

**FREE PRODUCT RECOVERY SYSTEMS
ANNUAL MONITORING REPORT
YEAR 2000**

DRAFT



Harding ESE
A MACTEC COMPANY

**FREE PRODUCT RECOVERY SYSTEMS
ANNUAL MONITORING REPORT
YEAR 2000**

DRAFT

**GM POWERTRAIN
WILLOW RUN PLANT
YPSILANTI, MICHIGAN**

PREPARED FOR:
**GENERAL MOTORS CORPORATION
POWERTRAIN GROUP**

PROJECT NUMBER 44065

MAY 2001



Harding ESE

A MACTEC COMPANY

Harding ESE, Inc.

46850 Magellan Drive

Suite 190

Novi, MI 48377

Telephone: 248/926-4008

Fax: 248/926-4009

May 8, 2001

Don Harris
GM Powertrain
Willow Run Transmission Plant
Mail Code 130
Ypsilanti, MI 48198

RE: Free Product Recovery Systems
Annual Monitoring Report
Year 2000

Dear Don:

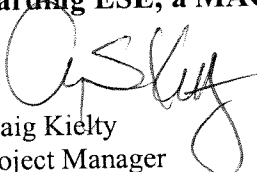
Enclosed are two copies of the above-referenced report for your review. A summary is provided below:

- Two of the areas with recovery systems (Dynamometer Area and Tank 84 Area) have essentially completed their tasks and are ready for post-closure monitoring.
- Four of the areas were operational throughout 2000 with little down-time, and will continue to operate throughout 2001. These areas include Subtest, ATF, Bay E-28 and Bay K-35.
- As you are aware, the Chip House recovery system did not operate in 2000, and major repairs/modifications are needed for product recovery to be efficient. Although the system in the Chip House was inoperational, groundwater monitoring showed no offsite migration of product or dissolved constituents in groundwater.
- Product has been found in Bay EE-10, and this represents a "new" area where product recovery should be initiated. We are proposing that this begin in 2001.

Please call with any questions or comments on this report. We look forward to continuing our work with you at the Powertrain facility.

Sincerely,

Harding ESE, a MACTEC Company


Craig Kielty
Project Manager

**FREE PRODUCT RECOVERY SYSTEMS
ANNUAL MONITORING REPORT
YEAR 2000**

**GM POWERTRAIN
WILLOW RUN PLANT
YPSILANTI, MICHIGAN**

PREPARED FOR:

**GENERAL MOTORS CORPORATION
POWERTRAIN GROUP**

PREPARED BY:

**HARDING ESE, INC.
46850 MAGELLAN DRIVE, SUITE 190
NOVI, MICHIGAN 48377**

PROJECT NUMBER 44065

MAY 2001

TABLE OF CONTENTS

SECTION NO.	TITLE	PAGE NO.
1.	INTRODUCTION.....	2
2.	OPERATION, MAINTENANCE AND MONITORING ACTIVITIES.....	4
2.1	OPERATION AND MAINTENANCE.....	4
2.2	SYSTEM MONITORING	4
3.	RESULTS AND DISCUSSIONS.....	6
3.1	DYNAMOMETER AREA	6
3.2	CHIP HOUSE AREA	8
3.3	ATF AREA	10
3.4	SUBTEST AREA.....	12
3.5	BAY K-35 AREA.....	14
3.6	BAY E-28 AREA.....	16
3.7	FORMER TANK 84	18
4.	SUMMARY.....	19

FIGURE NO.	TITLE
FIGURE 3-1	GROUNDWATER FLOW IN THE CHIP HOUSE AREA
PLATE 1	GROUNDWATER REMEDIATION AREAS

TABLE NO.	TITLE
TABLE 3-1	GROUNDWATER AND PRODUCT MEASUREMENTS – DYNAMOMETER AREA
TABLE 3-2	GROUNDWATER ELEVATIONS IN CHIP HOUSE AREA
TABLE 3-3	GROUNDWATER ANALYTICAL RESULTS IN CHIP HOUSE AREA
TABLE 3-4	GROUNDWATER AND PRODUCT MEASUREMENTS – ATF AREA
TABLE 3-5	GROUNDWATER AND PRODUCT MEASUREMENTS – SUBTEST AREA
TABLE 3-6	GROUNDWATER AND PRODUCT MEASUREMENTS – BAY K-35 AREA
TABLE 3-7	GROUNDWATER AND PRODUCT MEASUREMENTS – BAY E-28 AREA

APPENDICES

APPENDIX A – SYSTEM OPERATION CHECK SHEETS
--

1. INTRODUCTION

In the year 2000, General Motors Corporation (GMC) Powertrain Group operated six free product recovery systems and one groundwater recovery system at the Willow Run plant located in Ypsilanti, Michigan. The six free product plumes are comprised of a variety of petroleum products including gasoline, subtest oil, automatic transmission fluid (ATF), cutting oil and cooling oils. The sources of the free product are not entirely clear, but were most likely to be underground storage tanks (USTs), underground piping, or subsurface trenches associated with machining operations. The free product areas were delineated over a period of several years, and recovery systems were designed, installed and operated by various environmental firms.

Throughout 2000, Harding ESE operated and monitored all seven systems. The systems were operated to:

- Remove free-phase petroleum product from the subsurface (as required by Michigan Public Act 451, Part 201); and
- Contain the plumes to minimize the potential for off-site migration of constituents.

The product recovery systems operate in a similar manner. Free product and water is pumped out via a series of recovery wells installed within the defined product plumes. Excluding the Dynamometer Area, the recovered fluid from each system is conveyed directly to the on-site wastewater treatment facility. Because the fluid recovered from the Dynamometer Area contains gasoline (not oil), recovered fluids from this area undergo product/water separation in the Dynamometer Area. Only the water is discharged directly to the on-site treatment facility. The product (gasoline) is transported offsite for recycling. Groundwater extracted from the one groundwater recovery system is also conveyed to the treatment facility.

This report summarizes the operation, maintenance and monitoring activities conducted by Harding ESE for the seven systems during 2000. This report will serve as a baseline with which to compare future data to track the progress and effectiveness of the recovery systems.

At the Powertrain facility, removing free product from the subsurface has been a slow process. The slow recovery has been attributed to various reasons including the following:

- Site Geology : In general, the upper 10 to 15 feet of soil at the site consists of silty sand. The silty sand is underlain by a substantial clay unit that extends to approximately 90 feet below grade. Groundwater is encountered in the silty sand unit at approximately 8 to 9 feet below ground surface. When product is present it floats on top of the groundwater. The permeability and effective porosity of the silty sand is fairly low, thereby slowing the flow of free product to the recovery wells.
- Free Product: The physical characteristics of the free product associated at the site is very complex. Apart from gasoline at Dynamometer area, all other products are primarily oils (ATF, subtest oil and mixed oils) with viscosity values as high 37.8 centistokes @ 104°F (as compared to 0.98 centistokes @ 70°F for water). Highly viscous fluids tend to move slower in the soils, resulting in slower recovery.
- Limited Access: The recovery of product is limited by the floor space available to install recovery wells or trenches. Trenches offer a larger surface area for free product accumulation and therefore greater product recovery rates. Whenever possible, Powertrain has installed short trenches during construction operations or when an open area on the plant floor became available (e.g., Bay K-35 Area). Moving forward, the installation of recovery trenches will continue whenever possible.

Based on the above-mentioned limitations, overall product recovery at Willow Run facility has been limited. However, the low permeability of the site soils has inhibited the product migration. In fact, based on available information, it appears that the plumes have essentially retained the same configuration for the last ten years. Thus, the plumes appear to be stable and pose no concern of offsite migration. At locations where dissolved constituents associated with the free product plumes may migrate, monitoring plans have been implemented or planned for implementation in the near future.

2. OPERATION, MAINTENANCE AND MONITORING ACTIVITIES

The locations of the seven free product/groundwater recovery systems operating at the GMC Powertrain facility are shown on Plate 1. The individual areas are identified as followed:

- Dynamometer Area (gasoline)
- Chip House Area (mixed oils)
- ATF Area (automatic transmission fluid)
- Subtest Area (subtest oil)
- Bay K-35 Area (oils)
- Bay E-28 Area (oils)
- Former Tank 84 (groundwater only)

Plate 1 indicates the estimated extent of free product at each area based on the most recent data. Note that free product is not present in the Former Tank 84 area. In this area, a single groundwater recovery well extracts groundwater due to residual constituents observed in the excavation when the tank was removed.

2.1 OPERATION AND MAINTENANCE

Throughout 2000, Harding ESE performed system checks at pumping locations, general maintenance, and minor repairs. During each inspection, Harding ESE Technicians recorded the air pressure for each pump and the counter measurement (where counters were installed). In addition, Harding ESE performed general cleaning of pumping systems to ensure proper operation, as needed. Check sheets documenting system measurements and the operational status of each area are provided in Appendix A.

2.2 SYSTEM MONITORING

In addition to checking the operational status of the recovery systems, Harding ESE also collected monitoring data throughout the year. This included liquid level measurements and groundwater monitoring.

Harding ESE collected liquid level measurements on a quarterly basis. Measurements were collected in the Dynamometer Area, Subtest Area, Bay E-28 Area, ATF Area and Bay K-35 Area using an interface probe or an electronic water level meter. These measurements included depth-to-product (if present),

depth-to-water, and a calculation of the apparent product thickness. Measurements were not taken in the Chip House Area because many of the wells are in poor condition and/or were not accessible.

Groundwater monitoring was conducted in the Chip House Area in May, August and November 2000. Due to the area's close proximity of the eastern property line (within 200 feet), groundwater monitoring was conducted to demonstrate no offsite migration of constituents that may be dissolved in groundwater. The groundwater monitoring program consisted of measuring groundwater levels and collecting groundwater samples from wells outside the plume area. Groundwater samples were analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and polynuclear aromatic hydrocarbons (PNAs). The results of these sampling events were documented in a series of technical memoranda. All water level and chemical data was tabulated, and groundwater flow maps were prepared for each sampling event. This information is summarized in the following section.

3. RESULTS AND DISCUSSIONS

This section of the report provides background information on each area, a discussion of the each system's operational status, and recommendations for system operation in 2001.

3.1 DYNAMOMETER AREA

Background Information

A gasoline product plume was first identified in the Dynamometer Area in 1984. The product resulted from a leaking gasoline storage tanks associated with Dynamometer Testing. GMC installed a recovery system in 1985. The system was operated for 4 years and then shutdown in 1989 when it appeared that the recovery rates of groundwater and free product had diminished significantly. A subsequent system was designed and installed in 1993. The system consists of seven single wells. An electrical submersible product recovery pump and a groundwater depression pump is present in each well. These pumps remove product and water to an oil/water separator, located in a treatment building. Gasoline is separated into a containment tank and wastewater is discharged directly to a waste line routed to the on-site GMC wastewater treatment facility.

Current Status

The recovery wells and their current operational status in the Dynamometer Area are summarized below:

**Dynamometer Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-1	8-inch	Ejector Systems	Not operational, need repairs
RW-2	8-inch	Ejector Systems	Not operational, need repairs
RW-3	8-inch	Ejector Systems	Not operational, need repairs
RW-4	8-inch	Ejector Systems	Not operational, need repairs
RW-5	8-inch	Ejector Systems	Not operational, need repairs
RW-6	8-inch	Ejector Systems	Not operational, need repairs
RW-7	8-inch	Ejector Systems	Not operational, need repairs

The gasoline product recovery system at Dynamometer Area was not operational in 2000. Harding ESE evaluated the operational status of the system and found that several components of the treatment system (transfer pump, separator, sensors, etc.) needed repair, replacement, or cleaning. However, liquid level measurements collected in June and November (see Table 3-1) indicated that no measurable free product in any of the wells that were used to monitor the Dynamometer Area. It should be noted that wells MW-6 and R-1 were inaccessible. Historically, product has been present in these wells.

Although no gasoline associated with the Dynamometer Area was found in 2000, some type of oil has been encountered in RW-4 (0.45 feet in November 2000). This oil is likely associated with the Bay EE-10 Area. Bay EE-10 was investigated in 1995 and the possible extent of oil was identified as shown on Plate 1.

Recommendations

For the Dynamometer Area, Harding ESE recommends the following actions in 2001:

1. Continue liquid level measurements to confirm the absence of free product. In doing so, gain access to the areas of wells MW-6 and R-1, if possible.
2. Conduct groundwater sampling to evaluate dissolved-phase concentrations in the Dynamometer Area. Results of the groundwater monitoring will be used to evaluate whether this area can be closed.
3. Administratively, separate the Dynamometer Area from the Bay EE-10 Area.

For the Bay EE-10 Area, Harding ESE recommends the following actions in 2001:

1. Equip well RW-4 with a controllerless pump. This would require GMC to supply an air, line and a water discharge line routed to the water treatment facility.
2. Conduct an investigation in the area to delineate the extent of the oil observed in RW-4 so that the need for additional recovery locations can be evaluated.

3.2 CHIP HOUSE AREA

Background Information

A mixed oil product plume was first identified in the early 1990s when the underground storage tanks in the Chip House Tank Farm were removed. After investigation and design, 15 recovery wells were installed and became operational in May 1995. Each well is outfitted with two pneumatic pumps. A controlled pump is used to depress the water table and a controllerless pump is used to skim/recover product. Recovered fluids are pumped to a common sump and then transferred to GMC's on-site wastewater treatment facility.

Current Status

Recovery wells and their current operational status in the Chip House Area are summarized below:

**Chip House Tank Farm Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-1	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-2	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-3	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-4	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-5	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-6	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-7	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-8	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-9	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-10	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-11	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-12	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-13	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-14	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs
RW-15	6-inch	QED Solo/QED Alpha	Not operational; requires reconfiguration and repairs

The recovery wells in the Chip House Area operated on a limited basis in 2000. The system has been evaluated on several occasions, and it was observed that the conditions within individual well vaults (accumulating oils and chip sludge) caused pumping systems to fail. Due to the poor condition of the recovery wells in the Chip House Area, free product thickness measurements were not collected. An approach for retrofitting the wells or changing out the pumps was discussed with GMC over the course of the year and a proposal was submitted in October 2000.

Because of the operational status of the recovery system and its proximity to the property boundary, groundwater level measurements and samples were collected in May, August and November 2000. Table 3-2 summarizes groundwater level data for the three groundwater monitoring events. Based on this data, groundwater flow maps were prepared to illustrate the anticipated direction of groundwater flow. These maps, provided as Figure 3-1, indicate that groundwater in the Chip House Area is flowing inward toward the plant. Based on the groundwater data, off-site migration of the contaminants is not a concern at this time.

Table 3-3 summarizes the analytical data for groundwater samples collected in the Chip House Area. Excluding groundwater from monitoring well MW-606, no VOCs or PNAs were detected in any wells during any sampling event. Low levels of several PNAs were detected in groundwater from well MW-606 in August 2000. No BTEX or PNA compounds have been detected in this well in the past. MW-606 is finished at grade with a flush-mount cover and is located in an active roadway. Also, this well was observed to be submerged under ponded storm water. It is possible that MW-606 was contaminated with surface water runoff. Given this and the fact that MW-606 is located upgradient of the product area, the low levels of PNAs are not believed to be associated with the free product plume in the area.

Recommendations

For the Chip House Area, Harding ESE recommends the following actions in 2001:

1. Because of its proximity to the property line, conduct two additional rounds of (1/4ly) quarterly monitoring. If these sampling events confirm the findings described above, reduce the sampling frequency to annual.
2. Restore product recovery operations as soon as practical. Initially, conduct a pilot test by retrofitting a pump. Based on the performance at this location, either retrofit or replace the other pumps.

3.3 ATF AREA

Background Information

An ATF product plume was discovered in 1985 when ATF was observed in a manhole located next to the ATF UST farm. After investigation and design, a recovery system was installed and became operational in 1988. A recovery system consisting of seven recovery wells is currently in place and operational. The recovery wells are constructed as “combination wells” or “well within a well.” Generally, a smaller diameter “inner” well is placed inside the larger “outer” well. The water table is depressed by pumping from the inner well, and product is collected from the outer well. The theory is that this well construction method hydraulically isolates the two pumping zones and allows for more efficient product recovery. Wells in the ATF Area have either a 4-inch outer/1.5-inch inner or 8-inch outer/4-inch inner design. Two controlled pneumatic pumps are used at each combination well location. All fluids are discharged to waste lines that are pumped to GM’s on site treatment facility.

Current Status

Recovery wells and their current operational status in the ATF Area are summarized below:

**ATF Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-3	4-inch outer/ 1.5-inch inner	QED Pulse Pump 1301	Operational
RW-10	8-inch outer/ 4-inch inner	QED Pulse Pump 1301	Operational
RW-13	8-inch outer/ 1.5-inch inner	QED Pulse Pump 1301	Operational
RW-15	4-inch outer/ 1.5-inch inner	QED Pulse Pump 1301	Operational
RW-24	4-inch outer/ 1.5-inch inner	QED Pulse Pump 1301	Operational
RW-30	8-inch outer/ 4-inch inner	QED Pulse Pump 1301	Operational
RW-39	4-inch outer/ 1.5-inch inner	QED Pulse Pump 1301	Operational

The recovery system at ATF Area was operational in 2000 with only limited downtime. The system was checked and maintained on a monthly basis, and occasionally the air supply was found to be turned off at some well locations (the reason for this is unknown). Several airline leaks were repaired at RW-10 (June), RW-3 and RW-15 (July), and RW-13 (October). The discharge line was secured to the cage at RW-13 in October.

Liquid level measurements were collected from recovery wells and adjacent monitoring wells on a quarterly basis, as shown on Table 3-4. Apparent product thickness in the ATF Area ranges from 0.79 to 2.86 feet. The thickness of the product indicates that the product pump intake elevations will require more frequent adjustments than originally anticipated.

Recommendations

For the ATF Area, Harding ESE recommends that more frequent adjustments to the product pump intake elevation be conducted in 2001.

3.4 SUBTEST AREA

Background Information

A subtest oil plume was discovered in the late 1980's. The oil appeared to be related to leaking process trenches. After investigation and design, recovery operations began in 1993. The recovery system consists of eight recovery wells. The recovery wells are constructed as single well/single pump systems. The pumps predominantly pneumatic controllerless pumps, with the exception of two controlled pneumatic pumps. All fluids are discharged to waste lines that are pumped to GMC's on site treatment facility.

Current Status

Recovery wells and their current operational status in the Subtest Area are summarized below:

**Subtest Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-14	2-inch	QED Alpha	Operational
RW-15	6-inch	QED Solo II	Operational; needs counter
RW-16	6-inch	QED Solo II	Not operational; needs repairs
RW-17	6-inch	QED Solo II	Operational
RW-18	6-inch	QED Hammerhead	Slow operation; needs repairs
RW-19	6-inch	QED Solo II	Operational
RW-20	6-inch	QED Solo II	Operational
RW-21	4-inch	QED 1601	Operational

The recovery system at Subtest Area was operational in 2000, but Harding ESE found that the air supply to numerous pumps was shut off occasionally. Liquid level measurements were collected from recovery wells and adjacent wells on a quarterly basis, as shown on Table 3-5. Apparent product thickness in the Subtest Area ranges from 0.01 to 1.61 feet.

TMW-15 has a counter that is not working and requires replacement. At TMW-16, a leak in the steel discharge pipe was discovered near the end of the year which require repair by GMC. TMW-19 has been cycling very slowly and it could not be adjusted despite freeing the float. The pump head may be damaged and should be evaluated for replacement in 2001 when accessible.

Recommendations

For the Subtest Area, Harding ESE recommends the following actions in 2001:

1. Replace the counter that is not working at well TMW-15.
2. Repair the leak in the discharge pipe at well TMW-16.
3. Evaluate the pump head at well TMW-19, and if necessary, replace the pump.
4. Adjust the product pump intake elevations more frequently at wells with product thickness greater than 1 foot.

3.5 BAY K-35 AREA

Background Information

In the Bay K-35 Area, a mixed-oil plume was discovered in the early 1990's. The plume resulted from leaking process trenches and quench oil systems. After investigation and design, recovery trenches and wells were installed in the Bay K-35 Area in 1997 and 1998.

Access to this area has been very difficult due to ongoing plant operations. In 1997, recovery wells MW-X, -Y and -Z were drilled within areas of more permeable backfill on the north side of the east-west steam tunnel (see Plate 1). In late 1997, a 40-foot-long recovery trench was installed near the center of the product plume and recovery well RT-1 was placed within the trench. Additional trenches were installed in 1997 and 1998 and wells (RT-2, -3 and -4) were placed in the permeable backfill of each trench. Unfortunately these trenches could not be placed in optimal locations for product recovery. To date, very little product has been observed at well location RT-2, and no product has been observed at well locations RT-3 and RT-4.

Pneumatic controllerless pumps are being used at each recovery location. All fluids are discharged to waste lines that are pumped to GMC's on site treatment facility.

Current Status

Recovery wells and their current operational status are summarized below.

**K-35 Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RT-1(a)	10-inch	QED Solo II	Operational
RT-2	10-inch	No pump	No product so no pump installed
RT-3	10-inch	No pump	No product so no pump installed
RT-4	10-inch	No pump	No product so no pump installed
MW-X	6-inch	QED Solo II	Operational
MW-Y	6-inch	QED Solo II	Operational
MW-Z	6-inch	QED Solo II	Operational

(a) installed in 40-foot-long trench

The product recovery system in the Bay K-35 Area was operational throughout 2000. Harding ESE found that the air supply to MW-Y was shut off fairly often during inspections, and the air was turned back on during the visit. The reason for the shut off is not known. No pump cleaning or replacements were conducted during 2000 in the Bay K-35 Area.

Liquid level measurements were collected from recovery wells and adjacent wells on a quarterly basis, as shown on Table 3-6. Apparent product thickness in the Bay K-35 Area ranges from 0.01 to 1.66 feet. The recovery well located within RT-1, the trench installed in the center of the plume (see Plate 1) has been operating continuously but the product level has remained at least 1 foot thick for the entire year. This indicates that the pump is not able to keep up with the volume of product at this location. The thickness of product at RT-2 location has been minimal (0.01 feet). However, 0.7 feet of product has been observed in well MW-407, which is located 10 feet from well RT-2. No product was observed in wells RT-3 or RT-4, both placed on the edge of the free product plume. It should be noted that no pumps are located at RT-2, RT-3 and RT-4 locations.

Recommendations

For the Bay K-35 Area, Harding ESE recommends the following actions in 2001:

1. Evaluate the capacity of the product recovery pump located in RT-1. If necessary, replace with a higher capacity pump (if possible).
2. Bail the product that has been observed in well MW-407 to evaluate the true thickness of product in this well.
3. Elevated levels of chlorinated volatile organic compounds (VOCs) have been detected in groundwater in the southern area of the Bay K-35 Area. Due to its proximity to the southern site property boundary, investigate the extent of groundwater impacts in the area. A limited soil and groundwater investigation could be conducted using a Geoprobe sampling device.
4. In conjunction with the investigation discussed above, conduct quarterly monitoring of groundwater in the Bay K-35 area to ensure no offsite migration. Collect groundwater water levels in the area to monitor groundwater flow direction, and obtain groundwater samples for VOCs.

3.6 BAY E-28 AREA

Background Information

The free product plume in the Bay E-28 Area is a mixed oil plume resulting from leaking process trenches and piping. Recovery operations were started in 1993, and eight recovery wells are currently in place. Three of the eight recovery wells were constructed as “combination wells” (as described for the ATF Area). Wells in the Bay E-28 Area have an 8-inch outer/2-inch inner casing configuration. Two controlled pneumatic pumps are used at each combination well location. Five of the eight recovery wells are constructed as single well/single pump configurations. Four of these five wells are outfitted with controller less pneumatic pumps. The fifth well is outfitted with a controlled pump. All fluids are discharged to waste lines that are pumped to GM’s on site treatment facility.

Current Status

Recovery wells and their current operational status in the Bay E-28 Area are summarized below:

**E-28 Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-6	2-inch	QED Eliminator	Operational
RW-9	6-inch	QED 24-inch Solo	Operational
RW-10	6-inch	QED 24-inch Solo	Operational
RW-11	6-inch	QED 24-inch Solo	Operational
RW-14	6-inch	QED 24-inch Solo	Shut down; no product
RW-16	8-inch outer/ 2-inch inner	QED Eliminator/QED Alpha	Groundwater pump operational; product pump needs repairs
RW-17	8-inch outer/ 2-inch inner	QED Eliminator/QED Alpha	Groundwater pump operational; product pump needs repairs
RW-18	8-inch outer/ 2-inch inner	QED Eliminator/QED Alpha	Operational; repairs to ancillary equipment needed

The recovery system in the Bay E-28 Area was operational in 2000 with limited downtime. The air supply to a few of the wells was found to be shut off occasionally for unknown reasons. The pump floats were monitored at RW-9, -10 and -11, and the Alpha bladder was replaced at RW-17 in June. Slow recovery was indicated in RW-9 and RW-11 based on an average of 200 pumping cycles per month (other systems in the area operate at >1,000 cycles/month). This may be due to biofouling. In addition, the product recovery pumps (Eliminators) in the combination recovery wells, RW-16 and RW-17 are currently not operational and may need bladders and new controllers. The groundwater depression pumps are operational in these wells.

Liquid level measurements were collected from recovery wells and adjacent wells on a quarterly basis, as shown on Table 3-7. Apparent product thickness in the Bay E-28 Area ranges from 0.01 to 3.67 feet. No product was observed in MW-5, downgradient well located outside the plume boundary.

Recommendations

For the Bay E-28 Area, Harding ESE recommends the following actions in 2001:

1. Determine the cause of slow recovery at well locations RW-9 and RW-11. If the cause is biofouling, consider well rehabilitation followed by routine chemical treatments to minimize fouling.
2. Determine why the product recovery pumps (Eliminators) in the combination recovery wells RW-16 and RW-17 are not operational. Repair these pumps as appropriate.

3.7 FORMER TANK 84

Background Information

Tank 84 was a skimmer tank associated with the plant's wastewater treatment system. In the mid-1990's, a single well with a single pump was installed at this location after a sheen was observed on the water table when the tank was removed. Pumping was conducted using a controllerless pneumatic pump directly discharging to the wastewater treatment facility.

Current Status

Recovery wells and their current operational status in the Former Tank 84 Area are summarized below:

**Former Tank 84 Area Recovery Wells
GM Powertrain, Ypsilanti, Michigan**

<i>Well ID</i>	<i>Well Size</i>	<i>Recovery Pump</i>	<i>Pump Status</i>
RW-84	4 inch	QED Solo II	Not operational; no air supply

In the Former Tank 84 Area, Harding ESE checked the groundwater recovery pump operation on a monthly basis. Groundwater recovery was suspended in September 2000 when Building 19 was demolished and the air supply to the pump was removed.

Recommendations

To close out this area, Harding ESE recommends collecting groundwater samples from the recovery well for analysis of BTEX and PNAs. Analytical results can be compared to the Site-Specific Target Levels (SSTLs) developed for the site. If the constituent concentrations are below the SSTLs, this area can be closed.

4. SUMMARY

In the year 2000, General Motors Corporation (GMC) Powertrain Group operated six free product recovery systems and one groundwater recovery system at the Willow Run plant. Based on system operation and monitoring data collected throughout the year by Harding ESE, operations of the seven systems can be summarized as follows:

- Dynamometer Area (gasoline) – No measurable product in 2000; area is **ready for post-closure monitoring**.
- Chip House Area (mixed oils) – **System inoperational in 2000 and needs major repairs/modifications**. Although the system was shut-down, groundwater monitoring showed **no offsite migration** of product or dissolved constituents.
- ATF Area (automatic transmission fluid) – **System operational** throughout 2000 with little down-time.
- Subtest Area (subtest oil) - **System operational** throughout 2000 with little down-time.
- Bay K-35 Area (oils) - **System operational** throughout 2000 with little down-time.
- Bay E-28 Area (oils) - **System operational** throughout 2000 with little down-time.
- Former Tank 84 (groundwater only) – Area is **ready for post-closure monitoring**.

In addition to the seven recovery systems mentioned above, product has been observed in the Bay EE-10 Area, which is located near the Dynamometer Area. Product recovery should be initiated in Bay EE-10 when possible in the year 2001.

TABLE 3-1
GROUNDWATER AND PRODUCT MEASUREMENTS - DYNAMOMETER AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Well ID	Date Sampled	Well Type	Depth to Product (feet bg)	Depth to Water (feet bg)	Apparent Product Thickness
RW-1	6/22/00	Single	--	10.76	--
	11/14/00		--	10.70	--
RW-2	6/22/00	Single	--	9.68	--
	11/14/00		NM	NM	NM
RW-3	6/22/00	Single	--	9.51	--
	11/14/00		--	9.83	--
RW-4	6/22/00	Single	9.83	10.10	0.27
	11/14/00		9.85	10.30	0.45
RW-5	7/20/00	Single	--	5.96	--
	11/14/00		NM	NM	NM
RW-6	6/22/00	Single	--	5.83	--
	11/14/00		--	6.05	--
RW-7	6/22/00	Single	NM	NM	NM
	11/14/00		--	9.60	--
MW-10	6/22/00	Single	--	7.21	--
	11/14/00		NM	NM	NM
MW-15	6/22/00	Single	--	7.01	--
	11/14/00		--	7.16	--
MW-16	6/22/00	Single	--	6.94	--
	11/14/00		NM	NM	NM
MW-17	6/22/00	Single	--	7.02	--
	11/14/00		--	7.18	--
MW-14	6/22/00	Single	--	7.31	--
	11/14/00		--	7.47	--
MW-19	6/22/00	Single	--	7.78	--
	11/14/00		--	7.92	--

Notes:

-- = No Product
 NM = Not Measured

TABLE 3-2
GROUNDWATER ELEVATIONS IN CHIPHOUSE AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Well Piezometer	Top of Casing Elevation	May 2000		August 2000		November 2000	
		Depth to Water	Water Elevation	Depth to Water	Water Elevation	Depth to Water	Water Elevation
MW-605	99.15	5.93	93.22	5.71	93.87	6.19	93.39
MW-606	97.95	4.24	93.71	3.84	89.87	4.14	85.73
MW-609	97.93	4.37	93.56	4.03	89.53	Submerged	NM
MW-610	98.45	6.31	92.14	6.00	86.14	6.19	79.95
MW-611	99.58	7.75	91.83	7.41	84.42	7.42	77
TMW-6	99.00	6.89	92.11	NM	NM	NM	NM
MW-612	99.57	7.75	91.82	7.41	84.41	7.22	77.19
MW-18	102.10	7.27	94.83	6.28	88.55	9.69	78.86
MW-20	101.80	9.49	92.31	8.41	83.9	9.11	74.79

Notes:

NM = Not Measured

TABLE 3-3
GROUNDWATER ANALYTICAL RESULTS IN CHIPHOUSE AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Compound	Well ID																	
	MW-605			MW-606			MW-609			MW-610			MW-611			MW-612		
	May 2000	August 2000	November 2000	May 2000	August 2000	November 2000	May 2000	August 2000	November 2000	May 2000	August 2000	November 2000	May 2000	August 2000	November 2000	May 2000	August 2000	November 2000
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes(totals)	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	ND	ND	ND	ND	0.618	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	ND	ND	ND	ND	1.33	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	ND	ND	ND	ND	0.354	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	ND	ND	ND	ND	0.851	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	ND	ND	ND	ND	1.83	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	ND	ND	ND	ND	1.18	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	ND	ND	ND	ND	0.109	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	ND	ND	ND	ND	2.12	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)Pyrene	ND	ND	ND	ND	0.736	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	ND	ND	ND	ND	0.651	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	ND	ND	ND	ND	1.28	ND	ND	ND	NS	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA	ND	NA	NA

Notes:
Concentrations in ug/L
ND - not detected
NS - not sampled, well was submerged
NA - not analyzed



TABLE 3-4
GROUNDWATER AND PRODUCT MEASUREMENTS - ATF AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Well ID	Date Sampled	Well Type	Depth to Oil (feet bg)	Depth to Water (feet bg)	Apparent Product Thickness
RW-3	1/13/00	Combination Recovery	6.68	8.46	1.78
	5/23/00	Combination Recovery	5.55	7.01	1.46
	7/20/00	Combination Recovery	5.82	6.88	1.06
	11/30/00	Combination Recovery	6.68	8.46	1.78
RW-10	1/13/00	Combination Recovery	5.94	8.70	0.79
	5/23/00	Combination Recovery	5.57	7.47	1.90
	7/20/00	Combination Recovery	5.76	7.13	1.37
	11/30/00	Combination Recovery	5.91	8.70	2.79
RW-13	1/13/00	Combination Recovery	6.84	7.78	0.84
	5/23/00	Combination Recovery	6.75	7.75	1.00
	7/20/00	Combination Recovery	7.03	8.01	0.98
	11/30/00	Combination Recovery	6.84	7.78	0.84
RW-15	1/13/00	Combination Recovery	6.42	7.29	0.89
	5/23/00	Combination Recovery	6.26	7.39	1.13
	7/20/00	Combination Recovery	6.42	7.66	1.24
	11/30/00	Combination Recovery	6.42	7.29	0.89
RW-24	1/13/00	Combination Recovery	7.20	8.72	1.52
	5/23/00	Combination Recovery	7.33	8.65	1.32
	7/20/00	Combination Recovery	NM	NM	NM
	11/30/00	Combination Recovery	7.20	8.72	1.52
RW-30	1/13/00	Combination Recovery	6.76	9.62	2.86
	5/23/00	Combination Recovery	6.79	9.40	2.61
	7/20/00	Combination Recovery	6.92	9.49	2.57
	11/30/00	Combination Recovery	6.76	9.62	2.86
RW-39	1/13/00	Combination Recovery	7.70	8.78	1.08
	5/23/00	Combination Recovery	7.44	8.73	1.29
	7/20/00	Combination Recovery	7.02	8.86	1.84
	11/30/00	Combination Recovery	7.70	8.78	1.08
MW-21	1/13/00	Single	6.15	8.80	2.62
	5/23/00	Single	6.13	8.67	2.54
	7/20/00	Single	NM	NM	NM
	11/30/00	Single	6.15	8.80	2.65
MW-29	1/13/00	Single	6.21	8.48	2.27
	5/23/00	Single	6.30	8.40	2.10
	7/20/00	Single	6.24	8.48	2.24
	11/30/00	Single	6.21	8.48	2.27
MW-1	1/13/00	Combination	5.25	6.50	1.25
	5/23/00	Combination	5.25	6.41	1.16
	7/20/00	Combination	NM	NM	NM
	11/30/00	Combination	5.25	6.50	1.25
MW-5	1/13/00	Single	--	6.38	--
	5/23/00	Single	--	6.34	--
	7/20/00	Single	--	6.29	--
	11/30/00	Single	--	6.38	--
MW-18	1/13/00	Combination	--	9.69	--
	5/23/00	Combination	NM	NM	NM
	7/20/00	Combination	--	9.28	--
	11/30/00	Combination	--	9.69	--
MW-20	1/13/00	Combination	--	9.11	--
	5/23/00	Combination	--	9.08	--
	7/20/00	Combination	--	8.89	--
	11/30/00	Combination	--	9.11	--

Notes: -- = No Product
 NM = Not Measured

TABLE 3-5
GROUNDWATER AND PRODUCT MEASUREMENTS - SUBTEST AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Well ID	Date Sampled	Well Type	Depth to Product (feet bg)	Depth to Water (feet bg)	Apparent Product Thickness
TMW-14	1/13/00	Recovery	7.18	7.31	0.13
	5/23/00	Recovery	7.01	7.11	0.10
	8/21/00	Recovery	7.06	7.21	0.15
	11/16/00	Recovery	NM	NM	NM
TMW-15	1/13/00	Recovery	7.24	7.34	0.10
	5/23/00	Recovery	7.02	7.12	0.10
	8/21/00	Recovery	7.08	7.09	0.01
	11/16/00	Recovery	7.31	8.11	0.80
TMW-16	1/13/00	Recovery	7.24	7.89	0.65
	5/23/00	Recovery	7.14	7.82	0.68
	8/21/00	Recovery	7.10	7.91	0.70
	11/16/00	Recovery	7.39	9.00	1.61
TMW-17	1/13/00	Recovery	7.29	7.67	0.38
	5/23/00	Recovery	7.04	7.41	0.37
	8/21/00	Recovery	7.09	7.45	0.36
	11/16/00	Recovery	7.33	8.15	0.82
TMW-18	1/13/00	Recovery	7.19	7.75	0.56
	5/23/00	Recovery	7.10	7.39	0.29
	8/21/00	Recovery	7.11	7.51	0.40
	11/16/00	Recovery	7.26	7.87	0.61
TMW-19	1/13/00	Recovery	7.28	7.34	0.06
	5/23/00	Recovery	7.21	7.23	0.02
	8/21/00	Recovery	7.05	7.08	0.03
	11/16/00	Recovery	7.32	7.73	0.41
TMW-20	1/13/00	Recovery	10.65	10.81	0.16
	5/23/00	Recovery	10.54	10.59	0.05
	8/21/00	Recovery	10.67	10.68	0.01
	11/16/00	Recovery	10.61	10.90	0.29
TMW-21	1/13/00	Recovery	5.60	5.64	0.04
	5/23/00	Recovery	5.53	5.57	0.04
	8/21/00	Recovery	--	5.58	--
	11/16/00	Recovery	NM	NM	NM
TMW-1	1/13/00	Monitoring	--	7.21	--
	5/23/00	Monitoring	--	7.24	--
	8/21/00	Monitoring	--	7.31	--
	11/16/00	Monitoring	--	7.28	--
TMW-7	1/13/00	Monitoring	--	7.18	--
	5/23/00	Monitoring	--	7.20	--
	8/21/00	Monitoring	--	7.24	--
	11/16/00	Monitoring	--	7.20	--
TMW-12	1/13/00	Monitoring	--	7.16	--
	5/23/00	Monitoring	--	7.14	--
	8/21/00	Monitoring	--	7.18	--
	11/16/00	Monitoring	--	7.19	--
MW-38	1/13/00	Combination Monitoring	NM	NM	NM
	5/23/00	Combination Monitoring	NM	NM	NM
	8/21/00	Combination Monitoring	7.10	7.24	0.14
	11/16/00	Combination Monitoring	7.18	7.40	0.22
MW-45	1/13/00	Combination Monitoring	NM	NM	NM
	5/23/00	Combination Monitoring	NM	NM	NM
	8/21/00	Combination Monitoring	7.17	7.43	0.26
	11/16/00	Combination Monitoring	7.26	7.48	0.22
MW-52	1/13/00	Combination Monitoring	NM	NM	NM
	5/23/00	Combination Monitoring	NM	6.87	NM
	8/21/00	Combination Monitoring	7.28	8.65	1.37
	11/16/00	Combination Monitoring	7.33	8.46	1.13

Notes:

-- = No Product
 NM = Not Measured



TABLE 3-6
GROUNDWATER AND PRODUCT MEASUREMENTS - BAY K-35 AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

Well ID	Date Sampled	Well Type	Depth to Oil (feet bg)	Depth to Water (feet bg)	Apparent Product Thickness
RT-1	1/13/00	Single Recovery	7.48	8.70	1.22
	5/23/00	Single Recovery	7.44	8.51	1.07
	7/20/00	Single Recovery	7.51	8.61	1.10
	11/30/00	Single Recovery	7.43	8.43	1.03
MW-X	1/13/00	Single Recovery	9.40	9.45	0.05
	5/23/00	Single Recovery	9.42	9.43	0.01
	7/20/00	Single Recovery	9.39	9.40	0.01
	11/30/00	Single Recovery	9.37	9.41	0.04
MW-Y	1/13/00	Single Recovery	9.71	10.25	0.54
	5/23/00	Single Recovery	9.67	9.89	0.22
	7/20/00	Single Recovery	7.13	8.79	1.66
	11/30/00	Single Recovery	9.60	10.01	0.41
MW-Z	1/13/00	Single Recovery	9.38	9.43	0.05
	5/23/00	Single Recovery	9.48	9.51	0.03
	7/20/00	Single Recovery	8.81	8.83	0.02
	11/30/00	Single Recovery	9.28	9.31	0.03
RT-2	1/13/00	Single	8.71	8.72	0.01
	5/23/00	Single	8.60	8.61	0.01
	7/20/00	Single	8.44	8.45	0.01
	11/30/00	Single	--	8.38	--
RT-3	1/13/00	Single	--	8.80	--
	5/23/00	Single	--	8.69	--
	7/20/00	Single	--	8.61	--
	11/30/00	Single	--	8.56	--
RT-4	1/13/00	Single	--	8.91	--
	5/23/00	Single	--	8.83	--
	7/20/00	Single	--	8.82	--
	11/30/00	Single	--	8.77	--
MW-815	1/13/00	Single	--	8.07	--
	5/23/00	Single	--	8.01	--
	7/20/00	Single	--	7.85	--
	11/30/00	Single	--	7.79	--
MW-407	1/13/00	Single	8.60	9.32	0.68
	5/23/00	Single	8.52	9.12	0.60
	7/20/00	Single	8.49	9.20	0.71
	11/30/00	Single	8.41	9.09	0.68
MW-403	1/13/00	Single	--	7.98	--
	5/23/00	Single	--	7.72	--
	7/20/00	Single	--	7.69	--
	11/30/00	Single	--	7.60	--
MW-818	1/13/00	Single	NM	NM	NM
	5/23/00	Single	--	8.33	--
	7/20/00	Single	NM	NM	NM
	11/30/00	Single	NM	NM	NM

Notes:

-- = No Product
NM = Not Measured

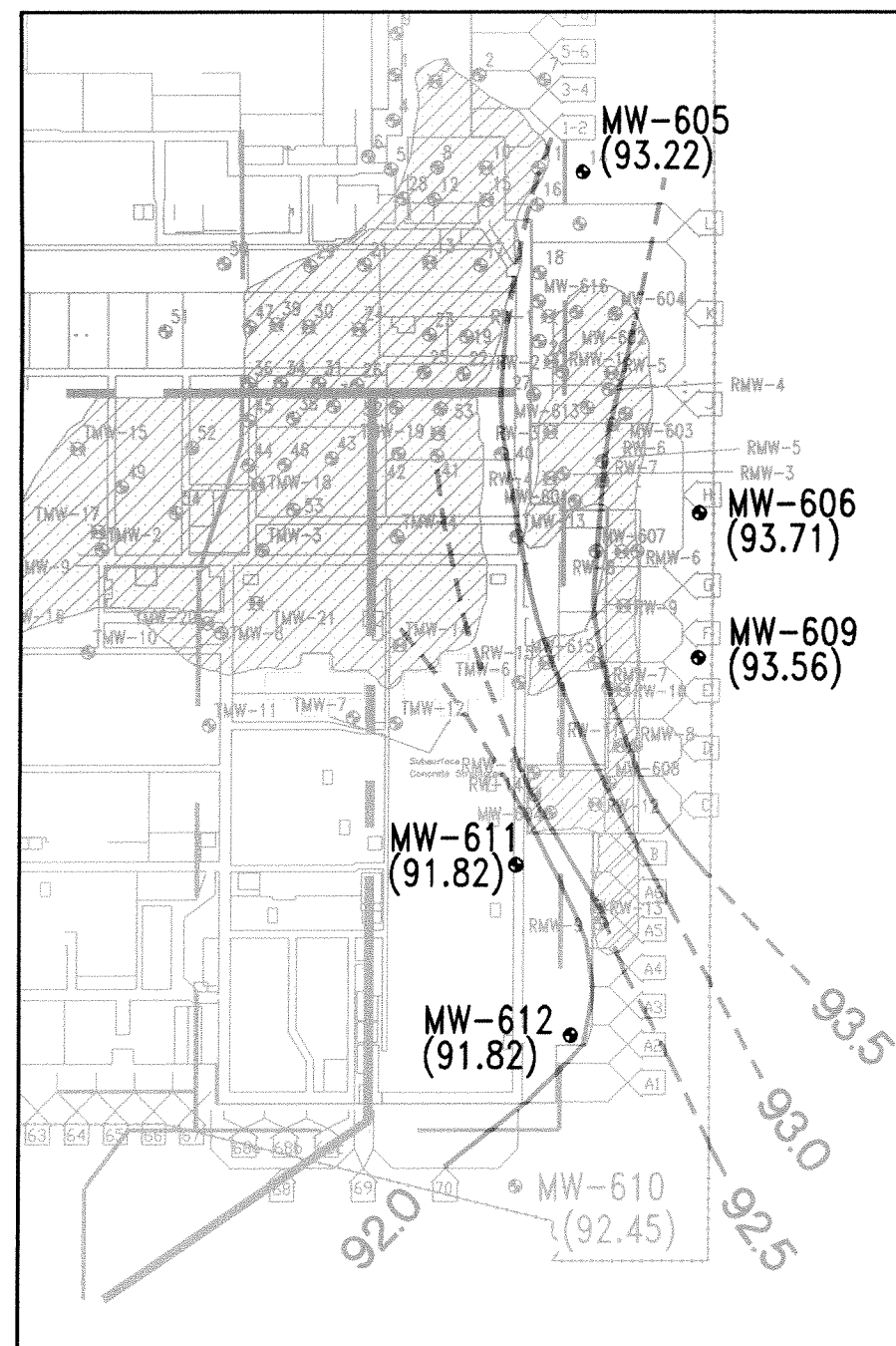


TABLE 3-7
GROUNDWATER AND PRODUCT MEASUREMENTS - BAY E-28 AREA
GM POWERTRAIN
YPSILANTI, MICHIGAN

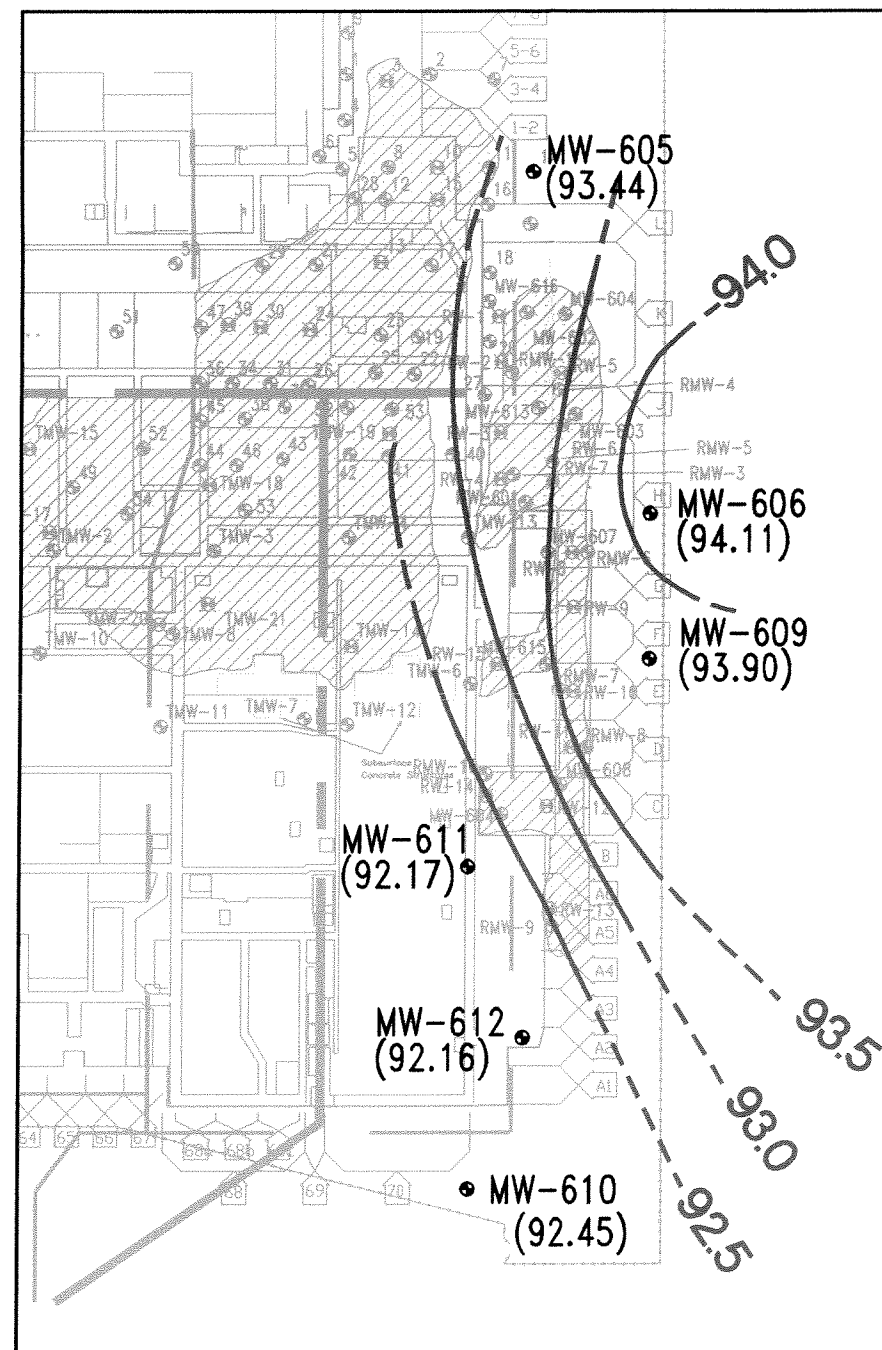
Well ID	Date Sampled	Well Type	Depth to Oil (feet bg)	Depth to Water (feet bg)	Apparent Product Thickness
RW-6	1/13/00	Single Recovery	7.95	8.91	0.96
	5/23/00	Single Recovery	7.80	8.78	0.98
	7/20/00	Single Recovery	NM	NM	NM
	10/10/00	Single Recovery	8.04	8.83	0.79
RW-9	1/13/00	Single Recovery	7.81	8.20	0.39
	5/23/00	Single Recovery	7.68	8.01	0.33
	7/20/00	Single Recovery	NM	NM	NM
	10/10/00	Single Recovery	7.96	8.85	0.89
RW-10	1/13/00	Single Recovery	12.43	12.68	0.25
	5/23/00	Single Recovery	12.80	12.91	0.11
	7/20/00	Single Recovery	12.86	12.87	0.01
	10/10/00	Single Recovery	12.74	12.81	0.07
RW-11	1/13/00	Single Recovery	8.97	10.45	1.48
	5/23/00	Single Recovery	8.99	11.04	2.05
	7/20/00	Single Recovery	7.57	11.24	3.67
	10/10/00	Single Recovery	7.80	4.21	3.41
RW-14	1/13/00	Single Recovery	--	7.22	--
	5/23/00	Single Recovery	--	7.01	--
	7/20/00	Single Recovery	--	7.05	--
	10/10/00	Single Recovery	--	7.15	--
RW-16	1/13/00	Combination Recovery	7.60	7.62	0.02
	5/23/00	Combination Recovery	7.28	7.29	0.01
	7/20/00	Combination Recovery	--	7.41	--
	10/10/00	Combination Recovery	7.39	7.41	0.02
RW-17	1/13/00	Combination Recovery	7.47	8.12	0.65
	5/23/00	Combination Recovery	7.16	8.01	0.85
	7/20/00	Combination Recovery	7.23	8.01	0.78
	10/10/00	Combination Recovery	7.61	9.18	1.57
RW-18	1/13/00	Combination Recovery	7.49	7.69	0.20
	5/23/00	Combination Recovery	7.29	7.38	0.09
	7/20/00	Combination Recovery	7.33	7.44	0.11
	10/10/00	Combination Recovery	7.47	7.77	0.30
MW-3	1/13/00	Single	NM	NM	NM
	5/23/00	Single	7.00	7.94	0.94
	7/20/00	Single	7.03	8.10	1.07
	10/10/00	Single	NM	NM	NM
MW-5	1/13/00	Single	--	9.95	--
	5/23/00	Single	--	9.81	--
	7/20/00	Single	--	9.89	--
	10/10/00	Single	--	9.84	--

Notes:

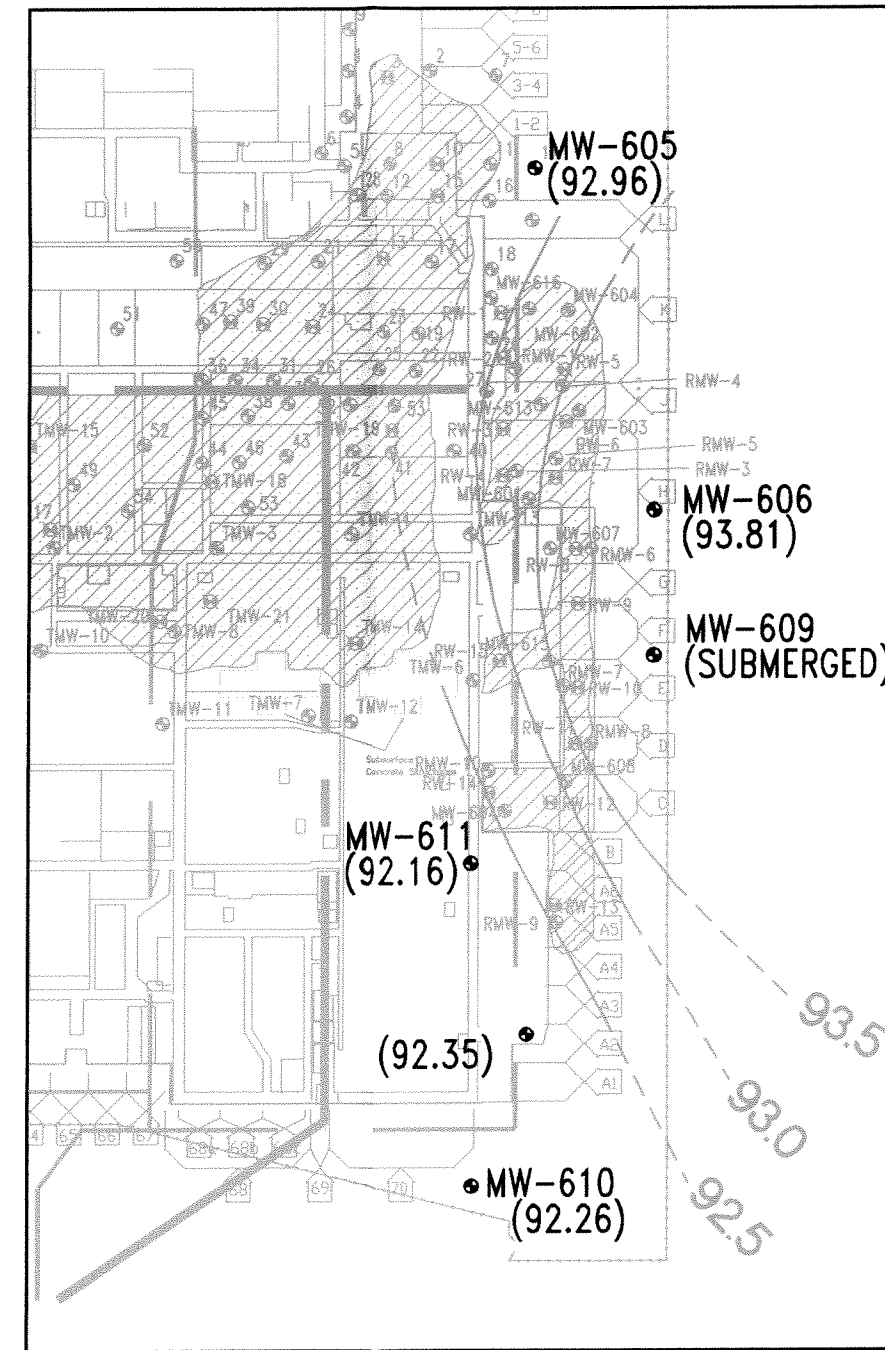
-- = No Product
 NM = Not Measured



MAY 2000



AUGUST 2000

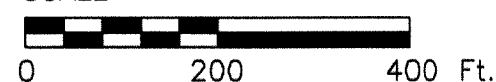


NOVEMBER 2000

Legend

- Groundwater Contours (May 2000)
- Groundwater Contours (August 2000)
- Groundwater Contours (November 2000)

SCALE



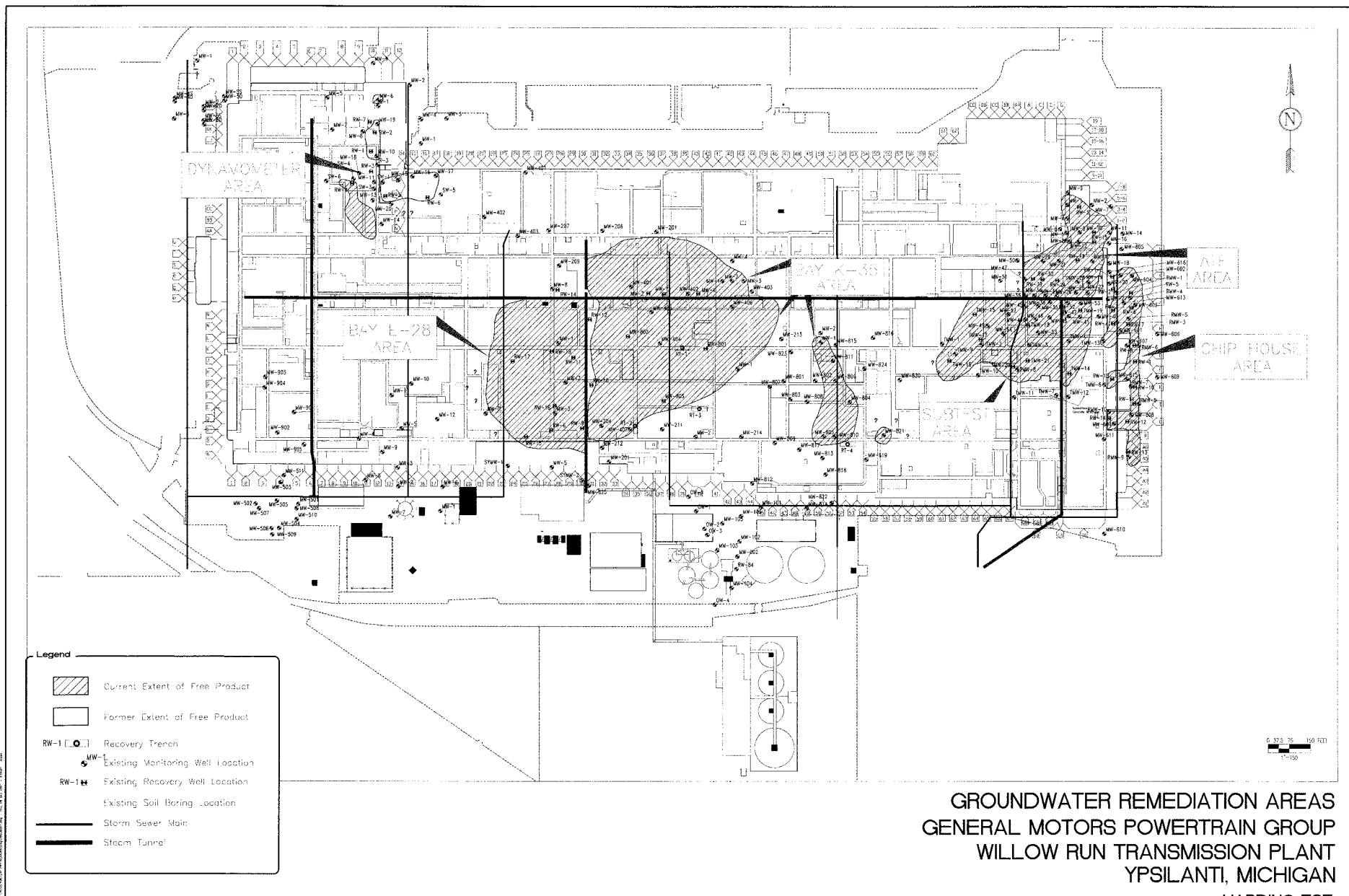
Harding ESE

A MACTEC COMPANY

46850 Magellan Drive, Suite 190
Novi, MI 48377
248-926-4008

FIGURE 3-1

GROUNDWATER FLOW IN THE
CHIPHOUSE AREA
GENERAL MOTORS POWERTRAIN
YPSILANTI, MICHIGAN



SYSTEM OPERATION CHECK SHEETS

ATF AREA

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	70 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site Joe Koeneman

Date 1/13/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	65 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site Joe Koeneman

Date 4/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	65 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site J. Koenenman/T. Fox

Date 5/23/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - E		Turned air supply on to 50 PSI
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		Polyethylene air line leak fixed
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - C		Turned air supply on to 50 PSI
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	65 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site C. Kiely/M. Miller

Date 6/22/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		Polyethylene air line leak fixed
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		Polyethylene air line leak fixed
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site Fox/Koeneman/Workman

Date 7/20/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - E		Turned air supply on to 50 PSI
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - E		Turned air supply on to 50 PSI
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site

Fox/Koeneman

Date

8/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	0 PSI	Off	Discharge - C Refill - C		Turned air supply on to 50 PSI
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site

C. Kielty

Date

Sep-00

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		Polyethylene air line leak fixed; Discharge line secured to cage
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site

C. Kiely

Date

10/10/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - E		Turned air supply on to 50 PSI
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	0 PSI	Off	Discharge - C Refill - C		Turned air supply on to 50 PSI
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - E		No problems noted

Personnel On-Site

C. Kielty/ M. Miller

Date

11/14/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
ATF Area								
RW-3	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-10	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-13	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	50 PSI	On	Discharge - C Refill - E		No Problems noted
RW-15	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1301	45 PSI	On	Discharge - C Refill - C		No Problems noted
RW-24	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - C		No Problems noted
RW-30	8-inch outer/ 4-inch inner	Recovery	QED Pulse Pump 1401	50 PSI	On	Discharge - C Refill - C		No Problems noted
RW-39	4-inch outer/ 1.5-inch inner	Recovery	QED Pulse Pump 1401	55 PSI	On	Discharge - C Refill - E		No Problems noted

Personnel On-Site Fox/Koeneman

Date 11/30/2000

BAY E-28 AREA

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off		30168	Air supply turned on to 70 PSI
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		45581	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		80291	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Air supply turned on to 70 PSI
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	0 PSI	Off	Discharge - B Refill - B		Air supply turned on to 50 PSI
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	0 PSI	Off	Discharge - B Refill - B		Air supply turned on
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site J. Koeneman

Date 1/13/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		32451	Checked float travel
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		48370	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		81189	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	75 PSI	On			No problems noted
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		No problems noted
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site J. Koeneman

Date 4/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		33321	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		49337	Checked float travel
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		81420	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Air supply turned on to 75 PSI
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		No problems noted
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

J. Koeneman/T. Fox

Date

5/23/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		34192	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		50491	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		81604	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	75 PSI	On			No problems noted
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		Alpha bladder replaced
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

C. Kiely/M. Miller

Date

6/22/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		34991	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		51623	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		81794	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Air supply turned on to 75 PSI
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		No problems noted
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site Fox/Koenenman/Workman

Date 7/20/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		35840	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		52421	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		81985	Checked float travel; Discharge line kinked
RW-14	6-inch	Recovery	QED 24-inch Solo	75 PSI	On			No problems noted
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		No problems noted
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

T. Fox/J. Koeneman

Date

8/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		36651	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		53674	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		82172	Discharge line adjusted so no kink in line
RW-14	6-inch	Recovery	QED 24-inch Solo	75 PSI	On			No problems noted
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

C. Kiely

Date

9/00/00

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		37429	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		55128	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		82366	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Shut down pending analytical results
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

C. Kielty

Date

10/11/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		38196	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		56619	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		82549	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Shut down
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

C. Kielty/ M. Miller

Date

11/14/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Bay E-28								
RW-6	2-inch	Recovery	QED Eliminator	50 PSI	On	Discharge - B Refill - B		No problems noted
RW-9	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		38321	No problems noted
RW-10	6-inch	Recovery	QED 24-inch Solo	75 PSI	On		56973	No problems noted
RW-11	6-inch	Recovery	QED 48-inch Solo	75 PSI	On		82647	No problems noted
RW-14	6-inch	Recovery	QED 24-inch Solo	0 PSI	Off			Shut down
RW-16	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-17	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	60 PSI	On	Discharge - B Refill - B		Alpha pump working; Eliminator pump not cycling - unable to start
RW-18	8-inch outer/ 2-inch inner	Recovery	QED Eliminator/ QED Alpha	50 PSI	On	Discharge - B Refill - B		Air gauge site glass broken

Personnel On-Site

J. Koeneman/T. Fox

Date

11/30/2000

K-35 AREA

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		25761	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	70 PSI	On		50283	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		8132	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	0 PSI	Off		34751	Pump inlet at 8.6 feet w/ 2 foot can Air supply turned back on at 70 PSI

Personnel On-Site Joe Koeneman

Date 1/13/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		29077	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		71512	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		53060	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		64706	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Joe Koeneman

Date

4/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		34642	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		80014	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	70 PSI	On		59171	Pump inlet at 10 feet w/ 2 foot can
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		74462	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Joe Koeneman/Tom Fox

Date

5/23/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
<i>K-35 Area</i>								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		41002	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		89437	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	70 PSI	Off		65321	Pump inlet at 10 feet w/ 2 foot can
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		85331	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Mike Miller/Craig Kielty

Date

6/22/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
<i>K-35 Area</i>								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		46239	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		97285	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		73060	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		94368	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Kiely/Workman

Date

7/20/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		68433	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		115444	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		73238	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		98434	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Koeneman/Fox

Date

8/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
<i>K-35 Area</i>								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		93467	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		130927	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		73408	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		102671	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Craig Kiely

Date

9/00/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
<i>K-35 Area</i>								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		123341	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		156371	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		73750	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		106486	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Craig Kiely

Date

10/11/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		144934	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		168253	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		73900	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		111985	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

Miller/Kielty

Date

11/14/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
 Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
K-35 Area								
RT-1	10-inch	Recovery	QED Solo II	70 PSI	On		150002	Pump inlet at 8.6 feet (no skimmer can)
MW-X	6-inch	Recovery	QED Solo II	75 PSI	On		171857	Pump inlet at 8.6 feet w/ 2 foot can
MW-Y	6-inch	Recovery	QED Solo II	0 PSI	Off		74001	Pump inlet at 10 feet w/ 2 foot can Air supply turned back on at 70 PSI
MW-Z	6-inch	Recovery	QED Solo II	75 PSI	On		112450	Pump inlet at 8.6 feet w/ 2 foot can

Personnel On-Site

C. Kielty

Date

11/22/2000

SUBTEST AREA

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		794586	No problems noted
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		427455	No problems noted
TMW-18	6-inch	Recovery	QED Hammerhead	80 PSI	On		600084	No problems noted
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		30094	No problems noted
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		350889	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site J. Koeneman

Date 1/13/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	0 PSI	Off		800642	Air supply turned on to 70 PSI
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		--	No problems noted
TMW-18	6-inch	Recovery	QED Hammerhead	0 PSI	Off		601634	Air supply turned on to 70 PSI
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		--	No problems noted
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		363699	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site J. Koeneman

Date 4/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	0 PSI	Off		--	Air supply turned on to 70 PSI/ No Counter measurement
TMW-17	6-inch	Recovery	QED Solo II	0 PSI	Off		--	Air supply turned on to 75 PSI/ No Counter measurement
TMW-18	6-inch	Recovery	QED Hammerhead	70 PSI	On		--	No Counter measurement
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		--	No Counter measurement
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site J. Koeneman/T. Fox

Date 5/23/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		805994	No problems noted
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		489277	No problems noted
TMW-18	6-inch	Recovery	QED Hammerhead	80 PSI	On		602541	No problems noted
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		30277	Slow recovery cycling/ Could not lower pump
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		372321	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site C. Kiely/M. Miller

Date 6/22/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		808089	No problems noted
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		500466	No problems noted
TMW-18	6-inch	Recovery	QED Hammerhead	80 PSI	On		603054	No problems noted
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		30381	No problems noted
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		377055	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site Fox/Koeneman/Workman

Date 7/20/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-18	6-inch	Recovery	QED Hammerhead	80 PSI	On		--	No Counter measurement
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		--	No Counter measurement
TMW-21	4-inch	Recovery	QED Bladder	0 PSI	Off	Discharge - B Refill - B		Air supply turned on to 50 PSI

Personnel On-Site T. Fox/J. Koeneman

Date 8/21/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	0 PSI	Off			Counter not functioning/Air supply turned on to 75 PSI
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		813114	No problems noted
TMW-17	6-inch	Recovery	QED Solo II	0 PSI	Off		502701	Air supply turned on to 75 PSI
TMW-18	6-inch	Recovery	QED Hammerhead	0 PSI	Off		604151	Air supply turned on to 80 PSI
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		31126	Slow cycling/Could not adjust pump Cleaned float
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		389443	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	50 PSI	On	Discharge - B Refill - B		No problems noted

Personnel On-Site

C. Kiely

Date

9/00/00

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-17	6-inch	Recovery	QED Solo II	0 PSI	Off		--	Air supply turned on to 75 PSI
TMW-18	6-inch	Recovery	QED Hammerhead	0 PSI	Off		--	Air supply turned on to 75 PSI
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		--	No Counter measurement
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		--	No Counter measurement
TMW-21	4-inch	Recovery	QED Bladder	0 PSI	Off	Discharge - B Refill - B		Air supply turned on to 50 PSI

Personnel On-Site

C. Kiely

Date

10/10/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/ Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	75 PSI	On		818688	Discharge piping leaking/ Adjusted pipe and stopped
TMW-17	6-inch	Recovery	QED Solo II	0 PSI	Off		--	Air supply turned on to 75 PSI
TMW-18	6-inch	Recovery	QED Hammerhead	0 PSI	Off		--	Air supply turned on to 80 PSI
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		--	Pump head appears to be cracked/ Slow cycling
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		403315	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	0 PSI	Off	Discharge - B Refill - B		Air supply turned on to 50 PSI

Personnel On-Site C. Kiely/M. Miller

Date 11/14/2000

RECOVERY WELL STATUS
GM POWERTRAIN GROUP
Ypsilanti, Michigan

Area/Well ID	Well Size	Well Type	Recovery Pump	Air Pressure	On/Off	Setting	Counter	Comments
Subtest Area								
TMW-14	2-inch	Recovery	QED Alpha	50 PSI	On	Discharge - B Refill - B		No problems noted
TMW-15	6-inch	Recovery	QED Solo II	75 PSI	On			Counter not functioning/Pump cycling
TMW-16	6-inch	Recovery	QED Solo II	0 PSI	Off		818698	Discharge line black pipe leaking
TMW-17	6-inch	Recovery	QED Solo II	75 PSI	On		504340	No problems noted
TMW-18	6-inch	Recovery	QED Hammerhead	80 PSI	On		607120	No problems noted
TMW-19	6-inch	Recovery	QED Solo II	75 PSI	On		32390	No problems noted
TMW-20	6-inch	Recovery	QED Solo II	70 PSI	On		402896	No problems noted
TMW-21	4-inch	Recovery	QED Bladder	55 PSI	On	Discharge - B Refill - B		Discharge hose kinked from enclosure

Personnel On-Site T. Fox/J. Koeneman

Date 11/30/2000