

Brad Saunders

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Jun 18, 2009 09:36



**Worldwide Facilities Group
Remediation Team**

MC 483-520-190
2000 Centerpoint Parkway
Pontiac, Michigan 48341

July 26, 2007

Mr. Daniel Patulski, DP-8J
United States Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

RE: Operation, Maintenance, and Monitoring Plan
13000 Eckles Road Site, Livonia, Michigan
U.S. EPA ID No. MID 005 356 621

Dear Mr. Patulski:

Enclosed please find the Operation, Maintenance, and Monitoring (OMM) Plan for the General Motors Corporation (GM) former Delphi Chassis Systems Division Facility located at 13000 Eckles Road in Livonia, Michigan. This report presents the requirements for operation, maintenance, and monitoring of institutional and engineering controls which have been implemented under an Administrative Order on Consent, signed by GM and the United States Environmental Protection Agency (U.S. EPA), U.S. EPA Docket No: RCRA-05-2007-0008, executed May 21, 2007 (U.S. EPA, May 2007).

Please feel free to contact me at (248) 753-5800 if you have any questions regarding this document, or if you require additional information.

Yours truly,

GENERAL MOTORS CORPORATION,

A handwritten signature in black ink, appearing to read "Kim Tucker-Billingslea".

Kim Tucker-Billingslea
Project Manager

CM/am/12607/Rpt 56/Det.
Encl.

c.c.: Richard Conforti (MDEQ)
Jean Caufield (GM)
Chris Meincke (CRA)
Ian Richardson (CRA)

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July 2007



OPERATION, MAINTENANCE, AND MONITORING PLAN

13000 ECKLES ROAD
12950 ECKLES ROAD
LIVONIA, MICHIGAN

U.S. EPA No. MID 005 356 621

Prepared for:

General Motors Corporation
Remediation and Liability Management Company, Inc.

DISCLAIMER:

SOME FORMATTING CHANGES MAY HAVE OCCURRED WHEN
THE ORIGINAL DOCUMENT WAS PRINTED TO PDF; HOWEVER,
THE ORIGINAL CONTENT REMAINS UNCHANGED.

Prepared by: Conestoga-Rovers & Associates

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JULY 2007
REF. NO. 12607 (56)

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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) has prepared this "Operation, Maintenance, and Monitoring Plan" (OMM Plan), on behalf of Remediation and Liability Management Company, Inc. (REALM), a subsidiary of General Motors Corporation (GM), to set forth requirements for operation, maintenance, and monitoring (OMM) of institutional and engineering controls which have been implemented under an Administrative Order on Consent, voluntarily signed by GM and the United States Environmental Protection Agency (U.S. EPA), executed May 21, 2007 (U.S. EPA, May 2007). These OMM activities relate to the properties located at 13000 Eckles Road and 12950 Eckles Road, Livonia, Michigan (Site). The Site location is presented on Figure 1.1. The current Site Plan is presented on Figure 1.2.

On March 13, 2006, U.S. EPA issued a Final Decision and Response to Public Comments (U.S. EPA, March 2006) which selected final corrective measures at the Site. The final corrective measures included: soil excavation, characterization and transport for disposal off site at area of interest (AOI) 5, AOI 27, AOI 31, and AOI 37; development and implementation of a particulate emissions control plan to control particulate emissions from surface soil at AOI 39; installation and operation of the French drain collection system, groundwater extraction and treatment system, and barrier wall at Area 1 to ensure effective control of off-site migration of chromium and nickel-impacted groundwater; in-situ chemical oxidation (ISCO) at AOI 31 to control the migration of trichloroethylene (TCE)-impacted groundwater; implementation of a groundwater monitoring plan; and implementation of institutional controls to restrict the use of the property. These final corrective measures have already been performed.

This OMM Plan addresses all measures that must be taken to ensure the continued effectiveness and integrity of final corrective measures.

2.0 OBJECTIVES

OMM activities will be performed to ensure that engineering and institutional controls will continue to be maintained unless and until USEPA determines that performance standards have been met and such controls are no longer necessary for the Site:

- Maintain future land and groundwater use consistent with the institutional controls as identified in Section 11 of the Administrative Order on Consent;
- Appropriately manage soil and/or debris, surface water and/or groundwater required or necessary because of excavation, demolition, or soil disturbance

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related to future use, development, or construction at or on the Site in compliance with applicable federal, state, or local environmental laws, regulations, or ordinances, including the requirements imposed under Section 20107(a) of Michigan Public Act 451, Part 201. The term "debris" includes any existing utility infrastructure and any remnants of previous construction or demolition activities that may be present at, on, or in the Site;

- Appropriately maintain any applicable due care obligations under Section 20107a of Michigan Public Act 451, and any maintenance issues related to engineering controls, installed or constructed on, in, or under the Site in connection with levels of contaminants that remain at the Site which exceed the Michigan generic residential cleanup criteria set forth in Part 201 Environmental Remediation of the Natural Resources and Environmental Protection Act and its rules;
- Operate the Area 1 French drain collection system and treatment system to effectively control the migration of chromium and nickel-impacted groundwater such that the plume remains stable in accordance with Section 11 of the Administrative Order on Consent. Plume stability criteria are presented in Table 2.1;
- Maintain the Area 1 barrier wall and cover system to effectively control the migration of groundwater through Area 1 such that the plume remains stable in accordance with Section 11 of the Administrative Order on Consent. Plume stability criteria are presented in Table 2.1;
- Implement the approved Dust Control Plan dated January 2007 (CRA, January 2007) to control particulate emissions from surface soil along the North Boundary Area (AOI 39) in accordance with Section 14 of the Administrative Order on Consent; and
- Monitor groundwater quality at the Site in accordance with the approved Groundwater Monitoring Plan dated December 1, 2006 (CRA, December 2006) in accordance with Section 12 of the Administrative Order on Consent.

A schedule for the implementation of the above OMM activities is presented on figure 2.1. A financial assurance cost estimate for the implementation of the above OMM activities is presented in Table 2.2.

3.0 CONTROLS

Both institutional and engineering controls are required to ensure the continued effectiveness of final corrective measures at the Site. These controls which are outlined below are described in the following documents.

INSTITUTIONAL CONTROLS

- Declaration of Restrictive Covenant MDEQ Reference No. RC-WHMD-06-007 (GM, December 2006); and
- Declaration of Restrictive Covenant MDEQ Reference No. RC-WHMD-07-001 (GM, February 2007).

ENGINEERING CONTROLS

- Cover and Barrier Wall;
- Operation and Maintenance Manual for the Area 1 groundwater collection and treatment system (CRA, July 2007);
- Long-Term Groundwater Monitoring Plan; and
- Dust Control Plan

Combined, these documents describe in detail how environmental conditions at the Site will be managed in the future, ensuring that the final corrective measures remain protective.

3.1 INSTITUTIONAL CONTROLS

A Declaration of Restrictive Covenant has been recorded with the Wayne County Register of Deeds for both the 12950 Eckles Road and 13000 Eckles Road properties. The Declaration of Restrictive Covenant for the 12950 Eckles Road property was filed to: 1) prohibit groundwater use on the Property for any purpose; 2) restrict the uses of the Property for any purpose other than those characterized by the Michigan Department of Environmental Quality (MDEQ) as Limited Commercial II, Limited Commercial III, Limited Commercial IV, and Limited Industrial, unless otherwise agreed to by GM and U.S. EPA and in consultation with MDEQ; and 3) maintain the barrier wall in Area 1. The Declaration of Restrictive Covenant for the 13000 Eckles Road property was filed to: 1) prohibit groundwater use on the Property for any purpose; 2) restrict the uses of the Property for any purpose other than those characterized by the MDEQ as Limited Commercial II, Limited Commercial III, Limited Commercial IV, and Limited Industrial, unless otherwise agreed to by GM and U.S. EPA and in consultation with MDEQ; 3) maintain the barrier wall and cover in Area 1; and 4) control particulate emissions from surface soil at the North Boundary Area (AOI 39), as described in the Dust Control Plan. Additionally, as identified in both Declarations of Restrictive Covenant, monitoring wells associated with the Groundwater Monitoring Plan must not be disturbed, removed, or abandoned unless otherwise agreed to by GM and U.S. EPA and in

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consultation with MDEQ. If monitoring wells must be removed or abandoned for redevelopment purposes, replacement monitoring well locations must be agreed to by GM and U.S. EPA and in consultation with MDEQ. These institutional controls will be maintained until concentrations of constituents in Site soil and groundwater meet the requirements in Section 20107(a) of Michigan Public Act 451, Part 201, Residential Cleanup Criteria for soil and groundwater to the extent they are applicable to this Site.

3.2 ENGINEERING CONTROLS

Engineering controls implemented at the Site are outlined below. The activities outlined below will be conducted in accordance with the OMM Plan, O&M Manual, Declarations of Restrictive Covenant No. RC-WHMD-06-007 and RC-WHMD-07-001, and Dust Control Plan.

Cover and barrier wall – Currently, the remaining concrete slab is in place over approximately 3 acres of the Site inside the perimeter of the Area 1 barrier wall. The purpose of this cover is to increase the efficiency of the groundwater recovery system by limiting the infiltration of precipitation into the subsurface in Area 1. If future redevelopment of the Site requires alterations to the existing cover, a suitable alternative cover (e.g., new concrete slab, roof structure, pavement, etc.) shall be maintained in this area to achieve the engineering and institutional controls described herein. Additionally, any waste materials generated as a result of such redevelopment activities shall be managed appropriately.

Groundwater collection and treatment system – This system includes an on-site treatment operation capable of recovering and treating groundwater from an approximately 600 linear foot perforated collection pipe at approximately 20 feet below ground surface (bgs) (French Drain) and ensuring that discharge of extracted and treated groundwater is in compliance with applicable standards.

Effluent from the treatment system is sampled pursuant to a City of Detroit Water and Sewerage Department (DWSD) permit, and the data are reported monthly to the DWSD. The discharge permit requirements and discharge criteria are presented along with other similar requirements and operations guideline in an Operations and Maintenance Manual (O&M Manual). The O&M Manual provides information regarding the treatment system components, operation and maintenance of such components, startup and shutdown procedures, information management procedures, sampling and analysis requirements, laboratory requirements, training and awareness requirements, health and safety requirements, emergency response procedures, and waste management

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requirements. The O&M Manual provides guidance and reference for the proper operation and maintenance of the treatment system by Site operating personnel, and will be used and maintained as long as the groundwater collection and treatment system is operating at the Site. As modifications are made to the system (e.g., for system optimization), the O&M Manual will be modified accordingly. The groundwater collection and treatment system will be operated such that the plume remains stable in accordance with Section 11 of the Administrative Order on Consent. Plume stability criteria are presented in Table 2.1.

Groundwater Monitoring Plan – A long-term groundwater monitoring plan has been implemented to provide for annual monitoring of the extents of impacted groundwater at the Site's perimeter and downgradient of Area 1 (nickel) and AOI 31 (trichloroethylene). Additionally, the plan provides for quarterly monitoring of the thickness of light non-aqueous phase liquid (LNAPL) quarterly at AOI 21 – Former Pickling Machine/Polish Area. The Groundwater Monitoring Plan guides the collection and interpretation of the following data:

- Groundwater analytical data at downgradient property boundary monitoring wells and at off-site monitoring wells downgradient of Area 1 to ensure that nickel-impacted groundwater remains stable and continues to meet the Site-specific risk based criteria presented in Table 2.1 under current and reasonably expected groundwater exposures for the area plume;
- Groundwater analytical data at downgradient property boundary monitoring wells and at off-site monitoring wells downgradient of AOI 31 to ensure that TCE-impacted groundwater remains stable and continues to meet the Site-specific risk based criteria presented in Table 2.1 under current and reasonably expected groundwater exposures for the area plume;
- Groundwater data at the interior of the Facility to confirm that concentrations of constituents remain at or below levels that meet the Site-specific risk based criteria under current and reasonably expected future land use at the Site.
- Groundwater elevation measurements to verify control of groundwater migration downgradient of the barrier wall at Area 1; and
- Observations of the absence or presence and thickness of LNAPL at AOI 21 to show that LNAPL is not significantly increasing or migrating over time.

As Site conditions change, it may be necessary to modify the groundwater monitoring program to continue to gather the appropriate data needed to demonstrate that the objectives of the corrective action are being achieved. The Groundwater Monitoring Plan will be modified as necessary to account for these changes. Any proposed changes,

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including addition and/or removal of monitoring wells, will be identified in the Annual Monitoring Report and require approval by U.S. EPA in consultation with MDEQ.

Dust Control Plan - the Dust Control Plan has been developed to incorporate the risk assessment for the Site to ensure that control of dust generated during activities in AOI 39 (such as vehicular traffic, Site redevelopment, or other excavation activities) is conducted in a way that is protective of human health and the environment as well as being in compliance with applicable laws. The Dust Control Plan is specifically applicable to AOI 39 - North Boundary Area identified in the RCRA Facility Investigation (RFI), which requires engineering and institutional controls as described in the RCRA Final Decision. The plan specifies that for any dust generating activities in AOI 39 that last longer than 5 consecutive days, a written dust control plan must be submitted to U.S. EPA by the current owner for review at least 21 days in advance of dust generating activities and be approved by U.S. EPA before dust generating activities begin. The dust control plan must describe the nature and duration of the dust generating activities and the specific details of the measures that will be implemented to monitor and control manganese particulate emissions during the activities.

Additionally, soil and groundwater at the Site should be handled in general conformance with the due care requirements under Michigan Part 201 and the declarations of restrictive covenant.

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4.0 ANNUAL REPORTING

An annual report will be prepared to document the OMM activities completed during the previous calendar year. This report will cover the following:

- LNAPL and groundwater monitoring activities;
- Operation and performance of the groundwater collection and treatment system;
- Non-routine maintenance completed for Site engineering controls (e.g., repairs to the collection and treatment system, Site fencing, or existing concrete cover); and
- Any changes in Site conditions that necessitate changes to the institutional or engineering controls.

If applicable, the annual report may also include recommendations to improve the efficiency of the groundwater collection and treatment system. Any modifications made to the system will be described in the annual reports, and the O&M Manual and Groundwater Monitoring Plan will be updated accordingly. All modifications to the Groundwater Monitoring Plan or OMM Plan will require approval by U.S. EPA in consultation with MDEQ.

This report will be submitted to the U.S. EPA by March 1 for the previous calendar years' OMM activities.

5.0 CHANGING CONDITIONS

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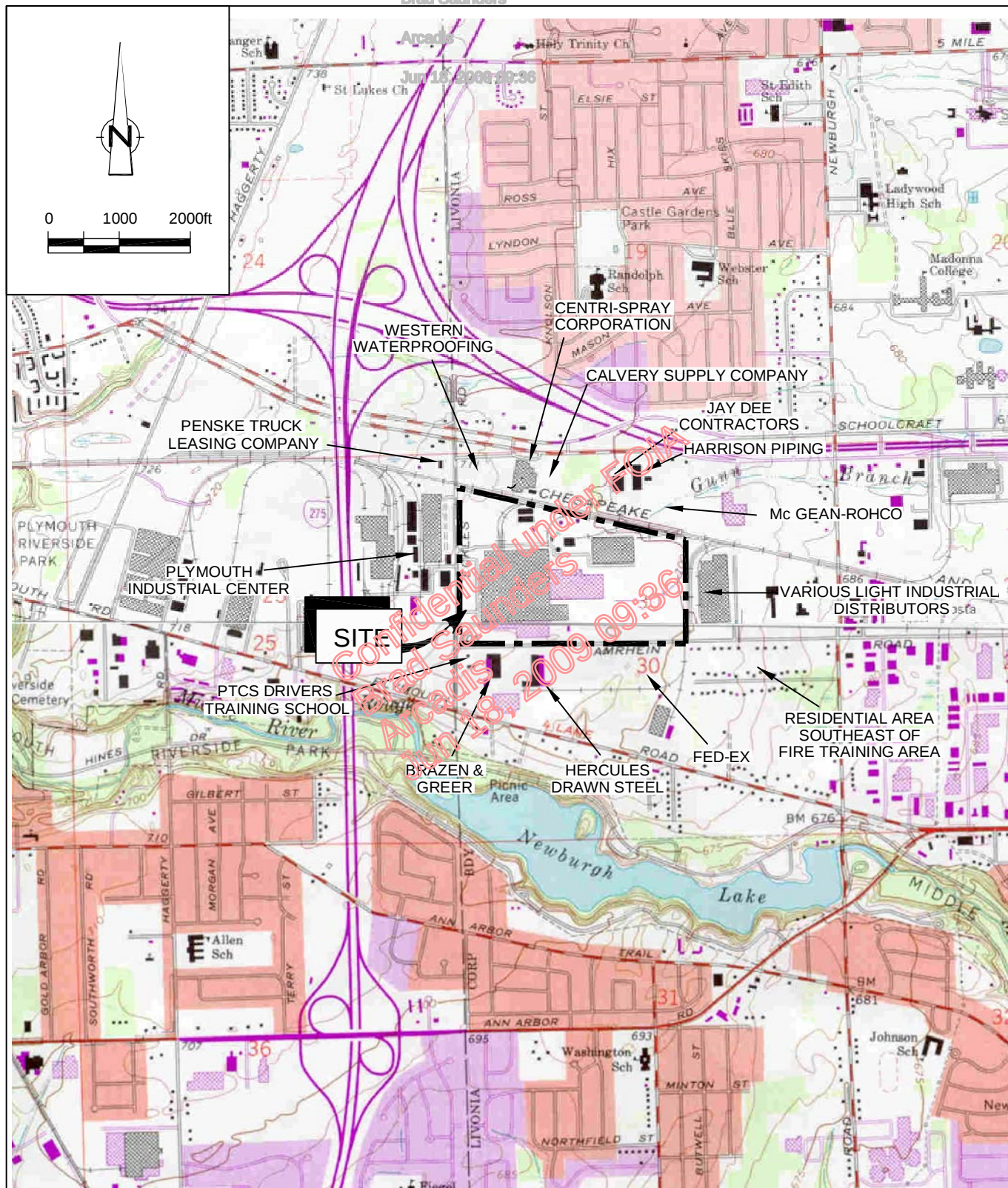
Any major modification to this plan (e.g., a modification that may affect the fundamental approach to the engineering or institutional controls described above) will require approval by U.S. EPA prior to implementation per the Consent Order. Examples of such modifications could include changes in Site environmental conditions involving new information that substantially changes the potential for exposure at the Site, or significant changes in technologies used to achieve the engineering or institutional goals described herein.

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6.0 REFERENCES

- United States Environmental Protection Agency, March 2006, RCRA Final Decision and Response to Comments – Selection of Remedial Alternative for General Motors Corporation, 13000 Eckles Road Site, Livonia, Michigan.
- Conestoga-Rovers & Associates, December 2006, Revised Groundwater Monitoring Plan, 13000 Eckles Road, Livonia, Michigan.
- Conestoga-Rovers & Associates, December 2006, Interim Measures Completion Report Area 1 Barrier Wall, 13000 Eckles Road, Livonia, Michigan.
- General Motors Corporation, December 2006, Declaration of Restrictive Covenant, 13000 Eckles Road, Livonia, Michigan, Recorded with the Wayne County Register of Deeds January 22, 2007, Liber 45871, pp. 446-461.
- Conestoga-Rovers & Associates, January 2007, ACT 39 Soil Dust Control Plan, Former General Motors Delphi Chassis Systems Plant, 13000 Eckles Road, Livonia, Michigan.
- General Motors Corporation, February 2007, Declaration of Restrictive Covenant, 12950 Eckles Road, Livonia, Michigan, Recorded with the Wayne County Register of Deeds March 16, 2007, Liber 46089, pp. 412-426.
- United States Environmental Protection Agency, May 2007, Administrative Order on Consent, 13000 Eckles Road Property, Livonia, Michigan.
- Conestoga-Rovers & Associates, July 2007, Operation and Maintenance Manual, Groundwater Treatment Plant, 12950 Eckles Road, Livonia, Michigan.

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SOURCE: USGS QUADRANGLE MAPS;
NORTHVILLE AND WAYNE, MICHIGAN

SITE LOCATION AND SURROUNDING LAND USE

figure 1.1

12950 ECKLES ROAD SITE
13000 ECKLES ROAD SITE
Livonia, Michigan



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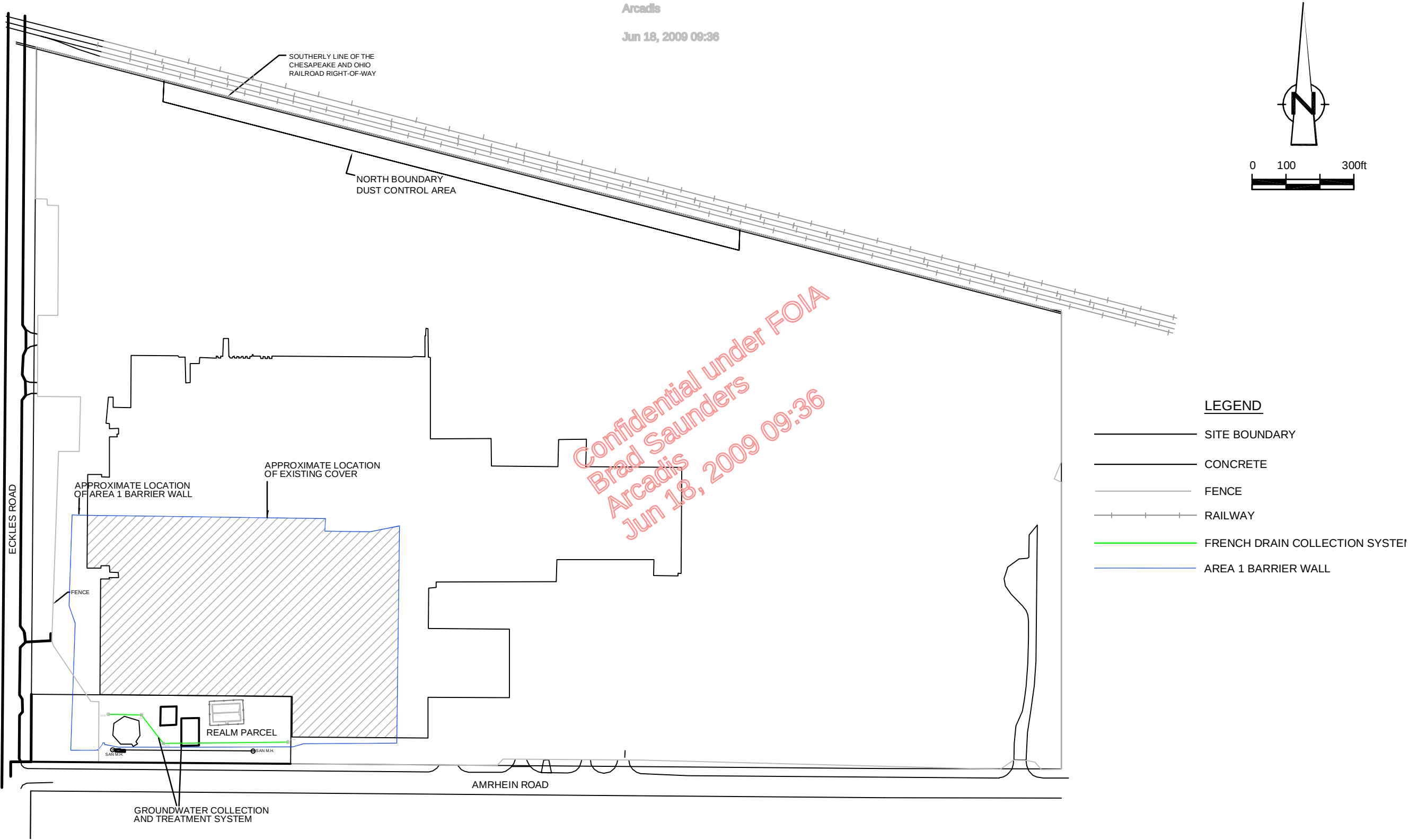


figure 1.2
SITE PLAN
12950 ECKLES ROAD SITE
13000 ECKLES ROAD SITE
Ivonia, Michigan



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FIGURE 2.1																												
RCRA CORRECTIVE ACTION OPERATION, MAINTENANCE, AND MONITORING PLAN IMPLEMENTATION SCHEDULE																												
U.S. EPA ID: MID 005 355 021 U.S. EPA DOCKET NO: RCRA-05-2007-0008																												
13000 ECKLES ROAD SITE - GENERAL MOTORS CORPORATION																												
Livonia, Michigan																												
Arcadis																												
Page 2 of 3																												
July 2007																												
ID	Task Name	Duration	Start	Finish	18 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029																							
1	Groundwater Monitoring Plan Sampling	1050 days	Mon 9/11/06	Fri 9/17/10	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3			
7	Groundwater Monitoring Plan LNAPL Monitoring	1111 days	Wed 9/27/06	Wed 12/29/10																								
26	Annual OM&M Report	7568 days	Thu 3/1/07	Mon 3/3/36		◆		◆		◆		◆		◆		◆		◆		◆		◆		◆				
57	Groundwater Treatment Plant Operation	7828 days	Mon 1/1/07	Wed 12/31/36																								

RCRA CORRECTIVE ACTION OPERATION, MAINTENANCE, AND MONITORING PLAN IMPLEMENTATION SCHEDULE
U.S. EPA ID: MID 005 336 021 U.S. EPA DOCKET NO: RCRA-05-2007-0008
13000 ECKLES ROAD SITE - GENERAL MOTORS CORPORATION
LIVONIA, MICHIGAN

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Table 2.1 - Groundwater Criteria for Verifying Plume Stability and Evaluating Health Significance GMC - 13000 Eckles Road, Livonia, Michigan					
Area	Chem Group	Chemical	CASRN	Plume Stability Criteria (mg/L)	Risk-Based Criteria (mg/L)
Area 01	INORG	Nickel	7440-02-0	1.0E-01	2.4E+03
AOI 31	VOC	cis-1,2-Dichloroethene	156-59-2	7.0E-02	1.8E+00
AOI 31	VOC	1,1,1-Trichloroethane	71-55-6	2.0E-01	1.3E+02
AOI 31	VOC	Trichloroethene	79-01-6	5.0E-03	7.9E-01
AOI 31	VOC	Vinyl Chloride	75-01-4	2.0E-03	7.9E-02
Notes:					
1. The criteria for verifying plume stability are drinking water criteria.					
2. The risk-based criterion for evaluating health significance for Area 1 is based on construction worker contact with groundwater.					
3. The risk-based criteria for evaluating health significance for AOI 31 are based on the most potential significant exposure among construction worker contact, residential vapor intrusion, residential nonpotable groundwater uses.					

RCRA CORRECTIVE ACTION FINANCIAL ASSURANCE COST ESTIMATE
OPERATION, MAINTENANCE, AND MONITORING PLAN
U.S. EPA ID: MID 005 356 621 - U.S. EPA DOCKET NO: RCRA-05-2007-0008
13000 ECKLES ROAD SITE GENERAL MOTORS CORPORATION
LIVONIA, MICHIGAN

<i>Item</i>	<i>Estimated Quantity</i>	<i>Unit</i>	<i>Unit Cost</i>	<i>Estimated Total Cost</i>
I. COVER AND BARRIER WALL INSPECTION (2007 - 2036)				
Technician	10	hours	\$55.97	\$559.70
Project Manager	5	hours	\$94.27	\$471.35
Disbursements (travel, etc.)	1	Lump Sum	\$110	\$110.00
			I. Subtotal	\$1,141.05
II. GROUNDWATER COLLECTION AND TREATMENT SYSTEM (2007 - 2036)				
A. Routine Operations and Maintenance				
Technician (25 hours per week)	1300	hours	\$55.97	\$72,761.00
Operator (5 hours per week)	260	hours	\$86.12	\$22,391.20
Project Manager (1 hr per week)	52	hours	\$94.27	\$4,902.04
Chemist	26	hours	\$125.24	\$3,256.24
Discharge Sampling Analytical		lump sum		\$10,500.00
Monthly Reporting (DWSD)		lump sum		\$4,000.00
Chemicals/Materials		lump sum		\$35,000.00
Utilities (electric/gas/refuse/phone/etc.)		lump sum		\$36,000.00
Permit Renewal		lump sum		\$1,000.00
Filter Cake Transport	4	trip	\$200.00	\$800.00
Filter Cake Disposal	80	tons	\$25.88	\$2,070.40
Filter Cake Container Rental	12	month	\$250.00	\$3,000.00
				\$195,680.88
B. Non-Routine Operations and Maintenance				
System Repairs (estimate)		lump sum		\$35,000.00
				\$35,000.00
			II. Subtotal	\$230,680.88
III. ANNUAL OM&M REPORT (2007 - 2036)				
Project Manager	20	hours	\$94.27	\$1,885.40
Project Engineer	30	hours	\$69.82	\$2,094.60
Drafting	5	hours	\$64.12	\$320.60
Support Staff	5	hours	\$55.00	\$275.00
Data Evaluation and Reporting - Environ		Lump Sum		\$7,000.00
Public Communications		Lump Sum		\$500.00
Disbursements (printing, courier charges, etc.)		Lump Sum		\$800.00
			III. Subtotal	\$12,875.60
IV. GROUNDWATER MONITORING PLAN (2007 - 2010)				
Technician	50	hours	\$55.97	\$2,798.50
Project Manager	15	hours	\$94.27	\$1,414.05
Project Engineer	10	hours	\$69.82	\$698.20
Chemistry - Setup, Validation, Coordination	10	hours	\$91.91	\$919.10
Database Management	7	hours	\$75.84	\$530.86
Laboratory Analytical Costs		Lump Sum		\$1,300.00
Public Communications		Lump Sum		\$500
Field Equipment		Lump Sum		\$1,500.00
Disbursements		Lump Sum		\$1,000.00
			IV. Subtotal	\$10,660.71
SUBTOTAL - ANNUAL ON GOING COSTS (ITEMS I, II, AND III.)				\$244,697.53
NET PRESENT WORTH OF ONGOING COSTS - I, II, AND III. (30 years at a discount rate of 5.7%)				\$3,677,474.96
SUBTOTAL - ANNUAL ON GOING COSTS (ITEM IV.)				\$10,660.71
NET PRESENT WORTH OF ONGOING COSTS - IV. (4 years at a discount rate of 5.7%)				\$39,315.82
TOTAL - ALL TASKS				\$3,716,790.78

Note: The amount of financial assurance will be decreased by the amount of the cost of the corrective action.

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