609	7446	"	CARBAZOLE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	CARBON DISULFIDE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	CHLOROBENZENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00105	SCH002	4609	7446	"	CHLOROFORM	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	CHLOROMETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	CHRYSENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Cadmium, Total	1.7	MG/KG		U
A00105	SCH002	4609	7446	"	Calcium, Total	15500	MG/KG	J	=
A00105	SCH002	4609	7446	"	Chromium, Total	10.1	MG/KG		=
A00105	SCH002	4609	7446	"	Cobalt, Total	5.5	MG/KG		=
A00105	SCH002	4609	7446	"	Copper, Total	9.6	MG/KG		=
A00105	SCH002	4609	7446	"	DI-N-BUTYLPHTHALATE	410.0	UG/KG	U	JB
A00105	SCH002	4609	7446	"	DI-N-OCTYLPHTHALATE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	DIBENZ(A,H)ANTHRACENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	DIBENZOFURAN	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	DIETHYLPHTHALATE	410.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00105	SCH002	4609	7446	8.0 - 10.0	DIMETHYLPHTHALATE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	ETHYLBENZENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	FLUORANTHENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	FLUORENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	HEXACHLOROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	HEXACHLOROBUTADIENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	HEXACHLOROCYCLOPENTADIENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	HEXACHLOROETHANE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	INDENO(1,2,3-CD)PYRENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	ISOPHORONE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	Iron, Total	7800	MG/KG	J	=
A00105	SCH002	4609	7446	"	Lead, Total	7.8	MG/KG	J	=
A00105	SCH002	4609	7446	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Magnesium, Total	9940	MG/KG		=
A00105	SCH002	4609	7446	"	Manganese, Total	311.0	MG/KG	J	=
A00105	SCH002	4609	7446	"	Molybdenum, Total	6.3	MG/KG		=
A00105	SCH002	4609	7446	"	N-NITROSO-DI-N-PROPYLAMINE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	N-NITROSODIPHENYLAMINE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	NAPHTHALENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	NITROBENZENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	Nickel, Total	11.3	MG/KG		=
A00105	SCH002	4609	7446	"	PENTACHLOROPHENOL	1000	UG/KG		U
A00105	SCH002	4609	7446	"	PHENANTHRENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	PHENOL	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	PYRENE	410.0	UG/KG		U
A00105	SCH002	4609	7446	"	Potassium, Total	527.0	MG/KG		=
A00105	SCH002	4609	7446	"	STYRENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Selenium, Total	0.5	MG/KG		U
A00105	SCH002	4609	7446	"	Silver, Total	2.5	MG/KG		U
A00105	SCH002	4609	7446	"	Sodium, Total	78.0	MG/KG		=
A00105	SCH002	4609	7446	"	TETRACHLOROETHYLENE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00105	SCH002	4609	7446	8.0 - 10.0	TOLUENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Thallium, Total	0.5	MG/KG	UJ	U
A00105	SCH002	4609	7446	"	VINYL CHLORIDE	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Vanadium, Total	12.1	MG/KG		=
A00105	SCH002	4609	7446	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00105	SCH002	4609	7446	"	Zinc, Total	30.6	MG/KG		=
A00106	SCH003	4659	7430	0.0 - 2.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,2,4-TRICHLOROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,2-DICHLOROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,3-DICHLOROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	1,4-DICHLOROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A00106	SCH003	4659	7430	"	2,4,6-TRICHLOROPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2,4-DICHLOROPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2,4-DIMETHYLPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2,4-DINITROPHENOL	1000	UG/KG		U
A00106	SCH003	4659	7430	"	2,4-DINITROTOLUENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2,6-DINITROTOLUENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-BUTANONE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-CHLORONAPHTHALENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-CHLOROPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-HEXANONE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00106	SCH003	4659	7430	0.0 - 2.0	2-METHYLNAPHTHALENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-METHYLPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	2-NITROANILINE	1000	UG/KG		U
A00106	SCH003	4659	7430	"	2-NITROPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	3,3'-DICHLOROBENZIDINE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	3-NITROANILINE	1000	UG/KG		U
A00106	SCH003	4659	7430	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A00106	SCH003	4659	7430	"	4-BROMOPHENYL-PHENYLETHER	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-CHLORO-3-METHYLPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-CHLOROANILINE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-CHLOROPHENYL-PHENYLETHER	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-METHYLPHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	4-NITROANILINE	1000	UG/KG		U
A00106	SCH003	4659	7430	"	4-NITROPHENOL	1000	UG/KG		U
A00106	SCH003	4659	7430	"	ACENAPHTHENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	ACENAPHTHYLENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	ACETONE	13.0	UG/KG	U	JB
A00106	SCH003	4659	7430	"	ANTHRACENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	Aluminum, Total	6090	MG/KG		=
A00106	SCH003	4659	7430	"	Antimony, Total	15.1	MG/KG	UJ	U
A00106	SCH003	4659	7430	"	Arsenic, Total	6.7	MG/KG	J	=
A00106	SCH003	4659	7430	"	BENZENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	BENZO(A)ANTHRACENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BENZO(A)PYRENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BENZO(B)FLUORANTHENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BENZO(G,H,I)PERYLENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BENZO(K)FLUORANTHENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BIS(2-CHLOROETHOXY)METHANE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BIS(2-CHLOROETHYL)ETHER	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	BIS(2-CHLOROISOPROPYL)ETHER	410.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00106	SCH003	4659	7430	0.0 - 2.0	BIS(2-ETHYLHEXYL)PHTHALATE	410.0	UG/KG	U	JB
A00106	SCH003	4659	7430	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	BROMOFORM	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	BROMOMETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	BUTYLBENZYLPHTHALATE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	Barium, Total	154.0	MG/KG	J	=
A00106	SCH003	4659	7430	"	Beryllium, Total	0.5	MG/KG		=
A00106	SCH003	4659	7430	"	Boron, Total	2.5	MG/KG		U
A00106	SCH003	4659	7430	"	CARBAZOLE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	CARBON DISULFIDE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	CHLOROBENZENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00106	SCH003	4659	7430	"	CHLOROFORM	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	CHLOROMETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	CHRYSENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	Cadmium, Total	1.8	MG/KG		U
A00106	SCH003	4659	7430	"	Calcium, Total	3020	MG/KG	J	=
A00106	SCH003	4659	7430	"	Chromium, Total	10.1	MG/KG		=
A00106	SCH003	4659	7430	"	Cobalt, Total	9.3	MG/KG		=
A00106	SCH003	4659	7430	"	Copper, Total	14.0	MG/KG		=
A00106	SCH003	4659	7430	"	DI-N-BUTYLPHTHALATE	410.0	UG/KG	U	JB
A00106	SCH003	4659	7430	"	DI-N-OCTYLPHTHALATE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	DIBENZ(A,H)ANTHRACENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	DIBENZOFURAN	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	DIETHYLPHTHALATE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	DIMETHYLPHTHALATE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	ETHYLBENZENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	FLUORANTHENE	410.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00106	SCH003	4659	7430	0.0 - 2.0	FLUORENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	HEXACHLOROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	HEXACHLOROBUTADIENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	HEXACHLOROCYCLOPENTADIENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	HEXACHLOROETHANE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	INDENO(1,2,3-CD)PYRENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	ISOPHORONE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	Iron, Total	14400	MG/KG	J	=
A00106	SCH003	4659	7430	"	Lead, Total	11.1	MG/KG	J	=
A00106	SCH003	4659	7430	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	Magnesium, Total	2430	MG/KG		=
A00106	SCH003	4659	7430	"	Manganese, Total	1050	MG/KG	J	=
A00106	SCH003	4659	7430	"	Molybdenum, Total	11.7	MG/KG		=
A00106	SCH003	4659	7430	"	N-NITROSO-DI-N-PROPYLAMINE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	N-NITROSODIPHENYLAMINE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	NAPHTHALENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	NITROBENZENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	Nickel, Total	23.4	MG/KG		=
A00106	SCH003	4659	7430	"	PENTACHLOROPHENOL	1000	UG/KG		U
A00106	SCH003	4659	7430	"	PHENANTHRENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	PHENOL	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	PYRENE	410.0	UG/KG		U
A00106	SCH003	4659	7430	"	Potassium, Total	562.0	MG/KG		=
A00106	SCH003	4659	7430	"	STYRENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	Selenium, Total	0.5	MG/KG		U
A00106	SCH003	4659	7430	"	Silver, Total	2.5	MG/KG		U
A00106	SCH003	4659	7430	"	Sodium, Total	59.9	MG/KG		=
A00106	SCH003	4659	7430	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	TOLUENE	2.0	UG/KG		J
A00106	SCH003	4659	7430	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	TRICHLOROETHYLENE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00106	SCH003	4659	7430	0.0 - 2.0	Thallium, Total	0.5	MG/KG	UJ	U
A00106	SCH003	4659	7430	"	VINYL CHLORIDE	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	Vanadium, Total	12.7	MG/KG		=
A00106	SCH003	4659	7430	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00106	SCH003	4659	7430	"	Zinc, Total	40.9	MG/KG		=
A00107	SCH003	4659	7430	6.0 - 8.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,2,4-TRICHLOROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,2-DICHLOROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,3-DICHLOROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	1,4-DICHLOROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2,4,5-TRICHLOROPHENOL	1100	UG/KG		U
A00107	SCH003	4659	7430	"	2,4,6-TRICHLOROPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2,4-DICHLOROPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2,4-DIMETHYLPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2,4-DINITROPHENOL	1100	UG/KG		U
A00107	SCH003	4659	7430	"	2,4-DINITROTOLUENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2,6-DINITROTOLUENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-BUTANONE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-CHLORONAPHTHALENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-CHLOROPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-HEXANONE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-METHYLNAPHTHALENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-METHYLPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	2-NITROANILINE	1100	UG/KG		U

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00107	SCH003	4659	7430	6.0 - 8.0	2-NITROPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	3,3'-DICHLOROBENZIDINE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	3-NITROANILINE	1100	UG/KG		U
A00107	SCH003	4659	7430	"	4,6-DINITRO-2-METHYLPHENOL	1100	UG/KG		U
A00107	SCH003	4659	7430	"	4-BROMOPHENYL-PHENYLETHER	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-CHLORO-3-METHYLPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-CHLOROANILINE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-CHLOROPHENYL-PHENYLETHER	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-METHYLPHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	4-NITROANILINE	1100	UG/KG		U
A00107	SCH003	4659	7430	"	4-NITROPHENOL	1100	UG/KG		U
A00107	SCH003	4659	7430	"	ACENAPHTHENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	ACENAPHTHYLENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	ACETONE	13.0	UG/KG	U	JB
A00107	SCH003	4659	7430	"	ANTHRACENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	Aluminum, Total	5470	MG/KG		=
A00107	SCH003	4659	7430	"	Antimony, Total	15.2	MG/KG	UJ	U
A00107	SCH003	4659	7430	"	Arsenic, Total	6.6	MG/KG	J	=
A00107	SCH003	4659	7430	"	BENZENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	BENZO(A)ANTHRACENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BENZO(A)PYRENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BENZO(B)FLUORANTHENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BENZO(G,H,I)PERYLENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BENZO(K)FLUORANTHENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BIS(2-CHLOROETHOXY)METHANE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BIS(2-CHLOROETHYL)ETHER	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BIS(2-CHLOROISOPROPYL)ETHER	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	BIS(2-ETHYLHEXYL)PHTHALATE	430.0	UG/KG	U	JB
A00107	SCH003	4659	7430	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	BROMOFORM	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00107	SCH003	4659	7430	6.0 - 8.0	BROMOMETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	BUTYLBENZYLPHTHALATE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	Barium, Total	279.0	MG/KG	J	=
A00107	SCH003	4659	7430	"	Beryllium, Total	0.6	MG/KG		=
A00107	SCH003	4659	7430	"	Boron, Total	2.5	MG/KG		U
A00107	SCH003	4659	7430	"	CARBAZOLE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	CARBON DISULFIDE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	CHLOROBENZENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00107	SCH003	4659	7430	"	CHLOROFORM	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	CHLOROMETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	CHRYSENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Cadmium, Total	1.8	MG/KG		U
A00107	SCH003	4659	7430	"	Calcium, Total	5930	MG/KG	J	=
A00107	SCH003	4659	7430	"	Chromium, Total	12.0	MG/KG		=
A00107	SCH003	4659	7430	"	Cobalt, Total	9.6	MG/KG		=
A00107	SCH003	4659	7430	"	Copper, Total	14.0	MG/KG		=
A00107	SCH003	4659	7430	"	DI-N-BUTYLPHTHALATE	590.0	UG/KG	U	B
A00107	SCH003	4659	7430	"	DI-N-OCTYLPHTHALATE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	DIBENZ(A,H)ANTHRACENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	DIBENZOFURAN	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	DIETHYLPHTHALATE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	DIMETHYLPHTHALATE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	ETHYLBENZENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	FLUORANTHENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	FLUORENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	HEXACHLOROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	HEXACHLOROBUTADIENE	430.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00107	SCH003	4659	7430	6.0 - 8.0	HEXACHLOROCYCLOPENTADIENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	HEXACHLOROETHANE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	INDENO(1,2,3-CD)PYRENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	ISOPHORONE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	Iron, Total	28200	MG/KG	J	=
A00107	SCH003	4659	7430	"	Lead, Total	11.7	MG/KG	J	=
A00107	SCH003	4659	7430	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Magnesium, Total	3770	MG/KG		=
A00107	SCH003	4659	7430	"	Manganese, Total	3520	MG/KG	J	=
A00107	SCH003	4659	7430	"	Molybdenum, Total	22.7	MG/KG		=
A00107	SCH003	4659	7430	"	N-NITROSO-DI-N-PROPYLAMINE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	N-NITROSODIPHENYLAMINE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	NAPHTHALENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	NITROBENZENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	Nickel, Total	17.6	MG/KG		=
A00107	SCH003	4659	7430	"	PENTACHLOROPHENOL	1100	UG/KG		U
A00107	SCH003	4659	7430	"	PHENANTHRENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	PHENOL	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	PYRENE	430.0	UG/KG		U
A00107	SCH003	4659	7430	"	Potassium, Total	734.0	MG/KG		=
A00107	SCH003	4659	7430	"	STYRENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Selenium, Total	0.5	MG/KG		U
A00107	SCH003	4659	7430	"	Silver, Total	2.5	MG/KG		U
A00107	SCH003	4659	7430	"	Sodium, Total	75.6	MG/KG		=
A00107	SCH003	4659	7430	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	TOLUENE	19.0	UG/KG		=
A00107	SCH003	4659	7430	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Thallium, Total	0.5	MG/KG	UJ	U
A00107	SCH003	4659	7430	"	VINYL CHLORIDE	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Vanadium, Total	9.5	MG/KG		=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00107	SCH003	4659	7430	6.0 - 8.0	XYLENES (TOTAL)	13.0	UG/KG		U
A00107	SCH003	4659	7430	"	Zinc, Total	40.5	MG/KG		=
A00108	SCH003	4659	7430	10.0 - 12.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,2,4-TRICHLOROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,2-DICHLOROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,3-DICHLOROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	1,4-DICHLOROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2,4,5-TRICHLOROPHENOL	1100	UG/KG		U
A00108	SCH003	4659	7430	"	2,4,6-TRICHLOROPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2,4-DICHLOROPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2,4-DIMETHYLPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2,4-DINITROPHENOL	1100	UG/KG		U
A00108	SCH003	4659	7430	"	2,4-DINITROTOLUENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2,6-DINITROTOLUENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-BUTANONE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-CHLORONAPHTHALENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-CHLOROPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-HEXANONE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-METHYLNAPHTHALENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-METHYLPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	2-NITROANILINE	1100	UG/KG		U
A00108	SCH003	4659	7430	"	2-NITROPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	3,3'-DICHLOROBENZIDINE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	3-NITROANILINE	1100	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00108	SCH003	4659	7430	10.0 - 12.0	4,6-DINITRO-2-METHYLPHENOL	1100	UG/KG		U
A00108	SCH003	4659	7430	"	4-BROMOPHENYL-PHENYLETHER	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-CHLORO-3-METHYLPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-CHLOROANILINE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-CHLOROPHENYL-PHENYLETHER	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-METHYLPHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	4-NITROANILINE	1100	UG/KG		U
A00108	SCH003	4659	7430	"	4-NITROPHENOL	1100	UG/KG		U
A00108	SCH003	4659	7430	"	ACENAPHTHENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	ACENAPHTHYLENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	ACETONE	13.0	UG/KG	U	JB
A00108	SCH003	4659	7430	"	ANTHRACENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	Aluminum, Total	4650	MG/KG		=
A00108	SCH003	4659	7430	"	Antimony, Total	15.3	MG/KG	UJ	U
A00108	SCH003	4659	7430	"	Arsenic, Total	11.9	MG/KG	J	=
A00108	SCH003	4659	7430	"	BENZENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	BENZO(A)ANTHRACENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BENZO(A)PYRENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BENZO(B)FLUORANTHENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BENZO(G,H,I)PERYLENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BENZO(K)FLUORANTHENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BIS(2-CHLOROETHOXY)METHANE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BIS(2-CHLOROETHYL)ETHER	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BIS(2-CHLOROISOPROPYL)ETHER	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	BIS(2-ETHYLHEXYL)PHTHALATE	420.0	UG/KG	U	JB
A00108	SCH003	4659	7430	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	BROMOFORM	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	BROMOMETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	BUTYLBENZYLPHTHALATE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	Barium, Total	196.0	MG/KG	J	=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00108	SCH003	4659	7430	10.0 - 12.0	Beryllium, Total	0.4	MG/KG		=
A00108	SCH003	4659	7430	"	Boron, Total	2.5	MG/KG		U
A00108	SCH003	4659	7430	"	CARBAZOLE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	CARBON DISULFIDE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	CHLOROBENZENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00108	SCH003	4659	7430	"	CHLOROFORM	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	CHLOROMETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	CHRYSENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	Cadmium, Total	1.8	MG/KG		U
A00108	SCH003	4659	7430	"	Calcium, Total	8970	MG/KG	J	=
A00108	SCH003	4659	7430	"	Chromium, Total	11.4	MG/KG		=
A00108	SCH003	4659	7430	"	Cobalt, Total	5.9	MG/KG		=
A00108	SCH003	4659	7430	"	Copper, Total	11.5	MG/KG		=
A00108	SCH003	4659	7430	"	DI-N-BUTYLPHTHALATE	420.0	UG/KG	U	JB
A00108	SCH003	4659	7430	"	DI-N-OCTYLPHTHALATE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	DIBENZ(A,H)ANTHRACENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	DIBENZOFURAN	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	DIETHYLPHTHALATE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	DIMETHYLPHTHALATE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	ETHYLBENZENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	FLUORANTHENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	FLUORENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	HEXACHLOROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	HEXACHLOROBUTADIENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	HEXACHLOROCYCLOPENTADIENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	HEXACHLOROETHANE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	INDENO(1,2,3-CD)PYRENE	420.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00108	SCH003	4659	7430	10.0 - 12.0	ISOPHORONE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	Iron, Total	7270	MG/KG	J	=
A00108	SCH003	4659	7430	"	Lead, Total	9.5	MG/KG	J	=
A00108	SCH003	4659	7430	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	Magnesium, Total	5850	MG/KG		=
A00108	SCH003	4659	7430	"	Manganese, Total	4690	MG/KG	J	=
A00108	SCH003	4659	7430	"	Molybdenum, Total	8.1	MG/KG		=
A00108	SCH003	4659	7430	"	N-NITROSO-DI-N-PROPYLAMINE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	N-NITROSODIPHENYLAMINE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	NAPHTHALENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	NITROBENZENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	Nickel, Total	10.1	MG/KG		=
A00108	SCH003	4659	7430	"	PENTACHLOROPHENOL	1100	UG/KG		U
A00108	SCH003	4659	7430	"	PHENANTHRENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	PHENOL	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	PYRENE	420.0	UG/KG		U
A00108	SCH003	4659	7430	"	Potassium, Total	634.0	MG/KG		=
A00108	SCH003	4659	7430	"	STYRENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	Selenium, Total	0.5	MG/KG		U
A00108	SCH003	4659	7430	"	Silver, Total	2.5	MG/KG		U
A00108	SCH003	4659	7430	"	Sodium, Total	69.1	MG/KG		=
A00108	SCH003	4659	7430	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	TOLUENE	11.0	UG/KG		J
A00108	SCH003	4659	7430	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	Thallium, Total	0.5	MG/KG	UJ	U
A00108	SCH003	4659	7430	"	VINYL CHLORIDE	13.0	UG/KG		U
A00108	SCH003	4659	7430	"	Vanadium, Total	13.3	MG/KG		=
A00108	SCH003	4659	7430	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00108	SCH003	4659	7430	10.0 - 12.0	Zinc, Total	38.4	MG/KG		=
A00109	SCH004	4706	7395	2.0 - 4.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00109	SCH004	4706	7395	2.0 - 4.0	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,2,4-TRICHLOROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,2-DICHLOROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,3-DICHLOROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	1,4-DICHLOROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A00109	SCH004	4706	7395	"	2,4,6-TRICHLOROPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2,4-DICHLOROPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2,4-DIMETHYLPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2,4-DINITROPHENOL	1000	UG/KG		U
A00109	SCH004	4706	7395	"	2,4-DINITROTOLUENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2,6-DINITROTOLUENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-BUTANONE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-CHLORONAPHTHALENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-CHLOROPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-HEXANONE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-METHYLNAPHTHALENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-METHYLPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	2-NITROANILINE	1000	UG/KG		U
A00109	SCH004	4706	7395	"	2-NITROPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	3,3'-DICHLOROBENZIDINE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	3-NITROANILINE	1000	UG/KG		U
A00109	SCH004	4706	7395	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A00109	SCH004	4706	7395	"	4-BROMOPHENYL-PHENYLETHER	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	4-CHLORO-3-METHYLPHENOL	420.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00109	SCH004	4706	7395	2.0 - 4.0	4-CHLOROANILINE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	4-CHLOROPHENYL-PHENYLETHER	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	4-METHYLPHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	4-NITROANILINE	1000	UG/KG		U
A00109	SCH004	4706	7395	"	4-NITROPHENOL	1000	UG/KG		U
A00109	SCH004	4706	7395	"	ACENAPHTHENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	ACENAPHTHYLENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	ACETONE	13.0	UG/KG	U	JB
A00109	SCH004	4706	7395	"	ANTHRACENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	Aluminum, Total	7880	MG/KG		=
A00109	SCH004	4706	7395	"	Antimony, Total	15.2	MG/KG	UJ	U
A00109	SCH004	4706	7395	"	Arsenic, Total	7.5	MG/KG	J	=
A00109	SCH004	4706	7395	"	BENZENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	BENZO(A)ANTHRACENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BENZO(A)PYRENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BENZO(B)FLUORANTHENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BENZO(G,H,I)PERYLENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BENZO(K)FLUORANTHENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BIS(2-CHLOROETHOXY)METHANE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BIS(2-CHLOROETHYL)ETHER	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BIS(2-CHLOROISOPROPYL)ETHER	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	BIS(2-ETHYLHEXYL)PHTHALATE	420.0	UG/KG	U	JB
A00109	SCH004	4706	7395	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	BROMOFORM	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	BROMOMETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	BUTYLBENZYLPHTHALATE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	Barium, Total	197.0	MG/KG	J	=
A00109	SCH004	4706	7395	"	Beryllium, Total	0.6	MG/KG		=
A00109	SCH004	4706	7395	"	Boron, Total	2.5	MG/KG		U
A00109	SCH004	4706	7395	"	CARBAZOLE	420.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00109	SCH004	4706	7395	2.0 - 4.0	CARBON DISULFIDE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	CHLOROBENZENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	CHLOROETHANE	13.0	UG/KG	UJ	U
A00109	SCH004	4706	7395	"	CHLOROFORM	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	CHLOROMETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	CHRYSENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Cadmium, Total	1.8	MG/KG		U
A00109	SCH004	4706	7395	"	Calcium, Total	3040	MG/KG	J	=
A00109	SCH004	4706	7395	"	Chromium, Total	11.2	MG/KG		=
A00109	SCH004	4706	7395	"	Cobalt, Total	6.6	MG/KG		=
A00109	SCH004	4706	7395	"	Copper, Total	16.4	MG/KG		=
A00109	SCH004	4706	7395	"	DI-N-BUTYLPHTHALATE	420.0	UG/KG	U	JB
A00109	SCH004	4706	7395	"	DI-N-OCTYLPHTHALATE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	DIBENZ(A,H)ANTHRACENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	DIBENZOFURAN	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	DIETHYLPHTHALATE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	DIMETHYLPHTHALATE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	ETHYLBENZENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	FLUORANTHENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	FLUORENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	HEXACHLOROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	HEXACHLOROBUTADIENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	HEXACHLOROCYCLOPENTADIENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	HEXACHLOROETHANE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	INDENO(1,2,3-CD)PYRENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	ISOPHORONE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	Iron, Total	12200	MG/KG	J	=
A00109	SCH004	4706	7395	"	Lead, Total	14.0	MG/KG	J	=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A00109	SCH004	4706	7395	2.0 - 4.0	METHYLENE CHLORIDE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Magnesium, Total	2490	MG/KG		=
A00109	SCH004	4706	7395	"	Manganese, Total	385.0	MG/KG	J	=
A00109	SCH004	4706	7395	"	Molybdenum, Total	9.7	MG/KG		=
A00109	SCH004	4706	7395	"	N-NITROSO-DI-N-PROPYLAMINE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	N-NITROSODIPHENYLAMINE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	NAPHTHALENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	NITROBENZENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	Nickel, Total	16.3	MG/KG		=
A00109	SCH004	4706	7395	"	PENTACHLOROPHENOL	1000	UG/KG		U
A00109	SCH004	4706	7395	"	PHENANTHRENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	PHENOL	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	PYRENE	420.0	UG/KG		U
A00109	SCH004	4706	7395	"	Potassium, Total	827.0	MG/KG		=
A00109	SCH004	4706	7395	"	STYRENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Selenium, Total	0.5	MG/KG		U
A00109	SCH004	4706	7395	"	Silver, Total	2.5	MG/KG		U
A00109	SCH004	4706	7395	"	Sodium, Total	76.9	MG/KG		=
A00109	SCH004	4706	7395	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	TOLUENE	110.0	UG/KG		=
A00109	SCH004	4706	7395	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Thallium, Total	0.5	MG/KG	UJ	U
A00109	SCH004	4706	7395	"	VINYL CHLORIDE	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Vanadium, Total	13.2	MG/KG		=
A00109	SCH004	4706	7395	"	XYLENES (TOTAL)	13.0	UG/KG		U
A00109	SCH004	4706	7395	"	Zinc, Total	46.0	MG/KG		=
A0010A	SCH004	4706	7395	4.0 - 6.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,1-DICHLOROETHANE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A0010A	SCH004	4706	7395	4.0 - 6.0	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,2,4-TRICHLOROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,2-DICHLOROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,2-DICHLOROETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,3-DICHLOROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	1,4-DICHLOROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4,5-TRICHLOROPHENOL	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4,6-TRICHLOROPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4-DICHLOROPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4-DIMETHYLPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4-DINITROPHENOL	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	2,4-DINITROTOLUENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2,6-DINITROTOLUENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-BUTANONE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-CHLORONAPHTHALENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-CHLOROPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-HEXANONE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-METHYLNAPHTHALENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-METHYLPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	2-NITROANILINE	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	2-NITROPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	3,3'-DICHLOROBENZIDINE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	3-NITROANILINE	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	4,6-DINITRO-2-METHYLPHENOL	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	4-BROMOPHENYL-PHENYLETHER	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	4-CHLORO-3-METHYLPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	4-CHLOROANILINE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	4-CHLOROPHENYL-PHENYLETHER	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A0010A	SCH004	4706	7395	4.0 - 6.0	4-METHYLPHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	4-NITROANILINE	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	4-NITROPHENOL	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	ACENAPHTHENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	ACENAPHTHYLENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	ACETONE	13.0	UG/KG	U	JB
A0010A	SCH004	4706	7395	"	ANTHRACENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Aluminum, Total	5520	MG/KG		=
A0010A	SCH004	4706	7395	"	Antimony, Total	15.2	MG/KG	UJ	U
A0010A	SCH004	4706	7395	"	Arsenic, Total	7.8	MG/KG	J	=
A0010A	SCH004	4706	7395	"	BENZENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BENZO(A)ANTHRACENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BENZO(A)PYRENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BENZO(B)FLUORANTHENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BENZO(G,H,I)PERYLENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BENZO(K)FLUORANTHENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BIS(2-CHLOROETHOXY)METHANE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BIS(2-CHLOROETHYL)ETHER	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BIS(2-CHLOROISOPROPYL)ETHER	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BIS(2-ETHYLHEXYL)PHTHALATE	420.0	UG/KG	U	JB
A0010A	SCH004	4706	7395	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BROMOFORM	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BROMOMETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	BUTYLBENZYLPHTHALATE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Barium, Total	142.0	MG/KG	J	=
A0010A	SCH004	4706	7395	"	Beryllium, Total	0.5	MG/KG		=
A0010A	SCH004	4706	7395	"	Boron, Total	2.5	MG/KG		U
A0010A	SCH004	4706	7395	"	CARBAZOLE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CARBON DISULFIDE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CHLOROBENZENE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A0010A	SCH004	4706	7395	4.0 - 6.0	CHLOROETHANE	13.0	UG/KG	UJ	U
A0010A	SCH004	4706	7395	"	CHLOROFORM	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CHLOROMETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CHRYSENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Cadmium, Total	1.8	MG/KG		U
A0010A	SCH004	4706	7395	"	Calcium, Total	2900	MG/KG	J	=
A0010A	SCH004	4706	7395	"	Chromium, Total	10.9	MG/KG		=
A0010A	SCH004	4706	7395	"	Cobalt, Total	8.1	MG/KG		=
A0010A	SCH004	4706	7395	"	Copper, Total	14.6	MG/KG		=
A0010A	SCH004	4706	7395	"	DI-N-BUTYLPHTHALATE	420.0	UG/KG	U	JB
A0010A	SCH004	4706	7395	"	DI-N-OCTYLPHTHALATE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	DIBENZ(A,H)ANTHRACENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	DIBENZOFURAN	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	DIETHYLPHTHALATE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	DIMETHYLPHTHALATE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	ETHYLBENZENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	FLUORANTHENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	FLUORENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	HEXACHLOROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	HEXACHLOROBUTADIENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	HEXACHLOROCYCLOPENTADIENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	HEXACHLOROETHANE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	INDENO(1,2,3-CD)PYRENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	ISOPHORONE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Iron, Total	14000	MG/KG	J	=
A0010A	SCH004	4706	7395	"	Lead, Total	12.2	MG/KG	J	=
A0010A	SCH004	4706	7395	"	METHYLENE CHLORIDE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Magnesium, Total	2450	MG/KG		=
A0010A	SCH004	4706	7395	"	Manganese, Total	543.0	MG/KG	J	=

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
A0010A	SCH004	4706	7395	4.0 - 6.0	Molybdenum, Total	11.3	MG/KG		=
A0010A	SCH004	4706	7395	"	N-NITROSO-DI-N-PROPYLAMINE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	N-NITROSODIPHENYLAMINE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	NAPHTHALENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	NITROBENZENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Nickel, Total	16.5	MG/KG		=
A0010A	SCH004	4706	7395	"	PENTACHLOROPHENOL	1000	UG/KG		U
A0010A	SCH004	4706	7395	"	PHENANTHRENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	PHENOL	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	PYRENE	420.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Potassium, Total	686.0	MG/KG		=
A0010A	SCH004	4706	7395	"	STYRENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Selenium, Total	0.5	MG/KG		U
A0010A	SCH004	4706	7395	"	Silver, Total	2.5	MG/KG		U
A0010A	SCH004	4706	7395	"	Sodium, Total	65.7	MG/KG		=
A0010A	SCH004	4706	7395	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	TOLUENE	6.0	UG/KG		J
A0010A	SCH004	4706	7395	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	TRICHLOROETHYLENE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Thallium, Total	0.5	MG/KG	UJ	U
A0010A	SCH004	4706	7395	"	VINYL CHLORIDE	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Vanadium, Total	12.6	MG/KG		=
A0010A	SCH004	4706	7395	"	XYLENES (TOTAL)	13.0	UG/KG		U
A0010A	SCH004	4706	7395	"	Zinc, Total	42.2	MG/KG		=
OT0034	SCH001	4527	7436	0.0 - 2.0	1,1,1-TRICHLOROETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,1,2,2-TETRACHLOROETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,1,2-TRICHLOROETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,1-DICHLOROETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,1-DICHLOROETHYLENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,2,4-TRICHLOROBENZENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,2-DICHLOROBENZENE	430.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
OT0034	SCH001	4527	7436	0.0 - 2.0	1,2-DICHLOROETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,2-DICHLOROETHENE (TOTAL)	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,2-DICHLOROPROPANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,3-DICHLOROBENZENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	1,4-DICHLOROBENZENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4,5-TRICHLOROPHENOL	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4,6-TRICHLOROPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4-DICHLOROPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4-DIMETHYLPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4-DINITROPHENOL	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	2,4-DINITROTOLUENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2,6-DINITROTOLUENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-BUTANONE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-CHLORONAPHTHALENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-CHLOROPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-HEXANONE	13.0	UG/KG	UJ	U
OT0034	SCH001	4527	7436	"	2-METHYLNAPHTHALENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-METHYLPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	2-NITROANILINE	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	2-NITROPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	3,3'-DICHLOROBENZIDINE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	3-NITROANILINE	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	4,6-DINITRO-2-METHYLPHENOL	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	4-BROMOPHENYL-PHENYLETHER	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-CHLORO-3-METHYLPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-CHLOROANILINE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-CHLOROPHENYL-PHENYLETHER	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-METHYL-2-PENTANONE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-METHYLPHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	4-NITROANILINE	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	4-NITROPHENOL	1100	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
OT0034	SCH001	4527	7436	0.0 - 2.0	ACENAPHTHENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	ACENAPHTHYLENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	ACETONE	13.0	UG/KG	U	JB
OT0034	SCH001	4527	7436	"	ANTHRACENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Aluminum, Total	4140	MG/KG		=
OT0034	SCH001	4527	7436	"	Antimony, Total	14.6	MG/KG	UJ	U
OT0034	SCH001	4527	7436	"	Arsenic, Total	1.7	MG/KG	J	=
OT0034	SCH001	4527	7436	"	BENZENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BENZO(A)ANTHRACENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BENZO(A)PYRENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BENZO(B)FLUORANTHENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BENZO(G,H,I)PERYLENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BENZO(K)FLUORANTHENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BIS(2-CHLOROETHOXY)METHANE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BIS(2-CHLOROETHYL)ETHER	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BIS(2-CHLOROISOPROPYL)ETHER	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BIS(2-ETHYLHEXYL)PHTHALATE	430.0	UG/KG	U	JB
OT0034	SCH001	4527	7436	"	BROMODICHLOROMETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BROMOFORM	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BROMOMETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	BUTYLBENZYLPHTHALATE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Barium, Total	63.9	MG/KG	J	=
OT0034	SCH001	4527	7436	"	Beryllium, Total	0.3	MG/KG		=
OT0034	SCH001	4527	7436	"	Boron, Total	2.4	MG/KG		U
OT0034	SCH001	4527	7436	"	CARBAZOLE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CARBON DISULFIDE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CARBON TETRACHLORIDE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CHLOROBENZENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CHLOROETHANE	13.0	UG/KG	UJ	U
OT0034	SCH001	4527	7436	"	CHLOROFORM	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CHLOROMETHANE	13.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
OT0034	SCH001	4527	7436	0.0 - 2.0	CHRYSENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	CIS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Cadmium, Total	1.7	MG/KG		U
OT0034	SCH001	4527	7436	"	Calcium, Total	3150	MG/KG	J	=
OT0034	SCH001	4527	7436	"	Chromium, Total	8.6	MG/KG		=
OT0034	SCH001	4527	7436	"	Cobalt, Total	5.6	MG/KG		=
OT0034	SCH001	4527	7436	"	Copper, Total	9.2	MG/KG		=
OT0034	SCH001	4527	7436	"	DI-N-BUTYLPHTHALATE	430.0	UG/KG	U	JB
OT0034	SCH001	4527	7436	"	DI-N-OCTYLPHTHALATE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	DIBENZ(A,H)ANTHRACENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	DIBENZOFURAN	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	DIBROMOCHLOROMETHANE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	DIETHYLPHTHALATE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	DIMETHYLPHTHALATE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	ETHYLBENZENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	FLUORANTHENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	FLUORENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	HEXACHLOROBENZENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	HEXACHLOROBUTADIENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	HEXACHLOROCYCLOPENTADIENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	HEXACHLOROETHANE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	INDENO(1,2,3-CD)PYRENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	ISOPHORONE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Iron, Total	7970	MG/KG	J	=
OT0034	SCH001	4527	7436	"	Lead, Total	8.0	MG/KG	J	=
OT0034	SCH001	4527	7436	"	METHYLENE CHLORIDE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Magnesium, Total	2380	MG/KG		=
OT0034	SCH001	4527	7436	"	Manganese, Total	449.0	MG/KG	J	=
OT0034	SCH001	4527	7436	"	Molybdenum, Total	6.3	MG/KG		=
OT0034	SCH001	4527	7436	"	N-NITROSO-DI-N-PROPYLAMINE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	N-NITROSODIPHENYLAMINE	430.0	UG/KG		U

Background Chemical Concentrations in Soil
Sampling Results in the Area of SLAPS

Sample ID	Location ID	Coordinates East	Coordinates North	Depth Interval (in feet)	Parameters	Results	Units	BNI Flag	Weston Flag
OT0034	SCH001	4527	7436	0.0 - 2.0	NAPHTHALENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	NITROBENZENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Nickel, Total	8.5	MG/KG		=
OT0034	SCH001	4527	7436	"	PENTACHLOROPHENOL	1100	UG/KG		U
OT0034	SCH001	4527	7436	"	PHENANTHRENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	PHENOL	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	PYRENE	430.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Potassium, Total	612.0	MG/KG		=
OT0034	SCH001	4527	7436	"	STYRENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Selenium, Total	0.5	MG/KG		U
OT0034	SCH001	4527	7436	"	Silver, Total	2.4	MG/KG		U
OT0034	SCH001	4527	7436	"	Sodium, Total	66.5	MG/KG		=
OT0034	SCH001	4527	7436	"	TETRACHLOROETHYLENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	TOLUENE	34.0	UG/KG		=
OT0034	SCH001	4527	7436	"	TRANS-1,3-DICHLOROPROPENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	TRICHLOROETHYLENE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Thallium, Total	0.5	MG/KG	UJ	U
OT0034	SCH001	4527	7436	"	VINYL CHLORIDE	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Vanadium, Total	8.5	MG/KG		=
OT0034	SCH001	4527	7436	"	XYLENES (TOTAL)	13.0	UG/KG		U
OT0034	SCH001	4527	7436	"	Zinc, Total	29.8	MG/KG		=

Sample Log			
Field Number [1]	**Collection Time**	**Laboratory Number**	**Collection Date**
14-22021 [2]	0905	5-ADF03-001	11/15/94
14-2 Metals (water sample)	1337	5-ADF03-0031	11/15/94
39-10012	1410	5-ADF03-002	11/15/94
39-11224	1410	5-ADF03-003	11/15/94
FB-2	1426	5-ADF03-032F	11/15/94
39-20012	1452	5-ADF03-004	11/15/94
39-21224	1452	5-ADF03-005	11/15/94
39-30012	0701	5-ADF03-006	11/16/94
39-31224	0701	5-ADF03-007	11/16/94
22-10012	0735	5-ADF03-008	11/16/94
22-11224	0735	5-ADF03-009	11/16/94
22-20012	0755	5-ADF03-010	11/16/94
22-21224	0755	5-ADF03-011	11/16/94
FB-3	0830	5-ADF03-033F	11/16/94
ER-3	0918	5-ADF03-034	11/16/94
Tap-2	0918	5-ADF03-035	11/16/94
52-10012	0958	5-ADF03-012	11/16/94
52-11224	0958	5-ADF03-013	11/16/94
51A-10012	1025	5-ADF03-014	11/16/94
51A-11224	1025	5-ADF03-015	11/16/94
51B-10012 (Field Dup)	1041	5-ADF03-016D	11/16/94
51B-11224 (Field Dup)	1041	5-ADF03-017D	11/16/94
51-10012 Lab QC	1050	5-ADF03-014F	11/16/94
51-11224 Lab QC	1050	5-ADF03-015F	11/16/94
52-20012	1108	5-ADF03-018	11/16/94

52-21224	1108	5-ADF03-019	11/16/94
6-10024	1422	5-ADF03-020	11/16/94
14-2CN (water sample)	1505	5-ADF03-036	11/16/94
ER-2	1510	5-ADF03-037	11/16/94
2-10024	0734	5-ADF03-021	11/17/94
40-10012	0829	5-ADF03-022	11/17/94
40-11224	0829	5-ADF03-023	11/17/94
40-20012	0845	5-ADF03-024	11/17/94
40-21224	0845	5-ADF03-025	11/17/94
6A-20012	0925	5-ADF03-026	11/17/94
6A-21224	0925	5-ADF03-027	11/17/94
6B-20012 (Field Dup)	0949	5-ADF03-028D	11/17/94
6B-21224 (Field Dup)	0949	5-ADF03-029D	11/17/94
6A-20012 Lab QC	1002	5-ADF03-026	11/17/94
6A-21224 Lab QC	1002	5-ADF03-027	11/17/94
FB-4	0630	5-ADF03-038	11/17/94

[1] The field number format (XX-YZZZZ), is defined as follows:

a) The first set of numbers (XX), are a reference to the nearest building.
b) The next number (Y), is a reference to the sampling location.
c) The remaining numbers (ZZZZ) determine the sampling interval in inches.

Example: A sample collected from building 39, the first sample location, and the sampling interval 0 to 12 inches would be reported as follows: 39-10012.

- Field duplicates have a letter (A or B) as the designation after the building number.
- Lab QC has no field designation since these are considered additional aliquots of the original sample.
- Blanks are divided into Field Blanks, Equipment Rinsates, Tap Water Blanks, Deionized Water Blanks, and HPLC Water Blanks (only at St Charles).

[2] This sample was collected at from the interval 20 to 21 feet below ground surface.

RZ3-SA1-1607011-01-LA-01786

ANALYSIS REQUEST REPORT VALIDATED DATA

FOR ACTIVITY: ADF03

DONA, BOB 12/16/94 12:25:10 ALL REAL SAMPLES AND FIELD Q.C.

INAL REPORT

: 95 ACTIVITY: ADF03 DESCRIPTION: MCDONNELL DOUGLAS-HAZELWOOD LOCATION: HAZELWOOD MISSOURI

STATUS: ACTIVE TYPE: SAMPLING - IN HOUSE ANALYSIS PROJECT: A60

BO DUE DATE IS 12/18/94. REPORT DUE DATE IS 1/ 7/95.

SPECTION DATE: 11/17/94 ALL SAMPLES RECEIVED DATE: 11/18/94

L DATA APPROVED BY LABO DATE: 12/09/94 FINAL REPORT TRANSMITTED DATE: 00/00/00

PECTED LABO TURNAROUND TIME IS 30 DAYS EXPECTED REPORT TURNAROUND TIME IS 51 DAYS

TUAL LABO TURNAROUND TIME IS 21 DAYS ACTUAL REPORT TURNAROUND TIME IS 0 DAYS

TE CODE: SITE:

P. .	QCC	M	DESCRIPTION	SAMPLE # STATUS	CITY	STATE	AIRS/ STORET LOC NO	SECT	LAY-ER	BEG. DATE	BEG. TIME	END. DATE	END. TIME
1		S	ADF03-001	1	HAZELWOOD	MISSOURI				11/15/94	09:05	/ /	:
2		S	ADF03-002	1	HAZELWOOD	MISSOURI				11/15/94	14:10	/ /	:
3		S	ADF03-003	1	HAZELWOOD	MISSOURI				11/15/94	14:10	/ /	:
3	F	S	TRIP BLANK	1	HAZELWOOD	MISSOURI				11/15/94	14:10	/ /	:
4		S	ADF03-004	1	HAZELWOOD	MISSOURI				11/15/94	14:52	/ /	:
5		S	ADF03-005	1	HAZELWOOD	MISSOURI				11/15/94	14:52	/ /	:
5	F	S	TRIP BLANK	1	HAZELWOOD	MISSOURI				00/00/00	00:00	/ /	:
6		S	ADF03-006	1	HAZELWOOD	MISSOURI				11/16/94	07:01	/ /	:
7		S	ADF03-007	1	HAZELWOOD	MISSOURI				11/16/94	07:01	/ /	:
8		S	ADF03-008	1	HAZELWOOD	MISSOURI				11/16/94	07:35	/ /	:
9		S	ADF03-009	1	HAZELWOOD	MISSOURI				11/16/59	40:73	/ /	:
0		S	ADF03-010	1	HAZELWOOD	MISSOURI				11/16/94	07:55	/ /	:
1		S	ADF03-011	1	HAZELWOOD	MISSOURI				11/16/94	07:55	/ /	:
2		S	ADF03-012	1	HAZELWOOD	MISSOURI				11/16/94	09:58	/ /	:
3		S	ADF03-013	1	HAZELWOOD	MISSOURI				11/16/94	09:58	/ /	:
4		S	ADF03-014	1	HAZELWOOD	MISSOURI				11/16/94	10:25	/ /	:
5		S	ADF03-015	1	HAZELWOOD	MISSOURI				11/16/94	10:25	/ /	:
5	F	S	ADF03-015F	0	HAZELWOOD	MISSOURI				11/17/94	07:34	/ /	:
6		S	ADF03-016	0	HAZELWOOD	MISSOURI				11/16/94	10:41	/ /	:
7		S	ADF03-017	0	HAZELWOOD	MISSOURI				11/16/94	10:41	/ /	:
8		S	ADF03-018	1	HAZELWOOD	MISSOURI				11/16/94	11:08	/ /	:
9		S	ADF03-019	1	HAZELWOOD	MISSOURI				11/16/94	11:08	/ /	:
0		S	ADF03-020	1	HAZELWOOD	MISSOURI				11/16/94	14:22	/ /	:

VALIDATED DATA

QCC	M	DESCRIPTION	SAMPLE # STATUS	CITY	STATE	AIRS/ STORET LOC NO	SECT	LAY-ER	BEG. DATE	BEG. TIME	END. DATE	END. TIME
	S	ADF03-021	1	HAZELWOOD	MISSOURI				11/17/94	07:34	/ /	:
	S	ADF03-022	1	HAZELWOOD	MISSOURI				11/17/94	08:29	/ /	:
	S	ARD03-023	1	HAZELWOOD	MISSOURI				11/17/94	08:29	/ /	:
	S	ADF03-024	1	HAZELWOOD	MISSOURI				11/17/94	08:45	/ /	:
	S	ADF03-025	1	HAZELWOOD	MISSOURI				11/17/94	08:45	/ /	:
	S	ADF03-026	1	HAZELWOOD	MISSOURI				11/17/94	09:25	/ /	:
	S	ADF03-027	1	HAZELWOOD	MISSOURI				11/17/94	09:25	/ /	:
	S	ADF03-028	1	HAZELWOOD	MISSOURI				11/17/94	09:49	/ /	:
	S	ADF03-029	1	HAZELWOOD	MISSOURI				11/17/94	09:49	/ /	:
	W	ADF03-031	1	HAZELWOOD	MISSOURI				11/15/94	13:37	/ /	:
F	W	ADF03-032F	1	HAZELWOOD	MISSOURI				11/15/94	14:52	/ /	:
F	W	ADF03-033F	1	HAZELWOOD	MISSOURI				11/16/94	08:30	/ /	:
	W	ADF03-034	1	HAZELWOOD	MISSOURI				11/16/94	09:18	/ /	:
	W	ADF03-035	1	HAZELWOOD	MISSOURI				11/16/94	09:18	/ /	:
	W	ADF03-036	1	HAZELWOOD	MISSOURI				11/16/94	15:05	/ /	:
	W	ADF03-037	1	HAZELWOOD	MISSOURI				11/16/94	15:10	/ /	:
	W		1	HAZELWOOD	MISSOURI				00/00/00	00:00	/ /	:

EXPLANATION OF CODES AND INFORMATION ON ANALYSIS REQUEST DETAIL REPORT

PLE INFORMATION:

P. NO. = SAMPLE IDENTIFICATION NUMBER (A 3-DIGIT NUMBER WHICH IN COMBINATION WITH THE ACTIVITY NUMBER AND QCC, PROVIDES AN UNIQUE NUMBER FOR EACH SAMPLE FOR IDENTIFICATION PURPOSES)

= QUALITY CONTROL CODE (A ONE-LETTER CODE USED TO DESIGNATE SPECIFIC QC SAMPLES. THIS FIELD WILL BE BLANK FOR ALL NON-QC OR ACTUAL SAMPLES):

- B = CAL INCREASED CONCENTRATION FOR A LAB SPIKED DUP SAMPLE
- D = MEASURED VALUE FOR FIELD DUPLICATE SAMPLE
- F = MEASURED VALUE FOR FIELD BLANK
- G = MEASURED VALUE FOR METHOD STANDARD
- H = TRUE VALUE FOR METHOD STANDARD
- K = CAL INCREASED CONCENTRATION FOR FIELD SPIKED DUP SAMPLE
- L = MEASURED VALUE FOR A LAB DUPLICATE SAMPLE
- M = MEASURED VALUE FOR LAB BLANK
- N = MEASURED CONCENTRATION OF FIELD SPIKED DUPLICATE
- P = MEASURED VALUE FOR PERFORMANCE STANDARD
- R = CAL INCREASED CONCENTRATION RESULTING FROM LAB SPIKE
- S = MEASURED CONCENTRATION OF LAB SPIKED SAMPLE
- T = TRUE VALUE OF PERFORMANCE STANDARD
- W = MEASURED CONCENTRATION OF LAB SPIKED DUPLICATE
- Y = MEASURED CONCENTRATION OF FIELD SPIKED SAMPLE
- Z = CAL INCREASED CONCENTRATION RESULTING FROM FIELD SPIKE
- 1 = MEASURED VALUE OF FIRST SPIKED REPLICATE
- 2 = MEASURED VALUE OF SECOND SPIKED REPLICATE
- 3 = MEASURED VALUE OF THIRD SPIKED REPLICATE
- 4 = MEASURED VALUE OF FOURTH SPIKED REPLICATE
- 5 = MEASURED VALUE OF FIFTH SPIKED REPLICATE
- 6 = MEASURED VALUE OF SIXTH SPIKED REPLICATE
- 7 = MEASURED VALUE OF SEVENTH SPIKED REPLICATE

= MEDIA CODE (A ONE-LETTER CODE DESIGNATING THE MEDIA OF THE SAMPLE):

- A = AIR H = HAZARDOUS WASTE/OTHER
- S = SOLID (SOIL, SEDIMENT, SLUDGE)
- T = TISSUE (PLANT & ANIMAL)
- W = WATER (GROUND WATER, SURFACE WATER, WASTE WATER, DRINKING WATER)

CRIPTION = A SHORT DESCRIPTION OF THE LOCATION WHERE SAMPLE WAS COLLECTED

S/STORET LOC. NO. = THE SPECIFIC LOCATION ID NUMBER OF EITHER OF THESE NATIONAL DATABASE SYSTEMS, AS APPROPRIATE

E/TIME INFORMATION = SPECIFIC INFORMATION REGARDING WHEN THE SAMPLE WAS COLLECTED

- BEG. DATE = DATE SAMPLING WAS STARTED
- BEG. TIME = TIME SAMPLING WAS STARTED
- END DATE = DATE SAMPLING WAS COMPLETED
- END TIME = TIME SAMPLING WAS COMPLETED
- NOTE: A GRAB SAMPLE WILL CONTAIN ONLY BEG. DATE/TIME
  A TIMED COMPOSITE SAMPLE WILL CONTAIN BOTH BEG AND END DATE/TIME TO DESIGNATE DURATION OF SAMPLE COLLECTION

ER CODES

- V = VALIDATED

ANALYTICAL RESULTS/MEASUREMENTS INFORMATION:

COMPOUND = MGP (MEDIA-GROUP-PARAMETER) CODE AND NAME OF THE MEASURED CONSTITUENT OR CHARACTERISTIC OF EACH SAMPLE

UNITS = SPECIFIC UNITS IN WHICH RESULTS ARE REPORTED:

- C = CENTIGRADE (CELSIUS) DEGREES
- CFS = CUBIC FEET PER SECOND
- GPM = GALLONS PER MINUTE
- IN = INCHES
- I.D. = SPECIES IDENTIFICATION
- KG = KILOGRAM
- L = LITER
- LB = POUNDS
- MG = MILLIGRAMS (1 X 10-3 GRAMS)
- MGD = MILLION GALLONS PER DAY
- MPH = MILES PER HOUR
- MV = MILLIVOLT
- M/F = MALE/FEMALE
- M2 = SQUARE METER
- M3 = CUBIC METER
- NA = NOT APPLICABLE
- NG = NANOGRAMS (1 X 10-9 GRAMS)
- NTU = NEPHELOMETRIC TURBIDITY UNITS
- PC/L = PICO (1 X 10-12) CURRIES PER LITER
- PG = PICOGRAMS (1 X 10-12 GRAMS)
- P/CM2 = PICOGRAMS PER SQUARE CENTIMETER
- SCM = STANDARD CUBIC METER (1 ATM, 25 C)
- SQ FT = SQUARE FEET
- SU = STANDARD UNITS (PH)
- UG = MICROGRAMS (1 X 10-6 GRAMS)
- UMHOS = MICROMHOS/CM (CONDUCTIVITY UNITS)
- U/CC2 = MICROGRAMS PER 100 SQUARE CENTIMETERS
- U/CM2 = MICROGRAMS PER SQUARE CENTIMETER
- 1000G = 1000 GALLONS
- +/- = POSITIVE/NEGATIVE
- # = NUMBER

DATA QUALIFIERS = SPECIFIC CODES USED IN CONJUNCTION WITH DATA VALUES TO PROVIDE ADDITIONAL INFORMATION ON THE REPORTED RESULTS, OR USED TO EXPLAIN THE ABSENCE OF A SPECIFIC VALUE:

- BLANK = IF FIELD IS BLANK, NO REMARKS OR QUALIFIERS ARE PERTINENT. FOR FINAL REPORTED DATA, THIS MEANS THAT THE VALUES HAVE BEEN REVIEWED AND FOUND TO BE ACCEPTABLE FOR USE.
- I = INVALID SAMPLE/DATA - VALUE NOT REPORTED
- J = DATA REPORTED BUT NOT VALID BY APPROVED QC PROCEDURES
- K = ACTUAL VALUE OF SAMPLE IS < VALUE REPORTED
- L = ACTUAL VALUE OF SAMPLE IS > VALUE REPORTED
- M = DETECTED BUT BELOW THE LEVEL OF REPORTED VALUE FOR ACCURATE QUANTIFICATION
- O = PARAMETER NOT ANALYZED
- U = ACTUAL VALUE OF SAMPLE IS < THE MEASUREMENT DETECTION LIMIT (REPORTED VALUE)

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	001	002	003	003 F	004
7 SOLIDS, PERCENT	%	78.4	83.1	83.1	98.2	93.2
1 SILVER, TOTAL, BY ICAP	MG/KG	0.615 U	0.615 U	0.615 U		0.615 U
2 ALUMINUM, TOTAL, BY ICAP	MG/KG	12900	8770	8230		3930
3 ARSENIC, TOTAL, BY ICAP	MG/KG	23.3	21.1	28.2		8.95
4 BARIUM, TOTAL, BY ICAP	MG/KG	81.8	74.1	306		53.1
5 BERYLLIUM, TOTAL, BY ICAP	MG/KG	1.10	0.822	0.997		0.451
6 CADMIUM, TOTAL, BY ICAP	MG/KG	0.487 U	0.550	2.52		0.487 U
7 COBALT, TOTAL, BY ICAP	MG/KG	6.30	5.15	10.1		5.23
8 CHROMIUM, TOTAL, BY ICAP	MG/KG	19.8	15.2	16.9		22.7
9 COPPER, TOTAL, BY ICAP	MG/KG	12.9	15.2	21.9		17.8
0 IRON, TOTAL, BY ICAP	MG/KG	14900	22100	42400		8650
1 MANGANESE, TOTAL, BY ICAP	MG/KG	266	230	2520		141
3 NICKEL, TOTAL, BY ICAP	MG/KG	15.3	15.7	31.9		26.2
4 LEAD, TOTAL, BY ICAP	MG/KG	21.9	20.0	27.9		12.8
5 ANTIMONY, TOTAL, BY ICAP	MG/KG	2.70	4.31	7.94		2.04
6 SELENIUM, TOTAL, BY ICAP	MG/KG	3.09 U	3.66	5.65		3.09 U
8 THALLIUM, TOTAL, BY ICAP	MG/KG	3.15 U	3.15 U	3.15 U		3.15 U
9 VANADIUM, TOTAL, BY ICAP	MG/KG	38.7	33.1	42.2		20.0
0 ZINC, TOTAL, BY ICAP	MG/KG	32.0	46.2	52.6		45.5
1 CALCIUM, TOTAL, BY ICAP	MG/KG	3280	26800	23700		90100
2 MAGNESIUM, TOTAL, BY ICAP	MG/KG	2820	14900	14300		4750
3 SODIUM, TOTAL, BY ICAP	MG/KG	110	342	311		320
4 POTASSIUM, TOTAL, BY ICAP	MG/KG	519	775	690		613
4 MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0406	0.0251	0.0217		0.00389 U
1 PHENOL, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
3 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	420 U	400 U	400 U		350 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	001		002		003		003 F		004	
4 CHLOROPHENOL, 2-	UG/KG	420	U	400	U	400	U			350	U
5 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
6 DICHLOROBENZENE,1,4-	UG/KG	420	U	400	U	400	U			350	U
7 BENZYL ALCOHOL	UG/KG	420	U	400	U	400	U			350	U
8 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
9 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	420	U	400	U	400	U			350	U
0 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
1 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	420	U	400	U	400	U			350	U
2 N-NITROSODIPROPYLAMINE	UG/KG	420	U	400	U	400	U			350	U
3 HEXACHLOROETHANE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
4 NITROBENZENE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
5 ISOPHORONE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
6 NITROPHENOL,2-	UG/KG	420	U	400	U	400	U			350	U
7 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
8 BENZOIC ACID, BY GC/MS	UG/KG	2200	U	2000	U	2000	U			1800	U
9 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
C DICHLOROPHENOL, 2,4-	UG/KG	420	U	400	U	400	U			350	U
1 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
2 NAPHTHALENE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
3 CHLOROANILINE,4-	UG/KG	420	U	400	U	400	U			350	U
4 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
5 PHENOL,4-CHLORO-3-METHYL	UG/KG	420	U	400	U	400	U			350	U
6 METHYLNAPHTHALENE, 2-	UG/KG	420	U	400	U	400	U			350	U
7 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
8 TRICHLOROPHENOL,2,4,6	UG/KG	420	U	400	U	400	U			350	U
9 TRICHLOROPHENOL,2,4,5	UG/KG	2200	U	2000	U	2000	U			1800	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	001	002	003	003 F	004
) CHLORONAPHTHALENE, 2-	UG/KG	420 U	400 U	400 U		350 U
I NITROANILINE,2-	UG/KG	2200 U	2000 U	2000 U		1800 U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
5 ACENAPHTHYLENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
4 NITROANILINE,3-	UG/KG	2200 U	2000 U	2000 U		1800 U
5 ACENAPHTHENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
5 DINITROPHENOL,2,4, BY GC/MS	UG/KG	2200 U	2000 U	2000 U		1800 U
7 NITROPHENOL,4-	UG/KG	2200 U	2000 U	2000 U		1800 U
3 DIBENZOFURAN	UG/KG	420 U	400 U	400 U		350 U
9 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
) DINITROTOLUENE,2,6-	UG/KG	420 U	400 U	400 U		350 U
I PHTHALATE, DIETHYL, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	420 U	400 U	400 U		350 U
3 FLUORENE, GC/MS	UG/KG	420 U	400 U	400 U		350 U
4 NITROANILINE,4-	UG/KG	2200 U	2000 U	2000 U		1800 U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	2200 U	2000 U	2000 U		1800 U
5 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	420 U	400 U	400 U		350 U
3 HEXACHLOROBENZENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
9 PENTACHLOROPHENOL, BY GC/MS	UG/KG	2200 U	2000 U	2000 U		1800 U
) PHENANTHRENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
I ANTHRACENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
3 FLUORANTHENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
4 PYRENE, BY GC/MS	UG/KG	420 U	400 U	400 U		350 U
5 PHTHALATE, BUTYL BENZYL	UG/KG	420 U	400 U	400 U		350 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	001		002		003		003 F		004	
DICHLOROBENZIDINE, 3,3'	UG/KG	420	U	400	U	400	U			350	U
ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
CHRYSENE, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
PYRENE, BENZO(A), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
PYRENE, INDENO(1,2,3-CD)	UG/KG	420	U	400	U	400	U			350	U
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	420	U	400	U	400	U			350	U
CYANIDE, TOTAL	MG/KG	0.162		0.040	U	0.040	U			0.040	U
CHLOROMETHANE, BY GC/MS	UG/KG	14	U	20	U	16	U	14	U	13	U
BROMOMETHANE, BY GC/MS	UG/KG	29	U	39	U	31	U	29	U	26	U
VINYL CHLORIDE, BY GC/MS	UG/KG	21	U	30	U	23	U	21	U	19	U
CHLOROETHANE, BY GC/MS	UG/KG	21	U	30	U	23	U	21	U	19	U
METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	14	U	20	U	16	U	14	U	13	U
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DICHLOROETHANE,1,1, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
CHLOROFORM, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DICHLOROETHANE,1,2, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	7	U	17		8	U	7	U	6	U
CARBON TETRACHLORIDE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
BROMODICHLOROMETHANE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
BENZENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	001		002		003		003 F		004	
DICHLOROPROPYLENE,TRANS-1,3	UG/KG	7	U	10	U	8	U	7	U	6	U
TRICHLOROETHYLENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
BROMOFORM, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
TETRACHLOROETHYLENE, BY GC/MS	UG/KG	7	U	51		8	U	7	U	6	U
TOLUENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
CHLOROBENZENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
ETHYL BENZENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
ACETONE, BY GC/MS	UG/KG	14	U	20	U	30	U	14	U	13	U
CARBON DISULFIDE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
METHYL ETHYL KETONE	UG/KG	14	U	40	U	16	U	14	U	14	U
HEXANONE, 2-	UG/KG	14	U	20	U	16	U	14	U	13	U
4-METHYL-2-PENTANONE(MIBK)	UG/KG	14	U	20	U	16	U	14	U	13	U
STYRENE, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
XYLENES, TOTAL, BY GC/MS	UG/KG	7	U	10	U	8	U	7	U	6	U
DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	7	U	10	U	8	U	7	U	6	U
SAMPLE NUMBER	NA	001		002		003		003		004	
ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	005		005 F		006		007		008	
SOLIDS, PERCENT	%	80.9		76.7		83.7		82.8		79.0	
SILVER, TOTAL, BY ICAP	MG/KG	0.615	U			0.615	U	0.615	U	0.615	U
ALUMINUM, TOTAL, BY ICAP	MG/KG	8690				8950		9430		12700	
ARSENIC, TOTAL, BY ICAP	MG/KG	23.6				20.0		21.4		37.0	
BARIUM, TOTAL, BY ICAP	MG/KG	66.0				121		104		199	
BERYLLIUM, TOTAL, BY ICAP	MG/KG	0.781				0.737		0.809		1.34	
CADMIUM, TOTAL, BY ICAP	MG/KG	0.487	U			0.487	U	0.487	U	1.86	
COBALT, TOTAL, BY ICAP	MG/KG	5.47				6.76		6.05		14.8	
CHROMIUM, TOTAL, BY ICAP	MG/KG	13.7				14.4		15.5		20.8	
COPPER, TOTAL, BY ICAP	MG/KG	13.3				13.4		14.0		28.1	
IRON, TOTAL, BY ICAP	MG/KG	11600				11200		15800		21100	
MANGANESE, TOTAL, BY ICAP	MG/KG	240				420		549		4310	
NICKEL, TOTAL, BY ICAP	MG/KG	12.6				17.0		17.3		62.3	
LEAD, TOTAL, BY ICAP	MG/KG	19.8				20.0		20.9		32.7	
ANTIMONY, TOTAL, BY ICAP	MG/KG	2.48				2.43		3.50		5.51	
SELENIUM, TOTAL, BY ICAP	MG/KG	3.09	U			3.09	U	3.09	U	3.57	
THALLIUM, TOTAL, BY ICAP	MG/KG	3.15	U			3.15	U	3.15	U	3.15	U
VANADIUM, TOTAL, BY ICAP	MG/KG	29.2				25.9		33.2		47.7	
ZINC, TOTAL, BY ICAP	MG/KG	38.9				46.6		46.3		67.5	
CALCIUM, TOTAL, BY ICAP	MG/KG	42200				37400		24300		7680	
MAGNESIUM, TOTAL, BY ICAP	MG/KG	22000				17400		13100		3810	
SODIUM, TOTAL, BY ICAP	MG/KG	303				311		296		1510	
POTASSIUM, TOTAL, BY ICAP	MG/KG	922				1020		852		1080	
MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0287				0.0323		0.0240		0.0487	
PHENOL, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	005		005 F		006		007		008	
CHLOROPHENOL, 2-	UG/KG	410	U			390	U	400	U	420	U
DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
DICHLOROBENZENE,1,4-	UG/KG	410	U			390	U	400	U	420	U
BENZYL ALCOHOL	UG/KG	410	U			390	U	400	U	420	U
DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	410	U			390	U	400	U	420	U
ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	410	U			390	U	400	U	420	U
N-NITROSODIPROPYLAMINE	UG/KG	410	U			390	U	400	U	420	U
HEXACHLOROETHANE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
NITROBENZENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
ISOPHORONE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
NITROPHENOL,2-	UG/KG	410	U			390	U	400	U	420	U
DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
BENZOIC ACID, BY GC/MS	UG/KG	2100	U			2000	U	2100	U	2200	U
METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
DICHLOROPHENOL, 2,4-	UG/KG	410	U			390	U	400	U	420	U
TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
NAPHTHALENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
CHLOROANILINE,4-	UG/KG	410	U			390	U	400	U	420	U
HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PHENOL,4-CHLORO-3-METHYL	UG/KG	410	U			390	U	400	U	420	U
METHYLNAPHTHALENE, 2-	UG/KG	410	U			390	U	400	U	420	U
HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
TRICHLOROPHENOL,2,4,6	UG/KG	410	U			390	U	400	U	420	U
TRICHLOROPHENOL,2,4,5	UG/KG	2100	U			2000	U	2100	U	2200	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	005		005 F		006		007		008	
0 CHLORONAPHTHALENE, 2-	UG/KG	410	U			390	U	400	U	420	U
1 NITROANILINE,2-	UG/KG	2100	U			2000	U	2100	U	2200	U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
3 ACENAPHTHYLENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
4 NITROANILINE,3-	UG/KG	2100	U			2000	U	2100	U	2200	U
5 ACENAPHTHENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
6 DINITROPHENOL,2,4, BY GC/MS	UG/KG	2100	U			2000	U	2100	U	2200	U
7 NITROPHENOL,4-	UG/KG	2100	U			2000	U	2100	U	2200	U
8 DIBENZOFURAN	UG/KG	410	U			390	U	400	U	420	U
9 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
0 DINITROTOLUENE,2,6-	UG/KG	410	U			390	U	400	U	420	U
1 PHTHALATE, DIETHYL, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	410	U			390	U	400	U	420	U
3 FLUORENE, GC/MS	UG/KG	410	U			390	U	400	U	420	U
4 NITROANILINE,4-	UG/KG	2100	U			2000	U	2100	U	2200	U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	2100	U			2000	U	2100	U	2200	U
6 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	410	U			390	U	400	U	420	U
8 HEXACHLOROBENZENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
9 PENTACHLOROPHENOL, BY GC/MS	UG/KG	2100	U			2000	U	2100	U	2200	U
0 PHENANTHRENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
1 ANTHRACENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
3 FLUORANTHENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
4 PYRENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
5 PHTHALATE, BUTYL BENZYL	UG/KG	410	U			390	U	400	U	420	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	005		005 F		006		007		008	
DICHLOROBENZIDINE, 3,3'	UG/KG	410	U			390	U	400	U	420	U
ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
CHRYSENE, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	410	U			390	U	400	U	490	
FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PYRENE, BENZO(A), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PYRENE, INDENO(1,2,3-CD)	UG/KG	410	U			390	U	400	U	420	U
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	410	U			390	U	400	U	420	U
CYANIDE, TOTAL	MG/KG	0.040	U			0.040	U	0.040	U	0.040	U
CHLOROMETHANE, BY GC/MS	UG/KG	15	U	13	U	14	U	18	U	20	U
BROMOMETHANE, BY GC/MS	UG/KG	30	U	25	U	27	U	35	U	41	U
VINYL CHLORIDE, BY GC/MS	UG/KG	22	U	19	U	20	U	26	U	31	U
CHLOROETHANE, BY GC/MS	UG/KG	22	U	19	U	20	U	26	U	31	U
METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	15	U	13	U	14	U	18	U	20	U
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
DICHLOROETHANE,1,1, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
CHLOROFORM, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
DICHLOROETHANE,1,2, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
CARBON TETRACHLORIDE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
BROMODICHLOROMETHANE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
BENZENE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	005		005 F		006		007		008	
DICHLOROPROPYLENE,TRANS-1,3	UG/KG	7	U	6	U	7	U	9	U	10	U
TRICHLOROETHYLENE, BY GC/MS	UG/KG	7	U	6	U	62		9	U	10	U
DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
BROMOFORM, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
TETRACHLOROETHYLENE, BY GC/MS	UG/KG	7	U	6	U	290		19	U	10	U
TOLUENE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
CHLOROBENZENE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
ETHYL BENZENE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
ACETONE, BY GC/MS	UG/KG	15	U	13	U	14	U	18	U	20	U
CARBON DISULFIDE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
METHYL ETHYL KETONE	UG/KG	15	U	13	U	14	U	18	U	20	U
HEXANONE, 2-	UG/KG	15	U	13	U	14	U	18	U	20	U
4-METHYL-2-PENTANONE(MIBK)	UG/KG	15	U	13	U	14	U	18	U	20	U
STYRENE, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
XYLENES, TOTAL, BY GC/MS	UG/KG	7	U	6	U	7	U	9	U	10	U
DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	7	U	6	U	36		9	U	10	U
SAMPLE NUMBER	NA	005		005		006		007		008	
ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	009		010		011		012		013	
SOLIDS, PERCENT	%	76.8		79.1		78.8		77.0		77.8	
SILVER, TOTAL, BY ICAP	MG/KG	0.615	U	0.615	U	0.615	U	0.615	U	0.615	U
ALUMINUM, TOTAL, BY ICAP	MG/KG	10400		11500		10200		14200		17400	
ARSENIC, TOTAL, BY ICAP	MG/KG	40.1		31.7		34.5		30.7		34.5	
BARIUM, TOTAL, BY ICAP	MG/KG	200		168		158		201		254	
BERYLLIUM, TOTAL, BY ICAP	MG/KG	1.14		1.12		1.13		1.13		1.27	
CADMIUM, TOTAL, BY ICAP	MG/KG	0.487	U	0.487	U	0.487	U	0.487	U	0.487	U
COBALT, TOTAL, BY ICAP	MG/KG	15.1		8.42		8.20		4.56		11.2	
CHROMIUM, TOTAL, BY ICAP	MG/KG	17.8		21.2		18.7		16.1		17.5	
COPPER, TOTAL, BY ICAP	MG/KG	25.5		17.2		27.2		15.1		13.0	
IRON, TOTAL, BY ICAP	MG/KG	19300		17500		15700		14600		19600	
MANGANESE, TOTAL, BY ICAP	MG/KG	1540		771		300		143		613	
NICKEL, TOTAL, BY ICAP	MG/KG	49.4		28.4		24.5		15.2		19.9	
LEAD, TOTAL, BY ICAP	MG/KG	26.5		26.1		25.7		29.2		30.5	
ANTIMONY, TOTAL, BY ICAP	MG/KG	3.52		4.09		3.77		3.40		3.63	
SELENIUM, TOTAL, BY ICAP	MG/KG	3.09	U	3.09	U	3.09	U	3.09	U	3.09	U
THALLIUM, TOTAL, BY ICAP	MG/KG	3.15	U	3.15	U	3.15	U	3.15	U	3.15	U
VANADIUM, TOTAL, BY ICAP	MG/KG	45.2		38.0		45.2		32.5		39.3	
ZINC, TOTAL, BY ICAP	MG/KG	60.3		58.3		67.2		45.6		44.1	
CALCIUM, TOTAL, BY ICAP	MG/KG	9320		5310		11100		8400		3780	
MAGNESIUM, TOTAL, BY ICAP	MG/KG	6100		3740		7200		1980		2530	
SODIUM, TOTAL, BY ICAP	MG/KG	801		1410		484		2930		1830	
POTASSIUM, TOTAL, BY ICAP	MG/KG	687		897		696		1260		1100	
MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0318		0.0529		0.0388		0.0330		0.0260	
PHENOL, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	009		010		011		012		013	
CHLOROPHENOL, 2-	UG/KG	430	U	420	U	420	U	430	U	426	U
DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
DICHLOROBENZENE,1,4-	UG/KG	430	U	420	U	420	U	430	U	426	U
BENZYL ALCOHOL	UG/KG	430	U	420	U	420	U	430	U	426	U
DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	430	U	420	U	420	U	430	U	426	U
ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	430	U	420	U	420	U	430	U	426	U
N-NITROSODIPROPYLAMINE	UG/KG	430	U	420	U	420	U	430	U	426	U
HEXACHLOROETHANE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
NITROBENZENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
ISOPHORONE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
NITROPHENOL,2-	UG/KG	430	U	420	U	420	U	430	U	426	U
DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
BENZOIC ACID, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
DICHLOROPHENOL, 2,4-	UG/KG	430	U	420	U	420	U	430	U	426	U
TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
NAPHTHALENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
CHLOROANILINE,4-	UG/KG	430	U	420	U	420	U	430	U	426	U
HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PHENOL,4-CHLORO-3-METHYL	UG/KG	430	U	420	U	420	U	430	U	426	U
METHYLNAPHTHALENE, 2-	UG/KG	430	U	420	U	420	U	430	U	426	U
HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
TRICHLOROPHENOL,2,4,6	UG/KG	430	U	420	U	420	U	430	U	426	U
TRICHLOROPHENOL,2,4,5	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	009		010		011		012		013	
0 CHLORONAPHTHALENE, 2-	UG/KG	430	U	420	U	420	U	430	U	426	U
1 NITROANILINE,2-	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
3 ACENAPHTHYLENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
4 NITROANILINE,3-	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
5 ACENAPHTHENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
6 DINITROPHENOL,2,4, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
7 NITROPHENOL,4-	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
8 DIBENZOFURAN	UG/KG	430	U	420	U	420	U	430	U	426	U
9 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
0 DINITROTOLUENE,2,6-	UG/KG	430	U	420	U	420	U	430	U	426	U
1 PHTHALATE, DIETHYL, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	430	U	420	U	420	U	430	U	426	U
3 FLUORENE, GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
4 NITROANILINE,4-	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
6 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	430	U	420	U	420	U	430	U	426	U
8 HEXACHLOROBENZENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
9 PENTACHLOROPHENOL, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	2200	U	2150	U
0 PHENANTHRENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
1 ANTHRACENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
3 FLUORANTHENE, BY GC/MS	UG/KG	520		420	U	420	U	430	U	426	U
4 PYRENE, BY GC/MS	UG/KG	500		420	U	420	U	430	U	426	U
5 PHTHALATE, BUTYL BENZYL	UG/KG	430	U	420	U	420	U	430	U	426	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	009		010		011		012		013	
DICHLOROBENZIDINE, 3,3'	UG/KG	430	U	420	U	420	U	430	U	851	U
ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
CHRYSENE, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	480		420	U	420	U	430	U	426	U
FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PYRENE, BENZO(A), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PYRENE, INDENO(1,2,3-CD)	UG/KG	430	U	420	U	420	U	430	U	426	U
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	430	U	420	U	420	U	430	U	426	U
CYANIDE, TOTAL	MG/KG	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
CHLOROMETHANE, BY GC/MS	UG/KG	20	U	18	U	20	U	20	U	29	U
BROMOMETHANE, BY GC/MS	UG/KG	39	U	37	U	41	U	40	U	57	U
VINYL CHLORIDE, BY GC/MS	UG/KG	30	U	28	U	31	U	30	U	43	U
CHLOROETHANE, BY GC/MS	UG/KG	30	U	28	U	31	U	30	U	43	U
METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	20	U	18	U	20	U	20	U	29	U
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
DICHLOROETHANE,1,1, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
CHLOROFORM, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
DICHLOROETHANE,1,2, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
CARBON TETRACHLORIDE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
BROMODICHLOROMETHANE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
BENZENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	009		010		011		012		013	
3 DICHLOROPROPYLENE,TRANS-1,3	UG/KG	10	U	9	U	10	U	10	U	14	U
9 TRICHLOROETHYLENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
0 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
1 DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
2 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
4 BROMOFORM, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
5 TETRACHLOROETHYLENE, BY GC/MS	UG/KG	15		10		10	U	12		14	U
6 TOLUENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
7 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
8 CHLOROBENZENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
9 ETHYL BENZENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
0 ACETONE, BY GC/MS	UG/KG	20	U	18	U	20	U	20	U	29	U
1 CARBON DISULFIDE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
2 METHYL ETHYL KETONE	UG/KG	20	U	18	U	20	U	20	U	29	U
4 HEXANONE, 2-	UG/KG	20	U	18	U	20	U	20	U	29	U
5 4-METHYL-2-PENTANONE(MIBK)	UG/KG	20	U	18	U	20	U	20	U	29	U
6 STYRENE, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
7 XYLENES, TOTAL, BY GC/MS	UG/KG	10	U	9	U	10	U	10	U	14	U
3 DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	10	U	9	U	10	U	10	U	14	U
1 SAMPLE NUMBER	NA	009		010		011		012		013	
2 ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	014	015	015 F	016	017
' SOLIDS, PERCENT	%	94.0	78.1	98.4	96.5	78.1
SILVER, TOTAL, BY ICAP	MG/KG	6.15 U	0.615 U		0.615 U	0.615 U
ALUMINUM, TOTAL, BY ICAP	MG/KG	4790	21800		1650	22700
ARSENIC, TOTAL, BY ICAP	MG/KG	9.90	46.3		4.09	43.1
BARIUM, TOTAL, BY ICAP	MG/KG	46.2	183		20.7	219
BERYLLIUM, TOTAL, BY ICAP	MG/KG	0.362	1.40		0.173	1.46
CADMIUM, TOTAL, BY ICAP	MG/KG	0.565	0.487 U		1.67	0.487 U
COBALT, TOTAL, BY ICAP	MG/KG	2.66	9.57		1.12	13.1
CHROMIUM, TOTAL, BY ICAP	MG/KG	6.15	19.7		6.09	18.5
COPPER, TOTAL, BY ICAP	MG/KG	5.65	17.7		4.64	19.0
IRON, TOTAL, BY ICAP	MG/KG	5550	30500		2110	34200
MANGANESE, TOTAL, BY ICAP	MG/KG	481	747		78.8	2070
NICKEL, TOTAL, BY ICAP	MG/KG	9.07	25.2		5.49	31.1
LEAD, TOTAL, BY ICAP	MG/KG	8.37	33.1		4.55	35.5
ANTIMONY, TOTAL, BY ICAP	MG/KG	0.830	4.50		0.561 U	4.44
SELENIUM, TOTAL, BY ICAP	MG/KG	4.02	3.09 U		3.09 U	3.09 U
THALLIUM, TOTAL, BY ICAP	MG/KG	3.15 U	3.15 U		3.43	3.15 U
VANADIUM, TOTAL, BY ICAP	MG/KG	12.1	44.2		9.52	46.7
ZINC, TOTAL, BY ICAP	MG/KG	24.4	51.8		22.3	47.2
CALCIUM, TOTAL, BY ICAP	MG/KG	14600	16400		14500	3850
MAGNESIUM, TOTAL, BY ICAP	MG/KG	39600	3790		15900	3210
SODIUM, TOTAL, BY ICAP	MG/KG	348	206		138	203
POTASSIUM, TOTAL, BY ICAP	MG/KG	755	1120		442	992
MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0142	0.0331		0.0050	0.0341
PHENOL, BY GC/MS	UG/KG	703 U	845 U		3420 U	422 U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	703 U	845 U		3420 U	422 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	014		015		015 F	016		017	
4 CHLOROPHENOL, 2-	UG/KG	703	U	845	U		3420	U	422	U
5 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
6 DICHLOROBENZENE,1,4-	UG/KG	703	U	845	U		3420	U	422	U
7 BENZYL ALCOHOL	UG/KG	703	U	845	U		3420	U	422	U
8 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
9 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	703	U	845	U		3420	U	422	U
0 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
1 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	703	U	845	U		3420	U	422	U
2 N-NITROSODIPROPYLAMINE	UG/KG	703	U	845	U		3420	U	422	U
3 HEXACHLOROETHANE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
4 NITROBENZENE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
5 ISOPHORONE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
6 NITROPHENOL,2-	UG/KG	703	U	845	U		3420	U	422	U
7 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
8 BENZOIC ACID, BY GC/MS	UG/KG	3560	U	4280	U		17300	U	2140	U
9 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
0 DICHLOROPHENOL, 2,4-	UG/KG	703	U	845	U		3420	U	422	U
1 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
2 NAPHTHALENE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
3 CHLOROANILINE,4-	UG/KG	703	U	845	U		3420	U	422	U
4 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
5 PHENOL,4-CHLORO-3-METHYL	UG/KG	703	U	845	U		3420	U	422	U
6 METHYLNAPHTHALENE, 2-	UG/KG	703	U	845	U		3420	U	422	U
7 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	703	U	845	U		3420	U	422	U
8 TRICHLOROPHENOL,2,4,6	UG/KG	703	U	845	U		3420	U	422	U
9 TRICHLOROPHENOL,2,4,5	UG/KG	3560	U	4280	U		17300	U	2140	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	014		015		015 F		016		017	
CHLORONAPHTHALENE, 2-	UG/KG	703	U	845	U			3420	U	422	U
NITROANILINE,2-	UG/KG	3560	U	4280	U			17300	U	2140	U
PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
ACENAPHTHYLENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
NITROANILINE,3-	UG/KG	3560	U	4280	U			17300	U	2140	U
ACENAPHTHENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
DINITROPHENOL,2,4, BY GC/MS	UG/KG	3560	U	4280	U			17300	U	2140	U
NITROPHENOL,4-	UG/KG	3560	U	4280	U			17300	U	2140	U
DIBENZOFURAN	UG/KG	703	U	845	U			3420	U	422	U
DINITROTOLUENE,2,4, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
DINITROTOLUENE,2,6-	UG/KG	703	U	845	U			3420	U	422	U
PHTHALATE, DIETHYL, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	703	U	845	U			3420	U	422	U
FLUORENE, GC/MS	UG/KG	703	U	845	U			3420	U	422	U
NITROANILINE,4-	UG/KG	3560	U	4280	U			17300	U	2140	U
PHENOL,4,6-DINITRO-2-METHYL	UG/KG	3560	U	4280	U			17300	U	2140	U
N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
ETHER, 4-BROMOPHENYL PHENYL	UG/KG	703	U	845	U			3420	U	422	U
HEXACHLOROBENZENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
PENTACHLOROPHENOL, BY GC/MS	UG/KG	3560	U	4280	U			17300	U	2140	U
PHENANTHRENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
ANTHRACENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
FLUORANTHENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
PYRENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
PHTHALATE, BUTYL BENZYL	UG/KG	703	U	845	U			3420	U	422	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	014		015		015 F		016		017	
5 DICHLOROBENZIDINE, 3,3'	UG/KG	1410	U	1690	U			6840	U	845	U
7 ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
3 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
9 CHRYSENE, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
0 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
1 FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
2 FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
3 PYRENE, BENZO(A), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
4 PYRENE, INDENO(1,2,3-CD)	UG/KG	703	U	845	U			3420	U	422	U
5 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
6 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	703	U	845	U			3420	U	422	U
9 CYANIDE, TOTAL	MG/KG	0.040	U	0.040	U			0.040	U	0.040	U
3 CHLOROMETHANE, BY GC/MS	UG/KG	15	U	19	U	12	U	14	U	25	U
4 BROMOMETHANE, BY GC/MS	UG/KG	30	U	38	U	25	U	28	U	50	U
5 VINYL CHLORIDE, BY GC/MS	UG/KG	23	U	29	U	18	U	21	U	37	U
6 CHLOROETHANE, BY GC/MS	UG/KG	23	U	29	U	18	U	21	U	37	U
7 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	15	U	19	U	12	U	14	U	25	U
3 DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
9 DICHLOROETHANE,1,1, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
1 CHLOROFORM, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
2 DICHLOROETHANE,1,2, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
3 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
4 CARBON TETRACHLORIDE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
5 BROMODICHLOROMETHANE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
6 DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
7 BENZENE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	014		015		015 F		016		017	
DICHLOROPROPYLENE,TRANS-1,3	UG/KG	8	U	10	U	6	U	7	U	12	U
TRICHLOROETHYLENE, BY GC/MS	UG/KG	110		13		6	U	31		12	U
DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
BROMOFORM, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
TETRACHLOROETHYLENE, BY GC/MS	UG/KG	290000		880		7	U	40000		760	
TOLUENE, BY GC/MS	UG/KG	130		13		6	U	95		12	U
TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
CHLOROBENZENE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
ETHYL BENZENE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
ACETONE, BY GC/MS	UG/KG	140		130		37	U	88		25	U
CARBON DISULFIDE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
METHYL ETHYL KETONE	UG/KG	44	U	51	U	14	U	30	U	25	U
HEXANONE, 2-	UG/KG	15	U	19	U	12	U	14	U	25	U
4-METHYL-2-PENTANONE(MIBK)	UG/KG	15	U	19	U	12	U	14	U	25	U
STYRENE, BY GC/MS	UG/KG	8	U	10	U	6	U	7	U	12	U
XYLENES, TOTAL, BY GC/MS	UG/KG	32		10	U	6	U	11		12	U
DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	44		17		6	U	14		12	U
SAMPLE NUMBER	NA	014		015		015		016		017	
ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	018	019	020	021	022
SOLIDS, PERCENT	%	85.9	77.6	80.3	77.4	79.3
SILVER, TOTAL, BY ICAP	MG/KG	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U
ALUMINUM, TOTAL, BY ICAP	MG/KG	14200	18900	14400	8300	17300
ARSENIC, TOTAL, BY ICAP	MG/KG	60.4	29.9	32.8	25.2	43.3
BARIUM, TOTAL, BY ICAP	MG/KG	129	173	186	85.5	212
BERYLLIUM, TOTAL, BY ICAP	MG/KG	0.943	1.08	1.15	0.806	1.34
CADMIUM, TOTAL, BY ICAP	MG/KG	2.19	0.487 U	0.487 U	0.487 U	0.487 U
COBALT, TOTAL, BY ICAP	MG/KG	4.42	4.32	7.71	6.94	11.0
CHROMIUM, TOTAL, BY ICAP	MG/KG	20.2	15.8	17.2	14.4	19.5
COPPER, TOTAL, BY ICAP	MG/KG	93.0	13.0	18.5	15.0	15.5
IRON, TOTAL, BY ICAP	MG/KG	21900	21600	21700	18200	24700
MANGANESE, TOTAL, BY ICAP	MG/KG	249	444	537	740	949
NICKEL, TOTAL, BY ICAP	MG/KG	14.0	13.9	21.3	19.2	23.6
LEAD, TOTAL, BY ICAP	MG/KG	140	22.6	29.3	20.1	34.1
ANTIMONY, TOTAL, BY ICAP	MG/KG	4.95	3.16	4.33	2.66	4.35
SELENIUM, TOTAL, BY ICAP	MG/KG	3.09 U	3.09 U	3.09 U	3.09 U	3.09 U
THALLIUM, TOTAL, BY ICAP	MG/KG	3.15 U	3.15 U	3.15 U	3.15 U	3.15 U
VANADIUM, TOTAL, BY ICAP	MG/KG	34.1	31.6	37.3	28.3	41.0
ZINC, TOTAL, BY ICAP	MG/KG	219	38.0	57.7	41.8	42.0
CALCIUM, TOTAL, BY ICAP	MG/KG	16000	5050	12900	23700	5420
MAGNESIUM, TOTAL, BY ICAP	MG/KG	7510	2560	3160	14100	2970
SODIUM, TOTAL, BY ICAP	MG/KG	1340	1580	684	128	519
POTASSIUM, TOTAL, BY ICAP	MG/KG	2210	1140	1060	1230	858
MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.112	0.0231	0.0285	0.0338	0.0260
PHENOL, BY GC/MS	UG/KG	3840 U	422 U	413 U	430 U	420 U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	3840 U	422 U	413 U	430 U	420 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	018		019		020		021		022	
CHLOROPHENOL, 2-	UG/KG	3840	U	422	U	413	U	430	U	420	U
DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
DICHLOROBENZENE,1,4-	UG/KG	3840	U	422	U	413	U	430	U	420	U
BENZYL ALCOHOL	UG/KG	3840	U	422	U	413	U	430	U	420	U
DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	3840	U	422	U	413	U	430	U	420	U
ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	3840	U	422	U	413	U	430	U	420	U
N-NITROSODIPROPYLAMINE	UG/KG	3840	U	422	U	413	U	430	U	420	U
HEXACHLOROETHANE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
NITROBENZENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
ISOPHORONE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
NITROPHENOL,2-	UG/KG	3840	U	422	U	413	U	430	U	420	U
DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
BENZOIC ACID, BY GC/MS	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
DICHLOROPHENOL, 2,4-	UG/KG	3840	U	422	U	413	U	430	U	420	U
TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
NAPHTHALENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
CHLOROANILINE,4-	UG/KG	3840	U	422	U	413	U	430	U	420	U
HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
PHENOL,4-CHLORO-3-METHYL	UG/KG	3840	U	422	U	413	U	430	U	420	U
METHYLNAPHTHALENE, 2-	UG/KG	3840	U	422	U	413	U	430	U	420	U
HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
TRICHLOROPHENOL,2,4,6	UG/KG	3840	U	422	U	413	U	430	U	420	U
TRICHLOROPHENOL,2,4,5	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	018		019		020		021		022	
CHLORONAPHTHALENE, 2-	UG/KG	3840	U	422	U	413	U	430	U	420	U
NITROANILINE,2-	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
ACENAPHTHYLENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
NITROANILINE,3-	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
ACENAPHTHENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
DINITROPHENOL,2,4, BY GC/MS	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
NITROPHENOL,4-	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
DIBENZOFURAN	UG/KG	3840	U	422	U	413	U	430	U	420	U
DINITROTOLUENE,2,4, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
DINITROTOLUENE,2,6-	UG/KG	3840	U	422	U	413	U	430	U	420	U
PHTHALATE, DIETHYL, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	3840	U	422	U	413	U	430	U	420	U
FLUORENE, GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
NITROANILINE,4-	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
PHENOL,4,6-DINITRO-2-METHYL	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
ETHER, 4-BROMOPHENYL PHENYL	UG/KG	3840	U	422	U	413	U	430	U	420	U
HEXACHLOROBENZENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
PENTACHLOROPHENOL, BY GC/MS	UG/KG	19400	U	2140	U	2090	U	2200	U	2100	U
PHENANTHRENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
ANTHRACENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	420	U
FLUORANTHENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PYRENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PHTHALATE, BUTYL BENZYL	UG/KG	3840	U	422	U	413	U	430	U	4200	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	018		019		020		021		022	
DICHLOROBENZIDINE, 3,3'	UG/KG	7680	U	845	U	825	U	430	U	4200	U
ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
CHRYSENE, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PYRENE, BENZO(A), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PYRENE, INDENO(1,2,3-CD)	UG/KG	3840	U	422	U	413	U	430	U	4200	U
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	3840	U	422	U	413	U	430	U	4200	U
CYANIDE, TOTAL	MG/KG	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
CHLOROMETHANE, BY GC/MS	UG/KG	21	U	25	U	19	U	15	U	19	U
BROMOMETHANE, BY GC/MS	UG/KG	42	U	49	U	39	U	30	U	39	U
VINYL CHLORIDE, BY GC/MS	UG/KG	32	U	37	U	29	U	22	U	29	U
CHLOROETHANE, BY GC/MS	UG/KG	32	U	37	U	29	U	22	U	29	U
METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	21	U	25	U	19	U	15	U	19	U
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
DICHLOROETHANE,1,1, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
CHLOROFORM, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
DICHLOROETHANE,1,2, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
CARBON TETRACHLORIDE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
BROMODICHLOROMETHANE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
BENZENE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	018		019		020		021		022	
8 DICHLOROPROPYLENE,TRANS-1,3	UG/KG	10	U	12	U	10	U	7	U	10	U
9 TRICHLOROETHYLENE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
0 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
1 DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
2 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
4 BROMOFORM, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
5 TETRACHLOROETHYLENE, BY GC/MS	UG/KG	26		15	U	13	U	24	U	10	U
6 TOLUENE, BY GC/MS	UG/KG	11	U	12	U	10	U	7	U	10	U
7 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
8 CHLOROBENZENE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
9 ETHYL BENZENE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
0 ACETONE, BY GC/MS	UG/KG	38	U	41	U	40	U	15	U	19	U
1 CARBON DISULFIDE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
2 METHYL ETHYL KETONE	UG/KG	21	U	25	U	19	U	15	U	27	U
4 HEXANONE, 2-	UG/KG	21	U	25	U	19	U	15	U	19	U
5 4-METHYL-2-PENTANONE(MIBK)	UG/KG	21	U	25	U	19	U	15	U	19	U
6 STYRENE, BY GC/MS	UG/KG	10	U	12	U	10	U	7	U	10	U
7 XYLENES, TOTAL, BY GC/MS	UG/KG	10	U	12	U	10	U	12		10	U
3 DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	10	U	12	U	10	U	7	U	10	U
1 SAMPLE NUMBER	NA	018		019		020		021		022	
2 ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	023	024	025	026	027
SOLIDS, PERCENT	%	77.4	79.7	78.1	80.5	79.5
SILVER, TOTAL, BY ICAP	MG/KG	0.615 U	0.615 U	0.615 U	0.615 U	0.615 U
ALUMINUM, TOTAL, BY ICAP	MG/KG	18000	17200	21900	8000	11100
ARSENIC, TOTAL, BY ICAP	MG/KG	43.0	35.6	44.8	19.8	37.5
BARIUM, TOTAL, BY ICAP	MG/KG	245	303	201	94.8	142
BERYLLIUM, TOTAL, BY ICAP	MG/KG	1.37	1.20	1.31	0.705	0.984
CADMIUM, TOTAL, BY ICAP	MG/KG	0.487 U	0.487 U	0.487 U	0.487 U	0.487 U
COBALT, TOTAL, BY ICAP	MG/KG	10.4	11.6	6.54	5.52	6.19
CHROMIUM, TOTAL, BY ICAP	MG/KG	18.5	15.1	19.2	12.9	15.5
COPPER, TOTAL, BY ICAP	MG/KG	16.1	12.8	14.0	11.1	15.5
IRON, TOTAL, BY ICAP	MG/KG	23600	23700	25300	9850	26100
MANGANESE, TOTAL, BY ICAP	MG/KG	1280	2580	546	464	543
NICKEL, TOTAL, BY ICAP	MG/KG	28.7	21.4	18.6	13.7	21.9
LEAD, TOTAL, BY ICAP	MG/KG	30.5	27.7	27.4	28.0	22.7
ANTIMONY, TOTAL, BY ICAP	MG/KG	4.21	3.54	3.92	2.04	3.53
SELENIUM, TOTAL, BY ICAP	MG/KG	3.09 U	3.09 U	3.09 U	3.09 U	3.09 U
THALLIUM, TOTAL, BY ICAP	MG/KG	3.15 U	3.15 U	3.15 U	3.15 U	3.15 U
VANADIUM, TOTAL, BY ICAP	MG/KG	40.7	32.5	40.1	24.1	33.0
ZINC, TOTAL, BY ICAP	MG/KG	46.5	36.6	44.1	134	47.6
CALCIUM, TOTAL, BY ICAP	MG/KG	3370	3970	3540	27000	7050
MAGNESIUM, TOTAL, BY ICAP	MG/KG	3140	2750	3240	4720	5030
SODIUM, TOTAL, BY ICAP	MG/KG	497	431	453	839	829
POTASSIUM, TOTAL, BY ICAP	MG/KG	742	657	929	664	777
MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0490	0.0243	0.040	0.0534	0.0277
PHENOL, BY GC/MS	UG/KG	430 U	410 U	420 U	4100 U	416 U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	430 U	410 U	420 U	4100 U	416 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	023		024		025		026		027	
CHLOROPHENOL, 2-	UG/KG	430	U	410	U	420	U	4100	U	416	U
DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
DICHLOROBENZENE,1,4-	UG/KG	430	U	410	U	420	U	4100	U	416	U
BENZYL ALCOHOL	UG/KG	430	U	410	U	420	U	4100	U	416	U
DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	430	U	410	U	420	U	4100	U	416	U
ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	430	U	410	U	420	U	4100	U	416	U
N-NITROSODIPROPYLAMINE	UG/KG	430	U	410	U	420	U	4100	U	416	U
HEXACHLOROETHANE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
NITROBENZENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
ISOPHORONE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
NITROPHENOL,2-	UG/KG	430	U	410	U	420	U	4100	U	416	U
DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
BENZOIC ACID, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
DICHLOROPHENOL, 2,4-	UG/KG	430	U	410	U	420	U	4100	U	416	U
TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
NAPHTHALENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
CHLOROANILINE,4-	UG/KG	430	U	410	U	420	U	4100	U	416	U
HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
PHENOL,4-CHLORO-3-METHYL	UG/KG	430	U	410	U	420	U	4100	U	416	U
METHYLNAPHTHALENE, 2-	UG/KG	430	U	410	U	420	U	4100	U	416	U
HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
TRICHLOROPHENOL,2,4,6	UG/KG	430	U	410	U	420	U	4100	U	416	U
TRICHLOROPHENOL,2,4,5	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	023		024		025		026		027	
) CHLORONAPHTHALENE, 2-	UG/KG	430	U	410	U	420	U	4100	U	416	U
I NITROANILINE,2-	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
5 ACENAPHTHYLENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
4 NITROANILINE,3-	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
5 ACENAPHTHENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
5 DINITROPHENOL,2,4, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
7 NITROPHENOL,4-	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
3 DIBENZOFURAN	UG/KG	430	U	410	U	420	U	4100	U	416	U
) DINITROTOLUENE,2,4, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
) DINITROTOLUENE,2,6-	UG/KG	430	U	410	U	420	U	4100	U	416	U
I PHTHALATE, DIETHYL, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	430	U	410	U	420	U	4100	U	416	U
5 FLUORENE, GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
4 NITROANILINE,4-	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
5 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	430	U	410	U	420	U	4100	U	416	U
3 HEXACHLOROBENZENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
) PENTACHLOROPHENOL, BY GC/MS	UG/KG	2200	U	2100	U	2200	U	20700	U	2100	U
) PHENANTHRENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4300		416	U
I ANTHRACENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
5 FLUORANTHENE, BY GC/MS	UG/KG	430	U	410	U	420	U	5640		416	U
4 PYRENE, BY GC/MS	UG/KG	430	U	410	U	420	U	6570		416	U
5 PHTHALATE, BUTYL BENZYL	UG/KG	430	U	410	U	420	U	4100	U	416	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	023		024		025		026		027	
DICHLOROBENZIDINE, 3,3'	UG/KG	430	U	410	U	420	U	8200	U	832	U
ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	430	U	410	U	420	U	4100		416	U
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
CHRYSENE, BY GC/MS	UG/KG	430	U	410	U	420	U	4250		416	U
PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	430	U	410	U	420	U	11200		416	U
PYRENE, BENZO(A), BY GC/MS	UG/KG	430	U	410	U	420	U	5000		416	U
PYRENE, INDENO(1,2,3-CD)	UG/KG	430	U	410	U	420	U	4100	U	416	U
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	430	U	410	U	420	U	4100	U	416	U
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	430	U	410	U	420	U	4100		416	U
CYANIDE, TOTAL	MG/KG	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
CHLOROMETHANE, BY GC/MS	UG/KG	26	U	19	U	20	U	21	U	17	U
BROMOMETHANE, BY GC/MS	UG/KG	52	U	39	U	40	U	41	U	35	U
VINYL CHLORIDE, BY GC/MS	UG/KG	39	U	29	U	30	U	31	U	26	U
CHLOROETHANE, BY GC/MS	UG/KG	39	U	29	U	30	U	31	U	26	U
METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	26	U	19	U	20	U	21	U	17	U
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
DICHLOROETHANE,1,1, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
CHLOROFORM, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
DICHLOROETHANE,1,2, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
CARBON TETRACHLORIDE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
BROMODICHLOROMETHANE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
BENZENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	023		024		025		026		027	
3 DICHLOROPROPYLENE,TRANS-1,3	UG/KG	13	U	10	U	10	U	10	U	9	U
) TRICHLOROETHYLENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
) DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
I DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
2 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
4 BROMOFORM, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
5 TETRACHLOROETHYLENE, BY GC/MS	UG/KG	13	U	10	U	12	U	13	U	9	U
5 TOLUENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
7 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
3 CHLOROBENZENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
) ETHYL BENZENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
) ACETONE, BY GC/MS	UG/KG	27	U	48	U	25	U	21	U	40	U
I CARBON DISULFIDE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
2 METHYL ETHYL KETONE	UG/KG	26	U	25	U	20	U	21	U	18	U
HEXANONE, 2-	UG/KG	26	U	19	U	20	U	21	U	17	U
4-METHYL-2-PENTANONE(MIBK)	UG/KG	26	U	19	U	20	U	21	U	17	U
STYRENE, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
7 XYLENES, TOTAL, BY GC/MS	UG/KG	13	U	10	U	10	U	10	U	9	U
5 DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	13	U	10	U	10	U	10	U	9	U
SAMPLE NUMBER	NA	023		024		025		026		027	
ACTIVITY CODE	NA	ADF03		ADF03		ADF03		ADF03		ADF03	

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028		029		031	032 F	033 F
7 SOLIDS, PERCENT	%	78.0		77.7				
1 SILVER, TOTAL, BY ICAP	MG/KG	0.615	U	0.615	U			
2 ALUMINUM, TOTAL, BY ICAP	MG/KG	15300		10500				
3 ARSENIC, TOTAL, BY ICAP	MG/KG	31.6		32.1				
4 BARIUM, TOTAL, BY ICAP	MG/KG	182		129				
5 BERYLLIUM, TOTAL, BY ICAP	MG/KG	1.03		0.976				
6 CADMIUM, TOTAL, BY ICAP	MG/KG	0.487	U	0.487	U			
7 COBALT, TOTAL, BY ICAP	MG/KG	6.09		6.27				
8 CHROMIUM, TOTAL, BY ICAP	MG/KG	15.3		17.4				
9 COPPER, TOTAL, BY ICAP	MG/KG	13.0		15.4				
0 IRON, TOTAL, BY ICAP	MG/KG	17600		22100				
1 MANGANESE, TOTAL, BY ICAP	MG/KG	356		814				
3 NICKEL, TOTAL, BY ICAP	MG/KG	16.4		17.4				
4 LEAD, TOTAL, BY ICAP	MG/KG	22.7		35.8				
5 ANTIMONY, TOTAL, BY ICAP	MG/KG	1.76		3.73				
6 SELENIUM, TOTAL, BY ICAP	MG/KG	3.09	U	3.09	U			
8 THALLIUM, TOTAL, BY ICAP	MG/KG	3.15	U	3.15	U			
9 VANADIUM, TOTAL, BY ICAP	MG/KG	28.6		34.9				
0 ZINC, TOTAL, BY ICAP	MG/KG	44.8		98.6				
1 CALCIUM, TOTAL, BY ICAP	MG/KG	6000		24000				
2 MAGNESIUM, TOTAL, BY ICAP	MG/KG	2370		5250				
3 SODIUM, TOTAL, BY ICAP	MG/KG	1030		951				
4 POTASSIUM, TOTAL, BY ICAP	MG/KG	1060		884				
4 MERCURY, TOTAL, BY COLD VAPOR AA	MG/KG	0.0258		0.0312				
7 PCB-AROCLOR 1016	UG/KG			36	U			
8 PCB-AROCLOR 1221	UG/KG			31	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028		029		031	032 F	033 F
9 PCB-AROCLOR 1232	UG/KG			10	U			
0 PCB-AROCLOR 1242	UG/KG			9.9	U			
1 PCB-AROCLOR 1248	UG/KG			14	U			
2 PCB-AROCLOR 1254	UG/KG			4.6	U			
3 PCB-AROCLOR 1260	UG/KG			6.4	U			
1 PHENOL, BY GC/MS	UG/KG	845	U	426	U			
3 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/KG	845	U	426	U			
4 CHLOROPHENOL, 2-	UG/KG	845	U	426	U			
5 DICHLOROBENZENE,1,3-, BY GC/MS	UG/KG	845	U	426	U			
6 DICHLOROBENZENE,1,4-	UG/KG	845	U	426	U			
7 BENZYL ALCOHOL	UG/KG	845	U	426	U			
8 DICHLOROBENZENE,1,2-, BY GC/MS	UG/KG	845	U	426	U			
9 CRESOL, ORTHO(2-METHYLPHENOL)	UG/KG	845	U	426	U			
0 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/KG	845	U	426	U			
1 CRESOL, PARA-(4-METHYLPHENOL)	UG/KG	845	U	426	U			
2 N-NITROSODIPROPYLAMINE	UG/KG	845	U	426	U			
3 HEXACHLOROETHANE, BY GC/MS	UG/KG	845	U	426	U			
4 NITROBENZENE, BY GC/MS	UG/KG	845	U	426	U			
5 ISOPHORONE, BY GC/MS	UG/KG	845	U	426	U			
6 NITROPHENOL,2-	UG/KG	845	U	426	U			
7 DIMETHYLPHENOL,2,4, BY GC/MS	UG/KG	845	U	426	U			
8 BENZOIC ACID, BY GC/MS	UG/KG	4280	U	2150	U			
9 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/KG	845	U	426	U			
0 DICHLOROPHENOL, 2,4-	UG/KG	845	U	426	U			
1 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/KG	845	U	426	U			
2 NAPHTHALENE, BY GC/MS	UG/KG	845	U	426	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028		029		031	032 F	033 F
3 CHLOROANILINE,4-	UG/KG	845	U	426	U			
4 HEXACHLOROBUTADIENE, BY GC/MS	UG/KG	845	U	426	U			
5 PHENOL,4-CHLORO-3-METHYL	UG/KG	845	U	426	U			
6 METHYLNAPHTHALENE, 2-	UG/KG	845	U	426	U			
7 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/KG	845	U	426	U			
8 TRICHLOROPHENOL,2,4,6	UG/KG	845	U	426	U			
9 TRICHLOROPHENOL,2,4,5	UG/KG	4280	U	2150	U			
0 CHLORONAPHTHALENE, 2-	UG/KG	845	U	426	U			
1 NITROANILINE,2-	UG/KG	4280	U	2150	U			
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/KG	845	U	426	U			
3 ACENAPHTHYLENE, BY GC/MS	UG/KG	845	U	426	U			
4 NITROANILINE,3-	UG/KG	4280	U	2150	U			
5 ACENAPHTHENE, BY GC/MS	UG/KG	845	U	426	U			
6 DINITROPHENOL,2,4, BY GC/MS	UG/KG	4280	U	2150	U			
7 NITROPHENOL,4-	UG/KG	4280	U	2150	U			
8 DIBENZOFURAN	UG/KG	845	U	426	U			
9 DINITROTOLUENE,2,4, BY GC/MS	UG/KG	845	U	426	U			
0 DINITROTOLUENE,2,6-	UG/KG	845	U	426	U			
1 PHTHALATE, DIETHYL, BY GC/MS	UG/KG	845	U	426	U			
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/KG	845	U	426	U			
3 FLUORENE, GC/MS	UG/KG	845	U	426	U			
4 NITROANILINE,4-	UG/KG	4280	U	2150	U			
5 PHENOL,4,6-DINITRO-2-METHYL	UG/KG	4280	U	2150	U			
6 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/KG	845	U	426	U			
7 ETHER, 4-BROMOPHENYL PHENYL	UG/KG	845	U	426	U			
8 HEXACHLOROBENZENE, BY GC/MS	UG/KG	845	U	426	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028		029		031	032 F	033 F
) PENTACHLOROPHENOL, BY GC/MS	UG/KG	4280	U	2150	U			
) PHENANTHRENE, BY GC/MS	UG/KG	1290		1680				
ANTHRACENE, BY GC/MS	UG/KG	845	U	650				
! PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/KG	845	U	426	U			
FLUORANTHENE, BY GC/MS	UG/KG	1860		2960				
PYRENE, BY GC/MS	UG/KG	1550		2530				
PHTHALATE, BUTYL BENZYL	UG/KG	845	U	426	U			
DICHLOROBENZIDINE, 3,3'	UG/KG	1690	U	851	U			
' ANTHRACENE, BENZO(A), BY GC/MS	UG/KG	986		1760				
PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/KG	845	U	426	U			
) CHRYSENE, BY GC/MS	UG/KG	858		1550				
) PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/KG	845	U	426	U			
FLUORANTHENE, BENZO(B), BY GC/MS	UG/KG	845	U	426	U			
! FLUORANTHENE, BENZO(K), BY GC/MS	UG/KG	2710		5230				
PYRENE, BENZO(A), BY GC/MS	UG/KG	1170		1180				
PYRENE, INDENO(1,2,3-CD)	UG/KG	845	U	1220				
ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/KG	845	U	504				
PERYLENE,BENZO(G,H,I), BY GC/MS	UG/KG	903		1080				
) CYANIDE, TOTAL	MG/KG	0.040	U	0.040	U			
CHLOROMETHANE, BY GC/MS	UG/KG	23	U	35	U			
BROMOMETHANE, BY GC/MS	UG/KG	46	U	70	U			
VINYL CHLORIDE, BY GC/MS	UG/KG	34	U	53	U			
CHLOROETHANE, BY GC/MS	UG/KG	34	U	53	U			
' METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/KG	23	U	35	U			
DICHLOROETHYLENE,1,1, BY GC/MS	UG/KG	11	U	18	U			
) DICHLOROETHANE,1,1, BY GC/MS	UG/KG	11	U	18	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028		029		031	032 F	033 F
1 CHLOROFORM, BY GC/MS	UG/KG	11	U	18	U			
2 DICHLOROETHANE,1,2, BY GC/MS	UG/KG	11	U	18	U			
3 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/KG	11	U	18	U			
4 CARBON TETRACHLORIDE, BY GC/MS	UG/KG	11	U	18	U			
5 BROMODICHLOROMETHANE, BY GC/MS	UG/KG	11	U	18	U			
5 DICHLOROPROPANE,1,2, BY GC/MS	UG/KG	11	U	18	U			
7 BENZENE, BY GC/MS	UG/KG	11	U	18	U			
3 DICHLOROPROPYLENE,TRANS-1,3	UG/KG	11	U	18	U			
9 TRICHLOROETHYLENE, BY GC/MS	UG/KG	11	U	18	U			
0 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/KG	11	U	18	U			
1 DIBROMOCHLOROMETHANE, BY GC/MS	UG/KG	11	U	18	U			
2 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/KG	11	U	18	U			
4 BROMOFORM, BY GC/MS	UG/KG	11	U	18	U			
5 TETRACHLOROETHYLENE, BY GC/MS	UG/KG	50		18	U			
5 TOLUENE, BY GC/MS	UG/KG	11	U	18	U			
7 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/KG	11	U	18	U			
3 CHLOROBENZENE, BY GC/MS	UG/KG	11	U	18	U			
9 ETHYL BENZENE, BY GC/MS	UG/KG	11	U	18	U			
0 ACETONE, BY GC/MS	UG/KG	25	U	53	U			
1 CARBON DISULFIDE, BY GC/MS	UG/KG	11	U	18	U			
2 METHYL ETHYL KETONE	UG/KG	23	U	35	U			
5 HEXANONE, 2-	UG/KG	23	U	35	U			
5 4-METHYL-2-PENTANONE(MIBK)	UG/KG	23	U	35	U			
5 STYRENE, BY GC/MS	UG/KG	11	U	18	U			
7 XYLENES, TOTAL, BY GC/MS	UG/KG	11	U	18	U			
5 DICHLOROETHYLENE, 1,2-, TOTAL	UG/KG	11	U	18	U			

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028	029	031	032 F	033 F
1 SILVER, TOTAL, BY ICAP	UG/L			7.88 U	7.88 U	7.88 U
2 ALUMINUM, TOTAL, BY ICAP	UG/L			1230000	50.7 U	50.7 U
3 ARSENIC, TOTAL, BY ICAP	UG/L			3380		
4 BARIUM, TOTAL, BY ICAP	UG/L			14500	3.94 U	3.94 U
5 BERYLLIUM, TOTAL, BY ICAP	UG/L			107	0.995 U	0.995 U
5 CADMIUM, TOTAL, BY ICAP	UG/L			3.69 U	3.69 U	3.69 U
7 COBALT, TOTAL, BY ICAP	UG/L			746	5.31 U	5.31 U
3 CHROMIUM, TOTAL, BY ICAP	UG/L			2660	14.2 U	14.2 U
9 COPPER, TOTAL, BY ICAP	UG/L			2530	8.32 U	8.32 U
0 IRON, TOTAL, BY ICAP	UG/L			2410000	65.9 U	65.9 U
1 MANGANESE, TOTAL, BY ICAP	UG/L			56000	1.53 U	1.53 U
2 MOLYBDENUM, TOTAL, BY ICAP	UG/L			142	5.62 U	5.62 U
3 NICKEL, TOTAL, BY ICAP	UG/L			7780	11.5 U	11.5 U
4 LEAD, TOTAL, BY ICAP	UG/L			2640		
5 ANTIMONY, TOTAL, BY ICAP	UG/L			391		
7 TITANIUM, TOTAL, BY ICAP	UG/L			1110	15.2 U	15.2 U
9 VANADIUM, TOTAL, BY ICAP	UG/L			2910	2.51 U	2.51 U
0 ZINC, TOTAL, BY ICAP	UG/L			5480	18.9 U	14.7 U
1 CALCIUM, TOTAL, BY ICAP	MG/L			1240	1.10 U	1.10 U
2 MAGNESIUM, TOTAL, BY ICAP	MG/L			467	1.03 U	1.03 U
3 SODIUM, TOTAL, BY ICAP	MG/L			42.7	1.61 U	1.61 U
4 POTASSIUM, TOTAL, BY ICAP	MG/L			79.3	1.04 U	1.04 U
7 ARSENIC, TOTAL, BY AA	UG/L				1.66 U	1.66 U
0 LEAD, TOTAL, BY AA	UG/L				0.557 U	0.557 U
1 ANTIMONY, TOTAL, BY AA	UG/L				4.37 U	4.37 U
2 SELENIUM, TOTAL, BY AA	UG/L			8.40	1.81 U	1.81 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028	029	031	032 F	033 F
THALLIUM, TOTAL, BY AA	UG/L			2.00	1.44 U	1.44 U
MERCURY, TOTAL, BY COLD VAPOR AA	UG/L			0.100 U	0.100 U	0.100 U
PHENOL, BY GC/MS	UG/L				10.0 U	10.0 U
ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/L				10.0 U	10.0 U
CHLOROPHENOL, 2-	UG/L				10.0 U	10.0 U
DICHLOROBENZENE,1,3-, BY GC/MS	UG/L				10.0 U	10.0 U
DICHLOROBENZENE,1,4-	UG/L				10.0 U	10.0 U
BENZYL ALCOHOL	UG/L				10.0 U	10.0 U
DICHLOROBENZENE,1,2-, BY GC/MS	UG/L				10.0 U	10.0 U
CRESOL, ORTHO(2-METHYLPHENOL)	UG/L				10.0 U	10.0 U
ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/L				10.0 U	10.0 U
CRESOL, PARA-(4-METHYLPHENOL)	UG/L				10.0 U	10.0 U
N-NITROSODIPROPYLAMINE	UG/L				10.0 U	10.0 U
HEXACHLOROETHANE, BY GC/MS	UG/L				10.0 U	10.0 U
NITROBENZENE, BY GC/MS	UG/L				10.0 U	10.0 U
ISOPHORONE, BY GC/MS	UG/L				10.0 U	10.0 U
NITROPHENOL,2-	UG/L				10.0 U	10.0 U
DIMETHYLPHENOL,2,4, BY GC/MS	UG/L				10.0 U	10.0 U
BENZOIC ACID, BY GC/MS	UG/L				50.0 U	50.0 U
METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/L				10.0 U	10.0 U
DICHLOROPHENOL, 2,4-	UG/L				10.0 U	10.0 U
TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/L				10.0 U	10.0 U
NAPHTHALENE, BY GC/MS	UG/L				10.0 U	10.0 U
CHLOROANILINE,4-	UG/L				10.0 U	10.0 U
HEXACHLOROBUTADIENE, BY GC/MS	UG/L				10.0 U	10.0 U
PHENOL,4-CHLORO-3-METHYL	UG/L				10.0 U	10.0 U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028	029	031	032	F	033	F
5 METHYLNAPHTHALENE, 2-	UG/L				10.0	U	10.0	U
7 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/L				10.0	U	10.0	U
3 TRICHLOROPHENOL,2,4,6	UG/L				10.0	U	10.0	U
9 TRICHLOROPHENOL,2,4,5	UG/L				50.0	U	50.0	U
0 CHLORONAPHTHALENE, 2-	UG/L				10.0	U	10.0	U
1 NITROANILINE,2-(ORTHO)	UG/L				50.0	U	50.0	U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/L				10.0	U	10.0	U
5 ACENAPHTHYLENE, BY GC/MS	UG/L				10.0	U	10.0	U
4 NITROANILINE,3-	UG/L				50.0	U	50.0	U
5 ACENAPHTHENE, BY GC/MS	UG/L				10.0	U	10.0	U
5 DINITROPHENOL,2,4, BY GC/MS	UG/L				50.0	U	50.0	U
7 NITROPHENOL,4-	UG/L				50.0	U	50.0	U
3 DIBENZOFURAN	UG/L				10.0	U	10.0	U
9 DINITROTOLUENE,2,4, BY GC/MS	UG/L				10.0	U	10.0	U
0 DINITROTOLUENE,2,6-	UG/L				10.0	U	10.0	U
1 PHTHALATE, DIETHYL, BY GC/MS	UG/L				10.0	U	10.0	U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/L				10.0	U	10.0	U
3 FLUORENE, BY GC/MS	UG/L				10.0	U	10.0	U
4 NITROANILINE,4-	UG/L				50.0	U	50.0	U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/L				50.0	U	50.0	U
5 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/L				10.0	U	10.0	U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/L				10.0	U	10.0	U
3 HEXACHLOROBENZENE, BY GC/MS	UG/L				10.0	U	10.0	U
9 PENTACHLOROPHENOL, BY GC/MS	UG/L				50.0	U	50.0	U
0 PHENANTHRENE, BY GC/MS	UG/L				10.0	U	10.0	U
1 ANTHRACENE, BY GC/MS	UG/L				10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028	029	031	032	F	033	F
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/L				10.0	U	10.0	U
3 FLUORANTHENE, BY GC/MS	UG/L				10.0	U	10.0	U
4 PYRENE, BY GC/MS	UG/L				10.0	U	10.0	U
5 PHTHALATE, BUTYL BENZYL	UG/L				10.0	U	10.0	U
6 DICHLOROBENZIDINE, 3,3'	UG/L				20.0	U	20.0	U
7 ANTHRACENE, BENZO(A), BY GC/MS	UG/L				10.0	U	10.0	U
8 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/L				10.0	U	10.0	U
9 CHRYSENE, BY GC/MS	UG/L				10.0	U	10.0	U
0 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/L				10.0	U	10.0	U
1 FLUORANTHENE, BENZO(B), BY GC/MS	UG/L				10.0	U	10.0	U
2 FLUORANTHENE, BENZO(K), BY GC/MS	UG/L				10.0	U	10.0	U
3 PYRENE, BENZO(A), BY GC/MS	UG/L				10.0	U	10.0	U
4 PYRENE, INDENO(1,2,3-CD)	UG/L				10.0	U	10.0	U
5 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/L				10.0	U	10.0	U
6 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/L				10.0	U	10.0	U
9 CYANIDE, TOTAL	MG/L				0.002	U	0.002	U
3 CHLOROMETHANE, BY GC/MS	UG/L				10	U	10	U
4 BROMOMETHANE, BY GC/MS	UG/L				20	U	20	U
5 VINYL CHLORIDE, BY GC/MS	UG/L				15	U	15	U
6 CHLOROETHANE, BY GC/MS	UG/L				15	U	15	U
7 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/L				10	U	10	U
3 DICHLOROETHYLENE,1,1-	UG/L				5	U	5	U
9 DICHLOROETHANE,1,1, BY GC/MS	UG/L				5	U	5	U
0 DICHLOROETHYLENE, 1,2, TOTAL	UG/L				5	U	5	U
1 CHLOROFORM, BY GC/MS	UG/L				5	U	5	U
2 DICHLOROETHANE,1,2, BY GC/MS	UG/L				5	U	5	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	028	029	031	032 F	033 F
5 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/L				5 U	5 U
5 CARBON TETRACHLORIDE, BY GC/MS	UG/L				5 U	5 U
5 BROMODICHLOROMETHANE, BY GC/MS	UG/L				5 U	5 U
5 DICHLOROPROPANE,1,2, BY GC/MS	UG/L				5 U	5 U
7 BENZENE, BY GC/MS	UG/L				5 U	5 U
9 TRICHLOROETHYLENE	UG/L				5 U	5 U
0 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/L				5 U	5 U
1 DIBROMOCHLOROMETHANE, BY GC/MS	UG/L				5 U	5 U
2 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/L				5 U	5 U
5 BROMOFORM, BY GC/MS	UG/L				5 U	5 U
5 TETRACHLOROETHYLENE	UG/L				5 U	5 U
5 TOLUENE, BY GC/MS	UG/L				5 U	5 U
7 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/L				5 U	5 U
8 CHLOROBENZENE, BY GC/MS	UG/L				5 U	5 U
9 ETHYL BENZENE, BY GC/MS	UG/L				5 U	5 U
0 ACETONE, BY GC/MS	UG/L				10 U	12 U
1 CARBON DISULFIDE, BY GC/MS	UG/L				5 U	5 U
2 METHYL ETHYL KETONE (2-BUTANONE)	UG/L				10 U	10 U
4 HEXANONE, 2-	UG/L				10 U	10 U
5 4-METHYL-2-PENTANONE(MIBK)	UG/L				10 U	10 U
5 STYRENE, BY GC/MS	UG/L				5 U	5 U
7 XYLENES, TOTAL, BY GC/MS	UG/L				5 U	5 U
0 DICHLOROPROPYLENE,TRANS-1,3	UG/L				5 U	5 U
1 SAMPLE NUMBER	NA	028	029	031	032	033
2 ACTIVITY CODE	NA	ADF03	ADF03	ADF03	ADF03	ADF03

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	034		035		036		037		038	
1 SILVER, TOTAL, BY ICAP	UG/L	7.88	U	7.88	U			7.88	U	7.88	U
2 ALUMINUM, TOTAL, BY ICAP	UG/L	50.7	U	50.7	U			56.2		50.7	U
4 BARIUM, TOTAL, BY ICAP	UG/L	3.94	U	3.94	U			14.5		3.94	U
5 BERYLLIUM, TOTAL, BY ICAP	UG/L	0.995	U	0.995	U			0.995	U	0.995	U
6 CADMIUM, TOTAL, BY ICAP	UG/L	3.69	U	3.69	U			3.69	U	3.69	U
7 COBALT, TOTAL, BY ICAP	UG/L	5.31	U	5.31	U			5.31	U	5.31	U
8 CHROMIUM, TOTAL, BY ICAP	UG/L	14.2	U	14.2	U			14.2	U	14.2	U
9 COPPER, TOTAL, BY ICAP	UG/L	8.32	U	8.32	U			9.61		8.32	U
0 IRON, TOTAL, BY ICAP	UG/L	65.9	U	65.9	U			65.9	U	65.9	U
1 MANGANESE, TOTAL, BY ICAP	UG/L	1.53	U	1.53	U			1.53	U	1.53	U
2 MOLYBDENUM, TOTAL, BY ICAP	UG/L	5.62	U	5.62	U			5.62	U	5.62	U
3 NICKEL, TOTAL, BY ICAP	UG/L	11.5	U	26.7				11.5	U	11.5	U
7 TITANIUM, TOTAL, BY ICAP	UG/L	15.2	U	15.2	U			15.2	U	15.2	U
9 VANADIUM, TOTAL, BY ICAP	UG/L	2.51	U	2.51	U			2.51	U	2.51	U
0 ZINC, TOTAL, BY ICAP	UG/L	21.4	U	28.0	U			56.8	U	29.9	U
1 CALCIUM, TOTAL, BY ICAP	MG/L	1.10	U	1.10	U			17.3		1.10	U
2 MAGNESIUM, TOTAL, BY ICAP	MG/L	1.03	U	1.03	U			12.0		1.03	U
3 SODIUM, TOTAL, BY ICAP	MG/L	1.66		1.66				28.9		1.61	U
4 POTASSIUM, TOTAL, BY ICAP	MG/L	1.04	U	1.04	U			3.63		1.04	U
7 ARSENIC, TOTAL, BY AA	UG/L	1.66	U	1.66	U			1.66	U	1.66	U
0 LEAD, TOTAL, BY AA	UG/L	0.557	U	0.70				1.80		0.557	U
1 ANTIMONY, TOTAL, BY AA	UG/L	4.37	U	4.37	U			4.37	U	4.37	U
2 SELENIUM, TOTAL, BY AA	UG/L	2.00		1.81	U			1.85		1.81	U
3 THALLIUM, TOTAL, BY AA	UG/L	1.44	U	1.44	U			1.44	U	1.44	U
4 MERCURY, TOTAL, BY COLD VAPOR AA	UG/L	0.100	U	0.100	U			0.304		0.100	U
1 PHENOL, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	034		035		036	037		038	
3 ETHER,BIS(2-CHLOROETHYL), BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
4 CHLOROPHENOL, 2-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
5 DICHLOROBENZENE,1,3-, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
6 DICHLOROBENZENE,1,4-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
7 BENZYL ALCOHOL	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
8 DICHLOROBENZENE,1,2-, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
9 CRESOL, ORTHO(2-METHYLPHENOL)	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
0 ETHER,BIS(2-CHLOROISOPROPYL), BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
1 CRESOL, PARA-(4-METHYLPHENOL)	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
2 N-NITROSODIPROPYLAMINE	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
3 HEXACHLOROETHANE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
4 NITROBENZENE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
5 ISOPHORONE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
6 NITROPHENOL,2-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
7 DIMETHYLPHENOL,2,4, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
8 BENZOIC ACID, BY GC/MS	UG/L	50.0	U	50.0	U		50.0	U	50.0	U
9 METHANE, BIS(2-CHLOROETHYOXY), BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
0 DICHLOROPHENOL, 2,4-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
1 TRICHLOROBENZENE,1,2,4, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
2 NAPHTHALENE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
3 CHLOROANILINE,4-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
4 HEXACHLOROBUTADIENE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
5 PHENOL,4-CHLORO-3-METHYL	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
6 METHYLNAPHTHALENE, 2-	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
7 HEXACHLOROCYCLOPENTADIENE, BY GC/MS	UG/L	10.0	U	10.0	U		10.0	U	10.0	U
8 TRICHLOROPHENOL,2,4,6	UG/L	10.0	U	10.0	U		10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	034		035		036		037		038	
9 TRICHLOROPHENOL,2,4,5	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
0 CHLORONAPHTHALENE, 2-	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
1 NITROANILINE,2-(ORTHO)	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
2 PHTHALATE, DIMETHYL, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
3 ACENAPHTHYLENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
4 NITROANILINE,3-	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
5 ACENAPHTHENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
6 DINITROPHENOL,2,4, BY GC/MS	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
7 NITROPHENOL,4-	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
8 DIBENZOFURAN	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
9 DINITROTOLUENE,2,4, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
0 DINITROTOLUENE,2,6-	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
1 PHTHALATE, DIETHYL, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
2 ETHER, 4-CHLOROPHENYL PHENYL	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
3 FLUORENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
4 NITROANILINE,4-	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
5 PHENOL,4,6-DINITRO-2-METHYL	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
6 N-NITROSODIPHENYLAMINE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
7 ETHER, 4-BROMOPHENYL PHENYL	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
8 HEXACHLOROBENZENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
9 PENTACHLOROPHENOL, BY GC/MS	UG/L	50.0	U	50.0	U			50.0	U	50.0	U
0 PHENANTHRENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
1 ANTHRACENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
2 PHTHALATE, DI-N-BUTYL-, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
3 FLUORANTHENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
4 PYRENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	034		035		036		037		038	
5 PHTHALATE, BUTYL BENZYL	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
6 DICHLOROBENZIDINE, 3,3'	UG/L	20.0	U	20.0	U			20.0	U	20.0	U
7 ANTHRACENE, BENZO(A), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
8 PHTHALATE, BIS(2-ETHYLHEXYL), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
9 CHRYSENE, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
0 PHTHALATE, DI-N-OCTYL-, BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
1 FLUORANTHENE, BENZO(B), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
2 FLUORANTHENE, BENZO(K), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
3 PYRENE, BENZO(A), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
4 PYRENE, INDENO(1,2,3-CD)	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
5 ANTHRACENE, DIBENZO(A,H), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
6 PERYLENE,BENZO(G,H,I), BY GC/MS	UG/L	10.0	U	10.0	U			10.0	U	10.0	U
9 CYANIDE, TOTAL	MG/L	0.002	U	0.002	U	0.002	U	0.002	U	0.002	U
3 CHLOROMETHANE, BY GC/MS	UG/L	10	U	10	U			10	U	10	U
4 BROMOMETHANE, BY GC/MS	UG/L	20	U	20	U			20	U	20	U
5 VINYL CHLORIDE, BY GC/MS	UG/L	15	U	15	U			15	U	15	U
6 CHLOROETHANE, BY GC/MS	UG/L	15	U	15	U			15	U	15	U
7 METHYLENE CHLORIDE (DICHLOROMETHANE)	UG/L	10	U	10	U			14	U	18	U
8 DICHLOROETHYLENE,1,1-	UG/L	5	U	5	U			5	U	5	U
9 DICHLOROETHANE,1,1, BY GC/MS	UG/L	5	U	5	U			5	U	5	U
0 DICHLOROETHYLENE, 1,2, TOTAL	UG/L	5	U	5	U			5	U	5	U
1 CHLOROFORM, BY GC/MS	UG/L	5	U	5	U			5	U	5	U
2 DICHLOROETHANE,1,2, BY GC/MS	UG/L	5	U	5	U			5	U	5	U
3 TRICHLOROETHANE,1,1,1-, BY GC/MS	UG/L	5	U	5	U			5	U	5	U
4 CARBON TETRACHLORIDE, BY GC/MS	UG/L	5	U	5	U			5	U	5	U
5 BROMODICHLOROMETHANE, BY GC/MS	UG/L	5	U	5	U			5	U	5	U

ANALYSIS REQUEST DETAIL REPORT ACTIVITY: 5-ADF03 VALIDATED DATA

COMPOUND	UNITS	034	035	036	037	038
16 DICHLOROPROPANE,1,2, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
17 BENZENE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
19 TRICHLOROETHYLENE	UG/L	5 U	5 U		5 U	5 U
20 DICHLOROPROPYLENE,CIS-1,3, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
21 DIBROMOCHLOROMETHANE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
22 TRICHLOROETHANE,1,1,2-, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
24 BROMOFORM, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
25 TETRACHLOROETHYLENE	UG/L	5 U	5 U		5 U	5 U
26 TOLUENE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
27 TETRACHLOROETHANE,1,1,2,2, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
28 CHLOROBENZENE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
29 ETHYL BENZENE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
30 ACETONE, BY GC/MS	UG/L	10 U	10 U		10 U	10 U
31 CARBON DISULFIDE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
32 METHYL ETHYL KETONE (2-BUTANONE)	UG/L	10 U	10 U		10 U	10 U
34 HEXANONE, 2-	UG/L	10 U	10 U		10 U	10 U
35 4-METHYL-2-PENTANONE(MIBK)	UG/L	10 U	10 U		10 U	10 U
36 STYRENE, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
37 XYLENES, TOTAL, BY GC/MS	UG/L	5 U	5 U		5 U	5 U
40 DICHLOROPROPYLENE,TRANS-1,3	UG/L	5 U	5 U		5 U	5 U
01 SAMPLE NUMBER	NA	034	035	036	037	038
02 ACTIVITY CODE	NA	ADF03	ADF03	ADF03	ADF03	ADF03

ACTIVITY ADF03 MCDONNELL DOUGLAS-HAZELWOOD

PROJECT LEADER SHOULD CIRCLE ONE - STORET, AIRS, OR ARCHIVE.

CIRCLE ONE: STORET AIRS ARCHIVE

FINAL DATA REPORT APPROVED BY PROJECT LEADER ON 12/16/94 12:25:10 BY Robert B. Dora.

Appendix F

APPENDIX F

PERMITS AND CERTIFICATIONS
MCDONNELL-DOUGLAS HAZELWOOD FACILITY

Metropolitan
St. Louis Sewer
District

Department of Environmental Compliance
10 East Grand Avenue
St. Louis, MO 63147-2913
(314) 436-8710
FAX (314) 436-8753

September 1, 1992

Mr. Bryan Kury
Environmental & Hazardous Materials Services
MCDONNELL AIRCRAFT COMPANY
Dept. 064C, Bldg. 33, MCO 343530
St. Louis, MO 63166

ISSUED TO: **MCDONNELL AIRCRAFT COMPANY**

Re: Discharge Permit No: **80140327-00**
For premise at: **Lambert Field**
Hazelwood, MO 63042

Dear Mr. Kury:

Enclosed is the Metropolitan St. Louis Sewer District Industrial Wastewater Discharge Permit for the premise identified above. This permit is issued pursuant to the federal pretreatment regulations in 40 CFR 403 as amended July 24, 1990. This permit has been prepared based on information that you supplied in the District's Industrial User Questionnaire, on results from previous wastewater samplings and inspections and on requirements contained in existing MSD ordinances and state and federal regulations.

Monitoring reports required by the conditions of this permit must be submitted on a periodic basis. Copies of the necessary report forms are being prepared and will be sent to you.

If you disagree with any of the terms or conditions of this permit please inform us, in writing, within 5 working days of receipt. Absence of a response within this time frame will be deemed acceptance, by you, of the provisions of this permit.

You may contact us at 436-8755 at any time if you have any question about your permit.

Sincerely,
METROPOLITAN ST. LOUIS SEWER DISTRICT

Gunter H Durdel

Gunter Durdel
Assistant Engineer

ph

METROPOLITAN ST. LOUIS SEWER DISTRICT
DEPARTMENT OF ENVIRONMENTAL COMPLIANCE
INDUSTRIAL WASTEWATER DISCHARGE PERMIT

PERMIT NO: **80140327-00**

EFFECTIVE DATE: **SEPTEMBER 15, 1992**
EXPIRATION DATE: **APRIL 30, 1995**

ISSUED TO: **MCDONNELL DOUGLAS**
LAMBERT FIELD
ST. LOUIS, MO 63134

SIC NUMBER(S): **3721, 3761, 3672, 3471, 3479**

TOTAL NUMBER OF PERMITTED DISCHARGE POINTS: **TWENTY FIVE**
SAMPLING PT. REF. NUMBER(S): **013, 014, 015, 016, 017, 018, 019, 020, 021, 022, 023, 026, 027, 028, 029, 030, 031, 032, 033, 034, 035, 036, 037, 038, 901**

In accordance with the provisions of the Federal Pretreatment Regulations (40 CFR 403) and Metropolitan St. Louis Sewer District Ordinance No. 8472, the permittee is hereby authorized to discharge wastewater into the Metropolitan St. Louis Sewer District's sanitary or combined sewer system. All discharges so authorized shall be limited and controlled pursuant to the terms and conditions of this permit.

Noncompliance with any term or condition of this permit shall constitute an ordinance violation. If formal enforcement action is required to gain compliance, the permittee who is found guilty of a violation shall be subject to fine or imprisonment, or both such fine and imprisonment, for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.

Compliance with the terms and conditions of this permit does not relieve the permittee of the obligation to comply with all other applicable pretreatment regulations, standards, or requirements under local, State and Federal laws, including any such regulation, standard, legal requirement, or law that may become effective during the life of this permit.

This permit only authorizes wastewater discharges identified herein. It does not apply to any other discharge.

METROPOLITAN ST. LOUIS SEWER DISTRICT

Gunter H. Durdel
Assistant Engineer

John Lodderhose
Manager Environmental Compliance

DISCHARGE LIMITATIONS

SAMPLING POINT REFERENCE NUMBER: 013

SAMPLING POINT LOCATION: **SAMPLE FROM FLUME IN PT AREA, BLDG 14**

AVERAGE WASTEWATER FLOW (GPD): 9,173

WASTEWATER SOURCE AND CATEGORY: **CAT SP 433+FILM WST+SAN+RO REJECT, CWF 08-14-92**

POLLUTANT DISCHARGE LIMITS
(mg/l unless otherwise specified)

Parameter	Limit *	Limit Type **	Sampling Frequency
Flow	***	Daily Avg	***
Biochemical Oxygen Demand	300	Daily Avg	once/3 mo
Chemical Oxygen Demand	600	Daily Avg	once/3 mo
Oil and Grease (Total)	200	Instant	once/3 mo
pH Acidic (s.u.) Less than 7	5.5	Instant	once/3 mo
pH Basic (s.u.) Greater than or equal to 7	11.5	Instant	once/3 mo
Temperature (Degrees C)	60	Instant	once/3 mo
Total Suspended Solids	350	Daily Avg	once/3 mo
Arsenic (Total)	.4	Daily Avg	once/3 mo
Cyanide (Amenable to Chlorination)	1.2	Instant	once/3 mo
Cyanide (Total)	1.12	Daily Max	once/3 mo
Cyanide (Total)	.6	Monthly Avg	
Cadmium (Total)	.64	Daily Max	once/3 mo
Cadmium (Total)	.24	Monthly Avg	
Chromium (Total)	2.58	Daily Max	once/3 mo
Chromium (Total)	1.59	Monthly Avg	
Copper (Total)	2.70	Daily Max	once/3 mo
Copper (Total)	1.93	Monthly Avg	
Lead (Total)	.4	Daily Max	once/3 mo
Lead (Total)	.4	Monthly Avg	
Nickel (Total)	2.3	Daily Max	once/3 mo
Nickel (Total)	2.21	Monthly Avg	
Silver (Total)	.40	Daily Max	once/3 mo
Silver (Total)	.22	Monthly Avg	
Zinc (Total)	2.43	Daily Max	once/3 mo
Zinc (Total)	1.38	Monthly Avg	
Total Toxic Organics	1.98	Daily Max	once/3 mo

* Limits are based on MSD Ordinance 8472 and applicable federal categorical standards. See Section II of the permit conditions for explanation of any adjustments to the published limits made pursuant to Article V, Section 2.A of the Ordinance.

** See Section I.A.2 of the permit conditions.

File
Resource Recovery

JOHN ASHCROFT
Governor

G. TRACY MEHAN III
Director

RR0268-A

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
P.O. Box 176 Jefferson City, MO 65102

August 20, 1992

Mr. Joe Haake
Group Manager
Environmental and Hazardous Materials Services
Dept. 064C, Mail Code 0343530
McDonnell Douglas Aircraft Company
P.O. Box 516
Saint Louis, Missouri 63166-0516

RE: Resource Recovery Certification RR0268-A
Tract I North/South
Classification - R1

Dear Mr. Haake:

This letter is to inform you that the Department of Natural Resources has completed the review of your certified resource recovery facility application form. After a review of your application and the supporting documents, the department hereby certifies, for hazardous waste resource recovery, McDonnell Douglas Corp., St. Louis, Missouri to distill/recover for reuse in manufacturing process operations spent solvents contingent upon the following conditions:

1. The operator shall comply with 10 CSR 25-9.020 and all plans and processes described in the resource recovery applications.

2. The operator shall distill/recover only those wastes listed in the application and in the amounts specified at the designated buildings 27, 48 and 51 (Tract I). Wastes must be recovered within Tract I in which they are generated and may not be moved to, or between, any other location at the facility.

3. Still bottoms must be disposed of as a hazardous waste at an authorized hazardous waste management facility or a permitted hazardous waste facility.

4. The facility must comply with all applicable federal and state regulations.

Missouri State Parks 75 Anniversary
Recycled Paper

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

CERTIFIED
RESOURCE RECOVERY FACILITY

Certification for resource recovery is issued to:

McDonnell Douglas Aircraft Company

For the facility located:

P.O. Box 516
McDonnell and Lindbergh Blvds.
St. Louis, MO 63166-0516

CERTIFICATION NUMBER: RR0268-A

A copy of this certificate must be available at the facility during operation.

This certification is valid from the date signed for a period of two years, in accordance with the Certified Resource Recovery Facility Application Form approved by the department. Only wastes listed in the approved application are to be processed at this facility.

It is understood that the acceptance and use of this certification subjects the operator of the above named facility to the applicable requirements of the Missouri Hazardous Waste Management Law and the rules thereunder specifically 10 CSR 25-9.010.

This certification applies only to resource recovery facilities certified under Missouri's Hazardous Waste Management Law; it does not apply to other environmentally regulated areas.

August 20, 1992

Date

G. Tracy Mehan, III

G. Tracy Mehan, III
Director, Department of Natural Resources

by

Director, Waste Management Program

MO 780-0045 (1-89)

Form RR-3/6-85

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WASTE MANAGEMENT PROGRAM

CERTIFIED RESOURCE RECOVERY FACILITY APPLICATION FORM

ME OF APPLICANT :Donnell Douglas Corp.-St. Louis	ADDRESS P.O. Box 516		
:. Louis	STATE MO	ZIP CODE 63166	TELEPHONE 314-232-3319
ME OF FACILITY 'act I, Bldg. 48	ADDRESS McDonnell and Lindbergh Blvds.		
TION NEAREST CITY OR TOWN ızelwood	COUNTY St. Louis	STATE MO	
____ ¼ ____ ¼ ____ ¼ OF SECTION	TOWNSHIP 46N	RANGE 6E	ACREAGE SIZE 179

PLICANTS CERTIFICATION:
CERTIFY THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION IN THIS APPLICATION AND BELIEVE THAT THE INFORMATION BMITTED IS ACCURATE AND COMPLETE. I AM AWARE THAT MAKING A FALSE STATEMENT OR MISREPRESENTATION IN THIS APPLICATION IS GROUNDS FOR VOKING THE RESOURCES RECOVERY CERTIFICATION. I MAY ALSO BE GUILTY OF A MISDEMEANOR AND UPON CONVICTION, MAY BE PUNISHED BY FINE I IMPRISONMENT.

CANT'S SIGNATURE Joseph Haake	DATE 2-14-92	4. LAND OWNER'S SIGNATURE [signature]	DATE 14 FEB 92
ıseph Haake	ADDRESS P.O. Box 516, Mail Code 0343530		
:. Louis	STATE MO	ZIP CODE 63166	TELEPHONE 314-232-3319

S THE FACILITY OBTAINED **INTERIM STATUS** OR A **PERMIT** FROM THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY? ☐ YES ☒ NO

REQUIRED BY 10 CSR-9 OF THE MISSOURI HAZARDOUS WASTE REGULATIONS ATTACH THE FOLLOWING INFORMATION:

FLOWSHEET THROUGH THE RESOURCE RECOVERY PROCESS.
QUALITY CONTROL PLAN.
DRAWINGS OF THE FACILITY
APPLICATION FEE

ST ALL THE TYPES OF HAZARDOUS WASTES TO BE USED, REUSED, RECOVERED, OR RECLAIMED AT THIS FACILITY.

NAME OF HAZARDOUS WASTE	MONTHLY QUANTITY	UNITS (GAL, LBS)
:K or MIBK	600	gallons

RECEIVED
FEB 19 1992
WASTE MANAGEMENT PROGRAM
MISSOURI DEPARTMENT OF NATURAL RESOURCES

OCESS DESCRIPTION

☒ DISTILLATION
☐ BURNED FOR FUEL
☐ BLENDED FOR FUEL
☐ OTHER _____

STORAGE TYPE

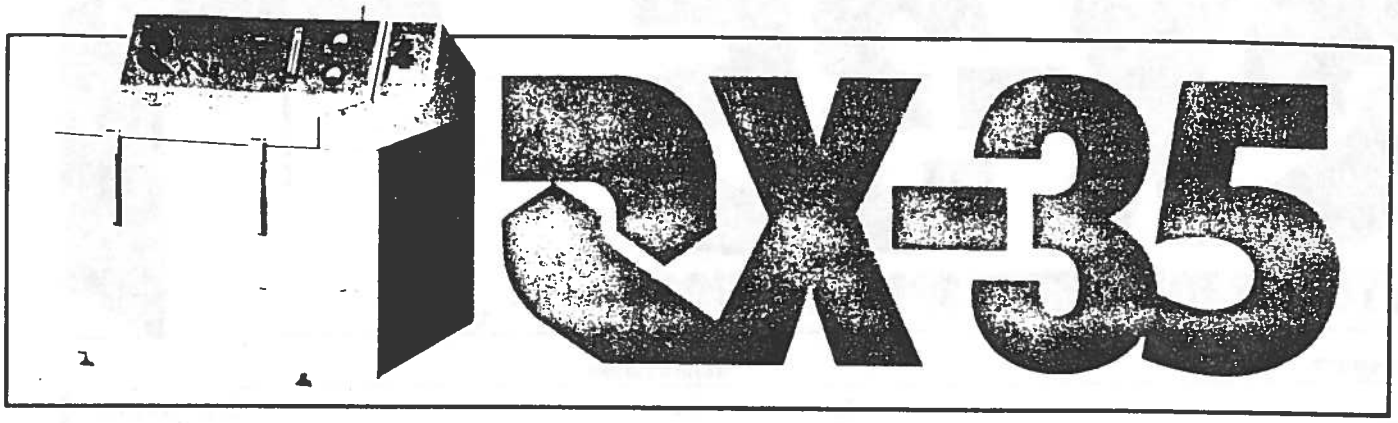
☒ DRUMS
☐ ABOVE GROUND TANK
☐ BELOW GROUND TANK
☐ OTHER _____

'E: 9. ON AN **ATTACHED SHEET** PLEASE DESCRIBE, **IN DETAIL,** THE ABOVE RESOURCE RECOVERY PROCESS. BE SURE TO INCLUDE ITEMS SUCH AS EQUIPMENT MANUFACTURERS' NAMES AND ADDRESSES, MODEL NUMBERS, CAPACITIES, AND THE KINDS OF MATERIALS FROM WHICH THE EQUIPMENT IS CONSTRUCTED. FAILURE TO INCLUDE THIS INFORMATION WILL RESULT IN AN INCOMPLETE APPLICATION AND ITS RETURN TO YOU.

ASE 'URN TO ▶ MISSOURI DEPARTMENT OF NATURAL RESOURCES
WASTE MANAGEMENT PROGRAM
P.O. BOX 176
JEFFERSON CITY, MISSOURI 65102

OFFICE USE ONLY
FACILITY I.D. NO. ☐☐☐☐☐
DATE APPLICATION APPROVED ___/___/___

0-1162 (2-89)



RECYCLENE RX-35 SOLVENT RECOVERY SYSTEM

■ The RX-35 is a cost effective way to reduce your hazardous waste problems. Utilizing a patented design, the RX-35 allows you to purify (up to 99.5%) flammable and non-flammable solvents on-site safely and easily (as easy to operate as a washing machine). The RX-35, Recyclene's high production model, can usually pay for itself in less than a year if you generate 8 drums per month of waste solvent.

■ Fast payback–usually less than one year.

■ Reduces EPA liability–reclaims hazardous waste.

■ Simple to clean–patented disposable liner.

■ Easy to operate–push button control and gauges.

■ Safe to use–multiple shutdown controls and lid lock.

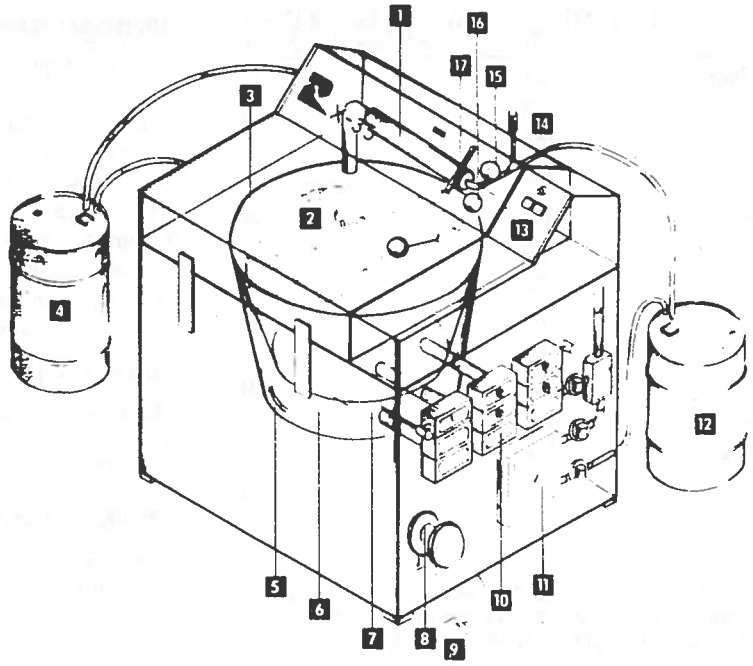
■ Multiple solvent applications–boiling points up to 400°F.

■ Explosion-proof construction–designed to meet NFPA specifications.

■ Optional automatic refill–for continuous operation.

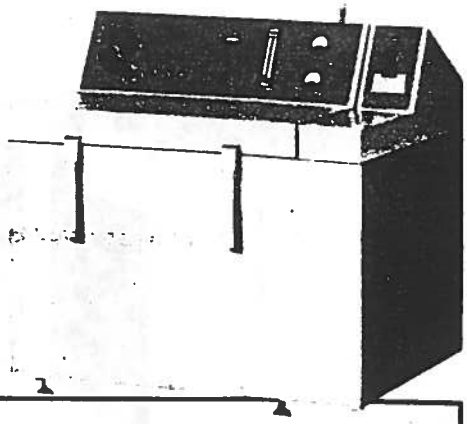
■ Auto-quench and cooldown–activated when all solvent is distilled.

1. Shell and Tube Condenser
2. Solvent Liner (Nylon or Teflon)
3. Teflon Gasket Seal
4. Dirty Solvent Drum
5. Oil-Immersed Rapid Cooling System
6. Stainless Steel Double Boiler
7. Oil-Immersed Resistance Heater
8. Air-Operated Pump for Autofill
9. Pneumatic Lid Foot Pedal
10. Multiple System Thermostats (Explosion-proof):
    a. Vapor
    b. Condenser
    c. Boiler
    d. Lid Interlock
    e. Safety
11. Main Contactor Box
12. Clean Solvent Drum
13. On/Off Controls and "Cycle On" Light Panel
14. Breather Vent
15. Vapor Temperature Gauge
16. Oil Temperature Gauge
17. Water Flow Meter



POWER SUPPLY INDUSTRIES, INC.

X-35



RECYCLENE EQUIPMENT SPECIFICATIONS

DIMENSIONS

Width	51 in.
Depth	52 in.
Maximum height	51 in.
Weight, uncrated	872 lbs.
Weight, crated	1112 lbs.
Boiler capacity	35 gal.

UTILITIES

Voltage AC 50/60 Hz	240 volts
Current	24 amps
Cooling water flow	75 GPH
Maximum cooling water temperature	70°F
Water temperature increase	30°F
Cooling water pressure	50-100 PSI
Compressed air pressure	80-100 PSI
Drain	OPEN

PERFORMANCE

Typical warm-up time	1.5 hrs.
Typical purity	99%
Typical yield	95%
Maximum solvent boiling point	400°F
Maximum contaminant	30%

PROCESS RATES*

SOLVENT	BOILING PT. (°F)	GALLONS PER HOUR AFTER WARM-UP
Methylene Chloride	104	19
Freon TF	118	37
Acetone	134	21
Methanol	150	10
1,1,1 Trichloroethane	162	26
Ethanol	170	12
M.E.K.	175	22
IPA	180	14
Trichloroethylene	189	21
Toluene	232	24
Perchloroethylene	250	22
N-Butyl Acetate	255	26
Xylene	290	24
Mineral Spirits (Stoddard)	375	16

*The above data is estimated for pure solvents only. Actual rates will be lower depending on the percentage of and type of contaminants in the solvent, supply voltage and batch size.

CONSTRUCTION

Boiler	Stainless steel
Heat exchange condenser	Alloy
Immersed heater	9900 watts
Heating medium	Proprietary, low viscosity, long-life heat transfer fluid
Electrical components	Explosion-proof–meets highest standards NFPA Class 1 Division 1, Group D

INSTRUMENTATION

Oil temperature gauge	Type J Thermocouple 30-600°F
Vapor temperature gauge	Type J Thermocouple 30-600°F
Water flow meter	0-100 GPH
Control thermostats	SPST snap acting control 0-450°F

SAFETY FEATURES

- Automatic cycle shutdown at power interruption
- Automatic cycle cooldown when solvent supply has distilled
- In-line fuses
- Lid interlock until cooldown achieved
- U.L. listed components
- Cycle "ON" light
- Vacuum vent
- Designed to shut down if:
  - Power failure
  - Water flow interruption
  - Boiler overheat
  - Excessive water temperature
  - Oil level deficiency

ADDITIONAL FEATURES

Patented disposable bag to line boiler
Totally immersed cooling coil
Special industrial insulation
Stainless steel or teflon wetted parts
No rotating mechanical parts
Unit levelers
Pneumatic lift for lid
Low water consumption
Stainless steel fittings
One year warranty

LOCATION FOR INSTALLATION

Mandatory to conform to NFPA Class 1, Div. 1, Group D.
May be non-hazardous if solvents are non-flammable.
See NFPA Codes.

OPTIONAL AUTOFILL SYSTEM

- Dual diaphragm pump
- Teflon seals
- Self priming pump
- Secure drum connectors
- Air logic controls
- Automatic boiler feed
- Teflon flow lines

Recyclene Products, Inc.
© 1985 Recyclene Products, Inc.
405 Eccles Ave., South San Francisco, CA 94080 (415) 589-9600

Description of the Resource Recovery Process

Methyl Ethyl Ketone (MEK) and Methyl Isobutyl Ketone (MIBK) are used to clean spray painting guns, lines, and equipment. Spent solvent is accumulated in a 55-gallon drum and automatically pumped into the Recyclene RX-35 Recovery System for distillation. The distilled MEK or MIBK is collected in 55-gallon drums and used again for equipment clean up. Residue from the distillation process is accumulated in a disposable bag that lines the boiler.

Quality Control

Only spent MEK or MIBK from paint shop clean up operations is accepted for recovery. The solvent recovery system is set up at the Building 48 paint shop. Spent MEK or MIBK generated in the paint shop is immediately added to the drum that contains the solvent being pumped into the recovery unit. Only spent solvent generated at the building 48 paint shop will be recycled through the unit.

The still bottom residue from the recovery process will be collected in 55-gallon drums. The full drums will be placed into storage at the permitted Tract-I (MOD000818963) container storage facility. Treatment and disposal of the residue will be at a permitted off-site TSD facility.

Spill Control Equipment

The building 48 paint shop is equipped with absorbent material for the clean up of any spillage. There are no floor drains in the paint shop and any spillage would be contained. McDonnell Douglas has an extensive Spill Prevention and Response Plan that includes the building 48 area in the event of an emergency or release of material.

Plot Drawings

The following drawings are attached to provide information on the boundaries and surrounding areas of activity:

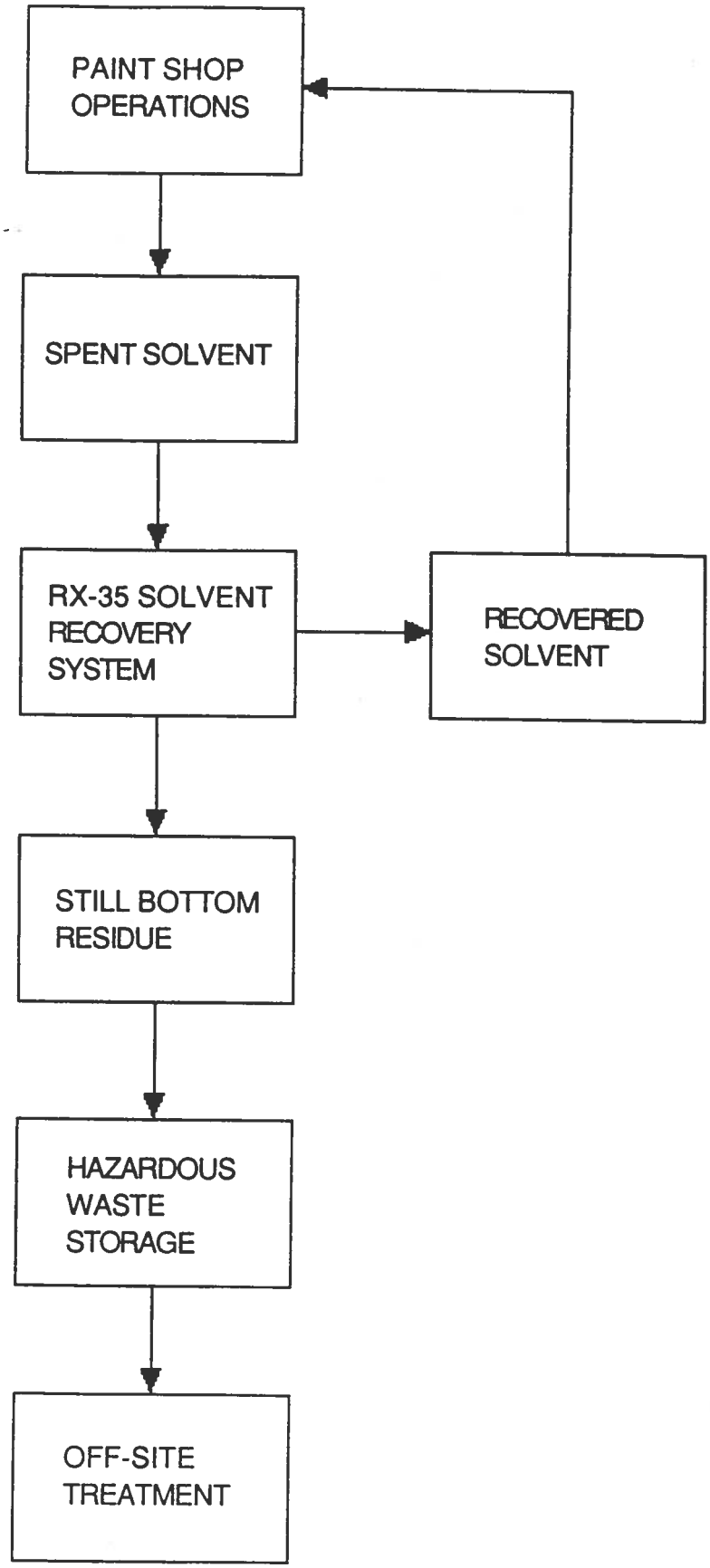
1) MDC Property Map

2) MDC Plot Plan Building 48

Operating Records

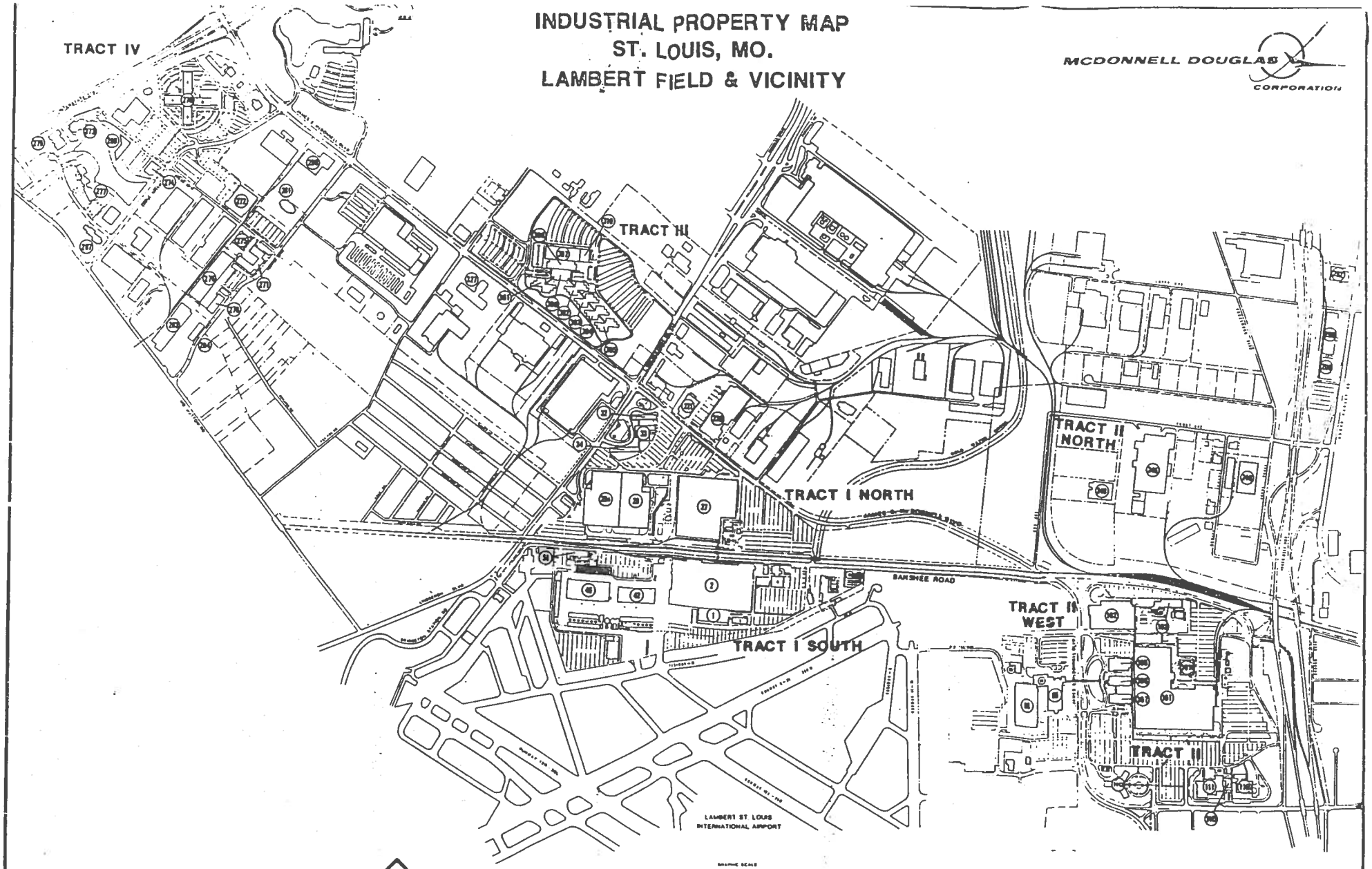
A record of the amount of waste generated, solvent recovered, and still bottom residue generated will be maintained.

FLOW THROUGHOUT RESOURCE RECOVERY PROCESS



INDUSTRIAL PROPERTY MAP
ST. LOUIS, MO.
LAMBERT FIELD & VICINITY

MCDONNELL DOUGLAS CORPORATION



PREPARED BY FACILITIES ENGR. DEPT. 814

NORTH

31 MAR 1967

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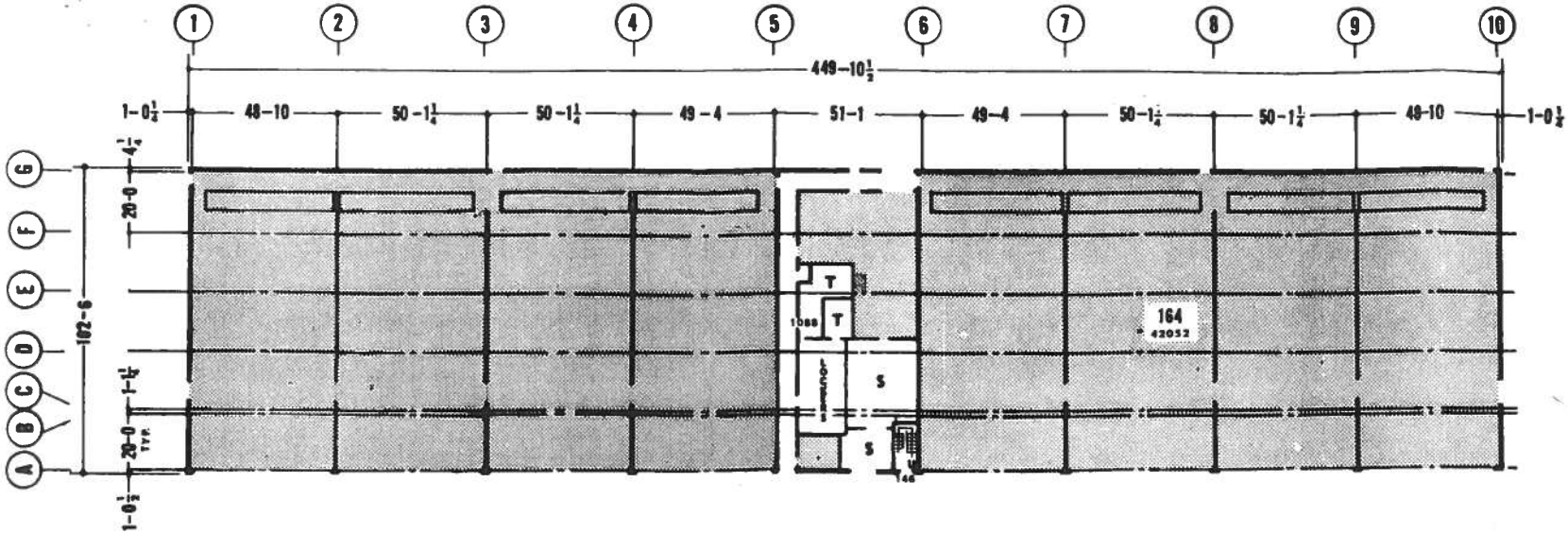
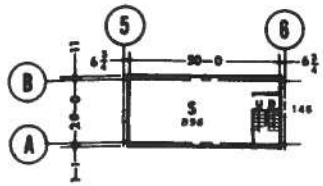


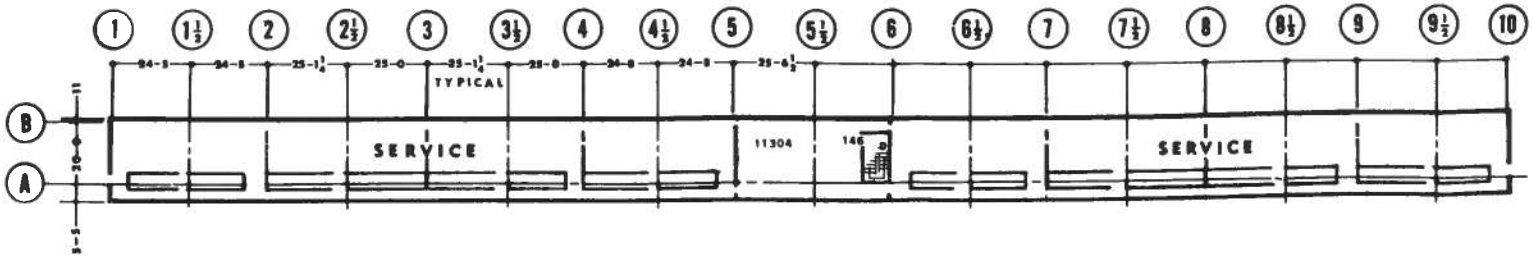
LEVEL 1

AREA	SQ FT
UTILITY	[illegible]
DSF	[illegible]
NET	[illegible]
GROSS	[illegible]



LEVEL 2

AREA	SQ FT
UTILITY	1042
DSF	0
NET	1042
GROSS	1101



LEVEL 3

AREA	SQ FT
UTILITY	11480
DSF	0
NET	11480
GROSS	11845

COMBINED TOTALS

AREA	SQ FT
UTILITY	15725
DSF	42052
NET	57777
GROSS	59058

OCCUPIED MAR 64

OWNED

MCDONNELL DOUGLAS CORPORATION

BLDG 48 RAMP PAINT BOOTHS LEVELS 1,2 & 3

30 JUN 1980 SCALE 1"=40' PLAN 48-1:2:3

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES

HAZARDOUS WASTE TRANSPORTER LICENSE CERTIFICATE

NAME OF TRANSPORTER: McDONNELL DOUGLAS CORPORATION
P.O. Box 516, Mail Code 1062542, St. Louis, MO 63166

LICENSE NUMBER: MoDNR H-1039

EPA ID NO. MOD000818963

EXPIRATION DATE: June 30, 1993

VEHICLE I.D. NUMBER (VIN): _____

This certifies that the above-named carrier has been issued a Hazardous Waste Transporter License by the Missouri Department of Natural Resources. Operations conducted under this license shall comply with the provisions of the Missouri Hazardous Waste Management Law (Sections 260.350 to 260.430, RSMo, 1990) and the rules adopted thereunder.

ENFORCEMENT: Section 260.425 RSMo, 1990, of the Missouri Hazardous Waste Management Law provides that transportation violations of the Missouri Hazardous Waste Management Law, rules, or license terms or conditions thereunder are a misdemeanor offense.

Section 260.425, RSMo, 1990, also authorizes the Missouri State Highway Patrol and other law enforcement officers to detain any equipment involved in violations and arrest the person controlling or operating such equipment in the event such violation is committed in the presence of the officer or upon information provided by a reliable source.

This certificate must be carried in vehicle at all times when transporting materials defined as hazardous waste in 10 CSR 25-3.260. This certificate shall be shown to representatives of the Department, Officers of the Missouri Highway Patrol, and other law enforcement officials on demand.

This certificate applies only to the transportation of hazardous waste; it does not apply to other environmentally regulated areas.

June 19, 1992
Date

G. Tracy Mehan, III

G. Tracy Mehan, III
Director, Department of Natural Resources

FORM HWT 29 (3-91)

IESX-MO7-13080-SD-0044

MISSOURI DEPARTMENT OF NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL QUALITY
HAZARDOUS WASTE PROGRAM

HAZARDOUS WASTE TRANSPORTER FACILITY

P.O. BOX 176
JEFFERSON CITY, MISSOURI 65102
314 - 751-3176

NAME OF CARRIER: McDonnell Douglas Corp.	DATE: 03/23/93	MO. HAR. WASTE LIC. NO.: H-1039	NO. OF VEHICLES LICENSED: 6
		EX. DATE: 06/30/93	EPA I.D. NO.: MOD000818963
ADDRESS: P.O. Box 516, Mail Code 1062542 St. Louis, MO 63166		GENERATOR: ☒YES ☐NO — I.D. NUMBER: 001001	RR/TSD: ☒YES ☐NO — I.D. NUMBER: OSO062284002
		☐ INTER. ☒ INTRA.	NO. DRIVERS: 66 — NO. CARGO TANKS: 0
PHONE: (314) 232-6941		☐ TERM. ☐ CORP. OFFICE ☒ PRINC. PLACE OF BUS.	
CARRIER REPRESENTATIVE(S): Annette Wagner-Banks, Joe Haake		TITLE(S): Sr. Environmental Engineer, Group Manager	

DRIVER'S QUALIFICATION FILE COMPLETE:	AS REQUIRED	DEFICIENT	NUMBER CHECKED	REMARKS
EMPLOYEEE APPLICATION	6		6	Drivers examined: James Stillman, Richard Awalt, Francis Greene, Charles Long, Ellis Ahart, Larry Bond
PREVIOUS EMPLOYER CHECK	6		6	
STATE MVR CHECK	6		6	
WRITTEN EXAM/CERTIFICATE	6		6	
MEDICAL EXAM/CERTIFICATE/WAIVER	6		6	
ROAD TEST/CERTIFICATE	6		6	
ANNUAL REVIEW/ANNUAL RECORD OF VIOLATION	6		6	
COMPLETED MANIFEST (RETAINED 3 YEARS):	30		30	
PROPER SHIPPING NAME; HAZARD CLASS; ID NUMBER;	30		30	
QTY.; EPA WASTE STREAM ID; SIGN/DATE; STATE INFO.	30		30	
VEH. INSPECTION, REPAIR AND MAINTENANCE RECORDS	3	*	3	All maint. records computerized
DRIVER VEHICLE INSPECTION REPORTS	168		168	
ANNUAL HW/HM EMPLOYEE TRAINING REPORTS	[illegible]	6	6	Haz. Mat. - 1990/Haz. Comm. - 1993
DRIVER'S DAILY DUTY STATUS REPORTS (RETAINED 6 MOS) HRS. OF SERVICE RULES (10 hr - 15 hr - 60 in 7 - 70 in 8)	~~150~~		~~150~~	
INCIDENT REPORTS (RETAINED 3 YEARS)	NA			None to date
ACCIDENT REPORTS	NA			No D.O.T Reportable
CARGO TANKS: MANUFACTURER REPORTS	NA			No Cargo Tanks licensed
VISUAL/HYDROSTATIC TESTS	NA			
CONTROLLED SUBSTANCE TESTING	16	1	17	**
COMMERCIAL DRIVER'S LICENSE	6		6	All Class A w/ Hazmat

REMARKS

* Maintenance files need to include Model, Make, Year, Serial number, Company number, & tire size.

** Larry Bond, Periodic Drug test 11-04-91, Result is not indicated in the drivers qualification file.

INSPECTOR NAME: Darrell A. Burber	OFFICE: MO DNR Hazardous Waste Program Jefferson City, MO

MO 780-1106 (8-91) DISTRIBUTION: WHITE - CARRIER; YELLOW - REGION; PINK - CARRIER FILE

1 EXT-101 - 1130 40-KD-CIIC

STATE OF MISSOURI

DEPARTMENT OF NATURAL RESOURCES

MISSOURI CLEAN WATER COMMISSION

MISSOURI STATE OPERATING PERMIT

In compliance with the Missouri Clean Water Law, (Chapter 644 R.S. Mo. as amended, hereinafter, the Law), and the Federal Water Pollution Control Act (Public Law 92-500, 92nd Congress) as amended,

Permit No. MO-0004782

Owner: McDonnell Douglas Aerospace

Owner's Address: P.O. Box 516, M/C 0343530, St. Louis, Missouri 63166

Operating Authority: McDonell Aircraft Company

Operating Authority's Address: P.O. Box 516, M/C 0343530, St. Louis, Missouri 63166

Facility Name: McDonnell Douglas Corporation - St. Louis Facilities

Facility Address: P.O. Box 516, M/C 0343530, St. Louis, Missouri 63166

Legal Description: (Sections 4 and 5 projected), T46N, R6E, and (Sec. 34 projected), T47N, R6E, St. Louis County

Receiving Stream & Basin: Unnamed Tributaries and Coldwater Creek (Missouri River Basin) (10300200-50-02) (U)

is authorized to discharge from the facility described herein, in accordance with the effluent limitations and monitoring requirements as set forth herein:

FACILITY DESCRIPTION

Outfall #001 - Industry - SIC #3721

Storm water/non-contact cooling water from Tract 1 North.
Average dry weather flow of 252,100 gallons per day.

(See Attached)

This permit authorizes only wastewater discharges under the Missouri Clean Water Law and the National Pollutant Discharge Elimination System; it does not apply to other regulated areas. This permit may be appealed in accordance with Section 644.051.6 of the Law.

September 17, 1993
Effective Date

John A. Young
John A. Young
Director, Division of Environmental Quality

June 30, 1998
Expiration Date

Nicholas A. Pasquale
Director of Staff, Clean Water Commission

A. FACILITY DESCRIPTION (cont.)

Outfall #002 - Industry - SIC #3721

Storm water and/or non-contact cooling water from Buildings 42, 45, 46, 51 and 52, hushhouses and silencers.
Average dry weather flow of 99,400 gallons per day.

Outfall #003 - Industry - SIC #3721

Storm water and/or non-contact cooling water from Buildings 1, 2, 3, 4, 5, 61 and 41 area.
Average dry weather flow of 510,000 gallons per day.

Outfall #005 - Industry - SIC #3721

Storm water and/or non-contact cooling water from Buildings 250 and 251.
Average dry weather flow of 45,755 gallons per day.

Outfall #006 - Industry - SIC #3721

Storm water and/or non-contact cooling water from the headquarters building and overflow from two small concrete decorative basins at Building 106.
Average dry weather flow of 43,200 gallons per day.

Outfall #007 - Industry - SIC #3721

Storm water and/or non-contact cooling water from Building 102 and the spray pond north of Building 102.
Average dry weather flow of 797,200 gallons per day.

Outfall #010 - Industry - SIC #3721

Storm water and/or non-contact cooling water from Buildings 101, 105, 106 and 107.
Average dry weather flow of 547,200 gallons per day.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The permittee is authorized to discharge from outfall(s) with serial number(s) as specified in the application for this permit. The final effluent limitations shall become effective upon issuance and remain in effect until expiration of the permit. Such discharges shall be controlled, limited, and monitored by the permittee as specified below:

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #001						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(186)		(124)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	24 hr. comp.
	(lb/day)	(0.6)		(0.4)	once/month	24 hr. comp.
Copper, Total	mg/l	*		*	once/month	24 hr. comp.
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(42)		(21)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
Outfall #002						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(59)		(39)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	24 hr. comp.
	(lb/day)	(0.20)		(0.13)	once/month	24 hr. comp.
Copper, Total	mg/l	*		*	once/month	24 hr. comp.
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(13)		(6.5)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab

(continued on next page).

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY ; THE FIRST REPORT IS DUE January 28, 1994
THERE SHALL BE NO DISCHARGE OF FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

B. STANDARD CONDITIONS

IN ADDITION TO SPECIFIED CONDITIONS STATED HEREIN, THIS PERMIT IS SUBJECT TO THE ATTACHED PART I STANDARD CONDITIONS DATED OCTOBER 1, 1980, AND HEREBY INCORPORATED AS THOUGH FULLY SET FORTH HEREIN.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (continued)

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #003						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(182)		(121)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	24 hr. comp.
	(lb/day)	(0.61)		(0.40)	once/month	24 hr. comp.
Copper, Total	mg/l	*		*	once/month	24 hr. comp.
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(40.5)		(20.2)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
Outfall #005						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(32)		(21)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	****
	(lb/day)	(0.11)		(0.07)	once/month	****
Copper, Total	mg/l	*		*	once/month	****
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(7.1)		(3.5)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
Chlorine, Total Residual	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab

(continued on next page)

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #006						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(9.7)		(6.5)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	****
	(lb/day)	(0.03)		(0.02)	once/month	****
Copper, Total	mg/l	*		*	once/month	****
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(2.2)		(1.1)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
Outfall #007						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(176)		(117)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	24 hr. comp.
	(lb/day)	(0.59)		(0.39)	once/month	24 hr. comp.
Copper, Total	mg/l	*		*	once/month	24 hr. comp.
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(39)		(19.5)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
Chlorine, Total Residual	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab

(continued on next page)

OUTFALL NUMBER AND EFFLUENT PARAMETER(S)	UNITS	FINAL EFFLUENT LIMITATIONS			MONITORING REQUIREMENTS	
		DAILY MAXIMUM	WEEKLY AVERAGE	MONTHLY AVERAGE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Outfall #010						
Flow	MGD	*		*	once/month	24 hr. total
Chemical Oxygen Demand	mg/l	45		30	once/month	grab
	(lb/day)	(178)		(119)	once/month	grab
Chromium, Total	mg/l	0.15		0.10	once/month	24 hr. comp.
	(lb/day)	(0.59)		(0.40)	once/month	24 hr. comp.
Copper, Total	mg/l	*		*	once/month	24 hr. comp.
Oil and Grease	mg/l	10		5	once/month	grab
	(lb/day)	(40)		(20)	once/month	grab
Temperature	°F	**		**	once/month	grab
Ammonia as N	mg/l	*		*	once/month	grab
Chlorine, Total Residual	mg/l	*		*	once/month	grab
pH - Units	SU	***		***	once/month	grab
Whole Effluent Toxicity Test					once/quarter (Note 1)	grab

MONITORING REPORTS SHALL BE SUBMITTED QUARTERLY, THE FIRST REPORT IS DUE **January 28, 1994**

* Monitoring requirement only.

** Effluents (alone or in combination with other effluents) shall not elevate or depress the temperature of a stream more than five (5) degrees Fahrenheit (°F). The stream temperature shall not exceed ninety (90) degrees Fahrenheit (°F) due to effluents.

*** pH is measured in pH units and is not to be averaged. The pH shall be no less than 6.0 nor greater than the incoming water supply.

**** A composite sample consisting of a minimum of four (4) grab samples collected within a 24 hour period with a minimum of two (2) hours between each grab sample.

Note 1 - Whole Effluent Toxicity (WET) test will be conducted once per quarter on a rotation basis so that at least one WET test will be performed on each outfall prior to filing a renewal application for this permit. Each outfall is only required to receive one WET test during the life of the permit.

The first quarterly report due date for this reissued permit is based on a complete calendar quarter monitoring period. Monitoring shall be reported once per quarter for the entire life of the permit. The permittee is still responsible for reporting for the preceding calendar quarter under the previous permit.

C. SCHEDULE OF COMPLIANCE

There have been effluent violations for the following parmeters and outfalls found in a review of the Discharge Monitoring Reports dating back to January 1992:

Outfall #001:	Oil & Grease
Outfall #002/#004:	Chemical Oxygen Demand, Total Chromium, and Oil & Grease
Outfall #003:	Oil & Grease
Outfall #006:	Chemical Oxygen Demand and Oil & Grease

This facility shall conduct an engineering study of the aforementioned outfalls and parameters and prepare a proposal to consistently meet all applicable effluent limitations. this engineering study and proposal shall be submitted to the Department - St. Louis Regional Office by January 1, 1994.

D. SPECIAL CONDITIONS

1. Report as no-discharge when a discharge does not occur during the report period.

2. This permit shall be modified, or alternatively revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2) (C), and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act, if the effluent standard or limitation so issued or approved:

   (a) Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   (b) Controls any pollutant not limited in the permit.

   The permit as modified or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

3. Changes in Discharges of Toxic Substances

   The permittee shall notify the Director as soon as it knows or has reason to believe:

   a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:"

      (1) One hundred micrograms per liter (100 ug/l);

      (2) Two hundred micrograms per liter (200 ug/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

      (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application.

      (4) The level established in Part A of the permit by the Director.

(continued on next page)

D. SPECIAL CONDITIONS (continued)

3. b. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.

4. Flow Measurements

Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to insure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated and maintained to insure that the accuracy of the measurements are consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ± 10% from true discharge rates throughout the range of expected discharge volumes.

5. Definition: "Non-contact cooling water" means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

6. There shall be no discharge of process wastewater and/or blowdown to Coldwater Creek.

7. Whole Effluent Toxicity (WET) tests will be conducted as follows:

1. Effluent Limitations

a. Using single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

b. Using multiple-dilution test:

(1) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(2) all dilutions equal to or greater than the AEC must be nontoxic.

2. Test Schedule and Follow-Up Requirements

a. Perform a single-dilution test in the month of December and annually thereafter.

If the test passes the effluent limit do not repeat test until the next test period. Submit results with the annual report.

If the test fails the effluent limit a multiple dilution test shall be performed within 30 days, and biweekly thereafter until one of the following conditions are met:

(1) THREE CONSECUTIVE MULTIPLE-DILUTION TESTS PASS. No further tests need to be performed until next regularly scheduled test period.

(continued on next page)

D. SPECIAL CONDITIONS (continued)

7. Whole Effluent Toxicity (WET) tests (continued)

2. Test Schedule and Follow-Up Requirements (continued)

(2) A TOTAL OF THREE MULTIPLE-DILUTION TESTS FAIL. The permittee shall conduct a "Toxicity Identification Evaluation" (TIE) and send report to DNR within 180 days.

b. All failing test results shall be reported to DNR within 14 days of the availability of results.

c. All WET test results for the reporting period shall be summarized and submitted to DNR by the end of the following October. When WET test sampling is required to run over one DMR period, each DMR report shall contain information generated during the reporting period.

3. PASS/FAIL procedure and effluent limitations

a. To pass a single-dilution test, mortality observed in the AEC test concentration shall not be significantly different (at the 95% confidence level; $p = 0.05$) than that observed in the upstream receiving-water control. The appropriate statistical tests of significance will be those outlined in the most current USEPA acute toxicity manual or those specified by the MDNR.

b. To pass a multiple-dilution test:

(1) the computed percent effluent at the edge of the zone of initial dilution (AEC) must be less than three-tenths (0.3) of the LC_{50} concentration for the most sensitive of the test organisms, or,

(2) all dilutions equal to or greater than the AEC must be nontoxic.

Failure of one multiple-dilution test is considered an effluent limit violation.

4. Test Conditions

a. Test species: Ceriodaphnia dubia and fathead minnows, Pimephales promelas. Organisms used in WET testing should come from cultures reared for the purpose of conducting toxicity tests and should be cultured in a manner consistent with the most current USEPA guidelines. All test animals should be cultured as described in EPA-600/4-90/027.

b. Test period: 48 hours
"Acceptable Effluent Concentration" (AEC): 100 % effluent

c. When dilutions are required, upstream receiving stream water will be used as dilution water, if available; otherwise, "reconstituted" water will be used. Procedures for generating reconstituted water will be supplied by the Department of Natural Resources (DNR).

(continued on next page)

D. SPECIAL CONDITIONS (continued)

7. Whole Effluent Toxicity (WET) tests (continued)

4. Test Conditions (continued)

d. Tests should be run on a grab sample of the effluent. Tests should be initiated immediately after the sample is collected, but tests must be initiated no later than 36 hours after collection.

e. Single-dilution tests will be run with:

(1) Effluent at the AEC concentration;
(2) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(3) reconstituted water.

f. Multiple-dilution tests will be run with:

(1) 100%, 50%, 25%, 12.5%, and 6.25% effluent, unless the AEC is less than 25% effluent, in which case dilutions will be 4 times the AEC, two times the AEC, AEC, 1/2 AEC and 1/4 AEC.
(2) 100% receiving-stream water (if available), collected upstream of the outfall at a point beyond any influence of the effluent; and
(3) reconstituted water.

g. If reconstituted-water control mortality for a test species exceeds 10%, the entire test will be rerun.

h. If mortality in the upstream receiving stream water control exceeds 10%, the MDNR should be notified immediately for guidance on how to proceed.

i. The following information will be reported: Time and date of effluent collection. Time and date of arrival of effluent to laboratory and effluent temperature. Time and date of test initiation. Initial pH, dissolved oxygen, ammonia, total residual chlorine, conductivity, and temperature measurements. Final measurements of each test concentration of pH, dissolved oxygen, ammonia-N, and conductivity. Daily measurements of temperature. Time of any adjustments to dissolved oxygen. Results of all toxicity tests including controls and reference toxicant tests and date reference toxicant test was last performed. Date the report of tests was completed and the signature of person conducting tests and the Director of the laboratory.

j. All other test methods and procedures should be consistent with guidance given in the EPA Handbook 600/4-90/027, Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (4th edition), published September, 1991 or subsequent updates.

STANDARD CONDITIONS FOR NPDES PERMITS
ISSUED BY
THE MISSOURI DEPARTMENT OF NATURAL RESOURCES
MISSOURI CLEAN WATER COMMISSION
Revised
October 1, 1980

PART I — GENERAL CONDITIONS
SECTION A — MONITORING AND REPORTING

1. **Representative Sampling**
   A. Samples and measurements taken as required herein shall be representative of the nature and volume, respectively, of the monitored discharge. All samples shall be taken at the outfall(s), and unless specified, before the effluent joins or is diluted by any other body of water or substance.
   B. Monitoring results shall be recorded and reported on forms provided by the Department, postmarked no later than the 28th day of the month following the completed reporting period. Signed copies of these, and all other reports required herein, shall be submitted to the respective Department Regional Office, the Regional Office address is indicated in the cover letter transmitting the permit.

2. **Schedule of Compliance**
   No later than fourteen (14) calendar days following each date identified in the "Schedule of Compliance", the permittee shall submit to the respective Department Regional Office as required therein, either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements, or if there are no more scheduled requirements, when such noncompliance will be corrected. The Regional Office address is indicated in the cover letter transmitting the permit.

3. **Definitions**
   Definitions as set forth in the Missouri Clean Water Law and Missouri Clean Water Commission Definition Regulation 10 CSR 20-2.010 shall apply to terms used herein.

4. **Test Procedures**
   Test procedures for the analysis of pollutants shall be in accordance with the Missouri Clean Water Commission Effluent Regulation 10 CSR 20-7.015.

5. **Recording of Results**
   A. For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:
      (i) The date, exact place, and time of sampling or measurements;
      (ii) The individual(s) who performed the sampling or measurements;
      (iii) The date(s) analyses were performed;
      (iv) The individual(s) who performed the analyses;
      (v) The analytical techniques or methods used; and
      (vi) The results of such analyses.
   B. The Federal Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.
   C. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the Director in the permit.

6. **Additional Monitoring by Permittee**
   If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified above, the results of such monitoring shall be included in the calculation and reporting of the values required in the Monitoring Report Form. Such increased frequency shall also be indicated.

7. **Records Retention**
   The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the Department at any time.

SECTION B — MANAGEMENT REQUIREMENTS

1. **Change in Discharge**
   A. All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant not authorized by this permit or of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit.
   B. Any facility expansions, production increases, or process modifications which will result in new, different, or increased discharges of pollutants shall be reported by submission of a new NPDES application at least sixty (60) days before such changes, or, if they will not violate the effluent limitations specified in this permit, by notice to the Department at least thirty (30) days before such changes.

2. **Noncompliance Notification**
   A. If, for any reason, the permittee does not comply with or will be unable to comply with any daily maximum effluent limitation specified in this permit, the permitee shall provide the Department with the following information, in writing within five (5) days of becoming aware of such condition:
      (i) A description of the discharge and cause of noncompliance, and
      (ii) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncomplying discharge.
   B. Twenty-four hour reporting. The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The Department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

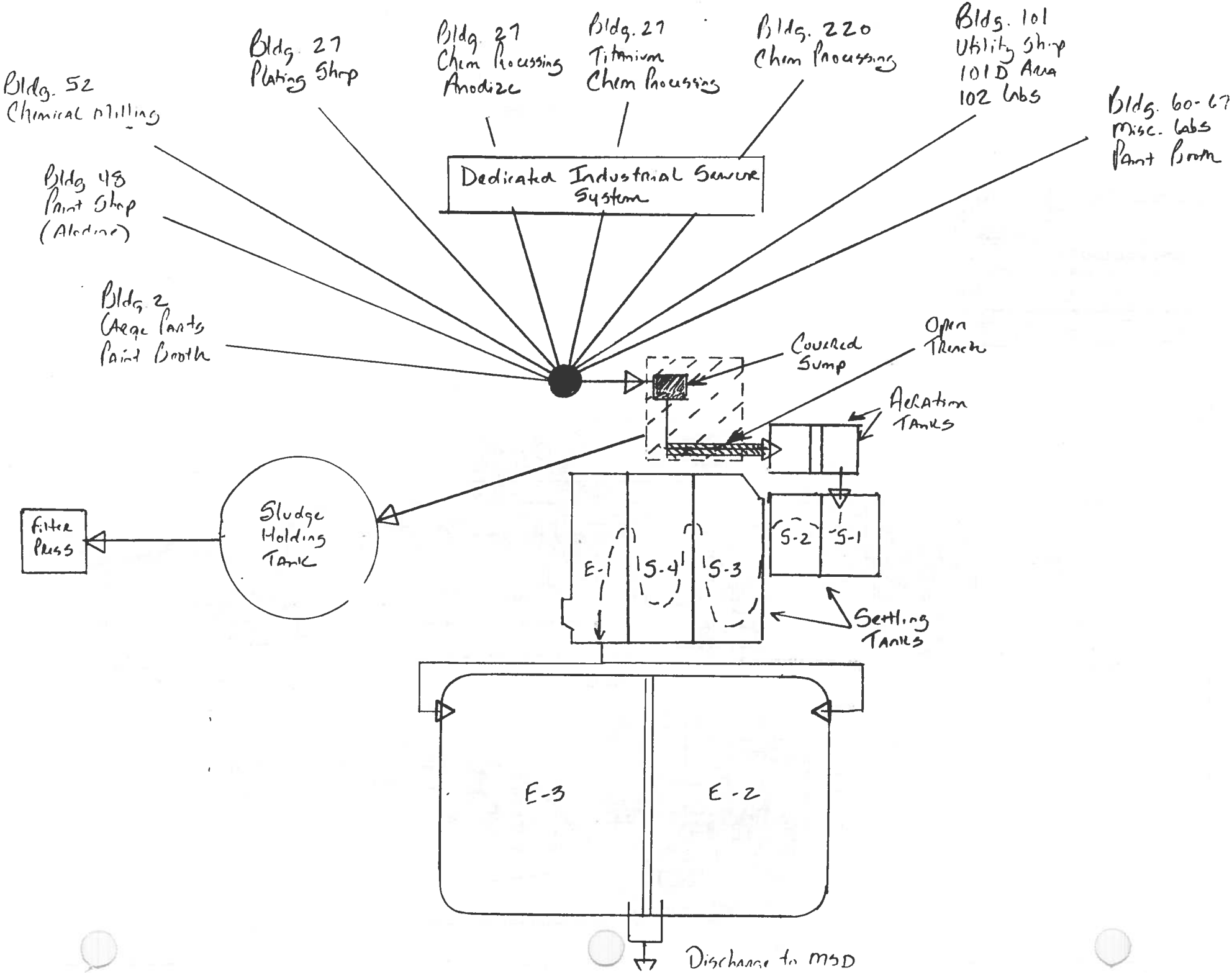
3. **Facilities Operation**
   Permittees shall operate and maintain facilities to comply with the Missouri Clean Water Law and applicable permit conditions. Operators or supervisors of operations at publicly owned or publicly regulated wastewater treatment facilities shall be certified in accordance with 10 CSR 20-9.020(2) and any other applicable state law or regulation. Operators of other wastewater treatment facilities, water contaminant source or point sources, shall, upon request by the department, demonstrate that wastewater treatment equipment and facilities are effectively operated and maintained by competent personnel.

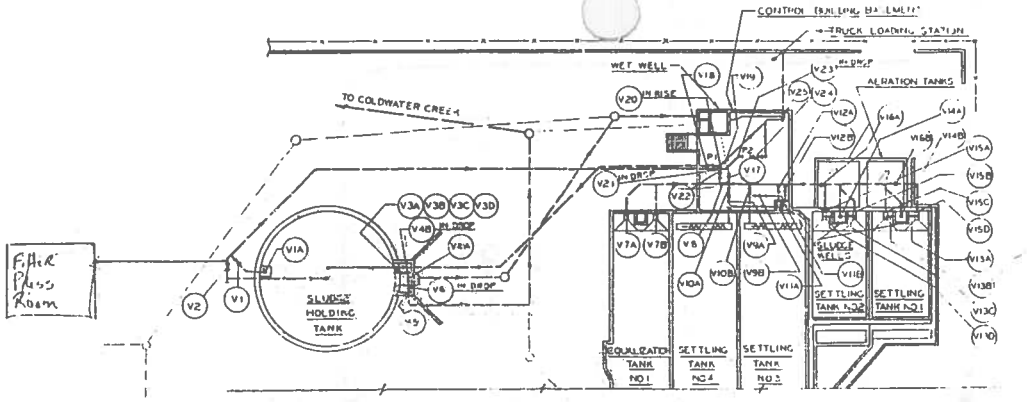
4. **Adverse Impact**
   The permittee shall take all necessary steps to minimize any adverse impact to waters of the state resulting from noncompliance with any effluent limitations specified in this permit or set forth in the Missouri Clean Water Law and Regulations (hereinafter the Law and Regulations), including such accelerated or additional monitoring as necessary to determine the nature and impact of the noncomplying discharge.

Appendix G

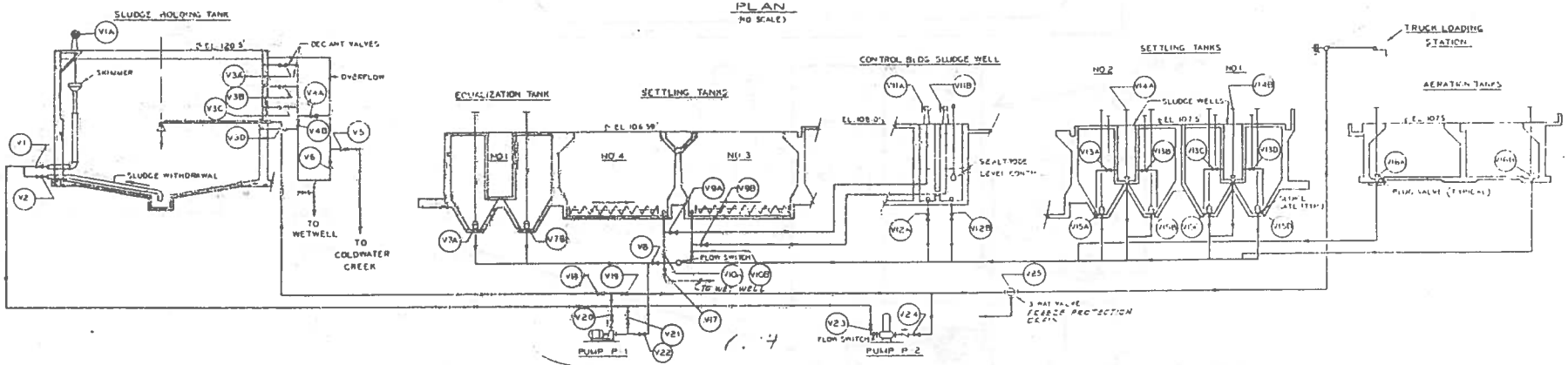
APPENDIX G

INDUSTRIAL WASTEWATER TREATMENT PLANT DIAGRAMS
MCDONNELL-DOUGLAS HAZELWOOD FACILITY


Bldg. 52
Chemical Milling
Bldg. 27
Plating Shop
Bldg. 27
Chem Processing
Anodize
Bldg. 27
Titanium
Chem Processing
Bldg. 220
Chem Processing
Bldg. 101
Utility Shop
101D Area
102 Labs
Bldg. 60-67
Misc. Labs
Paint Booth
Bldg. 48
Paint Shop
(Alodine)
Bldg. 2
Large Parts
Paint Booth
Dedicated Industrial Sewer System
Covered Sump
Open Trench
Aeration Tanks
Filter Press
Sludge Holding Tank
E-1
S-4
S-3
S-2
S-1
Settling Tanks
E-3
E-2
Discharge to MSD



PLAN
(NO SCALE)



FLOW DIAGRAM

NORTH

REVISION / BY / APPD / DATE	FOR ____ FO ____ WORK CONTROL RELEASE ____	APPROVED FOR CONSTRUCTION BY ____ DATE ____	
	INDUSTRIAL WASTE DISPOSAL DETENTION PLANT, BLDG 14 SLUDGE SYSTEM		
	REFERENCE DRAWINGS ____ JOB SPECIFICATIONS ____	MCDONNELL ST LOUIS, MISSOURI PLANT ENGINEERING DEPT	
	SCALE ABOVE DRAWN DESIGN APPD APPD APPD	DRAWING NUMBER	SHEET NUMBER