

**GAUGING/PRODUCT RECOVERY
SEMI-ANNUAL SAMPLING AND ANALYTICAL REPORT
OCTOBER THROUGH DECEMBER 1995
GM POWERTRAIN
ATF AREA
YPSILANTI, MICHIGAN**

MAY 1996

TOLTEST, INC.

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GM POWERTRAIN
ATF AREA
YPSILANTI, MICHIGAN**

PREPARED FOR

**GENERAL MOTORS CORPORATION
POWERTRAIN DIVISION
YPSILANTI, MICHIGAN**

SUBMITTED

**MAY 1996
TOLTEST PROJECT NO. 70172.42-52**

**TOLTEST, INC.
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PLYMOUTH, MICHIGAN
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TOLTEST, INC.

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1.0 INTRODUCTION

This report summarizes the field activities conducted by Toltest, Inc. (TolTest) in October and December 1995, at the General Motors Powertrain Division (Powertrain) in Ypsilanti, Michigan. No field activities were conducted in November 1995 per Mr. Walter Nixon's orders. Site activities included the gauging and remedial system monitoring of the recovery wells as well as the ground-water sampling of monitoring wells. In addition, a summary of ground-water analysis is presented for the water samples collected and analyzed pursuant to the GMPT facility's suggested analytical schedule. The sections that follow discuss the field activities performed by TolTest and include analytical testing methodologies and a summary of ground water analysis data.

2.0 FIELD ACTIVITIES

Monitoring activities conducted by TolTest in the ATF area consisted of groundwater and product thickness gauging, and system monitoring performed in October and December 1995. Each of the recovery wells were first gauged with an oil/water interface probe to determine the static water level and the thickness of separate-phase product. Separate-phase product was detected in monitoring wells MW-1, MW-2, MW-8, MW-11, MW-12, MW-17, MW-19, MW-21, MW-23, MW-24, MW-25, MW-28, MW-29 and MW-31. In addition, separate-phase product was detected in the drawdown inner wells of recovery wells RW-3, RW-10, RW-13, RW-15, RW-30 and RW-39. Appendix A shows the groundwater/product gauging data for the months of October and December 1995.

2.1 OPERATION AND MAINTENANCE ACTIVITIES

During the operation and maintenance activities conducted on the months of October and December 1995 at each recovery well system, the pump hardware, pump screen, and plumbing was checked for integrity. The recovery pump controller was checked for pressure, leaks at all fittings, and pump cycles. Flow measurements were determined by first disconnecting the product discharge line from the fitting connecting it to the holding tank, then using a 500 ml graduated cylinder measurable product was obtained by allowing the product to discharge into the graduated cylinder for at least three minutes.

Based on the gauging data, pump cycle, system inspection and product flow rate, the system was optimized as follows.

A. PULSE PUMP PNEUMATIC PUMPING SYSTEM

1. Flow throttle was turn fully clockwise.
2. The refill control was set at the "D" setting.
3. The discharge control was at the "A" setting.
4. The discharge control was gradually increased (in 1/2 sec. increments), giving the pump time to go through 3 to 5 cycles between each adjustment. The discharge control was then increased until air bubbles were seen coming through the pump discharge tubing at the end of the discharge cycle. Pump discharge control was then slowly decreased until air bubbles were no longer seen at the end of the cycle.
5. The refill control was gradually decreased (in 1 sec. increments), giving the pump time to go through 3 to 5 cycles between each adjustment. Refill control decreased until air bubbles were seen coming through the pump discharge tubing at the end of the discharge cycle. Refill control was then slowly increased until air bubbles were no longer seen at the end of the cycle.

B. SOLO CONTROLLERLESS PNEUMATIC PUMPING SYSTEM

The solo pumping system was optimized by adjusting the pressure control knob to any values between 40 to 100 psi. Flow rate is dependent on the amount of air pressure that is received by the pump.

During the third quarter, changes were conducted in recovery wells RW-3, RW-10, RW-13, RW-15 and RW-39. The following is a description of the modifications conducted on the recovery wells mentioned above:

RW-3: In December, the product and drawdown transfer lines were replaced. Product pump was kept at the same depth of 8.0 feet.

RW-10: In December, the product and drawdown transfer lines were replaced. Product pump was raised to 9.6 feet. In addition, the Chicago and L-street fittings were replaced with quick connects at the holding tank.

RW-13: In December, the product and drawdown transfer lines were replaced. The Alpha pump was replaced with a Hammer head pump at the product well. Also, a new timer was installed for the drawdown system at the control box.

RW-15: In December, the product and drawdown transfer lines were replaced. Product pump was raised to 7.9 feet, 0.2 feet below the product/water interface. In addition, the Chicago fittings were replaced with quick connects at the holding tank.

RW-39: In December, the drawdown transfer lines were replaced. Also, new timers were installed for the product and drawdown systems at the control box.

2.2 GROUNDWATER SAMPLING

Samples of groundwater were collected from seven randomly selected monitoring wells (MW-1, MW-2, MW-4, MW-7, MW-8, MW-17, and MW-31) on December 19, 1995, as shown on Figure 1. Groundwater was sampled using one-inch and two-inch diameter plastic bailers dedicated to each well. Each well was purged of three well casing volumes, or evacuated and allowed to recharge prior to sampling. Groundwater was sampled by lowering the plastic bailer down into the well casing below the groundwater interface. Water entered through a ball check valve seated at the bailer bottom capturing a column of water. The sampled was then extracted by retrieving the bailer from the bore hole.

A one liter amber jar was filled for every sample collected. Each sample was capped using zero headspace filling procedures. The samples were delivered to TolTest's Analytical laboratory for analysis of total petroleum Hydrocarbons TPH by using U.S

Environmental Protection Agency Method 8015, lube range only. The results of the analysis are summarized in Appendix B.

2.3 EQUIPMENT DECONTAMINATION

Between each monitoring well, the interface probe was decontaminated by washing with Alconox and rinsing the probe and cable with deionize water. The probe and exposed cable were all triple rinsed and allowed to air dry before using at the next sampling point.

3.0 SAMPLE CUSTODY

The following sections identify the procedures utilized to document, collect, and transport the samples to the analytical testing laboratory.

3.1 SAMPLE DOCUMENTATION

Each water sample collected at the site was labeled with the following information:

- Project number
- Sample number
- Sample location
- Date and time collected
- Preservation method
- Name of sampler

3.2 CHAIN-OF-CUSTODY LOGS

Each sample collected at the site was documented on a chain-of custody (COC) log prior to sample transportation. Appendix B presents the COC logs that accompanied the samples. The COC logs document sample integrity, transfer, shipment, and final receipt to the laboratory.

3.3 SAMPLE STORAGE

Each sample collected at the site was placed in plastic coolers with absorbent materials. Chilled ice packs were then placed inside each cooler to preserve sample integrity.

3.4 SAMPLE SHIPMENT

Samples collected at the site were retained on ice prior to release to the laboratory. Samples were transfer to the receiving laboratory with all required sample documentation.

4.0 ANALYTICAL RESULTS

4.1 GROUNDWATER ANALYTICAL DATA

Groundwater samples taken from seven monitoring wells were sent to TolTest's analytical laboratory for analysis of Total Petroleum Hydrocarbons (TPH) Lube-Range Organics using U.S EPA Method 8015M. Analytical results for the water samples are presented in Table 1.0. Groundwater laboratory data and chain-of-custody sheets are presented in appendix B.

Groundwater analytical results detected TPH lube range organic concentrations in MW-1, MW-2, MW-4, MW-8, MW-17 and MW-31. TPH Lube-Range Organic concentrations ranged from 4.05 to 60.7 mg/l. MW-7 had no detectable TPH Lube-Range Organics present. The MDEQ has no action level for TPH; however, 100 mg/l is frequently cited by the MDEQ as an action level. A summary of analytical results is presented in Table 1.0.

TABLE

TABLE 1.0
GROUNDWATER ANALYTICAL DATA
GENERAL MOTORS CORPORATION
POWERTRAIN/WILLOW RUN PLANT
ATF AREA

SAMPLE LOCATION	SAMPLING DATE	TOTAL PETROLEUM HYDROCARBONS LUBE-OIL RANGE ORGANICS (ppm)
MW-1	12/19/95	56.1
MW-2	12/19/95	4.05
MW-4	12/19/95	17.3
MW-7	12/19/95	----
MW-8	12/19/95	33.4
MW-17	12/19/95	60.7
MW-31	12/19/95	4.86

APPENDIX A
GROUNDWATER/ PRODUCT GAUGING RECORD

GENERAL MOTORS CORPORATION
GM POWERTRAIN DIVISION, YPSILANTI, MICHIGAN
WILLOW RUN PLANT
GROUNDWATER/PRODUCT GAUGING RECORD

Project No: 70172.42
 Site Location: ATF AREA

Date: 10/17/95
 Field Personnel: JOSE CASTILLO

Well I.D.	Well Type	Inner Well			Outer Well			Comments
		Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	
RW-3	COMBINED	5.73	7.00	1.27	5.60	6.70	1.10	Product Pump Depth: 7.9 feet Drawdown Pump Depth: 10.10 feet
RW-10	COMBINED	6.10	7.75	1.65	5.96	9.35	3.39	Product Pump Depth: 9.10 feet Drawdown Pump Depth: 11.9 feet
RW-13	COMBINED	6.57	6.64	0.07	6.35	8.55	2.20	Product Pump Depth: 7.6 feet Drawdown Pump Depth: 8.2 feet
RW-15	COMBINED	6.64	6.70	0.06	6.90	6.94	0.04	
RW-24	COMBINED	----	7.20	0.0	6.95	7.84	0.89	Product Pump Depth: 10 feet Drawdown Pump Depth: 11.2 feet
RW-30	COMBINED	7.10	7.40	0.30	7.30	7.45	0.15	
RW-39	COMBINED	----	7.65	0.0	7.25	7.51	0.26	

GENERAL MOTORS CORPORATION
GM POWERTRAIN DIVISION, YPSILANTI, MICHIGAN
WILLOW RUN PLANT
GROUNDWATER/PRODUCT GAUGING RECORD

Project No: 70172.49

Date: 12/05/95

Site Location: ATF AREA

Field Personnel: JOSE CASTILLO

Well I.D.	Well Type	Inner Well			Outer Well			Comments
		Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	Depth to Product (ft)	Depth to Water (ft)	Product Thickness (ft)	
MW-1	DOUBLE	----	5.27	0.0	5.36	6.08	0.72	
MW-2	DOUBLE	----	5.85	0.0	----	6.07	0.0	Product Pump: 7.95 feet Drawdown Pump: 11.5 feet
RW-3	DOUBLE	5.89	6.89	1.0	5.90	6.59	0.69	
MW-4	DOUBLE	----	5.38	0.0	----	5.49	0.0	
MW-5	SINGLE	----	6.42	0.0	----	----	----	
MW-7	DOUBLE	----	9.02	0.0	----	9.23	0.0	
MW-8	DOUBLE	----	5.97	0.0	6.23	7.40	1.17	
RW-10	DOUBLE	6.65	7.28	0.63	7.00	9.00	2.00	Product Pump: 9.6 feet Drawdown Pump: 11.3 feet
MW-11	DOUBLE	----	6.95	0.0	6.95	8.62	1.67	
MW-12	SINGLE	5.85	6.65	0.63	----	----	----	

APPENDIX B
ANALYTICAL DATA AND CHAIN OF CUSTODY

APPENDIX B
ANALYTICAL DATA AND CHAIN OF CUSTODY



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TEST REPORT

CLIENT: TolTest, Inc.
44191 Plymouth Oaks Boulevard
Suite 1200
Plymouth, Michigan 48170

DATE: January 12, 1996

ATTN: Mr. Joe Cook

Job No.: 70172.51

Lab Receiving No.: 9512000109

Date Received: December 21, 1995

Date Sampled: December 19, 1995

Project Location: GM Powertrain
Willow Run Plant

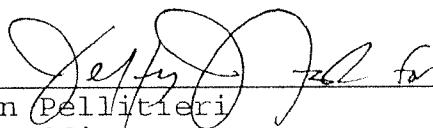
Sample Point(s): GW-ATF-01, GW-ATF-02, GW-ATF-03, GW-ATF-05,
GW-ATF-07, GW-ATF-09, GW-ATF-13

Analysis Performed: TPH

DISCLAIMER

This report is "PROPRIETARY AND CONFIDENTIAL" and delivered to, and intended for the exclusive use of the above named client only. TolTest, Inc., assumes no responsibility or liability for the reliance hereon or use hereof by anyone other than the above named client.

Reviewed and
Approved by:


Susan Pellitteri
Q.A. Officer

Date: 15 Jan 96

ANALYTICAL NARRATIVE

The note(s) below pertain to the sample(s) and analytical data reported herein:

The sample(s) received by the laboratory under chain of custody met EPA guidelines for container type, labeling and preservation technique.

The laboratory is accredited or approved by the following agencies:

State of Ohio; Certification No.: 7016
American Industrial Hygiene Association
Food and Drug Administration
U.S. Army Corps of Engineers
City of Toledo

GENERAL CHEMISTRY ANALYTICAL RESULTS

Page 3 of 6

JOB NUMBER: 70172.51
METHOD NO.: see below
UNITS: see below
BATCH NO.: 1CVC000296

SAMPLE ID:
TTL SAMPLE No.:

GW-ATF-01
25643

GW-ATF-02
25644

GW-ATF-03
25645

GW-ATF-04
25646

GW-ATF-05
25647

METHOD
BLANK

METHOD
NUMBER

METHOD
UNITS

56.1

4.05

17.3

<0.30

mg/l

418.1

Total Petroleum Hydrocarbons

GENERAL CHEMISTRY ANALYTICAL RESULTS

Page 4 of 6

JOB NUMBER: 70172.51
METHOD NO.: see below
UNITS: see below
BATCH NO.: 1CVC000296

SAMPLE ID:
TTL SAMPLE No.:

GW-ATF-07
25648

GW-ATF-09
25650

GW-ATF-13
25654

PARAMETERS
Total Petroleum Hydrocarbons

METHOD
NUMBER
418.1

UNITS
mg/l

METHOD
BLANK
<0.30

60.7

33.4

4.86

REPORT KEY

BTU/lb	=	British Thermal Units per pound
CV	=	Conventionals
Deg. C	=	Degrees Celsius
EP TOX	=	Extraction Procedure Toxicity
GC	=	Gas Chromatograph Instrument
GC/MS	=	Gas Chromatography/Mass Spectrometer Instrument
gm/cc	=	grams per cubic centimeter
IR	=	Infrared Instrument
mE/100grams	=	milliequivalent/100 grams soil
mg/m ³	=	milligram per 1000 liters of air
mg/kg	=	milligram per kilogram (ppm)
mg/l	=	milligram per liter (ppm)
mg/W	=	milligram per wipe
MTM	=	Michigan Test Method
mV	=	milliVolts
n/a	=	not applicable
PCB	=	Polychlorinated Biphenyls (PCBs)
pCi/l	=	picocurie per liter
ppb	=	parts per billion
ppm	=	parts per million
RCRA	=	Resource Conservation and Recovery Act
SM	=	Standard Method, 17th Edition
std	=	result is relative to standard pH units
TCLP	=	Toxicity Characteristic Leaching Procedure
SPLP	=	Synthetic Precipitation Leaching Procedure
µg/kg	=	microgram per kilogram (ppb)
µg/l	=	microgram per liter (ppb)
µg/S	=	microgram per sample
µg/W	=	microgram per wipe
>	=	greater than
<	=	less than
%	=	percent
EA	=	Elaine Ault
AAI	=	Analytical Associates, Inc.
OHM	=	OHM Corporation
ATE	=	Aqua Tech Environmental Laboratories, Inc.
BEC	=	Biological Environmental Control Laboratories, Inc.
JF	=	Jeff Fesko
BG	=	Barb Gould
PM	=	Patricia McElroy
SP	=	Susan Pellitieri
RR	=	Ron Recknagel
TMA	=	Thermo Analytical, Inc.
LW	=	Lorene Watts
TH	=	Tracy Howard
DG	=	Diann Gillette

BATCH QC SUMMARY

Page 6 of 6

BATCH No.	DATE EXTRACTED	DATE ANALYZED	ANALYST	GENERAL CHEMISTRY PARAMETERS	METHOD SPIKE	% RECOVERY MATRIX SPIKE	MATRIX DUPLICATE	% RPD
1CVC000296	01/03/96	01/03/96	LW	TPH (Total Petroleum Hydrocarbons)	88	92	89	3



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Chain of Custody Record

4608

Page 1 of 2

Job No.	Project Name & Address				Parameters		P.O. No.
70172.51	GM - Powertrain / Willow Run Plant						
Samplers: (signature) <i>Joe Corbett</i>		(printed) <i>Jose Castillo</i>					
Field Sample I.D.	Date	Time	Comp	Grab	Matrix	Sample Location	
9W-ATF-01	12/19	AM		✓	✓	WMW-1 - ATF	
9W-ATF-02	12/19	AM		✓	✓	WMW-2 - ATF	
9W-ATF-03						WMW-4 - ATF	
9W-ATF-04						WMW-5 - ATF	
9W-ATF-05						WMW-7 - ATF	
9W-ATF-07						WMW-8 - ATF	
9W-ATF-08						WMW-11 - ATF	
9W-ATF-09						WMW-17 - ATF	
9W-ATF-10						WMW-18 - ATF	
9W-ATF-11						WMW-23 - ATF	
Relinquished by: <i>Joe Corbett</i>	Date / Time 12/19 PM	Received by:		Date / Time			
Relinquished by:	Date / Time	Received by:		Date / Time			
Relinquished by:	Date / Time	Received by:		Date / Time			
Relinquished by:	Date / Time	Received by:		Date / Time			
Final Disposition	Mailing/Carrier						
Special Handling: Rush _____ Normal T/A _____ Fax Results _____ QA/QC _____				Laboratory Performing Analysis:			
Received for Laboratory by: <i>S. Silberman</i>				Date / Time 12/21/15			
Comments (precautions/hazards)							

Distribution: Original plus one accompanies shipment (white and yellow); copy to coordinator field files (pink)

Chain of Custody Record

44191 Plymouth Oaks Blvd., Ste. 1200, Plymouth, MI 48170
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4670

Page 2 of 2

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