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# MEMORANDUM

RE:	PAOC and RCRA Review - GMPTG Willow Run Facility		
C.C.:	Scott Adamowski, Tom Kinney		
FROM:	Michael Reece/mlr/20/Det.	DATE:	March 24, 2003
To:	Ken Richards	REF. NO.:	17358-22

## 1.0 INTRODUCTION

This memorandum presents the results of Conestoga Rovers and Associates (CRA) Potential Areas of Concern (PAOC) and Resource Conservation and Recovery Act (RCRA) Status review conducted in conjunction with the light non-aqueous phase liquid (LNAPL) investigation at the General Motors Powertrain Group – Willow Run Plant (Site) in Ypsilanti, Michigan.

## 2.0 <u>BACKGROUND</u>

The GMPT Willow Run site has been in operation since 1941. The facility was initially built by the Ford Motor Company to manufacture B-24 Bombers for the war effort. After the war, the plant was purchased by Kaiser-Fraser to produce automobiles. During the Korean War, Kaiser-Fraser produced C-119 and C-123 planes at the facility. In 1953, Kaiser-Fraser disbanded operations. Finally, the facility was purchased by General Motors in late 1953, and used to the present day for the manufacture of automobile transmissions. The facility consists of 4.5 million square feet of manufacturing area having various process operations over the years. These operations have primarily included machining, cleaning, and painting of metal parts and products.

In the early 1980's, GM became aware of oil accumulating under the plant from the metal processing operations, and possible leakage from the many sumps, pits and flumes making up the plant's infrastructure. During the 80's and 90's, GM also became aware of areas outside the building footprint that were impacted by activities conducted at the Site. During this time, GM had initiated limited investigative and remedial efforts including soil borings and monitoring wells, and the installation of several oil recovery systems. As a result of the previous investigations, 23 PAOCs were initially identified.

## 3.0 <u>REVIEW ACTIVITIES</u>

As part of the PAOC and RCRA status review, CRA performed the following activities:

- Review of Michigan Department of Environmental Quality (MDEQ), United Status Environmental Protection Agency (USEPA) Region 5, and facility files/records related to environmental subjects (Air, Water, Waste, Tanks, and the original 23 PAOCs) at the Site;
- Review of environmental databases from the above mentioned regulatory entities;



- Interview of former and current GMPT Willow Run personnel;
- Review of historical drawings for the Site;
- Review of Mr. Warren Kidder's book "Willow Run Colossus of Amercian Industry";
- Review of historical information for Willow Run at the Benson Ford Research Center located at the Henry Ford Museum & Greenfield Village;
- Contracted Environmental Data Resources, Inc. (EDR) to conduct additional computerized database searches for additional information; and
- Site visits to observe current Site activities.

During the review activities, CRA was unable to locate information related to Kaiser-Fraser's processess at the Site from 1945 to 1953.

As a result of the review activities, 19 additional PAOCs were identified in addition to the 23 PAOCs originally identified. The 42 PAOCs and their status are discussed in Table 1. The PAOCs are also shown on Figures 1 and 2.

During the collection and reivew of data, it was noted that there was several unsubstaniated allegations of spills and material handling issues. While these allegations could not be confirmed or denied, the Remedial Investigation (RI) for the site will deal with potential impacts that may have occurred from the issues.

## 4.0 <u>RCRA STATUS</u>

As part of this task, CRA reviewed files/databases from the MDEQ - Waste and Hazardous Materials Division and the USEPA – Region 5 regarding the RCRA status of GMPTG Willow Run Facility. The Site previously operated a hazardous waste drum storage area in what is now the Barrel Yard. Based on available information, the GMPTG Willow Run does not appear to be a RCRA permitted facility and is not subject to the RCRA Corrective Action program. However, there is conflicting information that indicates that a RCRA Facility Assessment (RFA) was performed at Willow Run and that Willow Run was catagorized as being a low priority for Corrective Action.

Futher investigation has indicated that the RFA was Preliminary Assessment and Visual Site Inspection by PRC Environmental Management, Inc. (contactor for USEPA). PRC was hired by the USEPA to conduct PA/VSI's of hazardous waste treatment and storage facilities in Region V. In 1992, as part of the Region V Environmental Priorities Initiative, the RCRA and CERCLA programs were working to identify and address RCRA facilities that had high priority for corrective action. Using the PA/VSI, the USEPA gathered information to characterize a facility's actual or potential releases to the environment from solid waste management units (SWMU) and areas of concern (AOC). The facility was part of this program due to previously filing a Part A TSDF permit for the hazardous waste drum storage area.

The PA/VSI identified 12 SWMUs and 9 AOCs at the facility (Current PAOC # are listed):

## <u>SWMUs</u>

- Satellite Accumulation Areas
- Hazadous Waste Storage Building (PAOC 23)
- Sludge Handling Area
- Industrial Wastewater Treatment System

- Storm Water Treatment System
- Drum Handling Area (empty drums)
- Nonusable Equipment Handling Area
- Fly Ash Silo
- Former Industrial Wastewater Treatment System (PAOC 13)
- Former Drum Handling Area (PAOC 4)
- North Yard (PAOC 12)
- Free-Phase Product Recovery and Ground Water Collection Systems (PAOC's with free product)

## AOCs

- Former ATF USTs (PAOC 10)
- Former Dynamometer USTs (PAOC 11)
- Fomer Product Engineering UST (PAOC 14)
- Former Building 19 USTs (PAOC 17)
- Quick Dump Process USTs (PAOCs 2, 3, 6, 15, and 19)
- Chiphouse and Salvage Building USTs (PAOC 1)
- Bay E-28 (PAOC 21)
- Transmission Subtest Area (PAOC 22)

PRC recommended that the USEPA require the Site to perform Phase II hydrogeologic investigations and remediation activities for several SWMUs and AOCs (which have been undertaken or are currently in progress under the PAOCs – See Table 1).

PRC also recommended that the USEPA require no further action for the following SWMUs: Satellite Accumulation Areas, Hazadous Waste Storage Building, Sludge Handling Area, Industrial Wastewater Treatment System, Storm Water Treatment System, Nonusable Equipment Handling Area, Fly Ash Silo, and Free-Phase Product Recovery and Ground Water Collection Systems.

Information from the RCRA status review is discussed in Table 2.

## 5.0 <u>SUMMARY</u>

The PAOC and RCRA status information gathered will used to develop and implement Remedial Investigation (RI) strategies and activities for the Site. The information also has been incorporated in an e:DAT for the Site for the management of historical and future data generated at the Site.

PAOC Number	PAOC Description	Notes
1	Chiphouse Tank Farm	Leaks from USTs. 13 tanks were removed in 1990 (eleven 15,000-gallon oil and two 5,000-gallon gasoline). Free product present - re
2	Bay K-35	Release discovered during construction in the early 1990's. Leaks thought to be from a underground quench oil tank and process of product plume is located beneath the plant floor in this area. Two steam tunnels (PAOC 26) and a storm sewer run through the plassociates report recommended chlorinated VOC subsurface investigation due to elevated VOC's in groundwater in the southern plata.
3	Bay K-42	Leaks from two 4,000-gallon quick dump quench oil USTs. According to the MDEQ UST database from February 2002, Tanks 46 ar mixed-oil plume is located beneath the plant floor in this area (PAOC 2, 3, 5, and 6 are located in same plume).
4	Former Drum Handling Area	In the past, spills and leaks of chemicals occurred from drums that were stored in this area. Phase I and II investigations were cond monitoring wells were installed. According to a January 1995 report by ABB, groundwater flow is to the south and no detections w In a April 21, 1995 letter to facility personnel, the MDNR concluded that the "incident" area did not involve a hazardous substance that to the environment or natural resources or to public health, safety or welfare. The MDNR also stated that it would not include it or incident closed, but indicated that if additional data indicated that concentrations of hazardous substances in the groundwater incr incident.
5	Department 263	A leaking coolant flume at Bay H-49 was discovered in 1989. As part of the hydrogeologic investigation, two monitoring wells (at I It was determined that the free product was discovered in one of the wells was not from the leaking coolant flume, but from anothe The impacted groundwater at the second well was thought be from the leaking coolant flume.
6	Bay E-49	Leaks from five 4,000-gallon quick dump quench oil USTs. According to the MDEQ UST database from February 2002, Tanks 50 - 5 Tank 54 was removed. Area is located in the free product plume.
7	Hydraulic Lift Area	Information provided by previous consultants indicated that there may have been a leak from a hydraulic lift in this area. The lift a days after excavating, oil was observed entering the excavation. Fingerprint analysis indicated that a the source of the oil was from report (May 1995), sampling results did not indicate constituents above cleanup. However, the presence of oil on the perched groun was recommended that a additional investigation be conducted to define the extent and further characterize hydrocarbon contamir lift.
8	Bay EE-10	Petroleum free-product observed in a recovery well associated with the Dynamometer area (PAOC 11). This product was the result the recovery well.
9	Scrap Yard	During construction in October 1992, stained soils discovered near a trench used to collect surface runoff in the Metals Scrap Yard. contamination resulting from leaks in the trench were located in three areas; northeast portion of the trench, north-central portion of trench, with staining decreasing in depth not extending below 3.5 feet. It was recommended that the trench be fixed and the removavailable with this report.
10	ATF Area	An automatic transmission fluid plume was discovered in 1987 resulting from UST's and associated piping. Product recovery syst



PAOC Number	PAOC Description	Notes
11	Dynamometer Area	During the 1984 expansion of the Transmission Engineering Building, gasoline was detected in subsurface soil and the perched aqu investigation was conducted and at that time a free product gasoline plume was discovered below the floor of the plant. The source the dynamometer test cells. The UST's were removed and replaced in 1985. Reports indicated that the groundwater flow in the are to the south and southwest. A recovery system is in place. Free product is still present. Dissolved phase gasoline is minimal.
12	North Yard	Surface soils were contaminated with residual oils containing PCBs and metal working fluids from machinery stored outside in this detectable concentrations of TPH, metals, and low levels of PCBs observed in the surficial soils (≤ 24 inches). Although the concent (at that time), GM removed soil in two areas with the highest concentrations. GM removed 2,200 cubic yards of soil down to 2 feet 1 concentrations of TPH, metals, and PCBs were left in place. In 1989, ABB conducted a hydrogeologic investigation was conducted with a two-year quarterly groundwater monitoring program low levels of metals were detected over the course of the sampling program. Iron was the only dissolved metal detected during the 1,1,1-TCA was detected in groundwater on one occasion at 1 ppb. PCBs were detected on two occasions. It was concluded that the down from overlying soils during drilling. During successive sampling events, sediment was removed by purging extra groundwate No evidence of PCBs were detected during these successive samplings. In 1996, ABB recommended no further action based on contaminated soil with the highest concentrations were removed, analytical constituents in the soil were below generic industrial direct contact values (at that time), and there was no evidence of shallow group based on analytical data. At the time of the site visit for the PAOC review, several areas of oil staining were observed. The storm water from the area is treated at GMPT on-site wastewater pre-treatment facility.
13	Building #17	In 1992, a RCRA Facility Assessment (RFA) was performed by PRC Environmental Management, Inc. (contactor for USEPA ). PRC based on oil observed on the floor of Building 17. Also, in 1992, a break was discovered in a trench used to convey waste oils to a co ABB Technical Memorandum (October 23, 1997) on the site status for this area, no further action was recommended based on the for Hydrogeologic Study by NTH Consultants: - Low Levels of organic and inorganic compounds detected in the soil are in concentrations below Industrial Direct Contact Values - PCB Aroclor 1260 was detected in only one soil sample below IDCV. No other PCBs were detected in adjacent borings; - VOCs detected in shallow groundwater did not exceed Groundwater/Surface Water Interface (GSI) criteria; - Lead was only inorganic compound detected in shallow groundwater above GSI. The lead was in a well 240 feet way from Buildir It was not believed to be associated with this area since no lead was observed in groundwater samples taken near the building and observed in soil. - ABB believed that PCBs were unlikely to be present in groundwater, due to its physiochemical properties, it was unlikely that PCI leach to groundwater. During the PAOC site visit, cracks were observed in the concrete near the building. Oil sheen was observed on pools of water. According to plant personnel, monies are being set aside to replace the concrete.



PAOC Number	PAOC Description	Notes
14	Product Engineering Tank Farm	Leak from 12,000-gallon gasoline UST. Tank removed in 1988. Phase I and II hydrogeologic investigations conducted. Remedial activities performed. MDEQ in a January 12,1994 letter to the plant indicated that the contamination was reduced to below Type B levels and that based on the data submitted to the MDEQ, the soils impacted by the release have been removed and groundwater had not been impacted. A diesel UST was also located near the gasoline tank. No other information regarding the removal of the diesel tank.
15	Bays L-5 and E-5	<ul> <li>Leaks from four 4,000-gallon quick dump quench oil USTs located at Bays L-5 and E-5. According to the MDEQ UST database from February 2002, Tanks 42 and 43 (Bay E-5) were closed in place, while Tanks 44 and 45 (Bay L-5) were removed from the ground.</li> <li>According to a ABB Technical Memorandum (October 23, 1997) on the site status for this area, no further action was recommended for the E-5 area based on the following information: <ul> <li>Low levels of PAHs and VOCs were detected in soil below IDCV's</li> <li>Vinyl chloride was detected during one sampling at 24 ug/l exceeding Groundwater/Surface Water Interface (GSI) criteria. It was not detected during a subsequent sampling event.</li> </ul> </li> <li>ABB developed site-specific, risk-based target levels (SSTLs) for subsurface soil and groundwater at the site. ABB indicated that based on SSTL calculations vinyl chloride at the fenceline was below GSI criteria.</li> <li>An ABB report (August 1992) indicated that all detected levels of VOCs and PAHs are below MDNR Act 307 Type B cleanup criteria. ABB recommended that based on analytical data and observed conditions, further action should not be necessary at Bay L-5. On December 1, 1993 a letter was sent by ABB on behalf of the facility requesting a Type C closure. The MDNR responded on December 16, 1993 to the plant that due to insufficient information, a Type C closure could not be issued at that time. No other information related to closure was identified during a file review of MDEQ files.</li> </ul>
16	Tank #84	Release discovered during a site assessment for permanent closure of this 10,000-gallon storm water skimmer UST (Note: in some reports this tank is listed as Tank #100) in August 1991. According to the August 13, 1992 Hydrogeological Site Investigation and Removal of Storm Retention Skimmer Tank #84 Report by Chester Engineers, the following conditions existed: - The site investigation conducted prior to the removal of tank indicated that impacted soil and groundwater appeared to be limited to the immediate area of the tank location. - Tank removal activities (Removed May, 4, 1992) indicated that free product was present in the excavation by had not migrated to monitoring wells in the surrounding area. - PNAs exceeded MDNR Type B Criteria in soil at several sample locations (utilities critical to plant operations impeded additional removal of impacted soil. - Goncentrations of lead in several soil samples from the excavation exceeded levels observed in other soil samples in the vicinity of the UST. - Several soil samples from the excavation had a high oil content which resulted in elevated groundwater or product. In October 2001, ABB prepared a summary table of PAOC's, which indicated that in 1995 a request for MDNR closure was prepared. No information related to the request for closure was identified during a file review of MDEQ LUST directory dated 2/02.

## POTENTIAL AREAS OF CONCERN (PAOC) GMPT WILLOW RUN YPSILANTI, MICHIGAN

PAOC Number	PAOC Description	Notes
17	Building #19 Tank Farm	Leaks and spills from USTs. Three tanks removed in 1989 (two 15,000-gallon cutting oil and one 15,000-gallon gasoline). Contamination was observed in the soil and groundwater. A new vaulted tank farm was installed. A soil removal corrective action construction. A drainage system was installed in the excavation that ties into the vault underdrain system. The underdrain system ABB Groundwater Sampling Report (June 26, 1995), only benzene was detected in the shallow groundwater samples. The report ir decreasing over time. The groundwater in the sump of the tank vault contained benzene. The report summary indicated that the s that shallow groundwater is being diverted to the sump.
18	Salvage Building Tank Farm	<ul> <li>Leaks from USTs. Seven tanks were removed in 1990 (five 15,000-gallon oil and two 30,000-gallon diesel fuel). The tanks were instain 1941-42.</li> <li>A 54" storm sewer line runs west to east through the former tank excavation area. As part of the excavation drain tile was placed in residual contamination to three purge wells.</li> <li>On December 1, 1993 a letter was sent by ABB on behalf of the facility requesting a Type C closure. The MDNR responded on December 1, 1993 a letter was sent by ABB on behalf of the facility requesting a Type C closure. The MDNR responded on December 1, 1993 a letter was sent by ABB on behalf of the facility requesting a Type C closure. The MDNR responded on December 1, 1995 letter sent by ABB to the MDEQ-UST Division, closure for the Salvage Building Tank Farm was requested. It were detected in soil exceeded the criteria at that time. Phenanthrene was detected at 760 ug/kg. It was thought that the phenanthrene or another source. The concentration was below Type C criteria, but surface water impacts could not be made because GSI value is not performed a statistical evaluation (using MDNR's "Guidance Document: Verification of Soil Remediation - April 1994) of the phenanthrene values in 26 so samples and concluded that the 95% Upper Confidence Level (UCL) would be below the detection limit of 330 ug/kg. The MDNR a May 18, 1995 letter to the facility acknowledged the receipt of the closure report.</li> </ul>
19	Bay C-40	Removal of two 4,000-gallon quick dump quench oil USTs (Tanks 48 and 49). An ABB report (July 21, 1992) to the plant indicated xylene were found in the samples collected in Bay C-40. None of the concentrations exceeded Act 307 criteria. Several PAHs exceed collected on the east side of the tank excavation. During the removal of the tanks, hydrocarbon impacted groundwater was observe wall of the excavation. The free-product mixed-oil plume (K-35 area) is located beneath the plant floor in this northeast of this area Report (December 1993) it was thought that this plume did not extend to the excavation area based on soil samples collected betwe support wall that are orientated north-south run through the plume and are adjacent to the tank excavation. It was thought that the wall foundations maybe providing a pathway between the plume and the excavation area.

n was implemented following the vault n discharges to the WWTP. According to an ndicated that the benzene concentrations were sump is capturing impacted groundwater and
alled
n the bottom of the excavation to drain any
ember 16, 1993 to the plant that due to during a file review of MDEQ files.
was noted that none of the compounds was not from the tank farm release, but from ot available for phenanthrene. ABB
oil R in

d that low levels of ethylbenzene, toluene, and eded Type B cleanup criteria in a soil sample ved seeping into the excavation from the east a. In an ABB Hydrogeologic Investigation een the two areas. A sanitary sewer and main ne backfill for the sewer and the main support

PAOC Number	PAOC Description	Notes
20	Bay Q-24	<ul> <li>A leaking sump was discovered in 1988. The sump was used to collect soluble oil coolant from a production machine pad. The soluble between the top of the sump and the concrete floor.</li> <li>In a July 1989 Hydrogeologic Report, C-E Environmental (currently ABB) indicated that metals in soil samples were below 1993 MI Total Hydrocarbons (THCs) were detected in three soil samples (720 to 10,000 mg/kg). In groundwater ,no metals were detected a mg/L to 3.2 mg/L) in two of three monitoring wells.</li> <li>In a February 1990 Phase II Report, C-E Environmental indicated that THCs were detected (0.29 mg/L to 1 mg/L) in samples from Q-24. No VOCs or SVOCs were not detected in the samples. It was recommended that the no further action was recommended for hazardous constituents were detected, residual oil in unsaturated soils would be immobile, and the potential human exposure would an unsigned letter from the facility to the MDEQ was observed in a file at the facility requesting closure. No information related to the closure request was identified during a file review of MDEQ files.</li> <li>VOCs and SVOCs were not analyzed in soil samples. VOCs and SVOCs were not analyzed in groundwater wells ~ 100 feet away. Oil may still be present in vadose zone soils.</li> </ul>
21	Bay E-28	A leaking trench was discovered in 1988. The trench was used to convey soluble coolant oil form a production machine to a collect product present. Cadmium, lead, ethylbenzene, toluene, and xylene have been previously detected. A steam tunnel orientated north-south is located in the eastern edge of the free product plume. Another steam tunnel orientated eather free product plume.
22	Subtest Area	Leak from process trenches in the area. Free product plume present below the floor of the plant. A steam tunnel orientated north-s is located in the free product plume. Another steam tunnel and storm drain which are orientated east-west are also located in the free currently collecting LNAPL.
23	Barrel Yard	<ul> <li>Spills/leaks in the Barrel Yard. PCE, MEK, MIBK, vinyl chloride, 1,1-DCA, 1,1,1-TCA, cis 1,2-TCE, trans 1,2-DCE, and acetone in graphalene in soil. According to a Harding Lawson Associates (HLA) Site Investigation report (October 1997), no further action wa following information:</li> <li>Subsurface materials consist of fill and sand undelain by clay.</li> <li>Groundwater flow is toward the east-northeast in the direction of Building #19 tank farm. It is thought that localized flow is influe by the drainage system of the tank farm, which collects groundwater and sends it to the facility's on-site WWTP.</li> <li>Soil and groundwater samples were observed in concentrations exceeding Groundwater/Surface Water Interface (GSI) criteria in small area of the Barrel Yard. The nearest surface water body is 1,200 feet to the south. Groundwater appears to be flowing to the northeast toward the drainage system of the Building #19 tank farm.</li> <li>Soil samples were observed in concentrations exceeding indoor air criteria for vinyl chloride. It was thought that since generic incair criteria is very conservative and not representative of conditions in the Barrel Yard, HLA calculated site-specific target levels (SSTLs). HLA indicated that the highest observed concentration of vinyl chloride was below the calculated level and concluded that the concentrations of VOCs were not of concern.</li> </ul>

luble oil was leaking into a void between
DEQ Type A soil cleanup criteria, however, and THCs were detected in low levels (0.63
n the three monitoring wells in the area of Bay r the area since the THCs were observed, no ald be low.
tion sump. Free product and dissolved phase
ast-west is located along the northern edge of
south ree product plume. Recovery wells are
roundwater. PCE, vinyl chloride, and as recommended for this area based on the
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door

POTENTIAL AREAS OF CONCERN (PAOC) GMPT WILLOW RUN YPSILANTI, MICHIGAN

PAOC Number	PAOC Description	Notes
24	Transformer Substations	Per facility personnel, the underground transformer substations previously had transformers that contained PCBs. The transformer closed by backfilling with concrete. Prior to closure, the substations were cleaned. A 2000 Conestoga-Rovers & Associates (CRA) report indicated that PCB remediation of Substation D was completed on January 31 remediated below 10 ppm with the exception several areas of PCB impact. The impacted areas and the substation was entombed b and 761.61(a) (7)). The plant surface area of the plant floor above Substation D was labeled with a large PCB Mark. According to facility personnel, the disposition of the records for the substation closures is unknown.
25	Powerhouse Tank Farm	Automatic transmission fluid was detected in groundwater during the construction of a new vaulted tank farm near the Powerhou Environmental (currently ABB) indicated that it appeared that the USTs did not impact soils or groundwater in the area. According fluid was unknown. During a review of MDEQ files, a spill report indicated that approximately 400 to 500 gallons of transmission during unloading at the tank farm. The facility vacuumed the free liquid from the surface area and the impacted soil was removed and dis A drainage system was installed in the excavation that ties into the vault underdrain system. The underdrain system discharges to would capture the groundwater and any residual contamination. On August 7, 1989, the facility met with the MDNR and recomm area. The MDNR agreed and on August 15, 1989 a letter from the facility was sent to the MDNR to document the agreement made
26	Steam Tunnels	Several of the steam tunnels run through areas of free product. Due to the age of the steam tunnels (~62 years old), their integrity i correspondence, several GM employees indicated that they observed oil leaking into several of the tunnels.
27	Machinery Staging Area	This area is located outside the southwest corner of the building and is used for decommissioned machinery. Machinery is sitting on the concrete and soil. The concrete in this area is cracked.
28	Coolant Trenches	Based on the number of releases from coolant trenches (PAOC 2, 5, 6, 20, 21, and 22), they should be considered a PAOC.
29	Paint Booths	The facility currently has two paint booths (Dyno Lab and Dock 1). The paint booth in the Dyno Lab (Bay KK-10) is inactive. No cr booths. The booth for the Dyno Lab is equipped with a trench drain. The Dock 1 paint booth is located at Bay A-10. Due to the historical use of solvents and solvent-based paints (with possible metals as a component) in the past and the unknown in these areas should be considered PAOCs.
30	Battery Charging Area	The Battery Charging Area is located at Bay Q-28. Three battery washers are located in this area. The washers discharge to a trench cracks were observed in the concrete in this area. Due to potential spills/leaks from lead-acid batteries and the unknown integrity of the trench drain the area should be considered a
31	Transmission Lab	A Quality Assurance Inspection Lab is located at Bay L-69. Mineral spirits are used in the lab. In past RCRA inspections and in the Area, it was noted that acetone was also used in the Transmission Lab.
32	Chemistry Lab	The Chemistry Lab is located at Bay ?. Various lab chemicals are used. In past RCRA inspections and in the RCRA closure report f D001, F001, F002, F003, and F005 wastes were generated here.
33	Maintenance Degreasing	In past RCRA inspections and in the RCRA closure report for the Drum Storage Area, it was noted that maintenance parts and tool

ers were all removed and the substations were
l, 1999. All areas of Substation D were by concrete (In accordance to 40 CFR 761.30 (p)
use. In a July 1989 Hydrogeologic Report, C-E
a fluid was spilled on a gravel topped soil area
sposed of.
o the WWTP. It was believed that the system nended no further action be undertaken for this at the meeting.
is in question. In 1987 MDNR inspection
on concrete and soil. Staining was observed
racks were observed in the concrete of the
ntegrity of the trench drain at the Dyno Lab,
h drain located under a battery mover. No
a PAOC.
e RCRA closure report for the Drum Storage
for the Drum Storage Area, it was noted that

Is were cleaned using 1,1,1-TCA and freon.

PAOC Number	PAOC Description	Notes
34	Vehicle Maintenance Building	Gasoline and diesel fuel wastes are generated.
35	Historical Coal Pile	Coal was originally used a backup fuel source for the powerhouse. It is believed that the coal pile was located near the powerhous
36	Historical Painting Areas	<ul> <li>Paint booths were used to paint sections of bombers and entire bombers from 1941 to 1945.</li> <li>Paint booths were located in a paint department at what is now Bays F-6/H-6 to F-10/H-10.</li> <li>Paint booths with settling basins were located at what is now Bays U-24, P-24, P-35, P-32, K-34 to K36, and B64/D64 to B68/D68.</li> <li>A paint booth with a settling basin was located in a Dope Room located at what is now Bays A-5/58 to A-5/60. A Dope Building piped material to the Dope Room was located at what is now Bays A-2/56 to A-5/62.</li> <li>Two Final Assembly paint booths with pump rooms and sludge pits were located at what is now Bays E-68 to F-68 and E-70 to F-Paint was reclaimed from the sludge pits.</li> </ul>

e from the 1950's to early 1990's.
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70.

PAOC Number	PAOC Description	Notes
37	Historical Machining/ Plating Areas	From 1941 to 1945, a manufacturing area which included machining and plating processes, was located at what is now Bays A-1/MM-1 to A-12/MM-12. Located in these area were vapor degreasers, acid/cyanide/metal coating (Alrok Coating) processes, heat treating, and cleaning tanks. <b>Yapor Degreasers</b> - The vapor degreasers used trichlorethylene. There were 13 spray units (located throughout the manufacturing area), 1 vapor slush unit (located in a rivet shop located at Bay B-7/D-7 to B-9/D-9), and Iconveyor unit (located in a press shop located at Bay B-2/H-2 to B-6/H-6). There was also three solvent stills located in the machining and plating areas. <b>Plating Alroking Areas</b> - An anti-corrosion coating process (Alroking) was used on bomber parts. The process utilized hydrochloric acid, chromic acid, cyanide, caustics, chromium, and cadmium. The Alroking processes were located within Bay B-7/D-7 to B-9/D-9. Bay B-2/H-2 to B-6/H-6, Bays U-2 to A-9. Bays A-2.4 to BB-4, Bays S D-2 to FE-2, Bays EF4 to FF-8 to GE-5. and Bays FF-8 to FF-9 The Alroking processes were equipped with fan pits to draw fumes way from the plant workers. The fumes were drawn down into underground _ vent ducts which carried air to large - unbar-lined fans, which were located at Bays B-2/H-2 to B-6/H-6, the Unit Bays B-2/D-7 to B-2/D-9, Bay B-2/H-2 to B-6/H-6, the Carried fans, which were located in underground rooms. The fans discharged the fumes through ducts Inced with heat and acid resistant pain to points higher than the roof of the building. The ducts were made of ceramic material with sealed joints between the the Alroking ing tonk was located at Bays B-2/H-2 to B-6/H-6, the Diraw Bench Department located approximately from Bays M-/M-6 to AA-1/AA-11, a tool room located at Bays FF-6/MM-6 to FF-11/MM-11 unitized lead salts, nitrate and cyanide pots, quench tanks, and oil baths. <b>Cleaning Tables</b> - The heat treating the tool room located at Bays B-2/H-2 to B-6/H-6, the Draw Bench Department located approximately from Bays M-/M-6 to AA-1/AA-
38	Historical Tank Farms	Several of the historical tank farms are covered under the following PAOC's: 17, 18, and 25. From 1941 to 1945, the USTs contained various types of materials such as gasoline, kerosene, cutting oils, machine oil, paraffin oil, reclaimed oil, hydraulic oil, and fuel oil. A design drawing from 1941 indicated that the powerhouse basement contained fuel oil USTs. However, it is thought that fuel oil USTs may have been placed in the adjacent tank farm (PAOC 25). Actual location is unknown. A current facility personnel have indicated that there is currently no USTs in the basement of the powerhouse. An AST containing de-icing solution (IPA and glycerin) for the bombers was located near what is now PAOC 18.
39	Historical Plane Fueling Area	From 1941 to 1945, bombers were fueled with gasoline, oils, de-icing fluid, etc. at what is now Bays A1-68/A1-70 to A4-68/70.

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TABLE 1

PAOC Number	PAOC Description	Notes
40	Historical Acid and Cyanide Waste Lines	Waste acid and cyanide was conveyed from the Alroking processes in the Machining and Plating Areas via two 10-inch sewer lines what is now Airport Road. The sewers exited the plant at what is now Bay A-6 and ran to the to southeast and then to the south to Several acid drains were located in the Machining and Plating Areas. The drains discharged to acid neutralization basins outside n
41	Historical Mineral Spirits Discovery	During the Comprehensive Source Investigation portion of this project, several production supervisors indicated that during the co (Department 412) in the late 1970's to early 1980's, an excavation reportedly filled up with mineral spirits.
42	Willow Run Airport Tank Farm	A former tank farm is located to the southeast of the plant beyond the fenceline on the property of the Willow Run Airport. The tar farm for the bomber plant. The date of the transfer to Willow Run Airport is unknown. According to the MDEQ UST/LUST datab 1942 have been removed. The LUST database indicated that 11 releases incidents have been been reported. It is unknown if the rel farm. Two of incidents are closed.



#### RCRA STATUS REVIEW GMPT WILLOW RUN YPSILANTI, MICHIGAN

RCRA Permit Activity	Date	Source of Information	Notes
Filed RCRA Part A permit	11/19/80	PRC Environmental Management, Inc. (contactor for USEPA) - Preliminary Assessment and Visual Site Inspection Report dated 01/29/92	
Revised Part A permit filed	02/05/81	PRC Environmental Management, Inc. (contactor for USEPA) - Preliminary Assessment and Visual Site Inspection Report dated 01/29/92	The permit indicated that the S01 (contain 7,480 gallon capacity.
Revised Part A permit filed	02/24/86	Chester Engineers, Closure Plan and Cost Estimates dated Jun 1998 and revised September 1988	In the Closure Plan, a copy of a revised Pa attached. The revised permit indicated the having 6,600 gallon capacity.
Filed RCRA Part B permit	02/28/86	PRC Environmental Management, Inc. (contactor for USEPA) - Preliminary Assessment and Visual Site Inspection Report dated 01/29/92	
Withdrawal of Part B	6/28/1988	USEPA Region 5 Comprehensive Permitting Database	The database indicates that the USEPA rec facility intended/closed all waste handlin database for two drum pads (7,480 gallon there was confusion as to the number of d revised Part A permits that had different c only one drum pad, it appears that the fac for both pads listed with the USEPA.
Final Closure			
- Closure Plan Received	06/28/88	USEPA Region 5 Comprehensive Permitting Database	Closure plan by Chester Engineers indicat
- Public Notice of Closure	08/05/88		
- Closure Plan Approved - Closure-Final Closure	10/25/88		
- Closure Certification Received - According to Plan	10/08/89		
- MDNR (MDEQ) releases of financial Capability Requirements for Closure	10/18/89	MDNR 10/18/89 letter to facility	
- MDNR (MDEQ) approved closure of drum pad	10/18/89	PRC Environmental Management, Inc. (contactor for USEPA) - Preliminary Assessment and Visual Site Inspection Report dated 01/29/92	

ner) process code is listed as having

Part A permit dated 2/24/86 was hat the S01 process code is listed as

eceived withdrawal requests - the ng facilities. Two entries are in the n and 6,600 gallon). It appears that drum pads since there were several capacities. Even though there was cility withdrew the Part B permit

ted 6,600 gallon capacity drum pad.

#### RCRA STATUS REVIEW GMPT WILLOW RUN YPSILANTI, MICHIGAN

RCRA Permit Activity	Date	Source of Information	Notes
Prelininary Assessment/Visual Site Inspection (PA/VSI)	01/24/92 and 01/29/02	PRC Environmental Management, Inc. (contactor for USEPA) - Preliminary Assessment and Visual Site Inspection Report dated 01/29/92	The assessment was the Preliminary Asses by PRC Environmental Management, Inc. PRC was hired by the USEPA to conduct H treatment and storage facilities in Region V Environmental Priorities Initiative, the RC working to identify and address RCRA fac corrective action. Using the PA/VSI, infor characterize a facility's actual or potential to solid waste management units (SWMU) ar facility was part of this program due to ha
Corrective Action			
- RCRA Facility Assessment	Completed 5/18/1992	Environmental Data Resources Report -	The assessment was the Preliminary Asses by PRC Environmental Management, Inc. above.
- Corrective Action Prioritization	Completed 6/5/1992	Information from Resource Conservation and Recovery Information System (RCRIS)	The facility or area was assigned a low cor

essment and Visual Site Inspection . (contactor for USEPA ). PA/VSI's of hazardous waste V. In 1992, as part of the Region V CRA and CERCLA programs were acilities that had high priority for ormation was gathered to I releases to the environment from and areas of concern (AOC). The aving filed a Part A permit.

ssment and Visual Site Inspection (contactor for USEPA). See

rrective action priority.