

Lansing Assembly

Site Location: **Lansing, Michigan**

The General Motors Corporation ("GM") Lansing Assembly ("Site") is an approximately 264-acre Site located in a mixed use area of Lansing, Ingham County, Michigan. The Site consists of three manufacturing areas, referred to as Plants #1, #2 and #3.

Grand River borders Plant #1 on the south and east side, and residential homes lie to the west of Plants #2 and #3.

Site Operations:

GM has manufactured automobiles and automotive parts at the Site since 1902. Operations conducted within Plant #1 include plant maintenance, shipping, automobile painting and automobile assembly operations (see Figure 1).¹ Operations conducted in Plant #2 include production of rear axles and operation of a foundry, and, in Plant #3, bumpers, rear axle shafts and housing differentials, exhaust manifolds and pressed metal parts are manufactured (see Figure 2).²

In 1999, a large portion of the eastern half of Plant #1 was demolished but was redeveloped in 2000 and continues to be used for the production of automobiles. (Demolition costs are not included as part of this analysis.)

Regulatory History:

The Michigan Department of Environmental Quality (MDEQ) required GM to conduct investigations following the discovery of impacted media found during underground storage tank removals. In accordance with the State of Michigan Public Act (PA) 451 Part 201, GM completed an Initial Assessment Report (IAR). After subsequent investigations mandated by the MDEQ, GM summarized the results for soil and groundwater monitoring data in a Final Assessment Report (1996, revised March 2001).

Past Response Actions:

Results of the investigations and remedial measures implemented to date are summarized below.

¹ "Revised Final Site Assessment Report for Lansing, Plant #1", URS Consultants, March 2001.

² "Preliminary Assessment/Visual Site Inspection, General Motors Corporation, Oldsmobile Division Plants 2 and 3, Lansing, Michigan", PRC, March 25, 1994.

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Groundwater

Free product has been observed at a number of locations at Plant #1, leading to the installation of multiple removal systems, including a skimming product pump adjacent to Building #27A and Building #66, a remediation pump near Building #52 and a peristaltic pump monitored biweekly in the area near former Building #36/#38. Systems still in operation include the passive remediation system at Building #66 and former Building #35, and the skimming product pump operating near former Building #36/#38.³

A 200 gpm groundwater extraction system was installed and began operating in March 1995. The system consists of three extraction wells (EW-1, EW-2, and EW-3) located adjacent to the west side of Building #66. The water is treated through an activated carbon system and discharged under a National Pollutant Discharge Elimination System Permit (NPDES).⁴

The long-term monitoring plan, initiated in 2001, is designed to monitor the extent of the capture zone created by the extraction wells and to monitor groundwater quality at strategic locations.⁵ The program involves semi-annual monitoring for a specified list of volatile organic compounds and dissolved metals. Groundwater samples are collected from 17 wells for analytical monitoring. In addition, water levels are monitored at 27 monitoring wells, four extraction wells, and one piezometer.

At Plant #3, a French drain system was installed to intercept and treat contaminated groundwater.

Contamination Sources

- *Plant #1 Tank Farm*
Between 1991 and 2003, a total 273,600 cubic yards of petroleum hydrocarbon contaminated soil were remediated in the Plant #1 tank farm area.⁶
- *Building #225 Tank Farm*
Between 1989 and 1994, GM excavated visibly impacted soils and installed seven soil borings and five deep monitoring wells to delineate the extent of petroleum hydrocarbon contamination.⁷

³ "Revised Final Site Assessment Report for Lansing, Plant #1", URS Consultants, March 2001.

⁴ "Free Product Recovery Status Report, Fourth Quarter 2003", BBL Environmental Services, Inc., January 23, 2004.

⁵ "Long-term Monitoring Semi-Annual Report for October 2003", BBL Environmental Services, Inc., December 2003.

⁶ "Revised Final Site Assessment Report for Lansing, Plant #1", URS Consultants, March 2001.

⁷ "Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #2, Building 225 Tank Farm, Lansing, Michigan", Michigan Department of Environmental Quality (MDEQ), September 30, 1996.

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- *Building #250 Tank Farm*
GM excavated 930 cubic yards of petroleum-impacted soil and collected groundwater samples in the area. Further investigations identified additional contamination in the soils and subsurface, which led to deed restrictions on use of this area.⁸
- *Plant #3 Tank Farm*
GM excavated approximately 1,200 cubic yards of impacted soil from the Plant #3 Tank Farm area. Soil borings and monitoring wells identified additional areas of petroleum and chlorinated hydrocarbons in the soils, which led to deed restrictions for the area.⁹
- *Building #301*
Investigations found elevated concentrations of chromium at depths up to 30 feet below ground surface (bgs) in this area. GM excavated impacted soils to 13 feet bgs.¹⁰

Current Environmental Issues and Future Remedial Actions:

Current and future environmental remedial actions will include continued operation and maintenance of the 200 gpm groundwater extraction and treatment system installed near Building #66 to address elevated aromatic volatile organic compounds (VOCs) in the bedrock aquifer. The treatment component of the system uses aqueous-phase carbon adsorption to reduce contaminant levels.

The active product removal (currently a modified skim-rite system) in well PRM-4, located in the Building #36/#38, is expected to be retrofitted to increase removal efficiency. Passive product remediation will continue in three areas: Building 35 (one well), Building 36/38 (two wells), and Building 66 (one well).

The groundwater quality monitoring program will continue at Plants #1 and #3. Plant #1 monitoring will include semi-annual sampling for select VOCs, SVOCs and metals from 17 monitoring wells. Monitoring at Plant #3 will include semi-annual sampling for metals from 10 monitoring wells.

⁸ "Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #2, Building 250 Tank Farm, Lansing, Michigan", Michigan Department of Environmental Quality (MDEQ), September 30, 1996.

⁹ "Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #3 Tank Farm, Lansing, Michigan", Michigan Department of Environmental Quality (MDEQ), September 30, 1996

¹⁰ "Preliminary Assessment/Visual Site Inspection, General Motors Corporation, Oldsmobile Division Plants 2 and 3, Lansing, Michigan", PRC, March 25, 1994.

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A car assembly plant located along the west side of Plant #1 is scheduled to be idled later in 2004. Investigations of west-side areas issues are expected to be conducted in 2004.

Remediation Costs:

From 1999 through December 2003, General Motors has incurred approximately \$1.4 million in past costs.

GM's exposure to potential future costs for environmental remediation at the Site is estimated to be approximately \$8.8 million¹¹, as shown in Attachment C.

Attachment A: Site Figures

Figure 1 – Site Layout Plant #1

Figure 2 – Site Layout Plant #s 2 and 3

Attachment B: Ongoing, Planned and Potential Future Remedial Actions

Attachment C: Supporting Cost Schedules

Attachment D: Information Sources

¹¹ Future costs presented here in nominal dollars (includes price inflation).

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**ATTACHMENT A
SITE FIGURES**

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ATTACHMENT B
ONGOING, PLANNED AND POTENTIAL
FUTURE REMEDIAL ACTIONS

Area	Remedial Actions
Groundwater	<ul style="list-style-type: none"> • Continue operation and maintenance of the groundwater extraction and treatment system near Building #66 (200 gpm total): <ul style="list-style-type: none"> ○ Aqueous-phase granular carbon adsorption; ○ Operate system for 30 years; and, ○ Abandon wells after operating period. • Continue operation of active product removal in well PRM-4 near Building #36/38: <ul style="list-style-type: none"> ○ Retrofit well; and, ○ Continue removal for ten years. • Continue passive product removal in the following areas: <ul style="list-style-type: none"> ○ Building #35 (one well); ○ Building #36/#38 (two wells); ○ Building #66 (one well); and, ○ Continue removal for ten years. • Continue groundwater quality monitoring program: <ul style="list-style-type: none"> <u>Plant 1</u> <ul style="list-style-type: none"> ○ Monitor 17 wells semi-annually for select VOCs, SVOCs and metals; ○ Continue for 30 years; and, ○ Abandon wells at conclusion of monitoring program. <u>Plant 3</u> <ul style="list-style-type: none"> ○ Semi-annual sampling of 10 wells for metals; ○ Continue for 30 years; and, ○ Abandon wells at conclusion of monitoring program.

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**ATTACHMENT D
INFORMATION SOURCES**

“Preliminary Assessment/Visual Site Inspection, General Motors Corporation, Oldsmobile Division Plants 2 and 3, Lansing, Michigan”, PRC, March 25, 1994.

“Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #2, Building 225 Tank Farm, Lansing, Michigan”, Michigan Department of Environmental Quality (MDEQ), September 30, 1996.

“Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #2, Building 250 Tank Farm, Lansing, Michigan”, Michigan Department of Environmental Quality (MDEQ), September 30, 1996.

“Underground Storage Tank Division – Closure Report, General Motors Corporation, Plant #3 Tank Farm, Lansing, Michigan”, Michigan Department of Environmental Quality (MDEQ), September 30, 1996.

“Revised Final Site Assessment Report for Lansing, Plant #1”, URS Consultants, March 2001.

Letter from Amy Hoeksema of BBL Environmental Services, Inc. to Ben Hall of Michigan Department of Environmental Quality, re: Restrictive Covenant documentation for Plant #1, October 8, 2003.

“Long-term Monitoring Semi-Annual Report for October 2003”, BBL Environmental Services, Inc., December 2003.

“Free Product Recovery Status Report, Fourth Quarter 2003”, BBL Environmental Services, Inc., January 23, 2004.