REPORT

Description of Current Conditions for Areas South of Leith Street

Volume I of IV

General Motors Corporation
NAO-Flint Operations
Flint, Michigan

May 30, 2000

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

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BLASLAND, BOUCK & LEE, INC.
engineers & scientists

Transmitted via Federal Express

May 30, 2000

Lisa K. Geist
U.S. Environmental Protection Agency - Region 5
Waste, Pesticide and Toxics Division
77 W. Jackson Blvd. DE-9J
Chicago, IL 60604-3590

Re: Southend DOCC
Project #: 869.34.010

Dear Lisa:

On behalf of General Motors Corporation (GM), Blasland, Bouck & Lee, Inc. (BBL) is pleased to present this *Description of Current Conditions for Areas South of Leith Street* (DOCC) *Report* (Volumes I-IV) for the GM NAO-Flint Operations Facility in Flint, Michigan (United States Environmental Protection Agency [USEPA] ID# MID 005 356 712). We have also provided a brief summary of the near-term work efforts to be implemented during the next two to three months for the areas south of Leith Street. In addition, we have provided a status update for the Northend DOCC Report.

I. Near-Term Southend Work Efforts

As you are aware, the buildings located south of Leith Street are scheduled for demolition starting in August/September 2000 and continuing for an approximately one-year period. As a component of the building demolition efforts, various sumps, pits, and trenches are being cleaned in anticipation of demolition activities. These areas have also been identified as AOIs during the RCRA work efforts.

As a component of the RCRA program, in June 2000 BBL will revisit the AOIs to evaluate the physical integrity of these units to determine if a "release into the environment" may have occurred. Analytical sampling will also be performed, as appropriate, to provide additional supporting information. We anticipate that this effort will be completed before August 2000.

II. Status of Northend DOCC Report

In accordance with the Administrative Order on Consent (#R8H-5-00-2), the next deliverable to the USEPA is the Northend DOCC Report, due on November 27, 2000. As discussed at our meeting in Flint, Michigan on May 8, 2000, BBL is on schedule to complete the field reconnaissance efforts for the Northend DOCC Report by the second week of June 2000. This information will be incorporated into the GIS for the Site,

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during July and August, in anticipation of our *Draft Northend DOCC Report* review meeting on September 13, 2000 at 10:30 a.m. in Flint, Michigan.

Lisa, we appreciate the cooperative effort between the USEPA, the Michigan Department of Environmental Quality, and GM in the preparation of this document. Should you have any questions, please don't hesitate to contact either Robert Metcalf, P.E. or me.

Sincerely,

BLASLAND, BOUCK & LEE, INC.

David W. Hale, P.E.
Vice President

Enclosure

DWH/tla

cc: Robert S. Metcalf, P.E., General Motors Corporation (Volumes I-IV)
Jean Caufield, General Motors Corporation (Volume I)
Michelle Fisher, Esq., General Motors Corporation (Volume I)
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TECHNICAL REPORT

Description of Current Conditions for Areas South of Leith Street

Volume I of IV

General Motors Corporation
NAO-Flint Operations
Flint, Michigan

May 30, 2000

BBL
BLASLAND, BOUCK & LEE, INC.
engineers & scientists

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Executive Summary

Purpose

This *Description of Current Conditions for Areas South of Leith Street* (DOCC) was prepared by Blasland, Bouck & Lee, Inc. (BBL) on behalf of the General Motors Corporation (GM) for the southern portion of the GM North American Operations (NAO)-Flint Operations Facility (GM NAO-Flint) in Flint, Michigan (USEPA ID # MID 005 356 712). This report fulfills one of the tasks under RCRA Section 3008(h), Administrative Order on Consent (R8H-5-00-02) effective March 1, 2000. This DOCC pertains only to those areas of the Facility located south of Leith Street (the Site). This report provides:

- A brief overview of pertinent features of the Site (e.g., surrounding land use, topography, geology);
- A review of available information concerning the historical use of the Site for the treatment, storage, or disposal of hazardous waste or hazardous constituents and identification of areas of interest (AOIs), which may warrant further investigation or evaluation in the RCRA Facility Investigation (RFI);
- A brief summary of Site-related environmental investigations and resulting analytical data; and
- A brief summary of Site-related Interim Measures (IMs) implemented to date.

For the purpose of this report and future investigations and evaluations concerning the Site, areas identified during prior investigations using terms such as Solid Waste Management Unit (SWMU) and Area of Concern (AOC), have been reidentified herein using the single term AOI, which is defined as *a specific location where a release of hazardous waste or hazardous constituents may have occurred that could potentially have an adverse impact on human health or the environment.*

Background

The Site began operations as an automobile parts producer in 1903, and since that time various types of automotive production activities have been conducted (except during World Wars I and II, when manufacturing conversions were made for war production).

In September 1987, A.T. Kearney, Inc. and K.W. Brown & Associates, Inc. prepared a report entitled *RCRA Facility Assessment (RFA) Preliminary Review/Visual Site Inspection (PR/VSI) Report, General Motors Corporation, Buick-Oldsmobile-Cadillac Facility, Flint, Michigan* (PR/VSI Report). The PR/VSI Report, developed under

contract to USEPA Region 5, identified a total of 139 SWMUs and other AOCs. GM has performed numerous investigations and remediations at the Site over the past two decades to address various historical environmental issues. These investigations resulted in the identification of a number of additional AOIs.

Comprising approximately 258 acres, the Site is located in Flint, Michigan, in Genesee County (see Figure 1), and generally is oriented in a north-to-south direction. It is generally bounded to the north by Leith Street, to the south by Harriet Street, to the east by James P. Cole Boulevard and CSX Railroad, and to the west by Industrial Avenue, and North Street.

Summary of Areas of Interest (AOIs)

The various investigative activities cited above have identified the following AOIs information:

1. A total of 327 AOIs have been identified for further investigation and evaluation. These identified AOIs include sumps, pits, trenches, storage tank areas, and additional areas at the Site.

2. Principal constituents of interest associated with these AOIs were identified as polychlorinated biphenyls (PCBs), semivolatile organic compounds (SVOCs), volatile organic compounds (VOCs), and various metals. GM has conducted sampling and analysis of soil, groundwater, and various structures or areas associated with certain AOIs to date.

Summary of Historical Investigations and Existing Analytical Data

Various historical investigations have evaluated UST areas, the Site storm sewer system, the fenceline area, groundwater, basement tunnel areas, and building decommissioning as briefly summarized below:

1. The status of 47 removed or existing USTs and approximately 93 removed or existing ASTs is summarized in Table 10.

2. A 1995 Fenceline Investigation resulted in approximately 60 soil samples from 36 locations at the Site with varying concentrations of benzene, ethylbenzene, toluene, and xylenes (BTEX) (up to 73 milligrams per kilogram [mg/kg] total xylenes) and several SVOCs (up to 2.3 mg/kg benzyl chloride), and lead (up to 8.4

mg/kg). The Fenceline Investigation also collected 45 groundwater samples from 32 locations, detecting constituent concentrations consistent with soil sampling results.

3. A semiannual Facilitywide groundwater sampling program has detected the presence of BTEX in groundwater in the Hamilton Avenue Tank Farm Area and the Building 02/40 UST area.

4. Building 40 Basement Tunnel investigations conducted in 1991 and 1992 found varying concentrations of PCBs in oil (up to 80 mg/kg), and water (up to 23 micrograms per liter [μg/L]) and detectable concentrations of select SVOCs and metals. Subsequent sampling (conducted in 1994) (quarterly groundwater sampling for one year) found no detectable concentrations of PCBs.

5. Building Decommissioning Assessments conducted in 1999 and 2000 detected PCB concentrations (typically less than 20 mg/kg). VOCs, SVOCs, and metals were also detected at various locations.

Summary of Existing Interim Measures (IMs)

GM has historically operated two Interim Measures (IMs) near Buildings 04 and 84 to recover free product associated with former UST areas. The Building 04 UST IM activities consisted of the excavation of approximately 2,500 to 3,000 cy of soil associated with the removal of several USTs. A leachate collection system was installed within the excavation to collect residual oil. This system was operated for several years and is currently inactive.

The Building 84 Tank Farm Area IM consisted of the excavation of approximately 5,200 cy of soil associated with the removal of the Former Tank Farm 94 USTs. The excavated soil was thermally desorbed and the tank farm replaced with the existing AST tank farm.

1. Introduction

1.1 Background

This *Description of Current Conditions for Areas South of Leith Street* (DOCC) was prepared by Blasland, Bouck & Lee, Inc. (BBL) on behalf of the General Motors Corporation (GM) for the southern portion of the GM North American Operations (NAO)-Flint Operations Facility (GM NAO-Flint) in Flint, Michigan (USEPA ID # MID 005 356 712). This report fulfills one of the tasks under RCRA Section 3008(h), Administrative Order on Consent (R8H-5-00-02) effective March 1, 2000. Refer to Figures 1 and 2 for illustrations of this area.

The GM NAO-Flint Facility encompasses approximately 452 acres of land located in the northeast quadrant of the City of Flint. Refer to Figure 1 for an illustration of the general location of GM NAO-Flint. This report covers the southern portion of GM NAO-Flint, the areas south of Leith Street, hereafter referred to as the Site.

GM NAO-Flint began operations as an automobile parts producer in 1903, and since that time various types of automotive production activities have been conducted (except during World Wars I and II, when manufacturing conversions were made for war production).

In September 1987, A. T. Kearney, Inc. and K. W. Brown & Associates, Inc. prepared a report entitled *RCRA Facility Assessment (RFA), Preliminary Review/Visual Site Inspection (PR/VSI) Report, General Motors Corporation, Buick-Oldsmobile-Cadillac Facility, Flint, Michigan* (hereafter referred to as the PR/VSI Report). The PR/VSI Report, developed under contract to USEPA Region 5, identified a total of 139 Solid Waste Management Units (SWMUs) and other Areas of Concern (AOCs). A summary of SWMUs and AOCs for areas south of Leith Street is provided in Table 1. The locations of the various AOIs identified, to date, are shown on Figures 3 through 23.

GM has performed numerous investigations and remediations at GM NAO-Flint over the decades to address various historical environmental issues. These activities resulted in the identification of a number of areas of interest (AOIs), several of which involved the various SWMUs and AOCs.

1.2 Purpose

The purpose of this report is to provide the following:

- A brief overview of pertinent features of the Site (e.g., surrounding land use, topography, geology);
- A review of available information concerning the historical use of the Site for the treatment, storage, or disposal of hazardous waste or hazardous constituents and identification of AOIs, which may warrant further investigation or evaluation in the RCRA Facility Investigation (RFI);
- A brief summary of Site-related environmental investigations and resulting analytical data; and
- A brief summary of Site-related Interim Measures (IMs) implemented to date.

For the purpose of this report and future investigations and evaluations concerning the Site, areas identified during prior investigations using terms such as SWMU and AOC have been reidentified herein using the single term AOI, which is defined as *a specific location where a release of hazardous waste or hazardous constituents may have occurred that could potentially have an adverse impact on human health or the environment.*

1.3 Document Organization

This document is organized into five main sections. Section 1 presents the background, purpose, and organization of the document. Section 2 presents a brief overview of the physical and environmental setting of the Site, including a brief description of the Site, surrounding land use, historical land use, related buildings, mapping and photographs, topography, surface drainage, geology, and climatological and meteorological conditions. Section 3 presents a description and summary of the various AOIs identified. Section 4 presents a brief overview of the various sampling and analysis activities performed at the Site over the years and a summary of the resulting analytical data. Finally, Section 5 presents a summary of IMs implemented to date at the Site.

In addition, various tables, figures, and appendices referenced throughout this document provide additional supporting information.

2. Physical and Environmental Setting

2.1 General

This section provides an overview of pertinent information on the physical and environmental setting of the Site. Section 2.2 provides a general description of the Site and surrounding land use. Section 2.3 describes historical land use, and Section 2.4 describes topography and surface drainage. Section 2.5 describes regional geologic conditions, and Section 2.6 provides climatological and meteorological information. Historical Site buildings are listed in Section 2.7. Section 2.8 presents information from historical mapping and aerial photographs. Finally, Section 2.9 lists existing Site buildings.

2.2 Site Description and Surrounding Land Use

Comprising approximately 258 acres, the Site is located in Flint, Michigan, in Genesee County (see Figure 2), and generally is oriented in a north-to-south direction. It is generally bounded to the north by Leith Street, to the south by Harriet Street, to the east by James P. Cole Boulevard and CSX Railroad, and to the west by Industrial Avenue and North Street.

Based on a review of the United States Geological Survey (USGS) Flint North Quadrangle map, the nearest surface water is the Flint River, which is approximately 300 to 500 feet east of the Site. In general, north of Leith Street is occupied by the remainder of GM NAO-Flint. A recycling facility is located on the northeast corner of James P. Cole Boulevard and Garfield Avenue, and a Consumers Power Building is located on the southeast corner of James P. Cole Boulevard, between the Site and the Flint River. The former du Pont plant facility is located south of Hamilton Avenue, east of the Site. The remaining areas east, west, and south of the Site are occupied by residential neighborhoods.

2.3 Historical Land Use

The original Site was developed in the late 1800s for the purpose of producing the "horseless carriage." In 1898, Billy Durant and J. Dallas Dort purchased the Imperial Wheel Company, making it a subsidiary of the Durant/Dort Carriage Company. After acquisition of the Imperial Wheel Company, manufacturing operations were relocated to the Site, at the intersection of Hamilton Avenue and St. John Street (currently James P. Cole Boulevard).

The Buick Motor Company was first established in Flint when Flint Wagon Works purchased the company from David Buick in September 1903. In 1903, the Buick Motor Company was relocated from Detroit to the Site, and located on Hamilton Avenue between the intersection of Industrial Avenue and Hamilton Avenue, and St. John Street (now James P. Cole Boulevard) and Hamilton Avenue. With David Buick as president, and Billy Durant as general manager, 16 experimental cars were produced by the end of 1903, and 37 cars were produced in 1904. The Buick Motor Company became a division of General Motors when the corporation was formed in 1908. The Buick Motor Company experienced very rapid growth and produced approximately 30,000 cars in 1910. By 1915, the "horseless carriage" had put the Durant/Dort Carriage Company (including the Imperial Wheel Works) out of business. The buildings associated with the former Imperial Wheel Works (located generally at the northeast corner of Industrial Avenue and Hamilton Avenue) were incorporated into the rapidly growing Buick complex. By the end of 1923, the Buick Motor Company had produced 1 million cars, with the Buick complex continuing to grow northward from Hamilton Avenue toward Stewart Avenue.

In addition to the manufacturing of automobiles, in response to World War I, the Buick Motor Company began producing the Liberty Aircraft engine in 1918. Similarly, in response to World War II, the production of automobiles was stopped in 1942, and the Buick complex was converted for the production of military equipment.

Prior to the cessation of operations in the summer of 1999, recent manufacturing processes included:

- Machining of ferrous and nonferrous metals;
- Plating;
- Painting;
- Plastics injection molding;
- V-6 engine engineering and testing; and
- Vehicle assembly.

These historical manufacturing processes included activities or equipment with potential environmental significance as identified below:

- Storing/conveying/recycling numerous liquids, including gasolines, oils, solvents, and paints, etc.;
- Degreasing parts; and

- Using sumps, vaults, underground storage tanks (USTs), aboveground storage tanks (ASTs), collection trenches, collection vessels, and materials recovery for various manufacturing operations.

2.4 Topography and Surface Drainage

The topography of the Site is fairly flat, although the regional topography slopes east to southeast toward the Flint River. Local surface drainage is collected by the Site storm sewer drainage system, which also services the western portion of the City of Flint.

2.5 Geologic Conditions

Bedrock in the region consists primarily of sandstone and limestone formations that are characteristic of the eastern-central portion of the Michigan Basin. These Pennsylvanian and Mississippian Age formations include the Saginaw, Bay Port limestone, and Michigan formations. Pleistocene Age glacial deposits cover the bedrock in the area. These unconsolidated glacial sediments are composed mainly of medium-textured and nonsorted glacial till. This till is gray-brown and nonsorted. The matrices are predominantly loam and silt/loam with various amounts of cobbles and boulders. The sediments occur mainly as ground moraines and till plains or undifferentiated ground moraine-end complexes. Water well records from the Flint area indicate that these glacial sediments are approximately 100 feet thick.

till / fill boundary perched may be present at

In general, portions of the Site contain several feet of fill that were necessary to construct some of the more than 5 million square feet of industrial facilities that are located at the Site. Groundwater beneath the Site typically ranges from a few feet below ground surface (bgs) to 15 or 20 feet bgs. Groundwater tends to flow predominantly to the east toward the Flint River. While the permeability at the Site varies significantly due to the deposited fill, in general, much of the Site has a relatively low permeability with pumping tests capturing only a few gallons per minute.

2.6 Climatological and Meteorological Information

Since day-to-day weather is controlled by the movement of pressure systems across the nation, this area seldom experiences prolonged periods of hot, humid weather in the summer or extreme cold during the winter. The prevailing wind is southwesterly, averaging 10 mph. As a result of these prevailing winds, Flint experiences some lake-effect

snow. However, this is minimal and essentially limited to increased cloudiness during the late fall and early winter. The average midday relative humidity varies from 54% for May to 73% for December, and averages 62% annually.

Summers are dominated by moderately warm temperatures with a 1964 to 1993 average of 6.6 days exceeding the 90°F mark. The lake influence was reflected in the minimum temperatures; an annual average of 139.3 days was 32 F or lower. The highest average monthly maximum temperature of 88.8°F was recorded July 1955, and the lowest average monthly minimum temperature of about 4°F was recorded February 1978.

Precipitation is generally well distributed throughout each year with the crop season (April through September) receiving an average of about 18 inches, or 60% of the average annual total, for 1964 to 1993. During this same period, the average wettest month was September, averaging 3.56 inches of precipitation, while the average driest month was February, averaging 1.28 inches of precipitation. Summer precipitation comes mainly in the form of afternoon showers and thundershowers.

The 1964 to 1993 average seasonal snowfall was about 45.1 inches. During this period, 14.3 days per season averaged 1 inch or more of snow on the ground, but this varied greatly from season to season.

2.7 Historical Site Buildings

Several buildings were historically present at the Site, but have since been demolished to facilitate the construction of newer facilities. The following table lists these historical buildings, and Figure 1 of Appendix B identifies their previous locations.

Historical Buildings

Building Number	Description	Year Built
01	Transmission Plant	1906
03	Drop Forge	1908
04	Body Plant	Before 1906
05	Enameling	1914
06	Assembly	1907
07	Main Office and Administration	1917
08	Laboratory and Garage	1908
09	Fueling Station	1919
10	Assembly	1909
14	Central Power House	1920

Historical Buildings		
18	Parts Department and Paint	Before 1902
J2 (18)	Store Shed	Before 1921
26	Boiler and Gas House	Between 1907-1913
31	Axle Assembly Plant	1906
32	Axle Plant	1907
34	Axle Plant	1909
35	Axle Plant	1909
36	Power House	1909
37	Axle Plant	1909
38	Axle Plant	1908
39	Receiving Shed for Axle Plant	Est. 1909
42	Transformer House	1920
43	Kitchen	1920
46	Parts Storage/Auxiliary Power Plant	Before 1919
47	Sprinkler Valve House	Before 1921
48	Parts Storage	Before 1921
49	Former Sawdust Vault	Before 1921
50	Dry Kiln	Between 1906-1916
51	Bending Storage & Welding	Before 1912
53	Transformer House	1918
55	Heat Treat	Between 1912-1919
60	Main Pump Station	1913
62	Assembly & Paint	1923
63	Dry Kiln	1916
64	Pickling Room	1924
65	Personnel	1921
78	Engineering & Experimental	1927
79	Storage	Between 1922-1927
80	Die Storage	1928
Not Numbered	A.C. Spark Plug Operations	1928

2.8 Historical Mapping and Aerial Photographs

After obtaining aerial photographs, Sanborn maps from Site records, and other maps, BBL completed a review of available maps and photographs. A summary of information obtained from these documents is presented below in chronological order.

1912 Manufacturers Mutual Maps

A review of Manufacturers Mutual maps, dated 1912, indicated that several industries were located within or near the Site. These industries included the following:

- Western Mott Company was located within the existing Site boundary, on the eastern side of Industrial Avenue, at the corner of Industrial Avenue and Hamilton Avenue;

- Imperial Wheel Works was located within the existing Site boundary, on the north side of Hamilton Avenue, east of the Pere Marquette Railroad (presently the CSX Railroad);

- W. R. Stewart (woodworking operation) and several lumber piles were located within the existing Site boundary, between Hamilton Avenue and Harriet Street;

- Standard Oil Company facility and a lumber pile were located near the existing Site boundary, south of Harriet Street;

- Historical GM Building 04 complex (Buildings 4-H through 4-P) and Building 08 were located within the existing Site boundary, on the south side of Hamilton Avenue, at the corner of Hamilton Avenue and Industrial Avenue. These buildings consisted of woodworking and automobile body facilities and a laboratory and garage. Refer to Figure 1 of Appendix B for the historical location of the former Building 04 complex; and

- Several additional historical and existing GM buildings were located between Hamilton Avenue and Leith Street. These buildings included historical Building 01 complex (Buildings 1-A through 1-G) that was used for transmission operations, historical Building 06 complex and Building 10 (assembly operations), historical Building 38 complex (axle operations), historical Building 03 complex (Buildings 3-A through 3-H) used for drop forge operations, and existing Building 12 (sheet metal operations). Refer to Figure 1 of Appendix A for the existing Building 12 location. Refer to Figure 1 of Appendix B for historical building locations.

1919 Buick Motor Company Drawing

A comparison of Buick Motor Company Drawing No. A-2272, dated January 29, 1919, with the 1912 Manufacturers Mutual maps indicated the following changes within or near the Site:

- The Flint Varnish Works was located near the existing Site boundary on the south side of Hamilton Avenue, east of the Pere Marquette Railroad (presently CSX Railroad);

- Historical records indicate that the Imperial Wheel Works Company had ceased operations in 1915. The former Imperial Wheel Works buildings, located on the north side of Hamilton Avenue, east of Pere Marquette Railroad (presently CSX Railroad), were acquired by GM and were within the existing Site boundary. The use of these buildings, while under the ownership of the former Imperial Wheel Works Company, is unknown. Following GM's acquisition of the former Imperial Wheel Works Company, the former Imperial Wheel Works buildings were added to GM's operations. These buildings included historical Building 18 complex (utilized by GM as a parts department) and historical Buildings 34, 35, 36, 37, and 39 (utilized by GM for axle operations). Two existing buildings (Buildings 17 and 28) were also constructed in close proximity to the former Imperial Wheel Works buildings. Existing Building 17 was utilized for a truck and service garage and existing Building 28 was utilized for a parts machine shop. Refer to Figure 1 of Appendix A for the locations of existing Buildings 17 and 28. Refer to Figure 1 of Appendix B for historical building locations.

- Buildings associated with the former Western Mott Company (located on the eastern side of Industrial Avenue, at the corner of Industrial Avenue and Hamilton Avenue) were acquired by GM and are within the existing Site boundary. The use of these buildings while under the ownership of the former Western Mott Company is unknown. Following GM's acquisition of the former Western Mott Company, these buildings were added to GM's operations. These buildings included the historical Building 31 complex and historical Building 32. These buildings were utilized by GM for axle assembly operations. Refer to Figure 1 of Appendix B for the locations of the historical Building 31 complex and historical Building 32.

- Several additional historical buildings were constructed by GM within the existing Site boundary between Hamilton Avenue and Leith Street. Historical buildings constructed between 1912 and 1919 included historical Building 05 (located between the historical Building 03 complex and existing Building 12) utilized for enameling operations, historical Building 07 (located south of historical Building 01 complex, between the Building 01 complex and Hamilton Avenue) utilized for a main office and administrative activities, historical Building 09 (located between the existing Buildings 02 and 40) utilized for fueling operations, historical Building 26 (located between historical Building 01 complex and historical Building 10) utilized for boiler and gas house operations, historical Building 46 (located directly north of the historical Building 18 complex) utilized for parts storage and auxiliary power plant, and historical Building 55 (located adjacent to the west side of existing Building 29) utilized for heat treat operations. Refer to Figure 1 of Appendix B for the locations of historical buildings locations.

- Several additional existing buildings were constructed by GM within the existing Site boundary between Hamilton Avenue and Leith Street. Existing buildings constructed between 1912 and 1919 included existing Building 02 (located adjacent to the west side of the CSX Railroad, north of existing Building 40) utilized historically as a warehouse and train shed, existing Building 29 (located adjacent to the south side of Leith Street to the east of existing Building 12) utilized for a die/tool machining, and existing Building 40 (located adjacent to the west side of the CSX Railroad and south of Building 02) utilized for transmission assembly. Refer to Figure 1 of Appendix A for existing building locations.

1928 Sanborn Map – Early 1900's

A comparison of the Sanborn map dated 1928 with Buick Motor Company Drawing No. A-2272, dated January 29, 1919, indicated the following changes within or near the Site:

- The A. C. Spark Plug Company (Division of General Motors Corporation) was located within the existing Site boundary on the west side of Industrial Avenue, on the corner of Industrial Avenue and Harriet Street;

- The Flint Screw Products Company was located south of the Site on the west side of Industrial Avenue, near the corner of East Patterson and Industrial Avenue;

- The former Flint Varnish Works property (as identified in drawing A-2272), located east of the existing Site boundary on the south side of Hamilton Avenue, east of the Pere Marquette Railroad (presently CSX Railroad), was occupied by E. I. du Pont de Nemours and Company (du Pont);

- The Marvel Carburetor Company was located east of the existing Site boundary, east of du Pont; and

- The Consumers Power Company was located within the existing Site boundary between existing Building 17 and the Flint River.

In addition, the Sanborn map also provided details for several historical buildings that were constructed before 1928. The following historical buildings were identified within the existing Site boundary:

- Several additional historical buildings were constructed or occupied by GM within the existing Site boundary between 1919 and 1928. In addition to previously identified historical buildings, review of the 1928 Sanborn maps identified a total of 17 historical buildings as being present within the existing Site boundary.

  These buildings included the following:

  - Historical Building 14 (located at the southeast corner of Leith Street and Division Street) was utilized for a central power house;

  - Historical Building 42 (located east of the existing Building 40, between Building 40 and the CSX Railroad) was utilized as a transformer house;

  - Historical Building 43 (located at the southwest corner of Leith Street and Division Street) was utilized for a kitchen;

  - Historical Buildings 47, 48, and 49 (located directly north of the historical Building 18 complex) were utilized for a sprinkler valve house, parts storage, and sawdust vault, respectively;

  - Historical Buildings 50, 51, and 63 (located south of the historical Building 04 complex, near the southwest corner of Hamilton Avenue and Industrial Avenue) were utilized for dry kiln and welding operations;

  - Historical Building 53 (located to the east of the historical Building 03 complex, between the Building 03 complex and Division Street) was utilized as a transformer house;

  - Historical Building 60 (located southeast of existing Building 17, between existing Building 17 and the Flint River) was utilized as a pump station;

  - Historical Building 62 (located between the historical Building 06 complex and historical Building 06 complex and historical Building 10) was utilized for vehicle assembly and painting;

- ➢ Historical Building 64 (located directly north of the historical Building 03 complex) was utilized as a pickling room;

- ➢ Historical Building 65 (located directly east of historical Building 38) was utilized for personnel;

- ➢ Historical Building 78 (located east of the historical Building 08 complex, between historical Building 08 and the CSX Railroad) was utilized for engineering;

- ➢ Historical Building 79 (located southeast of existing Building 28) was utilized as a storage building; and

- ➢ Historical Building 80 (located to the north of historical Building 05) was utilized for die storage.

Refer to Figure 1 of Appendix B for historical building locations.

1941 Sanborn Map

A comparison of the 1941 and 1928 Sanborn maps indicated that several buildings within the existing Site boundary had been demolished and replaced with currently existing buildings. Review of the 1941 Sanborn map identified the following changes within the Site:

- Several buildings, including several former Imperial Wheel Works buildings, located at the south end of the Site (north side of Hamilton Avenue, east of the CSX Railroad), had been demolished and replaced with new buildings between 1928 and 1941. The buildings that were demolished included former parts department buildings (Building 18 complex) and former axle facilities (Buildings 34, 35, 36, 37, and 39), as well as Buildings 46, 47, 48, 49, and 79. These buildings were subsequently replaced by a service stock and machine shop (Building 84, constructed to the west of Building 28, between Building 28 and the CSX Railroad), and Building 94, located to the north of Buildings 84, 28, and 17. In addition, Building 17A (including a receiving dock) was constructed between Buildings 28 and 17;

- Building 12A was constructed between Buildings 29 and 12; and

- Building 43 (referred to as Building 41 in Buick Motor Company Drawing No. A-2272), a former kitchen (located on the south side of Leith Street, east of Building 29), had been demolished.

1950 Sanborn Mapping

A comparison of 1950 and 1941 Sanborn maps indicated that the area within the existing Site boundary had not been updated since 1941. However, the 1950 Sanborn map did include an update of the areas near the Site, as well as additional detail at the eastern side within the existing Site boundary. In general, the 1950 Sanborn map indicated that areas west of the Site and west of Industrial Avenue consisted of densely populated residential properties and several small businesses (filling stations, repair garages, restaurants, small hotels, dry cleaners, and churches). The 1950 Sanborn map also indicated the area within the eastern portion of the Site between CSX Railroad and Flint River also consisted of densely populated residential properties and small businesses.

1966 U.S. Dept. of Housing and Urban Development and Genesee County, Michigan Aerial Photograph

A comparison of a May 22, 1966 aerial photograph with the 1950 and 1941 Sanborn maps indicated that the area within the existing Site boundary had not been modified since 1941. The peripheral areas near the existing Site boundary remained densely populated residential areas. A review of the 1966 aerial photograph resulted in the identification of the following:

- Three former residential neighborhoods located within the existing Site boundary had been demolished and redeveloped with parking areas and vacant land between 1950 and 1966. These former residential neighborhoods were located east of the CSX Railroad, directly south of Leith Street within the area that is currently referred to as the car shipping lot.

- Several historical buildings had been demolished and replaced with new buildings between 1941 and 1966. Historical buildings (Building 01 complex, Building 03 complex, Building 06 complex, Building 10, and the Buildings 31 and 32 complex) were demolished between the years 1941 and 1966; and

- Several existing buildings had been constructed between 1941 and 1966. The buildings constructed between 1941 and 1966 included the following:

- Building 02A (located at the north end of Building 02) was utilized for material handling and storage;

- Building 03 (located east of CSX Railroad, between the CSX Railroad and Building 94) was utilized for car loading and rail shipping;

- Building 04 (located at the northeast corner of Hamilton Avenue and former Industrial Avenue) was utilized for vehicle assembly;

- Building 16 (locate to the west of Building 40) was utilized for vehicle assembly;

- Building 23 (located adjacent to the east side of Building 29) was utilized for tool making and heat treat operations; and

- Building 94A (located at the northwest corner of Building 94) was utilized for export vehicle processing.

1982 Genesee County Metropolitan Planning Commission Aerial Photograph

A comparison of an April 1982 aerial photograph with a 1966 aerial photograph indicated that several additional buildings had been demolished or constructed within the existing Site boundary between 1966 and 1982. Building changes within the existing Site and the surrounding areas between 1966 and 1982 are summarized below:

- The 1982 aerial photograph indicated that all residential housing within the existing Site boundary was demolished between 1966 and 1982. These former residential areas were located east of the CSX Railroad between Leith Street and Building 94. Select portions of these former residential areas were redeveloped for use as parking areas for the Site (a large, new-car parking area was constructed east of the CSX Railroad tracks between Building 94 and Leith Street);

- The 1982 aerial photograph indicated that the UAW (I-475) highway had been constructed east of the Site;

- South of Hamilton Avenue, the former A.C. Spark Plug operation (located south of Harriet Street and on both sides of Industrial Avenue) and associated buildings had been demolished between 1966 and 1982. The 1982 aerial photograph indicated that the areas occupied by the former A.C. Spark Plug facility were being used for the storage of tractor trailers and metal storage bins. Also located south of Hamilton Avenue, former engineering buildings (Buildings 08 and 78, located between Industrial Avenue and the CSX Railroad tracks) had been demolished between 1966 and 1982 and redeveloped with parking. Building 01 (administration, located on the southwest corner of Industrial Avenue and Hamilton Avenue) was constructed between 1966 and 1982; and

- The 1982 aerial photograph for the southern portion of the Site located between Hamilton Avenue and Leith Street indicated that Building 07 (administration, located on the north side of Hamilton Avenue between Industrial Avenue and the railroad tracks) and Building 14 (power house, located on the south side of Leith Street, adjacent to the Leith Street overpass) had been demolished between 1966 and 1982. In addition, three buildings had been constructed within the existing Site boundary. Buildings 08 and 44 (Buick City final assembly and paint shop, located on the north side of Hamilton Avenue, between Buildings 04 and 16) and Building 10 (New Car Marshalling, located at the west side of Building 94) had been constructed between 1966 and 1982.

2.9 Existing Site Buildings

A list of the existing Site buildings is provided below; the locations of these buildings are illustrated on Figure 1 of Appendix A and as shown on Figures 3 through 23.

Existing Buildings		
Building Number	Description	Year Built
01	Administration	1968
02	Former Plastics Plant	1917
02A	Material Handling Storage	1943
02C	Material Handling Storage	1979
03	Car Loading/Rail Shipping	1965
04	Buick City Assembly	1947
05	South Primary Substation	1967
08	Buick City Final Assembly	1972
09	Facilities Engineering	1977
10	Car Marshalling-Repair & Shipping	1978
12	Buick City Final Assembly	1910
12A	Buick City Final Assembly	1938
12C	Buick City Final Assembly	1965

Existing Buildings		
Building Number	Description	Year Built
12E	Buick City Final Assembly	1985
12F	Buick City Final Assembly-Receiving Dock	1984
12G	Buick City Final Assembly-Body Fabrication	1984
16	Buick City Final Assembly	1946
16A	Buick City Final Assembly	1972
16B	Buick City Final Assembly	1985
17	Storage	1919
17A	Truck Garage & Vehicle Storage	1940
18	Personnel	1975
23	Former Tool Making & Heat Treat	1945
28	Powertrain Facility Support	1918
29	Former Tool Manufacturing	1918
40	Buick City Final Assembly	1920
44	Buick City Final Assembly Paint Shop	1977
84	Powertrain Components	1939
84A	Powertrain Components	1978
84B	Powertrain Components	1981
94	Truck Repair Garage	1941
94A	Export Processing	1945
100	New Car Marshalling	1983

3. Summary of Areas of Interest (AOIs)

3.1 General

This section provides a description and summary of the Site-related AOIs. These AOIs were identified based on a review of available Site records, interviews with Site personnel, Site reconnaissance, and general knowledge of past or present Site processes.

With the exception of storm sewers, which are addressed separately below, this section is generally organized with respect to areas immediately near or around various buildings or building clusters associated with the Site (e.g., Building 01 Area, Building 09 Area, Buildings 04, 08, 16, 40 and 44 Area). These areas are illustrated on Figure 2.

A total of 327 Site-related AOIs have been identified, including various sumps, pits, trenches, tanks, drum storage areas, etc. A brief overview of the history related to each of the AOIs and a description of their current operational status is provided below. Tables 2 through 10 describe these various AOIs, while the corresponding locations are illustrated on Figures 3 through 23.

3.2 Building 01 Area (Administration)

The Building 01 Area is approximately 19 acres in size and generally bounded by Harriet Street to the south, North Street to the west, Industrial Avenue to the east, and Hamilton Avenue to the north, with 2 acres on the southwest corner of Harriet Street and Industrial Avenue (see Figure 2). Building 01 and the related parking areas comprise the majority of this area. Building 01 was constructed in 1968 and is a three-story structure measuring approximately 300,000 square feet (ft^2). Since its construction, this building has been used as an administration building with no related manufacturing operations.

The PR/VSI Report identified the presence of one process sump (SWMU 57) located within Building 01 (see Figure 3). This unit serves only as a groundwater sump to maintain "dry" conditions within the building. It is therefore not considered an AOI.

why AOI?

3.3 Building 09 Area

The Building 09 Area is approximately 16 acres in size, triangular in shape, and generally bounded by the CSX Railroad tracks to the east, Industrial Avenue and the Building 01 Area to the west, and Hamilton Avenue to the north (see Figure 2). Building 09 and the related parking areas comprise the majority of this area. Building 09, constructed in 1997, is an approximately 15,000 ft^2, single-story structure used by plant maintenance for storing light construction equipment.

A total of seven AOIs have been identified within the Building 09 Area as a result of historical investigations. These AOIs, including several trench, pit, sump, and tank areas, have been designated as AOIs 09-1 through 09-7. Descriptions of these AOIs are provided in Table 2, while the corresponding locations are illustrated on Figure 4. A brief summary is provided below:

- One pit and one trench located within a material storage area in bay 1 of Building 09 have been identified as an AOI (AOI 09-1).

- One trench and an UST located within bays 3 through 14 of Building 09 have been identified as an AOI (AOI 09-2).

- One trench and an UST located within a vehicle wash area in bays 3 and 7 of Building 09 have been identified as an AOI (AOI 09-3).

- One sump area along the east side of Building 09 has been identified as an AOI (AOI 09-4). This sump is adjacent to the east side of Building 09 within a containment area associated with an AST identified below as Tank FF, which was used for fuel oil storage.

- Several ASTs/USTs have been identified within the Building 09 Area based on historical investigation activities, as well as a recent review of historical records, including Buick Motor Division Drawing No. 42361-M, dated 1973 and Flint Automotive Division Drawing No. C70444-M, dated 1991 (hereafter referred to as the 1973 Site drawing and the 1991 Site drawing, respectively and included in Appendices C and D, respectively). The

AST/UST-related AOIs for this area are briefly described in Table 2, with more details presented in Table 10. A brief summary is provided below:

- The 1973 Site drawing depicts a historical tank farm in the northwest corner of the employee parking lot at the southeast corner of Hamilton Avenue and Industrial Avenue. The 14 tanks included in this former tank farm are identified on the 1973 Site drawing as Tanks 81 through 92, 132, and 133. These tanks were reportedly removed during December 1986 as described in an August 22, 1997 Summary Report prepared by Global Environmental Engineering (Global, 1997a). This area is considered an AOI and has been designated AOI 09-5.

- The 1973 Site drawing depicts two additional ASTs, MM and FF, as having existed along the east side of Building 09. Tank MM reportedly contained No. 1 diesel oil and had a capacity of 6,000 gallons, while Tank FF reportedly contained No. 2 fuel oil and had a capacity of 12,000 gallons. The location of Tank FF appears to correlate with Tank 09-2 illustrated on the 1991 Site drawing. The location of this tank as shown on these two drawings also generally correlates with the location of the sump area identified above as AOI 09-4, adjacent to the east side of Building 09. Since this general area is considered an AOI based on the presence of the sump (AOI 09-5) described above, a separate AOI designation has not been assigned to the specific area of Tank FF. As for Tank MM, although the area of this tank was not identified as an AOI in the PR/VSI Report, this tank was identified in the 1973 Site drawing and is considered an AOI (AOI 09-6).

- An additional AOI has been identified based on historical investigation activities. This area, designated AOI 09-7, is west of Building 09. This paved area was used for storing light equipment, and exhibited staining.

3.4 Factory 86 (Midlux-Buick City) Area

The Factory 86 (Midlux-Buick City) Area comprises most of the Site located west of the CSX Railroad track and north of Hamilton Avenue. Factory 86 comprises approximately 1.8 million ft^2 of building space, including Buildings 03, 04, 08, 10, 12, 16, 23, 29, 40, 44, and 94. Before manufacturing operations ceased in the summer of 1999, operations within Factory 86 included welding, metal forming, painting, vehicle assembly and testing, and vehicle storage. For the purposes of this document, the Factory 86 Area is subdivided into areas generally

represented by the specific buildings comprising the overall area. AOIs associated with each of these areas are described separately in the subsections below.

3.4.1 Building 04 (Final Assembly) Area

Building 04 is near the corner of Hamilton Avenue and Industrial Avenue (see Figure 2). It was constructed in 1947 and occupies approximately 435,000 ft^2. The first and second floors of Building 04 were primarily used for the installation of interiors and sealers, with the third and fourth floors containing curing ovens and an air house.

A total of 13 AOIs have been identified within the Building 04 Area as a result of historical investigation activities, as well as based on information reported in the PR/VSI Report. These AOIs have been designated as AOIs 04-1 through 04-13. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 5. A brief summary is provided below:

- Ten sump areas were identified within the first-floor area of Building 04. Five sump areas are within a tunnel area and appeared to be used for collecting groundwater infiltrating into that area. Two additional sump areas are located within basement areas and also appeared to be used for collecting infiltrating groundwater. As such, none of these units is considered an AOI. The remaining three sump areas include a process waste pump station, a sump located within a caged area, and a process waste sump (AOIs 04-1, 04-2, and 04-3, respectively [AOI 04-3 also contains a pit as discussed below]).

- A drum storage area in Building 04 used to store waste adhesives and sealers was identified in the PR/VSI Report as SWMU 49, and minor spillage into the secondary containment system associated with this unit was noted in the PR/VSI Report. As such, this area is considered an AOI and has been designated AOI 04-4.

- Eight pit areas were identified within the first-floor area of Building 04. Six pit areas (AOIs 04-05 through 04-10) were associated with elevators. The remaining two pit areas include a "Robotic Pit" area (AOI 04-11), which has exhibited oil and grease staining, and a pit associated with a sump in a process waste room (AOI 04-3).

- Five USTs were identified near the southeast corner of Building 04. These tanks were identified as Tanks 76 through 80 on the 1973 Site drawing. Tanks 77 through 80 were reportedly installed in 1946 for the purpose of

holding waste and product paints, lubricating oils, and reclaimable paint thinners and were removed in 1984 (refer to Table 10). These tanks were also identified in the PR/VSI Report as SWMUs 92 through 95. The PR/VSI Report stated that approximately 2,500 to 3,000 cubic yards (cy) of underlying soil was removed along with these four tanks and that oil was observed seeping into the excavation during tank removal. It was further reported in the PR/VSI Report that a leachate collection system was installed in the excavation to collect leachate for off-site disposal. This area is considered an AOI and has been designated AOI 04-12.

The 1973 Site drawing does not identify the historical use of tank 76; however, it was shown to be near Tanks 77 through 80 (AOI 04-12) and was reported to have also been removed in 1984 (refer to Table 10).

- One pit area (AOI 04-13) was identified as "Foam Depressor Process Waste Pit #3," and is located at column/bay 8E.

3.4.2 Building 44 (Final Assembly-Paint Shop) Area

Building 44 was constructed in 1977 and occupies approximately 113,000 ft^2 (see Figure 2). It is located north of Hamilton Avenue and east of Building 04, and was primarily used for treating, priming, and painting vehicles.

A total of 38 AOIs were identified within the Building 44 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 44-1 through 44-38. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 6. The AOIs are summarized as follows:

- Seven sump areas were identified within the first floor or basement areas of Building 44, as summarized below:

  - ➢ Five sump areas (AOIs 44-1, 44-2, 44-3, 44-4, and 44-5) were identified as discharging to the process wastewater system. AOI 44-2 also contains a pit as discussed below.

  - ➢ Two sump areas AOIs 44-6 and 44-7 appeared to be a process sump and a sump connected to two strip drains, respectively. The area (AOI 44-6) surrounding these process sump areas located at column/bay 10B have been historically identified as being oil-stained. AOI 44-6 also contains a trench as discussed below.

- A drum storage area in Building 44 was identified as AOC 3 in the PR/VSI Report. This drum storage area was used to store automotive paint products. This area is considered an AOI and has been designated AOI 44-8.

- Seven trench areas were identified within the first floor area of Building 44, as summarized below:

  - ➢ Four trench areas (44-9 through 44-12) were identified as discharging to the process wastewater system.

  - ➢ One trench area (AOI 44-13) was identified as discharging to the Uniprime pits.

  - ➢ Two trenches were previously identified in association with AOIs 44-3 and 44-6, respectively. As a result, separate AOI designations were not assigned to these units.

- Five pit areas were identified within the first-floor area of Building 44, as summarized below:

  - ➢ One pit area (AOI 44-14) was associated with an elevator.

  - ➢ One pit area (AOI 44-15) was within a hazardous waste accumulation area. This pit was identified as collecting materials from the container loading and unloading area.

concrete condition?

  - ➢ One pit area (AOI 44-16) was identified as the "sludge system pit," which was used to collect water and other materials generated from vehicle-painting operations. The "sludge system pit" is located at column/bay 1C-2C and appears to be in the same area as the "Paint Sludge Roll-Off" (SWMU 104), the "Sludge Trailer" (AOC 20), and the "Paint Filter System" (SWMU 103) identified in the PR/VSI Report.

  - ➢ One pit area (AOIs 44-17) located at column/bay 2E-9E was identified as providing containment for a phosphoric acid AST.

  - ➢ One other pit located at column/bay 4D was identified as providing containment for Uniprime ASTs. Since this pit is associated with AOI 44-2, a separate AOI designation has not been assigned.

- Several tank-related AOIs were identified in Building 44 as a result of the PR/VSI Report, historical investigation activities, and a recent review of the 1973 and 1991 Site drawings. These AOIs are briefly described in Table 3, with more details presented in Table 10. A brief summary is provided below:

  - Two hazardous waste storage tanks were identified in the PR/VSI Report as SWMUs 100 and 101. These tanks are located within the Buick City tank farm east of Building 44, which is considered AOI 44-18. This tank farm includes 13 ASTs identified as Tanks 169 through 182 on the 1973 Site drawing and as Tanks 44-1 through 44-13 on the 1991 Site drawing. These tanks exist in a below-grade, open-top concrete secondary containment unit, and provided temporary storage for paint thinners before they were sold for reclamation.

  - A waste thinner tank used for collection and storage of waste thinners from painting operations in Building 44 was identified in the PR/VSI Report as AOC 21. This AST was dismantled and removed in 1985. The unit was located indoors and underlain by concrete. This unit is considered an AOI and has been designated AOI 44-19.

  - Two ASTs, located at column/bay 7C, were identified as AOI 44-20. These tanks were used for spray rinsing.

  - One 4,000-gallon AST, located at column 7D and containing Chemkleen 163 LF, was identified as AOI 44-21.

  - One 5,000-gallon AST, located at column/bay 10C and containing glycol, was identified as AOI 44-22. Although glycol is not considered a hazardous waste, staining and pitting of the floor area has been historically identified within the containment area associated with this AST. The location of this tank also appears to correlate with Tank 44-14 shown on the 1991 Site drawing.

  - The AST area (AOI 44-23), located at column/bay 10D, has four ASTs ranging in capacity from 200 to 500 gallons. The locations of these tanks appear to correlate with those of Tanks 44-15 and 44-16 identified on the 1991 Site drawing. The contents of these ASTs included hydrochloric acid, liquid caustic, and sodium hydroxide. Etching of the floor area surrounding these ASTs has been historically identified.

- ➢ Two AST areas (AOIs 44-24 and 44-25), located at column/bay 2D and 2E, contained phosphoric acid ASTs (4,000-gallon and 500-gallon capacity, respectively). The locations of these tanks appear to correlate with those of Tanks 44-23 and 44-22 identified on the 1991 Site drawing.

- ➢ Three ASTs (AOI 44-26) were identified near Dock 8. These tanks have a capacity of 5,500 gallons each and were used to store Uniprime resin.

- ➢ An AST area (AOI 44-27) was identified within a basement at column/bay 2M and consisted of a reservoir associated with a hydraulic elevator.

- ➢ Several other storage tanks not listed above are shown on 1973 and 1991 Site drawings. AOI designations for these tanks are as follows:

  - Tanks 105 and 131 from the 1973 Site drawing, now identified as AOI 44-28;
  - Tanks 44-19 through 44-21 from the 1991 Site drawing, now identified as AOIs 44-29 through 44-31, respectively; and
  - Tanks 44-24 and 44-25 from the 1991 Site drawing, now identified as AOI 44-32.

- Several additional areas located in the Building 44 Area were identified as AOIs, as summarized below:

  - ➢ An area (AOI 44-33) was identified as containing a material fill station located at column/bay 1E. Acid staining has been historically identified on the floor areas surrounding this filling station.

  - ➢ Three areas (AOIs 44-34 through 44-36) were associated with vehicle-painting operations. Staining has been historically identified on the floor surfaces in these areas.

  - ➢ Two areas (AOIs 44-37 and 44-38) were associated with floor drain areas located at column/bay 2E-9E and 6D, respectively.

3.4.3 Building 08 (Final Assembly) Area

Building 08 was constructed in 1972 and occupies approximately 50,000 ft^2 north of Building 44 (see Figure 2). Building 08 was originally used as the wheel and tire building, and more recently used as a final car preparation area.

Five AOIs have been identified within the Building 08 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 08-1 through 08-5. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 7. A brief summary is provided below:

- One sump area (AOI 08-1) was identified in Building 08. This sump area is located within a basement beneath a dynamometer test area located at the northeast corner of Building 08. This sump area collected groundwater that infiltrated into the basement, and subsequently discharged the collected groundwater to the process wastewater system.

- A process waste sump (AOI 08-2) containing transmission fluid was identified in Building 08.

- One AST (AOI 08-3) was identified on the 1991 Site drawing associated with the Building 08 Area. This tank (designated Tank 08-1 on the 1991 Site drawing) is located on the west side of Building 08. No records are available to identify the capacity, use, or service life of this tank; as a result, it is considered an AOI.

- A waste accumulation area (AOI 08-4) was identified in Building 08. This waste accumulation area stores drum paint and solvent and is located in column/bay 20K.

- A waste accumulation area (AOI 08-5) was identified in Building 08. This waste accumulation area stores drummed oil, greases, and gas rags.

3.4.4 Building 16 (Final Assembly) Area

The Building 16 Area comprises Buildings 16, 16A, and 16B, which occupy approximately 194,000 ft^2 between Leith Street and Hamilton Avenue, and west of the CSX Railroad (see Figure 2). Building 16 was constructed in 1946,

and Buildings 16A and 16B were constructed as additions between 1972 and 1985. These buildings were primarily used for chassis assembly.

A total of 19 AOIs have been identified within the Building 16 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 16-1 through 16-19. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 8. A brief summary is provided below:

- Two sump areas were identified within the first-floor areas of Building 16. These two sump areas were identified as discharging to the process wastewater system. One of these areas (AOI 16-1) collected discharges from within a conveyor area located at column/bay 18O. The second sump area (AOI 16-2) collected discharges from the forklift battery-charging area.

- A total of eight pit areas were identified as AOIs within the first floor of Building 16, as summarized below:

  - Six pit areas (AOIs 16-3 through 16-8) were generally associated with various vehicle-assembly operations (e.g., vehicle fill station, pits for bolt-fastening machinery).

  - One pit area (AOI 16-9) was associated with an elevator.

  - The final pit area (AOI 16-10) was an exterior utility pit between Building 16 and Building 40.

- Several storage tank areas were identified within the Building 16 Area as a result of the PR/VSI Report, historical investigation activities, and a recent review of the 1973 and 1991 Site drawings. These AOIs are briefly described in Table 3, with more details presented in Table 10. A brief summary is provided below:

  - One AST area was identified within the first-floor area of Building 16. This area (AOI 16-11) consisted of a tank associated with a hydraulic lift system used for lifting large (Dumpster) containers. The floor surface in the vicinity of the hydraulic lift has historically exhibited oil staining.

- ➢ One UST area was identified along the east side of Building 16. This area (AOI 16-12) consisted of a total of six USTs, which were identified as Tanks P, Q, 75, 113, 114, and 115 on the 1973 Site drawing.

- ➢ One UST area was identified along the west side of Building 16. This area (AOI 16-13) included Tank 104 identified on the 1973 Site drawing.

- Six additional areas in the Building 16 Area were identified as AOIs, as summarized below:

  - ➢ Three additional areas (AOIs 16-14 through 16-16) were related to historical observations of oil on floor surfaces within the first floor of Building 16.

  - ➢ The three remaining areas included an "automatic transmission pump house" (AOI 16-17) located at column/bay 17O, a fueling station (AOI 16-18) located at column/bay 18O, and a floor drain (AOI 16-19) located at column/bay 25Q.

3.4.5 Building 40 (Final Assembly) Area

Building 40 was constructed in 1920 and occupies approximately 82,000 ft^2 on the south end of Division Street (see Figure 2). Building 40 was primarily used for wheel and tire assembly and the storage of blemished vehicle body parts.

A total of 12 AOIs have been identified within the Building 40 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 40-1 through 40-12. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 9. A brief summary is provided below:

- Four inactive UST units were identified north of Building 40 in the PR/VSI Report as SWMUs 96 through 99. These tanks correlate with those identified on the 1973 Site drawing as Tanks 71, 72, 73, and 74 (refer to Table 10). Although according to a September 9, 1997 Summary Report prepared by Global Environmental Engineering (Global, 1997b), Tanks 72, 73, and 74 have been removed, and Tank 71 has been closed in place, this area is considered an AOI and has been designated AOI 40-1.

- Three sump areas were identified within the first-floor areas of Building 40. These sumps (AOIs 40-2, 40-3, and 40-4) discharged to the process wastewater system.

- A drum storage area in Building 40 was identified as AOC #2 in the PR/VSI Report. The PR/VSI Report describes this area as having been used for storage of ash and chromium wastes. No records are available to identify the capacity or service life of this area; as a result, this area is considered an AOI and has been designated AOI 40-5.

- One trench area was identified within the first-floor area of Building 40. The trench area (AOI 40-6) is located at column/bay 37F and contains hydraulic lines associated with a "Road Lab Simulator."

- Five pit areas were identified within the first-floor area of Building 40, as summarized below:

  - Two pit areas (AOIs 40-7 and 40-8) were associated with elevators.

  - Two other pit areas (AOIs 40-9 and 40-10) contained test equipment.

  - The fifth pit area (AOI 40-11) was a utility pit.

- One additional area located in the Building 40 Area (AOI 40-12) consists of a basement/tunnel identified by Site personnel as the "Building 40 Tunnel." This area is flooded with water, preventing visual observation. Access to this area is prohibited and is blocked with an access gate that has a placard indicating the presence of polychlorinated biphenyls (PCBs). According to Site personnel, detectable concentrations of PCBs have been found in oil floating on the water within this area.

3.4.6 Building 12 (Body Shop) Area

The Building 12 Area comprises Building 12, which was constructed in 1910, and several additions, including Buildings 12A, 12C, 12E, 12F, and 12G, which were constructed between 1935 and 1985 (see Figure 2). These buildings occupy approximately 543,000 ft^2 on the corner of Leith Street and Division Street. The Building 12 Area was primarily used for underbody assembly and body panel assembly.

A total of 75 AOIs have been identified within the Building 12 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 12-1 through 12-75. Descriptions of these AOIs are provided in Table 3, while the corresponding locations are illustrated on Figure 10. A brief summary is provided below:

- A drum storage area within Building 12 was identified in the PR/VSI Report as AOC 11. This area was used for storing oils and synthetic coolants. This area has been designated AOI 12-1.

- Eighteen sump areas within the Building 12 Area were identified as AOIs, as summarized below:

  - Seven sump areas were identified within the first-floor area of Building 12. Four sump areas (AOIs 12-2 through 12-5) collected materials from adjacent processes and discharged these materials to the process wastewater system. One sump area (AOI 12-6) is at the exterior southeast corner of Building 12 and served as a process wastewater pump station (Process Waste Pump Station #4). Two other sump areas were identified within a tunnel between Building 12A and Building 18. However, since these sumps only control groundwater within the tunnel, they are not considered AOIs.

  - Two sump areas were identified within the first-floor area of Building 12A (AOIs 12-7 and 12-8). These two sump areas also discharged to the process wastewater system.

  - Nine sump areas were identified within the first-floor and basement areas of Building 12C. One sump area (AOI 12-9), located within an oil and sealer storage room at column/bay 13H-14H, was identified as containing oil and grease. One sump area (AOI 12-10), located within a steam-cleaning room at column/bay 24G, was identified as having oil and grease staining surrounding the area. A sump area (AOI 12-11), located within a basement area at column/bay 22D, was identified as containing oil and water. A sump area (AOI 12-12), located within a basement area at column/bay 25D, was identified as having oil staining on floor surfaces surrounding the area. A sump area (AOI 12-13), located within a basement area at column/bay 29B, was also identified as having oil and grease staining on floor surfaces. The remaining four sump areas (AOIs 12-14 through 12-17) were also located in basement areas of Building 12C and generally were associated with a conveyor system. AOI 12-11, AOI 12-12, and AOI 12-15 also have trenches associated with these sump areas as discussed below.

- Twenty-three trench areas were identified in the Building 12 Area, as summarized below:

  - ➢ Ten trench areas were identified within the first-floor areas of Building 12. These areas (AOIs 12-18 through 12-27) were identified as utility trenches and generally traverse the building.

  - ➢ One trench area was identified within the first-floor areas of Building 12A. This area (AOI 12-28) is located within a welding area at column/bay 26C.

  - ➢ Twelve trench areas were identified within the first-floor and basement areas of Building 12C. One trench (AOI 12-29) is located on the first floor of Building 12C at column/bay 7C and was used for runoff along a car conveyor. Eight of these trench areas are located within basement areas (four are self-contained [AOIs 12-30 through 12-33], one is associated with AOI 12-15, two are associated with AOI 12-12, and one is associated with AOI 12-11). One trench area (AOI 12-34) is located on the first floor of Building 12C at column/bay 23D and collected oil and water. One other conveyor trench (AOI 12-35) is located at column/bay 6D and continues through column/bay 10D and was identified as containing oil, water, and grease. The final trench is associated with a conveyor running through bays 2E through 13E and designated AOI 12-36.

- Sixteen pit areas were identified in the Building 12 Area, as summarized below:

  - ➢ Three pit areas were identified within the first-floor area of Building 12. One pit area (AOI 12-37) was used for robotic equipment. The remaining two pit areas (AOIs 12-38 and 12-39) were utility pits.

  - ➢ One utility pit area was identified within the first-floor area of Building 12A (AOI 12-40).

  - ➢ Twelve pit areas were identified within the first-floor and basement areas of Building 12C. One pit area (AOI 12-41) was identified as an elevator pit. One pit area (AOI 12-42) was identified within an area used to collect oil-coated metal cuttings. This area also had conveyor equipment and trenches used for the separation of cutting oil from the metal cuttings. Both pit areas and associated trenches have contained oil. Several pit areas (AOIs 12-43 through 12-47) were identified within basement areas of Building 12C. These pit areas functioned as grease traps for conveyor systems. One pit area (AOI 12-48) was associated with a conveyor

tunnel approximately 200 feet long. These pit and tunnel areas have historically also contained oil. Two pit areas (AOIs 12-49 and 12-50) were associated with a "car body washing system." One pit area (AOI 12-51) was connected to a floor drain in the basement at column/bay 18D. The final pit area (AOI 12-52) consisted of several hydraulic press footings within a basement at column/bay 18F.

- Several UST/AST-related AOIs were identified within the Building 12 Area as a result of historical investigation activities, information reported in the PR/VSI Report, and a recent review of the 1973 and 1991 Site drawings. These AOIs are briefly described in Table 3, with more details presented in Table 10. A brief summary is provided below:

  - ➢ One AST area was identified within the first-floor area of Building 12. This AST (AOI 12-53) consists of a hydraulic lube tank located at column/bay 20A.

  - ➢ Four AST areas were identified within basement areas of Building 12C. Three of the identified AST areas (AOIs 12-54 through 12-56) consist of oil storage tanks. The fourth AST area (AOI 12-57) includes a lube tank.

  - ➢ The 1991 Site drawing illustrated the presence of four additional tanks along the south side of Building 12 (ASTs 12-1, 12-2, 12-3, and 12-4). This area has been designated AOI 12-58.

- Seventeen additional areas within the Building 12 Area were identified as AOIs, as summarized below:

  - ➢ Four areas were identified in Building 12. Two of these areas (AOIs 12-59 and 12-60) were identified as floor drains. The third area (AOI 12-61) was identified as a former "Satellite Waste Accumulation Area" for paints and oils. The fourth area (AOI 12-62) was identified as an abandoned utility tunnel that is flooded with water. The abandoned tunnel is under Division Street and connects the east side of Building 12 to the former powerhouse located to the north.

  - ➢ Thirteen areas were identified in Building 12C. These areas are summarized below:

- Seven wood block floor areas (AOIs 12-63 through 12-69) have historically exhibited evidence of oil staining.

- One area (AOI 12-70), identified as an indoor railcar unloading area, has historically exhibited evidence of oil staining throughout the area.

- One area (AOI 12-71) was identified as containing an inactive hydraulic press.

- One area (AOI 12-72), identified as a spindle oil pump station, that has historically exhibited evidence of oil staining on floor surfaces.

- The final three areas included a body wash area (AOI 12-73) that has historically exhibited staining on floor surfaces and the etching of floor surfaces surrounding a ChemKleen tank; a chain oil pump station (AOI 12-74) that has exhibited grease staining on floor surfaces; and a conveyor system (AOI 12-75) within a basement area at column/bay 18F that has exhibited significant accumulations of grease on floor surfaces.

3.5 Building 18 (Personnel, Security and Labor Relations) Area

The Building 18 Area is approximately 5 acres in size and generally comprises Building 18 and an associated parking lot (see Figure 2). Building 18 was constructed in 1975 as a two-story structure occupying approximately 56,000 ft^2. It is located near the West Leith Street Site entrance. Since its construction, Building 18 has been used for personnel, security (currently occupied by Pinkerton), medical services, and the Facility fire department.

Only one AOI has been identified within this area. This AOI (AOI 18-1) involves a process waste sump east of Building 18 (as shown on Figure 11). Additionally, however, the 1973 and 1991 Site drawings identified two storage tanks as having existed along the east side of Building 18. Although these tanks are identified on these drawings as Tanks KK and 18-1, they are believed to be the same tank. This tank was reportedly used for carbon dioxide storage (refer to Table 10), and was not identified as an AOI in the PR/VSI Report or during historical investigation activities. As such, it is not considered an AOI due to the historical contents of this tank.

3.6 Building 29 (Former Tool Manufacturing and Heat Treating) Area

Building 29 was constructed in 1918, along Leith Street, adjacent to Building 12 (see Figure 2). It occupies approximately 24,000 ft^2 and was historically used for tool and die machining operations.

A total of eight AOIs have been identified within the Building 29 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 29-1 through 29-8. Descriptions of these AOIs are provided in Table 4, while the corresponding locations are illustrated on Figure 12. A brief summary is provided below:

- Four trench areas were identified within the first-floor area of Building 29. Three of these areas (AOIs 29-1, 29-2, and 29-3) were utility trenches. The fourth area (AOI 29-4) discharged to a pit located in the same area.

- Three pit areas were identified within the first-floor area of Building 29. The first area (AOI 29-5) was associated with an elevator. The second area (AOI 29-6) was covered with wood during previous historical investigation activities. The third area collected runoff from a trench in AOI 29-4 (separate AOI designation not assigned).

- Two additional areas within the Building 29 Area were identified as AOIs. These two areas (AOIs 29-7 and 29-8) include floor areas that have historically exhibited oil and grease staining.

- The 1973 Site drawing illustrated the presence of one additional tank outside the northeast corner of Building 29 (Tank 144). The 1973 Site drawing further showed this tank to have been a nitrogen tank installed in 1963. The location of this tank correlates with the location of Tank 29-1 illustrated on the 1991 Site drawing. However, since this tank was reportedly used to for nitrogen storage (refer to Table 10) and was not identified as an AOI in the PR/VSI Report or during historical investigation activities, it is not considered an AOI.

3.7 Building 23 (Former Tool Manufacturing and Heat Treating) Area

Building 23 was constructed in 1945 and occupies approximately 26,000 ft^2 on the corner of Leith Street and Division Street (see Figure 2). Building 23 was historically used for tool-making and heat-treating operations.

A total of nine AOIs have been identified within the Building 23 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 23-1 through 23-9. Descriptions of these AOIs are provided in Table 5, while the corresponding locations are illustrated on Figure 13. A brief summary is provided below:

- The PR/VSI Report identified the cyanide waste storage room located in Building 23 as SWMU 3. This unit was reportedly located in the southwest corner of Building 23 and was used for the storage of drums of waste cyanide prior to off-site disposal. This area has been designated AOI 23-1.

- Three sump areas were identified within the first-floor areas of Building 23. The first sump area (AOI 23-2) collected materials from trenches located at column/bay 3A. AOI 23-2 also has three trenches associated with this area as discussed below. This sump area has historically contained oil and grease. The second sump area (AOI 23-3), located at column/bay 5B, discharged to the process wastewater system. The third sump area (AOI 23-4), also located at column/bay 5B, was identified as "Process Waste Water Sump #17." This sump area collected process water from former heat treat operations and additional building areas north of Leith Street.

- Three trench areas were identified within the first-floor area of Building 23. These areas, located at column/bay 3A, were associated with former dipping tanks and discharged to the sump in AOI 23-2.

- Four pit areas were identified within the first-floor or basement area of Building 23. The first two areas (AOIs 23-5 and 23-6) are located at column/bay 2A and consist of a former "Quench Oil Pit" (AOI 23-5) and a former "Caustic Soda Pit" (AOI 23-6). The third area (AOI 23-7) is located at column/bay 4B near the two dock levelers where oil and grease staining has been historically observed. The fourth area (AOI 23-8) includes an entire basement area located at column/bay 5B. A total of six basins are located within this area. Each of these basins has historically contained oil.

- One AST area was identified within the first-floor area of Building 23. This AST area (AOI 23-9) is located at column/bay 3A and has historically contained ammonia and other various fluids and gases (refer to Table 10).

- Two below-grade tanks were located along the southwestern wall of Building 23. These tanks were used in heat-treating operations associated with AOI 23-9. As such, a separate AOI designation has not been assigned to this area.

3.8 Building 02 (Machine Tool Division/Plastics) Area

Building 02 was built in 1917 and occupies approximately 250,000 ft^2 on the east side of Division Street (see Figure 2). The southern portion of the first floor was most recently used by GM's Machine Tool Division. The remainder of the building was most recently used for miscellaneous storage (bins containing plastic parts used for repairs), with the exception of the northwest corner of the building, which currently houses a non-GM firm that provides medical services to GM personnel. Historical uses of Building 02 included warehouse storage for completed vehicles, a train shed, a "tank plant" during the World War II era, and plastic injection molding operations using polyester resins during the 1980s. Production of plastic parts ceased in the late 1980s.

A total of 29 AOIs have been identified within the Building 02 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 02-1 through 02-29. Descriptions of the AOIs are provided in Table 6, while the corresponding locations are illustrated on Figure 14. A brief summary is provided below:

- Identified in the PR/VSI Report as SWMU 43, a hazardous waste facility was formerly located in Building 57 near the southwest corner of Building 02. This unit was used for less-than-90-day storage of drums containing off-specification plastic resins prior to off-site disposal. This area is considered an AOI and has been designated AOI 02-1.

- The PR/VSI Report identified another drum storage area in the Building 02 Area as SWMU 48 and AOC 1. This area was located outside of the building along the north side. This area was used until 1984 for staging waste (oils, cleaners, lubricants, methylene chloride, etc.) prior to off-site disposal or on-site reuse. A release(s) of methylene chloride to soil beneath the concrete of this area was documented as part of its dismantling in the late 1980s. Accordingly, this area is considered an AOI and has been designated AOI 02-2.

- Nine sump areas were identified within the first-floor area of Building 02. Seven of these sump areas (AOIs 02-3 through 02-9) discharged to the process wastewater system. Another of these sump areas (AOI 02-10) collected and recirculated coolant associated with the operation of an Omnimill machine. AOIs 02-8 through 02-10 also contain trenches. The ninth area (AOI 02-11) includes several sumps within a former "Oil Reclamation Room" that also contains several oil/water separators.

- Eight trench areas were identified as AOIs within the first-floor area of Building 02. One of the trench areas (AOI 02-12) surrounds a press machine and has historically contained oil. One of these trenches is associated with an Omnimill machine in column/bay 24H and discharges to a sump at that location (AOI 02-10). One trench is associated with the former "Automatic Compressor Station" in column/bay 3I and discharges to a sump at that location (AOI 02-8). A pit is also present at AOI 02-8. One trench is associated with a forklift battery-charging area located in column/bay 7I and discharges to a sump at that location (AOI 02-9). The four remaining trench areas (AOIs 02-13 through 02-16) provided drainage for floor surfaces or other process areas.

- Four pits were identified as AOIs within the first-floor area of Building 02. The first two pits (AOIs 02-17 and 02-18) were associated with elevators. The third pit (AOI 02-19) was associated with a grinding machine, and the fourth pit was associated with the former "Automatic Air Compressor Station" located in column/bay 3I (AOI 02-8).

- Several tank-related AOIs were identified in the Building 02 Area. These AOIs are briefly described in Table 6, with more details presented in Table 10. A brief summary is provided below:

  - ➢ One AST area (AOI 02-20) was identified within an elevator room in the western portion of the building and consists of one 1,000-gallon AST.

  - ➢ Another AST area (AOI 02-21) was identified along the north side of the building and consists of seven ASTs associated with an "Oil Reclamation Area." These seven ASTs were identified in the PR/VSI Report as SWMUs 85 through 91. These tanks were used for the reclamation and storage of hydraulic oil. The PR/VSI Report described the area associated with these tanks as being overlain with concrete and surrounded with an approximate 12-inch concrete curb. Releases inside and outside of the secondary containment system related to these tanks were reported in the PR/VSI Report (i.e., staining of the sides of some of the tanks as

well as concrete inside and outside of the area). Based on a location comparison, these tanks are believed to correlate with Tanks OO and 02-1 through 02-07 collectively identified on the 1973 and 1991 Site drawings.

➢ Another AST area (AOI 02-22) was identified within the north end of the building and consists of a hydraulic oil tank formerly used in the operation of the Hydraulic Anchor Pac Area.

➢ As summarized below, several additional tank areas have been evaluated as AOIs based on the review of the 1973 and 1991 Site drawings:

- Tanks 134 through 139 identified on the 1973 Site drawing appear to match Tanks 02-08 through 02-13 on the 1991 Site drawing. These tanks are further reported on the 1973 Site drawing to have been used for granulated plastic (relatively inert). As such, these tanks are not considered for further investigation and evaluation as AOIs.

- Tank 66 identified on the 1973 Site drawing is reported to have been used for unleaded gasoline storage. This tank is reported to have been removed; however, further information is unavailable regarding its removal. This area is considered an AOI and has been designated AOI 02-23.

- Tanks 67 through 70 identified on the 1973 Site drawing are reported to have been used for leaded and unleaded gasoline storage. These tanks are reported to have been removed in 1985 (Global, 1997d). Due to the information documented by Global (1997d), this area is considered an AOI and has been designated AOI 02-24.

- The 1991 Site drawing identified five additional tanks within the Building 02 Area: Tanks 02-15 through 02-19. The area associated with Tanks 02-15 and 02-16 has been designated AOI 02-25; however, Tanks 02-17 through 02-19 are believed to be those tanks discussed below in association with AOI 02-26. As such, a separate AOI designation has not been assigned with respect to these tanks.

• The PR/VSI Report identified a waste paint tank located on the second floor of Building 02 as SWMU 84. This tank is believed to correlate with Tank 143 on the 1973 Site drawing and Tank 02-20 on the 1991 Site drawing. It was reported to first be used for the storage of waste paint and later for recirculation of high-temperature wax

(used for coating sheet-metal parts). The PR/VSI Report noted occurrences of overflow and spillage of wax from this unit; however, these occurrences were reported to be contained within the room where the unit was located. Due to the location of this unit (second floor) and the limited potential for release to soil and/or groundwater, this unit is not considered an AOI.

- Several additional areas (AOIs 02-26 through 02-29) within the Building 02 Area were identified as AOIs, based on oil staining on the floor areas. These areas generally include the following:

  - Containment area (AOI 02-26) for three resin tanks (two 10,000-gallon ASTs and one 20,000-gallon AST located in the western portion of the building).

  - Floor staining in two machine areas in the western portion of the building (AOIs 02-27 and 02-28).

  - Floor staining in a metal cutting area in the northern portion of the building (AOI 02-29).

3.9 Factory 94 (GMPT V-6 Engineering) Area

The Factory 94 Area is located on the southeastern portion of the Site between Leith Street and Hamilton Avenue. This area comprises a total area of approximately 650,000 ft^2 and includes Buildings 17, 28, 84, 84A, and 84B. Before manufacturing operations ceased in the summer of 1999, current operations within this area included engine/drivetrain development and testing. For the purposes of this document, the Factory 94 Area is subdivided by specific buildings. AOIs in each of these subdivided areas are described below.

3.9.1 Buildings 17/17A and 52 (Records Storage and Vehicle Storage) Area

Building 17 was constructed in 1919 and occupies approximately 24,000 ft^2. Building 17A was constructed in 1940 and occupies approximately 22,000 ft^2. These buildings are located near the corner of James P. Cole Boulevard and Hamilton Avenue (see Figure 2). Building 52 no longer exists; however, it was located immediately east of Building 17, as shown on Figure 15.

A total of seven AOIs have been identified within the Buildings 17/17A and 52 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs are designated as AOIs 17-1 through 17-6 and 52-01. A description of the AOIs is provided in Table 7, while the corresponding locations are illustrated on Figures 15 and 16. A brief summary is provided below:

- Four pit areas were identified within the first-floor area of Buildings 17 and 17A. One of these pit areas (AOI 17-1) was associated with an elevator. The remaining three pit areas (AOIs 17-2 through 17-4) provided drainage for floor surface areas.

- One trench area (AOI 17-5) was identified within the first floor/bay 2 area of Building 17A.

- One AST area was identified north of Building 17A based on the review of the 1973 and 1991 Site drawings. This area was identified to include Tanks PP and 107 shown on the 1973 Site drawing, with the tanks reported to have contained No. 2 diesel fuel. The location of Tank PP correlates to that of Tank 17-2 shown on the 1991 Site drawing. The 1973 Site drawing indicated that Tank 107 had been abandoned. No other records are available to identify the capacity or service life of these tanks; as a result, this area is considered an AOI and has been designated AOI 17-6.

- Identified as SWMU 102 in the PR/VSI Report, the PCB storage facility was formerly located in Building 52 and was used to house (prior to off-site incineration) drums of PCB-containing capacitors generated from building renovations. This area is considered an AOI and has been designated AOI 52-01.

3.9.2 Building 28 (GMPT V-6 Engineering) Area

Building 28 (GMPT V-6 Engineering) was constructed in 1918, occupies approximately 81,000 ft^2, and is located near the corner of James P. Cole Boulevard and Hamilton Avenue (see Figure 2).

A total of six AOIs have been identified within the Building 28 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 28-1 through 28-6. Descriptions of the AOIs are provided in Table 7, while the corresponding locations are illustrated on Figure 17. A brief summary is provided below:

- One sump area (AOI 28-1) was identified within the first-floor area of Building 28. This sump area served as a collection sump for a hazardous materials storage room located at columns/bays 32E and 32F. The sump area discharged to the process wastewater system. AOI 28-1 also included both a trench and a hazardous materials storage area as discussed below.

- Two trench areas were identified within the first-floor area of Building 28. The first trench area served as a containment trench for a hazardous materials storage room and discharge to a sump at that location (AOI 28-1). The second trench area (AOI 28-2) served as a utility trench.

- Four pit areas were identified within the first-floor area of Building 28. Two of these pit areas (AOIs 28-3 and 28-4) were associated with elevators, while the other two areas (AOIs 28-5 and 28-6) were associated with pneumatic dock levelers.

- One additional area consisted of a hazardous materials storage area used for storing motor oil, transmission fluid, and coolant drums. This area includes the other sump and trench discussed above in association of AOI 28-1. As such, a separate AOI designation has not been assigned to this area. It is also referred to as AOI 28-1.

3.9.3 Buildings 84/84A/84B (GMPT V-6 Engineering) Area

Building 84 was constructed in 1939, with Buildings 84A and 84B added in 1978 and 1981, respectively. These buildings occupy approximately 250,000 ft^2 on the corner of James P. Cole Boulevard and Hamilton Avenue (see Figure 2). These buildings were primarily used for the design, engineering, building, and testing of automobile engines.

A total of 64 AOIs have been identified within the Buildings 84/84A/84B Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 84-1 through 84-64. Descriptions of the AOIs are provided in Table 7, while the corresponding locations are illustrated on Figure 18. A brief summary is provided below:

- A total of 23 sump areas (AOIs 84-1 through 84-23), used for various purposes (see Table 7), were identified within the first-floor or basement area of Building 84.

- Four floor drain areas (collectively referred to as AOI 84-24) were identified.

- Several trench areas were identified within the Buildings 84/84A/84B Area. AOI 84-25 is located at column/bay 13E. AOI 84-26, which collected oil from leaking equipment, has historically contained oil. AOI 84-27 is a series of utility trenches associated with a boiler room. AOI 84-28 is located at column/bay 20C. AOI 84-29, found at column/bay 8D, is a collection trench surrounding former equipment pads. AOI 84-30, also located at column/bay 8D, was associated with a former machine area. AOI 84-31 is a trench associated with the existing tank farm located outside the northwest corner of the building. AOI 84-32 is a conduit associated with the test cells that supplied fuel to the existing tank farm. AOI 84-33, an electrical trench located at column/bay 23E, has historically exhibited the presence of oil staining. This AOI also contains a pit as discussed below.

- Various pit areas were identified in the Buildings 84/84A/84B Area, as summarized below:

  - Ten pit areas were identified within the first-floor area of Building 84. One of these pits was connected to a sump identified as AOI 84-10. Eight pit areas (AOIs 84-34 through 84-41) were associated with vehicle test equipment. The final pit area (AOI 84-42) was associated with an elevator.

  - Six pit areas were identified within the first-floor area of Building 84B. Five of these pit areas (AOIs 84-43 through 84-47) were associated with dynamometer test equipment. The remaining pit area collected surface water drainage and discharged it to a trench within columns/bays 23E and 23H (AOI 84-33).

- Several storage tank areas within the Buildings 84/84A/84B Area were identified as AOIs . These AOIs are briefly described in Table 7, with more details presented in Table 10. A brief summary is provided below:

  - One UST area (AOI 84-48) was identified within the first-floor area of Building 84. The access port for this tank was sealed during previous historical investigation activities.

  - The PR/VSI Report identified two waste gasoline storage tanks within a tank farm northwest of Building 84A as SWMUs 41 and 42, respectively. These tanks were reportedly 6,000-gallon USTs used for storing waste gasoline resulting from leakage and spillage from the gas pumps next to the tank farm as well as from surface water runoff from the tank farm area. This tank farm included Tanks 94 through 103, and Tank NN depicted

on the 1973 Site drawing. Tanks 94 through 97 and 99 through 103 were removed in 1991, according to the Former Tank Farm 94 Document Review (Global, 1997f). Tank 98 was abandoned in place. Approximately 5,200 cy of soil from this area was removed in 1995 and 1996. Groundwater quality continues to be monitored during routine groundwater sampling. Based on these findings, this area is considered an AOI and has been designated AOI 84-49. This AOI also includes seven existing ASTs that contained predominantly vehicle fuels and fuel additives. The locations of these tanks correlate with several tanks also identified on the 1973 and 1991 Site drawings. The existing tank farm replaced the prior tank farm located in this area. This existing tank farm is currently inactive, and the tanks are empty.

- ➢ One other AST area was identified within the Buildings 84/84A/84B Area. This area (AOI 84-50) includes two ASTs located within a basement area of Building 84 at column/bay 15G (basement) which were associated with a cooling tower. The fluid(s) contained in these tanks is unknown.

- Several additional areas located in the Buildings 84/84A/84B Area were identified as AOIs, as summarized below:

  - ➢ The first area consisted of an approximately 14,500 ft^2 area of wood block flooring (AOI 84-51) located at column/bay 7A that exhibited staining.

  - ➢ The second area contained a large hydraulic pump (AOI 84-52) located at column/bay 13J. The hydraulic pump was used for operating equipment in the physical test area.

  - ➢ The third area included a chiller room (AOI 84-53) located at column/bay 15C. The chiller equipment contained anhydrous ammonia and the floor surface has historically exhibited staining.

  - ➢ The fourth area included a former below-grade electric vault (AOI 84-54) located at column/bay 15J.

  - ➢ The fifth and sixth areas consisted of below-grade hydraulic cylinders (AOI 84-55) used as a car hoist and a former below-grade hydraulic lift (AOI 84-56) that is out of service and has been filled with concrete.

  - ➢ Five areas (AOIs 84-57 through 84-61) were located within a basement area of Building 84 and generally involve floor and equipment areas that have historically exhibited staining.

- ➢ Two areas (AOIs 84-62 and 84-63) include fuel piping that runs along the outer east side of Building 84 (AOI 84-62) and an exterior process wastewater pump station. Staining has been identified in these areas.

- In addition, the PR/VSI Report identified an inactive drum storage area in this area as AOC 6. This area is located near the northeast corner of Building 84, near the former tank farm area described above. This area has been designated AOI 84-64.

3.10 Building 03 (New Car Loading and Shipping) Area

Building 03 was constructed in 1965, occupies approximately 14,500 ft^2, and is located east of the CSX Railroad, between Leith Street and Hamilton Avenue (see Figure 2). Building 03 was primarily used for automobile loading and rail shipping.

A total of four AOIs have been identified within the Building 03 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 03-1 through 03-4. Descriptions of these AOIs are provided in Table 8, while the corresponding locations are illustrated on Figure 19. A brief summary is provided below:

- One trench area (AOI 3-1) was identified within the first-floor area of Building 03 where surface staining was noted.

- Three additional areas were also identified, as summarized below:

  - ➢ The first area (AOI 3-2) involves a flooded utility tunnel located at column/bay 1D. A sheen has been noted.

  - ➢ The second area (AOI 3-3) was identified as having hydraulic oil on floor surfaces in an area associated with a car-loading device.

  - ➢ The third area (AOI 3-4) was identified as a screw drive loading ramp area that used oil and grease.

3.11 Building 10 (Car Delivery Conveyor Building) Area

Building 10 was constructed in 1977, occupies approximately 17,000 ft^2, and is located east of the CSX Railroad and Building 03, between Leith Street and Hamilton Avenue (see Figure 2). Building 10 was primarily used for car marshalling, repair, and shipping.

A total of nine AOIs have been identified within the Building 10 Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 10-1 through 10-9. Descriptions of the AOIs are provided in Table 8, while the corresponding locations are illustrated on Figure 20. A brief summary is provided below:

- One trench area was identified within Building 10. This trench area (AOI 10-1) provided drainage for surrounding floor surfaces and connected to a similar trench located outside of Building 10.

- Five pit areas were identified within Building 10. These pit areas (AOIs 10-2 through 10-6) have historically exhibited oil and grease staining.

- One sump area (AOI 10-7) was identified within Building 10 at column/bay 4D. This sump discharged to the process wastewater system.

- One AST (AOI 10-8) was identified within Building 10 at column/bay 11A. This AST was used for storage of "chain oil."

- One additional area was identified as an AOI within Building 10. This area (AOI 10-9) includes a residual collection area where oil and grease accumulations have been historically observed.

3.12 Buildings 94/94A (Final Assembly) Area

Building 94 was constructed in 1941 with one addition (Building 94A) built in 1945. These buildings occupy approximately 250,000 ft^2, and are located near the corner of James P. Cole Boulevard and Hamilton Avenue (see

Figure 2). These buildings were primarily used for vehicle production, parking, storage, repair, pilot activities, shipping, export processing, and large truck repair.

A total of 20 AOIs have been identified within the Buildings 94/94A Area as a result of historical investigation activities, as well as information reported in the PR/VSI Report. These AOIs have been designated as AOIs 94-1 through 94-20. Descriptions of the AOIs are provided in Table 9, while the corresponding locations are illustrated on Figure 21. A brief summary is provided below:

- Six sump areas were identified within the first-floor area of Building 94, as summarized below:

  ➢ Five sump areas (AOIs 94-1 through 94-5) discharged to the process wastewater system. AOI 94-5 also contains a potential floor drain discharging to a sump located in column/bay 1Q-1P.

  ➢ One self-contained sump area (AOI 94-6) was located in the center of a chemical storage area.

- Four trench areas were identified within the first-floor area of Building 94. These trench areas (AOIs 94-7 through 94-10) ultimately discharged to the process wastewater system.

- Five pit areas were identified in the Buildings 94/94A Area, as summarized below:

  ➢ Three pit areas were identified within the first-floor area of Building 94. The first area (AOI 94-11) is located at column/bay 1L. This area has historically exhibited oil staining on floor surfaces. The second area (AOI 94-12) is located at columns/bays 5D through 5K. The third area (AOI 94-13) is located at column/bay 8P and has historically contained oil and grease.

  ➢ Two other pit areas were identified within the first-floor area of Building 94A. One of these pit areas (AOI 94-14) was associated with an elevator, while the other area (AOI 94-15) was associated with an undercarriage inspection area (exhibited evidence of oil staining on the floor surface).

- One AST area was identified within Building 94. This AST (AOI 94-16) is visible through a caged area, but the caged "pump room" is not readily accessible.

- Several additional areas within the Buildings 94/94A Area have been identified as AOIs, as summarized below:

  - ➢ Six areas (collectively referred to as AOI 94-17) contained former hydraulic lift cylinders removed from service and filled with concrete.

  - ➢ One area (AOI 94-18) included two below-grade vaults containing oily water.

  - ➢ Three areas included an area exhibiting oil staining around hydraulic oil drums (AOI 94-19), a floor drain area that collected materials in an oil change pit (AOI 94-5), and an electrical room (AOI 94-20).

3.13 Ryder Truck Area

The Ryder Truck Area consists of the new car/truck shipping lot, new car rail shipping lot, hourly parking lot, and truck loading enclosure north of the Building 94 Area (see Figure 2). The area is approximately 29 acres in size and was used for parking and storage of new cars and trucks prior to shipment. At this time, this area is tentatively scheduled to be transferred to a new property owner. As a component of the property transfer efforts, two potential USTs were identified during the performance of subsurface investigations. Should the existence of these potential USTs be verified during the performance of a proposed test-pitting program, these tanks will be removed in accordance with Michigan Department of Environmental Quality (MDEQ) UST requirements.

3.14 Other Areas

The remaining areas of the Site include a small strip of property located along the bank of the Flint River near the corner of James P. Cole Boulevard and Broadway Avenue as well as several employee parking lots (see Figure 2). Only one AOI has been identified related to these areas. This AOI, designated AOI 25-1, involves a 250-gallon diesel fuel tank along the south side of Building 25 (refer to Table 10), as illustrated on Figure 23.

3.15 Storm Sewers

The storm sewer system at the Site includes outfalls 005 through 013, as shown on Figure 1 of Appendix E. These systems discharge via outfalls 005 through 013, located along the Flint River, that are monitored by GM in accordance with GM's NPDES permit.

No storm sewer-related AOIs have been identified for the Site at this time.

any effects on gw flow - what is condition of sewers re leaks.

4. Summary of Historical Investigations and Existing Analytical Data

4.1 General

This section summarizes the historical investigations performed and existing analytical data resulting from these investigations. These historical efforts were performed on behalf of GM by various environmental consultants during the 1990s and focused on specific areas (e.g., UST areas, process areas) where constituents of interest were identified as being potentially released into the environment (e.g., UST releases). These investigations included the following:

- UST area investigations;
- Fenceline investigation;
- Semiannual groundwater investigations;
- Building 40 basement tunnel investigations; and
- Building decommissioning assessments.

Each of these environmental investigations is summarized below in Sections 4.2 through 4.6, with pertinent analytical data generated from such activities included in Appendices F through L.

4.2 UST Area Investigations

According to GM NAO-Flint records, four UST areas were investigated during the 1990s as a result of reported releases. The following areas were investigated:

- Hamilton Avenue Tank Farm;
- Building 02, Tanks 67 through 70;
- Building 40, Tanks 71 through 74; and
- Former Tank Farm 94, Building 84, Tanks 94 through 103.

These UST area investigations are summarized below.

4.2.1 Hamilton Avenue Tank Farm Investigation

According to Global (1997a), a total of thirteen 12,000-gallon USTs containing several different products (unleaded gasoline, anti-freeze, BOPS [solvent], power-steering fluid, 93 PS thinner, 55 PS thinner, 105 PS thinner, and No. 1 diesel oil) were associated with the Hamilton Avenue Tank Farm (referred to as AOI 09-5 in Section 3.3). This tank farm was located at the south end of the Site on the southeast corner of Hamilton Avenue and Industrial Avenue within the Building 09 Area. Ten of the USTs associated with this tank farm were installed in 1960, with the remaining two installed in 1979. These USTs were removed in 1986, and a confirmed release number (C-028-90) was assigned to the tank farm at that time.

Between July 1996 and June 1997, a total of 11 soil borings (31-1 through 31-11; see Figure 24) and five monitoring wells (31-1 [MW-1]), 31-2 [MW-2], 31-3 [MW-3], 31-4S [MW-4S], and 31-4D [MW-4D]; see Figure 24) were installed within and near the former UST area. The results of soil analysis at these locations indicated the presence of VOCs (benzene, toluene, ethylbenzene, and total xylenes [BETX], polynuclear aromatics (PNAs) (fluoranthene, fluorene, naphthalene, and 2-methylnaphthalene), metals (total lead), benzyl chloride, propylene glycol, p,m-cresol, o-cresol, di-n-butyl phthalate, and di-n-octyl phthalate. Likewise, the results of groundwater analysis in this area indicated the presence of VOCs (BETX), PNAs (naphthalene and 2-methylnaphthalene), di-n-butyl phthalate, diethyl phthalate, and 4,6-dinitro-2-methylphenol. Table 11 provides a summary of the data, with further information provided in Appendix F.

Additionally, GM has conducted groundwater monitoring in this area since 1997 as part of a Facilitywide semiannual groundwater monitoring program. As a component of this program, semiannual groundwater samples have been collected for VOCs, PCBs, and metals analysis from all five monitoring wells in this area. The results of this monitoring program are summarized in Section 4.4.

4.2.2 Building 02, Tanks 67 Through 70 Investigations

According to Global (1997e), a total of four 10,000-gallon USTs containing leaded and unleaded gasoline were located at the southwest corner of Building 02 (referred to as AOI 02-24 in Section 3.8). These USTs were removed in 1985, and visual observations and photoionization detector (PID) readings during the removal activities indicated the presence of gasoline in soil adjacent to the tanks. As a result, a confirmed release number (C-471-97) was

assigned to this tank area, and between July 1996 and June 1997, a total of 12 soil borings and three monitoring wells were installed within and near this area. The results of soil analysis performed during this timeframe indicated the presence of VOCs (BETX), PNAs (naphthalene, phenanthrene, and 2-methylnaphthalene), and metals (total chromium and total lead). In addition, groundwater analysis performed during this timeframe detected VOCs (BETX) and metals (total chromium and total lead). Table 11 provides a summary of these data, with further information provided in Appendix G.

Additionally, similar to the Hamilton Avenue Tank Farm, GM has conducted groundwater monitoring in this area since 1997 as part of a Facilitywide semiannual groundwater monitoring program. As a component of this program, semiannual groundwater samples have been collected for VOCs, PCBs, and metals from three monitoring wells (40-1 [MW-1], 40-2 [MW-2], 40-3 [MW-3]; see Figure 24) located near the former Building 02 USTs (Tanks 67 through 70). The results of this monitoring program are summarized in Section 4.4.

4.2.3 Building 40, Tanks 71 Through 74 Investigation

According to Global (1997b), a total of four USTs (ranging in capacity from 10,000 to 16,000 gallons) containing transmission oil, waste solvent, and other material were located at the north side of Building 40, between Building 02 and Building 40 (referred to as AOI 40-1 in Section 3.4.5). This area is within the Building 40 Area. These former tanks were reportedly installed in 1964, and were removed in 1987. According to Global (1997b), a release number was not issued for these USTs; however, due to the proximity of the Building 40 USTs (Tanks 71 through 74) to the Building 02 USTs (Tanks 67 through 70), the results of the subsurface investigations performed for the Building 02 USTs (Tanks 67 through 70) have been applied in evaluating the Building 40 USTs (Tanks 71 through 74) (Global, 1997b).

As previously discussed in Section 4.2.2, the results of these investigations involved the installation of a total of 12 soil borings and three monitoring wells in this area between July 1996 and June 1997. The results of soil analysis indicated the presence of VOCs (BTEX), PNAs (naphthalene, phenanthrene, and 2-methylnaphthalene), and metals (total chromium and total lead). In addition, groundwater analysis detected VOCs (BTEX) and metals (total chromium and total lead). Table 11 provides a summary of these data, with further information provided in Appendix H.

Additionally, as described in Section 4.2.2, GM has conducted groundwater monitoring in this area since 1997 as part of a Facilitywide semiannual groundwater monitoring program. As a component of this program, semiannual groundwater samples have been collected for VOCs, PCBs, and metals analysis from three monitoring wells (40-1 [MW-1], 40-2 [MW-2], 40-3 [MW-3]; see Figure 24) near the former Building 02 USTs (Tanks 67 through 70) and the former Building 40 UST (Tanks 71 through 74). The results of this monitoring program are summarized in Section 4.5.

4.2.4 Former Tank Farm 94 Area, Building 84, Tanks 94 Through 103 Investigations

According to Global (1997f), Former Tank Farm 94 Area consisted of 10 USTs located at the northwest corner of Building 84 (referred to as AOI 84-49 in Section 3.9.3). These tanks (ranging in capacity from 5,000 to 15,000 gallons) were reportedly installed between 1959 and 1972 and contained several grades of gasoline and solvent. A confirmed release was reported by GM in 1990 following the installation of leak-detection monitoring wells and tank-tightness testing. Nine of the tanks were removed in 1991, and the tenth tank was closed in place at the same time.

As a result of the confirmed release from these tanks, several soil and groundwater investigations were performed in this area between 1991 and 1995. The results of these investigations led to the excavation and on-site thermal desorption of approximately 5,200 cy of soil from within the former tank farm area.

In 1997, an additional investigation was performed in the vicinity of the Former Tank Farm 94 Area. This investigation consisted of three soil borings, two of which were converted into groundwater monitoring wells. The results of soil analysis indicated the presence of VOCs (BETX) and several PNAs (acenaphthalene, benzo(a)anthracene, fluoranthene, fluorene, phenanthrene, 2-methylnaphthalene, pyrene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthne, and benzo(a)pyrene), and lead. Groundwater analysis (two new wells and four existing wells) detected VOCs (BETX) and methyl tertiary butyl ether (MTBE). Table 11 provides a summary of these data, with further information provided in Appendix I.

Additionally, similar to the other UST areas discussed above in Sections 4.2.1 through 4.2.3, GM has conducted groundwater monitoring in this area since 1997 as part of a Facilitywide semiannual groundwater monitoring program. As a component of this program, semiannual groundwater samples have been collected for VOCs, PCBs, and metals analysis at three recovery wells (84-1[(EW-101], 84-2 [EW-102], 84-3 [EW-103]; see Figure 24) and three

monitoring wells (84-4 [EW-105], 84-6 [EW-106], and 84-6 [MW-15]; see Figure 24) near the Former Tank Farm 94 Area. The results of this monitoring program are summarized in Section 4.4.

4.3 Fenceline Investigation

This investigation was performed on behalf of GM by EnecoTech Midwest, Inc. (Eneco) between August and November 1995, for purposes of assessing the horizontal and vertical presence of organic and inorganic constituents in soil and groundwater. Details regarding this investigation are presented in a report entitled *Site Investigation and Hydrogeological Report, Fenceline/CRX Investigation* (Eneco, 1996); a summary of these activities and resulting data for the Site are presented below.

A total of approximately 60 soil samples were collected from 36 locations at the Site and analyzed for PCBs, VOCs, SVOCs, and metals. The results of these analyses primarily indicated the presence of BETX constituents (up to 73 milligrams per kilogram [mg/kg] total xylenes) and several SVOCs (up to 2.3 mg/kg benzyl chloride), as well as lead (up to 8.4 mg/kg). Table 11 provides a summary of these data with further information provided in Appendix K.

Also, a total of 45 groundwater samples were collected from 32 locations and analyzed for PCBs, VOCs, SVOCs, and metals. The results of these analyses also indicated the presence of BETX (up to 149 milligrams per liter [mg/L], toluene), and select SVOCs (up to 0.178 mg/L dichlorodifluoromethane). Table 11 provides a summary of these data with further information provided in Appendix J.

4.4 Semiannual Groundwater Investigations

As noted in Section 4.2, beginning in 1997, GM has conducted a Facilitywide semiannual groundwater monitoring program, involving a total of 14 monitoring wells within the Site. Specifically, this program has involved five wells in the Hamilton Avenue Tank Farm Area (31-1 [MW-1], 31-2 [MW-2], 31-3 [MW-3], 31-4S [MW-4S], and 31-4D [MW-4D]; see Figure 24), three wells in the Building 02/40 UST area (40-1 [MW-1], 40-2 [MW-2], 40-3 [MW-3]; see Figure 24), and six wells in the Tank Farm Area (84-1 [EW-101], 84-2 [EW-102], 84-3 [EW-103], 84-4 [EW-105], 84-6 [MW-15]; see Figure 24). This monitoring has primarily consisted of semiannual groundwater sample collection and analysis for VOCs, PCBs, and metals.

The results of this monitoring primarily indicated elevated levels of BETX in groundwater in these areas. Table 11 provides a summary of these data, with further information provided in Appendix K.

4.5 Building 40 Basement Tunnel Investigations

The Building 40 Basement Tunnel is referenced in Section 3.4.5 as AOI 40-12. This tunnel is located along the east side of Building 40, and it connects the basement of Building 40 to Building 16 (see Figure 24). The basement and tunnel were formerly used for a variety of operations, most recently involving wheel and tire assemblies; however, this area is presently inactive. The stairway leading to the tunnel is currently flooded, and oil has been observed floating on the surface of this water.

GM collected oil and water samples from this area in August 1991 and submitted these samples for laboratory analysis for PCBs. The results of these analyses indicated the presence of PCBs in both oil (up to 80 mg/kg) and water (23 micrograms per liter [μg/L]). Several additional samples of oil, water, and/or sludge were subsequently collected from this area in 1991 and 1992 and were analyzed for PCBs and other constituents. The results of these analyses confirmed the presence of PCBs at varying concentrations and indicated the presence of detectable concentrations of select VOCs, SVOCs, and metals.

In December 1993, Advanced Environmental, Inc. (AEI) was retained by GM to install five groundwater monitoring wells adjacent to the Building 40 Basement Tunnel. These activities are documented in a report entitled *Status Report, Building 40 Monitoring Wells, 902 East Hamilton, Flint, Michigan*, dated January 13, 1994 (AEI, 1994). These activities involved soil sampling at five locations in this area where monitoring wells were installed (40-4 [MW-1] through 40-8 [MW-5]; see Figure 24). These soil samples were analyzed for PCBs; PCBs were not detected.

Following the installation and development of the five monitoring wells in this area, quarterly groundwater samples were collected for one year. PCBs were not detected during these monitoring events.

Additional information concerning the various sampling events and resulting data associated with this area is provided in Appendix L.

4.6 Building Decommissioning Assessments

In 1999 and early 2000, GM conducted select building inspections in association with potential future building demolition activities (Building Decommissioning Assessments). These activities were performed for select areas of the Facility, focusing on Site buildings. The primary purpose of these activities was to develop a technical approach and to estimate costs for the decommissioning of the "slab up" portions of the Site.

As discussed in Section 3, these efforts resulted in the identification of a number of AOIs within the Site. At the time of identification of the various AOIs, the contents of select process equipment (e.g., sump, tanks, pits) or other related components (e.g., floor material) associated with certain of these AOIs were sampled and analyzed. These samples included water, oil, sediment, concrete, and/or other material collected (e.g., grab samples, scrape samples, core samples) from various tanks, sumps, pits, trenches, floor surfaces, etc. The laboratory analysis of these samples primarily involved PCBs; however, certain samples were also subject to toxicity characteristic leaching procedure (TCLP) analyses. These data are summarized with respect to corresponding AOIs in Tables 1 through 9. Aside from several select AOIs (e.g., several cable-operated elevator pits and a few trenches), the majority of the AOIs sampled exhibited PCB concentrations typically less than 20 mg/kg. In most cases where TCLP samples were analyzed, slightly elevated concentrations of metals were exhibited.

5. Summary of Existing Interim Measures

5.1 General

This section summarizes the existing Interim Measures (IMs) being conducted by GM. These IM activities primarily involve the recovery of free product at two specific areas near Buildings 04 and 84 associated with former UST areas. The first IM involves four former waste holding tanks and two fuel tanks located near the southeast corner of Building 04. The second IM involves the Former Tank Farm 94 Area located along the north side of Building 84. These IM efforts are further detailed below.

5.2 Building 04 UST IM Activities

As noted in Section 3.4.1, four USTs previously existed near the southeast corner of Building 04 (AOI 04-12). These tanks, identified as Tanks 76 through 80 on the 1973 Site drawing, were reportedly installed in 1946 for the purpose of holding waste and product paints, lubricating oils, and reclaimable paint thinners, and were removed in 1984 (refer to Table 10). These tanks were also identified in the PR/VSI Report as SWMUs 92 through 95.

IM activities consisted of the excavation of approximately 2,500 to 3,000 cy of underlying soil removed in association with the removal of Tanks 76 through 80. As documented in the report entitled *RCRA Partial Closure Report, Hazardous Waste Storage Tanks, Factory 86, Building 04* (EDI Engineering & Science, October 1985), oil was observed seeping into the excavation during the removal at a depth of approximately 10 to 15 bgs. A leachate collection system was installed in the excavation to collect residual oil for off-site disposal. The system consisted of a collection pipe positioned on a layer of pea gravel underlain by a 20-mil polyethylene liner. The collection pipe drained to a manhole that was periodically pumped using a vacuum truck. At the time of the PR/VSI Report, only small quantities of oil were being collected by this system, and, due to limited recovery rates, its operation was later discontinued. This system is inactive.

As noted in Section 3.4.2, two additional USTs (105 and 131) existed near the southeast corner of Building 04 and southwest corner of Building 44 (AOI 44-28). These USTs were reported to have been removed in 1985. UST #105 was a 1,000-gallon unleaded gasoline tank and UST #131 was a 750-gallon diesel fuel tank. According to Site personnel, diesel fuel was identified in subsurface soils during the removal of these USTs. As a result, two 8-inch-diameter recovery wells were installed along with an "auto skimmer" within one of the recovery wells to recover free

product. Between November 1985 and March 1996, approximately 630 gallons of diesel fuel was reported to have been recovered. The "auto skimmer" system was discontinued on September 5, 1986.

Quarterly monitoring for these IM areas is being performed. Quarterly monitoring consists of the collection of groundwater samples from the manhole associated with the leachate collection system, as well as the former free-product recovery well. Each groundwater sample is analyzed for benzene, toluene, ethylbenzene, p,m-xylene, o-xylene, and lead. Quarterly monitoring results associated with the leachate collection system have not indicated the presence of analyzed constituents above laboratory detection limits. Quarterly monitoring results associated with the former free-product recovery well indicated the presence of benzene, ethylbenzene, and xylene at concentrations ranging from 12 μg/L to 170 μg/L.

5.3 Tank Farm 94 Area IM Activities

As discussed in Section 4.2.4, the Former Tank Farm 94 Area consisted of 10 USTs located at the northwest corner of Building 84 (now referred to as AOI-84-49). These tanks (ranging in capacity from 5,000 to 15,000 gallons) were reportedly installed between 1959 and 1972 and contained several grades of gasoline and solvent.

In 1991, as a follow-up to a confirmed release from this tank farm, nine of the tanks were removed with the tenth tank closed in place. Several soil and groundwater investigations were performed in this area between 1991 and 1995. The results of these investigations led to IM activities consisting of the excavation and on-site thermal desorption of approximately 5,200 cy of soil from within the Former Tank Farm 94 Area. This tank farm was later replaced with the current AST tank farm located immediately north of the former tank farm location.

References

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Global Environmental Engineering, Inc. 1997e. Summary Report, Building 02, Tanks 67/02 - 70/02, GM-CLCD North, NAO Flint Operations, Flint, Michigan. September 9, 1997.

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Tables

TABLE 1
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF USEPA SOLID WASTE MANAGEMENT UNITS (SWMUs) AND AREAS OF CONCERN (AOCs)

USEPA SWMU/AOC	Building Association	Description	Current AOI Association
USEPA Solid Waste Management Units (SWMUs)			
3	23	Cyanide Waste Storage Room	AOI 23-1
43	02	Hazardous Waste Facility	AOI 02-1
48		Drum Storage Area - also identified as AOC 1	AOI 02-2
49	04	Building 4 Drum Storage Area	AOI 04-11
57	01	Process Sump	None -Basement Sump Only
58	02	Process Sump	See Note 2
59		Process Sump	See Note 2
60	04	Process Sump	See Note 2
61	44	Process Sump	See Note 2
63	94	Process Sump	See Note 2
64		Process Sump	See Note 2
65	03	Process Sump	See Note 2
66	84/84B	Process Sump	See Note 2
67	28	Process Sump	See Note 2
68	04	Process Sump	See Note 2
69	12	Process Sump	See Note 2
81	40	Process Sump	See Note 2
84	02	Waste Paint Tank/Wax Recirculation Tank	None - Second Floor/No Concerns
102	52	PCB Storage Facility	AOI 52-01
103	44	Paint Filter System	AOI 44-16
104		Paint Sludge Roll-off Box	
100 and 101		Hazardous Waste Storage Tanks 1 and 2	AOI 44-19
41 and 42	84/84B	Waste Gasoline Storage Tanks 1 and 2	AOI 84-49
85 through 91	02	Tanks 2-1 through 2-7 from 1991 Site Drawing and Tank OO from 1973 Site Drawing	AOI 02-21
92 through 95	04	Waste Thinner Tanks 1 through 4	AOI 04-13
96 through 99	40	Underground Storage Tanks 1 through 4	AOI 40-1
USEPA Areas of Concern (AOCs)			
1	02	Drum Storage Area - also identified as SWMU 48	AOI 02-2
2	40	Ash and chromium waste drum storage area (16,500 gallon capacity)	AOI 40-5
3	44	Paint drum storage area	AOI 44-8
6	84	Oil, auto. trans. fluid, gas drum storage area	AOI 84-64
11	12	Oils, synthetic coolants drum storage area	AOI 84-64
20	44	Area formerly occupied by Sludge Trailer - the Sludge Trailer was replaced by the Paint Filter System (SWMU 103) and the Paint Sludge Roll-off box (SWMU 104)	AOI 44-16
21		Former Waste Thinner Tank used for collection and storage of waste thinners	AOI 44-20

Notes:

1 Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs) were identified based on the report entitled RCRA Facility Assessment (RFA) Preliminary Review/Visual Site Inspection (PR/VI) Report, General Motors Corporation, Buick-Oldsmobile - Cadillac Facility, Flint, Michigan, dated September 1987 and prepared by A.T. Kearney, Inc. and K.W. Brown & Associates, Inc. (PR/VSI Report).

2 The PR/VSI Report describes sump-related SWMUs generally in the context of 27 process sumps associated with the overall Facility. It does not present specific information related to these units. It simply describes these units, in general, to be constructed of either concrete or steel structures, and that they were used for the collection of process wastewater. Since GM's more recent activities involved a much more comprehensive examination of the various sumps associated with the Site, and such activities would have certainly involved a much more comprehensive examination of the various sumps associated with the Site, and such activities would have certainly involved the reidentification of any sumps previously identified during the prior PR/VSI efforts, separate AOI designations have not been assigned for any of the EPA-identified sump-related SWMUs, other than for SWMU 57.

TABLE 2
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 09 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 09 Area					
09-1	Pit	1	2'x2'x4' pit with associated floor drains.	No	
	Trench	1	12'x2'x6" trench that leads to a pit.	No	
09-2	Trench	9	145'x1'x1' floor trench leading to UST.	No	
	Tank-UST	7	Unknown size 1,000 gallon + UST. The UST connects to process waste.	No	
09-3	Trench	7	Three 2'x2'x unknown depth floor drains over holding tank in "vehicle wash area." Trench drains to 1,000+ gallon UST.	No	
	Tank-UST	7	"Vehicle wash area" holding tank, 1,000+ gallon UST.	No	
09-4	AST	East side of Building 09	Former 12,000-gallon No. 2 fuel oil AST (Tank FF on 1973 Site Drawing).	No	
	Sump	East side of Building 09	20'x20'x2' concrete containment for former 12,000-gallon fuel oil AST (Tank FF on 1973 Site Drawing).	Sample collected from sump area (3/25/99)	3" deep concrete core analyzed for metals and PCBs. No PCBs detected above laboratory analytical detection limits (0.33 mg/kg). Various metals detected.
09-5	Tank-AST	Corner of Hamilton Ave. & Industrial Ave.	Former tank farm which included Tanks 81 through 92, 132, and 133 identified on 1973 Site Drawing.	Yes	Soil and groundwater sample results contained in Global, 1997a. See Section 4.2.
09-6	Tank-AST	East of Building 09	Tanks MM identified on 1973 Site Drawing.	No	
09-7	Additional	West of Building 09	Area used to store light equipment. Staining noticed on pavement.	No	

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 04 Area					
04-1	Sump	17G	3'x3'x4' sump located inside of caged area which discharged to process wastewater system.	No	
04-2	Sump	35G	2' dia.x 10' deep sump that discharged to process wastewater system.	No	
04-3	Sump	8A	Process wastewater pump station.	No	
	Pit	8A	"Process Waste Room" contained a 6'x6'x4' containment wall around a floor drain that goes to process wastewater sump.	No	
04-4	Additional	A7	Drum Storage Area identified in PR/VSI Report as SWMU 49 used to store waste adhesives and sealers.	No	
04-5	Pit	14F	Elevator pit.	yes (3/31/99)	Material from pit analyzed for PCBs (scrape samples). No PCBs detected above laboratory detection limits (1 mg/kg).
04-6	Pit	15F	Pit for hydraulic elevator.	yes (3/30/99)	Material from pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 13 mg/kg.
04-7	Pit	19A	Elevator pit.	No	
04-8	Pit	19A	Pit for passenger elevator.	yes (3/30/99)	Material from pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 1.5 mg/kg.
04-9	Pit	22A	Cable operated elevator pit.	yes (3/30/99)	Material from pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 12.6 mg/kg.
04-10	Pit	45AA	Cable operated elevator pit.	yes (3/30/99)	Material from pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 71,000 mg/kg.
04-11	Pit	37G	50'x10'x6' "Robotic Pit" contained oil and grease staining on the floor. Pit runs through bays 35G to 37G. Liquids drain to sump located at 35G.	No	
04-12	UST	Southeast corner of Building 04	Waste Thinner Tanks identified in PR/VSI Report as SWMUs 92 - 95 (also Tanks 76 - 80 on 1973 Site Drawing).	Yes	
04-13	Pit	8E	"Foam Depressor Process Waste Pit #3" -- 5'x6'x unknown depth and discharged to the process wastewater system.	No	
Building 44 Area					
44-1	Sump	10E	20'x24'x1' strip drain contained hydrochloric acid, sodium hydroxide, oil and hydraulic fluid. The drain leads to a 4'x4'x4' sump which discharged to process wastewater system.	No	
44-2	Sump	4D	15'x8'x5' sump in the bottom of the Uniprime pits located in 4D. This sump discharged to the process wastewater system.	No	
	Pit	4D	Four- Containment pits for four-30,000 gallon Uniprime ASTs located in 4D-5D. Each pit 20'x60'x10'. Floors stained.	No	

TABLE 3

GENERAL MOTORS CORPORATION

NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
44-3	Sump	5B	4'x4'x4' process wastewater sump #3 collected liquid from the trench located in 4B.	No	
	Trench	4B	60'x2'x2' "C" shaped trench, contained oil and grease and discharged to process wastewater system via the sump located in 5B.	No	
44-4	Sump	6E	5'x5'x3' sump handled any runoff from "Phosphate System Stage #3 Chemkleen 47L Immersion" and "Stage #8 Spray Chromic Acid Rinse." Heavy acid staining on floor. This sump discharged to process wastewater system.	No	
44-5	Sump	2C, Basement	2'x2'x2' sump that handles fluid accumulation in basement where elevator pump house was located. Heavy oil and hydraulic staining on floor. Sump discharged to process wastewater system.	No	
44-6	Sump	10B	3'x3'x3' Process sump with two pumps running in parallel. Area flooded with water. Oil staining present; also associated with sump is a 1'x1'x3' gravity floor drain and the trench located in 10B.	No	
	Trench	10B	4'x85'x6' trench surrounding 8" tall concrete bermed area containing "high pressure pump #2". Oil staining on floor. Liquids in trench discharged to process wastewater system via sump located in 10B.	No	
44-7	Sump	9C-4C	Two 1'x90'x3' strip drains that connected to a 4'x4'x3' centrally located sump. This sump discharged to the Uniprime waste treatment pit.	No	
44-8	Additional	1D	Drum storage area identified as AOC 3 in PR/VSI Report used to store new paint products.	No	
44-9	Trench	0B	9'x1'x1' strip drain located in front of bay door led to 3'x3'x4' self-contained sump that led to the process waste pump house. Both trench and sump in 0B located in hazardous waste storage area. Sludge present within trench.	yes (3/31/99)	3" deep concrete core analyzed for full TCLP analysis. Various metals detected. A composite sample of concrete and sludge analyzed for full TCLP analysis. Various metals detected.
44-10	Trench	0B	12'x1'x1' floor strip drain discharged to the process wastewater system.	No	
44-11	Trench	10D	75'x1'x1' floor drain used for runoff discharging to process wastewater system.	No	
44-12	Trench	7E	2'x8'x2' strip drain associated with "Phosphate System Stage #2 Chemkleen 47L Immersion" and " Stage #8 Chromic Acid Storage Dip Tank." Trench discharged to process wastewater system.	No	
44-13	Trench	5D	6'x12'x2' utility trench discharging to Uniprime pits	No	
44-14	Pit	1E	Pit for hydraulic elevator.	yes (3/30/99)	Material from pit analyzed for PCBs (scrape samples). No PCBs detected above laboratory detection limits (0.33 mg/kg).

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) – FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
44-28	Tank-UST	Southwest corner of Building 44	Tanks 105 & 131 on 1973 Site Drawing	No	
44-29	Tanks-AST	5D	Tank 44-19 on 1991 Site Drawing	No	
44-30	Tanks-AST	3D	Tank 44-20 on 1991 Site Drawing	No	
44-31	Tanks-AST	3E	Tank 44-21 on 1991 Site Drawing	No	
44-32	Tanks-AST	0B	Tanks 44-24 and 44-25 from the 1991 Site Drawing	No	
44-33	Additional	1E	Material fill station contains phosphoric acid and heavy acid staining on floor below filling station.	No	
44-34	Additional	3E	8" concrete berm surrounds "Phosphate System Stage #5 Rinse Conditioner Immersion" system and the "Phosphate System Stage #6 - Chemtos #168" system. Area inside the berm stained white.	No	
44-35	Additional	5B-6B	Uniprime spray convey booth, heavy grey staining on floor.	No	
44-36	Additional	7C-3C	Heavy grey staining on floors, staining associated with dye tank booth.	No	
44-37	Additional	2E-9E	Two 2' wide x 2' deep floor drains running the length of 9E-2E handled runoff in walkway and discharged to the process wastewater system.	No	
44-38	Additional	6D	2'x2'x2' floor drain located inside 8" bermed area surrounding two 1,000 gallon ASTs containing caustic. Any liquids collected were handled through the process wastewater system.	No	
Building 08 Area					
08-1	Sump	northeast corner, basement	Sump area located beneath a dynamometer test area. Sump collected groundwater that infiltrated into basement. Sump discharged to process wastewater system.	No	
08-2	Sump	13J	3'x 3'x3' process waste sump containing transmission fluid.	No	
08-3	AST	west side of building	Tank 08-1 on 1991 Site Drawing.	No	
08-4	Additional	20K	6'x9' waste accumulation area used for the storage of drum paint and solvent.	No	
08-5	Additional	13K	11'x10' waste accumulation area used for the storage of drummed oil, greases, and gas rags.	No	
Building 16 Area					
16-1	Sump	18O	2'x2'x2' sump handled runoff in conveyor area. Liquids handled by the process wastewater system.	No	
16-2	Sump	19N-19O	Fork lift battery-charging area contains 45'x6"x6" floor drain discharging to 3'x2'x3' sump that handled runoff and discharged to process wastewater system.	No	

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
40-4	Sump	37F	2'x2'x4' sump in "Road Lab Simulator" dischargeed to process wastewater system.	No	
40-5	Additional	1C	Drum storage area identified as AOC 2 in PR/VSI Report used to store ash and chromium waste products.	No	
40-6	Trench	37F	17'x2'x2' trench containing hydraulic lines for "Road Lab Simulator."	No	
40-7	Pit	29D	Cable-operated elevator pit.	yes (2/23/99)	Sediment sample from pit analyzed for PCBs. PCBs detected at a concentration of 7.3 mg/kg.
40-8	Pit	38D	Elevator pit.	yes (2/23/99)	Sediment sample from pit analyzed for PCBs. PCBs detected at a concentration of 18 mg/kg.
40-9	Pit	37E	14'x20'x9' pit containing test equipment. Floor of the pit clean of any oil and debris.	No	
40-10	Pit	37F	14'x20'x9' pit for "Road Lab Simulator" equipment. Pit floor clean of any oil or debris.	No	
40-11	Pit	3D	2'x4'x10' utility pit.	No	
40-12	Additional	Basement	Basement/tunnel area flooded with water.	yes	Detectable concentrations of PCBs have been identified in oil floating on water. See Section 4.6.
Building 12 Area					
12-1	Additional	East side of Building 12	Drum Storage Area identified as AOC 11 in PR/VSI Report used for storing oils and synthetic coolant (new).	No	
12-2	Sump	20A	2'x2'x4' process wastewater sump collected liquid from strip drain located in 5A-20A.	No	
12-3	Sump	36A	30'x1'x1' drain leading to 3'x3'x3' sump discharged to process wastewater system.	No	
12-4	Sump	37B	Steam booth used to clean equipment has two 9'x1'x2' floor drains leading into a 3'x2'x4' floor drain that handled runoff in car wash area and leads to a 3'x4'x4' sump discharged to process wastewater system.	No	
12-5	Sump	5A-20A	1' wide x 1' deep strip drain from bay 20A to 5A which leads to sump discharging to process wastewater system.	No	
12-6	Sump	SE Corner	Process Waste Pump Station 4. Sump is 4'x4'x unknown depth.	No	
12-7	Sump	29C	2'x2'x3' sump discharging to process wastewater system.	No	
12-8	Sump	38C	2'x3'x4' sump handled runoff from 36'x1'x1' trench in battery charging area. Sump discharged to process wastewater system.	No	
12-9	Sump	13H-14H	Oil and sealer storage room contains a 1'x1' trench that runs the perimeter of room; this leads to a 4'x4'x6' drain that leads into a 6'x6'x6' sump that pumps liquid into a 300-gal. AST. Bottom of trench contained oil and grease.	No	

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
12-10	Sump	24G	Steam cleaning room for equipment has two 6'x8"x2' strip drains that lead to a 3'x5'x6' sump that handled runoff from equipment cleaning area. This sump discharged to process wastewater system. Oil and grease staining on the walls and floor.	No	
12-11	Sump	22D, Basement	4'x4'x unknown depth sump with associated floor drains; contained oil and water. System discharged to process wastewater system.	No	
	Trench	22D, Basement	100' x2'x2' trench leading to sump located at 22D.	No	
12-12	Sump	25D, Basement	2'x2'x unknown depth sump connected to trenches. Surrounding area had oil staining on the floor. Several sets of concrete footings present that appear to be former equipment stands.	No	
	Trench	25D, Basement	20'x1'x1' trench connecting to sump.	No	
	Trench	29B, Basement	30'x1'x1' strip drain with oil and grease staining on surrounding floor. Drain leads to a sump located at 25D.	No	
12-13	Sump	29B, Basement	2'x2'x4' sump connected to floor drains. Oil and grease staining on surrounding floor. Concrete footings present that appear to be former press stands.	No	
12-14	Sump	20C, Basement	2'x2'x6' grease trap and sump with associated 12" floor drain.	No	
12-15	Sump	22F, Basement	4' x4'x unknown depth sump.	No	
	Trench	22F, Basement	100'x2'x2' trench leading to sump located at 22F.	No	
12-16	Sump	26A, Basement	Conveyor system had staining on floor throughout bays 19D-26A. Associated sump pit containing one sump.	No	
12-17	Sump	30A, Basement	Chip conveyor room has a 2'x2'x4' sump.	No	
12-18	Trench	10B	1'x15'x1' "L" shaped utility trench.	No	
12-19	Trench	12A	30'x1'x3' utility trench and a 1'x1'x3' utility trench.	No	
12-20	Trench	14B	2'x15'x2' utility trench.	No	
12-21	Trench	16B	1'x35'x1' utility trench.	No	
12-22	Trench	18A	1'x30'x1' utility trench and a 1'x1'x3' floor drain.	No	
12-23	Trench	20A	1'x15'x1' utility trench.	No	
12-24	Trench	20B	1'x5'x1' utility trench.	No	
12-25	Trench	4A	1'x45'x1' utility trench.	No	
12-26	Trench	5B	1'x6'x1' utility trench exits area of welding line and forms a "T" with a 1'x10'x1' utility trench.	No	
12-27	Trench	9A	1'x40'x unknown depth utility trench.	No	

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
12-28	Trench	26C	1'x8'x4' trench in welding area.	No	
12-29	Trench	7C	1'x20'x1' strip drain used for runoff on car conveyer system. Drain discharged to process wastewater system.	No	
12-30	Trench	18C, Basement	12" floor drain filled with oil-saturated absorbent material.	No	
12-31	Trench	18D, Basement	10' x 6" x 6" floor trench running to floor drain. Trench filled with oil.	No	
12-32	Trench	18F, Basement	60'x6"x1' "v"shaped trench.	No	
12-33	Trench	19D, Basement	10'x6"x6" trench running to 3'x1'x2' floor drain associated with conveyor system. Oil-saturated absorbent material on oil-stained floor.	No	
12-34	Trench	23D	6"x100'x3" trench with oil, water, and machine runoff. Gravity draining at east end of trench clogged.	No	
12-35	Trench	6D	Conveyer trench running throughout bays 6D-10D. Trench filled with oil, water, grease, and machine runoff. Trench is 6' wide and 4' deep.	No	
12-36	Trench	13E	Conveyer trench 6' wide x 4' deep with dirt, grease, and debris accumulation running throughout bays 2E-13E.	No	
12-37	Pit	18B	35'x15'x4' pit contained oil and grease. Pit used to house robotic equipment.	yes	Oil in equipment was sampled by GM and contained <1 mg/kg PCBs.
12-38	Pit	35A	Utility pit with 3'x3' access hatch.	No	
12-39	Pit	38B	2'x10'x8' steam pipe utility pit located where pipes enter the building.	No	
12-40	Pit	38C	9'x4'x18' old utility pit.	No	
12-41	Pit	23G	Cable-operated elevator pit.	yes (3/30/99)	Material in pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 0.87 mg/kg.
12-42	Pit	26F	A self-contained utility pit and associated trenches covering a 30'x30' area runs underneath equipment. The pit contained conveyer equipment for separating metal cuttings from the cutting fluids. The trenches lead to oil-cleaning equipment.	yes (3/16/99)	Grab of sediment in pit analyzed for full TCLP and PCBs. No PCBs detected above laboratory detection limits (1 mg/kg). Some metals were detected.
12-43	Pit	19D, Basement	3'x1'x1' grease traps associated with the conveyor system running through bays 19D - 21D.	No	
12-44	Pit	20D, Basement	Two 3' x1'x 2' grease traps containing grease.	No	
12-45	Pit	20E, Basement	Six 3'x1'x2' grease traps with oil staining on the floor throughout area. Grease trap and staining encompass 10E - 21E.	No	
12-46	Pit	20F, Basement	Six 3'x1'x2' grease traps with heavy oil staining on surrounding floors associated with conveyor system running through bays 20F - 21F.	No	
12-47	Pit	21D, Basement	3' x1'x 2' grease trap full of grease.	No	

TABLE 3
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
12-48	Pit	21C, Basement	2'x2'x3' pit with oil and water in conveyor tunnel. Tunnel is approximately 200' long. Absorbent material present on floor for oil and grease. Entire floor in tunnel area stained with oil and grease. The end of the tunnel is sealed with brick.	No	
12-49	Pit	3D	3'x5'x15' pit in body wash station containing water. This area contained a series of tanks and filtering equipment. Water discharged to process wastewater system.	No	
12-50	Pit	3D	8'x25'x15' recirculation pit for car body wash. Pit contained soap, water, and an unknown amount of sediment buildup.	No	
12-51	Pit	18D, Basement	3' x 1' x 2' pit connected to a floor drain.	No	
12-52	Pit	18F, Basement	Twenty 24" diameter x 1' deep hydraulic press footings.	No	
12-53	Tank-AST	20A	2'x3'x2' hydraulic lube tank.	No	
12-54	Tank-AST	20D, Basement	500 gallon AST containing oil.	No	
12-55	Tank-AST	20E, Basement	300 gallon AST containing oil.	No	
12-56	Tanks-AST	20E, Basement	Four 500 gallon ASTs containing oil.	No	
12-57	Tank-AST	29B, Basement	50 gallon lube tank.	No	
12-58	Tanks-ASTs	South side of Building 12	Tanks 12-1, 12-2, 12-3, and 12-4 on 1991 Site Drawing	No	
12-59	Additional	23A	1'x10'x1' floor drain used to collect indoor runoff from loading dock. Light oil staining on floor.	No	
12-60	Additional	5A	1'x1'x3' floor drain and a 30'x1'x3' floor drain.	No	
12-61	Additional	20A	"Satellite Waste Accumulation Area" for paints and oils.	No	
12-62	Additional	Tunnel	Abandoned utility tunnel flooded with water. Tunnel runs north from east side of Building 12, under Division Street, to the former power house area.	No	
12-63	Additional	18-20E	Oil staining on wood block flooring. Staining covers a 90'x40' "L" shaped area (2,700 sq ft).	No	
12-64	Additional	18D	Oil staining on wood block flooring. Staining covers a 65'x45' "L" shaped area (2,200 sq ft).	No	
12-65	Additional	18F-19F	45'x20' section of oil stained wood block flooring.	No	
12-66	Additional	19D	Oil staining on wood block flooring. Two 15'x12' oil stained areas of wood block flooring are present.	No	
12-67	Additional	22D	Oil staining on wood block flooring. Staining covers a 25'x15' area.	No	
12-68	Additional	22E	Oil staining on wood block flooring. Staining covers a 66'x24' "T" shaped area (1,100 sq ft).	No	
12-69	Additional	22F	Oil staining on wood block flooring. Staining covers a 24'x15' area.	No	

TABLE 3
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DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 86 AREA (BUILDINGS 04, 08, 12, 16, 40, AND 44)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
12-70	Additional	17H-29H	Indoor railcar unloading area had oil staining on floor throughout area.	No	
12-71	Additional	19E	Large hydraulic presses in pits.	No	
12-72	Additional	3C	Oil staining on floor around spindle oil pump station.	No	
12-73	Additional	3D	Staining on the floor throughout the entire body wash area (3D-6D). White etching on floor near ChemKleen AST and oil and grease staining present around pumps.	No	
12-74	Additional	5C	Chain oil pump station that carried grease to production line. Grease staining present on floor surrounding the pump station.	No	
12-75	Additional	18F, Basement	Conveyor system had significant amounts of grease on floor directly under drive track throughout entire conveyor system within tunnel.	No	

TABLE 4
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 18 AREA AND BUILDING 29 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 18 Area					
18-1	Sump	East of Building 18	process wastewater sump	No	
Building 29 Area					
29-1	Trench	12AA	Manhole and utility trench.	No	
29-2	Trench	12B	36'x2'x4' utility trench.	No	
29-3	Trench	1D	18'x2'x unknown depth utility trench.	No	
29-4	Trench	13AA	10'x1'x1' trench drains to pit located within 13AA.	No	
	Pit	13AA	3'x3'x unknown depth pit collected water from trench located within 13AA.	No	
29-5	Pit	12AA	Elevator pit for cable-operated elevator.	No	
29-6	Pit	12A	4'x2' wood covering pit/trench in floor.	No	
29-7	Additional	13A-D	Heavy oil and grease staining on floor.	No	
29-8	Additional	9D	Former work pads with heavy oil staining on floor.	No	

TABLE 5

GENERAL MOTORS CORPORATION

NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 23 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 23 Area					
23-1	Additional	1A	Former Cyanide Waste Storage Room identified as SWMU 3 in PR/VSI Report.	No	
23-2	Sump	3A	4'x2'x2' sump containing oil and grease. The sump used to collect fluid from trenches located in 3A.	yes (2/17/99)	Grab sample of sediment analyzed for PCBs. PCBs detected at a concentration of 1.0 mg/kg. Composite sample of sediment from sump and trench around dip tank analyzed for full TCLP and PCBs. PCBs detected in composite sample at a concentration of 3.0 mg/l.
	Trench	3A	4'x12'x2' trench around a dipping tank. Drains to Sump located in 3A.	yes (2/17/99)	Grab sample of sediment analyzed for PCBs. PCBs detected at a concentration of 6.28 mg/kg.
	Trench	3A	4'x6'x2' trench around a dipping tank. Drains to Sump located in 3A.	yes (2/17/99)	Grab sample of sediment analyzed for PCBs. PCBs detected at a concentration of 8.31 mg/kg.
	Trench	3A	2'x1'x1' trench which drains to sump located in 3A.	No	
23-3	Sump	5B	3'x3'x unknown depth sump with associated piping discharged to process wastewater system.	No	
23-4	Sump	5B	Main Process Wastewater Sump #17 which is 10' x 5' x 8'. This sump collected water from former heat treat operations in building as well as from sumps located north of Leith Street.	No	
23-5	Pit	2A	4'x4'x10 self-contained "Quench Oil Pit."	yes (2/17/99)	Grab sample of oil from pit analyzed for PCBs. No PCBs detected above laboratory detection limit (1 mg/kg).
23-6	Pit	2A	4'x4'x10' self-contained "Caustic Soda Pit."	yes (2/23/99)	Grab sample of sludge from pit analyzed for full TCLP and PCBs. PCBs detected at a concentration of 0.71 mg/kg. Various metals detected.
23-7	Pit	4B	Two dock levelers with heavy oil and grease staining on surrounding floor.	yes (2/17/99)	Grab sample of grease and grime under dock levelers analyzed for PCBs. PCBs detected at a concentration of 5.5 mg/kg.
23-8	Pit	5B (Basement)	Basement was used for treatment of water used in former heat treat operation on first floor. System consisted of 6 basins used for oil/water (1-9'x9'x7' basin,1-9'x24'x7' basin, 2-2'x24'x7' basins, 2-12'x4'x7' basins), one 2'x2'x2' sump and one 6'x4'x6' pit which housed equipment.	yes (2/17/99)	Composite sample of oil from basins analyzed for PCBs. No PCBs detected above laboratory detection limit (1 mg/kg).
23-9	Tanks-AST	3A	5'x5'x5' AST containing "fluids, gases, and ammonia."	yes (2/17/99)	Grab sample of oil/sludge from AST analyzed for full TCLP and PCBs. No PCBs detected above laboratory detection limit (1 mg/kg). Select semivolatile compounds (acenaphthylene, naphthalene, phenanthrene, and pyrene) detected at concentrations of 310 to 630 mg/l. Various metals detected.

TABLE 6
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 02 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 02 Area					
02-1	Additional	Southwest corner of Building 02	Hazardous Waste Facility identified as SWMU 43 in PR/VSI Report used to store drums containing off-spec resins prior to off-site disposal.	No	
02-2	Additional	North side of Building 02	Drum Storage Area identified as SWMU 48 and AOC 1 in the PR/VSI Report.	No	
02-3	Sump	15AA	Materials Laboratory has a 2'x2'x unknown depth sump discharging to process wastewater system.	No	
02-4	Sump	1H	Process wastewater Pump Station #2. The sump is 4'x3'x unknown depth. Oil and grease staining on floors of pump station.	No	
02-5	Sump	21AA	2'x2'x1' sump located in resin tank room to collect spillage from ASTs. This sump discharged to process wastewater system.	No	
02-6	Sump	21I	Self-contained sump valved to allow flushing coolant to process wastewater system or into a filtration system for reuse at a grinding machine.	No	
02-7	Sump	27A	5'x6'x8' pump station for process wastewater.	No	
02-8	Sump	3I	12'x4'x4' sump in the "Automatic Air Compressor Station" pit that conveyed water to the process wastewater system.	No	
	Trench	3I	30'x15'x5' utility trench surrounding compressor in "Automatic Air Compressor Station."	No	
	Pit	3I	40'x35'x10' pit surrounding compressor and air tank in the "Automatic Air Compressor Station." Oil and grease staining present on floor of pit.	No	
02-9	Sump	7I	2'x2'x3' sump with associated trench drain used to handle runoff from the fork lift battery charging area. Sump discharged to the process wastewater system.	No	
	Trench	7I	45'x1'x'1' floor drain leading to a sump, used to handle runoff in the fork lift battery charging area.	No	
02-10	Sump	24H	3'x3'x4' sump connected to trenches surrounding "Omnimil" machine. Sump collected and recirculated coolant back to the machine for reuse. Oil staining on floor surrounding the machine.	No	
	Trench	24H	1'x1'x1' trench surrounding "Omnimil" machine leading to sump.	No	
02-11	Sump	1H	A series of sumps and oil water separators are present in the "Oil Reclamation Room" (room is approximately 20'x20' and covered in oil).	yes (2/24/99)	Composite of oil from separators analyzed for PCBs. No PCBs detected above laboratory detection limits (1 mg/kg).
02-12	Trench	10H	60'x2'x1' trench surrounding large press machine contained oil.	No	
02-13	Trench	22I	18'x2'x unknown depth utility trench.	No	
02-14	Trench	26A	21'x1'x1' utility trench running width of bay door containing water line.	No	
02-15	Trench	3H	18'x2'x1' trench channeled waste to Process Wastewater Pump Station #2.	No	

TABLE 6
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 02 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
02-16	Trench	4H	3'x3'x2' trench channeled waste runoff to Process wastewater Pump Station #2.	No	
02-17	Pit	20A	Elevator pit.	yes (2/23/99)	Material in pit analyzed for PCBs (scrape samples). PCB concentration of 0.68 mg/kg.
02-18	Pit	21AA	Pit for hydraulic elevator.	yes (2/23/99)	Material in pit analyzed for PCBs (scrape samples). No PCBs detected above laboratory detection limit (1 mg/kg).
02-19	Pit	21I	12'x'12'x unknown depth pit collected lubricant around grinding machine. The pit drained to a sump where it was filtered for recirculation.	No	
02-20	Tank-AST	19AA	1,000-gallon AST in elevator pump room.	yes (2/23/99)	Composite of oil from equipment reservoirs analyzed for PCBs. No PCBs detected above laboratory detection limit (1 mg/kg).
02-21	Tanks-AST	North side of Building 02	Seven ASTs present in former "Oil Reclamation Area." Tanks within 60'x30'x1' bermed area with no drain. This area also includes SWMUs 85 - 91 identified in PR/VSI Report.	No	
02-22	Tank-AST	8H	Hydraulic oil AST and pump used for operation of the "Hydraulic Anchor Pac Area." Hydraulic oil staining around the equipment.	No	
02-23	Tank - AST	West of Building 02	Tank 66 on 1973 Site Drawing.	No	
02-24	Tanks - AST	South side of Building 02	Tanks 67 - 70 on 1973 Site Drawing.	Yes	Available analytical data contained in Global, 1997d and 1997e. See Section 4.2.
02-25	Tanks - AST	West side of Building 02	Tank 02-15 and 02-16 on 1991 Site Drawing	No	
02-26	Additional	21AA	Containment area for two-10,000 gallon ASTs and one-20,000 gallon AST. (The location tanks correlate withTanks 02-17 - 02-19 on the 1991 Site Drawing.) ASTs contained resin that is a RCRA characteristic waste (D001). Containment area had accumulation of resin on floor.	No	
02-27	Additional	23B	Oil staining on floors under machine area throughout bays 23B-23E.	No	
02-28	Additional	25B	Oil and grease staining on floors throughout bays 25B and 25C.	No	
02-29	Additional	25I	Oil staining on floor around metal cutting equipment.	No	

TABLE 7

GENERAL MOTORS CORPORATION

NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 94 AREA (BUILDINGS 17/17A, 52, 28, AND 84)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 17/17A Area					
17-1	Pit	1C	Cable-operated elevator pit.	yes (2/9/99)	Material from elevator pit analyzed for PCBs (scrape samples). PCBs detected at a concentration of 19 mg/kg.
17-2	Pit	14C	2'x2'x1' pit with water and pipe leading from north, strong oil type odor. Unable to determine where pit drains.	yes (2/4/99)	Grab sample of sludge from pit analyzed for Full TCLP and PCBs. PCBs detected at a concentration of 1.8 mg/kg. Various metals detected.
17-3	Pit	15C	1'x1' floor drain	No	
17-4	Pit	1	1'x1'x1' floor drain on bay ramp with 1" pipe leading to unknown discharge location. Approximately 1" of sediment in trench.	yes (2/3/99)	Grab sample of sediment from sump analyzed for PCBs. PCBs detected at concentration of 6.9 mg/kg. Composite sample of sediment from pit and trench located in 17A, analyzed for full TCLP and PCBs. PCBs detected in composite sample at a concentration of 6 mg/l.
17-5	Trench	2	1'x1'x1' floor drain/trench with pipe leading to unknown discharge location.	yes (2/3/99)	Grab sample of sediment from sump analyzed for PCBs. PCBs detected at a concentration of 12 mg/kg.
17-6	Tanks - AST	North side of Building 17A	Tanks PP and 107 on 1973 Site Drawing and Tank PP 17-2 on 1991 Site Drawing.	No	
Building 52 Area					
52-1	Additional	Inside Building 52 located east of Building 17	Former PCB Storage Area identified as SWMU 102 in PR/VSI Report.	No	
Building 28 Area					
28-1	Sump	32E & F	Collection sump for the hazardous materials storage area in column/bay 32E & F. Sump collected liquid from the containment trench in column/bay 32E & F and discharged to process wastewater system.	No	
	Trench	32E & F	Containment trench for hazardous materials storage room identified in Building 40 column/bay 28-29E. The trench drained to a sump located in Building 28 within 32E & F which discharged to process wastewater system.	No	
	Additional	32E & F	Hazardous materials storage area for drums of motor oil, transmission fluid and coolant. Staining on floor.	yes (2/9/99)	Four 12" concrete core samples analyzed for Metals and PCBs. No PCBs detected above laboratory detection limit (0.33 mg/kg). Various metals detected.
28-2	Trench	13B & C	Utility trench that is 40' long x 2' wide x 3' deep. Trench dry with minimal dust and dirt present.	No	
28-3	Pit	1A	Elevator pit for cable-operated elevator.	yes (2/9/99)	Grab sample of grease and dirt from pit analyzed for PCBs. PCBs detected at a concentration of 38 mg/kg.
28-4	Pit	6A	Elevator pit for cable-operated elevator.	yes (2/9/99)	Grab sample of grease and dirt from pit analyzed for PCBs. PCBs detected at a concentration of 2.6 mg/kg.
28-5	Pit	33B	Pneumatic dock leveler pit. Debris present.	No	
28-6	Pit	33C	Pneumatic dock leveler pit. Debris present.	No	

TABLE 7
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 94 AREA (BUILDINGS 17/17A, 52, 28, AND 84)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 84 Area					
84-1	Sump	10C	Oil collection sump for DeVlieg Milling Machine. 15'x4'x3' sump housed chip conveyer. Oil was collected, filtered, and re-used by the machine.	yes (2/3/99)	Grab sample of oil in sump analyzed for PCBs. No PCBs detected above laboratory detection limit (1 mg/kg).
84-2	Sump	10D	4' x 10' x 4' deep sump collected discharge from penetone dip tanks. Sump discharged to process waste. Approx. 3' of liquid and sludge present.	No	
84-3	Sump	10H	30" x 30" x 24" deep sump. Contained oil residue from draining engines. The sump discharged to process wastewater system.	No	
84-4	Sump	10J	Hazardous materials storage room with sump discharging to process wastewater system.	yes (2/1/99)	Four 8" deep concrete core samples analyzed for PCBs and metals. PCBs detected in one of the four samples at a concentration of 0.36 mg/kg. Various metals detected.
84-5	Sump	13F	2' x 4' x 5' sump for trenches in physical test area. Sump collected oil from leaking equipment within area. Oil was subsequently filtered and recirculated back into the hydraulic system for area.	yes (6/27/95)	The oil in this system was sampled from the hydraulic pump located in 13J on 6/27/95 and found to contain <1 mg/kg of PCB.
84-6	Sump	13I	Six 1' x 1' x 1' deep sumps along hold down table draining to larger sump located in 13I.		
	Sump	13I	2'x 3' x 4' sump collected oil from leaking equipment within area. Oil was subsequently filtered and recirculated back into the hydraulic system for area.	yes (6/27/95)	The oil in this system was sampled from the hydraulic pump located in 13J on 6/27/95 and found to contain <1 mg/kg of PCBs.
84-7	Sump	15C	3' x 3' x 4' deep sump discharging to process wastewater system.	No	
84-8	Sump	15G	Possible sump. Cover 6'x12'.	No	
84-9	Sump	15I	4'x6'x6' deep sump discharging to process wastewater system.	No	
84-10	Sump	19D	5' x 6' x 7' deep sump discharging to process wastewater system. Collected water from car wash located in 21D.	No	
	Pit	21D	8'x24'x3' car wash pit. Pit collected water from the washing process and discharged to sump located within 19D.	No	
84-11	Sump	20H	Possible sump or pit under a bolted down manhole cover.	No	
84-12	Sump	20I	Possible sump or pit under a bolted down manhole cover.	No	
84-13	Sump	20J	Main sump to process wastewater system.	No	
84-14	Sump	22A	5'x5'x unknown depth sump for the flow room. The sump discharged to the process wastewater system.	No	
84-15	Sump	22F	2'x2'x unknown depth sump discharging to process wastewater system.	No	
84-16	Sump	22G	2'x2'x unknown depth sump discharging to process wastewater system.	No	
84-17	Sump	2I	16" x 16" x 6" deep with gravity drain. Collected water runoff from cars parked inside and discharged to process wastewater system.	No	
84-18	Sump	4A	3' x 3' x 4' deep sump collected water from Bupi parts cleaner and discharged to process wastewater system.	No	

TABLE 7
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 94 AREA (BUILDINGS 17/17A, 52, 28, AND 84)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
84-19	Sump	4H	2' x 4' x 4' deep sump used to collect water from adjacent car wash and floor trenches in the area. Also used as a dumping pit. Discharged to process wastewater system.	No	
	Trench	2B	Series of trenches used to collect water runoff from cars parked in building. Trenches run throughout bays 2 & 3 B to 2 & 3 H and discharged to sump at 4H.	No	
84-20	Sump	4I	30" x 30" x 24" deep sump used to collect water runoff from cars within the wheel alignment area. Sump discharged to process wastewater system.	No	
84-21	Sump	15F, Basement	6'x4'x6' sump collected floor drain runoff and discharged to process wastewater system.	No	
84-22	Sump	23G	Size of sump unknown. Not accessible sump located in janitors closet. Sump discharged to process wastewater system.	No	
84-23	Sump	20D	Sump collected residual fluids from vehicle engine test area.	No	
84-24	Additional	15G	Four drains in floor. Discharge location unknown.	No	
84-25	Trench	13E	Trench with bolted-down lid.	yes (2/4/99)	Grab sample of sediment in trench analyzed for full TCLP and PCBs. PCBs detected at a concentration of 0.49 mg/kg. Various metals detected. Bis(2ethylhexyl)phthalate detected at 530 mg/l.
84-26	Trench	13F	Trench approx. 2' deep contained residual oils. The trench collected oil from leaking equipment within the area and discharged to sump located in 13F. Residual oil subsequently filtered and recirculated back into the hydraulic system for area.	yes (6/27/95)	The oil in this system was sampled from the hydraulic pump located in 13J on 6/27/95 and found to contain <1 mg/kg of PCBs.
84-27	Trench	15J	Utility trenches within area housing steam lines.	yes (2/3/99)	Grab sample of sediment in trench analyzed for full TCLP and PCBs. No PCBs detected above laboratory detection limit (0.33 mg/kg). Various metals detected.
84-28	Trench	20C	2' wide x 40' long trench with bolted down covers.	yes (2/8/99)	Grab sample of sediment from trench analyzed for full TCLP and PCBs. PCBs detected at a concentration of 15.1 mg/kg. Various metals detected.
84-29	Trench	8D	Collection trench around former equipment pads.	No	
84-30	Trench	8D	Trench surrounding former machine. 1' x 1.5'deep x 80 linear feet. Stained concrete equipment pad. No sump associated with trench.	No	
84-31	Trench	Exterior, northwest corner	6' wide x 15' deep trench running from gasoline AST farm to 4 fuel pumps. Bottom of trench contained water and staining; sheen floating on top of water.	No	
84-32	Trench	Exterior, east side	Conduit and electrical tunnel 6' wide and 12' deep that runs the length of test cells outside of Bldg. 84. Supplied fuel for test cells.	No	
84-33	Trench	23E	Conduit and electrical trench, odor present in trench running through 23E and 23H. Trench drained to pit in 23E.	No	
	Pit	23E	4'x4'x4' gravity draining pit collected run off from adjoining trench located in 23E.	No	

TABLE 7
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 94 AREA (BUILDINGS 17/17A, 52, 28, AND 84)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
84-34	Pit	13H	2' x2' x 3' deep steel-lined oil pit used to collect hydraulic fluid leaks from belt test equipment. Fluid subsequently filtered and recirculated back into hydraulic system.	yes (6/27/95)	The oil in this system was sampled from the hydraulic pump located in 13J on 6/27/95 and found to contain <1 mg/kg of PCBs.
84-35	Pit	14J	2' x 2' steel plate over 3' deep pit.	yes (2/4/99)	Grab sample of sludge in pit analyzed for full TCLP and PCBs. PCBs detected at a concentration of 0.81 mg/kg. Various metals detected at elevated concentrations. Semivolatiles (Bis(2ethylhexyl)phthalate and pyrene) detected at 75 mg/l and 110 mg/l, respectively.
84-36	Pit	16B	Pit for car lift. Area also includes subgrade hydraulic cylinder and associated piping present in above grade reservoir.	yes (2/4/99)	Grab sample of oil in hydraulic system analyzed for PCBs. No PCBs detected above laboratory detection limit (0.33 mg/kg).
84-37	Pit	16D	Hot well under floor for chiller tower system.	No	
84-38	Pit	17D	Cold well under floor for chiller tower system.	No	
84-39	Pit	19G	Three equipment pits. Each 6'x20'x2' deep and housed dyno equipment.	No	
84-40	Pit	21D	3'x3'x unknown depth vault with no access.	No	
84-41	Pit	22D	3'x3' cover. Possible pit.	No	
84-42	Pit	6I	Hydraulic elevator with pit. Cylinders above grade.	No	
84-43	Pit	23F	25'x15'x3' emission roll / dyno. equipment vault. 3' deep subfloor beneath entire area. Utilities and conduit controlling test area running under flooring.	No	
84-44	Pit	25F	25'x15'x3' emission roll / dyno. equipment vault. Utilities and conduit controlling test area running beneath the floor.	No	
84-45	Pit	26F	25'x15'x3' emission roll / dyno. equipment vault. Utilities and conduit controlling test area running beneath the floor.	No	
84-46	Pit	27F	25'x15'x3' emission roll / dyno. equipment vault. Utilities and conduit controlling test area running beneath the floor.	No	
84-47	Pit	27F	25'x15'x3' emission roll / dyno. equipment vault. Utilities and conduit controlling test area running beneath the floor.	No	
84-48	Tanks-UST	15J	UST with bolted-down hatch located beneath manhole cover.	No	
84-49	Tanks-AST	Exterior, northwest corner	Area includes Tanks NN and 94 - 103 on 1973 Site Drawing, Tanks T84-1 through T84-7, T84-1A, T84, 2A, T84-5B, T84-7B, and T84-8A on 1991 Site Drawing, and SWMUs 41 and 42 identified in PR/VSI Report.	yes	Soil and ground water sampe results contained in Global, 1997f. See Section 4.2.
84-50	Tanks-AST	15G, Basement	Two cooling tower ASTs, one hot well, one cold well (total dimensions 16'x6'x7.5'). Fluids contained in these tanks is unknown.	No	
84-51	Additional	7A	Machine shop area. Wood block flooring stained with oil. Concrete equipment pads also stained. Area extends from 6A to 10A, 6B to 10B, 6C to 10C, and 7D to 10D (approximately 14,500 sq. ft.).	yes (1/28/99)	38 discrete wood block samples analyzed for PCBs. 35 of 38 samples had PCB detections of 0.34 to 20 mg/kg. Four wood block composite samples analyzed for full TCLP and PCBs. VOCs and metals detected in each of the composite samples.
84-52	Additional	13J	Large hydraulic pump used for operating equipment in the physical test area. Contained approximately 300 gallons of oil. Floor and walls oil stained.	yes (6/27/95)	The oil in this system was sampled from the hydraulic pump located in 13J on 6/27/95 and found to contain <1 mg/kg of PCBs.

TABLE 7
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- FACTORY 94 AREA (BUILDINGS 17/17A, 52, 28, AND 84)

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
84-53	Additional	15C	Chiller room. Chiller equipment contained anhydrous ammonia. Staining on floor.	yes (2/1/99)	12" deep concrete core sample analyzed for metals. Various metals detected.
84-54	Additional	15J	Former electric vault below grade. Accessed through manhole. Vault approximately 15'x15'x10' deep.	yes (2/9/99)	Dirt and grease in vault analyzed for PCBs. PCBs detected at a concentration of 3.1 mg/kg.
84-55	Additional	2I	Two subgrade hydraulic cylinders used as car hoist.	No	
84-56	Additional	3I	Former subgrade hydraulic lift. Piston removed and cylinder filled with concrete.	No	
84-57	Additional	14E, Basement	Hydraulic oil staining on elevated dyno equipment pad. Oil leaking from carriage.	yes (6/27/95)	Oil from dynonometer was sampled by GM on 6/27/95 and found to contain <1 mg/kg of PCBs.
84-58	Additional	15F, Basement	Oil-stained floors.	No	
84-59	Additional	15G, Basement	Oil-stained floors.	No	
84-60	Additional	15H, Basement	Oil-stained floors.	yes (2/2/99)	6" concrete core sample analyzed for metals. Various metals detected.
84-61	Additional	Entire Basement	Gasoline piping throughout basement for running dyno equipment.	No	
84-62	Additional	Exterior, east side	Reclaim fuel piping that runs approximately 100' on east side of building. Staining present.	No	
84-63	Additional	19, exterior	Waste pump station routed process waste from Factory 94 to the process wastewater system. Staining present.	No	
84-64	Additional	Northwest corner of Building 02	Drum storage area identified as AOC 6 in PR/VSI Report used to store oil, transmission fluid and gasoline waste prior to off-site disposal.	No	

TABLE 8

GENERAL MOTORS CORPORATION

NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 03 AREA AND BUILDING 10 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 03 Area					
03-1	Trench	2A	Catch basin running north to south along AB and CD from bay 2-7. Staining present.	No	
03-2	Additional	1D	Stairs in a caged area leading down into a utility tunnel. Area flooded with water. Sheen present.	No	
03-3	Additional	1A	Hydraulic oil present on floor in area associated with a car loading device.	No	
03-4	Additional	4A	Screw drive loading ramps, operated by oil and grease.	No	
Building 10 Area					
10-1	Trench	11B	1'x40'x 2' gravity floor drain/trench discharging to outdoor trench.	yes (2/9/99)	Composite sample of oil from equipment reservoirs analyzed for PCBs. PCBs detected at a concentration of 150 mg/kg.
10-2	Pit	10A	2'x2'x4' pit located in the middle of four scale pads. Used to house scale equipment. Buildup of grease present.	No	
10-3	Pit	2A	2'x2'x4' pit contained water with oil film. Discharge location is unknown.	No	
10-4	Pit	7B	12'x8'x2' pit contained grease and oil located in car unloading area.	No	
10-5	Pit	7C	12'x8'x2' pit contained grease and oil located in the car unloading area.	No	
10-6	Pit	9A	2'x2'x4' pit located in the middle of four scale pads. Used to house scale equipment. Buildup of grease and grime present.	No	
10-7	Sump	4D	20'x12'x1' pan and sump contained dirt and grease. Discharged to process wastewater system.	No	
10-8	Tank - AST	11A	1.5'x1.5'x4' "Chain Oil" AST. Floor surrounding AST tank covered with grease and oil.	No	
10-9	Additional	3A	Oil and grease staining on floor beneath the conveyor.	No	

Notes:

Refer to Table 10.

TABLE 9
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 94 AREA AND BUILDING 25 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
Building 94 Area					
94-1	Sump	6E	4'x4'x3' sump which discharged to process wastewater system.	No	
94-2	Sump	6V	30"x30"x unknown depth "South Lube Pit" handled runoff in area including trench located in 6S. Sump discharged to wastewater system.	No	
94-3	Sump	7A	4'x3'x unknown depth sump handled water from 1'x12'x1' drain in car wash area. Sump discharged to process wastewater system.	No	
94-4	Sump	7B	4'x8'x2' sump that handled water runoff from test area (90 % of the water recirculated and 10% is pumped to process wastewater system).	No	
94-5	Sump	1Q-1P, Basement	3'x8'x6' sump located in oil change pit handled oil from three bays having separate drains running into sump. Sump received oil runoff from 34'x4'x2' trench associated with oil change pit. Sump discharged to process wastewater system.	No	
	Additional	1Q-1P, Basement	1'x1'x unknown depth floor drain handled runoff in oil change pit and discharged to sump located in 1Q-1P.	No	
94-6	Sump	1R	8'x6'x4' self-contained sump located in center of chemical storage area.	No	
94-7	Trench	1R	42'x2'x1' trench runs the length of chemical storage and car wash areas. Drained to a 3'x8'x unknown depth sump located within 1Q-1P.	No	
94-8	Trench	00T	1'x75'x2' trench contained oil and grease. Discharged to process wastewater system. Staining on floor throughout bay in vicinity of trench.	No	
94-9	Trench	4A	1'x25'x1' trench in hydraulic oil storage area, and a 1'x6'x6" floor drain both lead to a 2'x2'x4' dry sump. Sump discharged to process wastewater system.	No	
94-10	Trench	6S	1'x100'x1' trench in work area runs through bays 6S-6W and discharged to sump located in bay 6V. Liquid in trench ultimately discharged to process wastewater system.	No	
94-11	Pit	1L	5'x10'x2' containment pit with AST, oil staining on floor.	No	
94-12	Pit	5K	6' wide 2' deep pit runs from bays 5K-5D (160 LF).	No	
94-13	Pit	8P	5'x10'x6" work pit contained oil and grease on floor.	No	
94-14	Pit	2A	Pit for cable operated car elevator.	yes (2/11/99)	Grab sample of sediment and grease from pit analyzed for PCBs. PCBs detected at a concentration of 3 mg/kg.
94-15	Pit	2D	24'x12'x6' under carriage inspection pit, oil staining on floor and a 1'x1' floor drain	No	

TABLE 9
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

AREAS OF INTEREST (AOIs) -- BUILDING 94 AREA AND BUILDING 25 AREA

AOI Id.	AOI Type	Approximate Location (column/bay within bldg., unless otherwise noted)	AOI Description	Samples Collected?	Sample Analytical Results
94-16	Tanks-AST	6L	AST visible through cage area, no access to cage "pump room."	No	
94-17	Additional	2G	Former hydraulic lift cylinders filled in with concrete.	No	
	Additional	2H	Former hydraulic lift cylinders filled in with concrete.	No	
	Additional	2J	Former hydraulic lift cylinders filled in with concrete.	No	
	Additional	4H	Former hydraulic lift cylinders filled in with concrete.	No	
	Additional	4I	Former hydraulic lift cylinders filled in with concrete.	No	
	Additional	4J	Former hydraulic lift cylinders filled in with concrete.	No	
94-18	Additional	2Y	Manhole #3 contained a 12'x4'x15' floor vault with steel shelves. Vault dry.	No	
	Additional	2Y	Manhole located adjacent to Manhole #3. Manhole contained a 12'x4'x15' floor vault. Vault dry.	No	
94-19	Additional	1K	Oil staining around hydraulic oil drums.	No	
94-20	Additional	5Y	Old electrical room, stairwell leading to unknown depth. Room flooded.	No	
Building 25 Area					
25-1	Tank-AST	South side of Building 25	Tank LL on 1973 Site Drawing.	No	

TABLE 10
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

UNDERGROUND AND ABOVEGROUND STORAGE TANK SUMMARY

Identification		Current AOI/SWMU/AOC Designation	Building Association	Date Installed	Type	Capacity (gals., unless noted otherwise)	Materials Stored	Status
1991 Site Dwg.	1973 Site Dwg.							
09-2	FF	AOI 09-4	09	1977	AST	12000	#1 Diesel Fuel	Removed in 1997; Global, 1997a
---	MM	AOI 09-6	09	1977	AST	6000	#2 Fuel Oil	Removed in 1997; Global, 1997a
---	81	AOI 09-5	09	1960	UST	12000	Unleaded Gasoline	Removed in 1986; Global, 1997a
---	82		09	1960	UST	12000	Unleaded Gasoline	Removed in 1986; Global, 1997a
---	83		09	1960	UST	12000	Anti-Freeze	Removed in 1986; Global, 1997a
---	84		09	1960	UST	12000	Anti-Freeze	Removed in 1986; Global, 1997a
---	85		09	Unknown	UST	12000	BOPS	Removed in 1986; Global, 1997a
---	86		09	Unknown	UST	12000	Unleaded Gasoline	Removed in 1986; Global, 1997a
---	87		09	Unknown	UST	12000	Power Steering Fluid	Removed in 1986; Global, 1997a
---	88		09	1960	UST	12000	93 PS	Removed in 1986; Global, 1997a
---	89		09	1960	UST	12000	55 PS	Removed in 1986; Global, 1997a
---	90		09	1960	UST	12000	105 PS	Removed in 1986; Global, 1997a
---	91		09	1960	UST	12000	93 PS	Removed in 1986; Global, 1997a
---	92		09	1962	AST	12000	Freon	Removed in 1987; Global, 1997a
---	132		09	1979	UST	12000	#1 Diesel Fuel	Removed in 1987; Global, 1997a
---	133		09	1979	UST	12000	#1 Diesel Fuel	Removed in 1987; Global, 1997a
---	---	AOI 09-2	09	Unknown	UST	1000 +	Process Waste	Existing - Inactive
---	---	AOI 09-3	09	Unknown	UST	1000 +	Veh. Wash Holding Tank	Existing - Inactive
---	76	AOI 04-13/ SWMUs 92 - 95	04	1946	UST	15000	Flo Coat Dump	Removed, but time frame unknown
---	77		04	1946	UST	15000	Flo Coat Dump	Removed in 1984; EDI, 1988
---	78		04	1946	UST	15000	Hydraulic Oil	Removed in 1984; EDI, 1988
---	79		04	1946	UST	15000	Waste Thinner	Removed in 1984; EDI, 1988
---	80		04	1956	UST	Unknown	Unknown	Removed in 1984; EDI, 1988
44-1	182	AOI 44-19/ SWMUs 100 & 101	44	1983	AST	6000	Freon	Existing - Inactive
44-2	181		44	1983	AST	12000	Auto. Trans. Fluid	Existing - Inactive
44-3	180		44	1983	AST	12000	Sealer Thinner	Existing - Inactive
44-4	179		44	1983	AST	12000	Purge Thinner	Existing - Inactive
44-5	178		44	1983	AST	12000	Equip. Wipe Solvent	Existing - Inactive
44-6	177		44	1983	AST	12000	Auto. Trans. Fluid	Existing - Inactive
44-7	176		44	1983	AST	12000	Power Steering Fluid	Existing - Inactive
44-8	175		44	1983	AST	12000	Haz. Waste	Existing - Inactive
44-9	174		44	1983	AST	12000	Haz. Waste	Existing - Inactive
44-10	173 & 172		44	1983	AST	12000	Unleaded Gasoline	Existing - Inactive
44-11	169		44	1983	AST	20000	Unleaded Gasoline	Existing - Inactive
44-12	170		44	1983	AST	20000	Unleaded Gasoline	Existing - Inactive
44-13	171		44	1983	AST	20000	Ethylene Glycol	Existing - Inactive
---	---	AOI 44-20/AOC 21	44	Unknown	AST	2000	Waste Thinner	Removed in 1985, but Closure Report unavailable
---	---	AOI 44-21	44	Unknown	AST	~5600	Permeate Rinse Spray	Existing - Inactive
---	---		44	Unknown	AST	~5600	Permeate Rinse Spray	Existing - Inactive
---	---	AOI 44-22	44	Unknown	AST	4000	Chemkleen163 LF	Existing - Inactive
44-14	---	AOI 44-23	44	Unknown	AST	5000	Glycol	Existing - Inactive

TABLE 10
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

UNDERGROUND AND ABOVEGROUND STORAGE TANK SUMMARY

Identification		Current AOI/SWMU/AOC Designation	Building Association	Date Installed	Type	Capacity (gals., unless noted otherwise)	Materials Stored	Status
1991 Site Dwg.	1973 Site Dwg.							
44-15 & 4-16	---	AOI 44-24	44	Unknown	AST	200	Hydrochloric Acid	Existing - Inactive
	---		44	Unknown	AST	200	Liquid Caustic	Existing - Inactive
---	---		44	Unknown	AST	500	Sodium Hydroxide	Existing - Inactive
---	---		44	Unknown	AST	500	Hydrochloric Acid	Existing - Inactive
44-23	---	AOI 44-25	44	Unknown	AST	4000	Phosphoric Acid	Existing - Inactive
44-22	---	AOI 44-26	44	Unknown	AST	500	Phosphoric Acid	Existing - Inactive
---	---	AOI 44-27	44	Unknown	AST	5500	Pigment/resins	Existing - Inactive
---	---		44	Unknown	AST	5500		Existing - Inactive
---	---		44	Unknown	AST	5500		Existing - Inactive
---	---	AOI 44-28	44	Unknown	AST	~350	Hydraulic Elevator Res.	Existing - Inactive
---	105	AOI 44-29	44	1972	UST	1000	Gasoline	Removed, but time frame unknown
---	131		44	1973	UST	750	Diesel Work Tank	Removed, but time frame unknown
44-19	---	AOI 44-30	44	Unknown	AST	2000	Waste Thinner	Removed, but time frame unknown
44-20	---	AOI 44-31	44	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
44-21	---	AOI 44-32	44	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
44-24	---	AOI 44-33	44	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
44-25	---		44	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
08-1	---	AOI 08-2	08	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
---	---	AOI 16-11	16	Unknown	AST	~500	Hydraulic Motor Tank	Existing - Inactive
---	---	AOI 16-12	16	Unknown	UST	Unknown	Unknown	Existing - Inactive
---	P		16	1956	UST	2500	LS 900	Removed, but time frame unknown
---	Q		16	1956	UST	2500	#2 Diesel Fuel	Removed, but time frame unknown
---	75		16	1953	UST	Unknown	Unknown	Unknown
---	113		16	1946	UST	10000	Auto. Trans. Fluid	Abandoned, but time frame unknown
---	114		16	1946	UST	10000	Hypoid	Abandoned, but time frame unknown
---	115		16	1946	UST	10000	Hypoid	Abandoned, but time frame unknown
---	104	AOI 16-13	16	1964	UST	550	Gasoline	Removed, but time frame unknown
---	71	AOI 40-1/	40	1946	UST	10000	Auto. Trans. Fluid	Cleaned/Abandoned in 1987; Global, 1997e
---	72	SWMUs 96 - 99	40	1946	UST	16000	Auto. Trans. Fluid	Removed in 1987; Global, 1997e
---	73		40	1946	UST	10000	Waste Solvent	Removed in 1987; Global, 1997e
---	74		40	1946	UST	12000	Unknown	Removed in 1987; Global, 1997e
---	---	AOI 12-54	12	Unknown	AST	~100	Hydraulic Lube Tank	Existing - Inactive
---	---	AOI 12-55	12	Unknown	AST	500	Oil	Existing - Inactive
---	---	AOI 12-56	12	Unknown	AST	300	Oil	Existing - Inactive
---	---	AOI 12-57	12	Unknown	AST (4)	500 ea.	Oil	Existing - Inactive
---	---	AOI 12-58	12	Unknown	AST	50	Lube Tank	Existing - Inactive
---	12-1	AOI 12-59	12	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
	12-2		12	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
	12-3		12	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
	12-4		12	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
18-1	KK	None	18	1963	AST	4000 lbs.	Carbon Dioxide	Existing - Inactive
29-1	144	None	23/29	1963	AST	Unknown	Nitrogen	Removed, but time frame unknown

TABLE 10
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

UNDERGROUND AND ABOVEGROUND STORAGE TANK SUMMARY

Identification		Current AOI/SWMU/AOC Designation	Building Association	Date Installed	Type	Capacity (gals., unless noted otherwise)	Materials Stored	Status
1991 Site Dwg.	1973 Site Dwg.							
---	---	AOI 23-9	23	Unknown	AST	~1000	Ammonia, Other	Existing - Inactive
---	---	AOI 02-20	02	Unknown	AST	1000	Hydraulic Elevator	Existing - Inactive
02-1	00	AOI 02-21/ SWMUs 85 - 91	02	1981	AST	10,550	LK 424 Hydraulic Fluid	Existing - Inactive
02-2	---		02	Unknown	AST	Unknown	Hydraulic Elevator	Existing - Inactive
02-3	---		02	Unknown	AST	3000	Unknown	Existing - Inactive
02-4	---		02	Unknown	AST	3000	Unknown	Existing - Inactive
02-5	---		02	Unknown	AST	Unknown	Unknown	Existing - Inactive
02-6	---		02	Unknown	AST	Unknown	Unknown	Existing - Inactive
02-7	---		02	Unknown	AST	9000	Unknown	Existing - Inactive
02-8	134	None	02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
02-9	135		02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
02-10	136		02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
02-11	137		02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
02-12	138		02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
02-13	139		02	Unknown	AST	Unknown (silo)	Granulated Plastic	Existing - Inactive
---	---	AOI 02-22	02	Unknown	AST	Unknown	Hydraulic Oil	Existing - Inactive
---	66	AOI 02-23	02	1954	AST	12000	Unleaded Gasoline	Removed, but time frame unknown
	67	AOI 02-24	02	Unknown	AST	10000	Unleaded Gasoline	Removed in 1985; EDI, 1985
---	68		02	Unknown	AST	10000	Unleaded Gasoline	Removed in 1985; EDI, 1985
---	69		02	Unknown	AST	10000	Regular Gasoline	Removed in 1985; EDI, 1985
---	70		02	Unknown	AST	10000	Regular Gasoline	Removed in 1985; EDI, 1985
02-15	---	AOI 02-25	02	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
02-16	---		02	Unknown	AST	Unknown	Unknown	Removed, but time frame unknown
02-17	---	AOI 02-26	02	Unknown	AST	10000	Resin	Existing - Inactive
02-18	---		02	Unknown	AST	20000	Resin	Existing - Inactive
02-19	---		02	Unknown	AST	20000	Resin	Existing - Inactive
02-20	143	None/SWMU 84	02	Unknown	AST	8000	Waste Paint/Wax	Unknown
17-2	PP	AOI 17-6	17A	1984	AST	12000	#2 Diesel Fuel	Removed, but time frame unknown
---	107		17A	1939	UST	10000	#2 Diesel Fuel	Abandoned, but time frame unknown
---	NN	AOI 84-49/ SWMUs 41 & 42	84	1980	UST	15000	#2 Diesel Fuel	Removed, but time frame unknown
---	94		84	1972	UST	6000	Unleaded Gasoline	Removed in 1991; Global, 1997f
---	95		84	1972	UST	6000	Unleaded Gasoline	Removed in 1991; Global, 1997f
---	96		84	1972	UST	6000	Waste Storage	Removed in 1991; Global, 1997f
---	97		84	1971	UST	6000	Stoddard Solvent	Removed in 1991; Global, 1997f
---	98		84	1971	UST	6000	Return Flow from 97	Removed in 1991; Global, 1997f
---	99		84	1971	UST	6000	GM 6141 Gas	Removed in 1991; Global, 1997f
---	100		84	1966	UST	15000	Indolene Clear	Removed in 1991; Global, 1997f
---	101		84	1954	UST	6000	Indolene Clear	Removed in 1991; Global, 1997f
---	102		84	1954	UST	15000	GM 6141 Gas	Removed in 1991; Global, 1997f
---	103		84	1959	UST	15000	Indolene 30	Removed in 1991; Global, 1997f
T84-1	---		84	1990	AST	10000	Reclaim Fuel	Existing - Inactive
T84-2	---		84	1990	AST	5000	Gasoline	Existing - Inactive

TABLE 10
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

UNDERGROUND AND ABOVEGROUND STORAGE TANK SUMMARY

Identification		Current AOI/SWMU/AOC Designation	Building Association	Date Installed	Type	Capacity (gals., unless noted otherwise)	Materials Stored	Status
1991 Site Dwg.	1973 Site Dwg.							
T84-3	---	AOI 84-49/ SWMUs 41 & 42 (cont'd)	84	1990	AST	15000	Gasoline (92 Octane)	Existing - Inactive
T84-4	---		84	1990	AST	15000	Gasoline (92 Octane)	Existing - Inactive
T84-5	---		84	1990	AST	7500	Gasoline (High Octane)	Existing - Inactive
T84-6	---		84	1990	AST	12000	Reg. Unleaded Gasoline	Existing - Inactive
T84-7	---		84	1990	AST	7500	Winter Fuel	Existing - Inactive
T84-1A	---		84	1990	AST	6000	Stoddard Return	Existing - Inactive
T84-2A	---		84	1990	AST	5000	Gasoline (87 Octane)	Existing - Inactive
T84-5B	---		84	1990	AST	5000	Howell EEE	Existing - Inactive
T84-7B	---		84	1990	AST	7500	Gasoline (92 Octane)	Existing - Inactive
T84-8A	---		84	1990	AST	7500	Reg. Unleaded Gasoline	Existing - Inactive
---	---	AOI 84-48	84	Unknown	UST (?)	Unknown	Unknown	Existing - Inactive
---	---	AOI 84-50	84	Unknown	AST (2)	~5400 total	Cooling Tower	Existing - Inactive
---	---	AOI 10-8	10	Unknown	AST	~70	Chain Oil	Existing - Inactive
---	---	AOI 94-17	94	Unknown	AST	Unknown	Unknown	Existing - Inactive
---	LL	AOI 25-1	25	1932 ?	AST	250	#2 Diesel Fuel	Existing - Inactive

Notes:

1. AOI: Area of Interest. AOI location references are approximate, and, as appropriate, are referenced based on either information gathered recently as part of GM's Phase I Environmental Site Assessment and/or Building Decommission Assessment or the USEPA's PR/VSI Report. Refer to Figures 3 through 23 for illustrations of the various AOIs identified.
2. SWMU and AOC: Solid Waste Management Unit and Area of Concern, respectively.
3. AST and UST: Aboveground Storage Tank and Underground Storage Tank, respectively.
4. 1973 Site Drawing and 1991 Site Drawing: Refer to GM's Buick Motor Division Drawing No. 42361-M, dated 1973 and Flint Automotive Division Drawing No. C70444-M, dated 1991, respectively.
5. EDI, 1985: Refers to report entitled "Removal of Four Underground Gasoline Storage Tanks South of Building 02," dated December 1985 and prepared by EDI Engineering & Science.
6. EDI, 1988: Refers to report entitled "Underground Storage Tank Removal," dated December 1988 and prepared by EDI Engineering & Science.
7. Global, 1997a: Refers to report entitled "Summary Report, Building 31/Hamilton Avenue Tank Farm, GM-CLCD North, NAO Flint Operations, Flint, Michigan," dated August 22, 1997 and prepared by Global Environmental Engineering, Inc.
8. Global, 1997e: Refers to report entitled "Summary Report, Building 02, Tanks 67/02 - 70/02, GM-CLCD North, NAO Flint Operations, Flint, Michigan," dated September 9, 1997 and prepared by Global Environmental Engineering, Inc.
9. Global, 1997f: Refers to report entitled "Summary Report, Former Tank Farm 94 Document Review, GM-CLCD North, NAO Flint Operations, Flint, Michigan," dated October 1997 and prepared by Global Environmental Engineering, Inc.

TABLE 11
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF DETECTED CONSTITUENTS

Constituent	Total Number of Samples Taken	Number of Detection Above Laboratory Detection Limits	Concentration (parts per billion)	
			Minimum	Maximum
Hamilton Ave. Tank Farm (Global 1997a) - Soil				
Benzene	31	4	20	60
Toluene	31	10	20	51000
Ethylbenzene	31	9	30	31700
Total Xylenes	31	9	20	73000
Total Lead	31	30	1300	8400
Napthalene	31	2	400	3200
Flouranthene	31	1	400	400
Flouorene	31	1	300	300
2-Methylnaphthalene	31	2	420	1500
Phenanthrene	31	1	500	500
Benzyl Chloride	12	1	2300	2300
p,m-Cersol	8	1	1600	1600
o-Cresol	8	1	1000	1000
Di-n-butyl phthalate	8	1	900	900
Di-n-octyl phthalate	8	1	400	400
Hamilton Ave. Tank Farm (Global 1997a) - Groundwater				
Benzene	14	9	1	600
Toluene	14	9	2	149000
Ethylbenzene	14	10	2	15200
Total Xylenes	14	10	6	57600
Napthalene	14	5	12	50
Di-n-butyl phthalate	5	2	10	20
Diethyl phthalate	1	1	30	30
4,6-Dinitro-2-methylphenol	1	1	10	10
2-Methylnaphthalene	14	2	16	35
Dichlorodifluormethane	5	2	148	178
Building 02 Tanks (Global, 1997d and 1997e) - Soil				
Benzene	13	5	10	21300
Toluene	13	5	90	95,900
Ethylbenzene	13	6	40	135000
Total Xylenes	13	6	310	410000
Total Lead	10	10	2100	954000
Building 02 Tanks (Global, 1997d and 1997e) - Groundwater				
Benzene	3	2	20	10100
Toluene	3	1	130	130
Ethylbenzene	3	2	10	200
Total Xylenes	3	2	11	1040
Total Lead	3	1	32	32
Total Chromium	2	1	20	20
Building 40 Tanks (Global, 1997c) - Soil				
Benzene	14	1	600	600
Toluene	14	1	1100	1100
Ethylbenzene	14	1	20300	20300
Total Xylenes	14	1	69000	69000

TABLE 11
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF DETECTED CONSTITUENTS

Constituent	Total Number of Samples Taken	Number of Detection Above Laboratory Detection Limits	Concentration (parts per billion)	
			Minimum	Maximum
Napthalene	10	1	4420	4420
2-Methylnaphthalene	10	1	9310	9310
Total Chromium	6	6	1400	13500
Total Lead	14	14	2100	24800
Phenanthrene	10	1	3000	3000
Building 40 Tanks (Global, 1997c) - Groundwater				
Benzene	5	2	480	5940
Toluene	5	2	7910	790
Ethylbenzene	5	2	250	1800
Total Xylenes	5	2	1600	11130
Napthalene	5	1	156	156
2-Methylnaphthalene	5	1	116	116
Total Chromium	5	1	20	20
Total Lead	5	2	14	32
1,1-Dicholorethane	5	2	8	650
1,2-Dichloroethane	5	1	150	150
Building 40 Tanks (Global, 1997b) - Soil				
Benzene	20	6	20	21300
Toluene	20	6	5	66200
Ethylbenzene	20	9	10	46900
Total Xylenes	20	9	2	180700
Total Lead	23	23	4400	954000
Total Chromium	6	6	1400	13500
Napthalene	12	1	4420	4420
2-Methylnaphthalene	12	1	9310	9310
Phenanthrene	12	1	3000	3000
Building 40 Tanks (Global, 1997b) - Groundwater				
Benzene	8	6	20	10100
Toluene	8	5	5	7910
Ethylbenzene	8	5	10	1800
Total Xylenes	8	6	2	11130
Total Lead	7	2	14	32
Total Chromium	3	1	20	20
Napthalene	3	1	156	156
2-Methylnaphthalene	3	1	116	116
1,1-Dicholorethane	3	2	8	650
1,2-Dichloroethane	3	1	150	150
Tank Farm 94 Former Tank Farm (Global, 1997f) - Soil				
Approximately 5,200 cubic yards of soil excavated and treated on-site.				
Tank Farm 94 Former Tank Farm (Global, 1997f) - Groundwater				
Benzene	72	37	2.3	10525
Toluene	72	34	1.2	170000
Ethylbenzene	72	31	1.2	95000
Xylene	72	33	3.6	370000
MTBE	69	4	51	520

TABLE 11
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF DETECTED CONSTITUENTS

Constituent	Total Number of Samples Taken	Number of Detection Above Laboratory Detection Limits	Concentration (parts per billion)	
			Minimum	Maximum
Napthalene	63	12	41	4600
Vinyl Chloride	20	3	1.3	5.4
1,2-Dichloroethene	20	2	2	4
Methylene chloride	20	1	11	11
Lead	37	22	1.1	36000
Pyrene	63	4	820	16000
Acenaphthene	63	2	1400	22000
Acenaphthylene	63	1	1700	1700
Anthracene	63	3	730	5700
Benzo(a)anthracene	63	3	740	23000
Benzo(a)pyrene	63	3	460	18000
Benzo(b)fluoranthene	63	2	550	24000
Benzo(k)fluoranthene	63	1	720	720
Benzo(ghi)pyrene	63	1	4600	4600
Crysene	63	3	720	27000
Dibenzo(ah)anthracene	63	2	3700	20000
Fluoranthene	63	3	17000	31000
Fluorene	63	1	2900	2900
Indeno(123-cd)pyrene	63	1	4600	4600
Phenanthrene	63	2	2000	14000
Acenaphthalene	63	2	1600	5700
2-Methylnaphthalene	63	1	410	410
Storm Sewer 005 Investigation				
Bromodichloromethane	14	11	2	7
Chloroform	14	13	2	17
Dibromochloromethane	14	11	2	16
Ethylbenzene	14	1	1	1
p,m-Xylene	14	1	5	5
TPM	14	1	270000000	270000000
Fenceline Investigation (Eneco, 1996) - Soil				
Arsenic	63	58	720	13900
Barium	63	56	3200	169000
Cadmium	63	21	100	3160
Chromium	63	55	1100	96700
Copper	63	56	2200	54000
Cyanide	63	1	900	900
Lead	63	57	1100	311000
Mercury	63	2	180	1770
Selenium	63	4	600	760
Zinc	63	56	3700	335000
1,2,4-Trimethylbenzene	60	5	10	6570
p,m-Xylene	60	5	10	750
Isopropylbenzene	60	3	30	640
p-Isopropyltoluene	60	3	10	1880
Methylene chloride	60	3	20	70
Naphthalene	60	3	30	880

TABLE 11
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF DETECTED CONSTITUENTS

Constituent	Total Number of Samples Taken	Number of Detection Above Laboratory Detection Limits	Concentration (parts per billion)	
			Minimum	Maximum
n-Propylbenzene	60	2	30	1110
Trichloroethene	60	5	10	40
1,3,5-Trimethylbenzene	60	4	30	1930
o-Xylene	60	2	20	380
Benzene	60	5	20	2570
1,2-Dichloroethane	60	2	30	70
cis-1,2-Dichloroethane	60	2	60	540
Toluene	60	2	20	40
Bis(2-ethylhexyl)phthalate	60	6	400	1900
n-Butylbenzene	60	1	20	20
sec-Butylbenzene	60	1	20	20
Ethylbenzene	60	1	20	20
trans-1,2-Dichloroethane	60	1	30	30
Tetrachloroethene	60	1	10	10
Fenceline Investigation (Eneco, 1996) - Groundwater				
Arsenic	44	35	2	45
Barium	44	41	20	770
Cadmium	44	1	1.6	1.6
Chromium	44	16	10	20
Copper	44	13	10	30
Cyanide	44	5	7	194
Lead	44	1	5	5
Silver	44	1	1.4	1.4
Zinc	44	42	10	10500
Bis(2-ethylhexyl)phthalate	45	5	20	30
Vinyl Chloride	45	2	3	5
Benzene	45	8	1	6400
Trichloroethene	45	3	11	17
m,p-Xylenes	45	4	2	131
o-Xylene	45	4	1	20
Benzo(ghi)pyrene	45	2	10	20
Benzo(a)pyrene	45	2	20	20
Chrysene	45	2	10	10
Diethylphthalate	45	1	20	20
Toluene	45	7	1	80
Chloroform	45	1	4	4
1,2-Dichloroethane	45	2	6	13
Ethylbenzene	45	3	2	23
Di-n-butylphthalate	45	4	11	130
Phenol	45	1	10	10
Terachloroethene	45	1	1	1
Semiannual Groundwater Monitoring (ATC, 1997, 1998a, 1998b, 1998c, and 1999) - Groundwater				
1,1,1-Trichloroethane	1	111	4	4
1,1-Dichloroethane	4	111	3	8
1,1-Dichloroethene	2	110	2	2
2-Methylnaphthalene	6	67	8	18

TABLE 11
GENERAL MOTORS CORPORATION
NAO-FLINT OPERATIONS - FLINT, MICHIGAN

DESCRIPTION OF CURRENT CONDITIONS FOR AREAS SOUTH OF LEITH STREET

SUMMARY OF DETECTED CONSTITUENTS

Constituent	Total Number of Samples Taken	Number of Detection Above Laboratory Detection Limits	Concentration (parts per billion)	
			Minimum	Maximum
Arsenic	32	80	2	30
Barium	79	80	40	210
Benzene	19	79	43	2500
Chromium	4	80	1	3
cis-1,2-Dichloroethene	2	56	3	8
Copper	18	80	10	320
Dichlorodifluoromethane	1	103	1	1
Ethylbenzene	26	79	2	10700
Lead	7	80	5	9
Methylene Chloride	2	111	2	2.3
MTBE	4	16	10	60
Naphthalene	9	67	7	39
Selenium	2	80	4.4	8.6
Silver	7	80	3.6	16
Toluene	27	79	1.5	67700
Total Xylenes	27	79	2	43200
trans-1,2-Dichloroethene	1	111	2	2
Trichloroethene	2	111	2	2
Vinyl Chloride	1	111	2	2
Zinc	72	79	10	230

Notes:

1. ATC, 1997, 1998a, 1998b, 1998c, and 1999 = Refers to Semiannual Monitoring Reports, dated April 23, 1997; November 30, 1998; January 7, 1998; May 4, 1998; and October 7, 1999 and prepared by ATC Associates, Inc.

2. Eneco, 1996 = Refers to a report entitled: "Site Investigation and Hydrogeological Report Fenceline/CSX Investigation, General Motors Corporation, NAO-Flint Operations Site, Flint, Michigan", dated March 1996 and prepared by EnecoTech Midwest Inc.

3. Global, 1997a = Refers to report entitled: "Summary Report, Building 31/Hamilton Avenue Tank Farm, GM-CLCD North, NAO Flint Operations, Flint, Michigan", dated August 22, 1997 and prepared by Global Environmental Engineering, Inc.

4. Global, 1997b = Refers to a report entitled: "Summary Report, Building 40, Tanks 071/40N - 074/40N, GM-CLCD North, NAO Flint Operations, Flint, Michigan", dated September 9, 1997 and prepared by Global Environmental Engineering, Inc.

5. Global, 1997c = Refers to a report entitled: "Initial Assessment Report, Tanks #71/40N-74/40N, GM-CLCD North, NAO Flint Operations, Flint, Michigan", dated June 12, 1997 and prepared by Global Environmental Engineering, Inc.

6. Global, 1997d - Refers to a report entitled: "Initial Assessment Report, Tank #67/02 - 70/02, GM-CLCD North, NAO Flint Operations, Flint, Michigan", dated June 12, 1997 and prepared by Global Environmental Engineering, Inc.

7. Global, 1997e = Refers to report entitled: "Summary Report, Building 02, Tanks 67/02 - 70/02, GM-CLCD North, NAO Flint Operations, Flint, Michigan, dated September 9, 1997 and prepared by Global Environmental Engineering, Inc.

8. Global, 1997f = Refers to report entitled: "Summary Report, Former Tank Farm 94 Document Review, GM-CLCD North, NAO Flint Operations, Flint, Michigan, dated October 1997 and prepared by Global Environmental Engineering, Inc.

Figures