RCRA Facility Investigation (RFI) Work Plan Addendum No. 13

FIERO (PLANT 17) SEWER AND SUBSURFACE INVESTIGATIONS

Pontiac North Campus

General Motors Corporation
Pontiac, Michigan

September 24, 2004

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LIST OF ACRONYMS/SHORT FORMS

AOI	Area of Interest
ATEC	American Testing and Engineering Corporation
DCE	Dichloroethylene
DNAPL	Dense non-aqueous phase liquid
EEC	Encore Environmental Consortium L.L.C.
ENCORE	Environmental Corporate Remediation
FSP	Field Sampling Plan
GM	General Motors
IWTP	Wastewater Treatment Plant
Metals	TAL Inorganics
NPDES	National Pollutant Discharge Elimination System
PCB	Polychlorinated Biphenyls
PCE	Tetrachloroethene
ppb	Parts Per Billion
ppm	Parts Per Million
QAPP	Quality Assurance Project Plan
RCRA	Resource Conservation and Recovery Act
RFI	RCRA Facility Investigation
SVOC	Semi-Volatile Organic Compound
Site	GM Pontiac North Campus
TAL	Target Analyte List
UST	Underground storage tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

RCRA Facility Investigation (RFI) Work Plan Addendum No. 13 describes the proposed storm sewer sampling and subsurface investigations to be conducted in the Fiero (Plant 17) operational area of the General Motors (GM) Pontiac North Campus (Site), located in Pontiac, Michigan. A Site plan, including the Fiero operational area, is presented on Figure 1. All sampling methodologies, analytical procedures, data validation, and database management will be in accordance with those presented in the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) Work Plan (ENCORE, 2001), including the Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP).

A file review indicated that historical National Pollutant Discharge Elimination System (NPDES) permit effluent limitations existed for tetrachloroethene (PCE) at Fiero Outfall 002. PCE has historically been employed as a degreasing agent in the metal fabrication and metal working industries. Storm sewer sediment sampling conducted in the Fall of 2003 at manholes and catch basins of the Fiero storm sewer systems confirmed the presence of elevated concentrations of PCE, trichloroethene, methylene chloride, 1,1,1-trichloroethane, and other volatile organic compounds (VOCs) in the sediments contained within the systems. In addition, there have been historical detections of elevated levels of semi-volatile organic compounds (SVOCs), Target Analyte List (TAL) Inorganics (Metals), and polychlorinated biphenyls (PCBs) within the Fiero storm sewer systems. The objective of this investigation is to further characterize the sediments and extent of impacts to the subsurface soils. Focused sediment sampling is proposed from Fiero Outfalls 001, 002, and 003 storm sewer system manholes, catch basins, and laterals to further delineate the area(s) of VOC contamination. In addition, a limited subsurface investigation will be conducted to assess potential PCB, Metals, SVOC, and VOC sources and impacts to the soil and groundwater surrounding the targeted portions of the sewer systems.

2.0 BACKGROUND

2.1 GENERAL

The Fiero operational area is situated on approximately 81 acres, located at the southwestern portion of the GM Pontiac North Campus. The Fiero operational area includes the Plant 17 structure (formerly known as the Fisher Body Plant), including the Fiero Powerhouse. The Plant 17 structure occupies an area of approximately 1.4 million square feet (32 acres).

2.2 PLANT CONSTRUCTION

Construction of the original Fisher Body plant occurred in the 1920s, with approximately 19 additions being constructed through to 1983.

2.3 HISTORICAL OPERATIONS

The Fisher Body plant originally supplied closed type automobile bodies to the Oakland Motor Car Company, and later to the Pontiac Motor Division located to the east of the plant. The three major components of body construction that occurred at the Fisher Body Plant were: metal fabrication, soft trim fabrication, and body assembly. The body assembly process included lead soldering, painting, and metal finishing operations. In 1942, the plant was stripped of automobile production equipment and converted to defense production, consisting mainly of the production of the 90-mm Army antiaircraft gun and the 5-inch Navy gun mount. Between the years of 1959 to 1961, a modernization and expansion program created a two-line assembly system. In 1983, the Pontiac Motor Division retooled the plant to produce the Fiero. The plant was subsequently idled in 1988, and officially closed in 1991. In 1997, the plant was reinstated, and is currently used for the storage of prototype parts and other non-production related activities.

The historical process areas of operation for the Fisher production lines are presented in Appendix A.

2.4 STORMWATER OUTFALLS

The Fiero site is serviced by three stormwater outfalls, identified as Fiero Outfall 001, Fiero Outfall 002, and Fiero Outfall 003.

The drainage basin for Fiero Outfall 001 includes the southern portion of the Plant 17 roof, and parking areas situated to the south of the structure (Figure 2). Under dry weather conditions, stormwater discharges from the Fiero Outfall 001 system are conveyed south to manhole STF307B, located at the southern property boundary. A diversion system, installed in approximately 1988, consists of a weir situated in manhole ST307B and submersible pumps that divert the dry weather flows north to a Powerhouse sump, and ultimately to the Industrial Wastewater Treatment Plant (IWTP) located to the east of Plant 17. Under wet weather conditions, stormwater discharges from the Fiero Outfall 001 system are conveyed south to manhole ST307B, but may overtop the weir and subsequently discharge into Harris Lake, located to the south of the plant.

The drainage basin for Fiero Outfall 002 includes the northern portion of the Plant 17 roof and parking areas located to the north and south of the structure (Figure 2). Under dry weather conditions, stormwater discharges from the Fiero Outfall 002 system are conveyed west to a diverter chamber, where they are directed to the Augusta Drain, and ultimately the Clinton River. Under wet weather conditions, stormwater discharges from the Fiero Outfall 002 system are conveyed west to the same diverter chamber, but may overtop a weir and subsequently discharge into Osmun Lake.

The drainage basin for Fiero Outfall 003 includes the yard areas located at the southeast portion of Plant 17 (Figure 2). The storm sewer system consists of a main north-south piping system serviced by a series of shallow catch basins located in the concrete yard area and along the southeastern edge of the Site. The catch basins collect stormwater runoff from the yard area, ultimately conveying the runoff southward to an outlet located at the eastern edge of Harris Lake.

2.4.1 STORMWATER PERMITS

The GM Pontiac North Campus currently discharges stormwater from Outfall 001 (main Site) under the National Pollutant Discharge Elimination System (NPDES) Permit No. MI0056031, issued by the State of Michigan. Discharges from the remainder of the Site's stormwater outfalls are covered under a Stormwater Pollution Prevention Plan (SWPPP), as mandated by the NPDES permit.

Fiero Outfalls 001 and 002 historically discharged stormwater under NPDES Permit No. MI0027804. File reviews indicate that permit limitations for total copper, total lead, total zinc, and tetrachloroethene were specified for Fiero Outfall 002. Permit limitations for Fiero Outfall 001 were not listed. As the discharge point of Fiero Outfall 003 was

discovered by the EEC in 2003, no reference to the outfall was present in the historical NPDES permit.

2.5 PREVIOUS INVESTIGATIONS

An environmental site assessment performed by American Testing and Engineering Corporation (ATEC) Associates, Inc. in 1992 reported that in an investigation of residual plant wastes, organic chemical constituents were detected in two plant sumps located in the southeast area of Plant 17 (column lines E42 and E48). The chemical constituents were reported as 1,1-dichloroethylene (1,1-DCE) and PCE. VOCs were also detected in five of six groundwater monitoring wells that were installed, each of which was located exterior to the Plant 17 structure. Of the five groundwater monitoring wells, three were situated in parking/yard areas at a distance of approximately 300-feet or greater from the plant. The remaining two groundwater monitoring wells were situated adjacent to the plant at the following locations: the northwest corner of Plant 17, near three former underground storage tanks; and at the east-central portion of the plant, in a former railway bed. Additionally, the ATEC assessment indicated that VOCs were detected in three soil samples collected from soil borings on the north (north of Paint Mix Building) and southeast (railroad track) areas exterior to Plant 17, in concentrations ranging from 5 to 10 parts per billion (ppb). The pertinent ATEC data tables and figures are provided in Appendix B. The soil boring/monitoring well locations where historical sampling conducted by ATEC indicated that VOCs were present (refer to Section 2.5) are illustrated on Drawings 1 through 4.

Storm sewer water and sediment sampling activities in late 2002 and in 2003 at manholes and catch basins of the Fiero Outfalls 001, 002, and 003 storm sewer systems confirmed the presence of PCBs, Metals, SVOCs, and VOCs within the systems (ENCORE, 2004). The analytical results for the water and sediment sampling events are presented on Drawings 1 through 4.

2.5.1 SUMMARY OF RFI INVESTIGATIONS TO DATE

Field investigations performed during the RFI included collecting soil samples adjacent to and beneath a catch basin emitting petroleum-like odors in Plant 17 (Area of Interest (AOI) F-15) (ENCORE, 2002). The catch basin is located in the south loading dock area of the plant, situated at a distance of approximately 300 feet southeast of the sump located at column line E42. Prior to collecting the soil samples, the catch basin was cleaned and inspected. The catch basin showed evidence of pitting and cracking, and was stained throughout. Analytical data from the soil boring completed from beneath the bottom of the catch basin indicated that in the 0 to 2-foot interval, PCE was detected

at a concentration of 81 parts per million (ppm) and 1,1-DCE was detected at a concentration of 2.2 ppm. From the soil analytical data, it was concluded that a release exceeding screening criteria had occurred at AOI F-15.

Investigations of the wastewater treatment sumps located in the Powerhouse south of Plant 17 (AOI F-7) indicated that PCE and 1,1-DCE were detected in groundwater samples from the area. These constituents were also detected in groundwater samples associated with supplemental RFI activities, as detailed in RFI Supplemental Report No. 1 (ENCORE, 2003).

3.0 INVESTIGATIVE PROGRAM

The Plant 17 investigations propose to identify if a relationship exists between historical detections of VOCs by ATEC (ATEC, 1992) in areas interior and exterior to the plant, and the more recent detections by the Encore Environmental Consortium, L.L.C. (EEC) (ENCORE, 2002). In addition, historical detections of SVOCs, metals and PCBs will be further investigated. The investigative program at Fiero will consist of focused sampling of sewer sediments for VOCs, as well as a limited subsurface investigation to assess potential source areas and impacts to the soils surrounding the storm sewer systems with respect to PCBs, Metals, SVOCs, and VOCs. The subsurface investigation of the PCBs, Metals, SVOC, and VOC impacts at Fiero will be referred to as AOI F-16. The following sections detail the scope of work for the sewer and subsurface investigations.

3.1 SAMPLING AND ANALYSIS OF SEDIMENTS IN THE FIERO OUTFALLS 001, 002, AND 003 STORM SEWER SYSTEMS

A round of focused sediment sampling from the Fiero Outfall 001, 002, and 003 storm sewer systems is proposed to delineate the extent of the VOC contamination in the storm sewer systems. Contingent on accessibility, sediments will be collected from the bottoms or laterals of approximately 14 manholes/catch basins. The proposed sampling locations are highlighted on Drawings 1 through 4. A sample key is presented in Table 1.

3.2 AOI F-16 SUBSURFACE INVESTIGATION

Potential impacts to soil and groundwater at AOI F-16 from PCBs, Metals, SVOCs, and VOCs detected in the storm sewer system will be assessed by advancing a single borehole and converting it to a monitoring well adjacent to each of the following manholes/catch basins:

- STF54;
- STF38A;
- STF31;
- STF29;
- CBF1N; and
- STF8.

In addition, a single borehole/monitoring well (MWF16-01) will be installed adjacent to the location of a diesel aboveground storage tank (AST) lacking secondary containment

located north of Fiero. The locations of each of the seven proposed boreholes/monitoring wells at AOI F-16 are shown on Drawings 1 through 4.

Boreholes will be advanced to a depth of approximately 30 feet in order to penetrate the uppermost confining layer by approximately 6 inches, and to determine if dense non-aqueous phase liquid (DNAPL) is detectable in any of the boreholes/monitoring wells. All boreholes will be converted to monitoring wells. All soil samples will be sent for laboratory analysis of PCBs, Metals, SVOCs, and VOCs. Two rounds of groundwater samples will be collected from each monitoring well and sent for laboratory analysis of PCBs, Metals, SVOCs, and VOCs. These results will be assessed with the results from previous investigations of AOIs F-7 and F-15 (located at the interior south end of the Fiero facility) to determine potential source areas. Monitoring wells installed during RFI field activities immediately to the north and along the southern boundary of Plant 17 are available to be utilized as upgradient and downgradient monitoring wells, respectively. The need to sample these wells as part of this investigation will be assessed pending the results of the sampling of the interior monitoring wells to be installed (i.e., MWF16-01 through –06).

Sample keys for the soil and groundwater samples at AOI F-16 are presented in Tables 2 and 3, respectively.

4.0 SCHEDULE

The activities described in Section 3.0 will be initiated in the fourth quarter of 2004.

5.0 DELIVERABLE

The need for further investigation will be evaluated following the review of the analytical data. Additional sampling, investigations, and/or remedial actions will be conducted as needed. Results of the investigations discussed in this Report will be included as part of the appropriate subsequent RFI Supplemental Report(s).

6.0 REFERENCES

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ENCORE. November 26, 2003, RFI Supplemental Report No. 1, General Motors Corporation, Pontiac, Michigan.

Author unknown. Date unknown, Fiero Plant Statistics.

Figures

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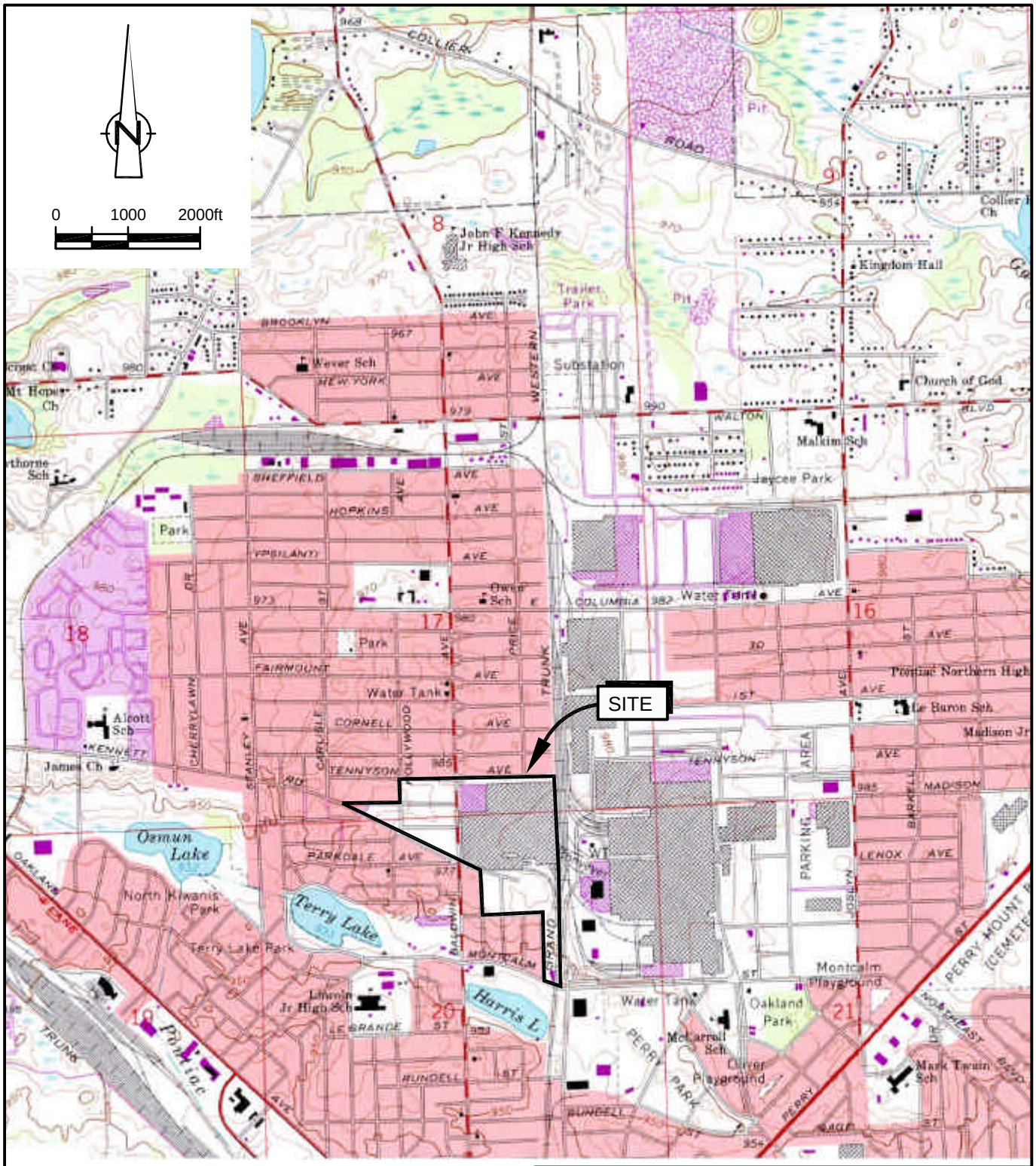

SOURCE: USGS QUADRANGLE MAP;
PONTIAC NORTH, MICHIGAN

GENERAL MOTORS
PONTIAC, MICHIGAN
FIERO (PLANT 17)

SITE LOCATION

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FIGURE
1

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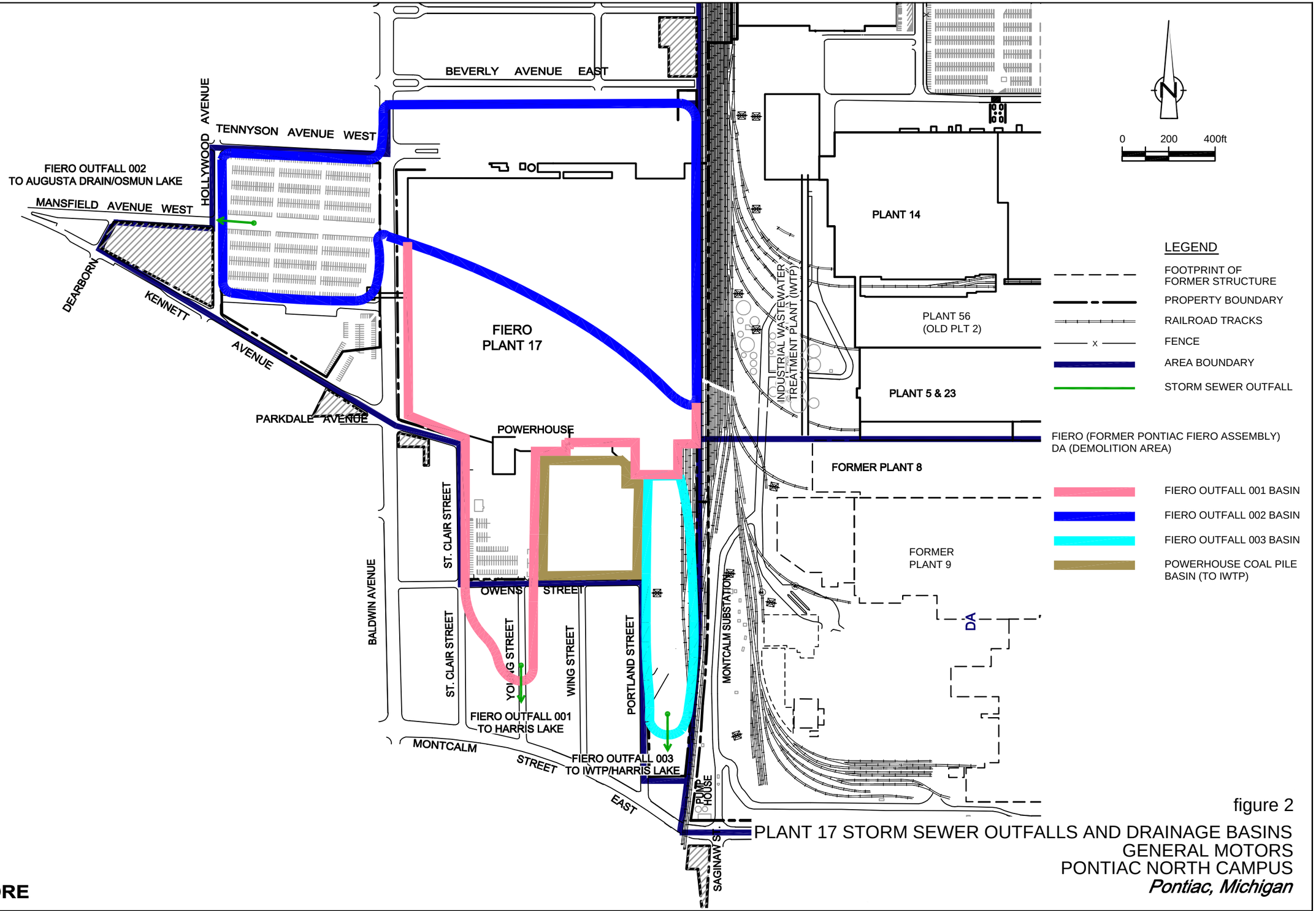

figure 2

PLANT 17 STORM SEWER OUTFALLS AND DRAINAGE BASINS
GENERAL MOTORS
PONTIAC NORTH CAMPUS
Pontiac, Michigan

ENCORE

17316-17(015)GN-WA006 AUG 30/2004

Tables

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TABLE 1

SAMPLE KEY
FIERO (PLANT 17) STORM SEWER VOC INVESTIGATION WORK PLAN
SEWER SAMPLES
GM PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

Manhole/Catch Basin Sampling Location	*Column Line Location*	*Sample ID*	*Matrix*	*Lateral Direction*	*Lateral Diameter [in.]*	*Invert Depth [ft.]*	*Parameters*	*Comments*
STF8	West of Paint Mix Building	STF8-1-SESS-mmddyy	Sediment	N	8	3.9	VOCs	Exterior to north side of Plant 17
		STF8-2-SESS-mmddyy	Sediment	SE	10	1.22	VOCs	
STF31	V42	STF31-1-SESS-mmddyy	Sediment	N	12		VOCs	
		STF31-2-SESS-mmddyy	Sediment	W	8	4.0	VOCs	
		STF31-3-SESS-mmddyy	Sediment	E	8	3.9	VOCs	
STF35	FF40	STF35-1-SESS-mmddyy	Sediment	N	42	12.2	VOCs	Restricted area
		STF35-2-SESS-mmddyy	Sediment	NE	4	1.7	VOCs	
		STF35-3-SESS-mmddyy	Sediment	E	36	11.9		
		STF35-4-SESS-mmddyy	Sediment	SW	10	8.4		
STF37A	G50	STF37A-1-SESS-mmddyy	Sediment	E	8	3.0	VOCs	
		STF37A-2-SESS-mmddyy	Sediment	W	10	2.7	VOCs	
STF38A	G48	STF38A-1-SESS-mmddyy	Sediment	N	4	3.0	VOCs	
		STF38A-2-SESS-mmddyy	Sediment	E	10	4.6	VOCs	
STF40	G34	STF40-1-SESS-mmddyy	Sediment	E	15	4.3	VOCs	Manhole sealed shut.
		STF40-2-SESS-mmddyy	Sediment	S	12	5.0	VOCs	
STF54	Powerhouse Courtyard	STF54-1-SESS-mmddyy	Sediment	NE	24	7.0	VOCs	
		STF54-2-SESS-mmddyy	Sediment	E	12	6.2	VOCs	
		STF54-3-SESS-mmddyy	Sediment	S	30	6.75	VOCs	
		STF54-4-SESS-mmddyy	Sediment	W	15	4.33	VOCs	
STF62	A31 (on ramp)	STF62-1-SESS-mmddyy	Sediment	E	10	5.25	VOCs	Laterals free of sediment
CBF1N	Between Plant 17 and Paint Mix Bldg.	CBF1N-1-SESS-mmddyy	Sediment	NE	4	5.6	VOCs	Exterior to Plant 17
		CBF1N-3-SESS-mmddyy	Sediment	SW	12	6.8	VOCs	
CBF109	East of Loading Dock 1	CBF109-SESS-mmddyy	Sediment			Unknown	VOCs	Catch basin full of sediment
CBF124	Southeast of Loading Dock 1	CBF124-SESS-mmddyy	Sediment			3.2	VOCs	Sample bottom of catch basin
CBF124A	South of Loading Dock 1	CBF124A-1-SESS-mmddyy	Sediment	E	8	2.1	VOCs	
CBF127	South of Loading Dock 1	CBF127-1-SESS-mmddyy	Sediment	E	6	<1	VOCs	
CBF130	South of Loading Dock 1	CBF130-1-SESS-mmddyy	Sediment	E	10	3.3	VOCs	

TABLE 2

SAMPLE KEY
FIERO (PLANT 17) STORM SEWER INVESTIGATION WORK PLAN
SOIL SAMPLES
GM PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

Boring/Well No.	*Sample Interval (feet bgs)*	*Sample ID*	*Analysis*
MWF16-01	0-2	MWF16-01-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-01-S(8-10)-ddmmyy	
	Directly above WT	MWF16-01-S(int)-ddmmyy	
MWF16-02	0-2	MWF16-02-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-02-S(8-10)-ddmmyy	
	Directly above WT	MWF16-02-S(int)-ddmmyy	
MWF16-03	0-2	MWF16-03-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-03-S(8-10)-ddmmyy	
	Directly above WT	MWF16-03-S(int)-ddmmyy	
MWF16-04	0-2	MWF16-04-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-04-S(8-10)-ddmmyy	
	Directly above WT	MWF16-04-S(int)-ddmmyy	
MWF16-05	0-2	MWF16-05-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-05-S(8-10)-ddmmyy	
	Directly above WT	MWF16-05-S(int)-ddmmyy	
MWF16-06	0-2	MWF16-06-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-06-S(8-10)-ddmmyy	
	Directly above WT	MWF16-06-S(int)-ddmmyy	
MWF16-07	0-2	MWF16-07-S(0-2)-ddmmyy	TCL VOCs
	8-10	MWF16-07-S(8-10)-ddmmyy	
	Directly above WT	MWF16-07-S(int)-ddmmyy	

Notes

1. Additional samples may be collected at intervals with field observation of contamination including elevated PID readings.
2. bgs = below ground surface
3. WT = water table
4. int = sample interval (feet)
5. See RFI Quality Assurance Project Plan for complete analyte list for TCL VOCs

TABLE 3

SAMPLE KEY
FIERO (PLANT 17) STORM SEWER INVESTIGATION WORK PLAN
GROUNDWATER SAMPLES
GM PONTIAC NORTH CAMPUS
PONTIAC, MICHIGAN

Boring/Well No.	*Sample ID*	*Analysis*
MWF16-01	MWF16-01-GW-ddmmyy	TCL VOCs
MWF16-02	MWF16-02-GW-ddmmyy	TCL VOCs
MWF16-03	MWF16-03-GW-ddmmyy	TCL VOCs
MWF16-04	MWF16-04-GW-ddmmyy	TCL VOCs
MWF16-05	MWF16-05-GW-ddmmyy	TCL VOCs
MWF16-06	MWF16-06-GW-ddmmyy	TCL VOCs
MWF16-07	MWF16-07-GW-ddmmyy	TCL VOCs

Notes

1. See RFI Quality Assurance Project Plan for complete analyte list for TCL VOCs

Appendix A

Historical Process Areas – Plant 17

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Located ½ Mile N. of City Limits

GENERAL MOTORS CORP'N

FISHER BODY CORP'N. PONTIAC DIV'N

Mfg OF CLOSED BODIES FOR OAKLAND MOTOR CARS

PRINTING & UPHOLSTERING

WOODWORKING

ASSEMBLY

SHEET METAL WORK

STEEL FRAMED

LUMBER

CRANE WAY

Reservoir 700,000 Gals

KENNETT RD

YOUNG

ST. CLAIR

WING

N. SAGINAW

BALDWIN AV.

Scale of Feet

PONTIAC, MICH. 64

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SANBORN

SCALE 100 FT TO AN INCH

PONTIAC, MICH.

64

1 OU . 04C

NEW SHEET

MAY 1936

W. TENNYSON AV.

E. TENNYSON AV.

W. MANSFIELD AV.

ST. LOUIS

W. KENNETT RD.

PARKDALE

N. MERRIMAC

MERRIMAC

S. MERRIMAC

BALDWIN AV.

E. KENNETT RD.

FISHER BODY (COLP'N.) - PONTIAC DIVISION
GENERAL MOTORS CORP.

STEEL PARTS STOR.

STEEL STOR.

METAL ASSEMBLING & ELEC. WELDING

TRIM SHOP

FACTORY BLDG.

ST. CLAIR

YOUNG

OWEN

WING

PORTLAND

FOULK

HART

FRONTING ON MONTCALM

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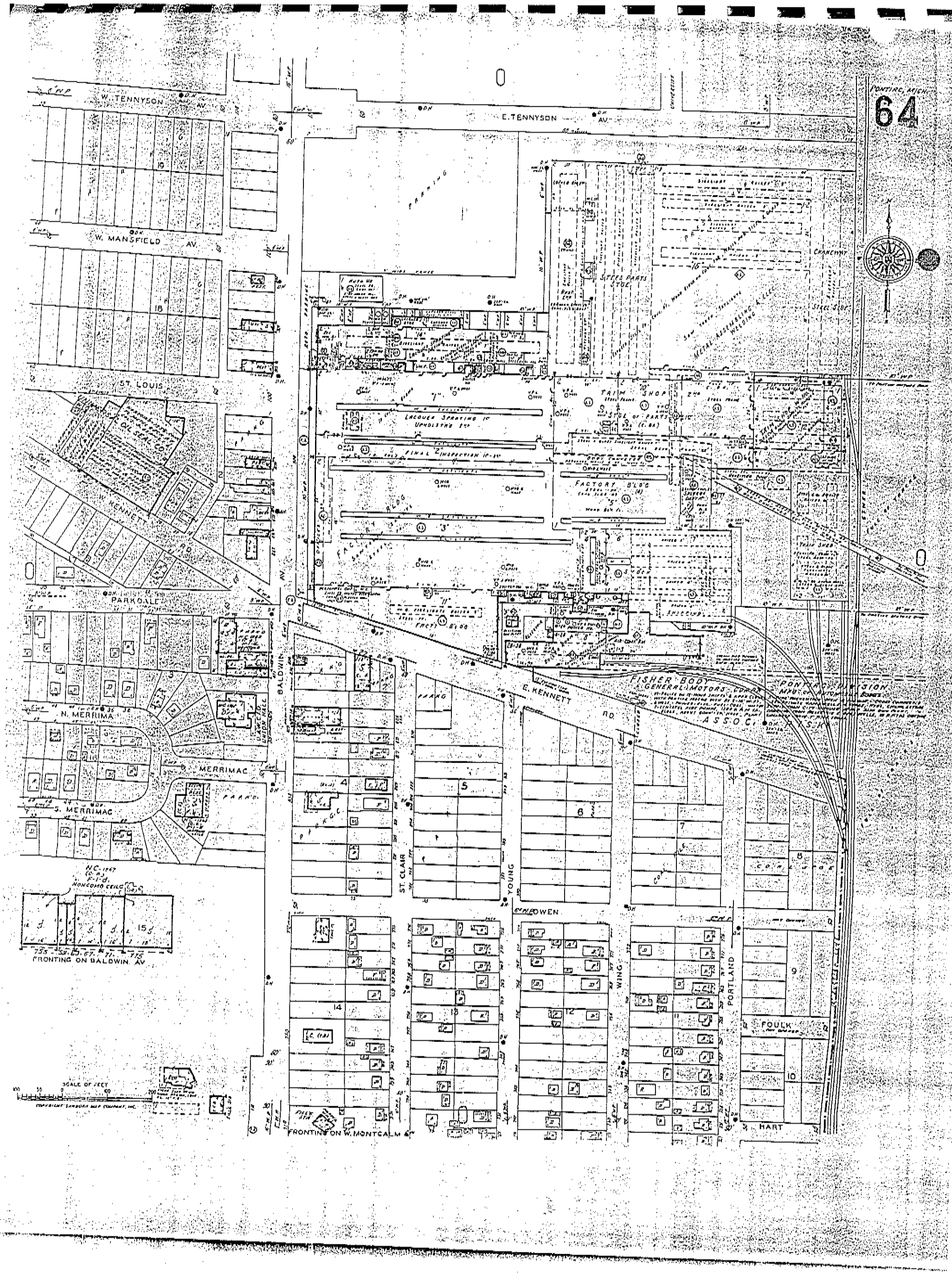
SANBORN 1950



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SANBORN

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Appendix B

Historical ATEC Data and Figures

ENCORE
Environmental Corporate Remediation ©

EXECUTIVE SUMMARY

ATEC Associates, Inc. (ATEC) has completed an environmental assessment study of the GM Chevrolet-Pontiac-Canada (C-P-C) Pontiac Fiero Assembly Plant and the adjacent Kennett Street lot located in Pontiac, Michigan. This study was performed for the General Motors C-P-C Group, headquartered in Warren, Michigan.

The purpose of the assessment was to identify areas of hazardous material contamination throughout the facility, and provide remedial alternatives for the materials. The assessment involved the collection and analysis of over 300 samples. Samples collected included soil, groundwater, suspect asbestos containing materials (ACMs), woodblocks, roof materials, and other suspect hazardous materials.

The analytical data was compared to applicable evaluation criteria which have been established by the Environmental Protection Agency (EPA) and the Michigan Department of Natural Resources (MDNR) using numerous environmental and toxicological databases.

The data evaluation process provided a means by which contaminated areas could be identified and recommendations for remedial activities made dependant upon future disposition of the facility. A brief summary of the findings and recommendations for each area is provided below, while detailed findings and recommendations for these areas is provided in the attached report.

HYDROGEOLOGIC STUDY

Sampling and analysis during soil boring activities revealed that detected concentrations were above the laboratory quantitation limit of 5 parts per billion (ppb) at only one soil sample location (SB-19 from 13-15 feet), where toluene was detected at 10 ppb. SB-19 was located immediately east of the plant's train well at the southeast side of the facility. No semi-volatiles were detected above laboratory quantitation limits in the soil samples tested.

The level of toluene reported (10 ppb) is significantly below the evaluation criteria level of 20,000 ppb established by the MDNR for Type B remedial action clean-up.

The results of the soil boring heavy metal testing revealed detectable levels of arsenic, lead, and mercury. SB-9 located adjacent to the loading dock on the plants southeast side showed 7.4 parts per million (ppm) of arsenic at 13-15 and 18-20 foot sampling intervals. MW-3 showed 56 ppm of lead at the 3-5 and 8-10 foot sampling intervals. Hand auger borings in the vicinity of the accumulation pit located adjacent (west) to the paint mixing building, showed 66 ppm, 98 ppm, and 26 ppm total lead at HA-2, HA-3, and HA-4 respectively.

Evaluation criteria used for the metals in soil was the MDNR document "Michigan Background Soil Survey".

Comparing the above described results against the applicable evaluation criteria level indicates that they all exceed those established values. Although the source for the arsenic (SB-9), lead (MW-3), and mercury (MW-2) could not be identified, the lead contamination in the vicinity of the accumulation pit may have resulted from activities associated with the storage of hazardous waste in the area.

Groundwater samples collected from the six monitoring wells were analyzed for volatile and semivolatile organic compounds as well as total dissolved metals.

Sampling and analysis of groundwater from monitoring wells MW-3, MW-4, MW-5, and MW-12 revealed detectable levels of volatile organic compounds. MW-3 located at the adjacent lot west of the assembly plant showed 12 ppb of methylene chloride which is above the MDNR Type B cleanup level of 5 ppb. Additionally, MW-5 located at the southeast end of the facility and MW-12 located at the northern end of the train well showed above Type B levels of 16 ppb and 9 ppb methylene chloride, respectively.

ASBESTOS SURVEY

As part of the site assessment study, ATEC performed an asbestos survey of plant building materials including roofing materials. A total of 200 bulk samples of identified suspect asbestos-containing materials (ACMs) were collected and submitted to the lab for analysis using polarized light microscopy (PLM) method.

The results of the asbestos survey revealed seven different types of building materials containing asbestos. These included: pipe insulation, floor tile, transite siding and roofing materials, duct insulation, over door gaskets, blower gasket material, and roofing material. Only two of the seven types were observed to be in some state of damage. They were the friable pipe insulation and friable duct insulation.

A total of approximately 610 linear feet of damaged pipe insulation located at various plant locations and approximately 800 square feet of damaged duct insulation was identified. Due to the damaged condition of these materials, they pose an immediate health risk and should be removed or repaired, prior to commencing any activities which would disturb the materials and create a more serious environmental risk.

The materials identified as asbestos containing or suspect for asbestos, ATEC recommends that these materials be managed according to an Operations and Maintenance (O & M) program which follows EPA guidelines.

If these materials become damaged or in the event of demolition or renovation which may disturb these materials, they should be handled according to federal, state and local codes.

POLYCHLORINATED BIPHENYLS (PCBs)

Wipe samples were collected from eight floor stained locations inside the plant where suspect PCBs were identified to be. Five of the eight samples were collected from areas where hydraulic systems existed. Two were collected from stains observed in former substations J (Division 13) and L (basement). The remaining sample was collected from the floor of the train well in Division 9. Only one of the wipe samples, in substation J, revealed a level (160,000 ug/100 cm^2) which exceeded the evaluation criteria level of 10 ug/100 cm^2 established by the EPA for remedial action activities. Therefore, ATEC recommends that this area be remediated of PCB contamination and the generated waste be properly disposed of.

In addition to the wipe sample, grab and composite samples of suspect PCB contaminated materials were collected in areas throughout the plant. A total of 37 samples were analyzed and the results do not reveal sampled materials being contaminated with PCB, as compared to the US EPA limit of 50 ppm for identifying materials as PCB containing.

WOOD FLOOR BLOCKS

One hundred wood floor blocks were randomly sampled throughout the entire plant. Five blocks were composited from two subdivisions in each division, with the exception of Divisions 13 and 14 where a total of ten blocks were composited (see Section 4.0 in the attached report for an explanation of plant divisions). The samples were analyzed for volatiles, semi-volatiles, metals, pesticides and PCBs.

Six subdivisions contain wood blocks with lead concentrations that exceed the Toxicity Characteristic Leaching Procedure (TCLP) maximum contaminate level of 5.0 ppm. The wood block composite sample for a subdivision of Division 5 exhibited a lead concentration of 87.0 ppm. The lead analytical results for the two subdivisions of Division 6 were 30.0 ppm and 60.0 ppm. Subdivisions of Division 7, 8 and 9 had sample results of 12.0 ppm, 6.1 ppm and 10.0 ppm lead, respectively.

INORGANIC/ORGANIC MATERIALS (RESIDUAL PLANT WASTES)

Forty-three samples were collected for TCLP inorganic/organic analysis, and ten collected for TCLP metals only. Additionally, six samples were analyzed for corrosivity.

The areas sampled from within the plant included but were not limited to, building sumps, floor trenches, pump motors, drip pans and paint residues. Both composite and grab samples were collected.

Thirteen samples exhibited elevated levels of inorganic constituents, and one sample for organic constituents. Evaluation criteria used for these samples was the TCLP maximum contaminate levels established in 40 CFR Part 261.

Several sumps located throughout the plant contained materials with hazardous levels of lead and cadmium. Elevated levels of lead, chromium, cadmium, barium, arsenic were discovered in the materials located beneath certain machinery in drip pans. A floor scrapping composite sample collected near the ELPO tank in division two exhibited a hazardous level of lead. Also, a composite sample collected of the residual material beneath the zinc phosphating operation in Division 13 displayed a high level of zinc. Additionally, a tank in Division 9 contained a material that exceeded federal limits for barium.

The area of organic contamination was the sump material located in Divisions 8 and 9 (composite sample). The constituents of concern are 1,1 Dichloroethylene and Tetrachloroethylene.

The results of the TCLP analysis revealed that contamination is varied and wide spread throughout the interior of the facility. Should the materials with constituents that exceed TCLP maximum contaminate levels be considered for disposal, they must be treated as hazardous waste. Also, a further waste characterization must be performed before disposing of these and similar materials.

ROOF MATERIAL

During the preliminary roof survey, forty-nine samples were collected of roof material to determine if hazardous constituents were present. Core samples were collected in areas where past site operation may have impacted the roof (e.g. vent stacks).

Collected samples were analyzed for total metals which included arsenic, cadmium, chromium, lead, mercury, and zinc. Eighteen roof core samples revealed levels which were suspect to exceed the TCLP evaluation criteria threshold limits. Therefore, ATEC resampled those eighteen areas, along with ten other suspect areas (including the roof of the paint mixing building which was analyzed for lead and chromium) for TCLP analysis. Eight of the resampled areas displayed levels that exceed the TCLP threshold limit for lead.

ESTIMATED COST FOR ASBESTOS REMOVAL AND REPAIR

Estimated Costs in order to repair damaged areas of identified asbestos containing materials (ACM) total $ 9,100.00. Costs to remove all ACM total $2,811,703.00. Estimated costs include asbestos removal, disposal, and transportation.

ESTIMATED REMEDIATION COST FOR PCB'S

The PCB sampling survey revealed one area that requires remediation. Approximately ten square feet of concrete floor within substation J is contaminated with PCB's. The estimated cost for transportation and disposal of the contaminated concrete is $ 4,500 (concrete demolition cost not included).

ESTIMATED REMEDIATION COST FOR WOOD FLOOR BLOCKS

The plant contains approximately 432 cubic yards of lead contaminated wood floor blocks. Estimated cost for transportation and disposal of the blocks is $ 118,226.00.

ESTIMATED REMEDIATION COST FOR INORGANIC/ORGANIC MATERIALS (RESIDUAL PLANT WASTES)

At the time of this survey, the plant contained approximately 20 cubic yards of solid hazardous wastes. Estimated cost for transportation and disposal is $ 9,500.00. Also, there was approximately 1,600 gallons of liquid hazardous wastes in the plant (not including material in sumps). Estimated cost for transportation and disposal of the liquid inorganic/organic wastes is $ 6,000.00.

General Motors has stated that the hazardous materials identified in the sumps will be treated at the Pontiac Motor Divisions treatment plant located east of the property.

ESTIMATED REMEDIATION COST FOR HAZARDOUS ROOFING MATERIALS

There is approximately 1,133 cubic yards of contaminated roofing material. Estimated transportation and disposal cost for this material is $ 310,370.00

The aforementioned estimates do not include the costs associated with ATEC professional services, other professional service fees, additional analytical costs, and demolition. Also, cost estimates are based on current regulatory requirements. Factors such as time of year, specification requirements, insurance requirements, bonding, scheduling and other special circumstances may significantly affect the cost of remediation.

TABLE 1.0
Summary of Detected Compounds in Soils

SAMPLE LOCATION	COMPOUND	CONCENTRATION	EVALUATION CRITERIA
SB/MW-1 (8-10 FT.)	METHYLENE CHLORIDE	6 PPB	*100 PPB
SB/MW-2 (3-5/8-10 FT.)	MERCURY	1.7 PPM	**0.14 PPM
SB/MW-3 (3-5/8-10 FT.)	LEAD	56 PPM	**37.3 PPM
SB-9 (13-15/18-20 FT.)	ARSENIC	7.4 PPM	**6.5 PPM
SB-11 (18-20 FT.)	METHYLENE CHLORIDE	5 PPB	*100 PPB
SB-19 (13-15 FT.)	TOLUENE	10 PPB	*20,000 PPB
HA-2 (0-3.5 FT.)	LEAD	66 PPM	**18 PPM
HA-3 (0-3.5 FT.)	LEAD	98 PPM	**18 PPM
HA-4 (0-3.5 FT.)	LEAD	26 PPM	**18 PPM

* : EVALUATION CRITERIA = MDNR TYPE B CRITERIA
** : EVALUATION CRITERIA = MDNR "MICHIGAN BACKGROUND SOIL SURVEY" STATISTICAL MEAN + 3 STANDARD DEVIATIONS

NOTE***METAL RESULTS IN SOILS SUMMARIZED ONLY IF ABOVE EVALUATION

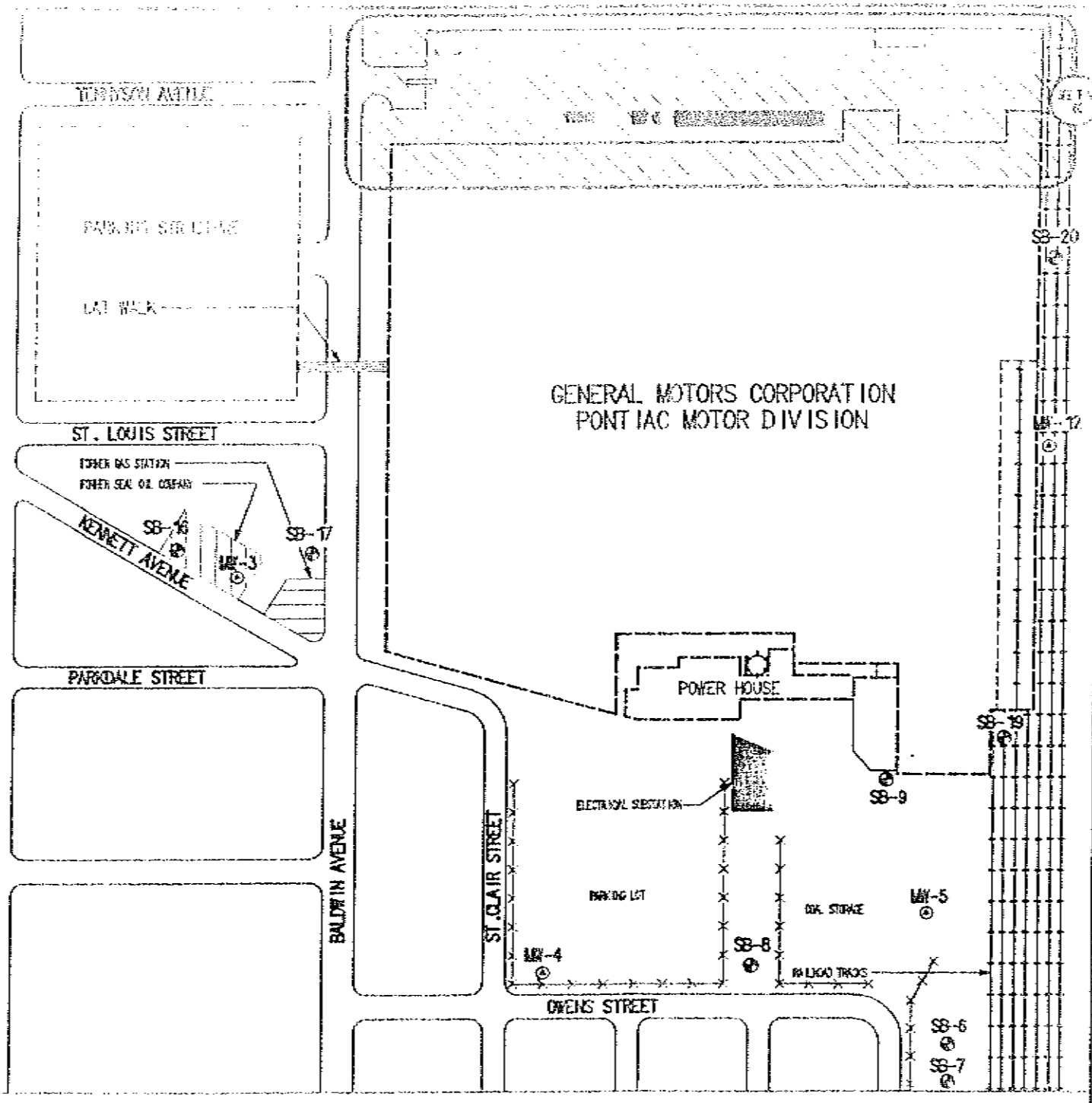
TABLE 2.0

Summary of Detected Compounds In Groundwater

SAMPLE LOCATION	COMPOUND	CONCENTRATION	EVALUATION CRITERIA
MW-2	METHYLENE CHLORIDE	2 PPB	*5 PPB
	BIS(2-ETHYLHEXYL)-PHTHALATE	12 PPB	**20 PPB
	ZINC	300 PPB	*1000 PPB
MW-3	METHYLENE CHLORIDE	12 PPB	*5 PPB
	ACETONE	310 PPB	*700 PPB
	ZINC	50 PPB	*1000 PPB
MW-4	1,1-DICHLOROETHANE	5 PPB	*700 PPB
	TOTAL 1,2 DICHLORO-ETHENE	14 PPB	**5 PPB
	ZINC	86 PPB	1000 PPB
MW-5	METHYLENE CHLORIDE	16 PPB	*5 PPB
	ACETONE	39 PPB	*700 PPB
	BIS(2-ETHYLHEXYL)-PHTHALATE	39 PPB	**20 PPB
	ZINC	55 PPB	*1000 PPB
MW-12	METHYLENE CHLORIDE	9 PPB	*5 PPB
	ACETONE	21 PPB	*700 PPB

* : EVALUATION CRITERIA = MDNR TYPE B CLEANUP CRITERIA

** : EVALUATION CRITERIA = 40 CFR PART 264, APP. IX PRACTICAL QUANTITATION LIMIT (PQL)



SOIL BORING / MONITORING WELL LOCATION MAP

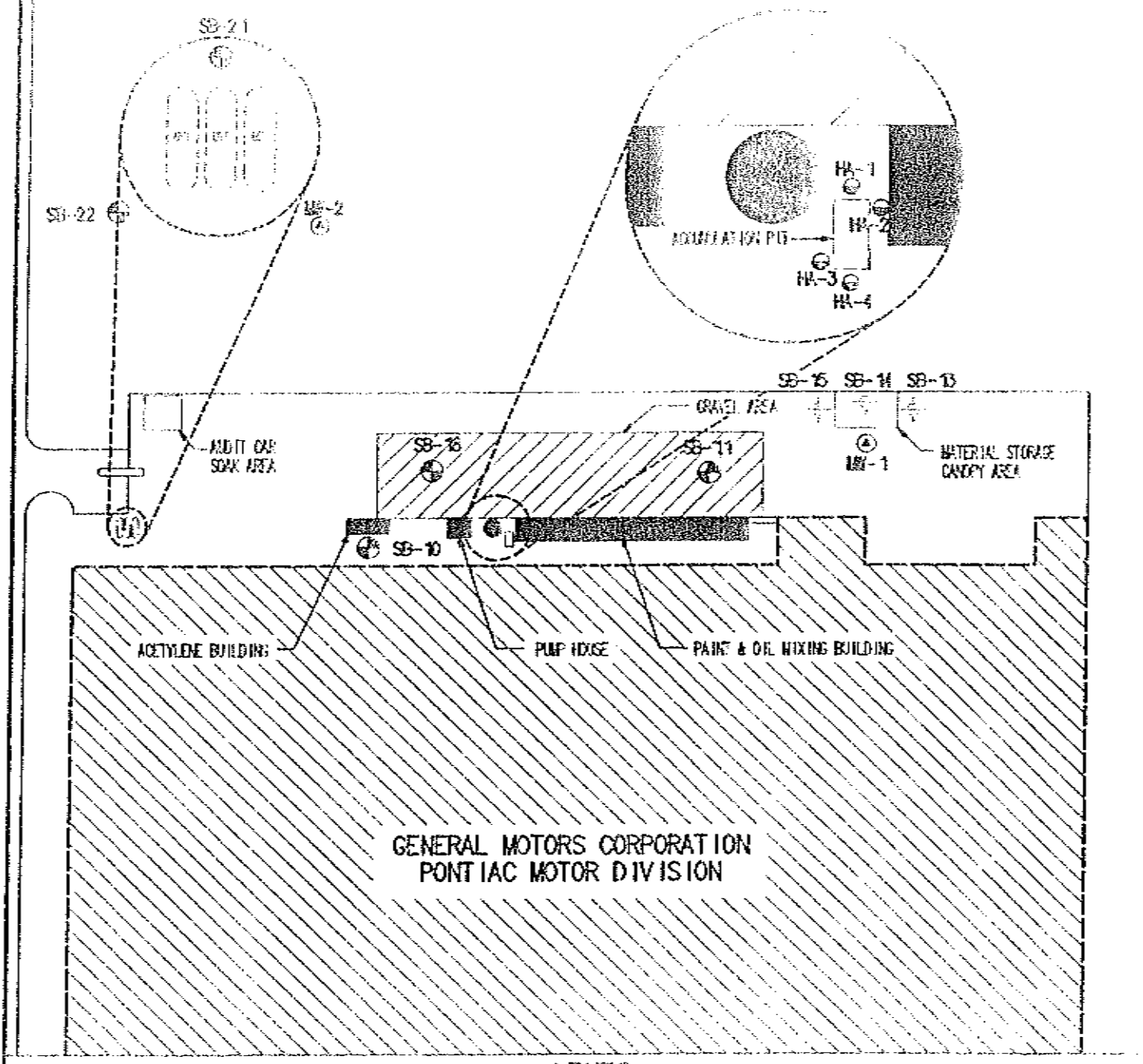
FIERO PLANT
Baldwin Road
Pontiac, Michigan

PROJECT NO.: 5407353A

SCALE: 1" = 300'

FIGURE 6K

ATEC



LEGEND

N

SOIL BORING (DEPTH 3' - 0")
SOIL BORINGS 13-16

SB-11 SOIL BORING

WATER STORAGE TANK

MW-2 SOIL BORING/MONITORING WELL LOCATION

HA-4 HAND AUGER (DEPTH 3' - 0") HAND AUGERS 1-4

SOIL BORING / MONITORING WELL LOCATION MAP

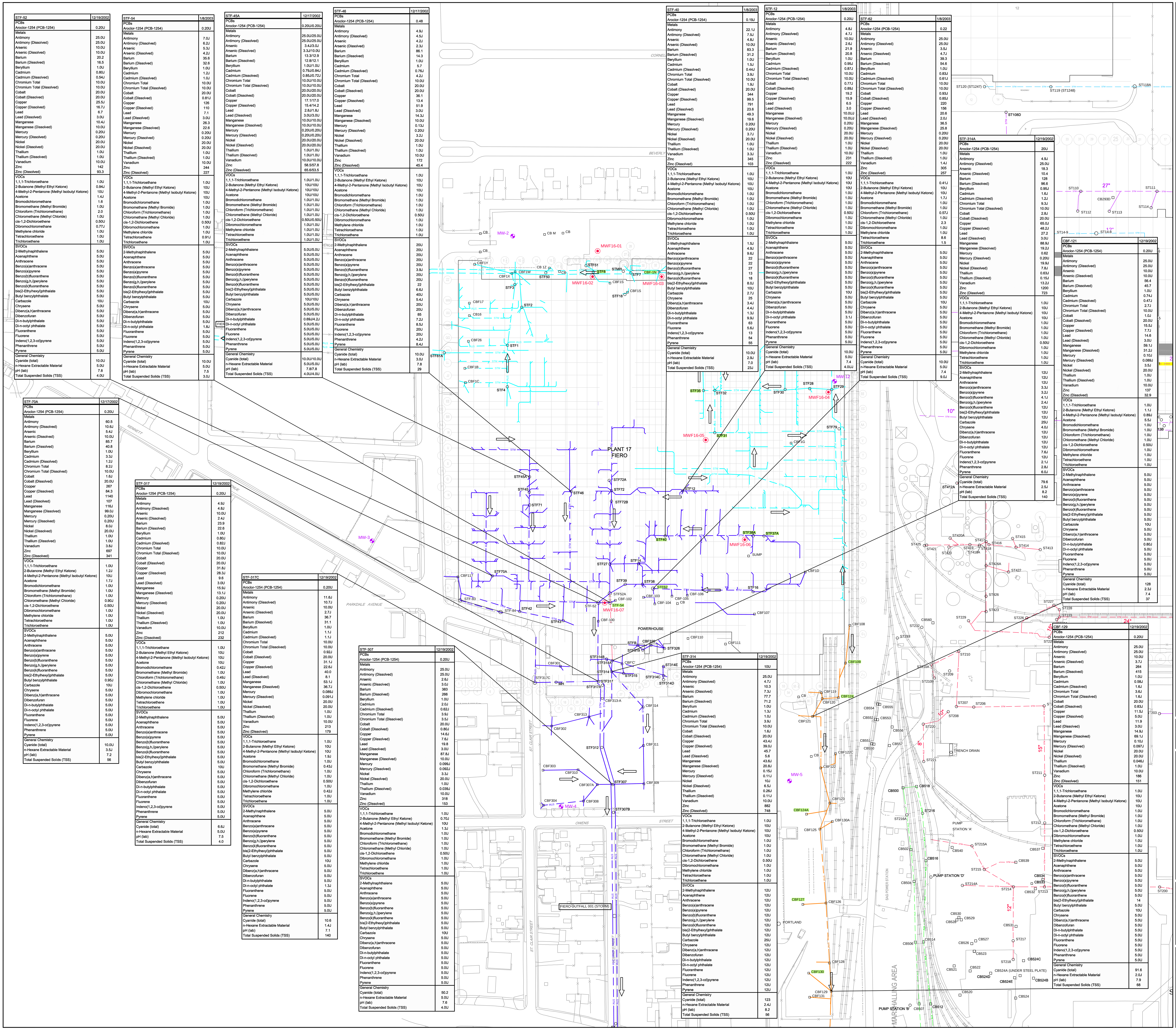
FIERO PLANT
Baldwin Road
Pontiac, Michigan

PROJECT NO.: 54073534

SCALE: 1" = 200'

FIGURE 6B

ATEC



STF-52	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	25.0U
Antimony (Dissolved)	25.0U
Arsenic	10.0U
Arsenic (Dissolved)	10.0U
Barium	20.2
Barium (Dissolved)	16.5
Beryllium	1.0U
Cadmium	0.80J
Cadmium (Dissolved)	0.54J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	20.0U
Cobalt (Dissolved)	20.0U
Copper	25.5J
Copper (Dissolved)	16.7J
Lead	6.7
Lead (Dissolved)	3.0U
Manganese	10.4J
Manganese (Dissolved)	10.0U
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	142
Zinc (Dissolved)	93.3
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	0.94J
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	1.4J
Bromodichloromethane	1.6
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	2.0
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	0.77J
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	5.0U
pH (lab)	7.8
Total Suspended Solids (TSS)	4.0U

STF-54	1/8/2003
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	7.0J
Antimony (Dissolved)	6.2J
Arsenic	5.3J
Arsenic (Dissolved)	4.2J
Barium	35.6
Barium (Dissolved)	32.6
Beryllium	1.0U
Cadmium	1.2J
Cadmium (Dissolved)	1.0J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	20.0U
Cobalt (Dissolved)	0.81J
Copper	126
Copper (Dissolved)	110
Lead	7.1
Lead (Dissolved)	3.0U
Manganese	26.3
Manganese (Dissolved)	22.6
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	244
Zinc (Dissolved)	227
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	0.91J
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	1.8J
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	5.0U
pH (lab)	7.5
Total Suspended Solids (TSS)	3.0J

STF-45A	12/17/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U/0.20U
Metals	
Antimony	25.0U/25.0U
Antimony (Dissolved)	25.0U/25.0U
Arsenic	3.4J/3.0J
Arsenic (Dissolved)	3.3J/10.0U
Barium	13.3/12.9
Barium (Dissolved)	12.8/12.1
Beryllium	1.0U/1.0U
Cadmium	0.79J/0.84J
Cadmium (Dissolved)	0.85J/0.72J
Chromium Total	10.0U/10.0U
Chromium Total (Dissolved)	10.0U/10.0U
Cobalt	20.0U/20.0U
Cobalt (Dissolved)	20.0U/20.0U
Copper	17.1/17.0
Copper (Dissolved)	15.4/14.2
Lead	2.8J/1.8J
Lead (Dissolved)	3.0U/3.0U
Manganese	10.0U/10.0U
Manganese (Dissolved)	10.0U/10.0U
Mercury	0.20U/0.20U
Mercury (Dissolved)	0.20U/0.20U
Nickel	20.0U/20.0U
Nickel (Dissolved)	20.0U/20.0U
Thallium	1.0U/1.0U
Thallium (Dissolved)	1.0U/1.0U
Vanadium	10.0U/10.0U
Zinc	58.5/57.8
Zinc (Dissolved)	65.6/53.5
VOCs	
1,1,1-Trichloroethane	1.0U/1.0U
2-Butanone (Methyl Ethyl Ketone)	10U/10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U/10U
Acetone	10U/10U
Bromodichloromethane	1.0U/1.0U
Bromomethane (Methyl Bromide)	1.0U/1.0U
Chloroform (Trichloromethane)	1.0U/1.0U
Chloromethane (Methyl Chloride)	1.0U/1.0U
cis-1,2-Dichloroethene	0.50U/0.50U
Dibromochloromethane	1.0U/1.0U
Methylene chloride	1.0U/1.0U
Tetrachloroethene	1.0U/1.0U
Trichloroethene	1.0U/1.0U
SVOCs	
2-Methylnaphthalene	5.0U/5.0U
Acenaphthene	5.0U/5.0U
Anthracene	5.0U/5.0U
Benzo(a)anthracene	5.0U/5.0U
Benzo(a)pyrene	5.0U/5.0U
Benzo(b)fluoranthene	5.0U/5.0U
Benzo(g,h,i)perylene	5.0U/5.0U
Benzo(k)fluoranthene	5.0U/5.0U
bis(2-Ethylhexyl)phthalate	5.0U/5.0U
Butyl benzylphthalate	5.0U/5.0U
Carbazole	10U/10U
Chrysene	5.0U/5.0U
Dibenz(a,h)anthracene	5.0U/5.0U
Dibenzofuran	5.0U/5.0U
Di-n-butylphthalate	0.69J/4.2J
Di-n-octyl phthalate	5.0U/5.0U
Fluoranthene	5.0U/5.0U
Fluorene	5.0U/5.0U
Indeno(1,2,3-cd)pyrene	5.0U/5.0U
Phenanthrene	5.0U/5.0U
Pyrene	5.0U/5.0U
General Chemistry	
Cyanide (total)	10.0U/10.0U
n-Hexane Extractable Material	5.0U/5.0U
pH (lab)	7.8/7.8
Total Suspended Solids (TSS)	4.0U/4.0U

STF-46	12/17/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.48
Metals	
Antimony	4.9J
Antimony (Dissolved)	4.5J
Arsenic	4.2J
Arsenic (Dissolved)	2.3J
Barium	86.1
Barium (Dissolved)	14.3
Beryllium	1.0U
Cadmium	5.7
Cadmium (Dissolved)	0.76J
Chromium Total	4.2J
Chromium Total (Dissolved)	10.0U
Cobalt	20.0U
Cobalt (Dissolved)	20.0U
Copper	36.1
Copper (Dissolved)	13.4
Lead	51.9
Lead (Dissolved)	3.0U
Manganese	14.3J
Manganese (Dissolved)	10.0U
Mercury	0.13J
Mercury (Dissolved)	0.20U
Nickel	3.2J
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	172
Zinc (Dissolved)	45.4
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	20U
Acenaphthene	20U
Anthracene	20U
Benzo(a)anthracene	20U
Benzo(a)pyrene	20U
Benzo(b)fluoranthene	3.9J
Benzo(g,h,i)perylene	20U
Benzo(k)fluoranthene	20U
bis(2-Ethylhexyl)phthalate	22
Butyl benzylphthalate	6.6J
Carbazole	40U
Chrysene	5.4J
Dibenz(a,h)anthracene	20U
Dibenzofuran	20U
Di-n-butylphthalate	85
Di-n-octyl phthalate	7.2J
Fluoranthene	8.5J
Fluorene	20U
Indeno(1,2,3-cd)pyrene	20U
Phenanthrene	4.2J
Pyrene	8.4J
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	3.0J
pH (lab)	7.8
Total Suspended Solids (TSS)	29

STF-40	1/8/2003
PCBs	
Aroclor-1254 (PCB-1254)	0.19J
Metals	
Antimony	22.1J
Antimony (Dissolved)	7.5J
Arsenic	4.8J
Arsenic (Dissolved)	10.0U
Barium	83.3
Barium (Dissolved)	31.2
Beryllium	1.0U
Cadmium	1.5J
Cadmium (Dissolved)	0.44J
Chromium Total	3.9J
Chromium Total (Dissolved)	10.0U
Cobalt	1.9J
Cobalt (Dissolved)	20.0U
Copper	344
Copper (Dissolved)	99.5
Lead	791
Lead (Dissolved)	23.6
Manganese	49.3
Manganese (Dissolved)	19.6
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	3.7J
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	3.3J
Zinc	345
Zinc (Dissolved)	103
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	1.5J
Acenaphthene	4.9J
Anthracene	9.6J
Benzo(a)anthracene	22
Benzo(a)pyrene	22
Benzo(b)fluoranthene	27
Benzo(g,h,i)perylene	13
Benzo(k)fluoranthene	18
bis(2-Ethylhexyl)phthalate	8.0J
Butyl benzylphthalate	10U
Carbazole	2.7J
Chrysene	25
Dibenz(a,h)anthracene	3.4J
Dibenzofuran	4.4J
Di-n-butylphthalate	1.3J
Di-n-octyl phthalate	9.9J
Fluoranthene	63
Fluorene	5.6J
Indeno(1,2,3-cd)pyrene	13
Phenanthrene	54
Pyrene	55
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	2.9J
pH (lab)	7.0
Total Suspended Solids (TSS)	23J

STF-12	1/8/2003
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	4.8J
Antimony (Dissolved)	4.7J
Arsenic	10.0U
Arsenic (Dissolved)	2.6J
Barium	21.9
Barium (Dissolved)	20.8
Beryllium	1.0U
Cadmium	0.95J
Cadmium (Dissolved)	0.87J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	0.77J
Cobalt (Dissolved)	0.89J
Copper	19.2
Copper (Dissolved)	15.9
Lead	6.5
Lead (Dissolved)	3.0
Manganese	10.0UJ
Manganese (Dissolved)	10.0UJ
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	231
Zinc (Dissolved)	222
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	3.1J
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	5.0U
pH (lab)	7.4
Total Suspended Solids (TSS)	4.0UJ

STF-62	1/8/2003
PCBs	
Aroclor-1254 (PCB-1254)	0.22
Metals	
Antimony	25.0U
Antimony (Dissolved)	25.0U
Arsenic	3.5J
Arsenic (Dissolved)	4.7J
Barium	39.3
Barium (Dissolved)	54.6
Beryllium	1.0U
Cadmium	0.83J
Cadmium (Dissolved)	0.61J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	0.93J
Cobalt (Dissolved)	0.85J
Copper	220
Copper (Dissolved)	156
Lead	20.6
Lead (Dissolved)	2.0J
Manganese	36.5
Manganese (Dissolved)	25.8
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	1.4J
Zinc	305
Zinc (Dissolved)	257
VOCs	
1,1,1-Trichloroethane	0.41J
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	1.7J
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	0.57J
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	2.3
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	8.6
Trichloroethene	1.5
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	5.0U
pH (lab)	7.4
Total Suspended Solids (TSS)	9.0J

STF-314A	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	20U
Metals	
Antimony	4.9J
Antimony (Dissolved)	25.0U
Arsenic	18.3
Arsenic (Dissolved)	10.4
Barium	128
Barium (Dissolved)	96.6
Beryllium	0.95J
Cadmium	1.6J
Cadmium (Dissolved)	1.2J
Chromium Total	9.3J
Chromium Total (Dissolved)	10.0U
Cobalt	2.8J
Cobalt (Dissolved)	20.0U
Copper	65.0J
Copper (Dissolved)	48.2J
Lead	27.2
Lead (Dissolved)	3.0U
Manganese	88.9J
Manganese (Dissolved)	19.2J
Mercury	0.62
Mercury (Dissolved)	0.20U
Nickel	19.9J
Nickel (Dissolved)	7.8J
Thallium	0.63J
Thallium (Dissolved)	0.15J
Vanadium	13.2J
Zinc	1200
Zinc (Dissolved)	723
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	12U
Acenaphthene	12U
Anthracene	12U
Benzo(a)anthracene	3.3J
Benzo(a)pyrene	3.2J
Benzo(b)fluoranthene	4.1J
Benzo(g,h,i)perylene	2.4J
Benzo(k)fluoranthene	12U
bis(2-Ethylhexyl)phthalate	12U
Butyl benzylphthalate	12U
Carbazole	25U
Chrysene	4.0J
Dibenz(a,h)anthracene	12U
Dibenzofuran	12U
Di-n-butylphthalate	12U
Di-n-octyl phthalate	12U
Fluoranthene	7.6J
Fluorene	12U
Indeno(1,2,3-cd)pyrene	2.1J
Phenanthrene	2.8J
Pyrene	6.0J
General Chemistry	
Cyanide (total)	79.6
n-Hexane Extractable Material	2.5J
pH (lab)	8.2
Total Suspended Solids (TSS)	140

CBF-121	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	25.0U
Antimony (Dissolved)	25.0U
Arsenic	10.0U
Arsenic (Dissolved)	10.0U
Barium	56.4
Barium (Dissolved)	45.7
Beryllium	1.0U
Cadmium	0.74J
Cadmium (Dissolved)	0.47J
Chromium Total	2.7J
Chromium Total (Dissolved)	10.0U
Cobalt	1.0J
Cobalt (Dissolved)	20.0U
Copper	15.5J
Copper (Dissolved)	7.7J
Lead	14.6
Lead (Dissolved)	3.0U
Manganese	59.1J
Manganese (Dissolved)	31.2J
Mercury	0.10J
Mercury (Dissolved)	0.089J
Nickel	3.5J
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	137
Zinc (Dissolved)	32.9
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	1.1J
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	0.89J
Acetone	5.5J
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	0.80J
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	128
n-Hexane Extractable Material	2.3J
pH (lab)	7.4
Total Suspended Solids (TSS)	37

STF-70A	12/17/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	60.5
Antimony (Dissolved)	10.6J
Arsenic	5.4J
Arsenic (Dissolved)	10.0U
Barium	85.7
Barium (Dissolved)	40.8
Beryllium	1.0U
Cadmium	3.3J
Cadmium (Dissolved)	1.2J
Chromium Total	8.2J
Chromium Total (Dissolved)	10.0U
Cobalt	1.6J
Cobalt (Dissolved)	20.0U
Copper	267
Copper (Dissolved)	84.3
Lead	1140
Lead (Dissolved)	107
Manganese	116J
Manganese (Dissolved)	99.0J
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	8.0J
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	3.8J
Zinc	697
Zinc (Dissolved)	341
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	1.2J
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	1.7J
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	0.90J
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	0.95J
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.0U
n-Hexane Extractable Material	3.5J
pH (lab)	7.2
Total Suspended Solids (TSS)	56

STF-317	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	4.9J
Antimony (Dissolved)	4.8J
Arsenic	10.0U
Arsenic (Dissolved)	2.4J
Barium	23.9
Barium (Dissolved)	22.6
Beryllium	1.0U
Cadmium	0.80J
Cadmium (Dissolved)	0.82J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	20.0U
Cobalt (Dissolved)	20.0U
Copper	31.8J
Copper (Dissolved)	28.3J
Lead	9.6
Lead (Dissolved)	3.0U
Manganese	15.9J
Manganese (Dissolved)	13.1J
Mercury	0.20U
Mercury (Dissolved)	0.20U
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	212
Zinc (Dissolved)	232
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	0.42J
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	0.49J
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	6.6J
n-Hexane Extractable Material	5.0U
pH (lab)	7.5
Total Suspended Solids (TSS)	4.0

STF-317C	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	11.6J
Antimony (Dissolved)	10.7J
Arsenic	10.0U
Arsenic (Dissolved)	2.7J
Barium	36.7
Barium (Dissolved)	31.1
Beryllium	1.0U
Cadmium	1.1J
Cadmium (Dissolved)	1.1J
Chromium Total	10.0U
Chromium Total (Dissolved)	10.0U
Cobalt	0.92J
Cobalt (Dissolved)	20.0U
Copper	31.1J
Copper (Dissolved)	22.6J
Lead	40.0
Lead (Dissolved)	8.1
Manganese	53.1J
Manganese (Dissolved)	36.7J
Mercury	0.089J
Mercury (Dissolved)	0.091J
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	213
Zinc (Dissolved)	179
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	1.9J
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	0.43J
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	0.42J
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	1.3J
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	10.6
n-Hexane Extractable Material	1.4J
pH (lab)	7.1
Total Suspended Solids (TSS)	140

STF-307	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	25.0U
Antimony (Dissolved)	25.0U
Arsenic	2.6J
Arsenic (Dissolved)	3.0J
Barium	383
Barium (Dissolved)	266
Beryllium	1.0U
Cadmium	2.0J
Cadmium (Dissolved)	0.62J
Chromium Total	3.9J
Chromium Total (Dissolved)	3.5J
Cobalt	20.0U
Cobalt (Dissolved)	0.80J
Copper	14.6J
Copper (Dissolved)	7.6J
Lead	19.8
Lead (Dissolved)	3.0U
Manganese	87.8J
Manganese (Dissolved)	10.0U
Mercury	0.099J
Mercury (Dissolved)	0.092J
Nickel	3.3J
Nickel (Dissolved)	20.0U
Thallium	1.0U
Thallium (Dissolved)	0.039J
Vanadium	10.0U
Zinc	318
Zinc (Dissolved)	153
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	0.70J
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	1.3J
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	5.0U
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	50.2
n-Hexane Extractable Material	5.0U
pH (lab)	7.6
Total Suspended Solids (TSS)	4.0U

STF-314	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	10U
Metals	
Antimony	25.0U
Antimony (Dissolved)	4.7J
Arsenic	10.3
Arsenic (Dissolved)	7.3J
Barium	77.7
Barium (Dissolved)	71.2
Beryllium	1.0U
Cadmium	1.3J
Cadmium (Dissolved)	1.0J
Chromium Total	3.9J
Chromium Total (Dissolved)	10.0U
Cobalt	1.6J
Cobalt (Dissolved)	20.0U
Copper	43.4J
Copper (Dissolved)	39.0J
Lead	45.7
Lead (Dissolved)	5.6
Manganese	43.6J
Manganese (Dissolved)	20.8J
Mercury	0.15J
Mercury (Dissolved)	0.11J
Nickel	10J
Nickel (Dissolved)	6.5J
Thallium	0.26J
Thallium (Dissolved)	0.11J
Vanadium	10.0U
Zinc	882
Zinc (Dissolved)	748
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	12U
Acenaphthene	12U
Anthracene	12U
Benzo(a)anthracene	12U
Benzo(a)pyrene	12U
Benzo(b)fluoranthene	12U
Benzo(g,h,i)perylene	12U
Benzo(k)fluoranthene	12U
bis(2-Ethylhexyl)phthalate	12U
Butyl benzylphthalate	12U
Carbazole	25U
Chrysene	12U
Dibenz(a,h)anthracene	12U
Dibenzofuran	12U
Di-n-butylphthalate	12U
Di-n-octyl phthalate	12U
Fluoranthene	12U
Fluorene	12U
Indeno(1,2,3-cd)pyrene	12U
Phenanthrene	12U
Pyrene	12U
General Chemistry	
Cyanide (total)	123
n-Hexane Extractable Material	2.4J
pH (lab)	8.2
Total Suspended Solids (TSS)	56

CBF-129	12/19/2002
PCBs	
Aroclor-1254 (PCB-1254)	0.20U
Metals	
Antimony	25.0U
Antimony (Dissolved)	25.0U
Arsenic	10.0U
Arsenic (Dissolved)	3.7J
Barium	264
Barium (Dissolved)	415
Beryllium	1.0U
Cadmium	0.58J
Cadmium (Dissolved)	1.6J
Chromium Total	3.6J
Chromium Total (Dissolved)	1.6J
Cobalt	20.0U
Cobalt (Dissolved)	0.83J
Copper	11.5J
Copper (Dissolved)	5.0U
Lead	11.9
Lead (Dissolved)	3.0U
Manganese	14.9J
Manganese (Dissolved)	69.1J
Mercury	0.10J
Mercury (Dissolved)	0.097J
Nickel	20.0U
Nickel (Dissolved)	20.0U
Thallium	0.046J
Thallium (Dissolved)	1.0U
Vanadium	10.0U
Zinc	186
Zinc (Dissolved)	151
VOCs	
1,1,1-Trichloroethane	1.0U
2-Butanone (Methyl Ethyl Ketone)	10U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10U
Acetone	10U
Bromodichloromethane	1.0U
Bromomethane (Methyl Bromide)	1.0U
Chloroform (Trichloromethane)	1.0U
Chloromethane (Methyl Chloride)	1.0U
cis-1,2-Dichloroethene	0.50U
Dibromochloromethane	1.0U
Methylene chloride	1.0U
Tetrachloroethene	1.0U
Trichloroethene	1.0U
SVOCs	
2-Methylnaphthalene	5.0U
Acenaphthene	5.0U
Anthracene	5.0U
Benzo(a)anthracene	5.0U
Benzo(a)pyrene	5.0U
Benzo(b)fluoranthene	5.0U
Benzo(g,h,i)perylene	5.0U
Benzo(k)fluoranthene	5.0U
bis(2-Ethylhexyl)phthalate	14
Butyl benzylphthalate	5.0U
Carbazole	10U
Chrysene	5.0U
Dibenz(a,h)anthracene	5.0U
Dibenzofuran	5.0U
Di-n-butylphthalate	5.0U
Di-n-octyl phthalate	5.0U
Fluoranthene	5.0U
Fluorene	5.0U
Indeno(1,2,3-cd)pyrene	5.0U
Phenanthrene	5.0U
Pyrene	5.0U
General Chemistry	
Cyanide (total)	91.6
n-Hexane Extractable Material	2.0J
pH (lab)	7.9
Total Suspended Solids (TSS)	68

NO	Revision	Date	Initial

0 50 100ft

LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- M.H. EXISTING MANHOLE - NOT SURVEYED
- C.B. EXISTING CATCH BASIN - NOT SURVEYED
- SITE STORM SEWER - LOCATION BASED ON ACTUAL FIELD VERIFICATION: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: NOT CLEANED, NOT TELEVISED
- FIERO OUTFALL 001 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 002 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 003 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FENCELINE
- FLOW DIRECTION
- PROPOSED MONITORING WELL LOCATION
- PROPOSED STORM SEWER SEDIMENT SAMPLING LOCATION
- MONITORING WELL BY ATEC (ATEC, 1992)

STF-314 — SAMPLE LOCATION
12/19/2002 — SAMPLE DATE
4.7J — CONCENTRATION (ug/L)
Aroclor-1254 (PCB-1254) — PARAMETER

U = NOT DETECTED AT ASSOCIATED VALUE.
J = ASSOCIATED VALUE IS ESTIMATED.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GENERAL MOTORS PONTIAC NORTH CAMPUS

PLANT 17 (FIERO) STORM SEWER INVESTIGATION

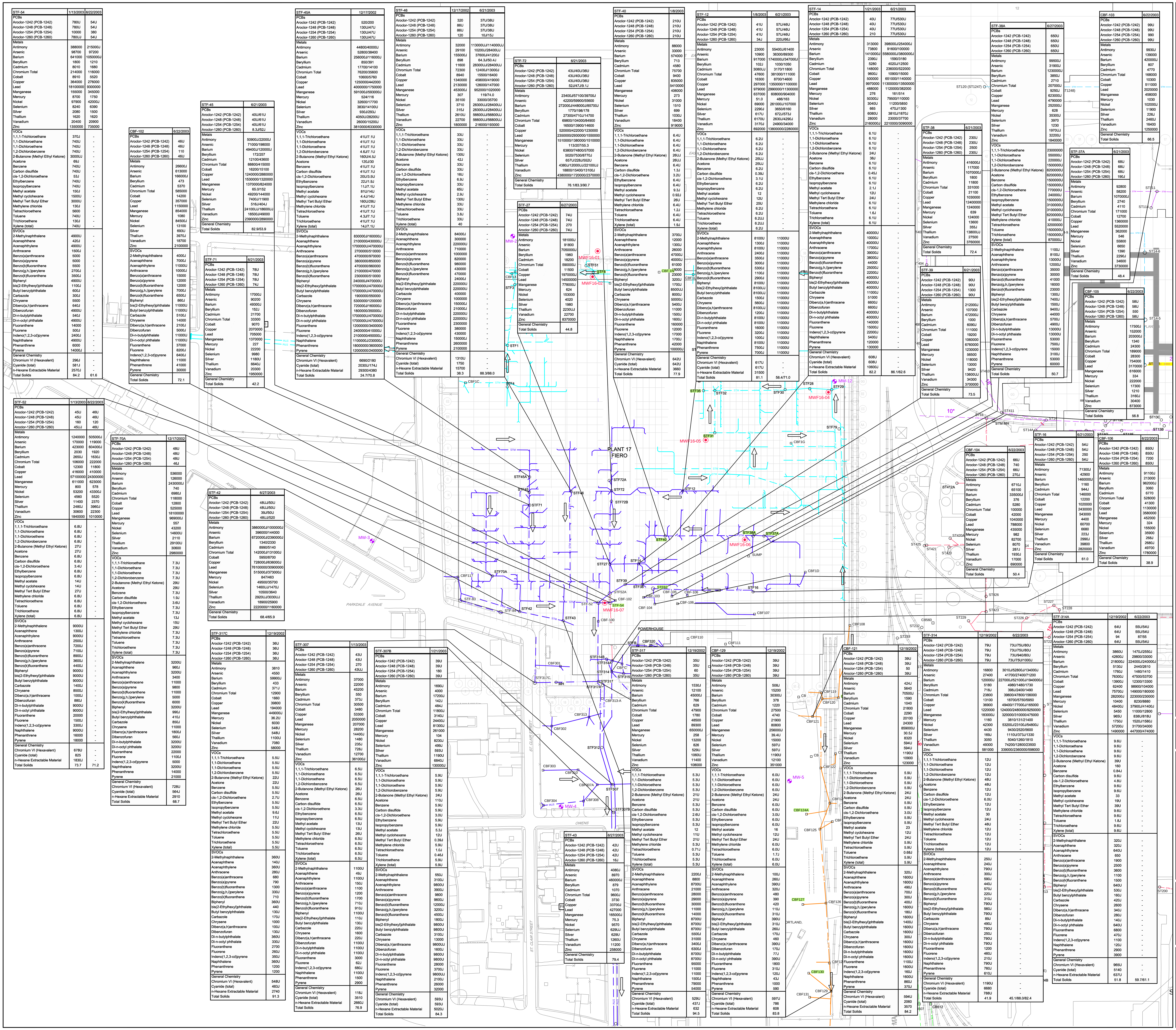
FIERO OUTFALLS 001 AND 003 STORM SEWER SYSTEMS WATER SAMPLING ANALYTICAL RESULTS

ENCORE

Source Reference:

Project Manager:	Reviewed By:	Date:	
K. MALINOWSKI	A.PERFETTO	AUGUST 2004	
Scale: 1" = 100'	Project Nº: 17316-17	Report Nº: 015	Drawing Nº: 1

17316-17(015)GN-WA001 SEP 22/2004



STF-54	1/13/2003	6/22/2003
PCBs		
Aroclor-1242 (PCB-1242)	780U	54U
Aroclor-1248 (PCB-1248)	780U	54U
Aroclor-1254 (PCB-1254)	10000	380
Aroclor-1260 (PCB-1260)	780UJ	54U
Metals		
Antimony	388000	215000J
Arsenic	98700	97200
Barium	641000	1050000J
Beryllium	1800	1210
Cadmium	8010	1680
Chromium Total	214000	116000
Cobalt	8910	5520
Copper	364000	276000
Lead	18100000	9300000
Manganese	155000	345000
Mercury	8700	1750
Nickel	97900	42000J
Selenium	8240	6390
Silver	2080	1500
Thallium	1620	1620
Vanadium	20400	20900
Zinc	1350000	735000
VOCs		
1,1,1-Trichloroethane	370J	-
1,1-Dichloroethane	740U	-
1,1-Dichloroethene	740U	-
1,2-Dichlorobenzene	740U	-
2-Butanone (Methyl Ethyl Ketone)	3000UJ	-
Acetone	69J	-
Benzene	740U	-
Carbon disulfide	740U	-
cis-1,2-Dichloroethene	53J	-
Ethylbenzene	740U	-
Isopropylbenzene	740U	-
Methyl acetate	150J	-
Methyl cyclohexane	1500U	-
Methyl Tert Butyl Ether	3000U	-
Methylene chloride	130J	-
Tetrachloroethene	5600	-
Toluene	740U	-
Trichloroethene	130J	-
Xylene (total)	740U	-
SVOCs		
2-Methylnaphthalene	4900U	-
Acenaphthene	420J	-
Acenaphthylene	4900U	-
Anthracene	1500J	-
Benzo(a)anthracene	5000	-
Benzo(a)pyrene	5000	-
Benzo(b)fluoranthene	5500	-
Benzo(g,h,i)perylene	2700J	-
Benzo(k)fluoranthene	3500J	-
Biphenyl	4900U	-
bis(2-Ethylhexyl)phthalate	1100J	-
Butyl benzylphthalate	600J	-
Carbazole	300J	-
Chrysene	5500	-
Dibenz(a,h)anthracene	640J	-
Dibenzofuran	4900U	-
Di-n-butylphthalate	540J	-
Di-n-octyl phthalate	4900U	-
Fluoranthene	14000	-
Fluorene	500J	-
Indeno(1,2,3-cd)pyrene	2400J	-
Naphthalene	4900U	-
Phenanthrene	6000	-
Pyrene	14000J	-
General Chemistry		
Chromium VI (Hexavalent)	296J	-
Cyanide (total)	581J	-
n-Hexane Extractable Material	2570J	-
Total Solids	84.2	61.6

CBF-102	6/22/2003
PCBs	
Aroclor-1242 (PCB-1242)	46U
Aroclor-1248 (PCB-1248)	46U
Aroclor-1254 (PCB-1254)	110
Aroclor-1260 (PCB-1260)	46U
Metals	
Antimony	26600J
Arsenic	613000
Barium	166000J
Beryllium	473
Cadmium	5370
Chromium Total	585000
Cobalt	14200
Copper	357000
Lead	1150000
Manganese	854000
Mercury	1080
Nickel	84500J
Selenium	13100
Silver	693U
Thallium	3970J
Vanadium	18700
Zinc	2100000
SVOCs	
2-Methylnaphthalene	4000J
Acenaphthene	7000J
Acenaphthylene	11000U
Anthracene	10000J
Benzo(a)anthracene	15000
Benzo(a)pyrene	12000
Benzo(b)fluoranthene	12000
Benzo(g,h,i)perylene	7000J
Benzo(k)fluoranthene	6500J
Biphenyl	860J
bis(2-Ethylhexyl)phthalate	11000U
Butyl benzylphthalate	11000U
Carbazole	5100J
Chrysene	14000
Dibenz(a,h)anthracene	2100J
Dibenzofuran	5000J
Di-n-butylphthalate	11000U
Di-n-octyl phthalate	11000U
Fluoranthene	37000
Fluorene	8200J
Indeno(1,2,3-cd)pyrene	6400J
Naphthalene	11000
Phenanthrene	41000
Pyrene	30000
General Chemistry	
Total Solids	72.1

STF-45	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	40U/61U
Aroclor-1248 (PCB-1248)	40U/61U
Aroclor-1254 (PCB-1254)	40U/61U
Aroclor-1260 (PCB-1260)	8.3J/52J
Metals	
Antimony	50900J/22000J
Arsenic	71000/198000
Barium	49400J/120000J
Beryllium	172/257
Cadmium	12100/43600
Chromium Total	88800/415000
Cobalt	16200/15100
Copper	1240000/2880000
Lead	1530000/1320000
Manganese	1370000/824000
Mercury	65.0/152
Nickel	49200/144000
Selenium	7400J/11900
Silver	516J/404J
Thallium	24100UJ/18600UJ
Vanadium	18500J/49000
Zinc	2390000/2890000
General Chemistry	
Total Solids	82.9/53.9

STF-71	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	78U
Aroclor-1248 (PCB-1248)	78U
Aroclor-1254 (PCB-1254)	78U
Aroclor-1260 (PCB-1260)	74J
Metals	
Antimony	17000J
Arsenic	90200
Barium	49300J
Beryllium	152J
Cadmium	21700
Chromium Total	33300
Cobalt	9070
Copper	2070000
Lead	705000
Manganese	1370000
Mercury	227
Nickel	22200
Selenium	9980
Silver	1180U
Thallium	6640J
Vanadium	20300
Zinc	1950000
General Chemistry	
Total Solids	42.2

STF-45A	12/17/2002
PCBs	
Aroclor-1242 (PCB-1242)	520/200
Aroclor-1248 (PCB-1248)	130U/47U
Aroclor-1254 (PCB-1254)	130U/47U
Aroclor-1260 (PCB-1260)	130U/47U
Metals	
Antimony	44800/40000J
Arsenic	52800/38400
Barium	256000J/116000J
Beryllium	850/391
Cadmium	17700/14100
Chromium Total	76200/35600
Cobalt	10600/5760
Copper	1250000/442000
Lead	4000000/1750000
Manganese	591000J/593000J
Mercury	524/116
Nickel	32600/17700
Selenium	3830/14100U
Silver	930J/293J
Thallium	4050U/28200U
Vanadium	26000/15200J
Zinc	3810000/6330000
VOCs	
1,1,1-Trichloroethane	41U/7.1U
1,1-Dichloroethane	41U/7.1U
1,1-Dichloroethene	41U/7.1U
1,2-Dichlorobenzene	4.6J/7.1U
2-Butanone (Methyl Ethyl Ketone)	160U/4.5J
Acetone	120J/30
Benzene	41U/7.1U
Carbon disulfide	41U/7.1U
cis-1,2-Dichloroethene	20U/3.5U
Ethylbenzene	22J/1.9J
Isopropylbenzene	11J/7.1U
Methyl acetate	81U/14U
Methyl cyclohexane	4.4J/14U
Methyl Tert Butyl Ether	160U/28U
Methylene chloride	41U/7.1U
Tetrachloroethene	41U/7.1U
Toluene	4.3J/7.1U
Trichloroethene	41U/7.1U
Xylene (total)	14J/7.1U
SVOCs	
2-Methylnaphthalene	830000J/160000J
Acenaphthene	2100000J/430000J
Acenaphthylene	1700000U/470000U
Anthracene	2700000/510000
Benzo(a)anthracene	4700000/970000
Benzo(a)pyrene	3800000/850000
Benzo(b)fluoranthene	4700000/960000
Benzo(g,h,i)perylene	2100000/470000
Benzo(k)fluoranthene	2300000/510000
Biphenyl	240000J/470000U
bis(2-Ethylhexyl)phthalate	1700000U/470000U
Butyl benzylphthalate	1700000U/470000U
Carbazole	1900000/550000
Chrysene	5300000/1200000
Dibenz(a,h)anthracene	720000J/160000J
Dibenzofuran	1800000/350000J
Di-n-butylphthalate	1700000U/470000U
Di-n-octyl phthalate	1700000U/470000U
Fluoranthene	12000000/3400000
Fluorene	2400000/410000J
Indeno(1,2,3-cd)pyrene	2100000/450000J
Naphthalene	1100000J/230000J
Phenanthrene	18000000/3600000
Pyrene	12000000/2400000
General Chemistry	
Chromium VI (Hexavalent)	6690/2180
Cyanide (total)	2030U/174J
n-Hexane Extractable Material	29300/4380
Total Solids	24.7/70.8

STF-46	12/17/2002	6/21/2003
PCBs		
Aroclor-1242 (PCB-1242)	320	37U/38U
Aroclor-1248 (PCB-1248)	86U	37U/38U
Aroclor-1254 (PCB-1254)	86U	37U/38U
Aroclor-1260 (PCB-1260)	120	10J/15J
Metals		
Antimony	32000	113000UJ/114000UJ
Arsenic	29100	10200J/28400UJ
Barium	155000J	37600J/41200J
Beryllium	898	64.3J/50.4J
Cadmium	11600	28300UJ/28400UJ
Chromium Total	72300	12400J/13000J
Cobalt	8940	15500/16400
Copper	1340000	458000/419000
Lead	2130000	126000/147000
Manganese	453000J	952000/1020000
Mercury	307	119/74.0
Nickel	35100	33000/35700
Selenium	3710	28300UJ/28400UJ
Silver	315J	28300UJ/28400UJ
Thallium	2610U	56600UJ/56800UJ
Vanadium	22700	56600UJ/56800UJ
Zinc	1800000	216000/193000
VOCs		
1,1,1-Trichloroethane	33U	-
1,1-Dichloroethane	33U	-
1,1-Dichloroethene	33U	-
1,2-Dichlorobenzene	33U	-
2-Butanone (Methyl Ethyl Ketone)	130U	-
Acetone	42J	-
Benzene	33U	-
Carbon disulfide	33U	-
cis-1,2-Dichloroethene	16U	-
Ethylbenzene	6.9J	-
Isopropylbenzene	33U	-
Methyl acetate	65U	-
Methyl cyclohexane	2.9J	-
Methyl Tert Butyl Ether	130U	-
Methylene chloride	33U	-
Tetrachloroethene	33U	-
Toluene	3.8J	-
Trichloroethene	33U	-
Xylene (total)	40	-
SVOCs		
2-Methylnaphthalene	84000J	-
Acenaphthene	300000	-
Acenaphthylene	220000U	-
Anthracene	710000	-
Benzo(a)anthracene	1000000	-
Benzo(a)pyrene	820000	-
Benzo(b)fluoranthene	980000	-
Benzo(g,h,i)perylene	430000	-
Benzo(k)fluoranthene	470000	-
Biphenyl	24000J	-
bis(2-Ethylhexyl)phthalate	220000U	-
Butyl benzylphthalate	220000U	-
Carbazole	400000	-
Chrysene	1000000	-
Dibenz(a,h)anthracene	150000J	-
Dibenzofuran	210000J	-
Di-n-butylphthalate	220000U	-
Di-n-octyl phthalate	220000U	-
Fluoranthene	2300000	-
Fluorene	380000	-
Indeno(1,2,3-cd)pyrene	430000	-
Naphthalene	150000J	-
Phenanthrene	2600000	-
Pyrene	2100000	-
General Chemistry		
Chromium VI (Hexavalent)	1310U	-
Cyanide (total)	1750	-
n-Hexane Extractable Material	15700	-
Total Solids	38.3	88.3/88.0

STF-72	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	43U/40U/36U
Aroclor-1248 (PCB-1248)	43U/40U/36U
Aroclor-1254 (PCB-1254)	43U/40U/36U
Aroclor-1260 (PCB-1260)	52J/47J/9.1J
Metals	
Antimony	23400J/57100/39700J
Arsenic	42200/59900/55600
Barium	272000J/448000J/85700J
Beryllium	1770/198/178
Cadmium	27300/4710J/14700
Chromium Total	69800/104000/84900
Cobalt	16500/13900/14600
Copper	520000/422000/1230000
Lead	2350000/2930000/1550000
Manganese	1510000/1380000/1510000
Mercury	113/207/55.3
Nickel	63800/74800/57000
Selenium	5020/7530/8770J
Silver	657U/228J/552U
Thallium	4380J/12000UJ/22100UJ
Vanadium	18800/15400/13100J
Zinc	4380000/1720000/2370000
General Chemistry	
Total Solids	76.1/83.3/90.7

STF-27	6/27/2003
PCBs	
Aroclor-1242 (PCB-1242)	74U
Aroclor-1248 (PCB-1248)	74U
Aroclor-1254 (PCB-1254)	270
Aroclor-1260 (PCB-1260)	74U
Metals	
Antimony	181000J
Arsenic	91800
Barium	7050000J
Beryllium	1960
Cadmium	18200
Chromium Total	590000J
Cobalt	11500
Copper	1970000J
Lead	14500000
Manganese	778000J
Mercury	624
Nickel	153000
Selenium	4020
Silver	1980
Thallium	2230UJ
Vanadium	22700
Zinc	8370000
General Chemistry	
Total Solids	44.8

STF-40	1/8/2003
PCBs	
Aroclor-1242 (PCB-1242)	210U
Aroclor-1248 (PCB-1248)	210U
Aroclor-1254 (PCB-1254)	210U
Aroclor-1260 (PCB-1260)	210U
Metals	
Antimony	88000
Arsenic	33000
Barium	574000
Beryllium	713
Cadmium	4580
Chromium Total	75700
Cobalt	9400
Copper	835000
Lead	5410000
Manganese	406000
Mercury	273
Nickel	31000
Selenium	1510
Silver	699
Thallium	1030J
Vanadium	18400
Zinc	919000
VOCs	
1,1,1-Trichloroethane	6.4U
1,1-Dichloroethane	6.4U
1,1-Dichloroethene	6.4U
1,2-Dichlorobenzene	6.4U
2-Butanone (Methyl Ethyl Ketone)	26UJ
Acetone	26UJ
Benzene	6.4U
Carbon disulfide	1.3J
cis-1,2-Dichloroethene	3.2U
Ethylbenzene	6.4U
Isopropylbenzene	6.4U
Methyl acetate	9.3J
Methyl cyclohexane	0.92J
Methyl Tert Butyl Ether	26U
Methylene chloride	6.4U
Tetrachloroethene	1.2J
Toluene	6.4U
Trichloroethene	6.4U
Xylene (total)	1.9J
SVOCs	
2-Methylnaphthalene	3700J
Acenaphthene	12000
Acenaphthylene	1300J
Anthracene	26000
Benzo(a)anthracene	47000J
Benzo(a)pyrene	40000J
Benzo(b)fluoranthene	61000
Benzo(g,h,i)perylene	48000
Benzo(k)fluoranthene	23000
Biphenyl	3200J
bis(2-Ethylhexyl)phthalate	1700J
Butyl benzylphthalate	8500UJ
Carbazole	8000J
Chrysene	50000J
Dibenz(a,h)anthracene	5400J
Dibenzofuran	11000
Di-n-butylphthalate	1500J
Di-n-octyl phthalate	1600J
Fluoranthene	160000
Fluorene	12000
Indeno(1,2,3-cd)pyrene	17000
Naphthalene	1700J
Phenanthrene	42000
Pyrene	100000J
General Chemistry	
Chromium VI (Hexavalent)	642U
Cyanide (total)	642U
n-Hexane Extractable Material	3660
Total Solids	77.9

STF-12	1/8/2003	6/21/2003
PCBs		
Aroclor-1242 (PCB-1242)	41U	57U/46U
Aroclor-1248 (PCB-1248)	41U	57U/46U
Aroclor-1254 (PCB-1254)	41U	57U/46U
Aroclor-1260 (PCB-1260)	34J	220J/66J
Metals		
Antimony	23000	55400J/61400
Arsenic	10900	36300/89300
Barium	917000	1740000J/347000J
Beryllium	102J	1030/1050
Cadmium	3080UJ	3170/11800
Chromium Total	47600	381000/111000
Cobalt	16300	8700/14600
Copper	297000	1350000/1100000
Lead	979000	2990000/11300000
Manganese	637000	608000/904000
Mercury	51.0	486/163
Nickel	69000	261000J/107000
Selenium	2290J	3650/6160
Silver	617U	672J/573J
Thallium	6170U	2630J/4290J
Vanadium	3170J	24900/34000
Zinc	692000	13800000/2280000
VOCs		
1,1,1-Trichloroethane	6.2U	-
1,1-Dichloroethane	6.2U	-
1,1-Dichloroethene	6.2U	-
1,2-Dichlorobenzene	6.2U	-
2-Butanone (Methyl Ethyl Ketone)	25UJ	-
Acetone	25UJ	-
Benzene	6.2U	-
Carbon disulfide	0.39J	-
cis-1,2-Dichloroethene	3.1U	-
Ethylbenzene	6.2U	-
Isopropylbenzene	6.2U	-
Methyl acetate	12	-
Methyl cyclohexane	12U	-
Methyl Tert Butyl Ether	25U	-
Methylene chloride	6.2U	-
Tetrachloroethene	6.2U	-
Toluene	6.2UJ	-
Trichloroethene	6.2UJ	-
Xylene (total)	6.2U	-
SVOCs		
2-Methylnaphthalene	8100U	11000U
Acenaphthene	1300J	11000U
Acenaphthylene	8100U	11000U
Anthracene	2400J	11000U
Benzo(a)anthracene	3500J	11000U
Benzo(a)pyrene	3000J	11000U
Benzo(b)fluoranthene	5300J	11000U
Benzo(g,h,i)perylene	1100J	11000U
Benzo(k)fluoranthene	2900J	11000U
Biphenyl	8100U	11000U
bis(2-Ethylhexyl)phthalate	8100UJ	11000U
Butyl benzylphthalate	8100UJ	11000U
Carbazole	1500J	11000U
Chrysene	5600J	11000U
Dibenz(a,h)anthracene	8100UJ	11000U
Dibenzofuran	1200J	11000U
Di-n-butylphthalate	8100U	11000U
Di-n-octyl phthalate	8100U	11000U
Fluoranthene	16000	11000U
Fluorene	3200J	11000U
Indeno(1,2,3-cd)pyrene	1000J	11000U
Naphthalene	8100U	11000U
Phenanthrene	7500J	11000U
Pyrene	7000J	11000U
General Chemistry		
Chromium VI (Hexavalent)	617U	-
Cyanide (total)	617U	-
n-Hexane Extractable Material	31500	-
Total Solids	81.1	58.4/71.0

STF-14	1/21/2003	6/21/2003
PCBs		
Aroclor-1242 (PCB-1242)	40U	77U/530U
Aroclor-1248 (PCB-1248)	40U	77U/530U
Aroclor-1254 (PCB-1254)	40U	77U/530U
Aroclor-1260 (PCB-1260)	210	77U/530U
Metals		
Antimony	313000	398000J/254000J
Arsenic	73800	91600/100000
Barium	1410000J	5580000J/3800000J
Beryllium	2390J	1590/3180
Cadmium	5280	4020J/12500
Chromium Total	148000	236000/522000
Cobalt	9600J	10900/15000
Copper	500000	651000/1140000
Lead	9970000	11300000/13500000
Manganese	488000	1120000/382000
Mercury	276	161/514
Nickel	50300J	79500/110000
Selenium	3040U	11200/5850
Silver	665	470J/1300
Thallium	6080U	3810J/1870J
Vanadium	28000	23000/37700
Zinc	2160000J	2210000/3090000
VOCs		
1,1,1-Trichloroethane	6.1U	-
1,1-Dichloroethane	6.1U	-
1,1-Dichloroethene	6.1U	-
1,2-Dichlorobenzene	6.1U	-
2-Butanone (Methyl Ethyl Ketone)	24U	-
Acetone	38J	-
Benzene	6.1U	-
Carbon disulfide	6.1U	-
cis-1,2-Dichloroethene	0.45J	-
Ethylbenzene	6.1U	-
Isopropylbenzene	6.1U	-
Methyl acetate	2.1J	-
Methyl cyclohexane	12U	-
Methyl Tert Butyl Ether	24U	-
Methylene chloride	6.1U	-
Tetrachloroethene	6.1U	-
Toluene	1.6J	-
Trichloroethene	6.1U	-
Xylene (total)	6.1U	-
SVOCs		
2-Methylnaphthalene	40000U	-
Acenaphthene	10000J	-
Acenaphthylene	40000U	-
Anthracene	17000J	-
Benzo(a)anthracene	39000J	-
Benzo(a)pyrene	38000J	-
Benzo(b)fluoranthene	44000	-
Benzo(g,h,i)perylene	25000J	-
Benzo(k)fluoranthene	22000J	-
Biphenyl	40000U	-
bis(2-Ethylhexyl)phthalate	40000U	-
Butyl benzylphthalate	40000U	-
Carbazole	11000J	-
Chrysene	51000	-
Dibenz(a,h)anthracene	6600J	-
Dibenzofuran	6600J	-
Di-n-butylphthalate	40000U	-
Di-n-octyl phthalate	40000U	-
Fluoranthene	140000	-
Fluorene	15000J	-
Indeno(1,2,3-cd)pyrene	22000J	-
Naphthalene	5400J	-
Phenanthrene	120000	-
Pyrene	130000	-
General Chemistry		
Chromium VI (Hexavalent)	608U	-
Cyanide (total)	608U	-
n-Hexane Extractable Material	10600J	-
Total Solids	82.2	86.1/62.6

STF-38A	6/27/2003
PCBs	
Aroclor-1242 (PCB-1242)	650U
Aroclor-1248 (PCB-1248)	650U
Aroclor-1254 (PCB-1254)	650U
Aroclor-1260 (PCB-1260)	650U
Metals	
Antimony	99500J
Arsenic	31900J
Barium	1230000J
Beryllium	3850J
Cadmium	2710
Chromium Total	207000J
Cobalt	9250J
Copper	623000J
Lead	4790000
Manganese	252000J
Mercury	628
Nickel	35300J
Selenium	3970
Silver	1230
Thallium	1970UJ
Vanadium	32200J
Zinc	1840000
VOCs	
1,1,1-Trichloroethane	23000000
1,1-Dichloroethane	550000J
1,1-Dichloroethene	220000J
1,2-Dichlorobenzene	1500000U
2-Butanone (Methyl Ethyl Ketone)	6200000U
Acetone	6200000U
Benzene	1500000U
Carbon disulfide	1500000U
cis-1,2-Dichloroethene	770000U
Ethylbenzene	240000J
Isopropylbenzene	1500000U
Methyl acetate	3100000U
Methyl cyclohexane	3100000U
Methyl Tert Butyl Ether	6200000U
Methylene chloride	410000J
Tetrachloroethene	32000000
Toluene	1500000U
Trichloroethene	1500000U
Xylene (total)	870000J
SVOCs	
2-Methylnaphthalene	1100J
Acenaphthene	8100J
Acenaphthylene	13000U
Anthracene	12000J
Benzo(a)anthracene	35000
Benzo(a)pyrene	30000
Benzo(b)fluoranthene	41000
Benzo(g,h,i)perylene	16000
Benzo(k)fluoranthene	23000
Biphenyl	1300J
bis(2-Ethylhexyl)phthalate	7400J
Butyl benzylphthalate	1500J
Carbazole	9400J
Chrysene	44000
Dibenz(a,h)anthracene	5700J
Dibenzofuran	4900J
Di-n-butylphthalate	13000U
Di-n-octyl phthalate	13000U
Fluoranthene	53000
Fluorene	7500J
Indeno(1,2,3-cd)pyrene	15000
Naphthalene	3100J
Phenanthrene	53000
Pyrene	60000
General Chemistry	
Total Solids	50.7

STF-38	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	230U
Aroclor-1248 (PCB-1248)	230U
Aroclor-1254 (PCB-1254)	2500
Aroclor-1260 (PCB-1260)	230U
Metals	
Antimony	416000J
Arsenic	117000
Barium	1070000J
Beryllium	1800
Cadmium	11800
Chromium Total	331000
Cobalt	21100
Copper	1030000
Lead	12400000
Manganese	1240000
Mercury	639
Nickel	124000
Selenium	13600
Silver	355J
Thallium	13800UJ
Vanadium	27500
Zinc	3760000
General Chemistry	
Total Solids	72.4

STF-39	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	90U
Aroclor-1248 (PCB-1248)	90U
Aroclor-1254 (PCB-1254)	1300
Aroclor-1260 (PCB-1260)	90U
Metals	
Antimony	212000J
Arsenic	107000
Barium	472000J
Beryllium	1000
Cadmium	6090J
Chromium Total	111000
Cobalt	19200
Copper	1060000
Lead	6760000
Manganese	1230000
Mercury	56500
Nickel	118000
Selenium	13000
Silver	9420
Thallium	13600UJ
Vanadium	34300
Zinc	3700000
General Chemistry	
Total Solids	73.5

CBF-103	6/22/2003
PCBs	
Aroclor-1242 (PCB-1242)	99U
Aroclor-1248 (PCB-1248)	99U
Aroclor-1254 (PCB-1254)	990
Aroclor-1260 (PCB-1260)	99U
Metals	
Antimony	9930J
Arsenic	139000
Barium	420000J
Beryllium	807
Cadmium	4770
Chromium Total	168000
Cobalt	10300
Copper	511000
Lead	2020000
Manganese	458000
Mercury	1030
Nickel	102000J
Selenium	11900
Silver	226J
Thallium	2460J
Vanadium	16400
Zinc	1250000
General Chemistry	
Total Solids	66.5

STF-37A	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	68U
Aroclor-1248 (PCB-1248)	68U
Aroclor-1254 (PCB-1254)	68U
Aroclor-1260 (PCB-1260)	190J
Metals	
Antimony	92800
Arsenic	58200
Barium	1070000J
Beryllium	2740
Cadmium	4110
Chromium Total	171000
Cobalt	12700
Copper	1360000
Lead	5520000
Manganese	362000
Mercury	546
Nickel	55800
Selenium	6650
Silver	1390
Thallium	2290J
Vanadium	34600
Zinc	3730000
General Chemistry	
Total Solids	48.4

CBF-105	6/22/2003
PCBs	
Aroclor-1242 (PCB-1242)	58U
Aroclor-1248 (PCB-1248)	58U
Aroclor-1254 (PCB-1254)	550
Aroclor-1260 (PCB-1260)	58U
Metals	
Antimony	17500J
Arsenic	152000
Barium	203000J
Beryllium	1340
Cadmium	24300
Chromium Total	189000
Cobalt	28300
Copper	754000
Lead	3170000
Manganese	616000
Mercury	334
Nickel	222000
Selenium	17300
Silver	1210
Thallium	3160J
Vanadium	30400
Zinc	873000
General Chemistry	
Total Solids	56.8

STF-52	1/13/2003	6/22/2003
PCBs		
Aroclor-1242 (PCB-1242)	45U	46U
Aroclor-1248 (PCB-1248)	45U	46U
Aroclor-1254 (PCB-1254)	160	120
Aroclor-1260 (PCB-1260)	45UJ	46U
Metals		
Antimony	1240000	505000J
Arsenic	170000	119000
Barium	423000	604000J
Beryllium	2030	1920
Cadmium	2650J	1630J
Chromium Total	106000	222000
Cobalt	12300	11800
Copper	416000	410000
Lead	57100000	24300000
Manganese	611000	623000
Mercury	800	578
Nickel	53200	43300J
Selenium	4560	5520
Silver	11400	2370
Thallium	2480J	3960J
Vanadium	30600	22300
Zinc	1840000	1010000
VOCs		
1,1,1-Trichloroethane	6.8U	-
1,1-Dichloroethane	6.8U	-
1,1-Dichloroethene	6.8U	-
1,2-Dichlorobenzene	6.8U	-
2-Butanone (Methyl Ethyl Ketone)	27U	-
Acetone	27U	-
Benzene	6.8U	-
Carbon disulfide	6.8U	-
cis-1,2-Dichloroethene	3.4U	-
Ethylbenzene	6.8U	-
Isopropylbenzene	6.8U	-
Methyl acetate	14U	-
Methyl cyclohexane	14U	-
Methyl Tert Butyl Ether	27U	-
Methylene chloride	6.8U	-
Tetrachloroethene	6.8U	-
Toluene	6.8U	-
Trichloroethene	6.8U	-
Xylene (total)	6.8U	-
SVOCs		
2-Methylnaphthalene	9000U	-
Acenaphthene	1300J	-
Acenaphthylene	9000U	-
Anthracene	2500J	-
Benzo(a)anthracene	7200J	-
Benzo(a)pyrene	7100J	-
Benzo(b)fluoranthene	8900J	-
Benzo(g,h,i)perylene	3600J	-
Benzo(k)fluoranthene	4400J	-
Biphenyl	9000U	-
bis(2-Ethylhexyl)phthalate	9000U	-
Butyl benzylphthalate	9000U	-
Carbazole	1400J	-
Chrysene	8500J	-
Dibenz(a,h)anthracene	1000J	-
Dibenzofuran	880J	-
Di-n-butylphthalate	9000U	-
Di-n-octyl phthalate	9000U	-
Fluoranthene	20000	-
Fluorene	1500J	-
Indeno(1,2,3-cd)pyrene	3300J	-
Naphthalene	9000U	-
Phenanthrene	16000	-
Pyrene	18000	-
General Chemistry		
Chromium VI (Hexavalent)	678U	-
Cyanide (total)	825	-
n-Hexane Extractable Material	1830J	-
Total Solids	73.7	71.2

STF-70A	12/17/2002
PCBs	
Aroclor-1242 (PCB-1242)	48U
Aroclor-1248 (PCB-1248)	48U
Aroclor-1254 (PCB-1254)	48U
Aroclor-1260 (PCB-1260)	46J
Metals	
Antimony	536000
Arsenic	126000
Barium	2430000J
Beryllium	740
Cadmium	6980J
Chromium Total	118000
Cobalt	12800
Copper	525000
Lead	18100000
Manganese	969000J
Mercury	557
Nickel	43200
Selenium	14600U
Silver	2110
Thallium	29100U
Vanadium	30600
Zinc	2980000
VOCs	
1,1,1-Trichloroethane	7.3U
1,1-Dichloroethane	7.3U
1,1-Dichloroethene	7.3U
1,2-Dichlorobenzene	7.3U
2-Butanone (Methyl Ethyl Ketone)	29U
Acetone	29U
Benzene	7.3U
Carbon disulfide	1.9J
cis-1,2-Dichloroethene	3.6U
Ethylbenzene	7.3U
Isopropylbenzene	7.3U
Methyl acetate	13J
Methyl cyclohexane	15U
Methyl Tert Butyl Ether	29U
Methylene chloride	7.3U
Tetrachloroethene	7.3U
Toluene	7.3U
Trichloroethene	7.3U
Xylene (total)	7.3U
SVOCs	
2-Methylnaphthalene	3200U
Acenaphthene	960J
Acenaphthylene	3200U
Anthracene	3400
Benzo(a)anthracene	11000
Benzo(a)pyrene	9800
Benzo(b)fluoranthene	11000
Benzo(g,h,i)perylene	5000
Benzo(k)fluoranthene	6000
Biphenyl	3200U
bis(2-Ethylhexyl)phthalate	990J
Butyl benzylphthalate	410J
Carbazole	850J
Chrysene	11000
Dibenz(a,h)anthracene	1800J
Dibenzofuran	560J
Di-n-butylphthalate	3200U
Di-n-octyl phthalate	3200U
Fluoranthene	22000
Fluorene	1100J
Indeno(1,2,3-cd)pyrene	5000
Naphthalene	3200U
Phenanthrene	14000
Pyrene	21000
General Chemistry	
Chromium VI (Hexavalent)	728U
Cyanide (total)	564J
n-Hexane Extractable Material	2910
Total Solids	68.7

STF-42	6/27/2003
PCBs	
Aroclor-1242 (PCB-1242)	48UJ/50U
Aroclor-1248 (PCB-1248)	48UJ/50U
Aroclor-1254 (PCB-1254)	39J/50U
Aroclor-1260 (PCB-1260)	48UJ/520
Metals	
Antimony	3860000J/1000000J
Arsenic	396000/144000
Barium	6720000J/2390000J
Beryllium	1340/2330
Cadmium	8990/5140
Chromium Total	142000J/131000J
Cobalt	5950/8700
Copper	728000J/636000J
Lead	76100000/30900000
Manganese	515000J/373000J
Mercury	847/463
Nickel	49500/35700
Selenium	1460UJ/1470J
Silver	10500/3640
Thallium	2920UJ/3030UJ
Vanadium	18900/25900
Zinc	2220000/1160000
General Chemistry	
Total Solids	68.4/65.9

STF-317C	12/19/2002
PCBs	
Aroclor-1242 (PCB-1242)	36U
Aroclor-1248 (PCB-1248)	36U
Aroclor-1254 (PCB-1254)	36U
Aroclor-1260 (PCB-1260)	36U
Metals	
Antimony	3810
Arsenic	4550
Barium	59900J
Beryllium	433
Cadmium	371J
Chromium Total	12900
Cobalt	1660
Copper	39800
Lead	194000
Manganese	449000J
Mercury	36.2U
Nickel	6030
Selenium	548U
Silver	548U
Thallium	1100U
Vanadium	7080
Zinc	58000
VOCs	
1,1,1-Trichloroethane	5.5U
1,1-Dichloroethane	5.5U
1,1-Dichloroethene	5.5U
1,2-Dichlorobenzene	5.5U
2-Butanone (Methyl Ethyl Ketone)	22U
Acetone	22U
Benzene	5.5U
Carbon disulfide	5.5U
cis-1,2-Dichloroethene	2.7U
Ethylbenzene	5.5U
Isopropylbenzene	5.5U
Methyl acetate	9.6J
Methyl cyclohexane	11U
Methyl Tert Butyl Ether	22U
Methylene chloride	5.5U
Tetrachloroethene	5.5U
Toluene	5.5U
Trichloroethene	5.5U
Xylene (total)	5.5U
SVOCs	
2-Methylnaphthalene	360U
Acenaphthene	140J
Acenaphthylene	360U
Anthracene	280J
Benzo(a)anthracene	680
Benzo(a)pyrene	790
Benzo(b)fluoranthene	1300
Benzo(g,h,i)perylene	330J
Benzo(k)fluoranthene	710
Biphenyl	360U
bis(2-Ethylhexyl)phthalate	440
Butyl benzylphthalate	130J
Carbazole	170J
Chrysene	1000
Dibenz(a,h)anthracene	100J
Dibenzofuran	130J
Di-n-butylphthalate	360U
Di-n-octyl phthalate	330J
Fluoranthene	2700
Fluorene	260J
Indeno(1,2,3-cd)pyrene	350J
Naphthalene	360U
Phenanthrene	1200
Pyrene	1200
General Chemistry	
Chromium VI (Hexavalent)	548U
Cyanide (total)	483J
n-Hexane Extractable Material	2740
Total Solids	91.3

STF-307	1/13/2003
PCBs	
Aroclor-1242 (PCB-1242)	43U
Aroclor-1248 (PCB-1248)	43U
Aroclor-1254 (PCB-1254)	270
Aroclor-1260 (PCB-1260)	43UJ
Metals	
Antimony	37000
Arsenic	22000
Barium	45200
Beryllium	550
Cadmium	373J
Chromium Total	30500
Cobalt	3480
Copper	53300
Lead	2050000
Manganese	207000
Mercury	28200
Nickel	14400J
Selenium	1480
Silver	235J
Thallium	728J
Vanadium	12700
Zinc	361000J
VOCs	
1,1,1-Trichloroethane	6.5U
1,1-Dichloroethane	6.5U
1,1-Dichloroethene	6.5U
1,2-Dichlorobenzene	6.5U
2-Butanone (Methyl Ethyl Ketone)	26U
Acetone	26U
Benzene	6.5U
Carbon disulfide	6.5U
cis-1,2-Dichloroethene	3.3U
Ethylbenzene	6.5U
Isopropylbenzene	6.5U
Methyl acetate	13U
Methyl cyclohexane	13U
Methyl Tert Butyl Ether	26U
Methylene chloride	6.5U
Tetrachloroethene	6.5U
Toluene	6.5U
Trichloroethene	6.5U
Xylene (total)	6.5U
SVOCs	
2-Methylnaphthalene	1100U
Acenaphthene	49J
Acenaphthylene	1100U
Anthracene	150J
Benzo(a)anthracene	1100
Benzo(a)pyrene	1200
Benzo(b)fluoranthene	1700
Benzo(g,h,i)perylene	710J
Benzo(k)fluoranthene	910J
Biphenyl	1100U
bis(2-Ethylhexyl)phthalate	110J
Butyl benzylphthalate	130J
Carbazole	220J
Chrysene	1600
Dibenz(a,h)anthracene	220J
Dibenzofuran	1100U
Di-n-butylphthalate	1100U
Di-n-octyl phthalate	1100U
Fluoranthene	3000
Fluorene	62J
Indeno(1,2,3-cd)pyrene	680J
Naphthalene	1100U
Phenanthrene	1500
Pyrene	2900
General Chemistry	
Chromium VI (Hexavalent)	118J
Cyanide (total)	3510
n-Hexane Extractable Material	2660J
Total Solids	76.9

STF-307B	1/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	39U
Aroclor-1248 (PCB-1248)	39U
Aroclor-1254 (PCB-1254)	180
Aroclor-1260 (PCB-1260)	39U
Metals	
Antimony	1690J
Arsenic	4000
Barium	17200J
Beryllium	142J
Cadmium	484J
Chromium Total	11800J
Cobalt	3140J
Copper	24400J
Lead	81300J
Manganese	261000
Mercury	104
Nickel	8230J
Selenium	499J
Silver	593U
Thallium	1190U
Vanadium	6840J
Zinc	130000J
VOCs	
1,1,1-Trichloroethane	5.9U
1,1-Dichloroethane	5.9U
1,1-Dichloroethene	5.9U
1,2-Dichlorobenzene	5.9U
2-Butanone (Methyl Ethyl Ketone)	24U
Acetone	110J
Benzene	5.9U
Carbon disulfide	5.9U
cis-1,2-Dichloroethene	3.0U
Ethylbenzene	5.9U
Isopropylbenzene	5.9U
Methyl acetate	5.3J
Methyl cyclohexane	12U
Methyl Tert Butyl Ether	0.39J
Methylene chloride	5.9U
Tetrachloroethene	1.0J
Toluene	0.46J
Trichloroethene	5.9U
Xylene (total)	5.9U
SVOCs	
2-Methylnaphthalene	550J
Acenaphthene	3100J
Acenaphthylene	9800U
Anthracene	3900J
Benzo(a)anthracene	9800
Benzo(a)pyrene	9600J
Benzo(b)fluoranthene	12000J
Benzo(g,h,i)perylene	3200J
Benzo(k)fluoranthene	4500J
Biphenyl	1800J
bis(2-Ethylhexyl)phthalate	9800U
Butyl benzylphthalate	9800U
Carbazole	3100J
Chrysene	13000
Dibenz(a,h)anthracene	9800UJ
Dibenzofuran	1600J
Di-n-butylphthalate	9800U
Di-n-octyl phthalate	9800U
Fluoranthene	28000
Fluorene	3700J
Indeno(1,2,3-cd)pyrene	9800UJ
Naphthalene	2100J
Phenanthrene	26000
Pyrene	32000
General Chemistry	
Chromium VI (Hexavalent)	593U
Cyanide (total)	593U
n-Hexane Extractable Material	5020J
Total Solids	84.3

STF-43	6/27/2003
PCBs	
Aroclor-1242 (PCB-1242)	42U
Aroclor-1248 (PCB-1248)	42U
Aroclor-1254 (PCB-1254)	42U
Aroclor-1260 (PCB-1260)	16J
Metals	
Antimony	4080J
Arsenic	8970
Barium	460000J
Beryllium	879
Cadmium	1070
Chromium Total	9600J
Cobalt	3730
Copper	33700J
Lead	427000
Manganese	165000J
Mercury	75.3
Nickel	9570
Selenium	629UJ
Silver	629U
Thallium	1260U
Vanadium	11200
Zinc	258000
General Chemistry	
Total Solids	79.4

STF-317	12/19/2002
PCBs	
Aroclor-1242 (PCB-1242)	35U
Aroclor-1248 (PCB-1248)	35U
Aroclor-1254 (PCB-1254)	60
Aroclor-1260 (PCB-1260)	35U
Metals	
Antimony	1530J
Arsenic	12100
Barium	45000J
Beryllium	766
Cadmium	629
Chromium Total	47900
Cobalt	1780
Copper	48500
Lead	89300
Manganese	650000J
Mercury	258
Nickel	13200
Selenium	826
Silver	529U
Thallium	1060U
Vanadium	11400
Zinc	108000
VOCs	
1,1,1-Trichloroethane	5.3U
1,1-Dichloroethane	5.3U
1,1-Dichloroethene	5.3U
1,2-Dichlorobenzene	5.3U
2-Butanone (Methyl Ethyl Ketone)	21U
Acetone	21U
Benzene	5.3U
Carbon disulfide	5.3U
cis-1,2-Dichloroethene	2.6U
Ethylbenzene	5.3U
Isopropylbenzene	5.3U
Methyl acetate	12
Methyl cyclohexane	11U
Methyl Tert Butyl Ether	21U
Methylene chloride	5.3U
Tetrachloroethene	0.71J
Toluene	5.3U
Trichloroethene	5.3U
Xylene (total)	5.3U
SVOCs	
2-Methylnaphthalene	2200J
Acenaphthene	8800
Acenaphthylene	8700U
Anthracene	21000
Benzo(a)anthracene	28000
Benzo(a)pyrene	29000
Benzo(b)fluoranthene	30000
Benzo(g,h,i)perylene	11000
Benzo(k)fluoranthene	14000
Biphenyl	8700U
bis(2-Ethylhexyl)phthalate	8700U
Butyl benzylphthalate	8700U
Carbazole	5500J
Chrysene	31000
Dibenz(a,h)anthracene	3400J
Dibenzofuran	6300J
Di-n-butylphthalate	8700U
Di-n-octyl phthalate	8700U
Fluoranthene	95000
Fluorene	11000
Indeno(1,2,3-cd)pyrene	11000
Naphthalene	1500J
Phenanthrene	79000
Pyrene	54000
General Chemistry	
Chromium VI (Hexavalent)	529U
Cyanide (total)	437J
n-Hexane Extractable Material	632
Total Solids	94.5

CBF-129	12/19/2002
PCBs	
Aroclor-1242 (PCB-1242)	39U
Aroclor-1248 (PCB-1248)	39U
Aroclor-1254 (PCB-1254)	39U
Aroclor-1260 (PCB-1260)	39U
Metals	
Antimony	508J
Arsenic	15200
Barium	30300J
Beryllium	378
Cadmium	1220
Chromium Total	27500
Cobalt	4740
Copper	21900
Lead	80800
Manganese	256000J
Mercury	39.4U
Nickel	15000
Selenium	597U
Silver	597U
Thallium	1190U
Vanadium	12100
Zinc	351000
VOCs	
1,1,1-Trichloroethane	6.0U
1,1-Dichloroethane	6.0U
1,1-Dichloroethene	6.0U
1,2-Dichlorobenzene	6.0U
2-Butanone (Methyl Ethyl Ketone)	24U
Acetone	24U
Benzene	6.0U
Carbon disulfide	6.0U
cis-1,2-Dichloroethene	3.0U
Ethylbenzene	6.0U
Isopropylbenzene	6.0U
Methyl acetate	16
Methyl cyclohexane	12U
Methyl Tert Butyl Ether	24U
Methylene chloride	6.0U
Tetrachloroethene	6.0U
Toluene	1.7J
Trichloroethene	6.0U
Xylene (total)	6.0U
SVOCs	
2-Methylnaphthalene	100J
Acenaphthene	260J
Acenaphthylene	390U
Anthracene	320J
Benzo(a)anthracene	480
Benzo(a)pyrene	390
Benzo(b)fluoranthene	420
Benzo(g,h,i)perylene	110J
Benzo(k)fluoranthene	310J
Biphenyl	390U
bis(2-Ethylhexyl)phthalate	310J
Butyl benzylphthalate	260J
Carbazole	170J
Chrysene	460
Dibenz(a,h)anthracene	390U
Dibenzofuran	170J
Di-n-butylphthalate	77J
Di-n-octyl phthalate	390U
Fluoranthene	1800
Fluorene	310J
Indeno(1,2,3-cd)pyrene	120J
Naphthalene	43J
Phenanthrene	1000
Pyrene	590
General Chemistry	
Chromium VI (Hexavalent)	597U
Cyanide (total)	786
n-Hexane Extractable Material	608
Total Solids	83.8

CBF-121	12/19/2002
PCBs	
Aroclor-1242 (PCB-1242)	39U
Aroclor-1248 (PCB-1248)	39U
Aroclor-1254 (PCB-1254)	50
Aroclor-1260 (PCB-1260)	39U
Metals	
Antimony	424J
Arsenic	5640
Barium	70500J
Beryllium	1590
Cadmium	1040
Chromium Total	21800
Cobalt	2290
Copper	20100
Lead	24300
Manganese	859000J
Mercury	30.5J
Nickel	8320
Selenium	594U
Silver	594U
Thallium	1190U
Vanadium	10900
Zinc	123000
VOCs	
1,1,1-Trichloroethane	5.9U
1,1-Dichloroethane	5.9U
1,1-Dichloroethene	5.9U
1,2-Dichlorobenzene	5.9U
2-Butanone (Methyl Ethyl Ketone)	24U
Acetone	24U
Benzene	5.9U
Carbon disulfide	5.9U
cis-1,2-Dichloroethene	3.0U
Ethylbenzene	5.9U
Isopropylbenzene	5.9U
Methyl acetate	23
Methyl cyclohexane	12U
Methyl Tert Butyl Ether	24U
Methylene chloride	5.9U
Tetrachloroethene	5.9U
Toluene	0.68J
Trichloroethene	5.9U
Xylene (total)	5.9U
SVOCs	
2-Methylnaphthalene	320J
Acenaphthene	1600U
Acenaphthylene	1600U
Anthracene	490J
Benzo(a)anthracene	700J
Benzo(a)pyrene	300J
Benzo(b)fluoranthene	400J
Benzo(g,h,i)perylene	1600U
Benzo(k)fluoranthene	180J
Biphenyl	1600U
bis(2-Ethylhexyl)phthalate	1400J
Butyl benzylphthalate	1600U
Carbazole	1600U
Chrysene	300J
Dibenz(a,h)anthracene	1600U
Dibenzofuran	1600U
Di-n-butylphthalate	1600U
Di-n-octyl phthalate	1600U
Fluoranthene	1100J
Fluorene	1600U
Indeno(1,2,3-cd)pyrene	160J
Naphthalene	1600U
Phenanthrene	860J
Pyrene	370J
General Chemistry	
Chromium VI (Hexavalent)	594U
Cyanide (total)	2060
n-Hexane Extractable Material	3570
Total Solids	84.2

STF-314	12/19/2002	6/22/2003
PCBs		
Aroclor-1242 (PCB-1242)	79U	73U/75U/80U
Aroclor-1248 (PCB-1248)	79U	73U/75U/80U
Aroclor-1254 (PCB-1254)	79U	73U/940/80U
Aroclor-1260 (PCB-1260)	79U	73U/75U/1000J
Metals		
Antimony	16800	3010J/52800J/134000J
Arsenic	27400	41700/27400/71200
Barium	120000J	227000J/521000J/1940000J
Beryllium	5180	4980/1480/1730
Cadmium	718J	398J/2400/1490
Chromium Total	23800	39600/47800/156000
Cobalt	13100	18700/5750/5950
Copper	36900	49400/177000J/165000
Lead	1220000	124000/2480000/9250000
Manganese	183000J	320000/310000/475000
Mercury	1160	3810/131/21400
Nickel	42300	53200J/23100J/54800J
Selenium	4430	9430/2520/5600
Silver	169J	1110U/373J/1330
Thallium	3050	5040/1260/1810
Vanadium	49300	74200/12800/23500
Zinc	581000	339000/2360000/598000
VOCs		
1,1,1-Trichloroethane	12U	-
1,1-Dichloroethane	12U	-
1,1-Dichloroethene	12U	-
1,2-Dichlorobenzene	12U	-
2-Butanone (Methyl Ethyl Ketone)	48U	-
Acetone	48U	-
Benzene	12U	-
Carbon disulfide	12U	-
cis-1,2-Dichloroethene	6.0U	-
Ethylbenzene	12U	-
Isopropylbenzene	12U	-
Methyl acetate	30	-
Methyl cyclohexane	24U	-
Methyl Tert Butyl Ether	48U	-
Methylene chloride	12U	-
Tetrachloroethene	12U	-
Toluene	12U	-
Trichloroethene	12U	-
Xylene (total)	12U	-
SVOCs		
2-Methylnaphthalene	250J	-
Acenaphthene	240J	-
Acenaphthylene	790U	-
Anthracene	300J	-
Benzo(a)anthracene	590J	-
Benzo(a)pyrene	440J	-
Benzo(b)fluoranthene	570J	-
Benzo(g,h,i)perylene	220J	-
Benzo(k)fluoranthene	310J	-
Biphenyl	790U	-
bis(2-Ethylhexyl)phthalate	560J	-
Butyl benzylphthalate	790U	-
Carbazole	89J	-
Chrysene	490J	-
Dibenz(a,h)anthracene	790U	-
Dibenzofuran	250J	-
Di-n-butylphthalate	790U	-
Di-n-octyl phthalate	790U	-
Fluoranthene	1200	-
Fluorene	460J	-
Indeno(1,2,3-cd)pyrene	210J	-
Naphthalene	790U	-
Phenanthrene	760J	-
Pyrene	610J	-
General Chemistry		
Chromium VI (Hexavalent)	1190U	-
Cyanide (total)	6680	-
n-Hexane Extractable Material	788U	-
Total Solids	41.9	45.1/88.0/82.4

STF-314A	12/19/2002	6/22/2003
PCBs		
Aroclor-1242 (PCB-1242)	64U	55U/54U
Aroclor-1248 (PCB-1248)	64U	55U/54U
Aroclor-1254 (PCB-1254)	94	87/55
Aroclor-1260 (PCB-1260)	64U	55U/54U
Metals		
Antimony	3860U	1470J/2550J
Arsenic	42600J	29800/33000
Barium	218000J	224000J/240000J
Beryllium	5130J	2440/2610
Cadmium	1760J	1460/1410
Chromium Total	76300J	47500/53700
Cobalt	13900J	12300/13300
Copper	62400	98900/104000
Lead	75700J	149000/180000
Manganese	282000J	223000/230000
Mercury	10400	8230/8880
Nickel	48400J	37900J/41400J
Selenium	5450	11000/12800
Silver	965U	838U/818U
Thallium	1750J	1520J/1580J
Vanadium	57200J	31700/34000
Zinc	1490000	447000/474000
VOCs		
1,1,1-Trichloroethane	9.6U	-
1,1-Dichloroethane	9.6U	-
1,1-Dichloroethene	9.6U	-
1,2-Dichlorobenzene	9.6U	-
2-Butanone (Methyl Ethyl Ketone)	39U	-
Acetone	160	-
Benzene	0.84J	-
Carbon disulfide	9.6U	-
cis-1,2-Dichloroethene	4.8U	-
Ethylbenzene	9.6U	-
Isopropylbenzene	9.6U	-
Methyl acetate	33	-
Methyl cyclohexane	19U	-
Methyl Tert Butyl Ether	39U	-
Methylene chloride	9.6U	-
Tetrachloroethene	9.6U	-
Toluene	1.8J	-
Trichloroethene	9.6U	-
Xylene (total)	9.6U	-
SVOCs		
2-Methylnaphthalene	320J	-
Acenaphthene	320J	-
Acenaphthylene	640U	-
Anthracene	650	-
Benzo(a)anthracene	1900	-
Benzo(a)pyrene	2500	-
Benzo(b)fluoranthene	3600	-
Benzo(g,h,i)perylene	1100	-
Benzo(k)fluoranthene	1500	-
Biphenyl	640U	-
bis(2-Ethylhexyl)phthalate	530J	-
Butyl benzylphthalate	160J	-
Carbazole	420J	-
Chrysene	2600	-
Dibenz(a,h)anthracene	340J	-
Dibenzofuran	280J	-
Di-n-butylphthalate	140J	-
Di-n-octyl phthalate	640U	-
Fluoranthene	6800	-
Fluorene	470J	-
Indeno(1,2,3-cd)pyrene	1100	-
Naphthalene	120J	-
Phenanthrene	2900	-
Pyrene	3900	-
General Chemistry		
Chromium VI (Hexavalent)	965U	-
Cyanide (total)	5140	-
n-Hexane Extractable Material	637U	-
Total Solids	51.8	59.7/61.1

CBF-104	6/22/2003
PCBs	
Aroclor-1242 (PCB-1242)	66U
Aroclor-1248 (PCB-1248)	740
Aroclor-1254 (PCB-1254)	66U
Aroclor-1260 (PCB-1260)	270J
Metals	
Antimony	6710J
Arsenic	65100
Barium	335000J
Beryllium	376
Cadmium	5280
Chromium Total	100000
Cobalt	42000
Copper	1040000
Lead	788000
Manganese	435000
Mercury	982
Nickel	82700
Selenium	8070
Silver	287J
Thallium	1930J
Vanadium	17000
Zinc	690000
General Chemistry	
Total Solids	50.4

STF-16	6/21/2003
PCBs	
Aroclor-1242 (PCB-1242)	54U
Aroclor-1248 (PCB-1248)	54U
Aroclor-1254 (PCB-1254)	250
Aroclor-1260 (PCB-1260)	54U
Metals	
Antimony	71300J
Arsenic	42900
Barium	1460000J
Beryllium	1160
Cadmium	944J
Chromium Total	146000
Cobalt	12200
Copper	1020000
Lead	2430000
Manganese	543000
Mercury	4400
Nickel	60700
Selenium	6680
Silver	223J
Thallium	2990J
Vanadium	39800
Zinc	2820000
General Chemistry	
Total Solids	61.0

CBF-106	6/22/2003
PCBs	
Aroclor-1242 (PCB-1242)	850U
Aroclor-1248 (PCB-1248)	850U
Aroclor-1254 (PCB-1254)	7200
Aroclor-1260 (PCB-1260)	850U
Metals	
Antimony	91100J
Arsenic	213000
Barium	962000J
Beryllium	3060
Cadmium	6770
Chromium Total	528000
Cobalt	41300
Copper	1130000
Lead	3580000
Manganese	452000
Mercury	324
Nickel	155000
Selenium	35900
Silver	268J
Thallium	2680J
Vanadium	49700
Zinc	1780000
General Chemistry	
Total Solids	38.9

Nº	Revision	Date	Initial

0 50 100ft

LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- M.H. EXISTING MANHOLE - NOT SURVEYED
- C.B. EXISTING CATCH BASIN - NOT SURVEYED
- SITE STORM SEWER - LOCATION BASED ON ACTUAL FIELD VERIFICATION: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: NOT CLEANED, NOT TELEVISED
- FIERO OUTFALL 001 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 002 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 003 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FENCELINE
- FLOW DIRECTION
- PROPOSED MONITORING WELL LOCATION
- PROPOSED STORM SEWER SEDIMENT SAMPLING LOCATION
- MONITORING WELL BY ATEC (ATEC, 1992)

CBF-105 (SAMPLE LOCATION)	6/22/2003 (SAMPLE DATE)
PCBs	
Aroclor-1242 (PCB-1242)	58U
Aroclor-1248 (PCB-1248)	58U (CONCENTRATION (ug/kg))
Aroclor-1254 (PCB-1254)	550
Aroclor-1260 (PCB-1260)	58U
Metals	
Antimony	17500J
Arsenic	152000
Barium	203000J
Beryllium	1340
Cadmium	24300
Chromium Total	189000
Cobalt	28300
Copper	754000
Lead	3170000
Manganese	616000
Mercury	334
Nickel	222000
Selenium	17300
Silver	1210
Thallium	3160J
Vanadium	30400
Zinc	873000
General Chemistry (PARAMETER)	
Total Solids	56.8

U = NOT DETECTED AT ASSOCIATED VALUE.
J = ASSOCIATED VALUE IS ESTIMATED.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GENERAL MOTORS
PONTIAC NORTH CAMPUS

PLANT 17 (FIERO) STORM SEWER INVESTIGATION

FIERO OUTFALLS 001 AND 003 STORM SEWER SYSTEMS
SEDIMENT SAMPLING ANALYTICAL RESULTS

ENCORE

Source Reference:

Project Manager:	Reviewed By:	Date:	
K. MALINOWSKI	A.PERFETTO	AUGUST 2004	
Scale: 1" = 100'	Project Nº: 17316-17	Report Nº: 015	Drawing Nº: 2

17316-17(015)GN-WA002 SEP 22/2004

STF-3	10/1/2003
Metals	
Antimony	5.1J
Arsenic	10.0U
Barium	19.1
Beryllium	1.0U
Cadmium	0.77J
Chromium Total	10.0U
Cobalt	20.0U
Copper	435
Lead	11.0
Manganese	24.3U
Mercury	0.20U
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.5J
Zinc	485
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

STF-2	9/30/2003	10/1/2003
Metals		
Antimony	-	7.3J
Arsenic	-	4.2J
Barium	-	23.4
Beryllium	-	1.0U
Cadmium	-	0.56J
Chromium Total	-	10.0U
Cobalt	-	20.0U
Copper	-	23.8
Lead	-	37.0
Manganese	-	15.1U
Mercury	-	0.20U
Nickel	-	20.0U
Selenium	-	5.0U
Silver	-	5.0U
Thallium	-	1.0U
Vanadium	-	1.6J
Zinc	-	135U
PCBs		
Aroclor-1248 (PCB-1248)	0.20U	-
Aroclor-1254 (PCB-1254)	0.17J	-
Aroclor-1260 (PCB-1260)	0.20U	-

STF-1	10/1/2003
Metals	
Antimony	4.7J
Arsenic	2.9J
Barium	19.4
Beryllium	1.0U
Cadmium	0.86J
Chromium Total	10.0U
Cobalt	20.0U
Copper	596
Lead	17.8
Manganese	33.3
Mercury	0.086J
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.3J
Zinc	657

STF-4	9/30/2003	10/1/2003
Metals		
Antimony	-	7.7J
Arsenic	-	4.2J
Barium	-	55.5
Beryllium	-	1.0U
Cadmium	-	1.8J
Chromium Total	-	10.0U
Cobalt	-	20.0U
Copper	-	970
Lead	-	364
Manganese	-	76.8
Mercury	-	0.20U
Nickel	-	4.3J
Selenium	-	5.0U
Silver	-	5.0U
Thallium	-	0.017J
Vanadium	-	4.3J
Zinc	-	1740
PCBs		
Aroclor-1248 (PCB-1248)	0.20UJ	-
Aroclor-1254 (PCB-1254)	0.20UJ	-
Aroclor-1260 (PCB-1260)	0.20UJ	-

STF-50	10/1/2003
Metals	
Antimony	15.1J
Arsenic	8.5J
Barium	42.6
Beryllium	1.0U
Cadmium	1.4J
Chromium Total	10.0U
Cobalt	1.7J
Copper	220
Lead	126
Manganese	69.9
Mercury	0.20U
Nickel	3.0J
Selenium	5.0U
Silver	5.0U
Thallium	0.017J
Vanadium	3.5J
Zinc	802
PCBs	
Aroclor-1248 (PCB-1248)	0.20UJ
Aroclor-1254 (PCB-1254)	0.20UJ
Aroclor-1260 (PCB-1260)	0.93J

STF-8	10/1/2003
Metals	
Antimony	25.0U/12.1J
Arsenic	10.0U/4.5J
Barium	28.0/27.9
Beryllium	1.0U/1.0U
Cadmium	0.40J/1.3J
Chromium Total	10.0U/10.0U
Cobalt	1.3J/2.2J
Copper	13.2/191
Lead	5.3/50.3
Manganese	61.6/27.7
Mercury	0.20U/0.20U
Nickel	3.1J/20.0U
Selenium	5.0U/5.0U
Silver	5.0U/5.0U
Thallium	1.0U/1.0U
Vanadium	1.8J/2.1J
Zinc	77.5U/741
PCBs	
Aroclor-1248 (PCB-1248)	0.20UJ/0.20UJ
Aroclor-1254 (PCB-1254)	1.1/0.20UJ
Aroclor-1260 (PCB-1260)	0.20UJ/0.20UJ

STF-7	10/1/2003
Metals	
Antimony	15.7J
Arsenic	4.8J
Barium	32.9
Beryllium	1.0U
Cadmium	2.1J
Chromium Total	10.0U
Cobalt	20.0U
Copper	219
Lead	74.7
Manganese	44.0
Mercury	0.20U
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	10.0U
Zinc	1310
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

CBF-1N	10/1/2003
Metals	
Antimony	9.2J
Arsenic	5.7J
Barium	51.1
Beryllium	1.0U
Cadmium	2.2J
Chromium Total	10.0U
Cobalt	2.8J
Copper	256
Lead	76.4
Manganese	82.8
Mercury	0.20U
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	2.3J
Zinc	1330
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

CBF-1T	10/1/2003
Metals	
Antimony	25.0U
Arsenic	4.1J
Barium	26.9
Beryllium	1.0U
Cadmium	0.36J
Chromium Total	10.0U
Cobalt	1.3J
Copper	12.0
Lead	3.7
Manganese	60.0
Mercury	0.20U
Nickel	2.0J
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.3J
Zinc	61U
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

CBF-5	10/1/2003
Metals	
Antimony	17.0J
Arsenic	8.4J
Barium	30.7
Beryllium	1.0U
Cadmium	1.4J
Chromium Total	10.0U
Cobalt	20.0U
Copper	254
Lead	102
Manganese	32.9
Mercury	0.20U
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.1J
Zinc	511
PCBs	
Aroclor-1248 (PCB-1248)	0.20UJ
Aroclor-1254 (PCB-1254)	0.20UJ
Aroclor-1260 (PCB-1260)	0.20J

STF-6	10/6/2003
Metals	
Antimony	37.9
Arsenic	7.1J
Barium	69.0
Beryllium	1.0U
Cadmium	1.4J
Chromium Total	10.0U
Cobalt	20.0U
Copper	181
Lead	1050
Manganese	37.3
Mercury	0.20U
Nickel	4.0J
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.4J
Zinc	573
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

STF-31	9/30/2003	10/1/2003
Metals		
Antimony	-	1170
Arsenic	-	158
Barium	-	1700
Beryllium	-	1.2
Cadmium	-	56.1
Chromium Total	-	828
Cobalt	-	16.2J
Copper	-	2900
Lead	-	41400
Manganese	-	480
Mercury	-	2.0
Nickel	-	196
Selenium	-	7.8
Silver	-	5.7
Thallium	-	0.99J
Vanadium	-	50.2
Zinc	-	25700
PCBs		
Aroclor-1248 (PCB-1248)	0.34J	-
Aroclor-1254 (PCB-1254)	0.20U	-
Aroclor-1260 (PCB-1260)	0.43J	-

STF-30	10/6/2003
Metals	
Antimony	38.2
Arsenic	4.6J
Barium	30.8
Beryllium	1.0U
Cadmium	1.1J
Chromium Total	10.0U
Cobalt	20.0U
Copper	198
Lead	585
Manganese	33.6
Mercury	0.10J
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	0.96J
Zinc	398
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.52
Aroclor-1260 (PCB-1260)	0.20U

STF-29	9/30/2003
Metals	
Antimony	11.5J
Arsenic	10.0U
Barium	20.8
Beryllium	1.0U
Cadmium	0.58J
Chromium Total	10.0U
Cobalt	20.0U
Copper	332
Lead	74.9
Manganese	21.7
Mercury	0.20U
Nickel	2.2J
Selenium	4.5J
Silver	5.0U
Thallium	1.0U
Vanadium	10.0U
Zinc	293
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

STF-35	10/6/2003
Metals	
Antimony	96.3
Arsenic	9.3J
Barium	142
Beryllium	1.0U
Cadmium	2.1J
Chromium Total	12.0
Cobalt	1.2J
Copper	245
Lead	2030
Manganese	40.0
Mercury	0.20U
Nickel	5.0J
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	4.2J
Zinc	828
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	0.20U

NO	Revision	Date	Initial

LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- M.H. EXISTING MANHOLE - NOT SURVEYED
- C.B. EXISTING CATCH BASIN - NOT SURVEYED
- SITE STORM SEWER - LOCATION BASED ON ACTUAL FIELD VERIFICATION: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: NOT CLEANED, NOT TELEVISED
- FIERO OUTFALL 001 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 002 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FIERO OUTFALL 003 STORM SEWER BASED ON INFORMATION SUPPLIED BY GM
- FENCELINE
- FLOW DIRECTION
- PROPOSED MONITORING WELL LOCATION
- PROPOSED STORM SEWER SEDIMENT SAMPLING LOCATION
- MONITORING WELL BY ATEC (ATEC, 1992)

STF-3	10/1/2003
PCBs	
Aroclor-1248 (PCB-1248)	0.20U
Aroclor-1254 (PCB-1254)	0.20U
Aroclor-1260 (PCB-1260)	**0.20U**
Metals	
Antimony	5.1J
Arsenic	10.0U
Barium	19.1
Beryllium	1.0U
Cadmium	0.77J
Chromium Total	**10.0U**
Cobalt	20.0U
Copper	435
Lead	11.0
Manganese	**24.3U**
Mercury	0.20U
Nickel	20.0U
Selenium	5.0U
Silver	5.0U
Thallium	1.0U
Vanadium	1.5J
Zinc	485

SAMPLE LOCATION — STF-3 — SAMPLE DATE — CONCENTRATION (ug/L) — PARAMETER

U = NOT DETECTED AT ASSOCIATED VALUE.
J = ASSOCIATED VALUE IS ESTIMATED.

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GENERAL MOTORS
PONTIAC NORTH CAMPUS

PLANT 17 (FIERO) STORM SEWER INVESTIGATION

FIERO OUTFALL 002 STORM SEWER SYSTEM
WATER SAMPLING ANALYTICAL RESULTS

ENCORE

Source Reference:			
Project Manager: K. MALINOWSKI	Reviewed By: A.PERFETTO	Date: AUGUST 2004	
Scale: 1" = 100'	Project N°: 17316-17	Report N°: 015	Drawing N°: 3

17316-17(015)GN-WA003 SEP 22/2004

No	Revision	Date	Initial

0 50 100ft

LEGEND

- EXISTING MANHOLE
- EXISTING CATCH BASIN
- M.H. EXISTING MANHOLE - NOT SURVEYED
- C.B. EXISTING CATCH BASIN - NOT SURVEYED
- SITE STORM SEWER - LOCATION BASED ON ACTUAL FIELD VERIFICATION: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: CLEANED AND TELEVISED
- SITE STORM SEWER - ABANDONED IN-PLACE VIA USE OF MECHANICAL PLUG/CONCRETE PLUG: NOT CLEANED, NOT TELEVISED
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- FENCELINE
- FLOW DIRECTION
- PROPOSED MONITORING WELL LOCATION
- PROPOSED STORM SEWER SEDIMENT SAMPLING LOCATION
- MONITORING WELL BY ATEC (ATEC, 1992)

SAMPLE LOCATION

STF-30	10/6/2003
Metals	
Antimony	293000
Arsenic	**54400**
Barium	755000
Beryllium	561
Cadmium	2510J
Chromium Total	199000
Cobalt	6460
Copper	700000
Lead	**10400000**
Manganese	1270000
Mercury	2500
Nickel	156000
Selenium	2910J
Silver	885
Thallium	6560U
Vanadium	**11000**
Zinc	1520000
PCBs	
Aroclor-1254 (PCB-1254)	8100
General Chemistry	
Total Solids	76.2

SAMPLE DATE

CONCENTRATION (ug/kg)

PARAMETER

U = NOT DETECTED AT ASSOCIATED VALUE.
J = ASSOCIATED VALUE IS ESTIMATED.

STF-7A	10/6/2003
Metals	
Antimony	293000
Arsenic	60800
Barium	1010000
Beryllium	100J
Cadmium	670J
Chromium Total	224000
Cobalt	13700
Copper	732000
Lead	8370000
Manganese	975000
Mercury	112
Nickel	83700
Selenium	705U
Silver	560J
Thallium	13200U
Vanadium	12600J
Zinc	4980000
PCBs	
Aroclor-1254 (PCB-1254)	4100
General Chemistry	
Total Solids	75.9

STF-7	10/6/2003
Metals	
Antimony	272000
Arsenic	44200
Barium	1990000
Beryllium	231
Cadmium	10800
Chromium Total	331000
Cobalt	11600
Copper	1000000
Lead	8150000
Manganese	778000
Mercury	89.0
Nickel	163000
Selenium	521UJ
Silver	272J
Thallium	14000U
Vanadium	19600
Zinc	6960000
PCBs	
Aroclor-1254 (PCB-1254)	3400
General Chemistry	
Total Solids	71.4

STF-6	10/6/2003
Metals	
Antimony	4420000
Arsenic	728000
Barium	3370000
Beryllium	710
Cadmium	9840
Chromium Total	1170000
Cobalt	6850
Copper	6100000
Lead	59600000
Manganese	590000
Mercury	1780
Nickel	297000
Selenium	7700
Silver	14400
Thallium	3790J
Vanadium	65600
Zinc	11700000
PCBs	
Aroclor-1254 (PCB-1254)	2000
General Chemistry	
Total Solids	63.9

CBF-1T	10/1/2003
Metals	
Antimony	2400J
Arsenic	5880
Barium	181000J
Beryllium	158J
Cadmium	4660
Chromium Total	71700
Cobalt	7080
Copper	292000
Lead	197000
Manganese	469000
Mercury	85.2
Nickel	49900
Selenium	386J
Silver	311J
Thallium	613J
Vanadium	18700
Zinc	569000
PCBs	
Aroclor-1254 (PCB-1254)	1700
General Chemistry	
Total Solids	63.4

STF-3	10/1/2003
Metals	
Antimony	5500J
Arsenic	10900
Barium	1120000J
Beryllium	80.6J
Cadmium	3200J
Chromium Total	75000
Cobalt	4300
Copper	878000
Lead	420000
Manganese	503000
Mercury	42.9U
Nickel	25600
Selenium	2620J
Silver	154J
Thallium	6500U
Vanadium	15600
Zinc	5420000
PCBs	
Aroclor-1254 (PCB-1254)	43U
General Chemistry	
Total Solids	76.9

STF-30	10/6/2003
Metals	
Antimony	293000
Arsenic	54400
Barium	755000
Beryllium	561
Cadmium	2510J
Chromium Total	199000
Cobalt	6460
Copper	700000
Lead	10400000
Manganese	1270000
Mercury	2500
Nickel	156000
Selenium	2910J
Silver	885
Thallium	6560U
Vanadium	11000
Zinc	1520000
PCBs	
Aroclor-1254 (PCB-1254)	8100
General Chemistry	
Total Solids	76.2

STF-1	9/30/2003
Metals	
Antimony	5250J
Arsenic	6770
Barium	68600
Beryllium	909
Cadmium	4160
Chromium Total	28400
Cobalt	2750
Copper	516000
Lead	313000
Manganese	397000
Mercury	39.6U
Nickel	12900
Selenium	1720J
Silver	600U
Thallium	6000U
Vanadium	9220
Zinc	2580000
PCBs	
Aroclor-1254 (PCB-1254)	40U
General Chemistry	
Total Solids	83.4

STF-4	9/30/2003
Metals	
Antimony	16100J
Arsenic	24600
Barium	399000
Beryllium	130J
Cadmium	787
Chromium Total	100000
Cobalt	9700
Copper	1940000
Lead	1170000
Manganese	761000
Mercury	42.2J
Nickel	49500
Selenium	8120
Silver	412J
Thallium	13000U
Vanadium	23400
Zinc	40220000
PCBs	
Aroclor-1254 (PCB-1254)	43U
General Chemistry	
Total Solids	77.2

STF-8	10/1/2003
Metals	
Antimony	2080J/327000
Arsenic	5130/35300
Barium	164000J/1940000J
Beryllium	138U/146J
Cadmium	4190/8020
Chromium Total	51300/191000
Cobalt	4700/9390
Copper	299000/624000
Lead	157000/7500000
Manganese	371000/455000
Mercury	56.4/174
Nickel	25400/82900
Selenium	690U/1970J
Silver	1200/705J
Thallium	448J/2260J
Vanadium	13700/12300
Zinc	4460000/9280000
PCBs	
Aroclor-1254 (PCB-1254)	1700/33000
VOCs	
1,1,1-Trichloroethane	720J
cis-1,2-Dichloroethene	6300
Cyclohexane	210J
Ethylbenzene	2200J
Isopropylbenzene	550J
Methyl acetate	1900J
Methyl cyclohexane	185J
Methylene chloride	3000U
Tetrachloroethene	1100000
Toluene	2400J
Trichloroethene	2400J
Vinyl chloride	400J
Xylene (total)	12000
SVOCs	
2-Methylnaphthalene	5400J
Acenaphthene	10000J
Anthracene	15000J
Benzo(a)anthracene	34000J
Benzo(a)pyrene	27000J
Benzo(b)fluoranthene	35000J
Benzo(g,h,i)perylene	12000J
Benzo(k)fluoranthene	20000J
Biphenyl	48000U
bis(2-Ethylhexyl)phthalate	71000
Butyl benzylphthalate	43000J
Carbazole	12000J
Chrysene	57000
Dibenz(a,h)anthracene	7000J
Dibenzofuran	8200J
Di-n-butylphthalate	48000U
Di-n-octyl phthalate	36000J
Fluoranthene	100000
Fluorene	12000J
Indeno(1,2,3-cd)pyrene	16000J
Naphthalene	4500J
Phenanthrene	98000
Pyrene	160000
General Chemistry	
Total Solids	72.5/68.8

CBF-1N	10/1/2003	10/6/2003
Metals		
Antimony	43400	62200
Arsenic	17900	15200
Barium	1520000J	607000
Beryllium	409	445
Cadmium	4940	2140J
Chromium Total	65300	36500
Cobalt	8370	2780
Copper	261000	167000
Lead	1600000	2060000
Manganese	929000	1140000
Mercury	260	40.3U
Nickel	46100	15800
Selenium	3440	1610J
Silver	102J	94.7J
Thallium	6500U	6110U
Vanadium	10700	11900
Zinc	4650000	974000
PCBs		
Aroclor-1254 (PCB-1254)	31000	480
VOCs		
1,1,1-Trichloroethane	2000U	-
cis-1,2-Dichloroethene	1400	-
Cyclohexane	4100U	-
Ethylbenzene	2000U	-
Isopropylbenzene	2000U	-
Methyl acetate	4100U	-
Methyl cyclohexane	4100U	-
Methylene chloride	2000U	-
Tetrachloroethene	65000	-
Toluene	2000U	-
Trichloroethene	1800J	-
Vinyl chloride	4100U	-
Xylene (total)	2000U	-
SVOCs		
2-Methylnaphthalene	470J	-
Acenaphthene	1000U	-
Anthracene	1600J	-
Benzo(a)anthracene	3600J	-
Benzo(a)pyrene	3200J	-
Benzo(b)fluoranthene	4300	-
Benzo(g,h,i)perylene	1400J	-
Benzo(k)fluoranthene	1900J	-
Biphenyl	690J	-
bis(2-Ethylhexyl)phthalate	4000J	-
Butyl benzylphthalate	3300J	-
Carbazole	1300J	-
Chrysene	6200	-
Dibenz(a,h)anthracene	790J	-
Dibenzofuran	810J	-
Di-n-butylphthalate	330J	-
Di-n-octyl phthalate	4300U	-
Fluoranthene	11000	-
Fluorene	1200J	-
Indeno(1,2,3-cd)pyrene	1700J	-
Naphthalene	440J	-
Phenanthrene	11000	-
Pyrene	17000	-
General Chemistry		
Total Solids	76.3	81.8

STF-35	10/6/2003
Metals	
Antimony	22500000
Arsenic	2060000
Barium	1120000
Beryllium	595
Cadmium	9650
Chromium Total	416000
Cobalt	6200
Copper	1160000
Lead	43100000
Manganese	326000
Mercury	1530
Nickel	106000
Selenium	2000J
Silver	46600
Thallium	2460J
Vanadium	12400
Zinc	6340000
PCBs	
Aroclor-1254 (PCB-1254)	850J
VOCs	
1,1,1-Trichloroethane	70U
cis-1,2-Dichloroethene	35U
Cyclohexane	140U
Ethylbenzene	70U
Isopropylbenzene	70U
Methyl acetate	140U
Methyl cyclohexane	43U
Methylene chloride	70U
Tetrachloroethene	64J
Toluene	70U
Trichloroethene	19J
Vinyl chloride	140U
Xylene (total)	70U
SVOCs	
2-Methylnaphthalene	340J
Acenaphthene	330J
Anthracene	930J
Benzo(a)anthracene	2200J
Benzo(a)pyrene	2000J
Benzo(b)fluoranthene	2500J
Benzo(g,h,i)perylene	800J
Benzo(k)fluoranthene	1100J
Biphenyl	3100U
bis(2-Ethylhexyl)phthalate	16000
Butyl benzylphthalate	2400J
Carbazole	290J
Chrysene	3000J
Dibenz(a,h)anthracene	480J
Dibenzofuran	310J
Di-n-butylphthalate	310J
Di-n-octyl phthalate	3100U
Fluoranthene	4100
Fluorene	510J
Indeno(1,2,3-cd)pyrene	1000J
Naphthalene	3100U
Phenanthrene	2800J
Pyrene	6400
General Chemistry	
Total Solids	71.1

STF-31	9/30/2003
Metals	
Antimony	328000
Arsenic	57400
Barium	607000
Beryllium	115J
Cadmium	15800
Chromium Total	240000
Cobalt	4100
Copper	682000
Lead	12100000
Manganese	190000
Mercury	1910
Nickel	59400
Selenium	1790
Silver	3210
Thallium	869J
Vanadium	13100
Zinc	5560000
PCBs	
Aroclor-1254 (PCB-1254)	180
VOCs	
1,1,1-Trichloroethane	1400000U
cis-1,2-Dichloroethene	170000
Cyclohexane	2800000U
Ethylbenzene	1400000U
Isopropylbenzene	1400000U
Methyl acetate	2800000U
Methyl cyclohexane	2800000U
Methylene chloride	43000U
Tetrachloroethene	3900000
Toluene	1400000U
Trichloroethene	330000
Vinyl chloride	110000
Xylene (total)	1400000U
SVOCs	
2-Methylnaphthalene	2100J
Acenaphthene	10000J
Anthracene	10000J
Benzo(a)anthracene	29000
Benzo(a)pyrene	21000
Benzo(b)fluoranthene	30000
Benzo(g,h,i)perylene	12000J
Benzo(k)fluoranthene	12000J
Biphenyl	19000U
bis(2-Ethylhexyl)phthalate	56000
Butyl benzylphthalate	40000
Carbazole	7100J
Chrysene	32000J
Dibenz(a,h)anthracene	19000U
Dibenzofuran	5000J
Di-n-butylphthalate	19000U
Di-n-octyl phthalate	19000U
Fluoranthene	77000
Fluorene	9800J
Indeno(1,2,3-cd)pyrene	11000J
Naphthalene	3800J
Phenanthrene	65000
Pyrene	75000
General Chemistry	
Total Solids	44.3

STF-79	10/6/2003
Metals	
Antimony	2660
Arsenic	7240
Barium	186000
Beryllium	116U
Cadmium	760
Chromium Total	21300
Cobalt	4810
Copper	45500
Lead	860000
Manganese	346000
Mercury	142
Nickel	13700
Selenium	581U
Silver	62.5J
Thallium	572J
Vanadium	12100
Zinc	327000
PCBs	
Aroclor-1254 (PCB-1254)	20J
General Chemistry	
Total Solids	86.0

STF-29	10/6/2003
Metals	
Antimony	480000
Arsenic	70400
Barium	320000
Beryllium	50.6J
Cadmium	2090
Chromium Total	311000
Cobalt	5500
Copper	391000
Lead	14200000
Manganese	364000
Mercury	246
Nickel	76100
Selenium	1230
Silver	1830
Thallium	877J
Vanadium	13000
Zinc	1630000
PCBs	
Aroclor-1254 (PCB-1254)	670
VOCs	
1,1,1-Trichloroethane	1500U
cis-1,2-Dichloroethene	150J
Cyclohexane	980J
Ethylbenzene	1000J
Isopropylbenzene	340J
Methyl acetate	3100U
Methyl cyclohexane	5000
Methylene chloride	1500U
Tetrachloroethene	1500U
Toluene	280J
Trichloroethene	1500U
Vinyl chloride	3100U
Xylene (total)	6300
SVOCs	
2-Methylnaphthalene	13000
Acenaphthene	1300J
Anthracene	1700J
Benzo(a)anthracene	3800J
Benzo(a)pyrene	3200J
Benzo(b)fluoranthene	3900J
Benzo(g,h,i)perylene	1400J
Benzo(k)fluoranthene	2400J
Biphenyl	5100U
bis(2-Ethylhexyl)phthalate	3500
Butyl benzylphthalate	13000
Carbazole	1300J
Chrysene	3800J
Dibenz(a,h)anthracene	600J
Dibenzofuran	920J
Di-n-butylphthalate	470J
Di-n-octyl phthalate	5100U
Fluoranthene	13000
Fluorene	1800J
Indeno(1,2,3-cd)pyrene	1800J
Naphthalene	1900J
Phenanthrene	13000
Pyrene	21000
General Chemistry	
Total Solids	81.5

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

Approved

DRAWING STATUS

Status	Date	Initial

GENERAL MOTORS PONTIAC NORTH CAMPUS

PLANT 17 (FIERO) STORM SEWER INVESTIGATION

FIERO OUTFALL 002 STORM SEWER SYSTEM SEDIMENT SAMPLING ANALYTICAL RESULTS

ENCORE

Source Reference:		
Project Manager: K. MALINOWSKI	Reviewed By: A.PERFETTO	Date: AUGUST 2004
Scale: 1" = 100'	Project N°: 17316-17	Report N°: 015 — Drawing N°: 4

17316-17(015)GN-WA004 SEP 22/2004