



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3500

Rec'd. CRA

AUG 15 2006

August 3, 2006

REPLY TO THE ATTENTION OF:

Ms. Jean Caufield
General Motors Corporation
2000 Centerpoint Parkway
MC 483-520-190
Pontiac, Michigan 48341-3147

RE: Response to Comments and Final Decision
Centerpoint Business Campus
Pontiac, Michigan
MID 005 356 902

Dear Ms. Caufield:

The United States Environmental Protection Agency (U.S. EPA) has selected the final corrective action remedy for the General Motors site located at the Centerpoint Business Campus in Pontiac, Michigan. Enclosed is the U.S. EPA's Final Decision.

The remedy includes recovery of LNAPL from underneath Building 33, long-term groundwater monitoring, passive recovery from well #MW-1, and institutional controls for soil and groundwater.

The next step in the process will be negotiating an administrative order on consent requiring General Motors to implement the final remedy. I will be in contact with you in the near futures to discuss the process.

If you have any questions about the above matter, please contact me at (312) 886-0656.

Sincerely,

Daniel Patulski
EPA Project Manager

Enclosure

cc: Brian Barwick, EPA/ORC

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5

RCRA FINAL DECISION
AND RESPONSE TO COMMENTS
SELECTION OF REMEDIAL ALTERNATIVE

FOR

GENERAL MOTORS CORPORATION
CENTERPOINT BUSINESS CAMPUS
PONTIAC, MICHIGAN

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FINAL DECISION AND RESPONSE TO COMMENTS
SELECTION OF REMEDIAL ALTERNATIVE
FOR
GENERAL MOTORS CORPORATION
CENTERPOINT BUSINESS CAMPUS
PONTIAC, MICHIGAN

Introduction

The United States Environmental Protection Agency (U.S. EPA) presents this Resource Conservation and Recovery Act (RCRA) Final Decision and Response to Comments for the General Motors Centerpoint Business Campus facility (formerly known as the GM Truck Group), located at 2000 Centerpoint Parkway, Pontiac, Michigan. Included in this document is the previously issued Statement of Basis (Attachment 1). The Statement of Basis outlined potential remedial alternatives at the facility as well as U.S. EPA's proposed remedy and was made available to the public for review and comment on June 6, 2006. The public was notified of the public comment period in the Oakland Press Newspaper. There were no comments received during the 45-day public comment period, which ended July 21, 2006.

Selected Remedy

U.S. EPA has selected the following corrective measures as the remedy to address contaminated media at the General Motors facility:

► Institutional controls (deed restriction) to restrict land use to industrial or commercial uses and prevent groundwater in the water table zone from being used for drinking water at the following locations:

- AOI #16 - Former Building 29 Tank Farm
- SWMU #34/AOI #46 - North Retention Pond
- SWMU #32/AOI #49 - Former Coal Pile Storage Area
- SWMU #31/AOI #54 - Former Surface Impoundment
- SWMU #29/AOI #66 - Wastewater Treatment Plant
- AOI #69 - Container Storage Area (Wastewater Treatment Plant)
- SWMU #3/AOI #74 - Container Storage Area (Pontiac Assembly Center)
- SWMU #2/AOI #75 - Former East Tank Farm
- SWMU #30/AOI #79 - Former J-Lot Fill Area
- AOI #82 - Former Paint Mix Room Retention Tank

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- AOI #83 – Dock 65
- AOI #84 – Former Tank Farm Area
- ▶ Recovery of light non-aqueous phase liquid (LNAPL), long-term groundwater monitoring and institutional controls:
 - AOI #53 – Building 33
- ▶ Closure under Michigan Act 451, Part 213 and institutional controls:
 - AOI #50 – DUCO Stores
 - AOI #52 – Building 53 Tank Farm
- ▶ Passive groundwater recovery from MW-1 and long term monitoring and institutional controls:
 - AOI #71 – Burn Pile

Public Participation

The public comment period was announced through a newspaper advertisement in the Oakland Press newspaper. The public comment period extended from June 6, 2006 through July 21, 2006. The Statement of Basis and supporting Administrative Record were placed in the Pontiac Public Library in Pontiac, Michigan and the U.S. EPA, Region 5, Waste, Pesticides and Toxics Division office for public review prior to and during the public comment period.

Public Comments and Concerns

There were no public comments submitted during the public comment period.

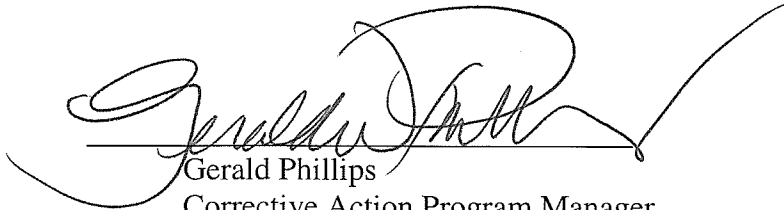
Future Actions

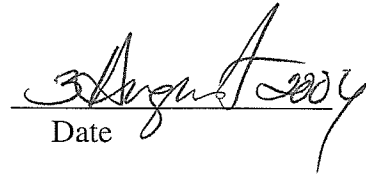
An Administrative Order will be negotiated with GM to provide an enforceable instrument for implementation of corrective measures and for ensuring that financial assurance is and remains in place for completing corrective measures and any long-term requirements for Operations and Maintenance (O&M), including groundwater monitoring and institutional controls, are properly adhered to until the measures are completed or deemed unnecessary.

Declaration

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Based upon the Administrative Record compiled for this corrective action at the General Motors facility in Pontiac, Michigan, the U.S. EPA has determined that the selected remedy is appropriate and is protective of human health and the environment.


Gerald Phillips
Corrective Action Program Manager
Waste, Pesticides and Toxics Division
U.S. EPA Region 5


Date

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David Selger
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Aug 06, 2009 08:22

**STATEMENT OF BASIS
FOR
GENERAL MOTORS CORPORATION
CENTERPOINT BUSINESS CAMPUS
PONTIAC, MICHIGAN**

INTRODUCTION

This Statement of Basis (SB) for the General Motors Corporation (GM), Centerpoint Business Campus (formerly known as the GM Truck Group) facility in Pontiac, Michigan, is being issued by the United States Environmental Protection Agency (U.S. EPA) to fulfill part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). The SB explains the proposed remedy at the Centerpoint Business Campus (CBC). This remedy is proposed for addressing soil and groundwater at the facility. In addition, the SB includes summaries of other remedies analyzed for this facility as well as those which have been completed. The U.S. EPA will select a final remedy for the facility only after the public comment period has ended and the information submitted during this time has been reviewed and considered.

This document summarizes information that can be found in greater detail in the Review of Existing Conditions and Supplemental Review of Existing Conditions Report, RCRA Facility Investigation (RFI) Report, Corrective Measures Proposal (CMP), and site assessment reports, as well as other documents contained in the administrative record for the GM facility. U.S. EPA encourages the public to review these other documents in order to gain a more comprehensive understanding of the facility and RCRA activities that have been conducted there.

The U.S. EPA may modify the proposed remedy or select another remedy based on new information or public comments. Therefore, the public is encouraged to review and comment on all alternatives. The public can be involved in the remedy selection process by reviewing the documents contained in the administrative record. U.S. EPA will inform the public of the location and availability of the administrative record and the schedule for the public comment period.

PROPOSED REMEDY

Major investigations and/or remedial measures were conducted prior to the RFI in 12 study areas. Two additional areas were investigated as interim measures and five areas were investigated during the RFI. This resulted in the removal and treatment or off-site disposal of approximately 70,250 cubic yards of soil at the site. A summary of these activities can be found in the CMP. The U.S. EPA proposes the following corrective

measures to address the remaining contaminated soils and groundwater to complete the RCRA corrective action at the GM facility:

- Institutional controls (deed restriction) to restrict land use to industrial/commercial uses and prevent groundwater in the water table zone from being used for drinking water at the following locations:
 - AOI #16 - Former Building 29 Tank Farm
 - SWMU #34/AOI #46 – North Retention Pond
 - SWMU #32/AOI #49 – Former Coal Pile Storage Area
 - SWMU #31/AOI #54 - Former Surface Impoundment
 - SWMU #29/AOI #66 - Wastewater Treatment Plant
 - AOI #69 - Container Storage Area (Wastewater Treatment Plant)
 - SWMU #3/AOI #74 - Container Storage Area (Pontiac Assembly Center)
 - SWMU #2/AOI #75 - Former East Tank Farm
 - SWMU #30/AOI #79 - Former J-Lot Fill Area
 - AOI #82 - Former Paint Mix Room Retention Tank
 - AOI #83 - Dock 65
 - AOI #84 - Former Tank Farm Area
- Recovery of light non-aqueous phase liquid (LNAPL), long-term groundwater monitoring and institutional controls:
 - AOI #53 – Building 33
- Closure under Michigan Act 451 Part 213 and institutional controls:
 - AOI #50 - DUCO Stores
 - AOI #52 - Building 53 Tank Farm
- Supplemental investigation, institutional controls and long-term groundwater monitoring:
 - AOI #71 - Burn Pile

Administrative Order

An Administrative Order on Consent will be negotiated with GM to provide an enforceable instrument for implementation of corrective measures and for ensuring that financial assurance is and remains in place for completing corrective measures and any long-term requirements for Operations and Maintenance (O&M), including groundwater monitoring and institutional controls, are properly adhered to until the measures are completed or deemed unnecessary.

FACILITY BACKGROUND

Facility Description and History

The Facility is located in the City of Pontiac, Oakland County, Michigan. The Facility encompasses approximately 400 acres of land and currently contains the Centerpoint Business Campus, including the Pontiac Assembly Center. The Facility formerly contained the Pontiac Central Manufacturing and Assembly Plant. The Facility is generally bordered by South Boulevard to the north, the Grand Truck Western Railroad to the south, Opdyke Road to the east, and Martin Luther King Jr. Boulevard to the west. Land use to the north of the Facility is primarily industrial; to the east and south, residential; and to the west, a combination of residential, industrial and commercial.

In 1927, the Facility began producing medium and heavy duty trucks and buses at the former Pontiac Central Manufacturing and Assembly Plant, which was formerly located in the north central portion of the Facility. Major manufacturing activities associated with the production of these vehicles included machining, stamping, plating, smelting, fiberglass laminating, heat treating, painting, and sealing. Subsequent operations were expanded to include more than 60 manufacturing and office buildings, including the Pontiac East Assembly plant (now named the Pontiac Assembly Center).

In August 1990, manufacturing operations at the former Pontiac Central Manufacturing and Assembly Plant were discontinued. Between 1991 and 1995, the plant was decommissioned, all buildings were demolished except for the slab and structural steel on approximately 1 million square feet. The area was redeveloped as the Centerpoint Business Campus, which is a large-scale industrial and commercial business development.

Presently, the Facility includes a Truck Engineering Center, located at the west end of the Facility; the Pontiac Assembly Center on the eastern portion of the Facility; the GM Truck Product Center, which occupies approximately one-third of the former Pontiac Central Manufacturing and Assembly Plant's footprint, a wastewater treatment plant (WWTP) and two stormwater retention ponds.

Surface Water Hydrology

There are no natural surface water bodies at the Facility, but there are two engineered stormwater retention basins, the North Retention Pond (SWMU #34/AOI #46) and Current South Retention Pond. In addition, there was a former South Retention Pond (SWMU #33/AOI #45) located on the southern portion of the Facility, but this area was redeveloped in 1995, and the new South Retention Pond was constructed approximately 2,000 feet northwest of the former South Retention Pond.

There are several natural surface water bodies and intermittent drains surrounding the Facility. In June 2004, the Michigan Department of Environmental Quality (MDEQ) evaluated the stormwater drains located in the vicinity of the Facility (Amy Drain, Hamlin Drain, Levison Drain, and Murphy Creek) to determine if these drains are surface waters of the state. MDEQ did not consider any of these drains to be surface waters of the state at the point they discharge from the Facility.

In the RFI, GM concluded that the Groundwater/Surface Water Interface Criteria (GSIC) are not relevant at the Facility due to the absence of natural surface water bodies at the Facility and that a hazardous substance in groundwater on-site is not reasonably expected to vent to surface water off-site (via discharge to on-site ponds and subsequently to closed drains and eventually to surface water bodies of the state) in concentrations that exceed the generic GSIC. To support this conclusion, supplemental investigations at the Container Storage Area (SWMU #3/AOI #74) and the former Surface Impoundment (SWMU #31/AOI #54) were performed. These evaluations were submitted to the U.S. EPA in April 2003, August 2005 and in March 2006 in reports titled "Groundwater Surface Water Interface (GSI) Pathway Elimination Determination Report". The U.S. EPA is presently reviewing the report and will make a determination on whether the GSI are relevant.

Hydrogeology

Unconfined Water Table Zone

Shallow, unconfined perched groundwater exists in several areas of the Facility, generally at depths of approximately 10 to 20 feet below ground surface (bgs). Glacial clay till also exists in the near surface throughout the Facility. As such, surface groundwater only exists as discontinuous and intermittent perched groundwater. This groundwater is perched above the clay till in layers of engineered fill material or sand (or sand and gravel) seams of limited extent. Because the clay/till layer is approximately 100 feet thick between the perched groundwater and the interbedded, confined sand aquifer, the perched groundwater is not considered to be hydraulically connected with the lower water bearing zones. It is also questionable as to whether the shallow, intermittent, unconfined water table is considered an "aquifer" pursuant to Michigan Act 451, Part 201.

Clay/Till Aquitard and Interbedded Sand Aquifer

In 1981, Camp Dresser and McKee (CDM) performed a hydrogeologic assessment of the Facility. The results were presented in a report that identified three sand and sand/gravel aquifers beneath the Facility. These aquifers occur at depths of 120, 150, and 210 feet bgs and are approximately 7, 25, and 50 feet thick, respectively.

Lower Sand and Gravel Aquifer

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The lower sand and gravel aquifer has been encountered underlying the clay/till aquitard at approximately 210 to 220 feet bgs, and is consistent with the regional description of local outwash channels. This aquifer was used to support industrial wells at the Facility and is used by residential wells south of the Facility. The lower sand and gravel aquifer is confined by the clay/till aquitard sequence above and may also be confined by the Coldwater Shale below.

Coldwater Shale

The Coldwater Shale is not considered a usable aquifer beneath the Facility. Because it is overlain by the productive lower sand and gravel aquifer, the Coldwater Shale may be considered an aquitard with its relatively low hydraulic conductivity material. Available water well records for wells drilled along the Grand Trunk Western Railroad south of the Facility show the shale was encountered at a depth of approximately 290 feet bgs.

Water Supply and Groundwater Use

Shallow perched groundwater at the Facility, to the extent it is present, is not used for any purpose. At many locations, the perched water is absent altogether. Historically, the 120, 150, and 210 feet bgs aquifers were used as water supply for the Facility. All portions of the Facility are currently serviced by municipal water.

PRE-RFI INVESTIGATIONS AND REMEDIAL ACTIONS

Environmental investigations and remedial activities conducted prior to the RFI are summarized in the Review of Existing Conditions Report and Supplemental Review of Existing Conditions Report.

A total of 12 major investigations and/or remedial actions were performed prior to implementation of the RFI at the Facility. They include:

AOI #16 - Former Building 29 Tank Farm

The former Building 29 Tank Farm consisted of nine 12,000-gallon steel underground storage tanks (USTs) installed in 1946. The USTs contained engine oil, transmission fluids, axle fluids, and power steering fluids. The UST farm was taken out of service during the summer of 1991 and the USTs were excavated and removed in October 1991 in support of the Centerpoint Business Campus redevelopment. Benzene, toluene, ethylbenzene and xylene (BTEX) and polynuclear aromatic (PNA) constituents were identified in confirmatory soil samples collected from soils surrounding the former tank farm following the UST removals.

Approximately 3,015 cubic yards (cy) of soil were removed from the Building 29 tank farm during multiple remedial excavations, thermally treated via low temperature thermal

desorption, and then used as backfill for the tank excavation, or stockpiled along the side of the access road to Building 29.

The UST farm was further investigated in January 1994, where six additional boreholes were advanced and samples were collected. Since there were no detections of compounds in the verification samples at concentrations above the Michigan Act 307 Type B (residential) Direct Contact Criteria (DCC), this area was considered remediated. The results of the investigations were presented in the Building 29 Underground Storage Tank Area – Final Report. This report was approved by Michigan Department of Natural Resources (MDNR) in a letter dated March 17, 1995 and the Building 29 MDEQ Release Number was subsequently closed.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

SWMU #6/AOI #42 – Building 53 Tank Area

In August 1991, a 1,000-gallon waste oil steel UST was removed from the Building 53 area. The tank was originally installed in 1972 for the temporary storage of waste oil. The UST was found to be intact with no apparent leaks when it was removed on August 30, 1991. Following the excavation and removal of the UST, site assessment samples were collected. In October 1991, BTEX and PNA constituents were identified at concentrations exceeding then current Michigan Act 307 Type B (residential) criteria.

Additional excavation of the Building 53 UST Area was completed in November 1991. The total volume of soil excavated for remediation was approximately 190 cy. The excavated soils were characterized and disposed of at an off-site commercial landfill.

A supplemental subsurface investigation of the UST area near Building 53 was conducted in January 1994 to address comments provided by the MDNR regarding elevated lead and chromium concentrations. Four boreholes were advanced to further define lead and chromium concentrations in Facility soils, including background conditions. The results of the investigations were presented in the Building 53 Underground Storage Tank Study Area – Final Report. The report was approved by the MDNR in a letter dated April 27, 1994 and the Building 53 MDEQ Release Number was subsequently closed.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

AOI #44 – Building 43 Remediation

In June 1993, a test excavation of the area was performed to visually assess the extent of potentially affected material in the vicinity of Building 43. The fill material located

adjacent to Building 43 was identified to be comprised of ash and miscellaneous debris associated with a historic fire.

In August 1994, a subsurface investigation was conducted to substantiate the visual information using soil analytical data. Analytical results from soil samples collected from the boreholes indicated concentrations exceeding then current Michigan Act 307 Type B criteria.

A total of approximately 20,600 tons of affected soil was characterized and properly disposed at a commercial landfill. Verification of the remediation of impacted material was accomplished through the collection of approximately 40 soil samples from the floor and sidewalls of the excavation. The analytical results of the verification samples collected from the excavation were below applicable criteria, with the exception of two samples that were found to exceed then current Michigan Act 307 Type B DCC for lead. Approximately 50 cy of additional soil was removed in the area of these two verification samples to a depth of approximately 30 ft bgs, which is well below the reasonably expected maximum depth of excavation for any future construction in this area. The area was then backfilled with clean soil. Therefore, no further action is required at this AOI.

AOI #50 – DUCO Stores UST Area

The DUCO Stores UST area consisted of eight steel USTs installed in 1927. The USTs contained gasoline, Railway end lube, glycol, axle oil, and diesel fuel.

On February 2, 1990, gasoline was identified to be infiltrating into a sanitary sewer line located to the west of the former DUCO Stores UST area. In May 1990, gasoline was discovered infiltrating into a storm sewer, which was located near the DUCO Stores fuel lines. Following both instances, the sewer was plugged and the sewer contents removed, as necessary, by vacuum tanker truck.

In June 1990, a soil gas survey of the area was performed, consisting of 53 locations sampled at 18 inches bgs. The results of the survey were presented in a report entitled "Final Report on the Findings of the Petrex Soil Gas Survey Conducted for the General Motors Truck and Bus Group at the DUCO Stores Tank Farm Site in Pontiac, Michigan". The report identified compounds typically found in gasoline in the soil vapors. A plume of oil constituents was also identified as being present in the DUCO Stores UST area.

In August 1991, all eight USTs in the area were excavated and removed. Following collection of 36 confirmatory samples from the UST cavity, diesel fuel was observed seeping into the excavation. Approximately 100 gallons of diesel fuel was recovered before seepage ceased. Benzene, benzo(a)anthracene, and chrysene were identified above the then current Michigan Act 307 Type B DCC.

Approximately 3,000 cy of soil was excavated and thermally treated via low temperature thermal desorption. Further excavation to the east and west was not possible due to the location of existing structures. However, additional remedial excavation of the base was

conducted. Verification samples were collected and submitted for BTEX and PNA analyses. Residual concentrations were identified to marginally exceed their respective then current Michigan Act 307 Type B soil cleanup criteria. Further remedial excavation of the base was conducted. Analytical results for the verification samples collected from the floor of the excavation indicated no residual BTEX or PNAs at concentrations exceeding the then Michigan Act 307 Type B DCC.

In January 1994, the nature and extent of any potential residual soil contamination in the area was defined. Six boreholes were installed and the northern end of the excavation was deepened by approximately 2 feet, resulting in the removal of an additional 175 cy of soil. Twelve soil samples were collected from the boreholes and three soil samples were collected from the northern floor of the excavation and submitted for BTEX and PNA analyses. The report on the data concluded that minor residual concentrations of BTEX and PNAs remained in soils at inaccessible locations.

During expansion activities of Building 34/52 in October 1997, diesel fuel odors were encountered as well as stained soils adjacent to the eastern side of a storm sewer line at a depth of approximately seven feet bgs. During the period from October 13, 1997 to October 24, 1997, 2,800 cy of clean fill and approximately 8,400 cy of potentially affected soil were excavated, segregated, stockpiled and analyzed. A total of 49 soil samples were collected from the excavation limits. Neither BTEX nor PNAs were detected above then current applicable Michigan Act 451, Part 201 Industrial Direct Contact or Soil Inhalation Cleanup Criteria for soil in any of the samples collected from within the excavation limits. This area is currently open on the MDEQ Leaking UST list.

AOI #50 – DUCO Stores Fuel Line Study Area

The DUCO Stores Fuel Line study area consisted of an underground distribution network for gasoline and fuel oil that was installed in 1972, which originated from a pumping station in former Building 21. Gasoline was discovered infiltrating into a storm sewer located near the DUCO Stores fuel line in May 1990.

In 1992, 12 soil borings and three monitoring wells were installed in Building 11, in the north end of Building 12, and within Building 27. BTEX constituents were identified at levels exceeding the then current Michigan Act 307 Type B soil cleanup levels.

In order to further define the extent of the sand lens where evidence of gasoline vapors was detected, seven boreholes and three test pits were installed in the vicinity of the fuel line in January 1994. Samples were collected from each borehole for chemical analysis for BTEX and lead. The results of the analysis did not identify any further areas of residual BTEX constituents in soil at levels of concern. The perched water was identified as being minor in extent and/or seasonally dependent. The report from the study concluded that no additional investigation or remediation was required or warranted within this area. The area is currently open on the MDEQ LUST list.

AOI #52 – Building 35 Tank Farm

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In 1946, a dynamometer tank farm was installed west of Building 35. The tank farm consisted of six 2,000-gallon USTs. The tanks initially contained diesel fuel, regular/premium fuel, special fuels, and mineral spirits. In 1961, the indoor fuel supply lines connecting Building 35 to Building 33 were removed; however, the USTs remained in service and new lines connected Building 35 to an outdoor fueling station south of Building 33.

In 1971, a new 10,000-gallon diesel fuel UST was installed south of the dynamometer tank farm and was connected to the most southerly of the tanks in the Dyno tank farm. In 1984, this tank was removed and replaced by two 12,000-gallon USTs. The newly installed USTs contained diesel fuel and special leaded gasoline.

In June 1991, a backhoe accidentally punctured the 12,000-gallon gasoline UST, which resulted in an estimated loss of 20 gallons. During recovery activities, historic diesel contamination north of the two 12,000-gallon USTs was identified. This contamination was suspected to be from the historic 10,000-gallon diesel UST, which had been in the same UST cavity.

On October 12, 1992, a suspected release was reported following structural integrity testing of the tanks. On November 5, 1992, another release was reported from the same tank system based on additional structural integrity testing. In September 1994, Dyno Tanks 1 through 6 were removed along with 450 cy of impacted soil. In October 1994, further excavation was performed (1,244 cy of soil) along with collection of additional verification samples until the results were below Michigan Act 307 Type B criteria. A Closure Report on the 1992 releases was submitted to MDNR.

In July 2005, Dyno Tanks 7 and 8 were removed from the ground. A sheen was identified on the groundwater in the UST cavity. Subsequent analytical results confirmed the release; however, no constituents were identified above Michigan Act 451, Part 201 generic residential criteria in soil. Concentrations of a few petroleum hydrocarbon constituents were identified above the GSIC and Drinking Water Criteria (DWC) in groundwater.

This area will be further evaluated under Michigan Act 451, Part 213 for USTs. A supplemental investigation is pending to define the groundwater impacts and assess the potential impact to utility/storm sewer backfill.

AOI #53 – Building 33 Free Product Area

In 1970, a new outdoor fueling station was installed between Building 33 and Building 34. The fueling station consisted of three 10,000-gallon USTs. These USTs were subsequently replaced in the early 1990s with two 12,000-gallon USTs. During the removal of the historic tanks, contamination was identified. Approximately 13,000 tons of soil excavated from the area was treated by low temperature thermal desorption.

Remaining concentrations of BTEX and naphthalene, the only detected constituents, were at or below Michigan Act 307 Type B levels. This release was subsequently closed by the MDNR.

In 1989, attempts were made to recover LNAPL from this area using pump and treat technology. In 1990, the gasoline collection system was terminated because it was determined to be ineffective in recovering the LNAPL from the area.

To further define the extent of gasoline present in soils under Building 33, a subsurface investigation was conducted of the area in 1994, which included the installation of 19 boreholes to a maximum depth of 20 ft bgs. A monitoring well was also installed within one of the interior building boreholes to permit sampling of the free product and measurement of LNAPL thickness. Gasoline free product was encountered at depths of approximately 15 to 19 ft bgs within sand and/or silt lenses.

The results of the 1994 investigation showed that benzene was present in soil at concentrations that exceeded the Michigan Act 451, Part 201 industrial and commercial infinite Source Volatile Soil Inhalation Criteria (VSIC) at a depth of 16 ft bgs. In addition, BTEX was detected at concentrations exceeding the Michigan Act 451, Part 201 industrial and commercial Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) at a depth of 16 ft bgs. Other BTEX constituents were also identified.

At the completion of the 1994 investigation, a remedial alternatives evaluation was completed. The evaluation included a number of alternatives and determined that none were feasible while the building was in use. No further activities were performed at Building 33 until after the RFI process was completed. Post-RFI activities and proposed corrective measures are presented later in this SOB.

AOI #69 – Container Storage Area

The container storage area consisted of a 12,543-square foot, 8-inch thick epoxy-coated concrete waste management pad that was constructed in 1980. The waste management pad was divided into two operating halves. The western half was a covered hazardous waste drum storage area and the eastern half operated as an uncovered non-hazardous waste bulking area.

Closure activities included decontamination, soil sampling, and remedial excavation of approximately 35 cy of soil. These activities satisfied the requirements of the waste management pad closure as specified in 40 CFR Part 265.111. MDNR approval of the closure was obtained in a letter dated June 27, 1991.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

AOI #71 – Burn Pile

The Burn Pile (BP) was reportedly formed from the placement of debris from Building 43 after it burned down. The historic evaluation of the BP consisted of a Phase I investigation, a Phase I excavation, a Phase II investigation, and a Phase II remedial excavation. The remedial work was completed to support the installation of Centerpoint Parkway through the eastern half of the BP. Excavation did not continue beyond what was necessary to support the Centerpoint Parkway construction. The western half of the BP is being further evaluated and is part of the proposed corrective measures for the Facility to be discussed later in this SOB.

The Phase I investigation was conducted in March 1994. A total of 76 soil borings were advanced into the native clay/till underlying the BP. Soil samples were analyzed for total lead concentrations. Several composite samples were also collected and analyzed for total lead and toxicity characteristic leaching procedure for lead.

The Phase I remedial excavation was conducted in July 1994. The eastern portion of the BP was excavated and material segregated into “potentially clean” and “potentially affected” soil stockpiles. Approximately 35,500 cy of material was excavated, segregated, and stockpiled during the Phase I remedial excavation. Approximately 32,000 cy was stockpiled as “potentially clean” soil and 3,500 cy was stockpiled as “potentially affected” soil. The analytical results for the soil samples collected from the “clean” soil indicated that it was non-hazardous, with concentrations of all compounds analyzed being below the Michigan Act 307 Type C (industrial) DCC. This clean soil was used to construct berms and other landscaping features. The analytical results for the soil samples collected from the “affected” soil indicated the soil was non-hazardous and suitable for disposal at a Michigan Type II commercial landfill.

A Phase II investigation was conducted in August 1994. The investigation was conducted to characterize the nature and extent of affected or potentially affected material remaining in the vicinity of the BP after the Phase I remedial excavation. The investigation consisted of advancing 12 soil borings and installing four monitoring wells. The affected soil identified during the Phase II investigation was further characterized as non-hazardous and suitable for disposal at a Michigan Type II commercial landfill.

The Phase II remedial excavation was conducted in October 1994. Approximately 6,500 cy of potentially affected soil was stockpiled, including material from the Phase I excavation. This material was excavated, loaded, and transported to Waste Management’s Eagle Valley Recycling and Disposal Facility in Orion, Michigan. During the excavation of affected soil, an old clay sewer was encountered. The line and associated bedding were filled with water. Approximately 30,000 gallons of water was pumped into frac tanks, sampled, and treated at the Facility’s WWTP. Verification samples were collected from the excavation during the Phase II investigation. Post-RFI investigation activities and proposed corrective measures are presented later in this SOB.

SWMU #21/AOI#75 - Former East Tank Farm

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The Former East Tank Farm area was identified as a former hazardous waste storage area of approximately 4,500 square feet, housing two former vertical 10,000-gallon ignitable waste collection tanks.

The former waste storage area initially received drummed waste such as chlorinated solvents, waste paints, and waste solvents. These drummed wastes were subsequently removed and the area was used as secondary containment for the two 10,000-gallon hazardous waste storage tanks. These waste storage tanks were used for the storage of waste paint and waste solvent.

Closure activities were completed in October 1989. Excavation and disposal of 780 cy of contaminated soils was performed in February/March 1990. The MDNR approved the closure in a letter dated October 30, 1990.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

AOI #82 – Former Paint Mix Room Retention Tank

The former underground paint mix room retention tank was utilized as a secondary containment tank to collect water from the paint mix room's fire suppression deluge system. Removal activities of the tank occurred in December 1989 with the removal of a concrete pad which had overlaid the former paint mix room tank.

During the excavation of the tank area, solvent odors were identified and soil sampling from the area was performed. Analysis identified detectable levels of ethyl benzene, toluene, xylene, and methyl ethyl ketone, which were suspected to be from overfilling the tank. Approximately 465 tons of soil were excavated and disposed off-site. The soil excavation activities commenced in October 1990 and were completed in five phases, ending in June 1991. The report from the study concluded that the cleanup of the tank area met then current Michigan Act 307 Type B cleanup criteria.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

AOI #83 – DOCK 65

In July 1994, odors of paint solvent were detected in the excavated soils while in the process of installing concrete footers for a new process line. A soil and groundwater investigation documented elevated levels of volatile organic compounds in the area.

Following delineation of the extent of contamination, approximately 600 cy of impacted soils were removed during the first round of excavation. Some additional remedial excavation was conducted following the first round of verification sampling. The area was remediated to the then current Michigan Act 307 Type B criteria. The results of the final remediation were approved by the MDNR in a letter dated November 22, 1995.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

AOI #84 – Former Tank Farm Area

The former tank farm area consisted of ten USTs, varying in size from 10,000 to 24,000 gallons each. These tanks were utilized for the storage of various automotive fluids including axle lubricant, power steering fluid, engine oil, glycol, manual and automatic transmission fluid, diesel fuel and gasoline.

On October 11, 1991, a confirmed release was reported during UST excavation and removal activities. Remediation of the former tank farm area commenced in the same month and was completed in November 1994. A closure report for the area was submitted to MDNR and a closure approval of the tank farm area was presented in a letter by the MDNR dated September 18, 1995.

The soil data from this AOI were also compared to the current Michigan Part 201 generic residential and industrial criteria that are relevant to this AOI, and no concentrations exceed these criteria. Therefore, no further action is required at this AOI.

COMPLETED INTERIM MEASURES

The interim measures (IM) at the J-Lot (SWMU #30/AOI #79) and the Former Coal Pile Storage Area (SWMU #32/AOI #49) were completed concurrent with the RFI Work Plan development and implementation. Reports on both IMs were approved by U.S. EPA in correspondence dated June 11, 1998 and June 15, 2000, respectively. Additional information regarding the two IMs is presented below.

SWMU #32/AOI #49 - Former Coal Pile Storage Area

The former Coal Pile Storage Area was historically used to manage power house coal unloaded from railroad cars. The Area was identified as a suspected source of polychlorinated biphenyls (PCBs) in October 1977 in stormwater runoff to a storm sewer that emptied into a tributary of the Clinton River.

Energy conversion at the Facility from coal to natural gas was completed in August 1977. As a result, the Powerhouse, together with the former Coal Pile Storage Area, underwent decommissioning and demolition activities. The Area was addressed as an IM to support ongoing redevelopment at the Facility. The results of the IM investigation were

presented in two reports in 1991 and 2000. The IM investigation results showed that concentrations of all detected constituents were below then current Michigan Act 451, Part 201 cleanup criteria. The U.S. EPA determined that no further action was necessary for this area in correspondence dated June 15, 2000.

SWMU #30/AOI #79 - Former J-Lot Fill Area

The J-Lot is an undeveloped 8-acre parcel, located to the northwest of the corner of South Boulevard and Opdyke Road. It was identified as a SWMU based on a one-time burial of waste materials sometime between 1950 and 1955.

The nature and extent of potentially affected materials at the J-Lot was characterized through a series of investigations. Based on the results of these investigations, a work plan was developed to excavate, transport, and dispose of the impacted material from the J-Lot to an appropriate off-site landfill. Excavation activities were initiated in July 1997 and completed in September 1997. A total of 21,564 cy of impacted fill was excavated and transported off-site for disposal.

The RCRA Interim Measures Construction Certification Report, Former J-Lot Fill Area indicated that all final soil verification samples were below then current Michigan Act 451, Part 201 generic industrial DCC. The IM for the J-Lot was approved by U.S. EPA in correspondence dated June 11, 1998.

RFI ACTIVITIES

The RFI investigations and supplemental RFI activities were conducted between November 1998 and August 2000. The RFI Report was submitted in November 2000 and included information from both phases of the investigation. The RFI Report was approved by U.S. EPA in a letter dated June 27, 2005.

A summary of the SWMUs/AOIs investigated as part of the RFI is presented in the following sections. Additional information regarding each unit is presented in the RFI Report.

SWMU #33/AOI #45 – Former South Retention Pond

The Former South Retention Pond (South Pond) collected stormwater runoff from the south end of the facility and the WWTP area. As part of the Centerpoint Business Campus redevelopment program, the South Pond was back filled and redeveloped for commercial use.

In December 1998, an investigation was performed of the South Pond. A total of 12 soil samples were collected and analyzed for VOCs, metals and cyanide. The results showed that no detected concentrations of constituents were higher than the applicable MDEQ generic industrial screening criteria. Therefore, it was concluded that no remedial action was required.

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Arsenic has concentrations in soil that exceed the current Michigan Part 201 generic residential DCC, but not the industrial DCC. However, the highest detected arsenic concentration at this AOL is within MDEQ's state-wide default natural background levels. Therefore, no further action is required at this AOI.

SWMU #34/AOI #46 – North Retention Pond

The North Retention Pond (North Pond) collects stormwater runoff from the northern parking lots of the Facility. As part of the redevelopment program, the North Pond was regraded, deepened, and landscaped to accommodate additional stormwater runoff from the newly constructed Centerpoint Campus-East parking lots and Campus Drive.

In December 1998, four boreholes and two sediment samples were collected from the North Pond as part of the RFI. Samples were analyzed for VOCs, SVOCs, metals PCBs and cyanide. Results of the sampling showed no detected concentrations were higher than the applicable MDEQ generic industrial screening criteria. Therefore, it was concluded that no remedial action was required.

Benzo(a)pyrene has a concentration in one sediment sample that is marginally higher than the Michigan Part 201 generic residential and industrial soil DCC (12mg/kg compared to 10 mg/kg). However, the Part 201 generic soil screening criteria are based on exposure assumptions that are quite conservative for any reasonably expected exposure to sediment in the retention pond. For example, the sediment in the pond is intermittently covered with stormwater and vegetation which would minimize contact with sediment. The area is presently fenced. Therefore, no further action is required at this AOI.

SWMU #31/AOI #54 – Former Surface Impoundment

The Former Surface Impoundment (Impoundment) was used to temporarily store wastewater during a period of WWTP repair. Since 1995, redevelopment activities in the vicinity of the impoundment have included the construction of the South Access Road and grading and landscaping during development of the Centerpoint Business Campus.

In December 1998, six boreholes and seven soil samples were collected from the impoundment for analysis. In addition, one monitoring well was installed for collection of groundwater samples. Samples were analyzed for TAL metals and or Appendix IX constituents. Results of the sampling showed detected concentrations of arsenic and lead in soil were higher than the applicable MDEQ generic industrial screening criteria. However, a site-specific risk evaluation determined that these concentrations of arsenic and lead, when considered in conjunction with the other concentrations of arsenic and lead in the area, do not pose a significant risk. No detected concentrations in groundwater were higher than the applicable industrial screening criteria.

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SWMU #29/AOI #66 – Wastewater Treatment Plant

The WWTP Area currently consists of 20 open top, aboveground storage tanks located outside Building 56. The treatment tanks include tanks for the treatment of acid and general wastes, clarifiers, an equalization tank, a cleaner waste tank, and an oil skimmer tank.

In December 1998, eight boreholes were installed and nine samples were collected for analysis. Samples were analyzed for VOCs, SVOCs, PCBs, metals and cyanide. Results showed no detected concentrations were higher than the applicable MDEQ generic industrial screening criteria. Therefore, it was concluded that no remedial action was required.

SWMU #3/AOI #74 – Container Storage Area

The Container Storage Area consists of a concrete containment pad measuring approximately 50 feet wide by 100 feet long. The area is used for the temporary accumulation of 55-gallon drums containing waste solvents and sludges, as well as non-hazardous materials, from ongoing operations at the Facility.

In December 1998, six boreholes were installed and ten soil samples were collected as part of the RFI. One monitoring well was also installed later as part of the second phase of the RFI. Samples were analyzed for VOCs, SVOCs, PCBs, metals and cyanide. Results showed no detected concentrations were higher than the applicable MDEQ generic industrial screening criteria. Therefore, it was concluded that no remedial action was required.

The soil and groundwater data from this AOI were also compared to the current Michigan Part 201 generic residential soil and groundwater criteria. This comparison showed that some concentrations in soil exceed the DCC and some concentrations in groundwater exceed the DWC. However, a risk evaluation of these data conducted as part of the CMP concluded that residential cumulative cancer and noncancer risks are below U.S. EPA limits for triggering the need for corrective measures. Therefore, no further action is required at this AOI.

SUMMARY OF RESULTS AND RISK SCREENING

Data from the RFI investigations were evaluated using then current Michigan Act 451, Part 201 generic industrial and commercial II, III, and IV DCC as screening levels to identify potentially significant risks associated with chemical constituents detected in soil and groundwater. All data were later compared to current Act 451, Part 201 criteria to support the final corrective measures decision for each SWMU.

The results of the screening indicated that all analytes detected from SWMU#3/AOI #74, SWMU #29/AOI#66, SWMU #33/AOI#45, and SWMU #34/AOI#46 were below the Part 201 DCC. Detected concentrations of arsenic and lead were reported in multiple samples at SWMU #31/AOI #54 in excess of DCC. However, a site-specific risk evaluation determined that these concentrations of arsenic and lead, when considered in conjunction with the concentrations of arsenic and lead in the samples that had been collected for investigation of the Former Surface Impoundment, do not pose a significant risk.

POST-RFI ACTIVITIES

AOI #53 – Building 33 Free Product Study Area

A subsurface investigation was conducted between June 2004 and November 2004 to delineate LNAPL, soil, vapor, and groundwater impacts associated with a historical gasoline release from a former UST system at Building 33. During the course of the investigation, a second heavier (non-gasoline) LNAPL was identified in an area just east of the gasoline LNAPL beneath Building 33. Consequently, the scope of the investigation was expanded to also delineate the LNAPL, soil, and groundwater impacts associated with the second LNAPL.

A total of 32 boreholes, 17 temporary wells, and 11 permanent monitoring wells were installed from June 2004 through November 2004. Select samples from boreholes/monitoring wells were submitted for analysis of target compounds. LNAPL samples were also collected for fingerprinting characterization and lab analysis.

The horizontal extent of LNAPL in both areas has been delineated. The LNAPL in Area 1 consists of a slightly weathered gasoline with a mixture of some diesel or No. 2 fuel oil. The LNAPL in Area 2 consists of a heavier petroleum hydrocarbon with properties characteristic of a hydraulic oil or lube oil. Additional field activities are required to further delineate the vertical extent of petroleum hydrocarbon impacts in the immediate vicinity of three wells in LNAPL Area 1.

Between December 2004 and February 2005, a remedial pilot study was conducted to evaluate the effectiveness of a high vacuum multi-phase extraction (MPE) system to remediate LNAPL beneath Building 33. The pilot study was conducted in accordance with a work plan approved by U.S. EPA. LNAPL was extracted from eight existing monitoring wells contained within LNAPL Area 1. Approximately 3,097 gallons of LNAPL equivalent was recovered from all three phases (vapor-phase, dissolved-phase, and free-phase) during the pilot study.

The results of the remedial pilot study indicate that a full-scale MPE system would be an effective remedial technology for the LNAPL in Area 1. Previous attempts to use a traditional pump and treat method were ineffective in this area.

AOI #71 – Burn Pile

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An investigation at the Burn Pile was conducted from August 2004 to July 2005. The purpose was to further define the extent of contamination present in the vicinity of the Burn Pile through the collection of subsurface soil and groundwater samples. The investigation was conducted in accordance with a work plan approved by U.S. EPA.

The investigation consisted of the advancement of 12 soil borings, installation of five permanent monitoring wells and seven temporary monitoring wells, collection of 17 subsurface soil samples and 18 groundwater samples, excavation of 10 test pits, and performance of three groundwater elevation measurement events. An LNAPL recovery program was also initiated to address a small amount of LNAPL encountered in monitoring well MW-1. Trace amounts of LNAPL were identified over a three month period; however, the amounts present were insufficient to recover.

Based on the results of the investigation, a further investigation was performed in March 2006 to determine the full extent of contamination and to develop appropriate corrective measures alternatives. The initial results of that investigation indicated that the LNAPL had been delineated and that no other major sources of significant contamination exists at the Burn Pile.

A notice of off-site migration has been filed with the MDEQ. Property owners have been notified of existing contamination. There are two community drinking water supply wells south of the Burn Pile (South Bloomfield Highlands Community Supply wells #1 and #2). These wells are installed at a depth of approximately 220 feet bgs. Analytical data retrieved from the MDEQ for these wells from December 2000 to April 2005, indicate that none of the constituents that have been identified at the Burn Pile have concentrations that exceed Michigan Act 451, Part 201 generic residential DWC.

EVALUATION OF PROPOSED CORRECTIVE MEASURES ALTERNATIVES

The analytical data for each SWMU/AOI were compared to current Michigan Act 451, Part 201 residential and industrial criteria (MDEQ, 2004) for the purpose of supporting decisions regarding the need for corrective measures and the type of corrective measures considered appropriate for each SWMU/AOI at the Facility.

For three SWMU/AOI Areas, no exceedances of current residential criteria were identified or the levels occurring at the SWMU/AOI were determined to be within the acceptable range of background levels for a determination of No Further Action, including no need for institutional controls. These SWMUs/AOIs include the following:

SWMU #6/AOI #42 – Building 53 Tank Area
AOI #44 – Building 43 Remediation Area
SWMU #33/AOI #45 – Former South Retention Pond

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For two AOIs, the corrective measures will be addressed under the closure requirements of Michigan Act 451, Part 213 dealing with leaking USTs, including institutional controls that restrict land use and groundwater use. These AOIs are:

AOI #50 – DUCO Stores
ALI #52 – Building 35 Tank Farm

A total of 12 SWMUs/AOIs have the proposed corrective measure of institutional controls that incorporates both land use restrictions and a resource restriction preventing shallow groundwater in the water table zone from being used for drinking water. Nine of these SWMUs/AOIs were determined to warrant no further action; however, institutional controls have been proposed because they are in areas of active GM operations. The 12 SWMUs/AOIs include:

AOI # 16 – Former Building 29 Tank Farm
SWMU #34/AOI #46 – North Retention Pond
SWMU #32/AOI #49 – Former Coal Pile Storage Area
SWMU #31/AOI #54 – Former Surface Impoundment
SWMU #29/AOI #66 – Wastewater Treatment Plant
AOI #69 – Container Storage Area
SWMU #3/AOI #74 – Container Storage Area
SWMU #2/AOI #75 – Former East Tank Farm
SWMU #30/AOI #79 – Former J-Lot Fill Area
AOI #82 – Former Paint Mix Room Retention Tank
AOI #83 – Dock 65
AOI #84 – Former Tank Farm Area

At AOI #50 and AOI #52, hazardous constituents occur in soils and groundwater that exceed the Michigan Act 451, Part 201 generic residential and industrial levels in those areas. At AOI #53 (Building 33), corrective measures will be needed to address LNAPL Area 1 identified beneath Building 33. At AOI #71 (Burn Pile), further investigations were conducted in March 2006 to delineate the nature and extent of contamination in soils and groundwater in that area. The data from those investigations have been used to support the development of appropriate corrective measures alternatives.

AOI #53 – Building 33 LNAPL

Two LNAPL areas (Area 1 and Area 2) have been identified beneath Building 33. Since that discovery, Building 33 has been demolished (December 2005).

Risk-based soil and groundwater cleanup criteria for the smear zone soil and perched groundwater in LNAPL Area 1 were calculated based on consideration of vapor intrusion into a hypothetical industrial/commercial building, and potential exposure of construction workers during occasional excavations that extend into the smear zone and perched groundwater. The calculated cancer and non-cancer risk-based cleanup criteria were also evaluated to determine whether the subsurface vapor concentrations in equilibrium with

these soil and groundwater concentrations could pose a potential explosion hazard. The estimated subsurface equilibrium vapor concentrations for several of the constituents in the smear zone soil were close to their LEL. Therefore, explosion is a potentially significant physical hazard and an important consideration for the remediation of LNAPL Area 1. Subsurface conditions in the area are such that corrective measures for mitigating the explosion hazard would also be expected to mitigate the potential for significant indoor health risks.

A risk-based evaluation of LNAPL Area 2 was conducted to determine whether the existing conditions in this area pose a significant risk. Potential exposures were evaluated for the same scenarios evaluated for LNAPL Area 1 and using similar exposure assumptions. Based on the evaluation of the results for LNAPL Area 2, the existing conditions do not pose a significant risk.

Based on a previous evaluation and a recent pilot study performed at AOI #53, the following corrective measures alternatives were evaluated for LNAPL Area 1 and LNAPL Area 2:

Alternative 1: Passive Recovery – Passive LNAPL recovery would be completed using absorbents, bailing, or pumping methods. The mass removal would continue to the extent practical. Long-term periodic monitoring would be implemented to ensure that residual LNAPL and soil vapors do not pose a health or explosion hazard for future use of that area. If such hazards remain following the removal of LNAPL, institutional controls would be included to ensure that if a building were to be constructed in the area, proper engineering controls would be provided to mitigate these hazards. The recovered product would be characterized and transported off-site for fuel blending or disposal, as appropriate.

Alternative 2: Multi-Phase Extraction (MPE) – LNAPL recovery would be implemented using MPE with pneumatic airlift and pneumatic fracturing. Vertical extraction wells would be installed to establish an extraction network that fully covers the aerial extent of the plume. This option would aggressively recover LNAPL to the extent practical and stimulate aerobic biodegradation of the residual free product through the injection of air during the pneumatic fracturing process. Long-term periodic monitoring would be implemented to ensure that residual LNAPL and soil vapors do not pose a hazard (i.e., health based risk or explosion hazards) for future use of the area. If such hazards remain following the removal of LNAPL, institutional controls would be included to ensure that if a building were to be constructed in the area, proper engineering controls would be provided to mitigate those hazards. MPE would be expected to recover much larger quantities of LNAPL over a much shorter time period than Alternative 1. The cost of Alternative 2 would be more than Alternative 1 but less than Alternative 3.

Alternative 3: Soil Excavation/Removal of LNAPL – Soil and LNAPL in this area would be excavated, characterized, and transported off-site for proper disposal such that explosion hazards are reduced to acceptable levels. Alternative 3 would be the most immediate corrective measure compared with Alternative 1 and 2. However, removal of

LNAPL via excavation is not practical or completely effective and would represent the most expensive alternative.

Proposed Alternatives: The proposed alternatives are Alternative 1 (Passive Recovery for LNAPL Area 2) and Alternative 2 (MPE for LNAPL Area 1). Institutional controls, including land use restrictions and restricting groundwater from being used as a drinking water source, will also be imposed at AOI #53.

AOI #71 – Burn Pile

Based on investigations of this area in 2004 and 2005, there are exceedances of Michigan Act 451, Part 201 generic residential and industrial PSIC, VSIC, DCC, and SVIIC in the soil. In addition, there are exceedances of the generic residential and industrial DWC and Groundwater Contact Criteria (GCC). Supplemental field investigations were conducted in March 2006 to define the extent of contamination and determine appropriate corrective measures alternatives. The initial results of the supplemental investigations indicated that the LNAPL had been delineated and that no other major sources of contamination exist at AOI #71. Potential corrective measures alternatives for this area include one or more of the following:

- institutional controls with long-term groundwater monitoring and passive recovery of LNAPL from well MW-1;
- hydraulic containment;
- engineered soil cover; and/or,
- excavation and off-site disposal.

An evaluation of the above corrective measures alternatives is presented below:

Alternative 1: Institutional Controls with Long-Term Monitoring and Passive Recovery of LNAPL - Institutional controls would be imposed, including a land use restriction for commercial/industrial use and a restriction preventing shallow groundwater from being used as a drinking water source. This approach would be consistent with the fact that AOI #71 is within GM's area of active industrial operations at the Facility. In addition, long-term periodic monitoring would be implemented to ensure the remaining constituents do not pose a hazard for future use of this area and that contaminated groundwater is stabilized. Passive recovery of LNAPL from monitoring well MW-1, for the duration that recovery is practical, would be performed using absorbents, bailing, or pumping methods as part of the periodic monitoring of LNAPL thickness in MW-1. Passive recovery would be expected to recover small quantities of LNAPL over a longer time period when recovery is practical. Alternative 1 would be the lowest cost alternative.

Alternative 2: Hydraulic Containment - A slurry wall, groundwater collection trench, or extraction wells (possibly in combination) would be installed to prevent further migration of impacted shallow groundwater from the Facility. The containment system would be installed on the eastern and southern boundaries of the Facility. The collected groundwater would subsequently be treated as necessary. Long-term groundwater monitoring of downgradient monitoring wells would be performed. Alternative 2 would be more costly than Alternatives 1 and 3 but less than Alternative 4.

Alternative 3: Engineered Soil Cover - An engineered soil cover would be installed over all or a portion of the area to minimize precipitation infiltration and to prevent direct contact with any impacted soils. It would also limit the amount of impacted perched groundwater accumulating in the shallow zone. The cost of Alternative 3 would be less than Alternatives 2 and 4 but more than Alternative 1.

Alternative 4: Excavation and Off-Site Disposal - Soil and LNAPL in this area would be completely excavated, characterized, and transported off site for disposal. This Alternative would be the most immediate and would likely remove all contamination but would be impractical and the most expensive alternative.

Proposed Alternative: The proposed alternative for the Burn Pile is Alternative 1, which includes imposition of institutional controls on land and groundwater use. Long-term monitoring of the groundwater would be conducted to ensure the remaining constituents do not pose a hazard for future use of the Facility and to ensure that migration of contaminated groundwater is stabilized. Passive removal of LNAPL from MW-1 would be conducted for the duration that recovery is practical. This alternative would provide sufficient protection of human health and the environment based on an evaluation of the historical data summarized in the Burn Pile Phase 3 Investigation Report and Phase 4 Work Plan, and a preliminary review of the March 2006 investigation. In the event that the final evaluation of the results of the March 2006 investigation would indicate the presence of any potentially significant risk beyond that identified based on the prior data, then Alternative 2, 3 or 4 would be proposed unless other more appropriate corrective measures become necessary.

SUMMARY OF PROPOSED CORRECTIVE MEASURES

The proposed corrective measures for each SWMU/AOI are listed below:

<u>SWMU/AOI</u>	<u>Corrective Measure</u>
AOI #16 – Former Building 29 Tank Farm	Institutional Controls
SWMU #6/AOI #42 – Building 53 Tank Area	No Further Action
AOI #44 – Building 43 Remediation	No Further Action
SWMU #33/AOI #45 – Former South Retention Pond	No Further Action
SWMU #34/AOI #46 – North Retention Pond	Institutional Controls
SWMU #32/AOI #49 – Former Coal Pile Storage Area	Institutional Controls
AOI #50 – DUCO Stores	Closure Under Mich. Act 451,

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AOI # 52 – Building 35 Tank Farm

AOI #53 – Building 33 LNAPL

SWMU #31/AOI #54 – Former Surface Impoundment

SWMU #29/AOI #66 – Wastewater Treatment Plant

AOI #69 – Container Storage Area

AOI #71 – Burn Pile

SWMU #3/AOI #74 – Container Storage Area

SWMU #2/AOI #75 – Former East Tank Farm

SWMU #30/AOI #79 – Former J-Lot Area

AOI #82 – Paint Mix Room Retention Tank

AOI #83 – Dock 65

AOI #84 – Former Tank Farm Area

Part 213 and Institutional
ControlsClosure Under Mich. Act 451,
Part 213 and Institutional
ControlsMPE for LNAPL Area 1,
Passive Recovery for LNAPL
Area 2, Long-Term Monitoring
and Institutional Controls
Institutional Controls

Institutional Controls

Institutional Controls

Institutional Controls, passive
recovery from MW-1 and
long-term monitoring

Institutional Controls

Institutional Controls

Institutional Controls

Institutional Controls

Institutional Controls

Institutional Controls

GENERAL REMEDY STANDARDS

1. Overall Protection – Through the proposed final corrective measures, overall protection will be achieved through institutional controls for select areas and remedial activities such as passive recovery and MPE proposed for AOI #53. Where appropriate, long-term groundwater monitoring is proposed to ensure subsurface conditions are consistent with the current understanding of Facility conditions and to monitor potential health and safety hazards.
2. Attainment of Media Cleanup Standards – The proposed corrective measures are generally based on the use of Michigan Act 451, Part 201 generic cleanup criteria as media cleanup standards. For select AOIs, media cleanup standards are based on risk calculations performed consistent with U.S. EPA methodology.
3. Controlling the Source – Free-phase LNAPL will be removed to the extent practical where risk to human health is present.
4. Compliance With Applicable Standards For Waste Management – A waste management plan will be prepared for the Facility. All waste disposal for the chosen alternatives will be managed in accordance with applicable standards.

REMEDY DECISION FACTORS

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1. Long-term Reliability and Effectiveness – The proposed corrective measures for each area are reliable, long-term, and effective methods to address these areas based on standard engineering practices.
2. Reduction of Toxicity, Mobility, or Volume of Wastes – LNAPL will be removed to the extent practical.
3. Short-term Effectiveness – The proposed corrective measures will be effective in the short-term in achieving protection of human health and the environment. Long-term monitoring will be implemented at Building 33 and the Burn Pile, if required, to ensure the proposed corrective measures are effective in the long term.
4. Implementation – The proposed corrective measures for each area can be readily implemented with no impact to the surrounding community.
5. Costs – The cost of the proposed corrective measures for each area is within an acceptable range.

PUBLIC PARTICIPATION

The U.S. EPA is soliciting comments from the public on corrective measures alternatives presented in this document for the GM facility. The U.S. EPA has scheduled a public comment period of 45 days from June 5, 2006 to July 21, 2006, in order to encourage public participation in the decision process. During the public comment period, the U.S. EPA will accept written comments on the proposed action. The public may submit written comments, questions, and request a public meeting at the following address:

Mr. Daniel Patulski
Environmental Protection Agency
77 West Jackson Boulevard, DW-8J
Chicago, Illinois 60604
Telephone No. (312) 886-0656
patulski.daniel@epa.gov

The administrative record is available for review at the following two locations:

Pontiac Public Library
60 East Pike Street
Pontiac, Michigan

and

United States Environmental Protection Agency

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David Selger

LFR

77 West Jackson Boulevard, DW-8J
Chicago, Illinois 60604
Attention: Daniel Patulski

After U.S. EPA's consideration of the public comments that are received, they will be summarized and responses will be provided in a Response to Comments and Final Decision Document. This document will be drafted after the conclusion of the public comment period and will be incorporated into the administrative record.

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