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Current Conditions Report

Pontiac North Campus
Volume I of IV

PDF has been modified to decrease the size and only include Metal Fabrication Division (AOI M-#) and Demolition Area (AOI W-#) Area's of Interest (AOI)

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General Motors Corporation
Pontiac, Michigan

January 31, 2001

ENCORE

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January 30, 2001

Mr. Peter Ramanauskas
United States Environmental Protection Agency
Region V
77 West Jackson Street
Chicago, ILL 60604-3590
DW-8J

Re: Voluntary Corrective Action Agreement GM Pontiac North Campus

Dear Mr. Ramanauskas

In accordance with the above captioned agreement I am forwarding the Current Conditions Report prepared by General Motors Corporation. As we discussed I am forwarding one copy, should you require additional copies please contact me.

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Sincerely,

Keith West/mw

G. Keith West

encl

C: Jean Caufield w/attach
Anthony Thrubis w/attach

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1. Introduction

1.1 General

This Current Conditions Report (CCR) for the Pontiac North Campus, Pontiac, Michigan Site was prepared by ENCORE Environmental Consortium, LLC (EEC) (a consortium consulting group consisting of Blasland, Bouck, & Lee, Inc. [BBL], Conestoga-Rovers & Associates [CRA], and Haley and Aldrich, Inc.) for Environmental Corporate Remediation (ENCORE), a wholly-owned subsidiary of General Motors Corporation (GM, GMC).

On October 10, 2000, the U.S. Environmental Protection Agency (USEPA) and GM entered into a Voluntary Corrective Action Agreement for the GM Pontiac North Campus (hereafter referred to as the "Site"). The agreement calls for GM to work independently and voluntarily to investigate and, as necessary, stabilize and remediate releases of hazardous wastes or hazardous constituents at or from the Site in accordance with the Resource Conservation and Recovery Act (RCRA) and relevant USEPA corrective action guidance documents. This report was prepared and is submitted in accordance with Section V(1)(a) of the Voluntary Corrective Action Agreement.

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The Site encompasses approximately 595 acres in the northwest quadrant of the City of Pontiac (Figure 1-1). This report covers four facilities, including:

- Chevrolet-Pontiac-Canada Group (CPC) - Pontiac Fiero Assembly Plant (formerly GMC Fisher Body Division – Pontiac; USEPA ID No. MID 005356910);
- GMC Central Foundry Division - Pontiac Plant (USEPA ID No. MID 085470102);
- CPC - Pontiac (USEPA ID No. MID 005356886); and
- GMC Warehousing and Distribution Division (USEPA ID No. MID 076331289).

Each of these facilities is shown on Figure 1-2. Because Site operations have changed significantly in recent years, this report has grouped the operations according to current activities as follows:

- Fiero;
- Demolition Area (DA);
- Metal Fabrication Division (MFD);
- Powertrain; and
- Service Parts Operations (SPO).

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Each of these operational areas are shown on Figure 1-3. Figure 1-4 provides an overlay of the facilities with the operational areas. A sixth sitewide area consists of the storm sewer system.

A wide range of automotive-related production processes have been performed at the Site since 1925, including car assembly, engine assembly, plating, heat treating, painting, metal stamping, machining, foundry operations, metal casting, and wastewater treatment operations.

1.2 Areas of Interest

Historically, two documents have been prepared regarding Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs). The first document, titled *Certification Regarding Potential Releases from Solid Waste Management Units, CPC Pontiac Facility (USEPA ID No. MID 005356886)*, was completed by GM at the request of the USEPA in February 1986 (GM, 1986c) (Appendix A). This survey included the current MFD, Powertrain, and portions of the DA operational areas and identified seven SWMUs.

The second document, a report entitled *Preliminary Assessment/Visual Site Inspection* (PA/VSI) *Report, General Motors Corporation, Pontiac Fiero Plant, Pontiac, Michigan* (hereafter referred to as the Fiero PA/VSI Report), was prepared in February 1992 by PRC Environmental Management, Inc. (PRC), under contract to the USEPA (PRC, 1992) (Appendix A). The Fiero PA/VSI Report identified a total of 11 SWMUs and/or other AOCs at Fiero (MID 005356910). PA/VSIs have not been performed at the other three facilities.

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For the purpose of this RCRA Corrective Action at the Site, areas identified during prior investigations using terms such as SWMUs and AOCs have been re-identified using the single term Area of Interest (AOI).

Presented within this CCR are a total of 64 AOIs, which were identified in the following manner:

- Seven SWMUs identified by GM in the 1986 *Certification Regarding Potential Releases from Solid Waste Management Units* (GM, 1986c);
- 11 SWMUs identified by PRC in the Fiero PA/VSI Report (PRC, 1992); and
- 46 other AOIs identified by GM as a result of a thorough review of historical GM files, Freedom of Information Act (FOIA) requests to regulatory agencies, discussions with GM personnel, and multiple Site walkthroughs.

A description of each AOI is provided in Section 6 of this report.

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1.3 Purpose and Scope

The purpose and scope of this report is to provide the following:

- Brief overview of the pertinent features of the Site;
- Brief summary of the regional setting of the Site;
- Review of available information concerning the current and historical uses of the Site for the treatment, storage, or disposal of hazardous wastes or hazardous constituents;
- Summary of previous investigations;
- Summary of remedial activities conducted at the Site;
- Identification of any AOIs that may warrant further investigation or evaluation; and
- Justification for no further action at other AOIs identified in this report that do not warrant further investigation or evaluation.

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1.4 Document Organization

This document is organized into six main sections. Section 1 presents the background, purpose, and organization of the document. Section 2 presents a brief description of the Site, including Site location, historical and current operations, and historical and current waste management practices. Section 3 presents regional information pertaining to the Site, including surrounding land use, demographics, climate, geology, hydrogeology, and hydrology. Section 4 presents a listing of previous investigations conducted at the Site. Section 5 presents a listing of remedial actions conducted at the Site. Finally, Section 6 presents a description and summary of the various AOIs, organized by operational area. A list of references and acronyms used in the report are provided following Section 6.

Tables, figures, and appendices referenced throughout this document provide additional supporting information.

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2. Description of Site

This section provides a general description of the Site location, historical and current operations at the Site, a review of historical topographic and Sanborn maps and aerial photographs, RCRA regulatory history, and historical and current waste management practices.

2.1 Site Location

Comprising approximately 595 acres, the Site is located in the City of Pontiac, Oakland County, Michigan (see Figure 1-1). The Site is bounded to the south by Montcalm Street, to the west by Baldwin Avenue and the Grand Trunk Western Railroad Line, to the east by Joslyn Avenue and a plant service road, and to the north by Walton Boulevard and the Grand Trunk Western Railroad Line. Surrounding areas consist of residential subdivisions and mixed commercial and light industrial use properties.

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2.2 Current and Historical Operations

This subsection contains information regarding current and historical operations at each of the five operational areas at the Site as shown on Figure 1-3. Information regarding the Site prior to development in 1924 was not available.

Historically, a wide range of automotive-related production processes, including car assembly, engine assembly, plating, heat treating, painting, metal stamping, machining, foundry operations, metal casting, and wastewater treatment activities, have been performed at the Site. Currently, the Site is used for metal fabrication, warehousing, and engineering. Many of the plants have changed designations during the life of the facility. Table 2-1 presents a summary of historical and current plant designations and associated activities. The locations of the plants, with current designations, are shown on Figure 1-3.

2.2.1 Fiero

The Fiero operational area consists of approximately 81 acres located at the southwestern portion of the Site (Figure 1-3) and includes Plant 17. Currently, this area is used for prototyping, storage, and other non-production purposes.

Operations began at the Fiero facility in 1925 as the GMC Fisher Body Plant. This plant supplied closed-type automotive bodies for the Oakland Motor Car Company, located at the Site. In 1932, the Oakland Motor Car Company became the Pontiac Motor Division. In 1935, the original GMC Fisher Body Plant, located at the Site, combined operations with the GMC Fisher Body Pontiac Plant with operations consisting of metal fabrication, soft trim fabrication, and body assembly. In 1942, operations at the Fiero facility converted to defense production work, which included production of military vehicle parts.

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The facility was modernized to a two-line automotive assembly operation from 1959 to 1961. In August 1982, the facility ceased operations, and the Pontiac Motor Division took possession of the Site and renamed it Fiero. From 1983 to 1988, the Pontiac Fiero was assembled in Plant 17 on a one-car assembly line. The plant was divided into a body shop, chassis department, paint shop, and trim department. Fiero assembly operations ceased in August 1988. Since 1988, the facility has been used for various non-production purposes, including storage and prototyping.

Current and historical wastes generated from car assembly at Fiero may have included scrap metal and metalworking fluids and oils (petroleum-based, oil-water emulsions, or synthetic emulsions), paints, paint solvents, and plasticizers. A wastewater treatment plant was in operation at the Site from 1973 to 1983 and managed wastewater, wastewater treatment sludge, paint sludge, and bonderite sludge.

2.2.2 Demolition Area (DA)

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The DA consists of approximately 48 acres of the south-central portion of the Site. There are currently no buildings or operations within the DA portion of the Site. The three former main operational buildings (the Foundry [Plant 6], Final Vehicle Assembly [Plant 8], and Engine Construction [Plant 9]) were demolished in 1995, 1997, and 1997, respectively. Since 1996, the DA has been the subject of ongoing soil and groundwater investigations and various interim measures that will be discussed in Section 6. The former plant locations are shown on Figure 1-3.

Construction of the Foundry (Plant 6) and Final Vehicle Assembly Plant (Plant 8) took place from 1927 to 1929. During this time, operations within these plants included production of parts and cars for the Oakland Motor Car Company. Expansions of the Foundry took place in 1937, 1940, 1941, 1945, 1946, 1957, and 1962. Expansions to Plant 8 took place in 1956, 1960, 1962, 1963, 1964, and 1970. Fisher Body Division commenced construction of the Engine Construction Building (Plant 9) in 1925, with construction completed by the mid-1930s. Expansions to Plant 9 took place in 1945, 1954, 1959, and 1967. In 1987, operations in Plants 6, 8, and 9 ceased. Plant 6 was demolished in 1995, and Plants 8 and 9 were demolished in 1997.

West of the Foundry (Plant 6) is an area referred to as the West Yard (see Figure 1-3). The West Yard was used for material disposal activities, including foundry sand disposal, refuse disposal, sludge dumping, and trash burning. An area designated as the Railroad Marshalling Area, located along the western side of the West Yard, was used for temporary storage of railcars loaded with scrap metal prior to being shipped off site. Also located in the West Yard were the Flammable Liquids Storage Building, the Compressor Building, and the Salvage Building. The Salvage Building, which included a refuse incinerator, was constructed in 1945 to separate reusable material from unusable wastes. The Salvage Building was demolished in 1998. The Compressor Building was constructed in the early 1970s and subsequently demolished in 1998. Also located in this area are the Montcalm Substation and the former crane bay.

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In the 1970s, the West Yard was divided between two GM business units. The eastern and central portion of the West Yard became a portion of the Central Foundry Division, and the western area became property of the Automotive Manufacturing and Support Operations (Pontiac Motor Division, later CPC). In 1982, CPC constructed a Hazardous Waste Storage Pad to store hazardous waste for periods greater than 90 days. Closure activities for the Hazardous Waste Storage Pad were initiated in July 1988 by CPC.

Current and historical wastes generated in the DA may have included wastewater (which may have contained cadmium and lead), calcium carbide desulfurization slag, baghouse dust, and foundry sand. Additionally, solvents may have been used for cleaning.

2.2.3 Metal Fabrication Division (MFD)

The MFD area consists of approximately 236 acres in the center of the Site (Figure 1-3). It also represents the most active area of the Site with regard to current manufacturing operations. Plants currently located in the MFD area include Plants 5, 11, 12, 14, 15, 23, 25, 33, 49, 56, and ELPO (electrodeposition). Also present in the MFD area is a wastewater treatment plant (WWTP), which is located directly west of Plants 5 and 23. The locations of each of these plants and the WWTP are shown on Figure 1-3. Table 2-1 provides a cross-reference of historical and current plant numbers.

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Plant 11 currently is used for repair work and maintenance activities. Plants 12 and 56 are vacant in preparation for demolition. Plants 14, 15, 49, and the eastern portion of Plants 5 and 23 house pressed metal operations, maintenance operations, and other support activities. The eastern portion of Plants 5 and 23 also houses axle and differential operations. The western portion of Plants 5 and 23 is used to store miscellaneous machine parts and also contains a waste storage and accumulation area. Plants 25 and 33 are undergoing renovation.

A significant portion of the MFD area is covered with paved parking areas, roadways, pallet storage areas, and truck trailer storage areas.

Plants 5 and 56 were originally constructed in 1927 and were used for the storage and final shipping of automobiles for the Oakland Motor Car Company. By 1945, Plant 56, originally designated Plant 2, had been converted for metal plating operations, and Plant 5 had been converted for axle operations. Metal plating operations at Plant 56 ceased in 1987. Plant 11, originally designated as Plant 1, was constructed in 1945 as the heat treating plant. Expansions to these buildings took place in 1958, 1963, 1964, 1966, and 1969, with Plant 5 subsequently being subdivided into Plants 5 and 23.

The Car Storage and Shipping Building (Plant 12) was constructed from 1950 to 1951 and was expanded in 1963. Two pressed metal plants (Plant 14 and Plant 15) were added in 1951 and 1952, respectively. Plant 14 was expanded in 1966. Plant 15 was expanded in 1954 and 1966. The Car Finishing Plant (Plant 16) was added in 1954. Plant 16 has since been demolished. Plant 49 was constructed in 1965 as a storage and shipping plant with an expansion occurring in 1969.

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A chassis parts and machining plant (formerly Plant 31, currently Plant 25) was constructed from 1967 to 1968 and expanded in 1971. In 1981, an engine plant (formerly Plant 55, currently Plant 33) was constructed adjacent to Plant 25.

The ELPO Building is divided into two operations, with the northern portion used for enamel, lacquer, painting, and phosphating operations and the southern portion used as a chemical storage room, a flammable materials storage room, and a paint mix room with painting booths. The ELPO Building was originally constructed in 1927 as the Frame Storage Building. It was used to introduce frames to Plant 8. In 1955, the southern portion of the ELPO Building was constructed as the Apprentice School. In the late 1970s, both sections were converted to their present usage of parts painting and storage.

In 1957, the on-site WWTP was constructed to treat alkali-oily wastewater and metallic wastewater. The WWTP treats both alkali-oily wastewater and strong metallic wastewater.

Current and historical wastes generated in the MFD area from metal finishing, electroplating, and painting/finishing may include solvents, paint-related wastes, and metal- and cyanide-containing wastes.

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2.2.4 Powertrain

The Powertrain area consists of approximately 150 acres located along the eastern portion of the Site (Figure 1-3). The Powertrain area primarily consists of office space contained within the Powertrain Headquarters Building and the Powertrain Engineering Building. A gasoline underground storage tank (UST) farm and fueling station occupy the southwest corner of the Powertrain Headquarters Building. Test laboratories and office space were located in the Emissions Control Building. Paved parking areas and roadways occupy much of the land. A vacant area also exists where former Plant 18 was located (see Figure 1-3).

The Powertrain Headquarters Building was constructed in 1967, with a cafeteria adjoining the building constructed in 1990. The Powertrain Engineering Building was constructed between 1966 and 1970. A former car wash, located west of the Powertrain Engineering Building, was constructed in 1967 and was subsequently demolished in 1998. The Emissions Control Building was constructed between 1966 and 1970 and is still present.

On the west portion of the current Powertrain area, an Engine Plant (Plant 18) was constructed in 1942 and was expanded in 1953. Plant 18 ceased operations and was demolished in 1998.

Current and historical wastes generated at Powertrain may have included general trash and non-hazardous wastes, paint-related materials, waste solvents, laboratory wastes, batteries, and waste gasoline and diesel fuel.

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2.2.5 Service Parts Operations (SPO)

The SPO area consists of 80 acres of land located at the northern portion of the Site (Figure 1-3) and includes Warehouse Storage and Shipping & Receiving operations and parts painting (Plant 75). The building and adjacent paved roadways and parking areas encompass nearly all of this area.

The eastern portion of Plant 75 was built in 1964. Several expansions of Plant 75 occurred until the 1990s.

Current and historical wastes generated at SPO may have included paint-related material, parts washer solvent, plant trash, light ballast, and scrap auto parts (including leaded batteries).

2.3 Historical Mapping and Aerial Photographs

Historical topographic maps, Sanborn maps, and aerial photographs from Site records were reviewed. A detailed summary of the information obtained from these documents is provided in Appendix B. In general, the topographic map and aerial photograph reviews show a progression of development of the Site, which included filling of low areas/wetlands and construction of plants/buildings.

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2.4 RCRA Regulatory History

A history of the Site with respect to RCRA compliance activities for each of the four facilities shown on Figure 1-2 is chronicled below.

2.4.1 CPC Pontiac Fiero Assembly Plant of GMC (USEPA ID No. MID 005356910)

GM submitted a Notification of Hazardous Waste Activity (USEPA Form 8700-12) on August 8, 1980 (GM, 1980c) and a RCRA Part A Permit Application on November 11, 1980 (GM, 1980e). The Part A Permit Application listed the GMC Fisher Body Division Pontiac as a treatment, storage, and disposal (TSD) facility. The permit cited processes requiring container storage (S01), tank storage (S02), tank treatment (T01), and other treatment (T04). In the June 1985 revision to the Part A Permit Application, the name of the facility was changed to CPC Pontiac Fiero Assembly Plant of GMC (GM, 1985c).

A discussion of the Interim Status Units for the CPC Pontiac Fiero Assembly Plant of GMC is provided below. Available RCRA Part A Permit Applications and related correspondence are provided in Appendix C.

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2.4.1.1 Container Storage

The container storage interim status unit was located outside Plant 17 in the southwest driveway adjacent to the railroad tracks. The container storage area had an 18,700 gallon capacity and was used to store F001, F002, F007, F008, F003, F005, F010, F011, F017, and D001 waste (GM, 1980c). GM removed all waste codes except D001 waste in the June 1985 Part A Permit Application revision (GM, 1985c). GM received clean closure for the container storage area in February 1988 (MDNR, 1988a). A new container storage area was constructed on the south side of the storage dock of the assembly plant to replace the former container storage area (GM, 1985c). The new area had the same storage capacity as the former area and was used to store D001, F001, and F003 wastes (GM, 1987i). A closure report for the new container storage area was submitted in January 1995 (RUST, 1995); however, GM has not received official notification of clean closure from MDEQ.

2.4.1.2 Tank Storage and Treatment

In the November1980 Part A Permit Application, the interim status units for tank storage (600,000 gallon capacity), tank treatment (768,000 gallons per day [gpd] capacity), and other treatment (3,501,600 gpd capacity) were related to the WWTP (GM, 1980e). The November 1980 Part A permit application cited 384,000 gpd wastewater treatment sludge dewatering, 3,110,400 gpd paint sludge dewatering, and 86,400 gpd bonderite sludge dewatering in the "other treatment" (T04) treatment category. The WWTP stored and/or treated F018, F006, F009, F017, and D002 wastes. The tank storage, tank treatment, and other treatment processes associated with the WWTP were removed from the Part A Permit Application in June 1985 due to the January 4, 1985 RCRA Amendments (GM, 1985c).

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A new interim status unit for tank storage was included in the June 1985 Part A Permit Application revision. This interim status unit was the waste purge thinner UST, located north of Plant 17 and west of the paint mix building. This unit had a capacity of 12,000 gallons and was used to store D001 waste (GM, 1985c). This waste category was changed to F005 waste in the February 1986 Part A Permit Application revision (GM, 1986b). A closure report for the waste purge thinner UST was submitted in January 1995 (RUST, 1995); however, GM has not received official notification of clean closure from MDEQ.

2.4.2 GMC Central Foundry Division Pontiac Plant (USEPA ID No. MID 085470102)

GM submitted a Notification of Hazardous Waste Activity in August 1980 (GM, 1980a) and a RCRA Part A Permit application to the USEPA on November 17, 1980 (GM, 1980f). The Part A Permit application listed the GMC Central Foundry Division Pontiac Plant as a TSD facility. The permit cited processes requiring container storage (S01) and treatment (T04). The container storage and treatment area was located west of the northern end of the former casting plant. Baghouse dust (D006) was the only waste listed on the application.

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In February 1981, GM received a letter from USEPA (waste analysis program) that the baghouse dust stored at the plant did not meet the definition of a hazardous waste under 40 CFR Part 261.24 (USEPA, 1981). The *Arc Furnace Baghouse Dust EP Toxicity Study* by Clayton Environmental Consultants, Inc. (CEC) confirmed the previous USEPA findings (CEC, 1981).

Based on the CEC report, GM withdrew the RCRA Part A Permit application in July 1982 (GM, 1982b). Based on the information submitted by GM, the USEPA (waste management branch) confirmed that the baghouse dust was not defined as a hazardous waste (40 CFR 261.3); therefore, they concluded that the facility was not required to have a hazardous waste permit under Section 3005 of RCRA (USEPA, 1983).

The RCRA Part A permit application and associated correspondence are presented in Appendix D.

2.4.3 CPC Pontiac of General Motors Corporation (USEPA ID No. MID 005356886)

GM submitted a Notification of Hazardous Waste Activity on August 8, 1980 (GM, 1980b) and a RCRA Part A permit application on November 18, 1980 (GM, 1980g). The Part A Permit Application listed the Pontiac Motor Division of GMC as a TSD facility. The permit cited process codes for container storage (S01), tank storage (S02), surface impoundment storage (S04), tank treatment (T01), surface impoundment treatment (T02) and other treatment (T04). The facility name was changed to CPC Pontiac of General Motors Corporation in the June 1985 Part A Permit application revision (GM, 1985b). A discussion of Interim Status Units for CPC Pontiac of General Motors Corporation is presented below. Available RCRA Part A Permit Applications and associated correspondence are provided in Appendix E.

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2.4.3.1 Container Storage

In the November 1980 Part A Permit Application, container storage at the facility was listed with a total capacity of 222,100 gallons (GM, 1980g). According to the map included with the November 1980 Part A Permit Application, there were numerous container storage areas throughout the facility. These areas were used to store F001, F002, F003, D001, F005, F006, F012, F018, F007, F008, F009, F010, F011, and F017 wastes. The number of container storage areas was reduced in the September 1982 Part A Permit Application revision due to the removal of paint sludge from hazardous classification (GM, 1982c). The only container storage area that retained interim status was the barrel storage area located southwest of the former engine plant.

The barrel storage area was a diked, concrete pad with a storage capacity of 45,000 gallons and was used to store D001 waste. GM revised the Part A Permit Application in January 1986 to address revisions to the solvent listings. As a result, the F001, F005, and D008 wastes were cited for the barrel storage area (GM, 1986a). In November 1987, GM informed USEPA that they wanted to convert their hazardous waste operations to "generator only" status. GM indicated that they had recently enclosed a portion of their barrel storage area and that they intended to use the enclosed area for accumulation of hazardous waste (GM, 1987h).

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2.4.3.2 Tank Storage and Treatment

In the November 1980 Part A Permit Application, the interim status units for tank storage (496,700 gallon capacity), tank treatment (3,000,000 gpd capacity), and other treatment (500 gpd capacity) were related to the WWTP (GM, 1980g). The WWTP interim status unit was removed from the Part A Permit Application in September 1982 based on exemption by rule for wastewater treatment facilities (GM, 1982c).

GM submitted a revised Part A Permit Application in March 1984 due to the construction of a 950 gallon bulk ignitable liquid storage tank adjacent to the Emissions Control building (GM, 1984a). This tank was subsequently removed from the Part A Permit Application in September 1986 because the tank storage was regulated under 40 CFR 262.34 and should not have been included on the Part A Permit Application (GM, 1986h).

GM submitted a revised Part A Permit Application in June 1985 due to the January 1985 RCRA amendments that defined recycled wastes as hazardous. A 7,000-gallon tank in the ELPO building was issued interim status (GM, 1985c). This tank was used to store thinner (F005 waste). The thinner tank was removed from the Part A Permit Application in August 1987 because it had not been used to store waste for greater than 90 days (GM, 1987f).

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2.4.3.3 Surface Impoundment Storage and Treatment

In the November 1980 Part A Permit Application, interim status units for surface impoundments were listed with a total storage capacity of 7,507,000 gallons and a total treatment capacity of 100,000 gpd (GM, 1980g). These units were used for F001, F006, F012, F018, F007, F008, F009, F010, F017, and P030 wastes. The surface impoundment interim status units included various wastewater transfer sumps and two sludge consolidation areas.

The wastewater transfer sumps were located throughout the facility. The storage and treatment sumps were removed from the Part A Permit Application in September 1982 because they did not meet the definition of a surface impoundment (GM, 1982c).

One of the sludge consolidation areas was located adjacent to the container storage area in the southwest corner of the facility and had a capacity of 3,858,000 gallons. This sludge consolidation area was removed from the Part A Permit Application in September 1982 because it was no longer used (GM, 1982c).

The other sludge consolidation area was located adjacent to the WWTP and had a capacity of 240,000 gallons. On September 15, 1981, GM submitted a petition to USEPA to delist wastewater sludge from electroplating operations (F006), based on the characteristics of the sludge generated at the facility (GM, 1981b). On January 18, 1982, GM submitted a similar petition to the Michigan Department of Natural Resources (MDNR) (GM, 1982a). USEPA granted the facility a temporary delisting for F006 waste in November 1982 (USEPA, 1982c). MNDR issued the facility a redesignation of waste in June 1983 (MDNR, 1983a). As a result of the temporary exclusion granted by

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USEPA, the WWTP sludge consolidation area was removed from the Part A Permit Application in September 1982 (it was also noted that the area should be classified as a waste pile [S03]) (GM, 1982c). In April 1986, the USEPA denied the facilities petition to delist wastewater treatment sludge from electroplating operations and indicated that the temporary exclusion would be revoked in May 1986 (USEPA, 1986). Because the electroplating sludge waste was no longer stored in the waste pile, GM did not submit a Part B Permit Application. Additionally, because the waste remained on-site for less than 90 days, GM did not submit a revised Part A Permit Application (GM, 1986g). In 1987, GM notified USEPA that the electroplating process had been removed and the electroplating waste was no longer generated (GM, 1987a).

2.4.4 GMC Warehousing and Distribution Division (USEPA ID No. MID 076331289)

GM submitted a Notification of Hazardous Waste Activity (USEPA Form 8700-12) on August 18, 1980 (GM, 1980d) and a RCRA Part A Permit Application to the USEPA on November 18, 1980 (GM, 1980h). The Notification of Hazardous Waste Activity listed GMC Warehousing and Distribution Division as a hazardous waste generator.

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2.5 Historical and Current Waste Management Practices

This subsection presents a description of historical and current waste management practices.

2.5.1 Historical Waste Management Practices

Between 1926 and 1979, the northern portion of the Site in the vicinity of Plants 25 and 33 was used by GM for placing nonsalvage waste materials related to engine assembly, car assembly, foundry operations, painting and stamping, engine machining, metal plating, and wastewater treatment. In addition to the direct disposal of industrial process material into this fill area, waste was reportedly burned or partially burned at the salvage building incinerator and transported to the fill area for disposal. Waste disposal was also performed in the West Yard Area, and also included filling and burning of various waste products.

The WWTP, which began operations in 1957, has consisted essentially of two separate batch treatment systems. The first is for the treatment of metallic-acidic wastewaters, including hexavalent chromium, paint wastes, and powerhouse boiler blowdown. The second is for the treatment of alkali-oily wastewater. A separate WWTP was also in operation at Fiero from 1973 to 1983. The Fiero WWTP treated paint and bonderite sludge.

Process wastewaters from Plant 56 and Plant 5 were historically generated from the plating and axle manufacturing operations and were transported by overhead piping to the WWTP for treatment prior to discharge to the City of Pontiac publicly owned treatment works (POTW). When the electroplating operations were active, cyanide wastewaters were also treated by the WWTP. In 1987, GM ceased electroplating operations.

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2.5.2 Current Waste Management Practices

Containerized non-hazardous wastes generated throughout the MFD area are transported to a waste storage area located in the western portion of Plant 23. Wastes are accumulated and shipped off site for disposal from this location.

Four satellite hazardous waste storage areas exist on site. The first is located in the ELPO Building, the second is located in the Powertrain Engineering Building, and two are located at Fiero. According to plant personnel, all hazardous wastes are shipped off site within three days of accumulation.

Sanitary and treated process wastewater and noncontact cooling water are discharged into the City of Pontiac sanitary sewer system. Storm water from the roofs of Site structures is directed through roof drains and downspouts to exterior Site surfaces or through underground piping to the storm-water sewer system. Most storm-water runoff from exterior Site surfaces flows into catch basins that discharge to the storm-water sewer system. There are five permitted storm-water outfall points from the Site: four discharge to the City of Pontiac Storm Sewer System, and one discharges to Harris Lake, as shown on Figure 2-1.

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3. Site Setting

This section provides an overview of pertinent information on the regional and local setting of the Site. Section 3.1 provides relevant information regarding land use, Section 3.2 describes basic demographics within a 5-mile radius of the Site, Section 3.3 describes regional climate, Section 3.4 describes regional geologic conditions, Section 3.5 describes regional hydrogeologic conditions, Section 3.6 describes regional hydrologic conditions, Section 3.7 describes the Site geology, Section 3.8 describes the Site hydrogeology, and Section 3.9 describes the Site hydrology.

3.1 Land Use

The Site is zoned for industrial use, and areas surrounding the Site are zoned for a mixture of residential, commercial, and industrial use. Zoning determinations were based on a review of the City of Pontiac zoning map (Figure 3-1). The area south of the Site is occupied by two city parks (Perry Park and Oakland Park). The areas east and west of the Site are occupied by residential neighborhoods. Additionally, there is a residential neighborhood south of the SPO area in the northeast quadrant of the Site (Figure 1-3). The area north of the Site is occupied by a city park (Jaycee Park) and is also zoned for residential and industrial uses.

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3.2 Demographics

Demographic information from the 1990 census indicated that approximately 14,300 people lived within a 1-mile radius of the Site, and approximately 109,800 people lived within a 5-mile radius of the Site (USEPA, 2000). More complete demographics information is presented in Appendix F.

3.3 Climate

Oakland County's weather is generally temperate, with an average winter temperature of 25.3° F and an average summer temperature of 70.2° F. The sun shines 38% of the time during the winter and 67% of the time in the summer. Average seasonal snowfall is 34.6 inches. Average annual precipitation is 29.7 inches with 58% (17.2 inches) occurring between the months of April and September. The average relative humidity for Oakland County is 80% (Feenstra, 1982). The prevailing winds are typically from the northwest in the winter months and the southwest in the summer months.

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3.4 Regional Geology

Information on the regional geologic setting of the Site is based on published information.

East-central Oakland County is characterized by glaciofluvial deposits that are common to Oakland County. The regional overburden material consists of glacial till composed mainly of clay and some sands. Overburden material is regionally underlain by shales of Early Mississippian age.

3.4.1 Overburden

Continental glaciers advanced into this area of Michigan at least twice, once in each of the last two glacial stages of the Illinoian and Wisconsinan glaciers of the Pleistocene epoch. During the Wisconsinan stage, ice sheets of the Huron-Erie glacial lobe advanced from the southeast across the area of the Site. During the advance and retreat of this ice sheet, a series of end moraines (Fort Wayne, Defiance, and Birmingham) and a thick sequence of ground moraine (glacial till) composed of clay, silt, and rock fragments were deposited in this area. As the ice sheet retreated to the southeast, large volumes of meltwater formed glacial Lake Maumee between the Fort Wayne Moraine and the retreating glacier. The ice again advanced, forming the Defiance Moraine, and subsequently retreated, forming glacial Lake Arkona. As the ice advanced yet again from the east, the Birmingham Moraine was formed.

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Pleistocene glaciation deposited glacial drift in a thickness of over 400 feet in parts of Oakland County. The buried bedrock surface is highly irregular. The Site is located in an area that is part of the lake plain of southeastern Michigan, formed by lakes that were ancestral to the present Great Lakes. Dunes, offshore bars, and lake-bottom sands, silts, and clays associated with the lakes are found in Oakland County. Figure 3-2 presents the regional surficial geology.

3.4.2 Bedrock

Oakland County is located along the southeast side of the Michigan Basin, a "bowl-like" feature in which the sedimentary rocks dip inward from all directions toward the center of the Southern Peninsula of Michigan.

The Coldwater Shale, of Early Mississippian age, is the first bedrock formation encountered in the area. The shale is primarily gray to dark gray. Other lithologies within this unit include red fossiliferous or nonfossiliferous shale, carbonate (limestone or dolomite), siltstone, and sandstone. Total thickness of the Coldwater Shale ranges across the Michigan Basin. In the vicinity of the Site, the unit may be up to 1,300 feet thick (Westjohn and Weaver, 1996). Located beneath the Coldwater Shale are sedimentary formations of the Berea Sandstone - Bedford Shale unit. Figure 3-3 presents the regional bedrock geology.

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3.5 Regional Hydrogeology

Regional groundwater flow in both bedrock and glacial overburden appears to be predominantly to the east and south. Groundwater flow in glacial deposits in the Pontiac area is generally eastward towards local stream valleys, primarily the Clinton River (see Figure 3-6).

Groundwater resources in the Clinton River watershed exist in both the glacial drift and bedrock of the area. In the region surrounding the Site, groundwater is encountered in four general water-bearing units, as discussed in the following subsections:

- unconfined water table zone;
- glacial till aquifer(s);
- lower sand and gravel aquifer; and
- bedrock aquifer(s).

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3.5.1 Unconfined Water Table Zone

The upper glacial till of the area contains an unconfined water table that is influenced by seasonal precipitation, local drainage patterns, and topography. The water table is located at a depth of approximately 10 to 30 feet below ground surface (bgs). The unconfined water table zone is not used for water supply purposes. The use of this zone as a potable supply would be generally prohibited by Michigan Department of Public Health regulations (Part 127 of Act 368 [Groundwater Quality Control], 1978) because it is at a depth of less than 25 feet.

3.5.2 Glacial Aquifer(s)

The regional glacial till is quite extensive, both areally and vertically. The glacial till moraines consist of poorly stratified clays, sand, and gravel that are not always continuous with depth. This material does not transmit large quantities of water and as a result, water bearing zones within this unit are not considered significant aquifers. However, in some areas, glacial outwash underlies the moraine material. In the vicinity of the Site, the outwash appears in a more complex, bedded sequence with the moraine. It is within these interbedded layers of outwash that larger quantities of water can be yielded over longer periods of time. Figure 3-4 identifies the Site within the regional aquifer characterization. As illustrated on Figure 3-5, impervious material (e.g., aquitards) may protect the lower, useable aquifers from surface contamination in the general vicinity of the Site (Western Michigan University, 1981).

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3.5.3 Lower Sand and Gravel Aquifer

The regional lower sand and gravel aquifer is glacial outwash that generally consists of beds of well-sorted sand and gravel. This regional aquifer unit underlies the glacial till and the interbedded local outwash aquifers described above. Although the lower sand and gravel aquifer is not widespread throughout southeastern Michigan, it is prevalent throughout the region of the Site where the outwash is in distinct channels. This unit is considered the most important aquifer in the region because it provides storage for large quantities of water that can be used for both residential and industrial supplies.

3.5.4 Bedrock Aquifer(s)

On a regional basis, the Coldwater Shale and Bedford Shale are commonly considered nonproductive aquifers, typically yielding only small amounts of water. However, on a local basis, within parts of the region, the Coldwater Shale contains beds of sandstone. This occasional sandstone layer and the Berea Sandstone (where present) yield enough water for residential use. A more abundant water supply is found at impractical greater depths and with significant increases in mineral content.

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3.6 Regional Hydrology

The Site is located within the Clinton River basin. The Clinton River basin drains an area of approximately 760 square miles, covering almost half of Oakland County and the majority of Macomb County to the east. The location of the Site within the Clinton River basin is shown on Figure 3-6. The Clinton River discharges into Lake St. Clair (approximately 25 miles to the east), which is used as a municipal drinking water supply for the City of Detroit.

Based on a review of the U.S. Geological Survey (USGS) Pontiac North Quadrangle map (USGS, 1983) (Figure 1-1), the nearest surface water bodies are Harris Lake, Terry Lake, and Osmun Lake, which are approximately 600 to 3,200 feet southwest to west of the Site, and the Clinton River, which is approximately 5,200 to 6,000 feet south to southeast of the Site.

Topography in the area of the Site is typically identified by relatively flat lake plain. This is separated from the undulating morainal hills of the northwest by relic beaches, which extend to the northeast.

3.7 Site Geology

Characterization of the overburden deposits at the Site have been limited to a few areas, mainly in the Powertrain and DA portions of the Site. Where information is available, the overburden at the Site is composed of fill materials underlain by sand or clay. These fill materials consist mainly of spent foundry sand that contains a variety

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of debris including slag fragments and steel casings. Intermixed with the foundry sand is gravel, gray clay stringers, clayey fill material, and light brown sand. Fill material is typically encountered to depths of 4 to 14 feet bgs.

The fill material is underlain by either a sand or a clay unit. The sand unit contains lenses of silt or organic-rich peat and marl. The clay unit contains some interbedded sand lenses and silt, generally at depths of more than 14 feet bgs. Pebbles are often also encountered within the clay units. Local water well records indicate that the thickness of the clay unit in the vicinity of the Site ranges from 20 to 80 feet and that the clay is underlain by a sand and gravel unit that is approximately 20 feet thick. Fine-grained (e.g., silt or clay) and coarse-grained (e.g., sand or gravel) units alternate until bedrock is reached, at approximately 320 feet bgs.

3.8 Site Hydrogeology

Site groundwater is typically found at depths ranging from 10 to 20 feet bgs. Groundwater within this unit typically flows west-southwest, toward a series of small lakes (Harris Lake, Terry Lake, and Osmun Lake). Detailed Site-specific hydrogeologic information is restricted to areas of previous investigations, such as the West Yard portion of the DA.

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Groundwater in the area near the Site is not currently used as a municipal water supply source. There are no municipal drinking water supply wells within a 5-mile radius of the Site (USEPA, 2000). The area surrounding the Site is on a municipal water supply from the City of Detroit (MDNR, 1987e). The nearest private well is approximately 5,000 feet from the Site (Superior, 2000).

3.9 Site Hydrology

Surface water drainage in the area surrounding the Site is to the west-southwest, toward a series of small lakes (Harris Lake, Terry Lake, and Osmun Lake) as shown on Figure 1-1. Site drainage is controlled by the paved surfaces and is typically directed to the storm sewer system.

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4. Listing of Previous Investigations

This section provides a listing of the areas of the Site where previous investigations have occurred. It should be noted that all areas of the Site that were previously investigated are identified as an AOI, even if further investigations are not necessary. A detailed discussion of investigations for each AOI, if any, is presented in Section 6.

4.1 Fiero

Various investigations were conducted between 1986 and 1995 at the Fiero facility. These investigations consisted of:

- closure activities and additional subsurface investigation for the Container Storage Area (CSA) (AOI F-3);
- closure activities for the Closed CSA (AOI F-4); and
- closure activities for the Waste Purge Thinner UST and Three Product USTs (AOI F-6).

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4.2 Demolition Area (DA)

Various investigations were conducted between 1971 and the present in the DA. These activities consisted of:

- various soil, groundwater, and light non-aqueous phase liquid (LNAPL) investigations in the West Yard (AOI W-1);
- various soil, chemical, and geotechnical and groundwater investigations in the area of the Former Hazardous Waste Storage Pad (AOI W-2);
- soil investigations related to the Former Plant 8 Flammable Liquids Storage Tank Farm (AOI W-3);
- wipe samples related to the polychlorinated biphenyl (PCB)-stained concrete floor of Plant 8 at Transformer Substation D-1 (AOI W-4);
- closure assessment for the Plant 9 Turbo Tank (Tank 9-1) (AOI W-7);
- various soil and groundwater investigations related to the Former Central Foundry (Plant 6), including closure assessment investigations (AOI W-9);

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- soil and visual investigation related to the Railroad Marshalling Area (AOI W-10); and
- influent and effluent sampling during dumping at the Salvage Yard Sump Drain (AOI W-11).

4.3 Metal Fabrication Division (MFD)

Various investigations were conducted between 1985 and 2000 at MFD. These investigations consisted of:

- soil sampling adjacent to the WWTP (AOI M-1);
- residual material sampling in and around the Former Plating Operations Area (AOI M-2);
- various soil and groundwater investigations related to the Former Track 31 (AOI M-3);
- a soil and groundwater investigation in the vicinity of the Plant 25 Former Gasoline UST and Current Gasoline Aboveground Storage Tank (AST) Location (AOI M-4);
- a soil and groundwater investigation to characterize the material within the Former A-2 Fill Area (AOI M-5);
- analysis of spilled hydraulic fluid for PCBs at the Plant 5 Hydraulic Fluid Spill (AOI M-6); and
- a soil and concrete investigation at Track 26 (AOI M-15).

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4.4 Powertrain

Various investigations were conducted between 1984 and 2000 at Powertrain. These investigations consisted of:

- various soil and groundwater investigations of the Powertrain Former UST Farm (AOI P-1);
- various soil and groundwater investigations of the Powertrain Existing UST Farm (AOI P-2);
- various soil and groundwater investigations of the Former Car Wash UST Farm (AOI P-3);
- various soil investigations of the Former Powertrain Used Oil UST and Utility Line (AOI P-4);
- a soil investigation of the Former Powertrain Stoddard Solvent UST (AOI P-5);

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- a soil and groundwater investigation of the Former Emissions Control Building UST Farm and Stoddard Solvent AST (AOI P-6); and

- various soil and groundwater investigations of the Vacant Lot Former UST (AOI P-8).

4.5 Service Parts Operation (SPO)

The following investigations were conducted from 1991 to 1992 at SPO:

- a soil and groundwater investigation associated with the Former SPO Gasoline UST (AOI S-1); and

- a soil and groundwater investigation associated with the Former SPO Diesel UST (AOI S-2).

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5. Listing of Previous Remedial Actions

This section provides a listing of the areas of the Site where remedial actions have occurred. It should be noted that all areas of the Site where previous remedial activities have occurred are identified as an AOI, even if further remedial activities are not necessary. A detailed discussion of remedial actions for each AOI, if any, is presented in Section 6.

5.1 Fiero

Several remedial actions and tank removal activities were conducted between 1986 and 1996 at Fiero. These activities consisted of:

- removal, transport, and disposal of wastes stored at the CSA (AOI F-3);
- closure and removal of the Closed CSA (AOI F-4);
- removal of the Waste Purge Thinner UST and Three Product USTs (AOI F-6); and
- removal of oily pea gravel, concrete, and debris from the Former Oily Gravel Area (AOI F-13).

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5.2 Demolition Area (DA)

Various remedial actions and tank removals were conducted between 1971 and 1999 in the DA. These activities consisted of:

- removal of LNAPL from wells located in the West Yard (AOI W-1);
- remediation of leaking PCB transformers in the Compressor Building (AOI W-1);
- initiation of closure activities for the Former Hazardous Waste Storage Pad (AOI W-2);
- removal of PCB-containing transformer and 2 to 3 inches of concrete beneath the transformer at Transformer Substation D-1 (AOI W-4);
- removal of the Plant 9 Turbo Tank (Tank 9-1) (UST) (AOI W-7);
- remediation of resin spill in the Former Central Foundry (Plant 6) (AOI W-9);

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- closure of the Former Central Foundry (Plant 6) (AOI W-9); and
- installation of the Railroad Marshalling Area Drainage System (AOI W-10).

5.3 Metal Fabrication Division (MFD)

Various remedial actions and tank removal activities were conducted between 1985 and 1996 at MFD. These activities consisted of:

- excavation of PCB-contaminated soil at the Former Track 31 (AOI M-3);
- removal of a UST and associated contaminated soils and installation of a hydrocarbon recovery system at the Plant 25 Former Gasoline UST and Current Gasoline AST Location (AOI M-4);
- removal of blacktop, concrete, and soil from the Plant 5 Hydraulic Fluid Spill (AOI M-6); and
- removal of soil and concrete potentially affected by the Plant 12 Transformer Oil Spill (AOI M-24).

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5.4 Powertrain

Various remedial actions and tank removal activities were conducted between 1984 and 1999 at Powertrain. These activities consisted of:

- removal of a UST farm and excavation of contaminated soils associated with the Powertrain Former UST Farm (AOI P-1);
- removal of dispensing equipment and excavation of contaminated soils associated with the Powertrain Former UST Farm, at the location of the Powertrain Existing UST Farm (AOI P-2);
- removal of three USTs and excavation of contaminated soils associated with the Former Powertrain Car Wash (AOI P-3);
- removal of a UST and excavation of contaminated soils associated with the Former Powertrain Used Oil UST and Utility Line (AOI P-4);
- removal of a UST and excavation of contaminated soils associated with the Former Powertrain Stoddard Solvent UST (AOI P-5); and

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- installation of recovery wells and removal of the USTs at the Former Emissions Control Building UST Farm and Stoddard Solvent AST (AOI P-6).

5.5 Service Parts Operations (SPO)

Two tank removals have been conducted in the SPO area. The activities consisted of:

- removal of an UST and excavation of contaminated soils associated with the Former SPO Gasoline UST (AOI S-1); and

- removal of an UST and excavation of contaminated soils associated with the Former SPO Diesel UST (AOI S-2).

5.6 Sitewide Storm Sewer System

The storm sewer system has been identified as an AOI due to the presence of PCBs. Remedial activities implemented to date include:

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- cleaning of the storm sewer section that flows to the storm-water retention pond;

- removal of sediment from the storm-water retention pond; and

- upgrading of the storm-water treatment system.

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6. Areas of Interest

This section provides a description and summary of Site AOIs. These AOIs were identified based on a review of available Site records, interviews with Site personnel, Site reconnaissance, historical investigations and remedial actions, the 1986 *Certification Regarding Potential Releases from Solid Waste Management Units* (GM, 1986c), the Fiero PA/VSI Report (PRC, 1992), and knowledge of past or present Site processes. AOIs were identified on the basis of whether a release of hazardous wastes and/or hazardous constituents to the environment had been determined to have occurred (i.e., prior documentation or verbal information) or was likely to have occurred (e.g., oil-saturated flooring or ground covering, staining of floor or ground surfaces coupled with cracks and holes in floor or ground coverings).

This section is organized with respect to the five operational areas that make up the Site, and a sixth area, which is the Site storm sewer system for Outfall 001:

- Fiero;
- Demolition Area (DA);
- Metal Fabrication Division (MFD);
- Powertrain;
- Service Parts Operations (SPO); and
- Site Storm Sewer System (Outfall 001).

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These operational areas are illustrated on Figure 1-3.

A total of 64 AOIs have been identified, including various manufacturing processes and process components, process waste facilities, tanks, known or suspected areas of prior release of hazardous waste or hazardous constituents, waste handling areas, and prior remedial activities. A breakdown of the number and type of AOIs for each area is discussed below. Each AOI is discussed with respect to AOI description, historical and current operations, previous remedial investigations and actions, and current status, such as Further Action or No Further Action. Any AOIs designated as No Further Action either have approved Closures or can be visually inspected with little potential for historic releases to have impacted the surrounding area. Any AOIs not meeting these criteria have subsequently been designated as a Further Action AOI.

6.1 Fiero

There are 14 AOIs located within Fiero. The 14 AOIs in the Fiero area are shown on Figure 6-1 and consist of:

- six waste and/or container storage areas (AOI F-1, AOI F-2, AOI F-3, AOI F-4, AOI F-8, and AOI F-9);
- one former WWTP (AOI F-5);
- two UST or AST locations (AOI F-6 and AOI F-14);

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- one wastewater collection sump system (AOI F-7);
- two fly ash storage silos (AOI F-10 and AOI F-11);
- one coal storage area (AOI F-12); and
- one former debris pile (AOI F-13).

These AOIs are summarized in Table 6-1 and discussed below. A listing of ASTs and USTs for the Fiero area is provided in Table 6-2.

6.1.1 Powerhouse Satellite Accumulation Areas (AOI F-1)

AOI F-1 consists of two satellite accumulation areas identified as SAA1 and SAA2, which are both located in the Powerhouse south of Plant 17. SAA1 was identified as a SWMU (SWMU 1) in the Fiero PA/VSI Report (PRC, 1992); therefore, it is considered an AOI.

SAA2 was not identified as a SWMU in the Fiero PA/VSI Report; however, it has been identified as an AOI due to its proximity to SAA1.

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6.1.1.1 Historical and Current Operations

SAA1 is located in the basement of the Powerhouse and consists of one 55-gallon drum that stores waste paint thinner and is placed directly on the concrete floor. SAA1 has been active since August 1988, when Plant 17 ceased assembly operations.

SAA2 is located in the compressor room of the Powerhouse and consists of approximately fifteen 55-gallon drums that store waste oils. When a drum is filled, it is transferred to Plant 5 for disposal.

There have been no documented releases from either SAA1 or SAA2.

6.1.1.2 Previous Investigations and Remedial Actions

No investigations or remedial actions have been conducted in association with SAA1 or SAA2.

The Fiero PA/VSI Report stated that no known releases had occurred from SWMU 1 (SAA1), and there were no visual indications of past releases (PRC, 1992).

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6.2 Demolition Area (DA)

There are 13 AOIs located within the DA. The 13 AOIs in the DA are shown on Figure 6-2 and consist of:

- a former fill area (AOI W-1);
- a former hazardous waste storage pad (AOI W-2);
- five former UST or AST locations (AOI W-3, AOI W-6, AOI W-5, AOI W-7, and AOI W-8);
- three electrical transformers (AOI W-4, AOI W-12, and AOI W-13);
- the former foundry (AOI W-9);
- the railroad marshalling area (AOI W-10); and
- a sump drain (AOI W-11).

Each of these AOIs for the DA is summarized in Table 6-5 and discussed below. A listing of ASTs and USTs for the DA is provided in Table 6-6.

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6.2.1 West Yard (AOI W-1)

AOI W-1 consists of the West Yard, an area of approximately 20 acres located in the southwest corner of the DA. It is bounded to the south by Montcalm Street, to the west by the Grand Trunk Western Railroad, to the east by the former Foundry (Plant 6) and to the north by the former Plant 9 (demolished in 1995). The West Yard area also includes the former A-1 fill area. The former landfill and a former waste pile were identified as SWMUs by GM in the *Certification of Potential Releases from Solid Waste Management Units* (GM, 1986c); therefore, the West Yard area is considered an AOI.

6.2.1.1 Historical and Current Operations

The entire area of the West Yard was historically used for material management activities related to the automotive manufacturing and support activities and foundry operations at the Site. Disposal activities occurred in the West Yard from the 1940s until 1979 and included foundry sand disposal, refuse disposal, sludge dumping, and trash burning. Soil borings indicate that the foundry sand extends from the surface to a depth of 18 feet bgs. A Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Section 103(c)) Notification was filed by GM in 1981, which indicated that past land use included the disposal of "organics, inorganics, and heavy metals" in this area until 1979 (GM, 1981a). GM also completed the *Certification Regarding Potential Releases from Solid Waste Management Units* in 1986. The CERCLA notification and the *Certification Regarding Potential Releases from Solid Waste Management Units* are presented in Appendix A.

During the 1940s, the Salvage Building was constructed to separate reusable/salvageable materials from unusable wastes. Wastes such as wood and cardboard ash from incineration were disposed in the West Yard.

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The Compressor Building was located on the western boundary of the West Yard, immediately east of the Railroad Marshalling Area. The building contained two transformers, one inside the building and one immediately adjacent to it, that have been historically noted as leaking PCB-containing fluids.

After the complex was reorganized in the 1970s, part of the West Yard came under control of the Former Central Foundry (AOI W-9), while the rest of the West Yard came under control of the automotive manufacturing and support operations (originally the Pontiac Motor Division, later the CPC Division). CPC built and operated the Former Hazardous Waste Storage Pad (AOI W-2) on the western portion of the West Yard, which was used from 1982 through 1988 to support the automotive manufacturing and support services.

The West Yard has soils and groundwater that are known to contain organics and inorganics (i.e., heavy metals) due to disposal of wastes from the foundry, plating and polishing, and automotive assembly operations as reported in the *Certification Regarding Potential Releases from Solid Waste Management Units* (GM, 1986c). Light non-aqueous phase liquids (LNAPL) containing PCBs is also present in the West Yard. The area also contains a closed bermed settling basin (backfilled with sand) used for settling solids from water generated from foundry processes and a Railroad Marshalling Area Drainage System (AOI W-10) where railroad cars were used to load metal scrap for transport.

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6.2.1.2 Previous Investigation and Remedial Actions

In 1996 and 1997, Parsons Engineering Science, Inc. (Parsons) conducted a review of historical field investigations. Parsons also conducted a field investigation in 1997 to further delineate contamination in this portion of the Site. As summarized by Parsons in its *West Yard Investigation Report* (Parsons, 1997b), various monitoring wells, geotechnical borings, test trenches, and soil borings were installed and sampled between 1988 and 1997. Included in the Parsons summary are historical investigations conducted by Dames & Moore and Groundwater Technology, Inc (GTI) with respect to the closure and decommissioning of the Former Hazardous Waste Storage Pad (AOI W-2). The Dames & Moore and GTI investigations are further discussed in Section 6.2.2 (AOI W-2). The Parsons' report is provided in Appendix J. Table 6-7 provides a summary of historical soil and groundwater analytical data with a comparison to current MDEQ Part 201 applicable standards.

The analytical results from the Parsons investigation are summarized below for both soil and groundwater.

Soil

Twenty surface samples were collected and analyzed for Target Compound List (TCL) VOCs, TCL semivolatile organic compounds (SVOCs), total PCBs, and Target Analyte List (TAL) metals. VOCs were detected in surface soil samples collected at the Site. Most VOC detections were below 79 micrograms per kilogram (ug/kg), with the exception of acetone, which was detected at a maximum concentration of 360 ug/kg. SVOCs were detected at a maximum concentration of 110,000 ug/kg. PCBs were detected at a maximum concentration of 3,100 ug/kg.

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Various metals were also detected within the surficial soil samples. Manganese was detected in nine of the surficial soil samples at concentrations above the MDEQ Part 201 Criteria for the Generic Particulate Soil Inhalation Criteria.

Forty-eight subsurface soil samples were collected and analyzed for TCL VOCs, TCL SVOCs, PCBs, and TAL metals. VOCs were detected at a maximum concentration of 150,000 ug/kg. Generally, SVOC detections were below 480,000 ug/kg, although a maximum concentration of 1,100,000 ug/kg was detected for butyl benzyl phthalate, which exceeded the soil saturation (Csat) criteria. PCBs were detected at a maximum concentration of 43,000 ug/kg.

All results were below applicable criteria with the exception of butyl benzyl phthalate, which was detected once at a concentration above the Csat Criteria; PCBs and antimony, which were detected once at a concentration above MDEQ Part 201 Direct Contact Criteria; lead, which was detected at concentrations above the MDEQ Part 201 Direct Contact Criteria in three surficial soil samples; and manganese, which was detected at concentrations above the MDEQ Part 201 Criteria for the Generic Particulate Soil Inhalation Criteria in seven surficial soil samples.

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Groundwater

Groundwater flow in the West Yard is generally to the southwest. The depth to groundwater varies from approximately 5 to 27 feet bgs and is present in the sand and fill zones underlain by a lower permeability clay zone. Groundwater samples were collected and analyzed for VOCs, SVOCs, PCBs, dioxins/furans, and metals. VOCs were detected at a maximum concentration of 310 micrograms per liter (ug/L). SVOC detections were generally below 50 ug/L, although a maximum concentration of 390 ug/L was detected for 2,4-dimethylphenol. PCBs were detected at a maximum concentration of 37 ug/L. Dioxins were detected at a maximum concentration of 0.00117 ug/L TEFs. The only constituents that exceeded applicable Part 201 criteria were vinyl chloride, which was detected once at a concentration above the MDEQ Part 201 Generic Groundwater Contact Criteria; and total PCBs, which were detected twice at concentrations above the MDEQ Part 201 Generic Groundwater Contact Criteria.

In January 1998, CRA initiated a bi-monthly LNAPL Recovery Program and Interim Remedial Measure (IRM). The IRM consisted of bail-down tests, sample collection and LNAPL removal activities from selected wells. Recovered LNAPL was containerized into 55-gallon drums, sealed, labeled, and disposed off site. The bi-monthly activities were conducted until August 1999. Currently, the LNAPL Recovery Program is conducted approximately monthly.

CRA performed an LNAPL investigation in 1999 to further delineate the nature and extent of LNAPL in the West Yard. The LNAPL investigation included the installation of soil borings and monitoring wells, LNAPL monitoring, the collection of soil samples, and the collection of LNAPL samples. The results of the LNAPL investigations are presented in the Draft LNAPL Delineation Report (CRA, 2000c; Appendix J). Figure 6-4 presents new and historical monitoring well locations where the LNAPL measurements were made. Soil and LNAPL analytical results are presented in the Draft LNAPL Delineation Report (CRA, 2000c).

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LNAPL was also observed in the "Montcalm" well, which is located along the southern perimeter of the West Yard. The well is a former production well that is 13 inches in diameter and approximately 190 feet bgs. Investigations of the well performed by CRA determined that the LNAPL did not originate through migration from the surrounding soils in the West Yard (CRA, 2000c, draft). All LNAPL has been removed from the well, and the well is scheduled to be abandoned.

Figure 6-3 presents the estimated limits of LNAPL in the West Yard based on available information in CRA's report. CRA concluded from the investigation that there appear to be at least three sources of LNAPL present at the Site. CRA also concluded that the potential exists for further lateral migration of LNAPL based on the fill materials present at the West Yard.

Internal GM documentation (presented in Appendix J) reported historical issues with respect to leaking transformers in the Compressor Building. Transformer 451, located inside the Compressor Building, was noted as leaking on March 2, 1988, and was remediated daily (i.e., cleaned with solvents) until the leak was sealed on March 7, 1988. Transformer 450, located west of the Compressor Building, was noted as leaking on October 29, 1985, and was remediated daily (method of remediation unknown) until the leak was sealed on November 18, 1985. The transformers have been removed and the compressor building has been decommissioned and demolished. The concrete slab from the Compressor Building remains in place.

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6.2.1.3 Current Status

Based on historical site usage and the data obtained during previous investigations indicating subsurface contamination, including the presence of LNAPL, **FURTHER ACTION** is recommended for AOI W-1.

6.2.2 Former Hazardous Waste Storage Pad (AOI W-2)

AOI W-2 consists of a former hazardous waste storage pad located in the western portion of the West Yard. This area is considered an AOI due to correspondence with the MDNR, as discussed under Section 6.2.2.3.

6.2.2.1 Historical and Current Operations

In 1982, a hazardous waste storage pad was constructed to store RCRA hazardous waste (RCRA Interim Status Unit). The hazardous waste storage pad is located immediately south of the former Salvage Building and west of the former Compressor Building. The pad is an approximate 27,000-square-foot, 8-inch-thick concrete pad with a 4-inch curb. Activities conducted on the pad included waste storage, drum washing, and empty drum storage. The pad was used for the storage of solid and liquid hazardous and non-hazardous wastes (i.e., paint, paint thinner, gasoline, chlorinated solvents, machine wastes, lead chips, and spent halogenated solvents) prior to July 1, 1988, at which time closure activities were initiated by CPC. As reported in the *Certification Regarding Potential*

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Releases from Solid Waste Management Units, a waste pile containing WWTP sludge, machine sludges, and paint sludges occupied the storage pad from 1979 to 1981 (GM, 1986c).

6.2.2.2 Previous Investigations and Remedial Actions

Prior to pad construction, TEC conducted a soil/geotechnical investigation, the results of which are summarized in the report *Soil Investigation for Barrel Storage Area* (TEC, 1982). TEC stated that analytical testing was performed for chemicals and metals, although only select metals were presented in the report and the full analytical list was not provided. Based on the data, TEC concluded the soil could remain in place to allow for the construction of the Hazardous Waste Storage Pad. TEC's report is presented in Appendix K.

Closure plans were subsequently submitted by GM to MDNR in November 1987 (GM, 1987g), February 1988 (GM, 1988a), and May 1988 (GM, 1988c) to allow for the decommissioning of the pad. The MDNR rejected the first two closure plans, and in June 1988 approved the May 1988 plan (MDNR, 1988b). The May 1988 closure plan and MDNR's approval letter are presented in Appendix K. Closure activities conducted by Dames & Moore commenced in July 1988. As part of the decommissioning activities, Dames & Moore conducted two phases of soil sampling as summarized in the *Interim Closure Report - Former Container Storage Area* (Dames & Moore, 1989; Appendix K). It was noted in this report that the pad was heavily cracked and that much of the contamination was found in low-lying areas. All soil and groundwater samples were analyzed for lead, benzene, toluene, xylenes, 1,1,1-trichlorethane, methylene chloride, methyl ethyl ketone and 1-butanol. A summary of the soil and groundwater analytical results is presented in Table 6-8.

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Dames & Moore reported in the *Endangerment Assessment - Former Container Storage Area* (Dames & Moore, 1990; draft) that there was a significant risk associated with the carcinogenic contamination. The estimated worst-case current use exposures and associated potential health risks were identified to be within the USEPA's target risk range.

GTI conducted a soil vapor extraction feasibility study that is summarized in both the *Subsurface Investigation and Soil Vapor Pilot Test - Feasibility Study* (GTI, 1990a) and the *Soil Vapor Pilot Test #2 – Feasibility Study* (GTI, 1990b). GTI installed several monitoring wells and obtained soil samples. Analytical results are summarized in Table 6-8. During a subsequent investigation, as reported in the *RCRA Pad Review - Hazardous Waste Storage Area* (GTI, 1991), it appears that GTI installed two additional monitoring wells, however well logs were not included. In this report, GTI summarizes the ongoing history of the hazardous waste storage pad without making any further discoveries in addition to those outlined previously.

A Parsons Site investigation conducted in 1996 and 1997 (Parsons, 1997b), which included AOI W-2, summarized historical investigations and remedial activities, concluding that it appeared infeasible to remediate the underlying soil and groundwater at the pad to the pad closure criteria. The Parsons investigation further stated:

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The source of compounds in soils and groundwater under the pad most likely was not the activities at the pad, but historical waste management activities in the entire West Yard area associated with automotive manufacturing and support operations... GM agreed to conduct a West Yard area-wide investigation to evaluate the environmental conditions and assess the need for any appropriate corrective actions (Parsons, 1997b).

This conclusion is further supported by groundwater sampling and analysis conducted by Parsons in January 1996, which indicated that the LNAPL sampled from different wells originated from different sources and consisted of different concentrations and combinations of constituents (Parsons, 1997b).

6.2.2.3 Current Status

As outlined in a letter from the MDNR (MDNR, 1991), the former hazardous waste storage area did not meet "clean closure" criteria due to the unknown extent of contamination, and the inability of the proposed vapor extraction process to provide a final remediation. MDNR's letter is provided in Appendix K. GM previously reached an agreement with MDEQ that final closure of the pad would be granted upon implementation of remediation activities pertaining to historical impacts in the West Yard. GM will pursue final approval of the pad closure at an appropriate time. Based on this information, **NO FURTHER ACTION** is recommended for the hazardous waste storage pad.

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6.2.3 Former Plant 8 Flammable Liquid Storage Tank Farm (AOI W-3)

AOI W-3 consists of a former flammable liquid storage tank farm located near the former Plant 8 in the northwestern corner of DA. This area is considered to be an AOI because of the materials historically stored in the former ASTs.

6.2.3.1 Historical and Current Operations

The former flammable liquid storage tank farm (tank farm) was historically used for the storage of flammable liquids, including diesel fuel, line thinner, gasoline, and solvents. The tank farm consisted of two separate areas, a north area and south area, each contained within a 3-foot-high dike. The condition or construction of the floor was not discussed in the available documents. The tank farm contained nine ASTs ranging in capacity from 13,000 to 26,000 gallons. The north section contained five ASTs and the south section contained four ASTs. Table 6-6 provides a summary of the tanks.

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6.2.3.2 Previous Investigations and Remedial Actions

In the *Preliminary Soils Contamination Assessment - Plant 8 Flammable Liquid Tank Farm* completed by Keck Consulting Services (Keck) (Keck, 1984a), it was reported that many minor spills have occurred at the tank farm. The spills occurred during filling of the ASTs, when excess product in fill hoses was routinely drained inside the diked area surrounding the ASTs.

Keck evaluated the extent of fuel-contaminated soils in the *Preliminary Soils Contamination Assessment - Plant 8 Flammable Liquid Tank Farm* (Keck, 1984a) by placing eight soil borings and collecting soil samples for analysis. This assessment indicated that hydrocarbon-contaminated soil (concentrations not reported) was present from ground surface to depths of 8 to 16 ft bgs, where at six locations, a silt/clay layer was encountered. Keck concluded that the contamination had not entered the groundwater system because the clay layer was impeding the downward flow of the contaminants, and there was no evidence of hydrocarbon contamination in the deeper saturated sands of other borings. It was further recommended that the investigation be expanded in order to delineate the lateral extent of contamination outside the tank farm area. The 1984 assessment is included in Appendix L.

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6.2.3.3 Current Status

The former flammable liquids storage tank farm has been decommissioned and demolished. There is no documentation indicating that recommended remedial investigations have taken place in the area of the tank farm nor is there documentation of the tank closure activities. Based on this information and historic information indicating subsurface contamination, **FURTHER ACTION** is recommended for AOI W-3.

6.2.4 Transformer Substation D-1 (AOI W-4)

AOI W-4 consists of transformer substation D-1, which was previously located in the southeast quadrant of the former Plant 8. This area is considered an AOI because of documented PCB transformer oil spills within the substation.

6.2.4.1 Historical and Current Operations

Transformer Substation D-1 was located within Plant 8 until it was removed prior to the demolition of Plant 8 in 1997.

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6.2.4.2 Previous Investigations and Remedial Actions

As part of the demolition of Plant 8, PCB-containing transformers were removed from substation D-1 located within the plant. Following removal of the transformers, staining observed on the concrete floor was cleaned by the contractor who removed the transformers. Wipe samples taken after the spill cleanup indicated residual PCB contamination. Remedial actions were subsequently undertaken by SUNPRO and summarized in the *Final Report-PCB Remediation Substation D-1* (SUNPRO, 1996). The SUNPRO report is provided in Appendix M.

SUNPRO provided environmental remediation services in August 1996 to address residual PCB contamination after transformer decommissioning and removal. SUNPRO removed 2 to 3 inches of concrete from where the transformers were formerly located. Concrete removal was conducted under negative air to suppress dust migration during removal activities. Post remedial wipe sampling indicated compliance with the USEPA PCB cleanup requirement of less than 10 ug/100 cm^2.

6.2.4.3 Current Status

The transformer substation D-1 has been decommissioned and demolished. Cleanup activities relative to the concrete staining were completed in 1996 and met USEPA cleanup requirements. Based on this information, **NO FURTHER ACTION** is recommended for AOI W-4.

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6.2.5 Plant 8 Basement AST Area (AOI W-5)

AOI W-5 consists of ASTs located in the basement of the former Plant 8. The basement AST area of the former Plant 8 is considered an AOI because of the materials (weak metallic wastewater, alkali wastewater, and unknown materials) historically stored in the former ASTs.

6.2.5.1 Historical and Current Operations

Undated CPC documents indicate that the basement of Plant 8 contained 17 ASTs, of which three had a capacity of 680 gallons, seven had a capacity of 7,400 gallons, and seven had a capacity of 11,300 gallons each. The documentation further indicates that 15 of the ASTs were empty, while two of the 7,400-gallon ASTs were used to store weak metallic wastewater and alkali-oily wastewater, respectively. This information is summarized in Table 6-6.

6.2.5.2 Previous Investigations and Remedial Actions

No documentation available.

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6.2.5.3 Current Status

Plant 8 has been decommissioned and was demolished in 1997. There is no current information available on closure of the ASTs; therefore, **FURTHER ACTION** is recommended for AOI W-5.

6.2.6 Former Plant 8 Flammable Materials Storage Building (AOI W-6)

AOI W-6 consists of the former Plant 8 Flammable Materials Storage Building located in the northwestern corner of the DA, west of the Flammable Liquid Tank Farm (AOI W-3). This area is considered an AOI because of the materials (oils and glycols) historically stored in the building.

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6.2.6.1 Historical and Current Operations

Undated documentation provided by CPC indicates that the Flammable Materials Storage Building housed 17 tanks containing oils and glycols, of which nine were 15,000-gallon tanks and eight were 22,000-gallon tanks. A summary of the tanks is presented in Table 6-6. The doors of the storage building were above ground level, causing the storage building to act as a diked area. The railroad and truck unloading areas contained catch basins that were connected to the WWTP.

The area is now vacant land.

6.2.6.2 Previous Investigations and Remedial Actions

No documentation available.

6.2.6.3 Current Status

The flammable materials storage building has been decommissioned and demolished. Portions of the building foundation remain in place. There is no information available on the closure of the tanks prior to demolition; therefore, **FURTHER ACTION** is recommended for AOI W-6.

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6.2.7 Plant 9 Turbo Tank (Tank 9-1) (AOI W-7)

AOI W-7 consists of a turbo tank (Tank 9-1) that was previously located in the area immediately northwest of the former Plant 9. This area is considered an AOI because of the material historically stored in the UST.

6.2.7.1 Historical and Current Operations

Tank 9-1 was a registered UST installed as early as 1983, and was used for storing gasoline. Tank 9-1 is presented on the UST summary presented in Table 6-6. The 550-gallon UST was reportedly removed in June 1991, and was requested to be considered "closed" in an application to the Michigan State Police, Fire Marshal Division, Hazardous Materials Section, in three letters from CPC dated September 11, 1990 (GM, 1990), June 27, 1991 (GM, 1991), and March 6, 1992 (GM, 1992a). These letters are presented in Appendix N.

6.2.7.2 Previous Investigations and Remedial Actions

TEC's *UST Closure Site Assessment* could not be located but was mentioned in the letter from GM dated June 27, 1991 (see Appendix N). The TEC Tank 9-1 site assessment showed no contamination, and was therefore considered closed by CPC Pontiac.

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6.2.7.3 Current Status

Based on the closure activities associated with the UST, **NO FURTHER ACTION** is recommended for AOI W-7.

6.2.8 Former Plant 9 Basement AST Area (AOI W-8)

AOI W-8 consists of 12 ASTs formerly located in the Plant 9 basement. This area is considered an AOI because of the materials (kerosene, coolants, and unknown materials) historically stored in the ASTs. Furthermore, during recent storm sewer cleaning activities, kerosene-like odors were observed in the section of storm sewer near former Plant 9.

6.2.8.1 Historical and Current Operations

According to undated CPC correspondence, the basement of Plant 9 contained 12 ASTs (ASTs 9-2 through 9-13). Of the 12 ASTs, five tanks (four 10,000-gallon, and one 6,400-gallon) previously contained kerosene, three tanks (two 1,4000-gallon and one 2,000-gallon) were empty, and four tanks (all 10,000-gallon) previously contained coolant. Table 6-6 presents a summary of the tanks formerly contained in the basement of Plant 9.

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6.2.8.2 Previous Investigations and Remedial Actions

No documentation available.

6.2.8.3 Current Status

All tanks have been removed and Plant 9 has been decommissioned and demolished. However, there is no documentation on the closure of the ASTs. Kerosene-like odors have also been reported in the storm sewers in this area. As a result, **FURTHER ACTION** is recommended for AOI W-8.

6.2.9 Former Central Foundry (Plant 6) Resin Spill and UST (AOI W-9)

AOI W-9 consists of the former Central Foundry (Plant 6) previously located in the southeast corner of the DA, which was bordered on the south by Montcalm Street, on the west by the West Yard, on the east by Glenwood Avenue, and on the north by Plant 9. The former Central Foundry Building covered approximately 900,000 square feet. This area is considered an AOI because of the historical use of PCBs in the foundry, a resin spill that occurred in the plant, and a former 20,000-gallon tank that was located in this area.

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6.2.9.1 Historical and Current Operations

The foundry was originally built for the Oakland Motor Car Company and was later transferred to Pontiac Motor Division around 1932. Major modifications to the foundry included the installation of a rotary mechanical iron pourer and a new mold line. The foundry produced iron from metallic ore, which was cast into automotive parts, such as cast iron engine blocks and heads. The Pontiac Central Foundry ceased production and closed in May 1987 and was demolished in April 1995. Foundry sand from the plant was used as fill material in the West Yard as discussed in AOI W-1, and was also reportedly disposed off site in at least one former Oakland County Landfill.

6.2.9.2 Previous Investigations and Remedial Actions

On November 17, 1980, GM filed a RCRA Part A permit application for the GM Central Foundry Plant (MID 085470102) (GM, 1980f). The only waste listed on the application was baghouse dust (code D006) from the facility's electric arc melt furnaces. The RCRA Part A permit application and associated correspondence are provided in Appendix D.

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The RCRA Part A permit application was withdrawn on July 12, 1982 on the basis that the baghouse dust was not a hazardous waste under 40 CFR part 261 (GM, 1982b). A March 29, 1983 letter from USEPA acknowledged the withdrawal of the RCRA Part A permit application (USEPA, 1983).

In 1985, a resin spill occurred in Plant 6. The resin storage building was located in the northwest quadrant of the foundry. Within the resin storage building there were two 6,000-gallon tanks located on a steel grilled floor, each positioned over a sump designed to contain spills and overflows. During the summer of 1985, it was discovered that the sumps were leaking resin, and the situation was reported to the MDNR.

Between August and December of 1985, Schleede-Hampton Associates Inc. (SHA) performed a preliminary exploration of the area surrounding the resin storage facility to determine the soil conditions and the extent of resin contamination in the area. SHA concluded that the resin constituents are confined to the area within approximately 20 feet of the resin storage building. Based on the information gathered during this exploration, a work plan for the cleanup was developed. This work plan is presented in the report entitled *Department 671 Resin Storage Facility - Outline for the Design of a Remedial Action Program* (SHA, 1985). This report contains the preliminary exploration information as well as guidelines for further soil sampling exploration. It was approved by the MDNR on February 11, 1987 (MDNR, 1987a).

In a letter to the MDNR dated July 1, 1987, GM noted that the implementation of the 1985 work plan was scheduled to begin on July 6, 1987 (GM, 1987a). The *Department 671 Resin Storage Facility - Site Exploration and Environmental Action Plan* (SHA, 1988) presents the results of the additional investigation. A summary of soil and groundwater samples analyzed during this study are presented in Table 6-9.

The *Results of Final Soil Sampling and Analysis for Clean-Up Verification* report, summarizes the resin remedial activities that took place on site (SHA, 1989). The report is provided in Appendix O. The dates of the cleanup and the specific actions taken are not presented in any of the documentation. The remedial action instituted at the Site was limited to excavation of resin contaminated soils. At a nominal depth of 20 feet below the ground surface verification sampling and analytical testing were completed on a grid pattern. The results verified that no evidence of resin constituents were present in any of the grid positions. On December 11, 1989, the MDNR approved closure of the Department 671 Resin Storage Facility (MDNR, 1989) (see Appendix O).

Several recommendations with respect to areas of concern within the foundry were identified and included the removal, decontamination, and proper disposal of the 20,000-gallon UST on the south side of the facility within nine months after the tank is removed from service.

The *Deactivation Assessment (Final Draft Report)* (O'Brien & Gere [OBG], 1994) mentions that the UST was removed prior to plant shutdown. No other documentation is available for the UST removal. The *Deactivation Assessment (Final Draft Report)* identifies items of environmental concern at the foundry prior to the demolition of equipment and facilities.

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A reconnaissance survey by OBG revealed three distinct basement areas within the foundry: basement area 2, the cleanup room and the foundry basement. Basement area 2 was inaccessible due to an accumulation of 1.25 ft of water on the floor. The water contained dissolved arsenic at a concentration exceeding MDNR Type B Criteria for groundwater.

The cleanup room and the foundry basement held significant accumulation of sediment and dust. Analytical results showed that the concentration of total metals and organics in both areas and the cyanide concentration in the foundry basement exceeded the MDNR Type B Criteria for soil. Leachability tests indicated that the detected metals in both areas do not readily leach. PCBs were present in concentrations above Toxic Substances Control Act (TSCA) regulated levels on stained surfaces in the cleanup room and in soil/dust samples in the foundry basement.

Analysis of the first floor, second floor and penthouse level of the foundry building indicated the presence of asbestos containing materials (ACMs) existing in the form of dust and debris on the first floor. Equipment that may contain PCBs, mercury, oil and/or hydraulic fluid was found on all three levels. Paint chips collected from the first and second floors contain lead concentrations exceeding MDNR Type B Criteria for soil. Soil, sediment, and dust samples collected within the first floor and penthouse level indicate the presence of total metals in concentrations that exceed the MDNR Type B Criteria for soil. Leachability analyses of the paint chips and the soil/sediment/dust indicate that the metals do not readily leach.

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Demolition of the foundry structure was completed in April 1995. No correspondence regarding the decommissioning and demolition activities was available for review.

From May 22 through May 24, 1995, the USEPA performed a PCB soil and/or debris sampling inspection. The *PCB Sampling Report* (Chester, 1996) is presented in Appendix O. At the time of the sampling, the foundry was demolished. The remaining structures included the compressor, salvage, and melt shop buildings and part of the core storage office and East Loading Dock area.

Five soil and/or debris samples were taken at locations throughout the demolition site where PCB's had been identified during a GM-conducted Facility Assessment. Four samples were collected by removing soil and/or debris from the top of concrete slabs. The fifth sample was collected in the Molding area at the soil surface. Two samples were taken from each location and were individually tested by both USEPA and GM. Aroclor 1242 was the only Aroclor detected at the East Loading Dock at a concentration 82 mg/kg and 36 mg/kg from the USEPA and GM, respectively. As stated in the *PCB Sampling Report*, the USEPA informed GM that this was the only area of concern, as it was the only area with a PCB concentration greater than 50 mg/kg (USEPA result) (Chester, 1996).

Prior to demolition, the East Loading Dock area was swept and the debris placed in 55-gallon drums. These drums were sealed, removed from the site, and disposed at an EPA approved landfill. To confirm the cleanliness of the area, the USEPA requested four wipe samples be taken. Five wipe samples were taken from the concrete surface, and analysis showed that the highest PCB concentration was 4.4 ug/wipe. The report concludes at this point and does not suggest any further action is required.

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6.2.9.3 Current Status

The Foundry (Plant 6) has been decommissioned and demolished. Previous remedial activities have addressed the former resin spill and the presence of PCBs. However, documentation does not exist for closure of the 20,000-gallon UST; therefore, **FURTHER ACTION** is recommended.

6.2.10 Railroad Marshalling Area Drainage System (AOI W-10)

AOI W-10 consists of a railroad marshalling area that extends the entire length of the western boundary of the West Yard. This area is considered an AOI because of historical operations.

6.2.10.1 Historical and Current Operations

Historical operations at the Railroad Marshalling Area included the temporary storage of railcars loaded with scrap metal and grinding waste to be shipped off site. Waste from the waste metal chips drained out of the railcars and into the railway ballast/soil immediately beneath the tracks. An oily discharge originating from the railroad area was noted in July 1971 immediately south of the marshalling area in a culvert on school property. The culvert is known to drain into Harris Lake.

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6.2.10.2 Previous Investigations and Remedial Actions

The following information was obtained from a CPC Environmental Evaluation Report dated August 5, 1971 (GM, 1971), and subsequent internal handwritten CPC documents dated as late as February 1972. Available documentation is provided in Appendix P. The superintendent of the Pontiac School District bus garage, Mr. Carl Burnside, reported to CPC that an oily discharge was seen coming from a culvert originating from CPC property. A sample from the culvert was obtained by Ron Grimes of the Oakland County Environmental Health Department and analyzed for coliform, which indicated 214,000 counts, a concentration above Michigan State guidelines. A visual inspection of the area indicated that oil had run off the CPC property from the railroad area, down the roadway, and entered an on-site storm sewer discharging to Harris Lake. The oil in the storm sewer was pumped out, and daily monitoring of the area ensued. The duration and extent of the monitoring activities is not known. An earthen sump existed at the marshalling area that collected the oily runoff, and a pump was installed that directed oily wastewater to the WWTP. Overflow during periods of rain was noted during the months of September and October, and sampling during this period indicated coliform counts remained above guidelines. It is unclear where the samples were obtained. Correspondence could not be located for periods between February and November of 1972.

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As a result of the incident, the railroad marshalling area drainage system was installed by CPC in November 1972. The drainage system was designed to collect the oily discharge dripping out of railcars and to pump the oil to the WWTP.

6.2.10.3 Current Status

The railroad marshalling area is no longer used for the storage of railcars. The railroad marshalling area drainage system remains at the Site. Based on reported oily discharges and historic operations associated with the railroad marshalling area, **FURTHER ACTION** is recommended for AOI W-10.

6.2.11 Salvage Yard Sump Drain (AOI W-11)

AOI W-11 consists of the Salvage Yard sump drain. The location of the sump drain is unclear. The Salvage Building was located on the western boundary of the West Yard, north of the Compressor Building, and immediately east of the rail lines. This area is considered an AOI because of the historical disposal activities that took place at this location.

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6.2.11.1 Historical and Current Operations

The location of the Salvage Yard sump drain is unclear, since it is not directly mentioned in the documentation. It should be noted that there is a sump located immediately adjacent to the Salvage Building, within the hazardous waste storage pad, but it is not known if this is the location where dumping activities took place.

Internal CPC documentation dated September 24, 1985, indicates that 69 barrels with various liquid contents were dumped down the salvage sump during June and July 1985. The documentation indicates that numerous city sewer ordinance limits were breached by CPC. Samples of water were taken from the influent and effluent tanks at the WWTP each day of the dumping. Chloride concentrations exceeded the city limits on each of the eight days of dumping. Total Kjeldahl Nitrogen (TKN) was exceeded on six of the eight days of dumping, and nickel was exceeded on two of the days of dumping.

6.2.11.2 Previous Investigations and Remedial Actions

Samples of water were taken from the influent and effluent tank at the WWTP each day of the dumping. Chloride concentrations exceeded the city limits on each of the eight days of dumping. TKN was exceeded on six of the eight days of dumping, and nickel was exceeded on two of the days of dumping.

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6.2.11.3 Current Status

Information is not available on the condition of the sump drain. Due to the past reported incidents at this location, **FURTHER ACTION** is recommended for AOI W-11.

6.2.12 Catalina Substation (AOI W-12)

AOI W-12 consists of the Catalina Substation located south of Montcalm Street and east of the storm-water retention pond. This area is considered an AOI because there were reported spills of PCB-containing oils with subsequent remedial action implemented.

6.2.12.1 Historical and Current Operations

The substation is owned by GM and leased to Detroit Edison. This power station was used to service the foundry operations.

Access to the substation was restricted during the recent Site walkthrough.

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6.2.12.2 Previous Investigations and Remedial Actions

In response to a release of PCB-containing transformer oils on August 19, 1985, GM initiated a sampling and analysis program for PCB-contaminated soils followed by remedial action (GM, 1986j). These remedial actions involved removal of PCB-contaminated soils. These remedial efforts were approved by the MDNR in a letter dated May 27, 1987 (MDNR, 1987b), and are provided in Appendix R.

6.2.12.3 Current Status

Based on the approved remedial activities, **NO FURTHER ACTION** is recommended for AOI W-12.

6.2.13 Montcalm Substation (AOI W-13)

AOI W-13 consists of the Montcalm Substation, located east of Saginaw Street and north of Montcalm Street. This area is considered an AOI because transformer oil that potentially contained PCBs was used at the substation.

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6.2.13.1 Historical and Current Operations

The Montcalm Substation is located east of Saginaw Street and north of Montcalm Street. This substation was used to service the Site and acted as a backup to the Catalina Substation.

Access to the substation was restricted during the recent Site walkthrough. There have been no documented releases associated with the power substation.

6.2.13.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the substation.

6.2.13.3 Current Status

There is no information available on this area; therefore, **FURTHER ACTION** is recommended for AOI W-13.

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6.3 Metal Fabrication Division (MFD)

There are 25 AOIs located within the MFD portion of the Site. The 25 AOIs in the MFD area consist of:

- one wastewater treatment plant (AOI M-1);
- one former plating area (AOI M-2);
- three former PCB-containing fluid spills (AOI M-3, AOI M-6, and AOI M-24);
- nine UST or AST locations (AOI M-4 and AOI M-7 to AOI M-14);
- one former fill area (AOI M-5);
- two railroad spurs (AOI M-15 and AOI M-19);
- two building sump areas (AOI M-16 and AOI M-25);
- one piping trench (AOI M-17);
- one waste accumulation area (AOI M-18);
- one plant basement (AOI M-20); and
- three electrical substations (AOI M-21 to AOI M-23).

Figure 6-5 shows the locations of the AOIs within the MFD portion of the Site. A summary of the MFD AOIs is presented in Table 6-10. A detailed listing of the ASTs and USTs is presented in Table 6-11.

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6.3.1 Wastewater Treatment Plant Area (AOI M-1)

AOI M-1 consists of the WWTP located west of Plants 5, 14, and 23. Historically, the WWTP has utilized up to 55 ASTs, which were related to the industrial wastewater treatment process (including system influent, system effluent, and materials used during treatment). The WWTP and two waste piles located within the WWTP area were identified as SWMUs by GM in the *Certification of Potential Releases from Solid Waste Management Units* (GM, 1986c). This area is considered an AOI because of the type of materials stored and treated (industrial wastes), a history of documented releases, and it was previously identified as a SWMU.

6.3.1.1 Historical and Current Operations

The WWTP began operation in March 1957. Historically, the area has contained up to 55 ASTs that together have provided wastewater treatment capabilities. Most of the existing ASTs do not have secondary containment systems. The WWTP consists of two separate batch treatment systems, one for metals removal and one for alkali-oily waste removal.

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The ASTs are used to store:

- treated metals, including hexavalent chromium, from paint booths, ELPO, the powerhouse, and assembly;
- treated alkali-oily wastes from engine plants, metal stamping, and parts washers; and
- oil, sludge, sulfuric acid, lime, alum, polymer, caustic, and pickle liquor.

The *Certification of Potential Releases from Solid Waste Management Units* documents various releases in the WWTP area between 1975 and 1984 (GM, 1986c). Potential releases may have included alkali-oily water, cyanide plating solution, acidic alkali water, lime slurry, reclaimed oil, strong metallic water, chrome solution, and cyanide solution. Waste piles located within the WWTP area were used for water treatment sludge (F006), and non-hazardous painting and machining sludge (GM, 1986c).

In 1995 PCBs were detected in reclaimed oil that had been separated from wastewater.

Water from the WWTP discharges to the sanitary sewer on Montcalm Street via Outfall 003 (see Figure 2-1), and ultimately discharges to the City of Pontiac POTW. During the August 2000 site walkover, areas of stained soil were noted around several of the tanks.

6.3.1.2 Previous Investigations and Remedial Actions

The wastewater treatment system receives oily wastewater from the manufacturing and press plants at the Site. This wastewater is treated to remove the oil before being discharged to the City of Pontiac POTW. The recovered oil

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is further processed and sold to buyers. During the bidding process in 1995, samples of the oil were collected and analyzed for various parameters. The lab data indicated the presence of PCBs above the allowable level for sale. Additional sampling was conducted to properly characterize the waste oil. Further sampling indicated levels of PCBs in the WWTP system above the TSCA regulatory limit. The PCB-contaminated oil was subsequently collected and disposed off site in compliance with TSCA regulations.

A preliminary subsurface soil boring program was conducted by CRA in September 1999, with soil samples obtained from four boreholes, and submitted for analysis of VOCs, SVOCs, PCBs, and metals. Results of this program are presented in a memorandum prepared by CRA (CRA, 1999) and provided in Appendix S. In general, PCBs were the only constituents detected.

6.3.1.3 Current Status

Based on the type of materials historically stored and treated, records of previously documented releases, and visual observation of stained soils in the area, **FURTHER ACTION** is recommended for AOI M-1.

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6.3.2 Former Plating Operations Area (AOI M-2)

AOI M-2 consists of a former plating operations area located in the western portion of Plant 2, near Dock 34. This area is considered an AOI because of the type of materials historically used in plating operations (metals, solvents, and acids) and the nature of their use. In addition, the plating pits showed evidence of corrosion during a recent Site walkthrough. This area also has six metal lined mix tanks located below the concrete floor east of the plating pits.

6.3.2.1 Historical and Current Operations

Metal-plating operations were conducted in this area from at least 1964 through 1985. Metal plating operations conducted at the Site included meacher (copper coating) and utilyte (nickel and chrome plating) processes. The plating operations were conducted in metal dip tanks within a concrete sump or bermed concrete area. Metal parts were placed on a rack and dipped in tanks containing either an etching, cleaning, or plating solution. Parts were transferred between tanks by an overhead hoist. Overflow from the tanks was contained in the concrete sumps or bermed areas. Chlorinated solvents were used extensively in the plating area to clean the metal parts prior to plating.

The area consists of several former process plating pits and USTs. During the September 2000 Site walkthrough, signs of corrosion were observed in the plating pits and area truck docks.

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In addition, six metal lined mix tanks associated with the plating operations are located in the plating area north of the railroad track between Plants 2 and 5. These mix tanks are located below the concrete floor. According to Site personnel, solutions were off-loaded from railcars into the mix tanks for use in the plating process.

Two sumps are also located in this area, described as a parts washer sump and a machine sump. Both sumps are part of the Site WWTP system.

There have been no documented releases from the former plating operations area.

6.3.2.2 Previous Investigations and Remedial Actions

A limited investigation of the plating area was completed as part of a building decommissioning assessment (BDA) of Plants 2 and 5. No remedial actions have been conducted in association with the former plating operations area.

On November 23 and 24, 1998, CRA conducted a limited investigation in the area of the plating pits. Samples of various materials were collected: surficial solids and dust, sediment and bulk/staged solids, sludge and oil, water, wood floor blocks, paint, and concrete cores. Samples were collected from trenches/sumps/pits/vaults, drums and containers, surficial material and stains, and concrete flooring.

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Exceedances of cleanup criteria (e.g., toxicity characteristic leaching procedure [TCLP], TSCA, Part 201) were identified in residuals in floor trenches, pits, vaults, sumps, and concrete flooring for the following parameters: arsenic, chromium, copper, lead, cyanide, PCBs, corrosivity, and reactivity.

6.3.2.3 Current Status

During the September 2000 Site walkthrough, signs of corrosion were observed in the plating pits and area truck docks. Sumps were also observed in the plating pits. Roof leaks allow rainwater to accumulate in some of the pits and truck docks. As a result of these observations and the results of sampling conducted as part of the BDA, **FURTHER ACTION** is recommended for AOI M-2.

6.3.3 Former Track 31 (AOI M-3)

AOI M-3 consists of former Track 31, a railroad spur located west of Plant 14 and northwest of the WWTP. This area is considered an AOI because of a documented historical release of PCB-containing hydrocarbons.

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6.3.3.1 Historical and Current Operations

Former Track 31 was used for transporting materials within the facility. The nature of the materials transported on Track 31 is not known at this time. In October 1986, GM personnel reported oil staining on Track 31.

6.3.3.2 Previous Investigations and Remedial Actions

Previous investigations included several soil and groundwater investigations that were conducted between 1986 and 1995. Remedial actions consisted of excavation of PCB-contaminated soil in September and October 1996. Previous investigations and remedial actions are detailed below.

In October 1986, GM personnel reported surficial oil staining on Track 31. According to GM personnel, the source of the release was likely to be a pre-1978 spill of a potentially PCB-containing fluid. Five surface soil samples were collected and analyzed for PCBs. The results indicated the presence of PCBs, predominantly Aroclor 1260 (OBG, 1997).

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Between December 1986 and January 1989, additional soil and groundwater investigations were conducted to evaluate the presence of PCBs and the potential presence of USEPA priority pollutants. Based on these investigations, the vertical and lateral extents of PCB contamination (Aroclors 1260 and 1242) above the MDEQ generic residential direct contact value for PCBs (2.3 mg/kg) were determined. Concentrations of total PCBs in soil ranged from nondetect to 20,100 ppm. The PCB-impacted area extended along Track 31 in a north-south direction (OBG, 1997). Soil samples collected from within the impacted area did not indicate the presence of other priority pollutants above the MDEQ generic residential direct contact criteria values.

In 1988, eight monitoring wells were installed and initially analyzed for PCBs. Two of the wells were originally sampled for the full priority pollutant list. Only bis(2-ethylhexyl)phthalate was present above MDEQ health-based drinking water criteria. This was determined to be laboratory contamination, not indicative of Site conditions. Trace concentrations of PCBs were detected below regulatory criteria at three of the monitoring wells. PCBs were not detected in filtered groundwater samples from these wells. The monitoring wells were sampled quarterly for PCBs from November 1988 to April 1993. With the exception of trace levels of PCBs (below regulatory criteria) in three of the wells during the initial sampling event, PCBs were not detected in groundwater. Based on the groundwater sampling results and the absence of current and foreseeable use of the groundwater, groundwater was not considered a media of potential concern.

GM submitted a Remedial Action Plan (RAP) for Part 201 industrial/restricted access closure on July 23, 1996 (GM, 1996a). On September 26, 1996, MDEQ approved the RAP with modifications as an interim measure (MDEQ, 1996).

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In September 1996 and October 1996 soils and rail materials were excavated from the Track 31 area. A total of 3,609 tons of debris (soils and rail line) were transferred to specially lined railcars on Track 35 (to the west). Laidlaw/USPCI assumed transportation responsibility for the railcars, and the PCB-contaminated debris was taken to the TSCA permitted Grassy Mountain Facility in Lakepoint, Utah, for disposal.

The RAP completion report was submitted to the MDEQ in January 1997 (OBG, 1997) and is provided in Appendix S.

6.3.3.3 Current Status

The Former Track 31 and surrounding PCB-contaminated soils were excavated in 1996. Track 31 was removed during remedial activities in 1996 and has not been replaced. The area is currently covered with soil. Based on the successful soil remediation completed in 1996, **NO FURTHER ACTION** is recommended for AOI M-3.

6.3.4 Plant 25 Former Gasoline UST and Current Gasoline AST Location (AOI M-4)

AOI M-4 consists of two tanks (one UST and one AST) adjacent to Plant 25 (formerly Plant 51) located in the northwest corner of the MFD portion of the Site. This area is considered an AOI because of a prior documented release from the former UST.

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6.3.4.1 Historical and Current Operations

Plants 25 and 33 housed engine machining and assembly operations. Material storage and shipping associated with these operations were also conducted in these plants.

The former 20,000-gallon UST was located north of Plant 25 and stored leaded gasoline. The UST was removed in 1985.

The 1,000-gallon AST is located north of Plant 25 and contains gasoline. The AST is surrounded with a secondary containment basin that has a blind sump.

6.3.4.2 Previous Investigations and Remedial Actions

Previous investigations included an investigation of the soils and groundwater in the vicinity of the UST in March 1985. Remedial actions included removal of the UST and excavation of contaminated soils associated with the UST as well as installation of a hydrocarbon recovery system in 1985, as detailed below. There have been no previous investigations or remedial actions associated with the AST.

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On March 2, 1985, GM reported a release of an unknown amount of gasoline to the MDNR, the local fire department, and the U.S. Coast Guard (USCG) due to the discovery of gasoline in a sewer near the former UST.

GM rapidly responded to the release, as documented in a letter to the USCG (GM, 1985a). Upon discovery of gasoline in the sewer, emulsifier (Slix) was added to the liquid in the sewer to raise the flash point. The sewer was subsequently plugged to prevent additional gasoline from being transferred to the WWTP. To stop the release of gasoline, the UST was pumped dry. No records are available indicating the volume of gasoline pumped from the UST. A skimmer was installed in the sewer manhole to remove gasoline from the sewer.

The UST and associated piping were subsequently removed from the ground and disposed of. A total of 1,100 cubic yards of contaminated soil were removed from the area surrounding the tank. This soil was characterized and disposed of at an off-site landfill. Approximately 2,000 gallons of gasoline were recovered from the excavation.

In March 1985, O.H. Materials (OHM) installed five soil borings to assess gasoline impacts to upgradient and downgradient locations. Three 2-inch-diameter monitoring wells were installed in the vicinity of the UST to monitor for the presence of dissolved phase hydrocarbons. One of these monitoring wells was covered over when a new concrete pad was installed in the area. Results from the two remaining monitoring wells indicated the presence of acrylonitrile, benzene, ethylbenzene, 1,2-dichloroethane, toluene, and total xylenes. Details of the analytical program's actual laboratory analytical results are not available.

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A large-diameter well and hydrocarbon recovery system were installed by OHM. The recovery system consisted of a two-pump set up with a clarifier for the discharged water. Approximately 500 gallons of product were recovered by means of this recovery system. The system was replaced in mid-1985 by MPC Environmental (MPC) with a similar two-pump system. The recovery system was removed from the well for the winter in December 1985 and reinstalled in April 1986. There was no measurable product in the well when the recovery system was reinstalled.

A summary of the UST removal activities and subsequent investigations and remedial actions was presented in the *Groundwater Remediation Summary Report*, submitted to the MDNR in February 1987 (MPC, 1987). Based on decreasing dissolved hydrocarbon concentrations and no recoverable amounts of gasoline in the recovery well, MDNR approved termination of the cleanup program (with monthly monitoring requirements through December 1987) in August 1987 (MDNR, 1987d).

6.3.4.3 Current Status

There have been no documented releases from the existing AST, which is located within a secondary containment system. Remediation of the gasoline spill from the former UST was completed in August 1987. However, the limited available analytical data show that in 1991 benzene still exceeded Part 201 criteria (Table 6-13). Based on

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this information, **FURTHER ACTION** is recommended for AOI M-4 to verify the previous remedial action and to determine actual groundwater quality condition.

6.3.5 Former A-2 Fill Area (AOI M-5)

AOI M-5 consists of the former A-2 fill area, which covers approximately 10 acres under Plants 25 and 33 (previously Plants 51 and 55), the east parking lot area in the MFD area, and under the SPO Building (Plant 75). The former landfill was identified as a SWMU by GM in the *Certification of Potential Releases from Solid Waste Management Units* (GM, 1986c). This area is considered an AOI because of previous fill activities and it was also previously identified as a SWMU.

6.3.5.1 Historical and Current Operations

The former A-2 fill area occupies a previously low-lying area of the Site. The A-2 fill area was reportedly used between 1926 and 1979 for placement of non-salvage waste materials related to engine assembly, car assembly, foundry operations, painting and stamping, engine machining, metal plating, and wastewater treatment. In addition to the direct disposal of industrial process material into the A-2 fill area, waste was reportedly burned or partially burned at other on-site locations and transported to the A-2 fill area for disposal.

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The area is currently occupied by the western portion of Plant 75, all of Plant 33, a portion of Plant 24, and the parking area between Plants 33 and 75 (see Figure 6-5).

6.3.5.2 Previous Investigations and Remedial Actions

Previous investigations include a soil and groundwater investigation to characterize the material within the former A-2 fill area in December 1999. No remedial actions have been conducted in association with the former A-2 fill area.

During December 1999, CRA installed seven soil borings and two monitoring wells within the estimated limits of the former A-2 fill area. In most of the borehole locations, the underlying fill material consisted of sand and clay. However, at two of the borehole locations in the parking lot area between Plants 25 and 33 and Plant 75, foundry sand and slag were encountered. Although a number of chemical compounds were detected in the fill material, the concentrations were below the identified Part 201 Generic Industrial Cleanup Criteria (Direct Contact and Volatilization to Indoor Air Inhalation). Similarly, a number of chemical compounds were detected in groundwater underlying the fill unit. However, only bis(2-ethylhexyl)phthalate exceeded Part 201 Generic Industrial Cleanup Criteria (Groundwater Direct Contact) at one monitoring well. A summary of the investigation activities and results is presented in the *Site Investigation Report* (CRA, 2000c) which is provided in Appendix T. A summary of soil and groundwater analytical results is presented in Table 6-14.

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6.3.5.3 Current Status

CRA concluded in their *Site Investigation Report* (CRA, 2000c) that the fill materials in the former A-2 fill area have not significantly impacted groundwater quality with the exception of one questionable detection of bis(2-ethylhexyl)phthalate in groundwater. However, dioxin sampling of soil and groundwater was not part of this investigation. Therefore, **FURTHER ACTION** is recommended for AOI M-5.

6.3.6 Plant 5 Hydraulic Fluid Spill (AOI M-6)

AOI M-6 consists of an area adjacent to Plant 5, where PCB-containing fluid was spilled. The area near loading dock 35 is considered to be an AOI because of a spill of PCB-containing hydraulic fluid in September 1992.

6.3.6.1 Historical and Current Operations

Plant 5, built in 1927, was one of the first buildings constructed at the Site. Plant 5 was used for the storage and final shipping of automobiles from 1927 through at least 1950. Plant 5 contained metal working operations from at least the early 1960s through approximately 1985, including the manufacturing of ring and pinions for rear axles. From 1985 through 1990, Plant 5 was used for the storage of automobiles and the long-term storage of miscellaneous equipment. In 1994, a waste accumulation operation was relocated from another part of the Site to the west end of Plant 5.

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At the time of the hydraulic fluid spill in September 1995, CPC Headquarters Tooling Procurement leased space from GM to operate an investment recovery operation. This investment recovery operation received shipments of equipment and materials transferred from other GM plants. A spill of PCB-containing hydraulic fluid occurred on September 3, 1992, during unloading of a hydraulic press transferred from another GM plant.

6.3.6.2 Previous Investigations and Remedial Actions

Previous investigations consisted of analyzing spilled hydraulic fluid to determine if it contained PCBs. Remedial actions included removal of blacktop, concrete, and soil from the hydraulic soil spill area.

On September 3, 1992 a hydraulic press was unloaded from a flatbed trailer in the rear of Plant 5. During unloading, the press was tipped on its side and hydraulic fluid was spilled onto the blacktop. The facility hazardous materials team contained the spill with absorbent and collected a sample of the spilled material. Results of the analysis conducted at the GM on-site laboratory indicated the presence of Aroclor 1254. Additional samples were

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collected and sent to National Environmental Testing (NET) for verification. These results also indicated the presence of Aroclor 1254. A copy of the analytical results are presented in Appendix U.

Based on the analytical results, GM decided to excavate the spill area plus a 1-foot buffer zone. The excavation was completed on September 18, 1992. No information was available that disclosed the actual size or depth of the excavation. The excavated blacktop, concrete, and soil were placed in two 20-cubic-yard roll-off boxes. Samples of the excavated material were submitted for TCLP analysis. Based on the results of the TCLP analysis, the excavated material was identified as a non-hazardous/non-TSCA waste.

6.3.6.3 Current Status

Material exposed to the PCB-containing hydraulic fluid was excavated in 1992. No visible staining was observed in the area during a recent Site walkthrough. As a result, **NO FURTHER ACTION** is recommended for AOI M-6.

6.3.7 ELPO Building (AOI M-7)

AOI M-7 consists of the ELPO Building, which includes the ELPO operation and flammable liquids storage areas. The ELPO operation is located east of Plants 5 and 8 and southwest of Plant 18. The current flammable liquids storage area and paint mix room are located in the southern part of the ELPO building. The ELPO building is considered an AOI because of the materials (solvents, flammable material) stored and processed in that area. In addition, numerous spills in the interior of the ELPO process area are evident, and staining was observed on the outside wall of the ELPO Building during the September 2000 Site walkthrough.

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The Flammable Liquids Storage Building (formerly called Plant 8 Paint Storage) is located south of the ELPO building. This building stores pails, drums, and totes containing various oils and corrosive materials.

The paint mix room is located south of the Flammable Liquids Storage Building within the ELPO building. The paint mix room contains multiple solvent process tanks, paint containers, paint storage cabinets, and the satellite hazardous waste storage area.

6.3.7.1 Historical and Current Operations

The purge thinner tank area is located at the south end of the ELPO building. The two ASTs stored dirty solvent from the Paint Booth and Paint Mix Room. The combined capacity of the ASTs is approximately 7,000 gallons. The ASTs have a welded, steel-plate secondary containment system. Plant 8 was shutdown in 1987. As a result, in March 1988 the ASTs and associated piping were emptied and cleaned. Additionally, the piping was disconnected in March 1988. The tanks are still located within the ELPO building.

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Fifteen ASTs with secondary containment are housed within the ELPO Building. The ASTs contain alkali cleaner (two ASTs), phosphoric acid (two ASTs), chromic acid (one AST), paint (three ASTs), paint bath (one AST), water and conditioner (one AST), water and permeate (one AST), and water (four ASTs). Numerous process tanks used in ELPO operations are also housed within this building. The ELPO building also contains a number of electric transformers that, at one time, may have utilized PCB-containing hydrocarbons. During the August 2000 site walkover, portions of the concrete floor appeared to be significantly corroded. Additionally, the outside east wall at the south end of the building was stained black, suggesting material may have leaked from an inside tank. No evidence of stained soil was observed at this location.

6.3.7.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions conducted in connection with the ELPO building.

6.3.7.3 Current Status

The purge thinner ASTs were emptied and cleaned in March 1988 and are no longer in use. Other ASTs and process tanks in the ELPO building are still in use. Current processes utilize tanks and vats that have the potential for leakage. During the September 2000 Site walkthrough, evidence of previous releases, including staining of walls and floors, was observed. Based on this information, **FURTHER ACTION** is recommended for AOI M-7.

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6.3.8 Plant 25 Oil Storage Area (AOI M-8)

AOI M-8 consists of an oil storage building located to the west of Plant 25. Six ASTs are located within the oil storage building. One AST is located outside the oil storage building to the south. This area is considered an AOI because of the various petroleum-based materials stored in the ASTs.

The oil storage building contains five 15,000-gallon ASTs and one 20,000-gallon AST. The 15,000-gallon ASTs are used to store soluble oil (one tank), hydraulic oil (one tank), semi-synthetic grinding oil (one tank), engine oil (one tank), and lubrication oil (one tank). The 20,000-gallon AST is empty. The ASTs do not have individual secondary containment, but the entire building is surrounded by a diked containment system that drains to the WWTP via the Plant 25 basement sump area.

6.3.8.1 Historical and Current Uses

Plants 25 and 33 housed engine machining and assembly operations. Material storage and shipping associated with these operations were also conducted in these plants. The oil storage building was used to house ASTs containing various types of oil, as detailed below.

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A paint booth is located in the building, south of the ASTs. A diesel AST is located just outside the oil storage building on the south end.

There have been no documented releases from either the oil storage ASTs or the diesel AST.

6.3.8.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the oil storage ASTs or the diesel AST.

6.3.8.3 Current Status

Six oil ASTs and one diesel AST were observed during a recent Site walkthrough. The concrete containment inside and outside the building appeared to be in good condition with no evidence of releases. There have been no documented releases from any of the ASTs in this area. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-8.

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6.3.9 Plant 11 Heat Treat Oil Storage Area (AOI M-9)

AOI M-9 consists of four ASTs located near the eastern wall of Plant 11, contained inside a floor pit with a sump that discharges to the WWTP. This area is considered an AOI because of the type and quantity of oils and coolant materials historically stored in the ASTs. In addition, evidence of staining was observed on the outside of the eastern wall of Plant 11 during a recent Site walkthrough.

6.3.9.1 Historical and Current Operations

Plant 11 was historically used for heat treating operations. During that time, the two ASTs (8,000-gallon and 8,400-gallon capacities) stored dirty heat treat quench oil. Additionally, two ASTs (5,600-gallon and 8,000-gallon capacities) stored LC-7 coolant. Former plant drawings indicate that acidic material may have also been stored in this area. Currently, the Plant 11 area is used for repair operations and maintenance activities. Three of the four ASTs have been washed, rinsed, and sit empty. One AST stores used oil that is periodically pumped and hauled off site.

There have been no documented releases from the oil storage area.

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6.3.9.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the oil storage area.

6.3.9.3 Current Status

During a recent Site walkthrough, only one AST was in use. The contents were labeled as used oil, non-RCRA regulated. The floor pit and sump had a moderate amount of oily liquid in them. The outside of the eastern Plant 11 wall was stained an oily color, suggesting that oil may have seeped out. Based on this information, **FURTHER ACTION** is recommended for AOI M-9.

6.3.10 Plant 23 Basement AST Area (AOI M-10)

AOI M-10 consists of three ASTs located in the basement of Plant 23. This area is considered an AOI because of the type and quantity of materials (synthetic coolant) stored in the former ASTs.

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6.3.10.1 Historical and Current Operations

Pressed metal operations and maintenance activities have historically been conducted in Plants 5 and 23. Three 12,500-gallon ASTs are located in the basement of Plant 23. The ASTs previously contained 593-KC synthetic coolant. Plant personnel confirmed that the ASTs are empty and no longer used. The tanks have a below-grade containment system and a sump that discharges to the WWTP. No documented releases have occurred in the Plant 23 basement AST area.

6.3.10.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the Plant 23 basement AST Area.

6.3.10.3 Current Status

During a recent Site walkthrough, the ASTs were observed to be intact and no evidence of staining was observed. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-10.

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6.3.11 Plant 12 Former Gasoline Storage Area (AOI M-11)

AOI M-11 consists of a former gasoline storage area located outside, near the northeast corner of Plant 12. This area is considered an AOI because of the type and quantity of the materials (gasoline) stored in the area.

6.3.11.1 Historical and Current Operations

Plant 12 was originally constructed in 1951, with 170,000 square feet of floor space. Major expansions to the east and the west occurred in 1953, increasing the total floor space to 366,000 square feet. From the 1950s through the early 1990s, Plant 12 was used for the final storage and shipping of new automobiles. These automobiles were stored in Plant 12 and loaded on railcars for shipment off site. The eastern portion of Plant 12 was also historically used for maintenance and testing of company-owned vehicles. This area was referred to as the reliability garage, and contained a car wash area, a paint booth, and numerous automobile hoists. During the 1990s, Plant 12 was used for a variety of small non-production operations, including a small tin shop, welding shop, machine shop, training center, fire station, and exercise gym.

Records indicate that one 480-gallon unleaded gasoline AST was located within the Plant 12 former gasoline storage area. The AST rested atop a concrete slab, which is present along the entire north side of Plant 12. The AST had a secondary containment system that included a sump leading to the WWTP. There were no documented releases from the AST.

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Currently, the building is empty and scheduled for future demolition.

6.3.11.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the Plant 12 former gasoline storage area.

6.3.11.3 Current Status

There were no documented releases from the former AST. According to Site personnel, the AST was emptied and removed from the Site. Cracks were observed in the concrete slab along the north wall of Plant 12 during a recent Site walkthrough, but no signs of leakage or stains were observed. However, there is no documentation available on the AST closure; therefore, **FURTHER ACTION** is recommended for AOI M-11.

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6.3.12 AST East of Plant 49 (AOI M-12)

AOI M-12 consists of an AST located east of Plant 49 at the water storage building. Historically, the AST has contained both fuel oil and diesel fuel. This area is considered an AOI because of the type and quantity of materials (petroleum-based products) stored in the AST.

6.3.12.1 Historical and Current Operations

Plant 49 housed pressed metal operations and was used for storage and shipping activities. Additionally, a truck repair shop was previously located in the northeast corner of Plant 49.

The 550-gallon AST is currently contained in a secondary containment basin that has a blind sump. There have been no documented releases for this AST.

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6.3.12.2 Previous Investigation and Remedial Actions

There have been no previous investigations or remedial actions associated with the AST.

6.3.12.3 Current Status

During a recent Site walkthrough, the concrete containment basin and sump were in good condition and there was no evidence of spills. There have been no documented releases for this AST. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-12.

6.3.13 ASTs Area West of Plant 14 (AOI M-13)

AOI M-13 consists of three ASTs located west of Plant 14. This area is considered an AOI because of the type and quantity of materials (diesel fuel and gasoline) stored in the ASTs.

6.3.13.1 Historical and Current Operations

Plant 14 was built in 1951 for pressed metal operations. A former 480-gallon AST was located west of Plant 14. The AST stored diesel fuel and had a secondary containment system.

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During the September 2000 Site walkthrough, two small fuel tanks were also observed outside the west end of Plant 14. One of the ASTs contained gasoline and had a secondary containment system. The other AST was empty and was not contained. Plant personnel stated that these ASTs are owned by a GM contractor, not by GM.

There have been no documented releases related to the former 480-gallon diesel fuel AST or the two existing ASTs.

6.3.13.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the current or former ASTs in this area.

6.3.13.3 Current Status

There have been no documented releases related to the ASTs in this area. However, secondary containment was not present for one AST and there is no closure information on the former AST; therefore, **FURTHER ACTION** is recommended for AOI M-13.

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6.3.14 Current AST Area East of Plant 12 (AOI M-14)

AOI M-14 consists of an AST area located east of Plant 12. This area is considered an AOI because of the gasoline and diesel fuel stored in the ASTs. A summary of ASTs located in this area is presented in Table 6-11.

6.3.14.1 Historical and Current Uses

Plant 12 was originally constructed in 1951, with 170,000 square feet of floor space. Major expansions to the east and the west occurred in 1953, increasing the total floor space to 366,000 square feet. From the 1950s through the early 1990s, Plant 12 was used for the final storage and shipping of new automobiles. These automobiles were stored in Plant 12 and loaded on railcars for shipment off site. The eastern portion of Plant 12 was also historically used for maintenance and testing of company-owned vehicles. At a later date, this area was referred to as the reliability garage, and contained a car wash area, a paint booth, and numerous automobile hoists. During the 1990s, Plant 12 was used for a variety of small non-production operations, including a small tin shop, welding shop, machine shop, training center, fire station, and exercise gym. Currently, Plant 12 is vacant and scheduled for future demolition.

The AST area contains two 1000-gallon ASTs (one gasoline, one diesel) and associated dispensing equipment that were installed in 1999. The ASTs are constructed of double-lined steel and have secondary containment systems

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that drain to a closed blind-sump. Water in the sump is periodically pumped and hauled off site. There have been no documented releases associated with these ASTs.

6.3.14.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with this AST area.

6.3.14.3 Current Status

Both ASTs have secondary containment systems that were observed to be in good condition during a recent Site walkthrough. There have been no documented releases associated with these ASTs. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-14.

6.3.15 Track 26 (AOI M-15)

AOI M-15 consists of Track 26, a railroad spur that originates from the main railroad line and extends between Plant 2 and Plant 14. Track 26 is considered an AOI due to the types of materials that were potentially transported on the railway and historical investigation showing the possible presence of PCBs. In addition, soil is exposed directly beneath the railway.

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6.3.15.1 Historical and Current Operations

Track 26 is used to transport materials for operations in Plant 14 (pressed metal), Plant 49 (storage, shipping, and pressed metal), Plant 2 (metal plating), and Plant 11 (heat treating).

6.3.15.2 Previous Investigations and Remedial Actions

Previous investigations of the Track 26 area indicated the potential presence of elevated concentrations of PCBs on concrete and soil (CRA, 1998a). There are PCB analytical results referencing *Program E & Track 26 Cement Piles* but no other literature or reports about these investigations are available at this time. CRA conducted a concrete and soil investigation on March 5 and 6, 1998. Four concrete core samples and 21 soil samples were collected. All of the samples were analyzed for the presence of PCBs and three soil samples were additionally analyzed for the presence of VOCs, SVOCs, and metals. PCBs were not detected in the four concrete core samples with the exception of one core sample, where Aroclor-1260 was detected at a concentration of 450 ug/kg. No PCBs were detected above the Michigan Industrial Direct Contact Criteria for soil. Of the 21 soils samples analyzed, only two soil samples had detections of Aroclor-1260 (9,100 and 2,400 ug/kg). VOCs and SVOCs were not detected

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above Michigan Generic Residential or Industrial Direct Contact Criteria for soil. Arsenic and beryllium were the only metals detected above Michigan Generic Residential Drinking Water Protection Criteria for soil, but below the Michigan Industrial Direct Contact Criteria for soil (CRA, 1998a). A summary of soil analytical results is presented in Table 6-15. The results are provided in Appendix U.

During the August 2000 site walkover, there were no areas of observed staining or other indications of releases.

6.3.15.3 Current Status

Based on results of previous investigations, **NO FURTHER ACTION** is required for AOI M-15.

6.3.16 Plant 25 Basement Sump Area (AOI M-16)

AOI M-16 consists of the basement area of Plant 25, which contains a sludge tank, pumping system, and several floor sumps. This area is considered an AOI because oily liquid was observed in several of the floor sumps during a recent Site walkthrough, and the condition of the sumps is unknown.

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6.3.16.1 Historical and Current Operations

Plants 25 and 33 housed engine machining and assembly operations. Material storage and shipping associated with these operations were also conducted in these plants.

The Plant 25 basement sump area contains a sludge tank, a pumping system, multiple floor sumps, and three former process pits. The three process pits have recently been filled with a flowable material. During a recent Site walkthrough, oily liquid was observed in several of the floor sumps. Some of the liquid was overflowing onto the basement floor. According to Site personnel, the basement continually collects water. The source of this water may be groundwater seeping through the basement walls. There have been no documented releases associated with the basement sump area.

6.3.16.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the basement sump area.

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6.3.16.3 Current Status

During a recent Site walkthrough, oily liquid was observed in several of the floor sumps and overflowing onto the basement floor. Based on this information, **FURTHER ACTION** is recommended for AOI M-16.

6.3.17 Plant 15 Southern Piping Trench (AOI M-17)

AOI M-17 consists of a piping trench located along the southern wall in the western portion of Plant 15. The trench contains pipes that distribute wastewater below grade to the WWTP. This area is considered an AOI because of the type of material transported and the unknown condition of the trench.

6.3.17.1 Historical and Current Operations

Plant 15 has historically housed pressed metal operations. The piping trench is a pit containing wastewater piping that leads to the WWTP. The trench is approximately 10 to 15 feet deep and is designated as a permit-required confined space. There have been no documented releases associated with the piping trench.

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6.3.17.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the piping trench.

6.3.17.3 Current Status

Although there have been no documented releases associated with the piping trench, the interior of the piping trench could not be observed during the recent Site walkthrough. Based on this information, **FURTHER ACTION** is recommended for AOI M-17.

6.3.18 Plant 5 Waste Accumulation Area (AOI M-18)

AOI M-18 consists of a waste accumulation area located in the west end of Plant 5. This area is considered an AOI because this area is used to accumulate and store various waste materials.

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6.3.18.1 Historical and Current Operations

Plant 5, built in 1927, was one of the first buildings constructed at the Site. Plant 5 was used for the storage and final shipping of automobiles from 1927 through at least 1950. Plant 5 contained metal working operations from at least the early 1960s through approximately 1985, including the manufacturing of ring and pinions for rear axles. From 1985 through 1990, Plant 5 was used for the storage of automobiles and the long-term storage of miscellaneous equipment. In 1994, a waste accumulation operation was relocated from another part of the Site to the west end of Plant 5.

The waste accumulation area occupies approximately 13,000 square feet in the west end of Plant 5, and is separated from the remainder of the building by its location and a small guardrail. The wastes are accumulated from various processes throughout the Site and stored in 55-gallon drums or on pallets, as appropriate. Empty containers are also stored in this area. There is no secondary containment system for the waste accumulation area. Wastes are accumulated in this area and sent off site for disposal. Wastes stored and labeled included PCB light ballast, and non-RCRA wastes (labeled). Numerous 55-gallon drums containing various materials were observed in the waste accumulation area during a recent Site walkthrough (CRA, 2000f, draft).

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6.3.18.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the waste accumulation area.

6.3.18.3 Current Status

No evidence of spills or leaks was observed in the area. The materials stored in this area are non-hazardous. Based on this information and the type and quantity of materials stored in this area, **NO FURTHER ACTION** is recommended for AOI M-18.

6.3.19 Plant 5 Southern Access Railway (AOI M-19)

AOI M-19 consists of an access railway located at the southwestern end of Plant 5. The access railway area is considered an AOI due to the types of materials that were potentially transported on the railway. In addition, soil is exposed directly beneath the railway.

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6.3.19.1 Historical and Current Operations

Plant 5, built in 1927, was one of the first buildings constructed at the Site. Plant 5 was used for the storage and final shipping of automobiles from 1927 through at least 1950. Plant 5 contained metal working operations from at least the early 1960s through approximately 1985, including the manufacturing of ring and pinions for rear axles. From 1985 through 1990, Plant 5 was used for the storage of automobiles and the long-term storage of miscellaneous equipment. In 1994, a waste accumulation operation was relocated from another part of the Site to the west end of Plant 5.

The access railway is located at the southwestern end of Plant 5. The railway is approximately 600 feet long and spans the western half of the building along the southern side. The railway was used to transport materials into and out of Plant 5. The railway was used for shipping materials associated with metal working and automotive assembly operations. Soil is exposed directly underneath the railway tracks. There have been no documented releases associated with the access railway.

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6.3.19.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the access railway.

6.3.19.3 Current Status

There have been no documented releases associated with the access railway and no staining was observed during the September 2000 Site walkthrough. However, the type and extent of materials potentially transported on the railway is unknown, and soils are exposed directly below the railway tracks. Based on this information, **FURTHER ACTION** is recommended for AOI M-19.

6.3.20 Plant 23 Basement Area (AOI M-20)

AOI M-20 consists of the basement area of Plant 23. The Plant 23 basement is considered an AOI because standing liquids and discolored basement walls were observed on the south-central side of the basement during a recent Site walkthrough.

6.3.20.1 Historical and Current Operations

Plants 5 and 23 contained metal working operations from at least the early 1960s through approximately 1985, including the manufacturing of rings and pinions for rear axles. Currently, pressed metal operations and maintenance activities are conducted in Plant 23.

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There have been no documented releases within the basement area. During the September 2000 Site walkthrough, liquid was observed to be collecting in low-lying areas of the basement. The liquid appeared to be condensate water from a pipe. Discolored basement walls were also observed, along with evidence of groundwater seepage into the basement. Subsequent activities at the plant revealed this seepage was due to a sanitary sewer break.

6.3.20.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the Plant 5 basement area.

6.3.20.3 Current Status

During recent Site walkthroughs, evidence of liquid accumulation, groundwater seepage, and discolored basement walls were observed. Subsequent activities at the site revealed this was due to a sanitary sewer leak. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-20.

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6.3.21 Plant 14 Transformer Station (AOI M-21)

AOI M-21 consists of a transformer station located between Plant 14 and Plant 2, adjacent to Track 26. The transformer station is considered an AOI because evidence of oil-stained concrete was observed during a recent Site walkthrough and the potential for PCBs to be present in the transformer oil.

6.3.21.1 Historical and Current Operations

Plant 14 houses pressed metal operations, while Plant 2 formerly housed plating operations. The transformer station is located between Plant 14 and Plant 2, adjacent to Track 26. Approximately 25 transformers are located on an elevated concrete pad with no secondary containment system. The area immediately north of the transformer station (in the vicinity of Track 26) is covered with gravel, leaving the underlying soils potentially exposed. There have been no documented releases associated with the transformer station. However, evidence of oil stains on the north edge of the concrete pad was observed during a recent Site walkthrough.

6.3.21.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the transformer station.

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6.3.21.3 Current Status

Evidence of oil stains was observed on the north edge of the transformer station concrete pad during a recent Site walkthrough. Based on this information and the fact that PCB-containing oils were historically used in electrical transformers throughout the Site, **FURTHER ACTION** is recommended for AOI M-21.

6.3.22 Plant 15 - Columbia Avenue Switch House (AOI M-22)

AOI M-22 consists of the Columbia Avenue Switch House, located on the western side of Plant 15. This area is considered an AOI because transformer oil that potentially contained PCBs was used at the switch house.

6.3.22.1 Historical and Current Operations

The Columbia Avenue switch house has historically handled electrical service for Plant 12 and Plant 15. The switch house is enclosed within a brick building located on the western side of Plant 15, between the plant building and the Site fencing. Access is restricted to the enclosed switch house. During a recent Site walkthrough, the exterior of the building (excluding the western side) was observed. No staining was observed that may be associated with transformer oil. There have been no documented releases associated with the switch house.

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6.3.22.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the switch house.

6.3.22.3 Current Status

There have been no documented releases associated with the switch house. During a recent Site walkthrough, there was no evidence of staining associated with the switch house and all transformers are enclosed within the switch house. Based on this information, **NO FURTHER ACTION** is recommended for AOI M-22.

6.3.23 Plants 25, 33, and 75 Substation and Power Building (AOI M-23)

AOI M-23 consists of a substation and power building located southwest of Plant 25 and north of Columbia Avenue. This area is considered an AOI because transformer oil that potentially contained PCBs was used at the substation and power building.

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6.3.23.1 Historical and Current Operations

Plants 25 and 33 housed engine machining and assembly operations. Material storage and shipping associated with these operations were also conducted in these plants. Plant 75 is home to the SPO, which includes warehousing and distribution operations.

The Plants 25, 33, and 75 substation and power building currently provide electrical service to the northern portion of the Site. There have been no documented releases from the Plants 25, 33, and 75 substation and power building.

6.3.23.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the Plants 25, 33, and 75 substation and power building.

6.3.23.3 Current Status

There have been no documented releases associated with the substation and power building. Although access to the outside substation area and building were restricted during the recent Site walkthrough, no visible staining was observed from outside the area. However, due to the potential for PCBs to be present, **FURTHER ACTION** is recommended for AOI M-23.

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6.3.24 Plant 12 Transformer Oil Spill (AOI M-24)

AOI M-24 consists of an area adjacent to Plant 12 where PCB-containing fluid was spilled. This area is considered an AOI because there was a documented release of an unknown quantity of PCB-containing transformer oil to the concrete surface in 1994.

6.3.24.1 Historical and Current Operations

Plant 12 was originally constructed in 1951, with 170,000 square feet of floor space. Major expansions to the east and the west occurred in 1953, increasing the total floor space to 366,000 square feet. From the 1950s through the early 1990s, Plant 12 was used for the final storage and shipping of new automobiles. These automobiles were stored in Plant 12 and loaded on rail cars for shipment off site. The eastern portion of Plant 12 was also historically used for maintenance and testing of company owned vehicles. This area was referred to as the reliability garage, and contains a car wash area, a paint booth, and numerous automobile hoists. During the 1990s, Plant 12 was used for a variety of small non-production operations, including a small tin shop, welding shop, machine shop, training center, fire station, and exercise gym. The building is currently vacant and scheduled for near-term demolition.

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A release of an unknown quantity of transformer oil occurred in May 1994 on concrete surfaces near Plant 12.

6.3.24.2 Previous Investigations and Remedial Actions

There were no soil or groundwater investigations for the transformer oil spill. Remedial actions consisted of removal of soil and concrete potentially impacted by the transformer oil spill.

6.3.24.3 Current Status

Plant 12 is currently vacant. Soil and concrete that may have been impacted by the transformer oil spill were removed in May 1994. However, there is no documentation confirming removal activities; therefore, **FURTHER ACTION** is recommended for AOI M-24.

6.3.25 Plant 33 Basement Sump Area (AOI M-25)

AOI M-25 consists of the basement area of Plant 33, which contains several floor sumps and process pits. This area is considered an AOI because the condition of the floor pits could not be evaluated during a recent Site walkthrough.

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6.3.25.1 Historical and Current Operations

Plants 25 and 33 housed engine machining and assembly operations. Material storage and shipping associated with these operations were also conducted in these plants. The basement sump area is located along the east wall of Plant 33 and contains one floor sump and an unknown number of pits that have been filled with flowable fill. This floor sump discharges to the Plant 25 sump separation process, which ultimately discharges to the WWTP. According to Site personnel, framing system wax commonly used in Plant 33 operations was the primary constituent in the wastewater. The process pits have recently been filled with flowable material; therefore, their condition could not be evaluated. There have been no documented releases associated with the basement sump area.

Plants 25 and 33 are currently undergoing extensive renovation for future production purposes.

6.3.25.2 Previous Investigations and Remedial Actions

There have been no previous investigations or remedial actions associated with the basement sump area.

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6.3.25.3 Current Status

During a recent Site walkthrough, the number and condition of the floor pits could not be evaluated due to them recently being filled with flowable fill. Based on this information, **FURTHER ACTION** is recommended for AOI M-25.

6.4 Powertrain

The Powertrain Headquarters Building (formerly the Engineering North Building) is located along the eastern Site property boundary. There are eight AOIs (AOI P-1 to AOI P-8) located within the Powertrain portion of the Site. Figure 6-6 shows the locations of the AOIs within the Powertrain area. All of the AOIs in the Powertrain area are UST- or AST-related.

Each of the AOIs for the Powertrain area is summarized in Table 6-16 and discussed below. A listing of ASTs and USTs for the Powertrain area is provided in Table 6-17.

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6.4.1 Former Powertrain UST Farm (AOI P-1)

AOI P-1 consists of the former Powertrain gasoline fueling area UST farm previously located adjacent to the south wall of the engine testing laboratory. This area is considered an AOI because of a documented release of gasoline that was discovered in April 1990.

6.4.1.1 Historical and Current Operations

The Powertrain Headquarters building formerly housed design, engineering, and testing laboratories for automotive powertrain.

The former UST farm was located adjacent to the south wall of the engine testing laboratory. The former UST farm contained seven tanks (PE-A through PE-G) that were used for dispensing fuel. The tanks were installed in 1952 and removed in 1990. The tanks were mounted on concrete cradles, resting on a concrete slab approximately 18 inches thick. A concrete sump was located adjacent to Tank PE-G. Three leak detection monitoring wells were installed around the UST farm in 1984.

Gasoline was delivered to the truck unload area on the south side of the former UST farm. From the former UST farm, fuel flowed to the east through a piping trench then north to enter the building where a manifold provided fuel to the dynamometer rooms along the north wall of the building. The manifold proceeded west inside the building to the west wall, where it entered the gas line trench to the old dispensing pump. The old dispensing pump was located where the current UST farm is located (AOI P-2) (GM, 1992).

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References

Atwell Hicks, Inc. 1994. *Closure Investigation, CPC Pontiac Old and New Tank Farm, 985 Joslyn, Pontiac, Michigan*. August 5, 1994.

Atwell-Hicks, Inc. 1994b. *Type C Closure Proposal at CPC Pontiac – Car Wash, 985 Joslyn, Pontiac, Michigan*. September 15, 1994.

Atwell-Hicks, Inc. 1995. *Request for Closure Report of an Underground Storage Tank System Release at GM Powertrain Headquarters, 895 Joslyn Road, Pontiac Michigan*. September 8, 1995.

CEC. 1981. *Arc Furnace Baghouse Dust EP Toxicity Study*. May 20, 1981.

Chester. 1996. *PCB Sampling Report*. January 1996.

CRA. 1998a. Letter to GM, *re: Concrete and Soil Investigation, Track 26, General Motors Metal Fabricating Division, Pontiac, Michigan*. April 14, 1998.

CRA. 1998b. *Leaking Underground Storage Tank Closure Report*. October 30, 1998.

CRA. 1999. Memo to GM, re: *GM Pontiac WWTP Subsurface Investigation*. November 30, 1999.

CRA. 2000a. *Underground Storage Tank System Site Assessment Report and Closure or Change-in-Service Registration Form, GM - Pontiac Site Operations, Facility ID Number 0-001623*. January 19, 2000.

CRA. 2000b. *Draft LNAPL Delineation Report, General Motors Corporation, Pontiac North Complex, Pontiac, Michigan*. March, 2000.

CRA. 2000c. *Draft Site Investigation Report, General Motors Corporation, Pontiac North Complex, Former A-2 Fill Area, Pontiac, Michigan*. March, 2000.

CRA. 2000d. Memo to BBL, re: *Roll-Off Box Sampling Results for GM Pontiac North Complex, Pontiac, Michigan*. April 24, 2000.

CRA. 2000e. Memo to BBL, re: *Roll-Off Box and Electrical Pit Sampling Results for GM Pontiac North Campus, Pontiac, Michigan*. July 12, 2000.

CRA. 2000f. *Draft Final Phase I Environmental Site Assessment, General Motors Corporation, Pontiac North Campus Development – Plants 2 and 5, Pontiac, Michigan*. August 2000.

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CRA. 2000g. *Draft Final Phase I Environmental Site Assessment, General Motors Corporation, Pontiac North Campus Development – Plant 12, Pontiac, Michigan*. August 2000.

CRA. 2000h. Memo to BBL, re: *Sediment Sampling (Duck Pond) Results for GM Pontiac North Complex, Pontiac, Michigan*. September 20, 2000.

CRA. 2000i. Memo to BBL, re: *Roll-Off Box Sampling Results for #410740, #410748, #410689, and #410322 for GM Pontiac North Campus, Pontiac, Michigan*. October 11, 2000.

CRA. 2000j. Memo to BBL, re: *Roll-Off Box Sampling Results for #410776 and #411666 for Pontiac North Campus, Pontiac, Michigan*. October 13, 2000.

CRA. 2000k. Memo to BBL, re: *Status Summary Storm Sewer Sampling Results, GM Pontiac North Campus, Pontiac, Michigan*. October 19, 2000.

CRA. 2000l. Memo to BBL, re: *Storm Sewer Water Sampling Results, GM Pontiac North Campus, Pontiac, Michigan*. October 20, 2000.

CRA. 2000m. Memo to BBL, re: *Storm Sewer Water Sampling Results, GM Pontiac North Campus, Pontiac, Michigan*. October 25, 2000.

CRA. 2000n. Memo to BBL, re: *Storm Sewer Water Sampling Results, GM Pontiac North Campus, Pontiac, Michigan*. October 30, 2000.

Dames and Moore. 1989. *Interim Closure Report – Former Container Storage Area*. April 20, 1989.

Dames and Moore. 1990. *Draft Endangerment Assessment – Former Container Storage Area*. February 14, 1990.

GM. 1971. *Environmental Evaluation Report*. August 5, 1971.

GM. 1980a. Notification of Hazardous Waste Activity, MID 085470102. August, 1980.

GM. 1980b. Notification of Hazardous Waste Activity, MID 005356886. August 8, 1980.

GM. 1980c. Notification of Hazardous Waste Activity, MID 005356910. August 8, 1980.

GM. 1980d. Notification of Hazardous Waste Activity, MID 076331289. August 18, 1980.

GM. 1980e. Part A Permit Application, MID 005356910. November 11, 1980.

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GM. 1980f. Part A Permit Application, MID 085470102. November 17, 1980.

GM. 1980g. Part A Permit Application, MID 005356886. November 18, 1980.

GM. 1980h. Part A Permit Application, MID 076331289. November 18, 1980.

GM. 1981b. Letter to USEPA, re: *Petition to delist wastewater treatment sludge*. September 15, 1981.

GM. 1982a. Letter to MDNR, re: *Petition to delist wastewater treatment sludge*. January 18, 1982.

GM. 1982b. Letter to USEPA, re: *Withdrawal of Part A Permit Application*, MID 085470102. July 12, 1982.

GM. 1982c. Part A Permit Application, MID 005356886. September 13, 1982.

GM. 1984a. Part A Permit Application, MID 005356886. March 24, 1984.

GM. 1985a. Letter to National Response Center, United States Coast Guard, re: *Written notification of gasoline spill*. March 8, 1985.

GM. 1985b. Part A Permit Application, MID 005356886. June 26, 1985.

GM. 1985c. Part A Permit Application, MID 005356910. June 27, 1985.

GM. 1985d. Internal Memorandum, re: *Barrel Dumping at Salvage*. September 24, 1985.

GM. 1985e. *MDNR Report of Soil, Salt or Polluting Material Losses, Car Wash*. October 1, 1985.

GM. 1986a. Part A Permit Application, MID 005356886. January 21, 1986.

GM. 1986b. Part A Permit Application, MID 005356910. February 14, 1986.

GM. 1986c. *Certification Regarding Potential Releases from Solid Waste Management Units, C.P.C.-Pontiac Facility, General Motors Corporation, MID005356886*. February 27, 1986.

GM. 1986d. Part A Permit Application, MID 005356886. March 12, 1986.

GM. 1986e. Letter to USEPA, re: *Closure Plan, General Motors C-P-C Fiero Assembly, MID 005 356 910*. April 24, 1986.

GM. 1986f. Part A Permit Application, MID 005356886. April 29, 1986.

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Arcadis
Aug 07, 2009 14:53

GM. 1986g. Letter to USEPA, re: *RCRA Activities*. July 29, 1986.

GM. 1986h. Part A Permit Application, MID 005356886. September 30, 1986.

GM. 1986i. Letter to USEPA, re: *MID 005356886*. October 21, 1986.

GM. 1986j. Letter to MDNR, re: Catalina Substation. October 23, 1986.

GM. 1986k. Letter to MDNR, re: Closed Container Storage Area. November 1986.

GM. 1987a. Letter to USEPA, re: *MID 005356886*. February 19, 1987.

GM. 1987b. Letter to USEPA, re: *RCRA Corrective Action*. April 23, 1987.

GM. 1987c. Letter to MDNR, re: *Closure of the Waste Purge Tainner Tank System*. May 11, 1987.

GM. 1987d. Letter to USEPA, re: *Revocation of Temporary Exclusion for Wastewater Treatment Sludge*. May 29, 1987.

GM. 1987e. Letter to MDNR, re: *Implementation of Department 671 Resin Storage Facility Work Plan*. July 1, 1987.

GM. 1987f. Part A Permit Application, MID 005356886. August 20, 1987.

GM. 1987g. *Closure Plan for Hazardous Waste Storage*. November, 1987.

GM. 1987h. Letter to USEPA, re: *MID 005356886*. November 25, 1987.

GM. 1987i. Part A Permit Application, MID 005356910. November 30, 1987.

GM. 1988a. *Revised Closure Plan for Hazardous Waste Storage*. February, 1988.

GM. 1988b. *Container Storage Area Closure Plan*. April 28, 1988.

GM. 1988c. *Revised Closure Plan for Hazardous Waste Storage*. May 1988.

GM. 1990. Letter to Michigan State Police, Fire Marshal Division, Hazardous Materials Section, re: *Request for Closure – Turbo Tank*. September 11, 1990.

GM. 1991. Letter to Michigan State Police, Fire Marshal Division, Hazardous Materials Section, re: *Request for Closure – Turbo Tank*. June 27, 1991.

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GM. 1992a. Letter to Michigan State Police, Fire Marshal Division, Hazardous Materials Section, re: *Request for Closure – Turbo Tank*. March 6, 1992.

GM. 1992b. *Letter to MDNR: CPC North - 895 Joslyn - Pontiac, MI - Oakland County - LUST*. September 30, 1992.

GM. 1993. Letter to GM, re: PA/VSI discrepancies. January 20, 1993.

GM. 1996a. *Remedial Action Plan for Part 201 Industrial/Restricted Access Closure*. July 23, 1996.

GM. 1996b. Release Report to MDNR. October 28, 1996.

GM. 2000. *Letter to MDEQ, re: Suspected Release Report - Incident Number S-600-00 - 6/29/00, General Motors - Pontiac North Campus - Facility Number 0-001623*. July 19, 2000.

GTI. 1990a. *Subsurface Investigation and Soil Vapor Pilot Test – Feasibility Study*. June 19, 1990.

GTI. 1990b. *Soil Vapor Pilot Test #2 – Feasibility Study*. July 23, 1990.

GTI. 1991. *RCRA Pad Review – Hazardous Waste Storage Area*. October 11, 1991.

Keck. 1984a. *Preliminary Soils Contamination Assessment - Plant 8 Flammable Liquid Tank Farm*. 1984.

Keck. 1984b. *Emission Control Building Spill Assessment, Pontiac Motors Division, General Motors Corporation, Pontiac Michigan*. July 31, 1984.

MDEQ. 1996. Letter to GM, re: *Track 31 Remedial Action Plan*. September 26, 1991.

MDEQ. 2000. *Letter to GM, re: Site Assessment Report for General Motors - Pontiac Site Operations, One Pontiac Plaza, Pontiac, Oakland County, Facility Number 0-001623*. February 16, 2000.

MDNR. 1983a. Letter to GM, re: *Redesignation of Waste (wastewater treatment sludge from electroplating operations)*. June 23, 1983.

MDNR. 1983b. Letter to GM, re: *MID 085470102*. July 11, 1983.

MDNR. 1987a. Letter to GM, re: *Department 671 Resin Storage Facility – Outline for the Design of a Remedial Action Program*. February 11, 1987.

MDNR. 1987b. Letter to GM, re: *PCB Oil Spill Catalina Substation*. May 27, 1987.

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MDNR. 1987c. Letter to GM, re: *Waste Purge Thinner Tank Closure, MID 005 356 886*. July 23, 1987.

MDNR. 1987d. Letter to GM, re: *Plant 25 Gasoline UST Closure*. August 1987.

MDNR. 1987e. *Site Description/Executive Summary, GMC Pontiac Motor Division, Pontiac, Michigan*. December 15, 1987.

MDNR. 1988a. Letter to GM, re: *Container Storage Area Closure Certification*. February 1988.

MDNR. 1988b. Letter to GM, re: *Container Storage Closure Plan*. June 8, 1988.

MDNR. 1989. Letter to GM, re: *Department 671 Resin Storage Facility*. December 11, 1989.

MDNR. 1991. Letter to GM, re: *Closure Plan Amendment and Corrective Action*. July 31, 1991.

MDNR. 1992. Letter to GM, re: *CPC North, 895 Joslyn, Pontiac, Michigan, Oakland County, LUST*. August 24, 1992.

MDNR. 1994. Letter to GM, re: *Closure Investigation Report for Laboratory Tank Farms, CPC Pontiac (old and new tank farms), 985 Joslyn Road, Pontiac, MI, MERA Site ID #630338*. September 30, 1994.

MDNR. 1995a. Letter to GM, re: *Container Storage Area/Waste Purge Thinner Closure Report*. March 15, 1995.

MDNR. 1995b. Letter to GM, re: *Site Closure Report dated September 15, 1994 for GM-CPC Pontiac, Car Wash Tank Farm, 985 Joslyn Road, Pontiac, Oakland County, Michigan, MERA Site ID No. 630338, Facility ID No. 1623*. September 13, 1995.

MPC Environmental. 1987. *CPC Pontiac Groundwater Remediation Summary Report*. February 13, 1987.

OBG. 1991a. *Underground Storage Tank Removal, General Motors Service Parts Operations, Pontiac, Michigan*. February 1991.

OBG. 1991b. *Hydrogeological Investigation Report*. November 1991.

OBG. 1992. *Free Product Removal Report, Site Characterization Report, and Proposed Work Plan, General Motors Service Parts Operations, 1251 Joslyn Road, Pontiac, Michigan*. March 1992.

OBG. 1994. *Deactivation Assessment (Final Draft Report)*. August 16, 1994.

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OBG. 1997. *Completion Report for a Part 201 Generic Industrial/TSCA Restricted Access Remediation, Track 31 Site - GM Metal Fabricating Division, Pontiac, Michigan.* January 1997.

Parsons. 1997a. *Initial Assessment Report, Vacant Lot, GM Powertrain, Pontiac, Michigan.* January 30, 1997.

Parsons. 1997b. *West Yard Investigation Report.* March 5, 1997.

Parsons. 1997c. *Final Assessment Report, Vacant Lot, GM Powertrain, Pontiac, Michigan.* October 29, 1997.

PRC. 1992. *Preliminary Assessment/Visual Site Inspection (PA/VSI) Report, GM Corporation, Pontiac Fiero Plant, Pontiac, Michigan.* November 5, 1992.

Remtech. 1996a. *Used Oil UST Closure, GM Powertrain Headquarters, 895 Joslyn Road, Pontiac, Michigan.* November 27, 1996.

Remtech. 1996b. *Utility Line Investigation, GM Powertrain Headquarters, 895 Joslyn Road, Pontiac, Michigan.* December 10, 1996.

RUST. 1995. *RCRA Closure Report for the Container Storage Area/Waste Purge Thinner UST.* January 1995.

SHA. 1985. *Department 671 Resin Storage Facility - Outline for the Design of a Remedial Action Program.* December 1985.

SHA. 1988. *Department 671 Resin Storage Facility – Site Exploration and Environmental Action Plan.* June 1988.

SHA. 1989. *Department 671 Resin Storage Facility – Results of Final Soil Sampling and Analysis for Clean-Up Verification.* June 1989.

SUNPRO. 1996. *Final Report – PCB Remediation Substation D-1.* August 21, 1996.

Superior. 2000. *Leaking Underground Storage Tank Closure Report, CPC Pontiac - Car Wash, 985 Joslyn Road.* February 2, 2000.

TEC. 1982. *Soil Investigation for Barrel Storage Area.* June 3, 1982.

TEC. 1989. *Site Investigation - Soil Removal, CPC Engineering North Building, Pontiac, Michigan.* November 22, 1989.

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Lowell McBurney
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TEC. 1990a. *Final Site Investigation, New CBT Farm, CPC Engineering North Building, Pontiac, Michigan.* January 30, 1990.

TEC. 1990b. *Underground Storage Tank Removal Monitoring, CPC North Facility, Laboratory Tank Farm, 895 Joslyn Avenue, Pontiac, Michigan.* December 6, 1990.

TEC. 1991. *Remedial Investigation Report, CPC North Facility, Laboratory Tank Farm, 895 Joslyn Avenue, Pontiac, Michigan.* April 3, 1991.

TEC. 1992. *Container Storage Area – Subsurface Investigation Report.* 1992.

TEC. 1993. *Site Investigation, CPC North Facility, Laboratory Tank Farm, 895 Joslyn Avenue, Pontiac, Michigan.* January 5, 1993.

Techna. 1990. *Container Storage Area Closure Report.* July 18, 1990.

USEPA. 1981a. Letter to GM, re: *Foundry baghouse dust.* February 13, 1981.

USEPA. 1981b. Letter to GM, re: *Changes to Hazardous Waste Descriptions.* September 1981.

USEPA. 1982a. Letter to GM, re: *Interim Status Acknowledgement, MID 005356910.* June 4, 1982.

USEPA. 1982b. Letter to GM, re: *Interim Status Acknowledgement, MID 005356886.* June 14, 1982.

USEPA. 1982c. Letter to GM, re: *Temporary Delisting for F006 (wastewater treatment sludge from electroplating operations).* November 22, 1982.

USEPA. 1983. Letter to GM, re: *Withdrawal of RCRA Part A permit application.* March 29, 1983.

USEPA. 1986. Letter to GM, re: *MID 005356886.* April 22, 1986.

USEPA. 1995. Letter to GM, re: *PCB Sampling – Foundry.* 1995.

USEPA. 2000. http://www.epa.gov/enviro/index_java.html

USGS. 1943. USGS Pontiac North Quadrangle.

USGS. 1952. USGS Pontiac North Quadrangle.

USGS. 1968. USGS Pontiac North Quadrangle.

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Arcadis
Aug 07, 2009 14:53

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Lowell McBurney
Arcadis
Aug 07, 2009 14:53

USGS. 1983. USGS Pontiac North Quadrangle.

Westjohn, D.B., and Weaver, T.L. 1996. *Hydrogeologic Framework of Mississipian Rocks in the Central Lower Peninsula of Michigan.* USGS Water-Resources Investigations Report 94-4246. Lansing, Michigan. 1996.

Western Michigan University. 1981. *Hydrogeologic Atlas of Michigan.*

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List of Acronyms

ACM - Asbestos containing material
AOC - Area of concern
AOI - Area of interest
AST - Aboveground storage tank
BBL - Blasland, Bouck & Lee, Inc.
BDA - Building decommissioning assessment
bgs - Below ground surface
BTEX - Benzene, toluene, ethylbenzene, and xylenes
BTN - British Thermal Unit
CCR - Current Conditions Report
CEC - Clayton Environmental Consultants, Inc.
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CET - Carlo Environmental Technologies, Inc.
CPC - Chevrolet-Pontiac-Canada Group
CRA - Conestoga-Rovers & Associates, Inc.
CSA - Container storage area
Csat - Soil saturation criteria value
DA - Demolition Area
EEC - ENCORE Environmental Consortium, L.L.C.
ELPO - Electrodeposition
ENCORE - Environmental Corporate Remediation
FOIA - Freedom of Information Act
GM - General Motors Corporation
GMC - General Motors Corporation
gpd - Gallons per day
gpm - Gallons per minute
GTI - Groundwater Technology, Inc.
HVO - Halogenated volatile organics
IRM - Interim Remedial Measure
LNAPL - Light non-aqueous phase liquid
LUST - Leaking underground storage tank
MDEQ - Michigan Department of Environmental Quality
MDNR - Michigan Department of Natural Resources
MERA – Michigan Environmental Response Act
MFD - Metal Fabrication Division
MPC - MPC Environmental
MTBE - Methyl-tert-butyl-ether

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NPDES - National Pollutant Discharge Elimination System
OBG - O'Brien & Gere
OHM - O.H. Materials
PA/VSI - Preliminary Assessment/Visual Site Inspection
PCB - Polychlorinated biphenyls
PNA - Polynuclear aromatic hydrocarbon
POTW - Publicly owned treatment works
ppb - Parts per billion
PRC - PRC Environmental Management, Inc.
PVC - Polyvinyl chloride
RAP - Remedial Action Plan
RBCA - Risk-Based Corrective Action
RCRA - Resource Conservation and Recovery Act
RFI - RCRA Facility Investigation
RUST - RUST Environmental and Infrastructure
SAA - Satellite Accumulation Area
SHA – Schleede-Hampton Associates, Inc.
SPO - Service Parts Operations
SVOC - Semivolatile organic compound
SWMU - Solid Waste Management Unit
TAL - Target Analyte List
TCL - Target Compound List
TCLP - Toxicity Characteristic Leaching Procedure
TEC - Testing, Engineers, and Consultants, Inc.
TEF - Toxicity Equivalence Factor
TKN - Total Kjeldahl Nitrogen
TSCA - Toxic Substances Control Act
TSD - Treatment, storage, and disposal
ug/kg - Micrograms per kilogram
ug/L - Micrograms per liter
USEPA - United States Environmental Protection Agency
USGS - United States Geological Survey
USPCI - United States Pollution Control, Inc.
UST - Underground storage tank
VOC - Volatile Organic Compounds
VSR - Verification of soil remediation
WMD - Waste Management Division
WWTP - Wastewater Treatment Plant

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TABLE 2-1
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

HISTORICAL AND CURRENT SITE BUILDINGS

Current Building Number or Name	Current Activity	Historic Building Number(s) or Name(s)	Original Year Built	Historic Activity
Fiero				
Plant 17	Non-production storage, prototyping	Plant 17, Fiero Assemebly Fiero Body Plant	1925	automotive assembly, metal fabrication, body shop, chassis, painting, trim
Powerhouse	Idle but operational power plant	Powerhouse		Power plant
Demolition Area (DA)				
Vacant Lot	Demolished	Plant 8	1927	automotive assembly
Vacant Lot	Demolished	Plant 9	1927	engine assembly
Vacant Lot	Demolished	Plant 6	1925	foundry
Vacant Lot	Demolished	Salvage Building	1945	Incineration, scrap/refuse separation
Vacant Lot	Demolished	Compressor Building		electrical transformers, air compressors
Metal Fabrication Division (MFD)				
Plant 25	engine assembly and future engine assembly	Plant 25	1967	engine assembly
		Plant 51	1967	chassis parts, machining
Plant 33	engine assembly	Plant 55	1981	engine assembly
Plant 15	pressed metal	Plant 15	1952	pressed metal
Plant 12	Vacant building scheduled for demolition	Plant 12	1950	car finishing, sales garage, equipment storage & shipping, miscellaneous non-production activities
Vacant Lot	Demolished (majority of facility)	Plant 16	1954	pressed parts, car finishing, storage
Plant 14	pressed metal	Plant 14	1951	pressed metal
Plant 49 *	pressed metal	Plant 49	1965	storage & shipping, pressed metal
Plant 11 *	Repair work and maintenance activities.	Plant 1	1945	heat treating
Plant 56 *	Western portion vacated.	Plant 2	1945	plating, pressed metal, maintenance, shipping & receiving
Plants 5 and 23 *	Western portion consists of storage and shipping & receiving.	Plant 5	1927	shipping and receiving, axle / differential
	Eastern portion is pressed metal and axle/differential operations, maintenance activities	Plant 23	1945	axle / differential, pressed metal
WWTP	wastewater treatment	WWTP	1957	wastewater treatment
ELPO	Phosphating, painting, flammable liquids storage, chemical storage	Frame Storage Building and Apprentice School	1927	Phosphating, painting, flammable liquids storage, chemical storage

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TABLE 2-1
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

HISTORICAL AND CURRENT SITE BUILDINGS

Current Building Number or Name	Current Activity	Historic Building Number(s) or Name(s)	Original Year Built	Historic Activity
Powertrain				
Powertrain Engineering		Engineering North		product engineering
		Emissions Control Building		
Powertrain Headquarters		Powertrain Headquarters	1967	
		Administration Building		
Vacant Lot	Vacant	Plant 18, Plant 71	1942	demolished / engine assembly, component parts
Service Parts Operation (SPO)				
Plant 75 / SPO	warehouse	Plant 75 / General Motors Parts Division	1964	warehouse
		Flammable Liquids Storage Building	early 1970s	flammable liquids storage

Notes:

* GM has recently renamed several plants (see below). **The new plant identification system has not been used in this report.**
  Plant 49 renamed to Plant 14 East
  Plants 11 and 56 renamed to Plant 14 South
  Plants 5 and 23 renamed to Plant 23

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TABLE 2-2
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

RCRA HAZARDOUS WASTE CODES

ID Number	Hazardous Waste Description
D001	Wastes which are hazardous due to the characteristic of ignitibility.
D002	Wastes which are hazardous due to the characteristic of corrosivity.
D006	Wastes which are hazardous due to TCLP Cadmium.
D008	Wastes which are hazardous due to TCLP Cadmium.
F001	Halogenated solvents used in degreasing: tetrachloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10% or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of those spent solvents and spent solvent mixtures.
F002	Spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, ortho-dichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, one or more of the above halogenated solvents or those listed in F001, F004, F005; and still bottoms from the recovery of those spent solvents and spent solvent mixtures
F003	Spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethylbenzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of 10% or more (by volume) of one of the solvents listed in F001, F002, F004, F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	Spent non-halogenated solvents: toluene, methy ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10% or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc, and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
F007	Spent cyanide plating bath solutions from electroplating operations.
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.

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TABLE 2-2
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

RCRA HAZARDOUS WASTE CODES

ID Number	Hazardous Waste Description
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.
F012	Quenching waste water treatment sludges from metal heat treating operations where cyanides are used in the process.
[F017]*	Paint residues or sludges from industrial painting in the mechanical and electrical products industry.
[F018]*	Wastewater treatment sludges from industrial painting in the mechanical and electrical products industry.
[K054]**	Chrome (blue) shavings generated by the following subcategories of the leather tanning and finishing industry: Hair pulp/chrome tan/retan/wet finish; hair save/chrome/tan/retan/wet finish; retan/wet finish; no beamhouse; through-the-blue; shearing.
P029	Copper Cyanide Cu(CN)
P030	Cyanides (soluble cyanide salts), not otherwise specified
P106	Sodium Cyanide Na(CN)

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Notes:
40 CFR Part 261 Subpart D.
[ ]* = Waste was removed from RCRA hazardous waste listing in 1981.
[ ]** = Waste was removed from RCRA hazardous waste listing in 1980.

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PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-1: West Yard						
Open area in southwest corner of DA. Bounded to the south by Montcalm Ave, to the west by the Grand Trunk Western Railroad line, to the east by the former foundry (Plant 6), and to the north by the former Plant 9.	Yes	No	Area is approximately 20 acres in size. Was historically used for materials management activities, including: disposal of foundry sand, refuse, sludge and trash from the 1940's to the 1960's; salvaging usable material from unusable waste; RCRA hazardous waste storage pad from 1982 to 1988 (AOI W2) railroad marshalling area (AOI W11); and a backfilled settling basin. The Compressor Building contained within the West Yard was known to contain two transformers that were historically noted as leaking PCBs.	Impacted soils and groundwater known to contain VOCs, SVOCs, metals, and PCB contaminated LNAPL.	A CERCLA (Section 103(c)) notification indicated past disposal of "organics, inorganics, and heavy metals" up until 1979. 1996/1997 investigation by Parsons continued previous West Yard investigation initiated by hazardous waste storage pad investigations by D&M and GTI. CRA LNAPL Investigation in 1999 to further delineate the nature and extent of LNAPL. On October 29, 1985 Transformer 450, located west of the building, was noted as leaking. It was remediated daily until the leak was sealed on November 18, 1985. On March 2, 1988 Transformer 451, located inside the building, was noted as leaking. It was remediated daily until the leak was sealed on March 7, 1988.	Further Action is recommended.

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PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-2 - Former Hazardous Waste Storage Pad						
In the Western portion of the West Yard, east of the Grand Trunk Railroad line, west of the Compressor building, south of the Salvage building.	Yes	No	Constructed in 1982, the storage pad is an approximately 27,000 square-foot, 8-inch thick concrete pad which is contained within a 4-inch curb. Activities at the pad included waste storage, drum washing and empty drum storage. Hazardous waste storage included paint, paint thinner, gasoline, chlorinated solvents, machine wastes, lead chips, and spent halogenated solvents prior to closure activities in July 1988. Prior to the pad construction, a waste pile containing WWTP sludges, machine sludges, and paint sludges was contained within the footprint of the storage pad, from 1979 to 1981.	BTEX and lead were found within soil and groundwater samples taken from beneath the pad. 1,1,1-TCA and MEK were also detected in soil samples. Soil borings indicate that the area was previously used for waste disposal.	Closure activities were conducted by Dames & Moore beginning in 1988. During the two phases of soil sampling BTEX, MEK, methylene chloride and lead were detected in soil and groundwater samples. The Parsons Site Investigation conducted in 1996/1997 concluded that the contamination under the pad was not due to historic operations at the pad, but due to historical waste management activities conducted in the entire West Yard area.	No Further Action is recommended.
AOI W-3: Former Plant 8 Flammable Liquids Storage Tank Farm						
Northwestern corner of the DA.	Yes	No	Area consisted of a north and a south area each contained within a 3-foot high dike. These areas held a total of nine ASTs with five ASTs in the north area and four in the south area. The ASTs ranged in size from 13,000 to 26,000 gallons. The ASTs were used to store diesel fuel, line thinner, gasoline and solvents.	It is reported that the soils under the Tank Farm contain hydrocarbon contamination.	Keck evaluated the extent of hydrocarbon contamination. This investigation indicated hydrocarbons from ground level to 8 to 16-feet bgs where a clay layer impeded the downward flow of hydrocarbons. There is no indication of remedial activities being conducted in the area of the Tank Farm.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-4: Transformer Substation D-1						
Located in the southeast quadrant of former Plant 8.	Yes	No	PCB-containing transformers were removed from the substation D-1 prior to the demolition of Plant 8 in 1997.	Following the removal of the transformers, staining was observed on the concrete floor and was subsequently removed by the contractor. Post-cleanup wipe samples indicated remaining PCB contamination.	SUNPRO removed 2 to 3 inches of concrete from the transformer footprint while under negative air pressure to suppress dust migration. Post-remedial wipe samples indicated compliance with U.S. EPA PCB clean-up requirements. The transformer substation D-1 has been decommissioned, remediated and demolished.	No Further Action is recommended
AOI W-5: Former Plant 8 Basement AST Area						
Located on the northern boundary of the West Yard area.	No	No	The basement of Plant 8 contained 17 ASTs ranging in size between 680 and 11,300 gallons. Undated documentation by CPC indicates that 15 of the ASTs were empty. The remaining two ASTs were both 7,400 gallons in size and were known to contain alkali/oily and weak metallic wastewaters.	No documentation on closure of ASTs.	Plant 8 was decommissioned and demolished. No correspondence was found with respect to closure of the ASTs.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-6: Former Plant 8 Flammable Materials Storage Building						
Located in the northwestern corner of the DA.	No	No	The Material Storage Building was known to house 17 tanks containing oils and glycols. 9 of the tanks were 15,000 gallons and 8 were 22,000 gallons. The doors of the building were above level causing the storage building to act as a diked area. Truck and railroad unloading areas had catch basins attached to the WWTP.	No documentation of closure of tanks.	The Flammable Materials Storage Building has been decommissioned and demolished. No documentation available for closure	Further Action is recommended.
AOI W-7: Former Plant 9 Turbo Tank (Tank 9-1)						
Located immediately northwest of former Plant 9.	Yes	No	This registered UST was installed as early as 1983 and was used for storing gasoline. Tank 9-1 was removed in June 1991.	None.	In a letter from the CPC to the Michigan State Police, dated June 27, 1991, a "UST Closure Site Assessment" is mentioned; the TEC report could not be located. The letter states that the TEC "Closure Site Assessment" showed no contamination with respect to the UST removal, and was therefore considered closed by the CPC.	No Further Action is recommended
AOI W-8: Former Plant 9 Basement AST Area						
Located immediately south of Plant 8.	No	No	The basement contained 12 ASTs which previously contained kerosene, coolant, and unknown material.	No documentation of AST closure. Kerosene-like odors encountered in storm sewer.	Plant 9 has been decommissioned and demolished, with no documentation available.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-9: Former Central Foundry (Plant 6) Resin Spill and UST						
Located in the southern portion of DA and was bordered to the south by Moncalm Ave, on the west by the West Yard, on the east by Glenwood Ave and on the north by Plant 9.	Yes	No	The Foundry produced grey iron from metallic ore to be casted into automotive parts. The Foundry ceased production and closed in May 1987, and was demolished on April 19, 1995. Foundry sand was used as fill material in the West Yard (AOI W-1).	The Resin Storage Building located in the northwest quadrant of the facility is known to have released resin from leaking sump drains. Soil and groundwater were known to contain resin related contaminants (kerosene and phenols), BTEX, and TCE and its breakdown products. No documentation available on 20,000-gallon UST.	A RCRA Part A permit application was filed on November 17, 1980 and was withdrawn on July 12,1982 on the basis that the baghouse dust was not a hazardous waste under 40 CFR part 261. August - December 1985 Schleede-Hampton performed a preliminary exploration of the resin storage facility area. Concluded resin is confined to within 20 feet of the Resin Storage Building. The "Results of Final Soil Sampling and Analysis for Clean-Up Verification" report by Schleede-Hampton summarized the remedial activities. This consisted of the excavation of resin contaminated soils and analytical testing to verify compliance.	Further Action is recommended.

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AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-9: Former Central Foundry (Plant 6) (cont.)						
					The MDNR approved the Site as "closed" on December 11, 1989 with respect to resin contamination. The Deactivation Assessment" report by O'Brien & Gere Engineers reported PCB and heavy metal concentrations above guidelines for soil. PCB Sampling report summarizes the investigation and remedial actions taken with respect to PCB removal. Aroclor 1242 detected in soil samples at one location. Wipe samples showed the area did not exceed guidelines for soil.	
AOI W-10: Railroad Marshalling Area Drainage System						
Extends the entire length of the western boundary of the West Yard.	Yes	No	The Area was used for the temporary storage of railcars loaded with scrap metal and grinding waste. This allowed for waste oils to drain out of the cars and into the railway ballast/soil immediately beneath the tracks.	In July 1979, an oily discharge was noted in a culvert immediately south of the Marshalling Area which drains into Harris Lake. The discharge was also noted to be draining into a storm sewer in the immediate area which also drained into Harris Lake.	The Oakland County Environmental Health Department obtained a water sample that contained 214,000 counts of coliform. CPC began pumping the contaminated water to the CPC WWTP and initiated daily monitoring of the area.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - DEMOLITION AREA

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI W-11: Salvage Yard Sump Drain						
The location of the sump drain is unclear. The Salvage Building was located on the western boundary of the West Yard, north of the Compressor Building, and immediately east of the rail lines.	Yes	No	During June and July 1985, 69 barrels of liquid were dumped down the Salvage Yard sump drain. Internal CPC documentation indicates that numerous City Sewer Ordinance limits were breached, including: Chloride concentrations exceeded limits on each of the eight days of dumping; TKN concentrations exceeded limits on six of the eight days of dumping; and Nickel concentrations exceeded limits on two of the days of dumping.	No documentation exists on the integrity of the sump. Liquids of unknown constituents dumped into sump.	No documented investigations or remedial actions found.	Further Action is recommended.
AOI W-12: Catalina Substation (GM owns; leased to Edison)						
Power station south of Montcalm Street and east of storm water retention pond.	No	Yes	Reported spills of PCB-containing oils.	Constituents of concern include PCBs.	GM initiated sampling of PCB-containing soils in August 1985. PCB impacted soils were subsequently removed.	No Further Action is recommended.
AOI W-13: Montcalm Substation						
Substation east of Saginaw Street and north of Montcalm Street.	No	Yes	Transformer oil used at substation. No documented releases.	Constituents of concern include PCBs.	No documented investigations or remedial actions found.	Further Action is recommended.

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TABLE 6-6
GENERAL MOTORS CORPORATION
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

STORAGE TANK SUMMARY - DEMOLITION AREA (DA)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
W-3	Former Plant 8 (Tank Farm)	8-1		AST		26,600	Diesel Fuel	Removed	Unknown
		8-2		AST		26,600	Line Thinner	Removed	Unknown
		8-3		AST		20,700	Gasoline	Removed	Unknown
		8-4		AST		20,700	Gasoline	Removed	Unknown
		8-5		AST		20,700	Gasoline	Removed	Unknown
		8-6		AST		20,700	Gasoline	Removed	Unknown
		8-7		AST		20,700	EMPTY	Removed	Unknown
		8-8		AST		13,300	Gasoline	Removed	Unknown
		8-9		AST		12,000	Windshield Washer Solvent	Removed	Unknown
W-5	Former Plant 8 (Basement)	8-11		AST		7,400	EMPTY	Removed	Unknown
		8-12		AST		7,400	EMPTY	Removed	Unknown
		8-13		AST		7,400	EMPTY	Removed	Unknown
		8-14		AST		11,300	EMPTY	Removed	Unknown
		8-15		AST		11,300	EMPTY	Removed	Unknown
		8-16		AST		680	EMPTY	Removed	Unknown
		8-17		AST		680	EMPTY	Removed	Unknown
		8-18		AST		680	EMPTY	Removed	Unknown
		8-19		AST		7,400	EMPTY	Removed	Unknown
		8-20		AST		7,400	EMPTY	Removed	Unknown
		8-23		AST		11,300	EMPTY	Removed	Unknown
		8-24		AST		11,300	EMPTY	Removed	Unknown
		8-27		AST		7,400	Weak Metallic Wastewater	Removed	Unknown
		8-28		AST		7,400	Alkali/Oily Wastewater	Removed	Unknown
		8-29		AST		11,300	EMPTY	Removed	Unknown
		8-30		AST		11,300	EMPTY	Removed	Unknown
		8-31		AST		11,300	EMPTY	Removed	Unknown
W-6	Former Plant 8 (Flammable Liquid Storage Building)	FLB-1		AST		22,000	Engine Oil	Removed	Unknown
		FLB-2		AST		22,000	Transmission Fluid	Removed	Unknown
		FLB-3		AST		15,000	Engine Oil	Removed	Unknown
		FLB-4		AST		15,000	Cutting Oil	Removed	Unknown
		FLB-5		AST		15,000	Power Steering Fluid	Removed	Unknown
		FLB-6		AST		15,000	Engine Oil	Removed	Unknown
		FLB-7		AST		15,000	General Purpose Lubricant	Removed	Unknown

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TABLE 6-6
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

STORAGE TANK SUMMARY - DEMOLITION AREA (DA)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
W-6	Former Plant 8 (Flammable Liquid Storage Building)	FLB-8		AST		22,000	Transmission Fluid	Removed	Unknown
		FLB-9		AST		22,000	Hydraulic Oil	Removed	Unknown
		FLB-10		AST		15,000	Mixed Glycol	Removed	Unknown
		FLB-11		AST		15,000	Mixed Glycol	Removed	Unknown
		FLB-12		AST		22,000	Concentrated Glycol	Removed	Unknown
		FLB-13		AST		22,000	Soluble Oil	Removed	Unknown
		FLB-14		AST		15,000	EMPTY	Removed	Unknown
		FLB-15		AST		15,000	EMPTY	Removed	Unknown
		FLB-16		AST		22,000	Mineral Seal	Removed	Unknown
		FLB-17		AST		22,000	Hypoid Gear Oil	Removed	Unknown
W-7	Former Plant 9 (Turbo Tank)	9-1		UST		550	Gasoline	Removed in 1991	Fiberglass
W-8	Former Plant 9 (Basement)	9-2		AST		10,000	Kerosene (Mineral Seal)	Removed	Unknown
		9-3		AST		10,000	Kerosene (Mineral Seal)	Removed	Unknown
		9-4		AST		10,000	Kerosene (Mineral Seal)	Removed	Unknown
		9-5		AST		10,000	Kerosene (Mineral Seal)	Removed	Unknown
		9-6		AST		6,400	Kerosene (Mineral Seal)	Removed	Unknown
		9-7		AST		1,400	EMPTY	Removed	Unknown
		9-8		AST		1,400	EMPTY	Removed	Unknown
		9-9		AST		2,000	EMPTY	Removed	Unknown
		9-10		AST		10,000	Coolant 141-KC	Removed	Unknown
		9-11		AST		10,000	Coolant 141-KC	Removed	Unknown
		9-12		AST		10,000	Coolant 141-KC	Removed	Unknown
		9-13		AST		10,000	Coolant 141-KC	Removed	Unknown

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TABLE 6-7
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Surface Soil Analytical Results (Parsons, 1997)								
Volatile Organics								
Acetone	20	13	2.3	360	15,000	42,000	23,000,000	110,000,000
Benzene	20	2	3.1	6.4	100	100	1,000	400,000
2-Butanone (MEK)	20	7	3.5	67	260,000	260,000	27,000,000	27,000,000
1,4-Dichlorobenzene	20	2	2.4	5.6	1,700	1,700	400,000	2,900,000
Ethylbenzene	20	4	2.5	24	1,500	1,500	140,000	140,000
2-Hexanone	20	2	4.0	4.1	20,000	58,000	2,500,000	2,500,000
4-Methyl-2-pentanone (MIBK)	20	2	4.2	16	Not Regulated			
Methylene chloride	20	4	2.8	6.7	Not Regulated			
Tetrachloroethene	20	4	2.8	18	100	100	88,000	88,000
Toluene	20	7	2.7	27	16,000	16,000	250,000	250,000
Trichloroethene	20	1		27	100	100	500,000	500,000
Xylenes (total)	20	6	2.8	79	5,600	5,600	150,000	150,000
Semivolatile Organics								
Acenapthene	19	4	51	36,000	300,000	880,000	41,000,000	200,000,000
Acenaphthylene	20	3	27	2,000	5,900	1,700	1,600,000	8,000,000
Anthracene	20	8	20	21,000	41,000	41,000	230,000,000	1,000,000,000
Benzo(a)anthracene	20	13	24	15,000	NLL	NLL	20,000	100,000
Benzo(a)pyrene	20	12	24	8,600	NLL	NLL	2,000	10,000
Benzo(b)fluoranthene	20	12	46	11,000	NLL	NLL	20,000	100,000
Benzo(ghi)perylene	20	12	20	4,500	NLL	NLL	2,500,000	9,100,000
Benzo(k)fluoranthene	20	10	25	5,300	NLL	NLL	200,000	1,000,000
bis(2-Ethylhexyl)phthalate	20	7	23	1,300	NLL	NLL	2,800,000	10,000,000
Butyl benzyl phthalate	20	9	120	32,000	310,000	310,000	310,000	310,000
Carbazole	20	5	19	11,000	9,400	39,000	530,000	3,700,000
Chrysene	20	14	30	16,000	NLL	NLL	2,000,000	10,000,000
Di-n-butyl phthalate	20	2	39	240	760,000	760,000	760,000	760,000
Dibenz(a,h)anthracene	20	4	23	180	NLL	NLL	2,000	10,000
Dibenzofuran	20	7	18	27,000	ID	ID	ID	ID

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of Samples	Number of Detects	Concentration (ppb) Minimum	Concentration (ppb) Maximum	Drinking Water Criteria[1] Residential	Drinking Water Criteria[1] Industrial	Direct Contact[2] Residential	Direct Contact[2] Industrial
West Yard - Surface Soil Analytical Results (Parsons, 1997)								
2,4-Dimethylphenol	20	2	120	250	7,400	20,000	11,000,000	56,000,000
Fluoranthene	20	13	30	82,000	730,000	730,000	46,000,000	180,000,000
Fluorene	19	6	78	36,000	390,000	890,000	27,000,000	130,000,000
Indeno(1,2,3-cd)pyrene	20	12	19	3,700	NLL	NLL	20,000	100,000
2-Methylnapthalene	20	15	28	23,000	57,000	170,000	8,100,000	40,000,000
2-Methylphenol	20	2	260	930	7,400	20,000	11,000,000	56,000,000
3-Methylphenol	17	1		400	7,400	20,000	11,000,000	56,000,000
4-Methylphenol	20	2	140	450	7,400	20,000	11,000,000	56,000,000
Naphthalene	20	10	21	97,000	35,000	100,000	16,000,000	80,000,000
Phenanthrene	20	17	41	110,000	56,000	160,000	1,600,000	8,000,000
Phenol	20	3	23	2,100	88,000	260,000	12,000,000	12,000,000
Pyrene	20	15	20	50,000	480,000	480,000	29,000,000	110,000,000
PCBs								
Methoxychlor	16	1		90	16,000	16,000	1,900,000	7,700,000
Aroclor 1248	17	5	470	2,000	NLL	NLL	4,000	20,000
Aroclor 1254	17	4	340	1,100	NLL	NLL	4,000	20,000
Total PCBs	15	6	480	3100	NLL	NLL	4,000	20,000
Dioxins/Furans								
Total TEFs	5	5	2.60E-08	0.000566				
Inorganics								
Aluminum	20	20	438,000	8,500,000	6,900,000*	6,900,000*	50,000,000	660,000,000
Antimony	20	14	494	26,500	500	4,300	180,000	1,200,000
Arsenic	20	20	1,050	67,100	23,000	23,000	7,600	61,000
Barium	20	20	9,740	353,000	1,300,000	1,300,000	37,000,000	250,000,000
Beryllium	19	13	163	805	51,000	51,000	410,000	3,100,000
Cadmium	20	20	46.8	6,090	6,000	6,000	550,000	4,100,000
Calcium	19	19	2,710,000	89,700,000	Not Regulated			
Chromium	20	20	4,480	1,660,000	30,000	30,000	2,500,000	17,000,000
Cobalt	20	18	2,670	69,500	800	2,000	2,600,000	18,000,000

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TABLE 6-7
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Surface Soil Analytical Results (Parsons, 1997)								
Copper	20	20	6,690	1,590,000	5,800,000	5,800,000	20,000,000	140,000,000
Cyanide	19	8	310	590	4,000	4,000	12,000	250,000
Iron	20	20	3,390,000	567,000,000	12,000,000*	12,000,000*	160,000,000	1,000,000,000
Lead	20	20	3,320	221,000	700,000	700,000	400,000	900,000
Magnesium	20	20	492,000	12,000,000	8,000,000	22,000,000	1,000,000,000	1,000,000,000
Manganese	20	20	78,500	4,600,000	440,000*	440,000*	25,000,000	170,000,000
Mercury	18	8	59.7	1,140	1,700	1,700	160,000	1,10[illegible],000
Nicke	20	20	5,140	601,000	100,000	100,000	40,000,000	270,000,000
Potassium	17	9	558,000	1,270,000	Not Regulated			
Selenium	16	3	515	1,090	4,000	4,000	2,600,000	18,000,000
Silver	17	6	357	1,640	4,500	13,000	2,500,000	17,000,000
Sodium	19	19	109,000	675,000	2,500,000	7,000,000	1,000,000,000	1,000,000,000
Tin	5	3	13,100	84,000	Not Regulated			
Vanadium	20	20	4,740	53,700	72,000	990,000	750,000	10,000,000
Zinc	20	20	11,100	3,640,000	2,400,000	5,000,000	170,000,000	1,000,000,000
Other								
Sulfide	4	1		100,000	Not Regulated			
Total Solids, Percent	19	19	84.1	94.61	Not Regulated			
West Yard - Subsurface Soil Analytical Results (Parsons, 1997)								
Volatile Organics								
Acetone	48	32	2.5	2,200	15,000	42,000	23000000	110,000,000
Benzene	47	1		720	100	100	1,000	400,000
2-Butanone (MEK)	47	27	2.2	1,600	260,000	260,000	27,000,000	27,000,000
Carbon disulfide	48	3	2.6	9.6	16,000	46,000	280,000	280,000
1,4-Dichlorobenzene	48	1		2.7	1,700	1,700	400,000	2,900,000
1,1-Dichloroethane	48	2	16	21	18,000	50,000	890,000	890,000
Ethylbenzene	47	7	4.1	25,000	1,500	1,500	140,000	140,000

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TABLE 6-7
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of Samples	Number of Detects	Concentration (ppb) Minimum	Concentration (ppb) Maximum	Drinking Water Criteria[1] Residential	Drinking Water Criteria[1] Industrial	Direct Contact[2] Residential	Direct Contact[2] Industrial
West Yard - Subsurface Soil Analytical Results (Parsons, 1997)								
2-Hexanone	48	1		2.5	20,000	58,000	2,500,000	2,500,000
4-Methyl-2-pentanone (MIBK)	45	2	3	3.9	Not Regulated			
Methylene chloride	47	6	2.4	25,000	Not Regulated			
Tetrachloroethene	47	8	2.3	7.5	100	100	88,000	88,000
Toluene	48	9	2.4	42,000	16,000	16,000	250,000	250,000
Vinyl chloride	48	2	4	15	40	40	4,000	29,000
Xylenes (total)	48	9	6.8	150,000	5,600	5,600	150,000	150,000
cis-1,2-Dichloroethene	46	2	8.6	16	1,400	1,400	640,000	640,000
Semivolatile Organics								
Acenaphthene	29	7	24	14,000	880,000	880,000	41,000,000	200,000,000
Anthracene	33	8	20	11,000	41,000	41,000	230,000,000	1,000,000,000
Benzo(a)anthracene	29	10	42	7,700	NLL	NLL	20,000	100,000
Benzo(a)pyrene	29	6	25	690	NLL	NLL	2,000	10,000
Benzo(b)fluoranthene	29	9	28	8,300	NLL	NLL	20,000	100,000
Benzo(ghi)perylene	29	7	21	4,200	NLL	NLL	2,500,000	9,100,000
Benzo(k)fluoranthene	28	4	36	460	NLL	NLL	200,000	1,000,000
Butyl benzyl phthalate	28	6	130	1,100,000	310,000	310,000	310,000	310,000
Carbazole	28	3	21	110	9,400	39,000	530,000	3,700,000
Chrysene	29	10	47	12,000	NLL	NLL	2,000,000	10,000,000
Di-n-butyl phthalate	28	1		480,000	760,000	760,000	760,000	760,000
Di-n-octyl phthalate	47	1		37,000	100,000,000	140,000,000	6,900,000	28,000,000
Dibenz(a,h)anthracene	28	3	18	250	NLL	NLL	2,000	10,000
Dibenzofuran	27	6	22	13,000	ID	ID	ID	ID
2,4-Dimethylphenol	28	6	24	72,000	7,400	20,000	11,000,000	56,000,000
Fluoranthene	27	13	38	22,000	730,000	730,000	46,000,000	180,000,000
Fluorene	26	10	40	26,000	390,000	890,000	27,000,000	130,000,000
Indeno(1,2,3-cd)pyrene	28	5	27	510	NLL	NLL	20,000	100,000

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GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Subsurface Soil Analytical Results (Parsons, 1997)								
2-Methylnapthalene	27	17	24	120,000	57,000	170,000	8,100,000	40,000,000
2-Methylphenol	26	6	25	320	7,400	20,000	11,000,000	56,000,000
3-Methylphenol	9	2	54	110	7,400	20,000	11,000,000	56,000,000
4-Methylphenol	28	6	45	70,000	7,400	20,000	11,000,000	56,000,000
Naphthalene	29	13	22	70,000	35,000	100,000	16,000,000	80,000,000
Pentachloroethane	9	1		99	Not Regulated			
Phenanthrene	29	18	23	52,000	56,000	160,000	1,600,000	8,000,000
Pheno	47	3	110	140,000	88,000	260,000	12,000,000	12,000,000
Pyren	27	13	24	17,000	480,000	480,000	29,000,000	110,000,000
bis(2-ethylhexyl)phthalate	29	6	24	35,000	NLL	NLL	2,800,000	10,000,000
PCBs								
Aroclor 1248	29	6	830	31,000	NLL	NLL	4,000	20,000
Aroclor 1254	29	4	840	12,000	NLL	NLL	4,000	20,000
Total PCBs	29	6	1,670	43,000	NLL	NLL	4,000	20,000
Dioxins/Furans								
Total TEFs	7	6	7.80E-08	0.00014				
Inorganics								
Aluminum	29	29	625,000	10,800,000	6,900,000*	6,900,000*	50,000,000	660,000,000
Antimony	29	16	341	1,740,000	500	4,300	180,000	1,200,000
Arsenic	29	29	603	35,700	23,000	23,000	7,600	61,000
Barium	29	29	4,590	5,720,000	1,300,000	1,300,000	37,000,000	250,000,000
Beryllium	29	9	163	1,050	51,000	51,000	410,000	3,100,000
Cadmium	29	26	36.8	10,700	6,000	6,000	550,000	4,100,000
Calcium	29	28	1,230,000	425,000,000	Not Regulated			
Chromium	29	29	1,690	1,020,000	30,000	30,000	2,500,000	17,000,000
Cobalt	29	10	3,070	34,600	800	2,000	2,600,000	18,000,000
Copper	29	29	2,790	2,370,000	5,800,000	5,800,000	20,000,000	140,000,000
Cyanide	29	12	380	4,100	4,000	4,000	12,000	250,000
Iron	29	29	2,060,000	376,000,000	12,000,000*	12,000,000*	160,000,000	1,000,000,000

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GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Subsurface Soil Analytical Results (Parsons, 1997)								
Lead	29	28	711	1,350,000	700,000	700,000	400,000	900,000
Magnesium	29	29	328,000	23,900,000	8,000,000	22,000,000	1,000,000,000	1,000,000,000
Manganese	29	29	32,400	3,900,000	440,000*	440,000*	25,000,000	170,000,000
Mercury	29	6	82.1	2,230	1,700	1,700	160,000	1,100,000
Nickel	29	29	3,060	354,000	100,000	100,000	40,000,000	270,000,000
Potassium	29	4	551,000	2,690,000	Not Regulated			
Selenium	29	7	316	1,670	4,000	4,000	2,600,000	18,000,000
Silver	29	2	886	2,370	4,500	13,000	2,500,000	17,000,000
Sodium	29	29	159,000	2,490,000	2,500,000	7,000,000	1,000,000,000	1,000,000,000
Tin	29	1		51,300	Not Regulated			
Vanadium	29	28	4,620	61,400	72,000	990,000	750,000	10,000,000
Zinc	29	29	3,960	4,040,000	2,400,000	5,000,000	170,000,000	1,000,000,000
West Yard - Groundwater Analytical Results (Parsons, 1997)								
Volatile Organics								
Acetone	18	10	4	8.4	730	2,100	31,000,000	
Benzene	22	9	1	22	5.0	5.0	11,000	
2-Butanone (MEK)	17	1		2.6	13,000	38,000	240,000,000	
Chloroethane	18	10	1.6	24	430	1,700	440,000	
1,1-Dichloroethane	18	9	1.1	30	880	2,500	2,400,000	
1,2-Dichloroethane	18	2	1.3	1.4	5.0	5.0	19,000	
Ethylbenzene	17	1		56	74	74	170,000	
Toluene	17	2	1.1	38	790	790	530,000	
Vinyl chloride	22	10	5	310	2	2	570	
Xylenes (total)	17	2	4.8	170	280	280	190,000	
cis-1,2-Dichloroethene	19	9	1.5	89	70	70	11,000	

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GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Groundwater Analytical Results (Parsons, 1997)								
Semivolatile Organics								
Anthracene	17	1		2.6	43	43	43	
Benzyl alcohol	7	2	9.8	11	10,000	29,000	44,000,000	
Butyl benzyl phthalate	17	2	4	4.2	1,200	2,700	2,700	
Chrysene	17	1		0.69	5	5	5	
2,4-Dimethylphenol	20	7	2.8	390	370	1,000	520,000	
Fluoranthene	17	1		2.7	210	210	210	
Fluorene	17	2	7.3	10	880	2,000	2,000	
2-Methylnaphthalene	21	9	1.7	150	260	750	25,000	
2-Methylphenol	17	3	7.6	49	370	1,000	810,000	
3-Methylphenol	7	2	0.99	1.2	370	1,000	810,000	
4-Methylphenol	17	2	1.1	1.3	370	1,000	810,000	
Naphthalene	17	5	0.58	10	520	1,500	31,000	
Phenanthrene	17	6	0.62	25	52	150	1,000	
Pyrene	17	1		3.6	140	140	140	
bis(2-Ethylhexyl)phthalate	20	4	0.92	16	6.0	6.0	320	
PCBs								
Aroclor 1221	1	1		0.16	0.5	0.5	3.3	
Aroclor 1248	21	7	0.11	37	0.5	0.5	3.3	
Aroclor 1254	21	1		0.35	0.5	0.5	3.3	
Total PCBs	22	8	0.11	37	0.5	0.5	3.3	
Dioxins/Furans								
Total TEFs	23	23	1.30E-07	0.00117				
Inorganics, Filtered								
Aluminum	23	15	100	708	50	50	64,000,000	
Arsenic	17	9	5	29.2	50	50	4,300	
Barium	17	12	206	1,910	2,000	2,000	14,000,000	
Calcium	32	32	10,700	425,000	Not Regulated			
Iron	31	31	100	56,200	300	300	58,000,000	

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GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-1

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
West Yard - Groundwater Analytical Results (Parsons, 1997)								
Lead	16	1		5.1	0.20	0.20	ID	
Magnesium	18	18	9,340	114,000	400,000	1,100,000	1,000,000,000	
Manganese	31	31	28	2,820	50	50	9,100,000	
Nickel	21	1		104	100	100	74,000,000	
Potassium	29	26	12,800	40,700	Not Regulated			
Sodium	30	30	77,800	1,780,000	120,000	350,000	1,000,000,000	
Zinc	17	6	26	258	2,400	5,000	110,000,000	
Other								
Cyanide	19	7	21	4,500	200	200	57,000	
Sulfide	11	7	0.5	5,000	Not Regulated			

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.
Only constituents with at least one detection are shown on the table.

[1] MDEQ generic drinking water criteria are presented for groundwater.
MDEQ generic drinking water protection criteria are presented for soils.

[2] MDEQ generic groundwater contact criteria are presented for groundwater.
MDEQ generic direct contact criteria are presented for soils.

Shading indicates that at least one sample exceeded the criteria.

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TABLE 6-8
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-2

Constituent	Number of Samples	Number of Detects	Concentration (ppb) Minimum	Concentration (ppb) Maximum	Drinking Water Criteria[1] Residential	Drinking Water Criteria[1] Industrial	Direct Contact[2] Residential	Direct Contact[2] Industrial
Hazardous Waste Storage Pad - Soil (Dames & Moore, 1989)								
Volatile Organics (ug/kg)								
Benzene	88	17	2,000	20,000	100	100	1,000	400,000
Toluene	88	17	2,000	290,000	16,000	16,000	250,000	250,000
Xylenes	88	20	4,000	600,000	5,600	5,600	150,000	150,000
1,1,1-Trichloroethane	88	5	300	410,000	4,000	4,000	460,000	460,000
Methylene Chloride	88	47	2,000	78,000	100	100	1,300,000	2,300,000
Methyl Ethyl Ketone (MEK)	88	35	55,000	770,000	260,000	760,000	27,000,000	27,000,000
Inorganics (ug/kg)								
Lead	88	73	2,000	590,000	700,000	700,000	400,000	900,000
Hazardous Waste Storage Pad - Soil (GTI, 1990a)								
Volatile Organics (ug/kg)								
1,1,1-Trichloroethane	8	3	15	35	4,000	4,000	460,000	460,000
Ethylbenzene	8	7	3.0	85	1,500	1,500	140,000	140,000
Toluene	8	7	6.0	230	16,000	16,000	250,000	250,000
Xylenes	8	8	6.0	300	5,600	5,600	150,000	150,000
Hazardous Waste Storage Pad - Groundwater (Dames & Moore, 1989)								
Volatile Organics (ug/L)								
Benzene	5	2	4.0	9.0	5.0	5.0	11,000	
Toluene	5	1		20	790	790	530,000	
Xylenes	5	1		3.0	280	280	190,000	
Inorganics (ug/L)								
Aluminum	1	1		860	50	50	64,000,000	
Arsenic	1	1		9.0	50	50	4,300	
Barium	1	1		100	2,000	2,000	14,000,000	
Calcium	1	1		63,000	Not Regulated			
Iron	1	1		3,600	300	300	58,000,000	
Lead	5	1		110	0.20	0.20	ID	

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TABLE 6-8
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-2

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Hazardous Waste Storage Pad - Groundwater (Dames & Moore, 1989)								
Inorganics (ug/L)								
Magnesium	1	1		10,000	400,000	1,100,000	1,000,000,000	
Nickel	1	1		30	100	100	74,000,000	
Zinc	1	1		70	2,400	5,000	110,000,000	
Hazardous Waste Storage Pad - Groundwater (GTI, 1990a)								
Volatile Organics (ug/L)								
Benzene	8	4	2.0	110	5.0	5.0	11,000	
Ethylbenzene	7	1		8	74	74	170,000	
Toluene	8	6	3.0	375	790	790	530,000	
Xylenes (total)	8	5	2.0	40	280	280	190,000	

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.
Only constituents with at least one detection are shown on the table.
[1] MDEQ generic drinking water criteria are presented for groundwater.
MDEQ generic drinking water protection criteria are presented for soils.
[2] MDEQ generic groundwater contact criteria are presented for groundwater.
MDEQ generic direct contact criteria are presented for soils.
Shading indicates that at least one sample exceeded the criteria.

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TABLE 6-9
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-9

Constituent	Number of Samples	Number of Detects	Concentration (ppb) Minimum	Concentration (ppb) Maximum	Drinking Water Criteria[1] Residential	Drinking Water Criteria[1] Industrial	Direct Contact[2] Residential	Direct Contact[2] Industrial
Former Plant 6 Foundry - Subsurface Soil (SHA, 1988)								
Volatile Organics (ug/kg)								
Ethylbenzene	25	9	1.0	7.0	1,500	1,500	140,000	140,000
Methylene chloride	25	15	3.0	7.0	Not Regulated			
Toluene	25	11	2.0	60	16,000	16,000	250,000	250,000
Xylenes	25	14	1.0	35	5,600	5,600	150,000	150,000
Semivolatile Organics (ug/kg)								
Acenaphthalene	25	1		3				
bis(2-Ethylhexyl)phthalate	25	4	2.0	10	NLL	NLL	2,800,000	10,000,000
Butyl Isobutyl Phthalate	25	1		20	Not Regulated			
Diethyl Phthalate	25	1		16	110,000	320,000	740,000	740,000
Di-n-butyl phthalate	25	19	2.0	20	760,000	760,000	760,000	760,000
Naphthalene	25	1		48	35,000	100,000	16,000,000	80,000,000
Other (ug/kg)								
Kerosene	25	15	140	1,550	Not Regulated			
Dibasic Esters	25	1		300	Not Regulated			
Formaldehyde	25	1		6.0	26,000	76,000	41,000,000	60,000,000
Hexanedioic Acid/Dioctyl Ester	25	4	2.0	50	Not Regulated			
Former Plant 6 Foundry - Groundwater (SHA, 1988)								
Volatile Organics (ug/L)								
Benzene	26	1		10	5.0	5.0	11,000	
Chloroform	26	1		55	100	100	150,000	
1,1-Dichloroethane	26	2	5.0	25	880	2,500	2,400,000	
Ethylbenzene	26	3	12	200	74	74	170,000	
Methyl chloride	26	3	370	2,700	Not Regulated			
Trans 1,2-Dichloroethene	26	2	1,000	1,540	100	100	220,000	
Toluene	26	9	3.0	225	790	790	530,000	
1,1,1-Trichloroethane	26	1		20	200	200	1,300,000	
Trichloroethene	26	4	4.0	530	5.0	5.0	37,000	
Xylenes	26	7	4.0	3,700	280	280	190,000	

See Notes, Page 2.

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TABLE 6-9
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI W-9

Constituent	Number of Samples	Number of Detects	Concentration (ppb) Minimum	Concentration (ppb) Maximum	Drinking Water Criteria[1] Residential	Drinking Water Criteria[1] Industrial	Direct Contact[2] Residential	Direct Contact[2] Industrial
Former Plant 6 Foundry - Groundwater (SHA, 1988)								
Semivolatile Organics (ug/L)								
Anthracene	26	4	80	17,000	43	43	43	
Benzo(a)pyrene	26	2	1,100	1,100	5.0	5.0	5.0	
bis(2-Ethylhexyl)phthalate	26	13	4.0	6,600	6.0	6.0	320	
Chrysene	26	2	1,900	4,600	5.0	5.0	5.0	
Naphthalene	26	7	27	230,000	520	1,500	31,000	
Pentachlorophenol	26	1		1,450	1.0	1.0	200	
Phenol	26	11	22	46,000	4,400	13,000	29,000,000	
Pyrene	26	1		1,300	140	140	140	
Other (ug/L)								
Kerosene	24	11	125	289,000	Not Regulated			
Dibasic Esters	26	1		1,000	Not Regulated			

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.

Only constituents with at least one detection are shown on the table.

[1] MDEQ generic drinking water criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic drinking water protection criteria are presented for soils (June 2000 criteria revision).

[2] MDEQ generic groundwater contact criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic direct contact criteria are presented for soils (June 2000 criteria revision).

Shading indicates that at least one sample exceeded the criteria.

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TABLE 6-10
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-1: Wastewater Treatment Plant Area						
West of Plant 14 and Plants 5 and 23.	1986 USEPA Spill Release Survey	Yes	The WWTP began operation in March 1957. Metals, including hexavalent chromium, from the paint booths, ELPO, the powerhouse, and assembly were treated. Alkali/oily wastes from the engine plants, metal stamping, and parts washers were also treated. Numerous ASTs containing a variety of materials. No secondary containment is present around the ASTs. The WWTP discharges to Outfall-003, then to the Pontiac POTW.	Historical documented spills including alkali/oily water, cyanide plating solution, acidic alkali water, lime slurry, reclaimed oil, strong metallic water, and chrome and cyanide solutions. Historical documented exceedances of phenol, lead, and hexavalent chromium at Outfall-003. Evidence of recent spills was observed during the August 2000 Site walkover.	CRA conducted a preliminary subsurface boring program adjacent to the WWTP area in September 1999. No remedial actions have been conducted.	Further Action is recommended.
AOI M-2: Former Plating Operations Area						
West portion of Plant 2, near Dock 34.	No	No	Process plating pits and metal mix tanks below concrete floor east of the plating pits. Signs of corrosion in the process plating pits and area truck docks were observed during the August 2000 Site walkover. Water from leaking roof accumulated in some of the pits and docks.	Poor integrity of concrete pits. Use of heavy metals, including hexavalent chromium and chlorinated solvents.	Limited surface investigation in the area of the plating pits. Exceedances of cleanup criteria were identified in residuals in floor trenches, pits, vaults, sumps, and concrete flooring for the following parameters: arsenic, chromium, copper, lead, cyanide, PCBs, corrosivity, and reactivity.	Further Action is recommended.

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GENERAL MOTORS CORPORATION
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-3: Former Track 31						
West of Plant 14 and northwest of the WWTP.	No	No	Railroad spur used for transporting materials within the facility.	Staining was observed in October 1986. Subsequent investigations determined the area was contaminated with PCBs.	Soil and groundwater investigations were performed between December 1986 and January 1995. A soil investigation was performed in 1995. Eight groundwater monitoring wells were installed in 1988 and sampled between 1988 and 1993. It was concluded that groundwater was not impacted. A RAP for Part 201 industrial/restricted access closure was submitted in July 1996. Between September 1996 and October 1996, approximately 3,609 tons of debris (including rail materials and soil) were removed. A RAP completion report was submitted to the MDEQ in January 1997.	No Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-4: Plant 25 Former Gasoline UST and Current Gasoline AST Location						
Northwest corner of MFD adjacent to Plant 33 (formerly Plant 55).	No	No	Underground tank of 20,000 gallon capacity. The tank contained regular leaded gasoline at the time of the 1985 release. No evidence of the former UST or remediation project was observed during the August 2000 Site walkover. 1000-gallon AST used for storing gasoline. The AST is surrounded with a secondary containment basin with a blind sump.	Documented release of gasoline in March 1985. 1991 groundwater quality data shows exceedance of Part 201 criteria for benzene.	The tank was removed in March 1985. Approximately 1,100 cubic yards of soil were also removed. Approximately 2,000 gallons of free gasoline were recovered from the excavation. Three monitoring wells and a hydrocarbon recovery system were installed. The recovery system was operated from 1985 to 1987. In 1987, MDEQ granted "no further remedial action" for the area.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-5: Former A-2 Fill Area						
Extends under Plant 25, Plant 33, Plant 75, and associated parking lots.	SWMU (GM, 1986_)	No	A nonsalvage material dump area for materials related to engine assembly, car assembly, foundry operations, painting, stamping, engine machining, metal plating, and wastewater treatment. GM submitted CERCLA Section 103(c) notification to USEPA in 1980 that included notification of the fill area. GM submitted a potential release survey to USEPA in 1986 that included notification of the fill area. No signs of the former fill area were observed during the August 2000 Site walkover. The area is located under buildings and paved lots.	Possible PCB-containing oils, heavy metals from foundry waste, solvent materials, and hydrocarbons.	CRA conducted a soil and groundwater investigation in 1999. VOCs, SVOCs, PCBs, pesticides, cyanide, and metals were detected in soil below applicable generic MDEQ Part 201 criteria. Low levels of VOCs, SVOCs, and pesticides were detected in groundwater. Bis(2-ethylhexyl)phthalate was detected above generic MDEQ Part 201 Generic Industrial Cleanup criteria. No remedial actions have been conducted	Further Action is recommended.
AOI M-6: Plant 5 Hydraulic Fluid Spill						
Adjacent to Plant 5	No	No	No evidence of stained soil was observed during the August 2000 Site walkover.	Spill of transformer fluid in September 1992 Spill of hydraulic fluid in September 1995.	The spilled hydraulic fluid was tested and PCBs were confirmed to be present in the fluid. Blacktop, concrete, and soil were excavated from the spill area. Excavated materials filled two 20 cubic yard roll-off boxes.	No Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-7: ELPO Building						
The ELPO building is located east of Plants 5 and 8 and southwest of Plant 18.	Yes	Yes	Purge thinner tank contents (dirty solvent storage). Numerous spills in the interior are evident. Fifteen ASTs (1988); contained: alkali cleaner, phosphoric acid, chromic acid, paint, paint bath. Phosphating process tanks; ELPO process tanks; possible PCB oil transformers present. During August 2000 site walk, it was observed that part of the concrete floor had a sealant on it, while other parts (along the east wall trench) were significantly corroded.	Constituents of concern include VOCs, PCBs, metals, and petroleum hydrocarbons. The outside east wall at the south end of the building was stained black, suggesting material had leaked from an inside tank.	There have been no previous investigations or remedial actions.	Further Action is recommended.

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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-8: Plant 25 Oil Storage Area						
West of Plant 25.	No	Yes	Six ASTs that contained soluble oil, hydraulic oil, semi-synthetic grinding oil, engine oil, and lubrication oil. The tanks do not have individual secondary containment, but the entire building is surrounded by a diked containment system that drains to the WWTP via Plant 25. A 300-gallon AST for diesel fuel is located just outside the building at the south end.	No documented releases from the oil storage ASTs or the diesel AST.	During August 2000 site walk, the concrete containment inside and outside the building was observed to be in good condition with no evidence of releases. No previous investigations or remedial actions.	No Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-9: Plant 11 Heat Treat Oil Storage Area						
Adjacent to Plant 2 to west and Plants 5 and 23 to south.	No	Yes	Four ASTs that historically stored oil and LC-7 coolant. Acidic materials may also have been used in the area. Only one tank is currently in use. The tank stores non-RCRA regulated used oil (code 021L). During the August 2000 Site walkover, three storage tanks containing "dirty quench oil - non-RCRA regulated" were observed along the east wall inside Plant 14 South. The tanks are located within a pit with a sump that discharges to the WWTP. Both the pit and sump had a moderate amount of oily liquid in them. Staining was also observed on the eastern outside wall of the building.	Constituents of concern include VOCs, PCBs, and petroleum hydrocarbons. Observed oily liquid in sumps.	No documentation available on AST closure. Three of the ASTs have been washed, rinsed, and sit empty.	Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-10: Plant 23 Basement AST Area						
Basement of Plant 23.	No	No	Three 12,500-gallon tanks that previously contained 593-KC synthetic coolant. The tanks have a below-grade containment system and a sump that discharges to the WWTP. The tanks are believed to be empty at this time.	No documented releases. The tanks were observed to be in good condition during the August 2000 Site walkover. The concrete on the floor around the containment was cracked and broken; however, there was no evidence of release.	Tanks are still in place and observed to be in good condition with no evidence of a release. No previous investigations or remedial actions.	No Further Action is recommended.
AOI M-11: Plant 12 Former Gasoline Storage Area						
North of Plant 12	No	No	480-gasoline AST used for storing unleaded gasoline. During the August 2000 Site walkover, the concrete slab along the north wall of Plant 12 was observed to be cracked.	Constituents of concern include BTEX, lead, and petroleum hydrocarbons.	Documentation does not exist on closure of the AST.	Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-12: AST East of Plant 49						
East of Plant 49 at the Water Storage Building	No	Yes	550-gallon AST historically used for storing fuel oil. The AST has a secondary containment system. Currently the AST contains diesel fuel for back-up heating. The secondary containment system was observed to be in good condition during the August 2000 Site walkover.	None.	During August 2000 site walk, the concrete containment basin and sump were observed to be in good condition with no evidence of releases. No previous investigations or remedial actions.	No Further Action is recommended.
AOI M-13: AST West of Plant 14						
West of Plant 14	No	No	480-gallon AST historically used to store diesel fuel. During the August 2000 Site walkover, two small fuel tanks were observed outside the west end of Plant 14. One was full and had secondary containment. The other was empty and not contained.	Constituents of concern include BTEX and petroleum hydrocarbons.	No closure information available for former AST.	Further Action is recommended.
AOI M-14: Current AST Area East of Plant 12						
East of Plant 12.	No	Yes	Two ASTs that store gasoline and diesel fuel. The ASTs were installed in 1999. Both have secondary containment systems and drain to a blind sump.	Constituents of concern include BTEX, lead, and petroleum hydrocarbons.	This area was observed during the August 2000 site walk. The concrete around the tanks was observed to be in good condition, with no evidence of release. No previous investigations or remedial actions.	No Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-15: Track 26						
Between Plants 56 and 14.	Yes	Yes	The railroad spur was used to haul materials to Plant 11, Plant 14, Plant 49, and Plant 56. No staining was observed during the August 2000 Site walkover.	Constituents of potential concern include VOCs, PCBs, metals, and petroleum hydrocarbons. No documented releases	Concrete and soil sampling program in 1998.	No Further Action is recommended.
AOI M-16: Plant 25 Basement Sump Area						
Basement of Plant 25 West.	No	Yes	Basement area containing several sumps. The north sump collected material from different areas of Plant 25 and pumped the material to a sludge holding tank in the basement. Three additional process pits collected oily water from a separation process. These pits have recently been filled in with flowable material.	Constituents of potential concern include VOCs, PCBs, metals, and petroleum hydrocarbons. No documented releases. This area was observed during the August 2000 Site walk. Several floor sumps were filled with oily liquid, some of which was overflowing onto the basement floor. Additional floor sumps containing oily liquid were observed along the east wall of the basement. The concrete floor appeared to be in good condition. The condition of the sumps could not be assessed because they were filled with oily liquid.	No documented investigations or remedial actions found.	Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-17: Plant 15 Southern Piping Trench.						
Southwest portion of Plant 15 basement.	No	Yes	A pit containing wastewater piping located in the basement of Plant 15, leading to the WWTP. The trench was located during the August 2000 Site walk; however, the trench could not be observed.	No documented releases.	No documented investigations or remedial actions found.	Further Action is recommended.
AOI M-18: Plant 5 Waste Accumulation Area						
West end of Plant 5	No	Yes	Area containing non-hazardous waste and empty 55-gallon drums. The area has been used for this purpose since the 1980s. This area is slated for future demolition. No secondary containment system.	No documented releases. This area was observed during the August 2000 Site walkover. Numerous 55-gallon drums containing various motor oils.	Area is used for storing non-hazardous waste and empty drums. No previous investigations ore remedial actions.	No Further Action is recommended.
AOI M-19: Plant 5 Southern Access Railway						
Southwestern end of Plant 5.	No	Yes	The southern access railway for Plant 5 extends from the southwest corner of Plant 5 into the center of the plant. Soil is exposed under the railway.	Constituents of potential concern include VOCs, PCBs, metals, and petroleum hydrocarbons. No documented releases	No documented investigations or remedial actions found.	Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-20: Plant 23 Basement Area						
South end of Plant 23 basement.	No	Yes	Area was recently excavated below grade due to a sanitary sewer back-up. During the August 2000 Site walkover, liquid (condensate water from a pipe) was observed to be collecting in low-lying areas. Discolored basement walls with groundwater seepage were observed in this area.	Discolored water due to sanitary sewer breakage. No documented releases	No documented investigations or remedial actions found.	No Further Action is recommended.
AOI M-21: Plant 14 Transformer Station						
Outside on concrete pad between Plant 14 and Plant 56. Adjacent to Track 26.	No	Yes	Approximately 25 transformers on an elevated concrete pad with no secondary containment system. Evidence of oil stained concrete was observed during the August 2000 Site walkover.	Constituents of concern include PCBs and petroleum hydrocarbons. No documented releases.	No documented investigations or remedial actions found.	Further Action is recommended.
AOI M-22: Plant 15 Columbia Avenue Switch House						
West side of Plant 15 between the building and fence.	No	Yes	Access to the building was restricted during the August 2000 Site walkover. No visible staining was observed on the east side of the building. The west side of the building could not be observed.	Constituents of concern include PCBs and petroleum hydrocarbons. No documented releases.	No documented investigations or remedial actions found.	No Further Action is recommended.

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AREAS OF INTEREST - METAL FABRICATION DIVISION

Location	Previously Identified	Active	Description of Areas	Description of Concerns	Previous Investigations/Actions	Future Actions and/or Interim Measures
AOI M-23: Plants 25, 33, and 75 Substation and Power Building						
Southwest of Plant 25 and north of Columbia Avenue.	No	Yes	Access to the substation area was restricted during the August 2000 Site walkover. No visible staining was observed from outside the area.	Constituents of concern include PCBs and petroleum hydrocarbons. Transformer oil that potentially contained PCBs was used at the substation and power building. No documented releases.	No documented investigations or remedial actions found.	Further Action is recommended.
AOI M-24: Plant 12 Transformer Oil Spill						
Outside of Plant 12. Exact location unknown.	No	No	A spill of PCB-containing transformer oil occurred on concrete surfaces near Plant 12 in May 1994. The exact location of the spill is unknown. No evidence of spills was observed around Plant 12 during the August 2000 Site walkover.	Documented transformer oil spill in May 1994. Constituents of concern include PCBs and petroleum hydrocarbons.	Remedial actions completed in May 1994 consisted of removal of soil and concrete potentially impacted by the transformer oil spill. No documentation of removal actions found.	Further Action is recommended.
AOI M-25: Plant 33 Basement Sump Area						
Basement of Plant 33.	No	Yes	One sump and several process pits are contained within this area. Historically, the sump pumped to the Plant 25 West sump. The pits were observed during the August 2000 Site walkover. They have recently been filled in with flowable material.	Constituents of concern include VOCs, PCBs, petroleum hydrocarbons, and metals. No documented releases.	Documentation does not exist on closure of pits prior to filling them in. Process pits have recently been filled with flowable fill.	Further Action is recommended.

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TABLE 6-11
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CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

STORAGE TANK SUMMARY - METAL FABRICATION DIVISION (MFD)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
M-1	WWTP	WT-1		AST	29 x 10	49,410	Unused	Existing	Unknown
		WT-2		AST	29 x 10	49,410	Unused	Existing	Unknown
		WT-3		AST	40 x 10	94,000	Unused	Existing	Unknown
		WT-4		AST	40 x 10	94,000	Unused	Existing	Unknown
		WT-5		AST	58 x 20	395,260	Unused	Existing	Unknown
		WT-6		AST	58 x 20	395,260	Unused	Existing	Unknown
		WT-7		AST	68 x 20	543,300	Weak Metallic	Existing	Unknown
		WT-8		AST	68 x 20	543,300	Weak Metallic	Existing	Unknown
		WT-9		AST	68 x 20	543,300	Oil Shipping	Existing	Unknown
		WT-10		AST	68 x 20	543,300	Alkali - Oily Influent	Existing	Unknown
		WT-12		AST	28 x 15	69,090	Interim Oil Transfer	Existing	Unknown
		WT-13		AST	28 x 15	69,090	Oily Rag	Existing	Unknown
		WT-14		AST	16 x 10	15,040	Sulfuric Acid Holding	Existing	Unknown
		WT-15		AST	42 x 15	155,450	Alkali - Oily Batch Treatment	Existing	Unknown
		WT-16		AST	42 x 15	155,450	Alkali - Oily Batch Treatment	Existing	Unknown
		WT-17		AST	35 x 9	64,770	Alkali - Oily Floc Holding	Existing	Unknown
		WT-18		AST	10 x 9	5,290	Sludge Dewatering Transfer	Existing	Unknown
		WT-19		AST	10 x 9	5,290	Sludge Holding	Existing	Unknown
		WT-19a		AST	10 x 9	5,290	Sludge Holding	Existing	Unknown
		WT-20		AST	5 x 6	1,880	Alkali - Oily Floc Transfer	Existing	Unknown
		WT-24		AST	22 x 12	34,120	Lime Slurry	Existing	Unknown
		WT-25		AST	25 x 15	55,080	Sludge Thickener	Existing	Unknown
		WT-26		AST	25 x 15	55,080	Sludge Thickener	Existing	Unknown
		WT-27		AST	28 x 15	69,090	Metallic Polishing	Existing	Unknown
		WT-28		AST	28 x 15	69,090	Metallic Polishing	Existing	Unknown
		WT-29		AST	28 x 15	69,090	Metallic Polishing	Existing	Unknown
		WT-30		AST	60 x 15	317,240	Final Clarifier	Existing	Unknown
		WT-31		AST	60 x 15	317,240	Final Clarifier	Existing	Unknown
		WT-32		AST	20 x 80		Sludge Consolidation Cell	Existing	Unknown
		WT-33		AST	20 x 80		Sludge Consolidation Cell	Existing	Unknown
		WT-34		AST	12.5 x 8.5	7,800	Desolved Air Floatation	Existing	Unknown
		WT-34a		AST	17 x 8.5	14,430	Desolved Air Floatation	Existing	Unknown

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STORAGE TANK SUMMARY - METAL FABRICATION DIVISION (MFD)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
M-1	WWTP	WT-35		AST			Unused	Existing	Unknown
		WT-37		AST	6 x 5 x 9	2,020	Alkali - Oil Effluent Transfer	Existing	Unknown
		WT-38		AST	5 x 6	880	Unused	Existing	Unknown
		WT-40		AST	42 x 15	155,540	Alkali - Oily Influent	Existing	Unknown
		WT-41		AST	42 x 25	259,080	Alkali - Oily Influent	Existing	Unknown
		WT-42		AST	40 x 15	141,000	Sludge Thickener	Existing	Unknown
		WT-43		AST	70 x 15	435,180	Final Clarifier	Existing	Unknown
		WT-44		AST	12 x 14	11,840	Alkali - Oily Cooker	Existing	Unknown
		WT-45		AST	12 x 14	11,840	Alkali - Oily Cooker	Existing	Unknown
		WT-46		AST	12 x 14	11,840	Alkali - Oily Cooker	Existing	Unknown
		WT-47		AST	12 x 14	11,840	Alkali - Oily Cooker	Existing	Unknown
		WT-48		AST	12 x 14	11,840	Alkali - Oily Cooker	Existing	Unknown
		WT-49		AST	9.5 x 10.5	14,690	20% Caustic Holding	Existing	Unknown
		WT-50		AST	9.5 x 10.5	5,570	Alum Holding	Existing	Unknown
		WT-51		AST	9.5 x 10.5	5,570	Polymer Holding	Existing	Unknown
		WT-52		AST			Cooker Overflow Sump	Existing	Unknown
		WT-53		AST	6.5 x 15	14,890	Unused	Existing	Unknown
		WT-54		AST	9 x 5 x 6.5	2,190	Vacuum Filtrate Transfer	Existing	Unknown
		WT-55		AST	5 x 4 x 4	600	Soft Water Recirculation	Existing	Unknown
M-4	Plant 25 (formerly Plant 51)	51-7	unknown	UST		1,000	unleaded gasoline	Removed (3/85)	Unknown
				AST			unknown	Existing	Unknown
M-7	ELPO		unknown	AST	7.4 x 11	3,554	dirty purge thinner		Unknown
			unknown	AST	7.4 x 11	3,554	dirty purge thinner		Unknown
		E-1	unknown	AST		4,330	Alkali Cleaner	Existing	Unknown
		E-2	unknown	AST		2,330	Alkali Cleaner	Existing	Unknown
		E-3	unknown	AST		4,330	Water	Existing	Unknown
		E-4	unknown	AST		2,330	Water and Conditioner	Existing	Unknown
		E-5	unknown	AST		4,330	Phosphoric Acid	Existing	Unknown
		E-6	unknown	AST		2,330	Water	Existing	Unknown
		E-7	unknown	AST		2,330	Chromic Acid	Existing	Unknown
		E-8	unknown	AST		2,330	Water	Existing	Unknown
		E-9	unknown	AST		10,175	Phosphoric Acid	Existing	Unknown

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STORAGE TANK SUMMARY - METAL FABRICATION DIVISION (MFD)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
M-7	ELPO	E-10	unknown	AST		13,000	Paint	Existing	Unknown
		E-11	unknown	AST		13,000	Paint	Existing	Unknown
		E-12	unknown	AST		13,000	Paint	Existing	Unknown
		E-13	unknown	AST		43,500	Paint Bath	Existing	Unknown
		E-14	unknown	AST		1,167	Water and Permeate	Existing	Unknown
		E-16	unknown	AST		2,225	Water	Existing	Unknown
		1				440	?	Existing	Unknown
		2				440	?	Existing	Unknown
		3				440	?	Existing	Unknown
		4				440	?	Existing	Unknown
		5				150	Paint Mix Tank	Existing	Unknown
		6				150	Paint Mix Tank	Existing	Unknown
		7				150	Paint Mix Tank	Existing	Unknown
		8				150	Paint Mix Tank	Existing	Unknown
		9				150	Paint Mix Tank	Existing	Unknown
		10				150	Paint Mix Tank	Existing	Unknown
		11				150	Paint Mix Tank	Existing	Unknown
		12				150	Paint Mix Tank	Existing	Unknown
		13				150	Paint Mix Tank	Existing	Unknown
		14				150	Paint Mix Tank	Existing	Unknown
		15				150	Paint Mix Tank	Existing	Unknown
		16				150	Paint Mix Tank	Existing	Unknown
		17				150	Paint Mix Tank	Existing	Unknown
		18				150	Paint Mix Tank	Existing	Unknown
		19				150	Paint Mix Tank	Existing	Unknown
		20				150	Paint Mix Tank	Existing	Unknown
		1		AST		3,000	Reclaimed Solvent	Existing	Unknown
		2		AST		3,000	Reclaimed Solvent	Existing	Unknown

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STORAGE TANK SUMMARY - METAL FABRICATION DIVISION (MFD)

AOI #	Building Association	Tank No.	Date Installed	Type	Size (feet)	Capacity (gallons)	Materials Stored	Status	Construction
M-8	Plant 25 (formerly Plant 51)	51-1		AST		15,000	Soluble Oil	Existing	Unknown
		51-2		AST		15,000	Hydraulic Oil	Existing	Unknown
		51-3		AST		15,000	Semi-Synthetic Grinding Oil	Existing	Unknown
		51-4		AST		15,000	Engine Oil (9985428)	Existing	Unknown
		51-5		AST		15,000	General Purpose Lubrication Oil	Existing	Unknown
		51-6		AST		20,000	EMPTY	Existing	Unknown
M-9	Plant 14 (formerly Plant 1)	1-1		AST		8,400	Quench Oil	Existing	Unknown
		1-2		AST		8,600	7-LC	Existing	Unknown
		1-3		AST		8,000	7-LC	Existing	Unknown
		1-6		AST		8,000	Quench Oil	Existing	Unknown
M-10	Plant 5	5-1		AST		12,500	593-KC Synthetic Coolant	Existing	Unknown
		5-2		AST		12,500	593-KC Synthetic Coolant	Existing	Unknown
		5-3		AST		12,500	593-KC Synthetic Coolant	Existing	Unknown
M-11	Plant 12	12-1		AST		480	Gasoline	Removed	Unknown
M-12	Plant 14 (formerly Plant 49)	49-1		AST		550	Fuel Oil	Existing	Unknown
									Unknown
M-13	Plant 14 (formerly Plant 49)								Unknown
									Unknown
M-14	Plant 12		1999	AST					Unknown
			1999	AST					Unknown
M-16							Sludge holding tank?		Unknown

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TABLE 6-12
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-3

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Track 31 (AOI M-3) - Soil (OBG, 1997)								
Volatile Organics								
Acetone	4	1		100	15,000	42,000	23,000,000	110,000,000
Toluene	4	1		18	16,000	16,000	250,000	250,000
Xylenes	4	1		29	5,600	5,600	150,000	150,000
Semivolatile Organics								
Acenaphthene	4	1		3,300	300,000	880,000	41,000,000	200,000,000
Anthracene	4	1		8,900	41,000	41,000	230,000,000	1,000,000,000
Fluoranthene	4	1		6,400	730,000	730,000	46,000,000	180,000,000
Fluorene	4	2	260	43,000	390,000	890,000	27,000,000	130,000,000
2-Methylnaphthalene	4	1		2,200	57,000	170,000	8,100,000	40,000,000
Phenanthrene	4	2	450	43,000	56,000	160,000	1,600,000	8,000,000
Pyrene	4	1		10,000	480,000	480,000	29,000,000	110,000,000
PCBs (Post-Excavation)								
PCB-1242	34	8	2,000	19,000	NLL	NLL	4,000	20,000
PCB-1260	34	4	330	7,200	NLL	NLL	4,000	20,000
Total PCBs	34	12	330	19,000	NLL	NLL	4,000	20,000
Metals								
Aluminum	4	4	1,300,000	4,900,000	6,900,000*	6,900,000*	50,000,000	660,000,000
Arsenic	4	4	1,800	5,000	23,000	23,000	7,600	61,000
Barium	4	4	6,000	19,000	1,600,000	1,300,000	37,000,000	250,000,000
Calcium	4	4	1,300,000	85,000,000	Not Regulated			
Chromium	4	4	4,000	9,000	30,000	30,000	790,000,000	1,000,000,000
Copper	4	4	5,000	13,000	5,800,000	5,800,000	20,000,000	140,000,000
Iron	4	4	3,600,000	12,000,000	12,000,000*	12,000,000*	160,000,000	1,000,000,000
Lead	4	4	2,000	6,000	700,000	700,000	400,000	900,000

See Notes, Page 2.

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TABLE 6-12
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-3

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Track 31 (AOI M-3) - Soil (OBG, 1997)								
Metals, cont.								
Magnesium	4	4	1,100,000	19,000,000	8,000,000	22,000,000	1,000,000,000	1,000,000,000
Manganese	4	4	140,000	280,000	440,000*	440,000*	25,000,000	170,000,000
Nickel	4	2	10,000	12,000	100,000	100,000	40,000,000	270,000,000
Potassium	4	1		900,000	Not Regulated			
Sodium	4	3	100,000	200,000	2,500,000	7,000,000	1,000,000,000	1,000,000,000
Vanadium	4	3	7,000	15,000	72,000	990,000	750,000	10,000,000
Zinc	4	4	12,000	38,000	2,400,000	5,000,000	170,000,000	1,000,000,000

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.

Only constituents with at least one detection are shown on the table.

[1] MDEQ generic drinking water criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic drinking water protection criteria are presented for soils (June 2000 criteria revision).

[2] MDEQ generic groundwater contact criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic direct contact criteria are presented for soils (June 2000 criteria revision).

Shading indicates that at least one sample exceeded the criteria.

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TABLE 6-13
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-4

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Plant 25/51 Gasoline UST & AST Location - Groundwater 1985 (MPC 1987)								
Volatile Organics								
Acrylonitrile	10	1		40,000	2.6	11	1,700	
1,2-Dichloroethane	10	4	7.0	890	5.0	5.0	19,000	
Benzene	10	4	23	1,200	5.0	5.0	11,000	
Ethylbenzene	10	3	7.0	3,800	74	74	170,000	
Toluene	10	5	1.0	45,000	790	790	530,000	
Xylenes	9	3	33	250	280	280	190,000	
Plant 25/51 Gasoline UST & AST Location - Groundwater 1986 (MPC 1987)								
Volatile Organics								
1,2-Dichloroethane	18	11	1.0	30	5.0	5.0	19,000	
Benzene	18	9	1.0	1,600	5.0	5.0	11,000	
Toluene	18	3	2.0	12	790	790	530,000	
Xylenes	18	1		4.0	280	280	190,000	
Plant 25/51 Gasoline UST & AST Location - Groundwater 1987 (MPC 1987)								
Volatile Organics								
1,2-Dichloroethane	6	4	2.0	4.0	5.0	5.0	19,000	
Benzene	6	2	22	36	5.0	5.0	11,000	
Ethylbenzene	6	1		2.0	74	74	170,000	
Plant 25/51 Gasoline UST & AST Location - Groundwater 1991 (MPC 1987)								
Volatile Organics								
Benzene	24	8	2.0	200	5.0	5.0	11,000	
Ethylbenzene	24	3	1.0	10	74	74	170,000	

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TABLE 6-14
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-5

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Former Fill Area A-2 - Soil (CRA, 2000c)								
Volatile Organics (ug/kg)								
Ethylbenzene	10	1		66 J	1,500	1,500	140,000	140,000
m,p-Xylenes	10	1		110 J	5,600	5,600	150,000	150,000
o-Xylene	10	1		79 J	5,600	5,600	150,000	150,000
Semivolatile Organics (ug/kg)								
Acenaphthene	10	3	70 J	600	300,000	880,000	41,000,000	200,000,000
Acenaphthylene	10	1		300 J	5,900	1,700	1,600,000	8,000,000
Anthracene	10	4	90 J	1,400	41,000	41,000	230,000,000	1,000,000,000
Benzo(a)anthracene	10	3	200 J	3,600	NLL	NLL	20,000	100,000
Benzo(a)pyrene	10	3	100 J	2,800	NLL	NLL	2,000	10,000
Benzo(b)fluoranthene	10	3	200 J	3,000	NLL	NLL	20,000	100,000
Benzo(g,h,i)perylene	10	3	90 J	900	NLL	NLL	2,500,000	9,100,000
Benzo(k)fluoranthene	10	3	200 J	2,200	NLL	NLL	200,000	1,000,000
Bis(2-ethylhexyl)phthalate	10	8	100 J	500	NLL	NLL	2,800,000	10,000,000
Butyl benzyl phthalate	10	4	100 J	400	310,000	310,000	310,000	310,000
Carbazole	10	1		700	9,400	39,000	530,000	3,700,000
Chrysene	10	3	300 J	3,300	NLL	NLL	2,000,000	10,000,000
Dibenz(a,h)anthracene	10	2	40 J	400	NLL	NLL	2,000	10,000
Dibenzofuran	10	1		500	ID	ID	ID	ID
Fluoranthene	10	4	80 J	5,800	730,000	730,000	46,000,000	180,000,000
Fluorene	10	4	200 J	1,200	390,000	890,000	27,000,000	130,000,000
Indeno(1,2,3-cd)pyrene	10	3	90 J	1,200	NLL	NLL	20,000	100,000
2-Methylnaphthalene	10	3	100 J	800	57,000	170,000	8,100,000	40,000,000
Naphthalene	10	3	100 J	700	35,000	100,000	16,000,000	80,000,000
Phenanthrene	10	4	600	5,400	56,000	160,000	1,600,000	8,000,000
Pyrene	10	4	100 J	5,600	480,000	480,000	29,000,000	110,000,000
PCBs (ug/kg)								
Aroclor 1248	10	8	50 J	3,900	NLL	NLL	4,000	20,000

See Notes, Page 4.

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TABLE 6-14
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-5

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Former Fill Area A-2 - Soil (CRA, 2000c)								
Pesticides (ug/kg)								
4,4'-DDE	10	7	1.0 J	67	NLL	NLL	45,000	260,000
4,4'-DDD	10	1		3.0 J	NLL	NLL	95,000	540,000
Endrin Aldehyde	10	1		36	NLL	NLL	65,000	260,000
4,4'-DDT	10	1		2.0 J	NLL	NLL	57,000	460,000
Metals (ug/kg)								
Aluminum	10	10	3,050,000	10,400,000	6,900,000*	6,900,000*	50,000,000	660,000,000
Antimony	10	10	50	1,790	500	4,300	180,000	1,200,000
Arsenic	10	10	1,100	9,200	23,000	23,000	7,600	61,000
Barium	10	10	12,900	111,000	1,300,000	1,300,000	37,000,000	250,000,000
Beryllium	10	10	150	640	51,000	51,000	410,000	3,100,000
Cadmium	10	10	60	2,650	6,000	6,000	550,000	4,100,000
Calcium	10	10	1,820,000	75,800,000	Not Regulated			
Chromium	10	10	6,560	152,000	30,000	30,000	790,000,000	1,000,000,000
Cobalt	10	10	1,960	9,380	800	2,000	2,600,000	18,000,000
Copper	10	10	4,430	693,000	5,800,000	5,800,000	20,000,000	140,000,000
Iron	10	10	5,010,000	51,700,000	12,000,000*	12,000,000*	160,000,000	1,000,000,000
Lead	10	10	2,940	73,100	700,000	700,000	400,000	900,000
Magnesium	10	10	2,350,000	18,800,000	8,000,000	22,000,000	1,000,000,000	1,000,000,000
Manganese	10	10	77,300 J	768,000 J	440,000*	440,000*	25,000,000	170,000,000
Mercury	10	8	10 J	80	1,700	1,700	160,000	1,100,000
Nickel	10	10	5,200	168,000	100,000	100,000	40,000,000	270,000,000
Potassium	10	10	217,000 J	975,000	Not Regulated			
Selenium	10	2	600 J	700 J	4,000	4,000	2,600,000	18,000,000
Silver	10	10	20	319	4,500	13,000	2,500,000	17,000,000
Sodium	10	10	50,700	2,370,000	2,500,000	7,000,000	1,000,000,000	1,000,000,000
Thallium	10	10	40	300	2,300	2,300	35,000	240,000
Vanadium	10	10	8,120	27,800	72,000	990,000	750,000	10,000,000
Zinc	10	10	13,300	212,000	2,400,000	5,000,000	170,000,000	1,000,000,000
Cyanide, Total	10	6	100 J	2,800	4,000	4,000	12,000	250,000

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TABLE 6-14
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-5

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Former Fill Area A-2 - Groundwater (CRA, 2000c)								
Volatile Organics (ug/L)								
Acetone	3	2	17 J	18 J	730	2,100	31,000,000	
2-Butanone	3	2	6.5 J	6.6 J	13,000	38,000	240,000,000	
o-Xylene	3	1		0.20 J	280	280	190,000	
Total Xylenes	3	1		0.20 J	280	280	190,000	
Semivolatile Organics (ug/L)								
Phenol	3	3	0.50 J	0.70 J	4,400	13,000	29,000,000	
Dimethyl Phthalate	3	2	0.60 J	0.70 J	73,000	210,000	4,200,000	
Bis(2-ethylhexyl)phthalate	3	2	510	530	6.0	6.0	320	
Pesticides (ug/L)								
Endrin Ketone	3	2	0.01 J	0.01 J	2.0	2.0	160	
Metals (ug/L)								
Aluminum	3	3	38.1 J	95.4 J	50	50	64,000,000	
Antimony	3	3	1.02 J	1.56 J	6.0	6.0	68,000	
Arsenic	3	1		2.4 J	50	50	4,300	
Barium	3	3	1,010	3,690	2,000	2,000	14,000,000	
Cadmium	3	3	0.93	4.04	5.0	5.0	190,000	
Calcium	3	3	352,000	584,000	Not Regulated			
Cobalt	3	3	4.57 J	7.57 J	40	100	2,400,000	
Copper	3	1		5.74 J	1,000	1,000	7,400,000	
Cyanide, Total	3	3	6.0 J	30	200	200	57,000	
Iron	3	3	1,470	10,800	300	300	58,000,000	
Lead	3	3	0.23 J	0.54 J	0.20	0.20	ID	
Magnesium	3	3	61,300	70,800	400,000	1,100,000	1,000,000,000	
Manganese	3	3	629	1,180	50	50	9,100,000	
Potassium	3	3	7,610	33,400	Not Regulated			
Silver	3	3	0.217 J	0.630	34	98	1,500,000	
Sodium	3	3	3,140,000	8,730,000	120,000	350,000	1,000,000,000	
Vanadium	3	1		9.25 J	4.5	62	970,000	
Zinc	3	3	2.52 J	9.91 J	2,400	5,000	110,000,000	

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TABLE 6-14
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - AOI M-5

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.

Only constituents with at least one detection are shown on the table.

[1] MDEQ generic drinking water criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic drinking water protection criteria are presented for soils (June 2000 criteria revision).

[2] MDEQ generic groundwater contact criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic direct contact criteria are presented for soils (June 2000 criteria revision).

Shading indicates that at least one sample exceeded the criteria.

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TABLE 6-15
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - M-15

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Track 26 - Soil (CRA, 1998a)								
Volatile Organics (ug/kg)								
Methylene chloride	3	1		62	100	100	1,300,000	2,300,000
Semivolatile Organics (ug/kg)								
Benzo(a)anthracene	3	1		480	NLL	NLL	20,000	100,000
Benzo(a)pyrene	3	1		560	NLL	NLL	2,000	10,000
Benzo(b)fluoranthene	3	2	450	900	NLL	NLL	20,000	100,000
Benzo(g,h,i)perylene	3	1		350	NLL	NLL	2,500,000	9,100,000
Butylbenzyl phthalate	3	1		460	310,000	310,000	310,000	310,000
Chrysene	3	2	350	620	NLL	NLL	2,000,000	10,000,000
Fluoranthene	3	2	430	760	730,000	730,000	46,000,000	180,000,000
2-Methylnaphthalene	3	2	350	430	57,000	170,000	8,100,000	40,000,000
Phenanthrene	3	1		380	56,000	160,000	1,600,000	8,000,000
Pyrene	3	2	450	970	480,000	480,000	29,000,000	110,000,000
PCBs (ug/kg)								
Aroclor 1260	24	4	450	9,100	NLL	NLL	4,000	20,000
Metals (ug/kg)								
Aluminum	3	3	2,200,000	20,000,000	1,000	1,000	50,000,000	660,000,000
Antimony	3	2	910	1,300	500	500	180,000	1,200,000
Arsenic	3	3	1,900	17,000	23,000	23,000	7,600	61,000
Barium	3	3	15,000	340,000	1,600,000	1,300,000	37,000,000	250,000,000
Beryllium	3	2	690	2,600	51,000	51,000	410,000	3,100,000
Cadmium	3	3	100	1,500	6,000	6,000	550,000	4,100,000
Calcium	3	3	1,500,000	100,000,000	Not Regulated			
Chromium	3	3	4,400	18,000	30,000	30,000	790,000,000	1,000,000,000
Cobalt	3	3	1,800	3,300	800	2,000	2,600,000	18,000,000
Copper	3	3	9,600	65,000	5,800,000	5,800,000	20,000,000	140,000,000

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TABLE 6-15
GENERAL MOTORS CORPORATION
PONTIAC, MICHIGAN

CURRENT CONDITIONS REPORT - PONTIAC NORTH CAMPUS

HISTORICAL DATA SUMMARY - M-15

Constituent	Number of		Concentration (ppb)		Drinking Water Criteria[1]		Direct Contact[2]	
	Samples	Detects	Minimum	Maximum	Residential	Industrial	Residential	Industrial
Track 26 - Soil (CRA, 1998a)								
Metals (ug/kg)								
Iron	3	3	5,000,000	20,000,000	6,000	6,000	160,000,000	1,000,000,000
Lead	3	3	5,200	140,000	700,000	700,000	400,000	900,000
Magnesium	3	3	750,000	40,000,000	8,000,000	22,000,000	1,000,000,000	1,000,000,000
Manganese	3	3	130,000	1,100,000	1,000	1,000	25,000,000	170,000,000
Mercury	3	1		1,700	1,700	1,700	160,000	1,100,000
Nickel	3	3	7,200	37,000	100,000	100,000	40,000,000	270,000,000
Potassium	3	3	210,000	1,100,000	Not Regulated			
Sodium	3	3	35,000	430,000	2,500,000	7,000,000	1,000,000,000	1,000,000,000
Vanadium	3	3	7,300	22,000	72,000	990,000	750,000	10,000,000
Zinc	3	3	29,000	61,000	2,400,000	5,000,000	170,000,000	1,000,000,000

Notes:

Units are ppb (ug/Kg for soil; ug/L for groundwater), unless otherwise noted.

Only constituents with at least one detection are shown on the table.

[1] MDEQ generic drinking water criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic drinking water protection criteria are presented for soils (June 2000 criteria revision).

[2] MDEQ generic groundwater contact criteria are presented for groundwater (June 2000 criteria revision).
MDEQ generic direct contact criteria are presented for soils (June 2000 criteria revision).

Shading indicates that at least one sample exceeded the criteria.

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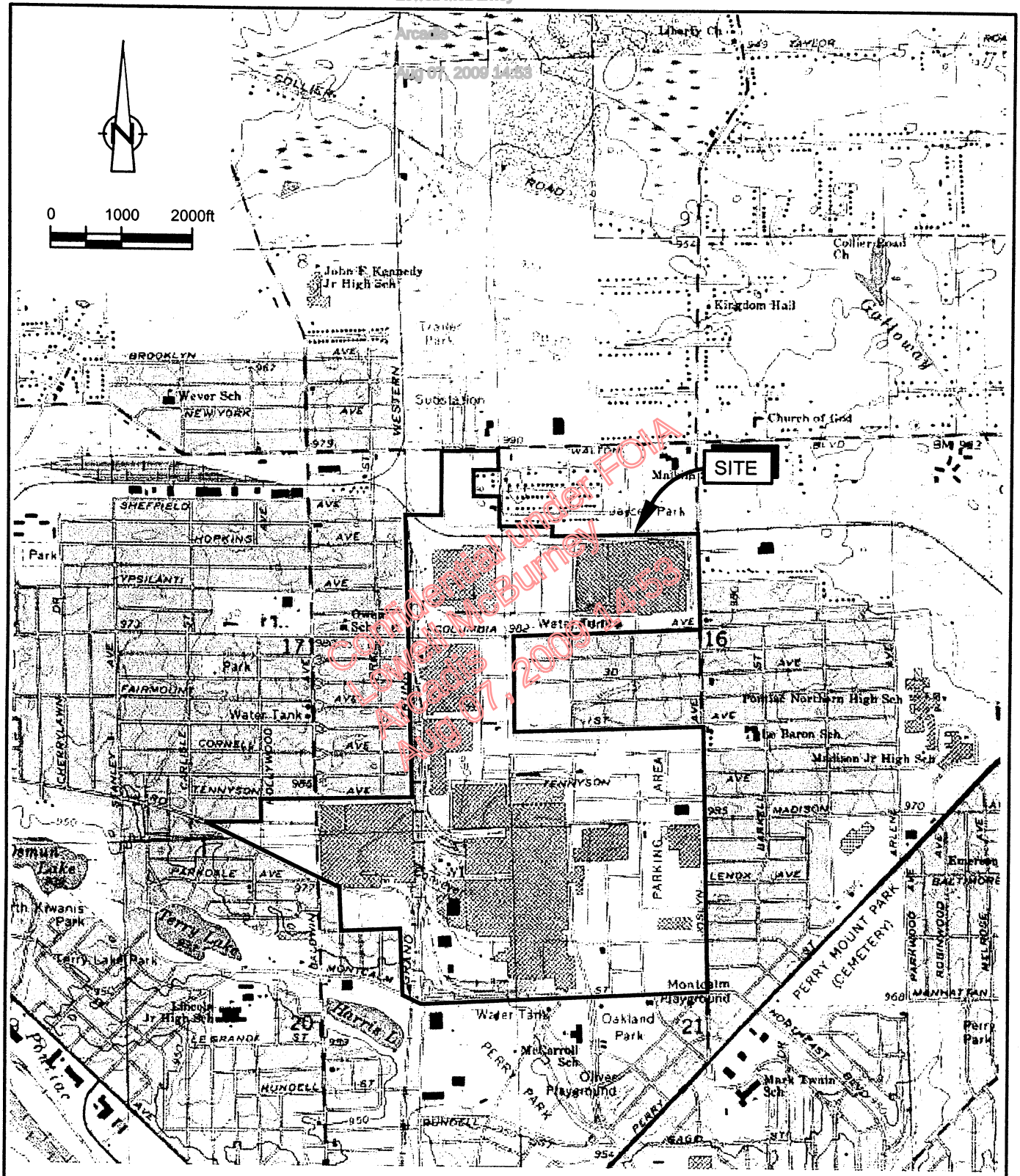

SOURCE: USGS QUADRANGLE MAP;
PONTIAC NORTH, MICHIGAN

ENCORE

figure 1-1

SITE LOCATION
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

17487-03(001)GN-WA008 JAN 18/2001

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Operational Area	Facility Reference Number
CPC Pontiac Fiero Assembly Plant	MID005356910
GMC Central Foundry Division-Pontiac Plant	MID085470102
CPC-Pontiac	MID005356886
GMC Warehousing and Distribution Division	MID076331289

0 400 800ft

LEGEND

- PROPERTY BOUNDARY
- RAILROAD TRACKS
- FENCE
- FACILITY BOUNDARY
- FOOTPRINT OF FORMER STRUCTURE

CPC PONTIAC FIERO ASSEMBLY PLANT
PLANT 17
(MID005356910)

CPC-PONTIAC
PLANT 12
(MID005356886)

GMC CENTRAL FOUNDRY DIVISION - PONTIAC PLANT
(MID085470102)

GMC WAREHOUSING AND DISTRIBUTION DIVISION
(MID076331289)

BALDWIN AVENUE

MONTCALM STREET EAST

COLUMBIA AVENUE EAST

WALTON BLVD.

JOSLYN AVENUE

MONTCALM

FORMER PLANT 9

FORMER PLANT 8

PLANT 5 & 23

PLANT 56 (OLD PLT 2)

PLANT 49

PLANT 11

FORMER PLANT 6

ELPO BLDG

FORMER PLANT 18

PLANT 15

PLANT 25

PLANT 33

POWER TRAIN HQ BLDG

POWERTRAIN ENGINEERING

EMISSIONS CONTROL BUILDING

ENCORE

17487-03(001)GN-WA012 JAN 30/2001

figure 1-2

SITE FACILITIES
PONTIAC NORTH CAMPUS
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

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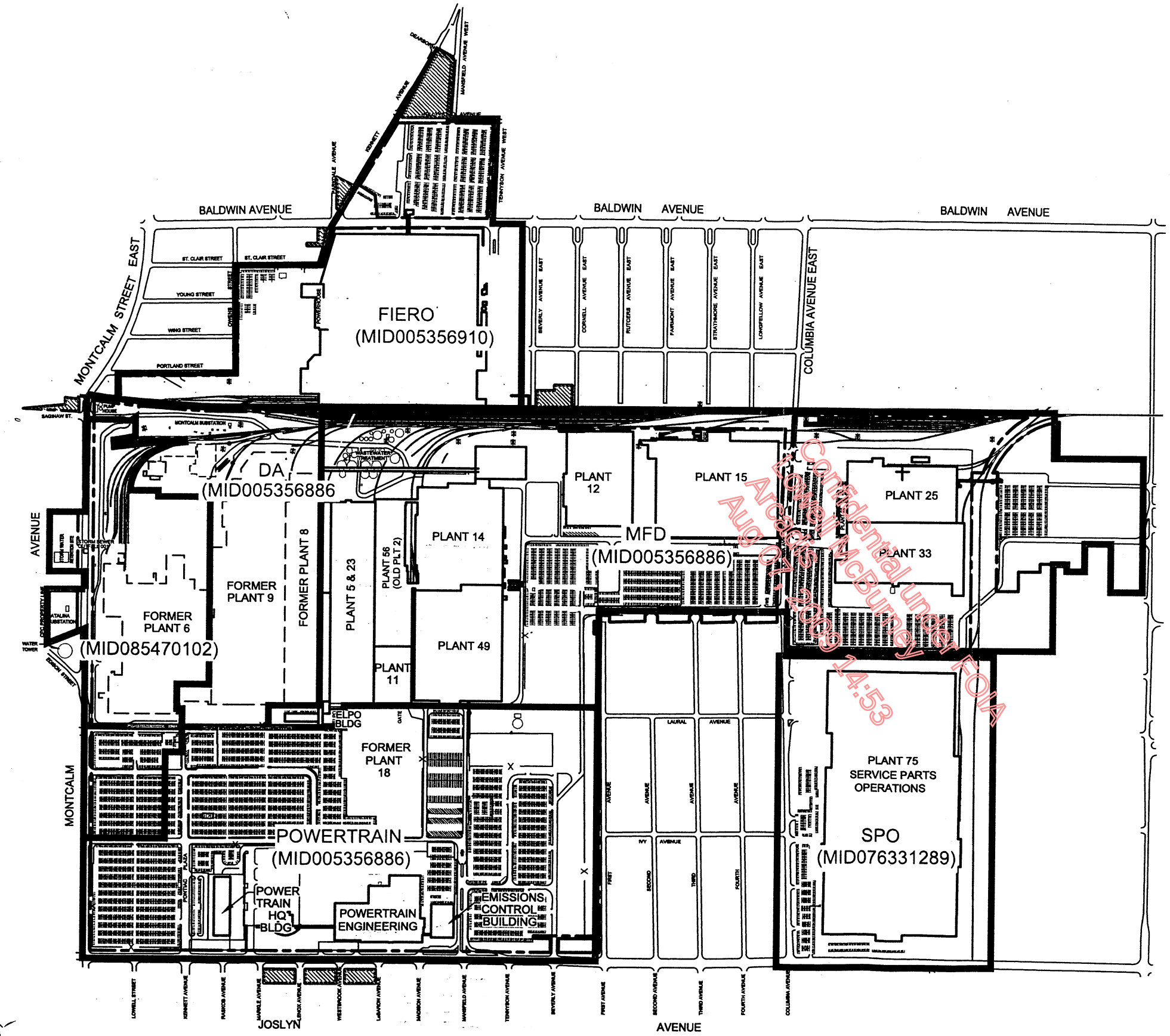

Operational Area	Facility USEPA ID Number
Fiero	MID005356910
Demolition Area (DA)	MID005356886
	MID085470102
Metal Fabrication Division (MFD)	MID005356886
Powertrain	MID005356886
	MID085470102
Service Parts Operations (SPO)	MID076331289

figure 1-4

SUMMARY OF SITE
OPERATIONAL AREAS AND FACILITIES
PONTIAC NORTH CAMPUS
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

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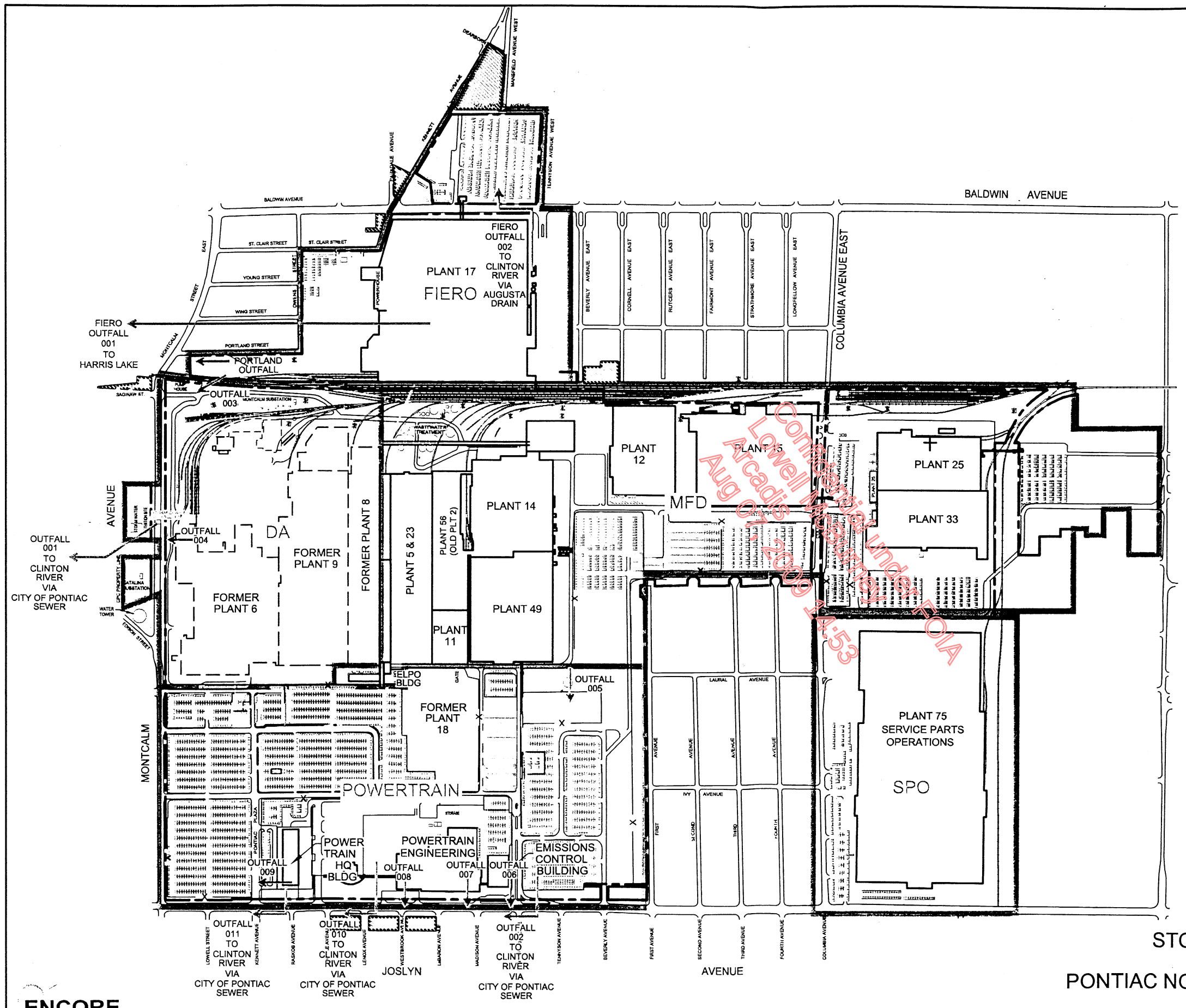

figure 2-1

STORM & SANITARY SEWER OUTFALLS
STORM SEWER IM
PONTIAC NORTH CAMPUS, PONTIAC, MICHIGAN
General Motors

ENCORE

17487-02(003)GN-WA011 AUG 13/2001

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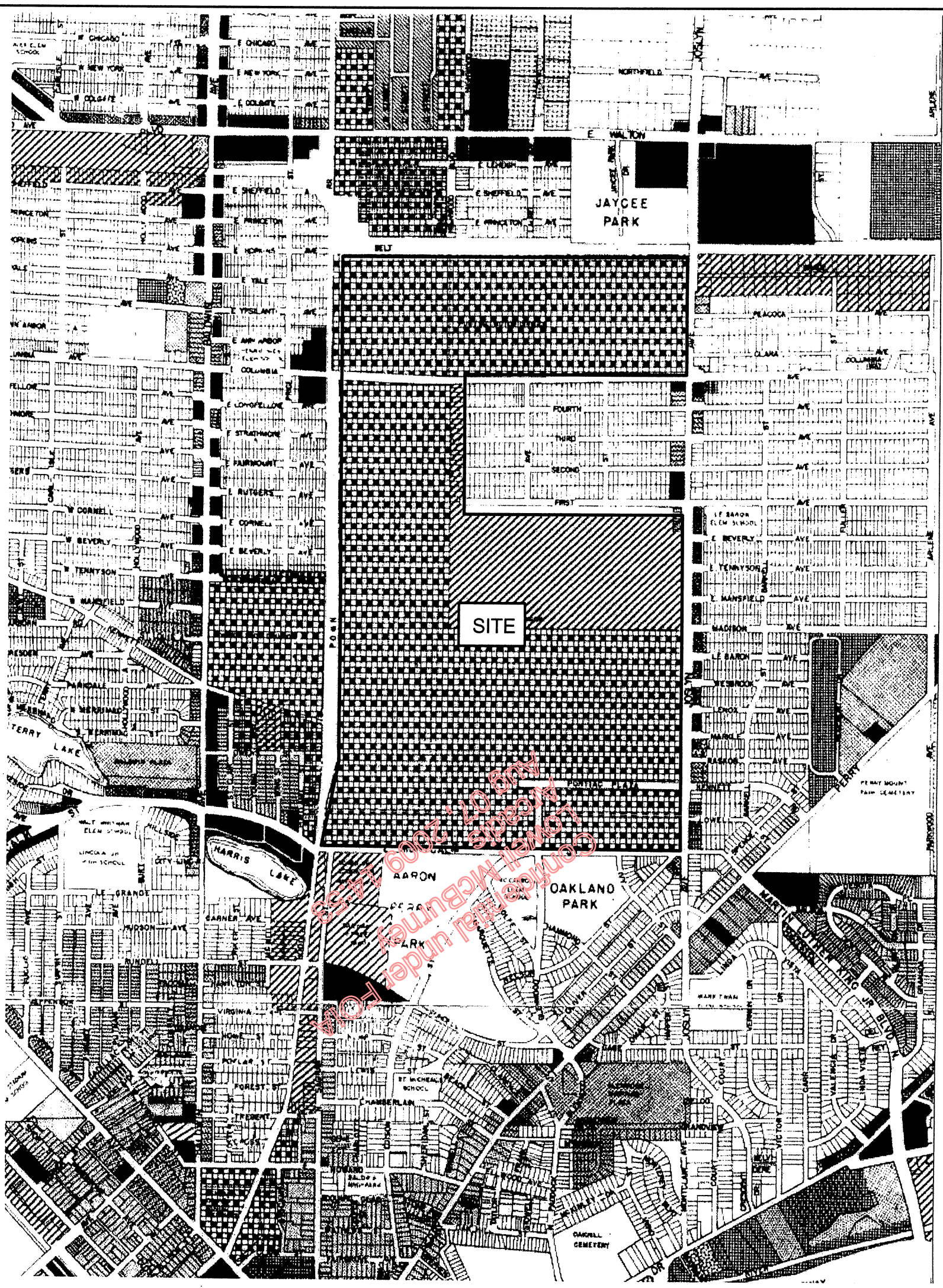

figure 3-1

CITY OF PONTIAC LAND USE MAP
CURRENT CONDITIONS REPORT
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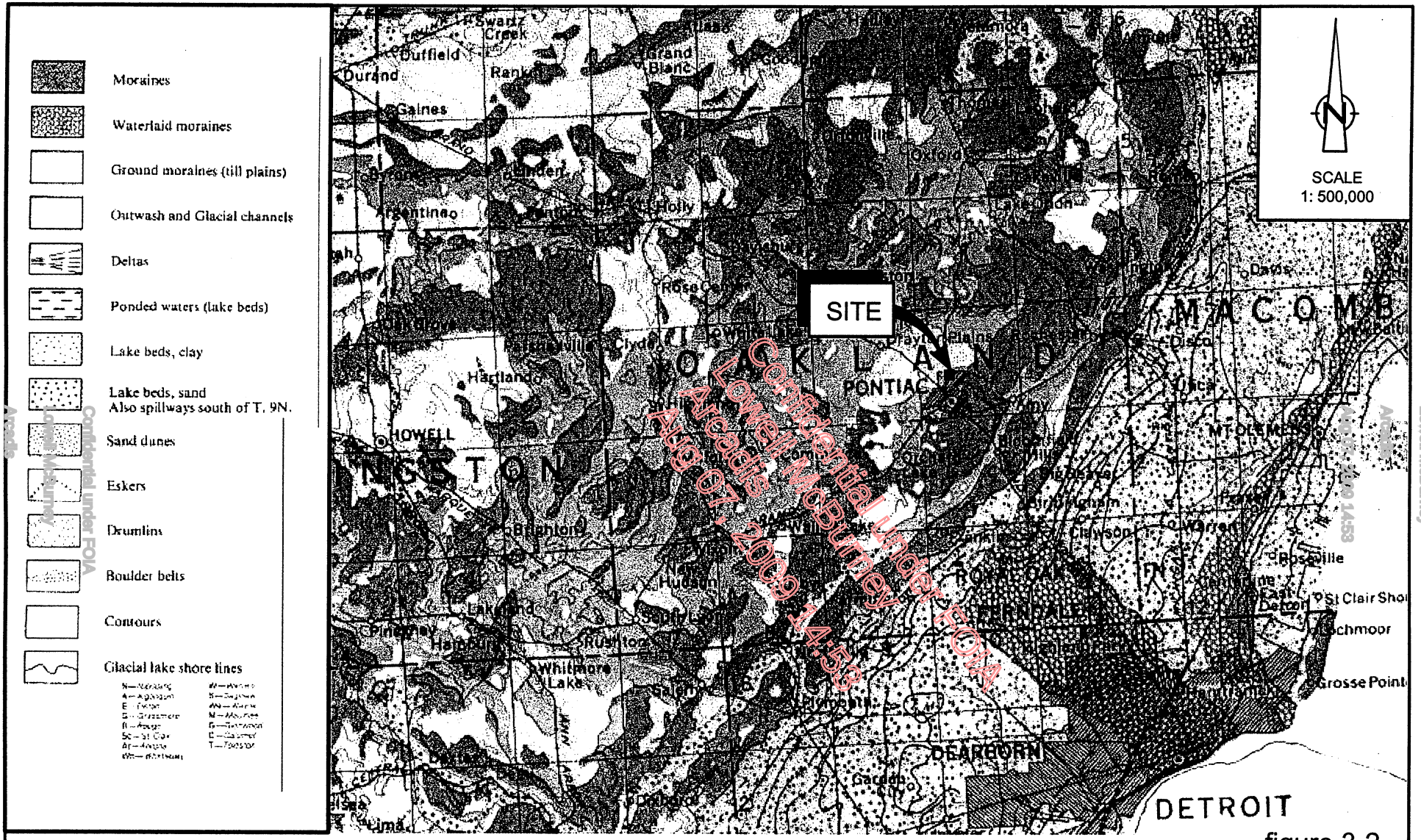

SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, 1955
WESTERN MICHIGAN UNIVERSITY,
DEPARTMENT OF GEOLOGY

figure 3-2

REGIONAL SURFICIAL GEOLOGY
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

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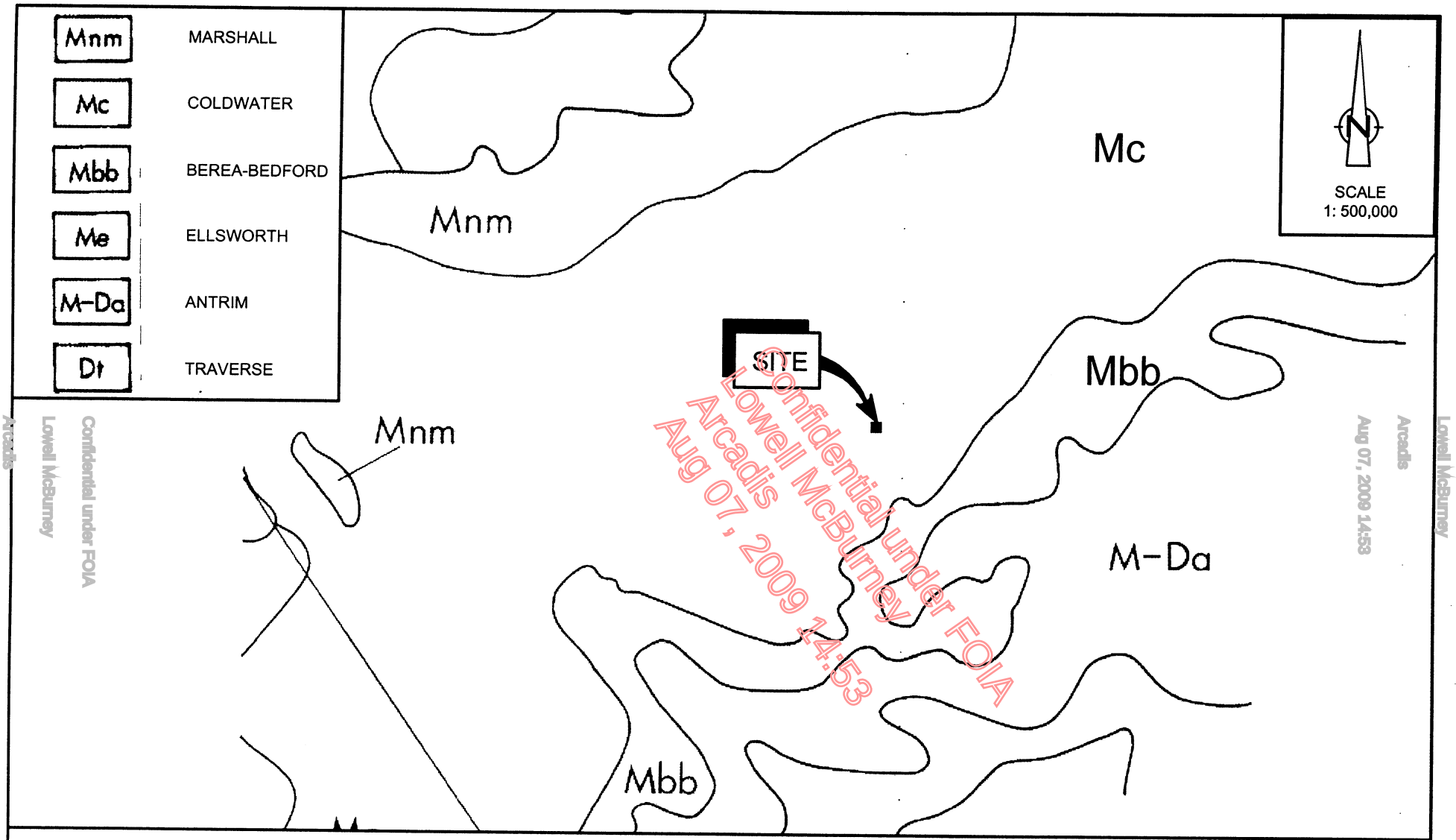

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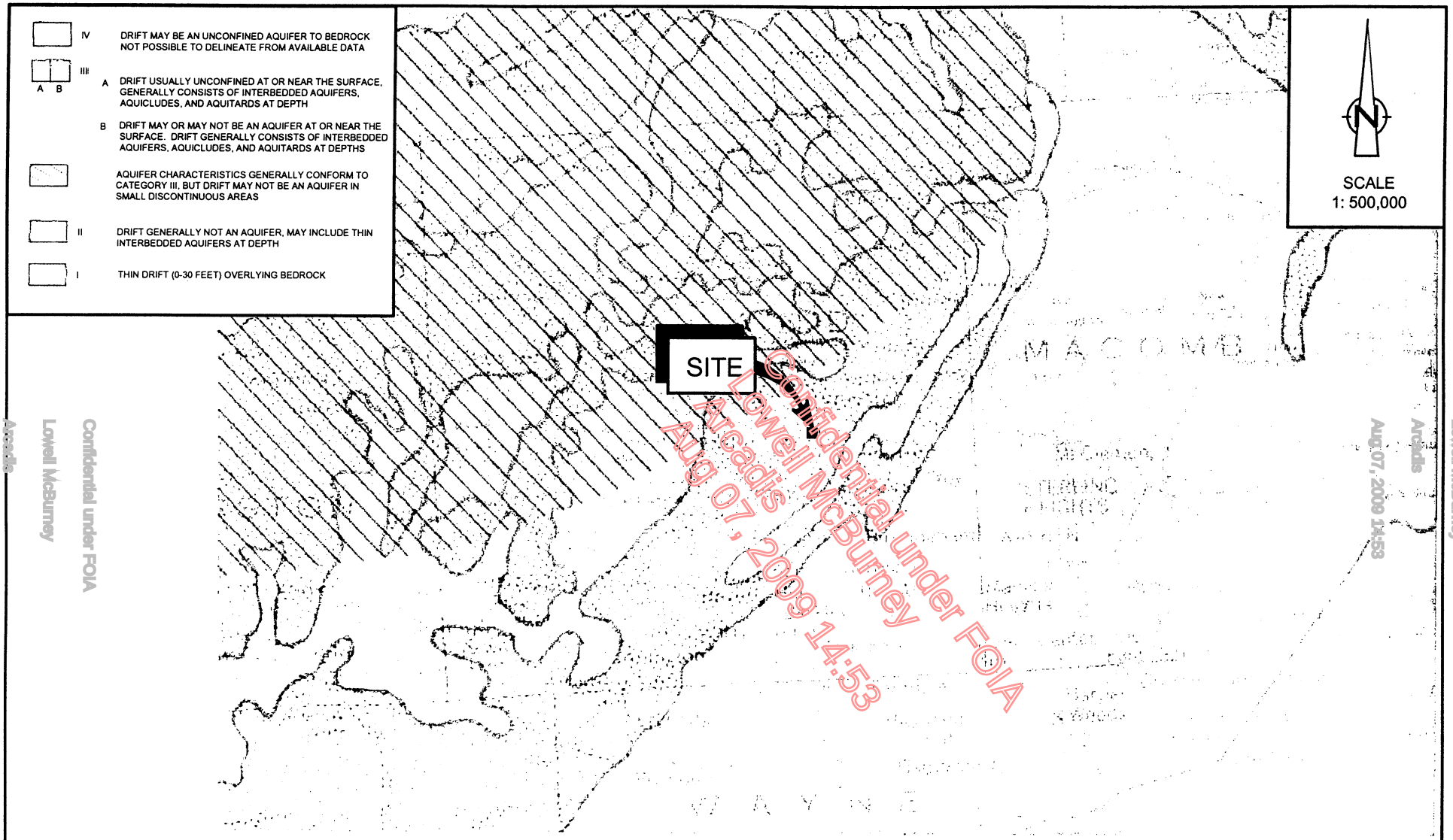
SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, 1981
WESTERN MICHIGAN UNIVERSITY,
DEPARTMENT OF GEOLOGY

figure 3-3
REGIONAL BEDROCK GEOLOGY
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

ENCORE

17487-03(001)GN-DE005 JAN 18/2001



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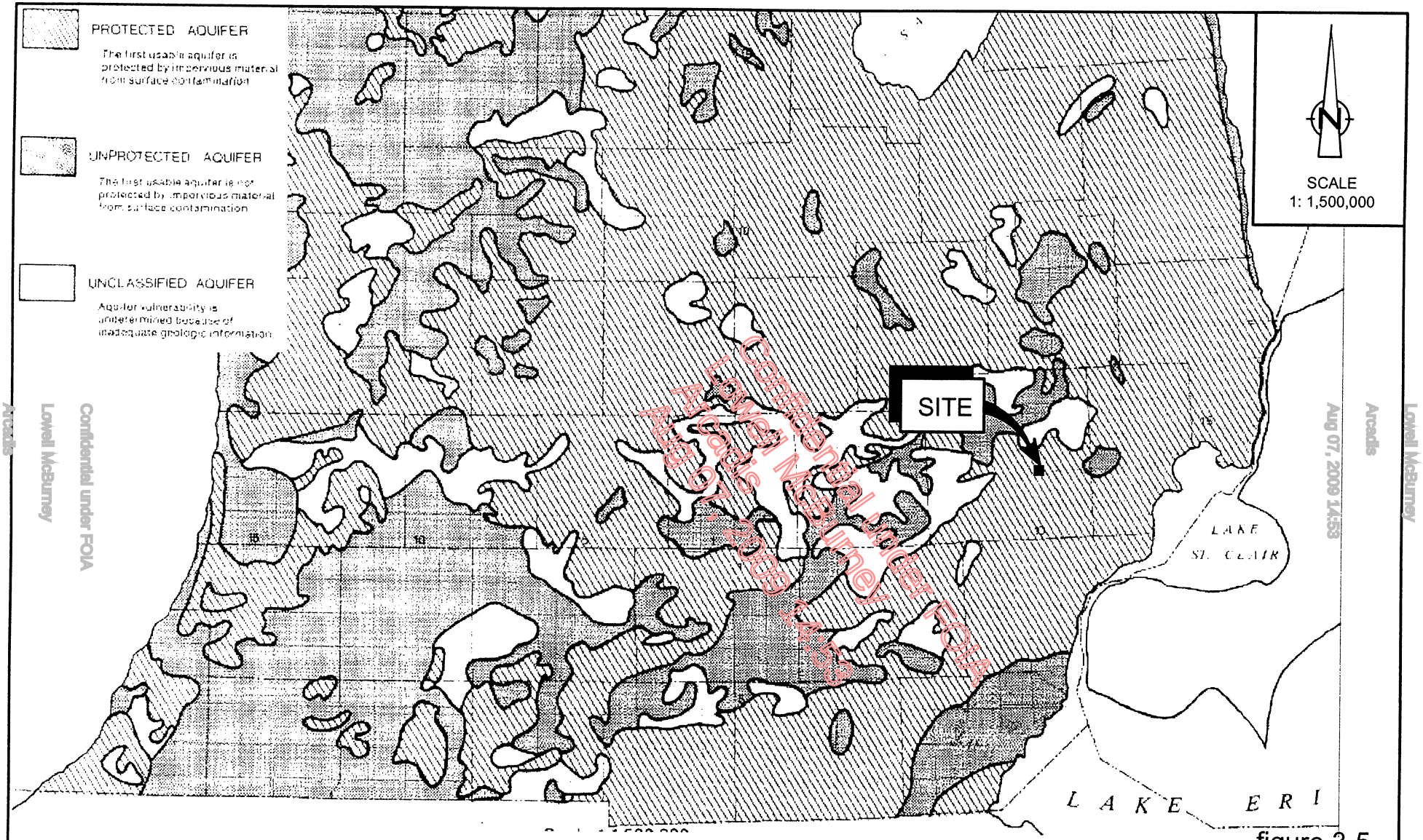
SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, 1981
WESTERN MICHIGAN UNIVERSITY,
DEPARTMENT OF GEOLOGY

figure 3-4

AQUIFER CHARACTERIZATION OF THE GLACIAL DRIFT
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

ENCORE

17487-03(001)GN-DE003 JAN 18/2001



SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, 1981
WESTERN MICHIGAN UNIVERSITY,
DEPARTMENT OF GEOLOGY

figure 3-5

AQUIFER VULNERABILITY TO SURFACE CONTAMINATION
CURRENT CONDITIONS REPORT
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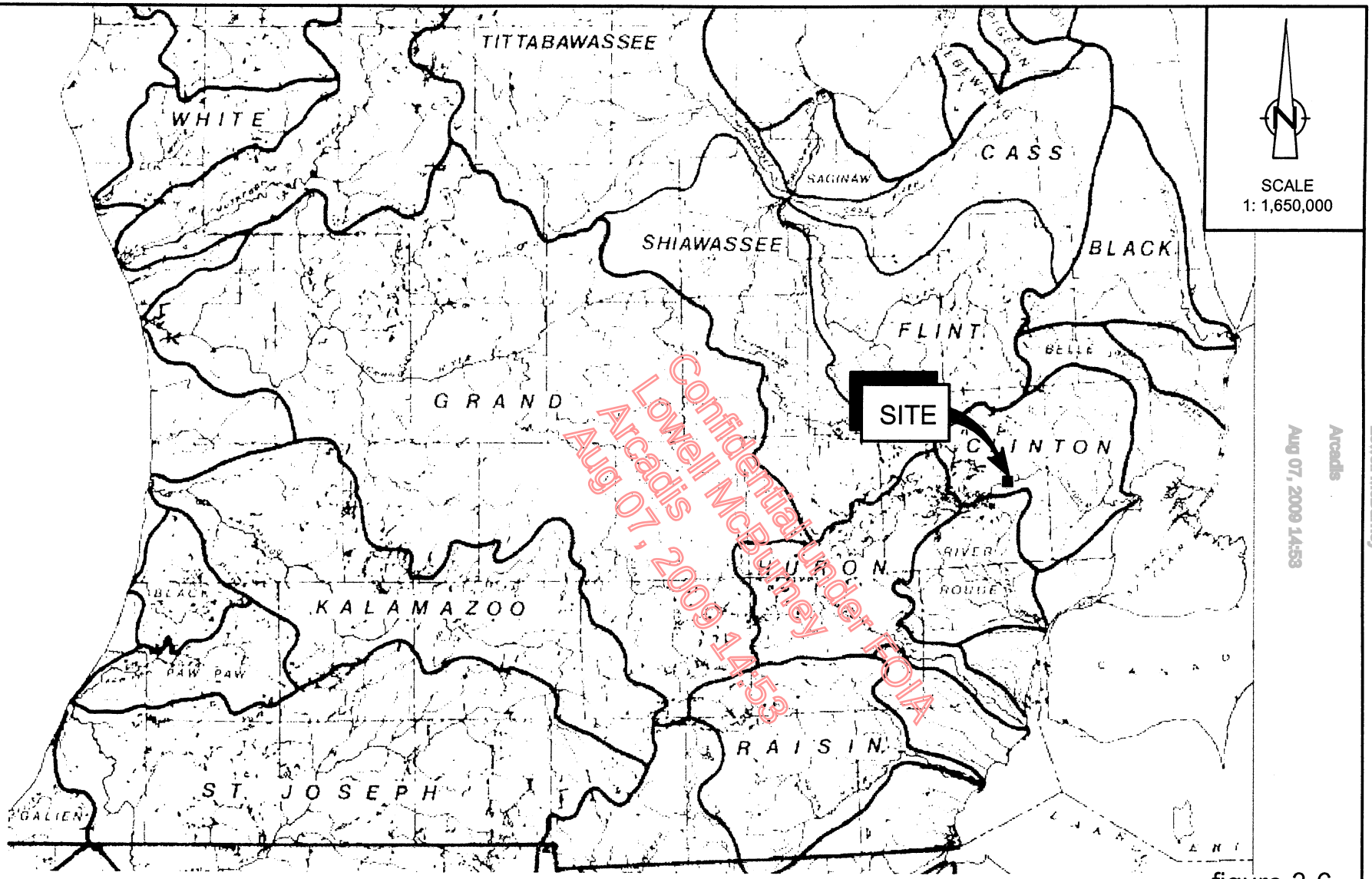

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SOURCE: HYDROGEOLOGIC ATLAS OF MICHIGAN, 1980
WESTERN MICHIGAN UNIVERSITY,
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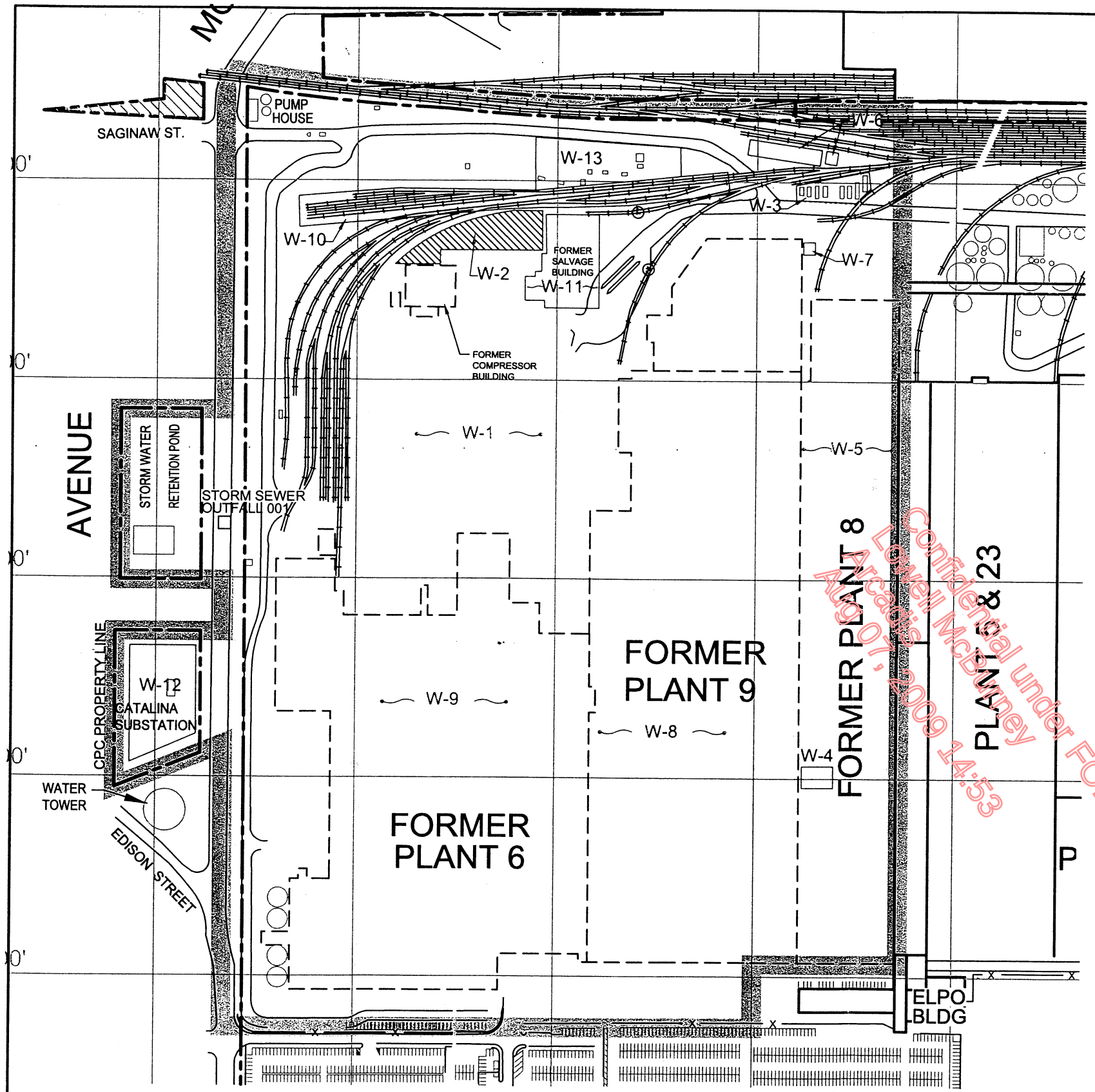
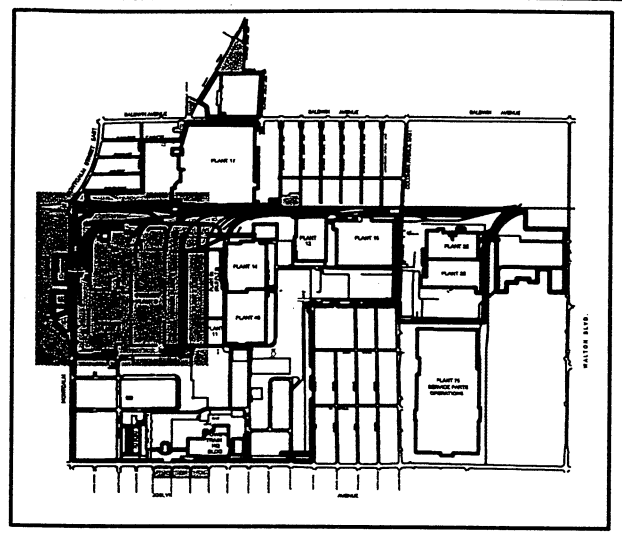
figure 3-6

RIVER BASINS
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

ENCORE

17487-03(001)GN-DE002 JAN 18/2001





KEY PLAN

0 100 300ft

LEGEND

- PROPERTY BOUNDARY
- RAILROAD TRACKS
- x FENCE
- W-3 AREA OF INTEREST
- OPERATIONAL AREA BOUNDARY

AOI DESCRIPTION

W-1 - WEST YARD
W-2 - FORMER HAZARDOUS WASTE STORAGE PAD
W-3 - FORMER PLANT 8 FLAMMABLE LIQUID STORAGE TANK FARM
W-4 - TRANSFORMER SUBSTATION D-1
W-5 - FORMER PLANT 8 BASEMENT AST AREA
W-6 - FORMER PLANT 8 FLAMMABLE MATERIAL STORAGE BUILDING
W-7 - FORMER PLANT 9 TURBO TANK
W-8 - FORMER PLANT 9 BASEMENT AST AREA
W-9 - FORMER CENTRAL FOUNDRY (PLANT 6) RESIN SPILL AND UST
W-10 - RAILROAD MARSHALLING AREA DRAINAGE SYSTEM
W-11 - SALVAGE YARD SUMP DRAIN
W-12 - CATALINA SUBSTATION
W-13 - MONTCALM SUBSTATION

NOTE: THERE IS NO SPECIFIC LOCATION FOR AOI W-5, W-8, AND W-11.

figure 6-2

AREAS OF INTEREST
PONTIAC NORTH CAMPUS - DEMOLITION AREA
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
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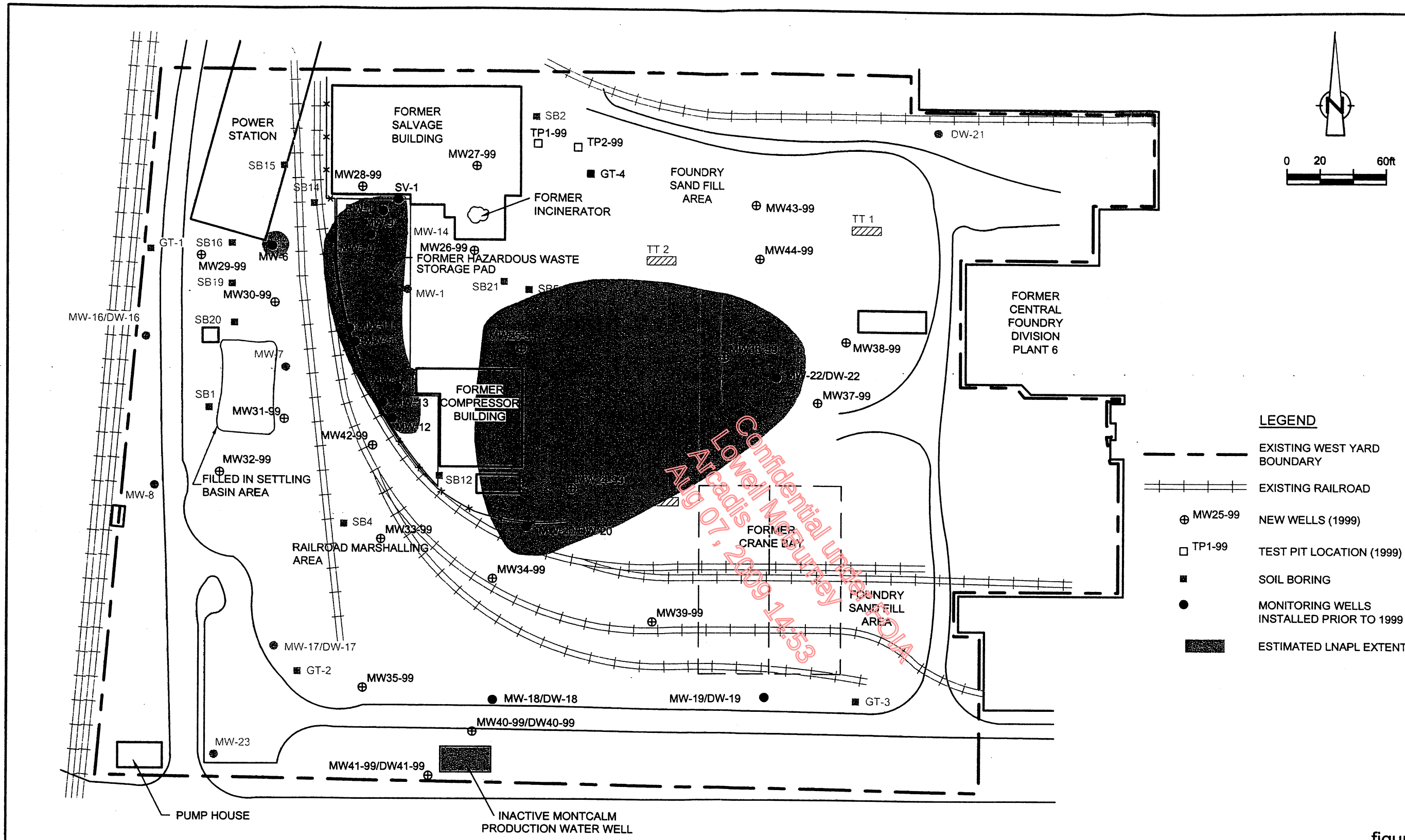

figure 6-3

CURRENT ESTIMATED EXTENT OF LNAPL
WEST YARD, PONTIAC NORTH CAMPUS
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

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17487-03(001)GN-WA007 JAN 26/2001

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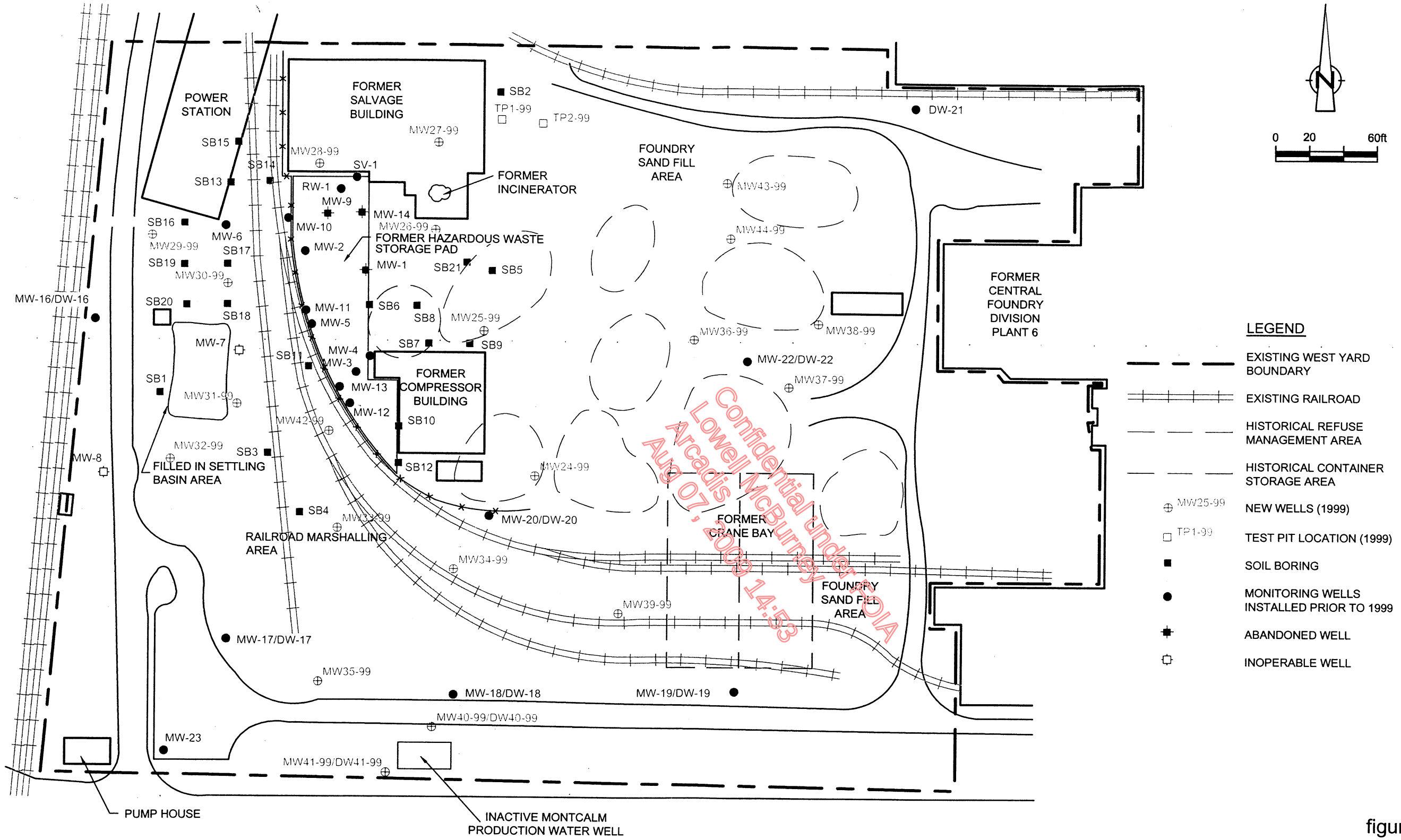

figure 6-4

SOIL BORING AND MONITORING WELL LOCATIONS
WEST YARD, PONTIAC NORTH CAMPUS
CURRENT CONDITIONS REPORT
PONTIAC, MICHIGAN
General Motors

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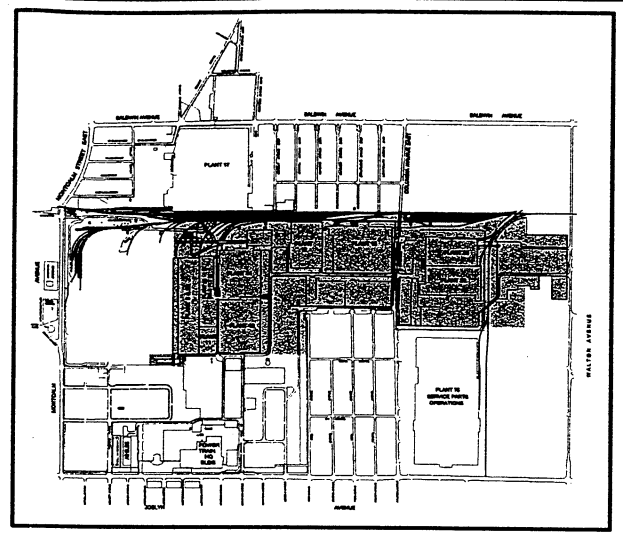
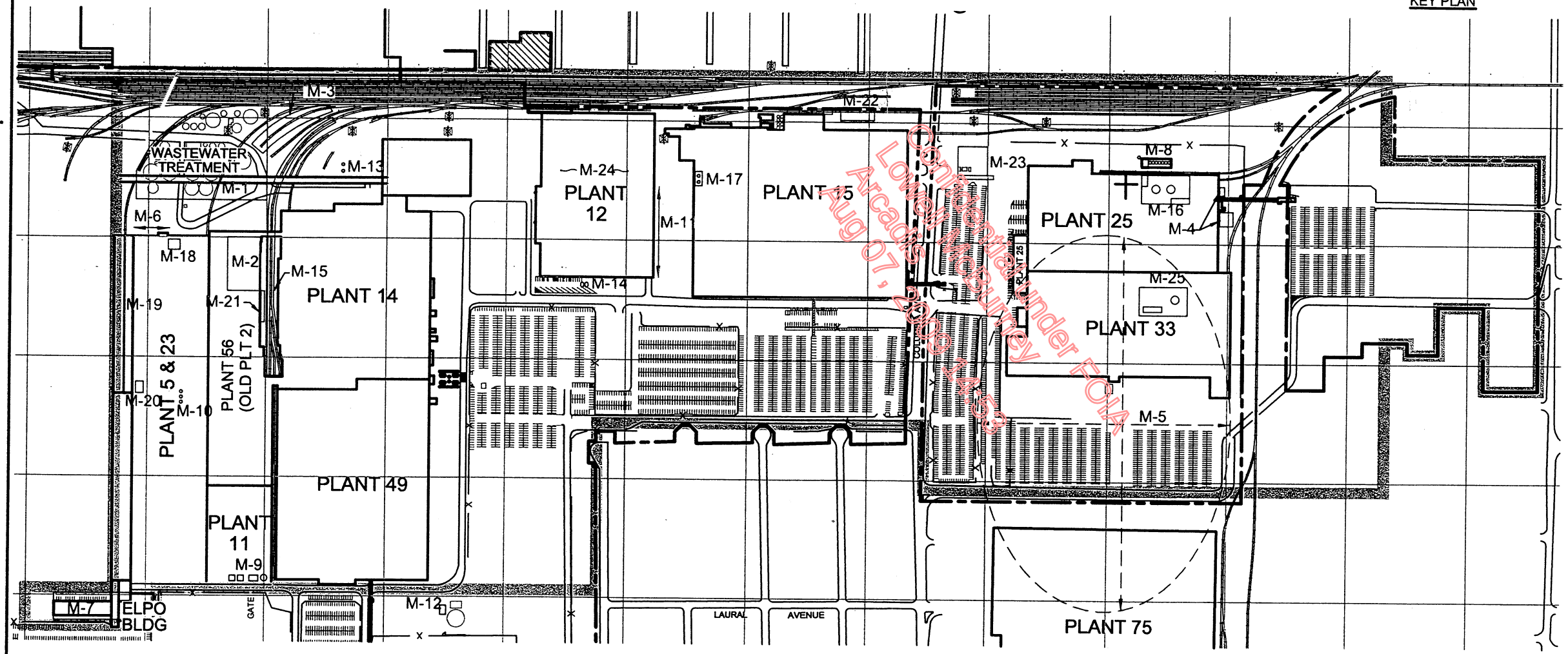
AOI DESCRIPTION

M-1 - WASTEWATER TREATMENT PLANT AREA
M-2 - FORMER PLATING OPERATIONS AREA
M-3 - FORMER TRACK 31
M-4 - PLANT 25 UST/AST AREA
M-5 - FORMER A-2 FILL AREA
M-6 - PLANT 5 HYDRAULIC FLUID SPILL
M-7 - ELPO BUILDING
M-8 - PLANT 25 OIL STORAGE AREA
M-9 - PLANT 11 HEAT TREAT OIL STORAGE AREA
M-10 - PLANT 23 BASEMENT AST AREA
M-11 - PLANT 12 FORMER GASOLINE STORAGE AREA
M-12 - AST EAST OF PLANT 49
M-13 - AST AREA WEST OF PLANT 14
M-14 - CURRENT AST AREA EAST OF PLANT 12
M-15 - TRACK 26
M-16 - PLANT 25 BASEMENT SUMP AREA
M-17 - PLANT 15 SOUTHERN PIPING TRENCH
M-18 - PLANT 5 WASTE ACCUMULATION AREA
M-19 - PLANT 5 SOUTHERN ACCESS RAILWAY
M-20 - PLANT 23 BASEMENT AREA
M-21 - PLANT 14 TRANSFORMER STATION
M-22 - PLANT 15 - COLUMBIA AVENUE SWITCH HOUSE
M-23 - PLANTS 25, 33 AND 75 SUBSTATION AND POWER BUILDING
M-24 - PLANT 12 TRANSFORMER OIL SPILL
M-25 - PLANT 33 BASEMENT SUMP AREA

NOTE: THERE IS NO SPECIFIC LOCATION FOR AOI M-11 AND AOI M-24.



KEY PLAN



LEGEND

- PROPERTY BOUNDARY
- RAILROAD TRACKS
- x FENCE
- M-15 AREA OF INTEREST
- OPERATIONAL AREA BOUNDARY

ENCORE

17487-03(001)GN-WA002 JAN 30/2001

figure 6-5

AREAS OF INTEREST
PONTIAC NORTH CAMPUS - METAL FABRICATION DIVISION (MFD)
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