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Saginaw District

Central Foundry Division
General Motors Corporation
Divisional Offices
77 W. Center St.
Saginaw, Michigan 48605-1629

November 6, 1989

Ms. Cheryl Howe
Michigan Department of
Natural Resources
Senior Environmental Engineer
POB 30028
Lansing, MI 48909

RE: GM - Central Foundry, Saginaw Nodular Iron Plant

Dear Ms. Howe,

I am forwarding to you by copy of this letter four (4) copies each of the DOCUMENTATION REPORT FOR THE RCRA CLOSURE OF A PAINT STORAGE BUILDING DRUM STORAGE AREA and DOCUMENTATION REPORT FOR RCRA CLOSURE OF A HAZARDOUS WASTE CONTROL TANK to document the final closure activities of these areas. The documents have been stamped by a third party professional engineer and the General Motors - Central Foundry signatory authority for the Saginaw Nodular location.

For your information, all further activities at the Nodular Iron site will be coordinated via Central Foundry Divisional office. I am also enclosing my card for your convenience.

Sincerely,

G. Keith West
Senior Engineer -
Environmental Activities

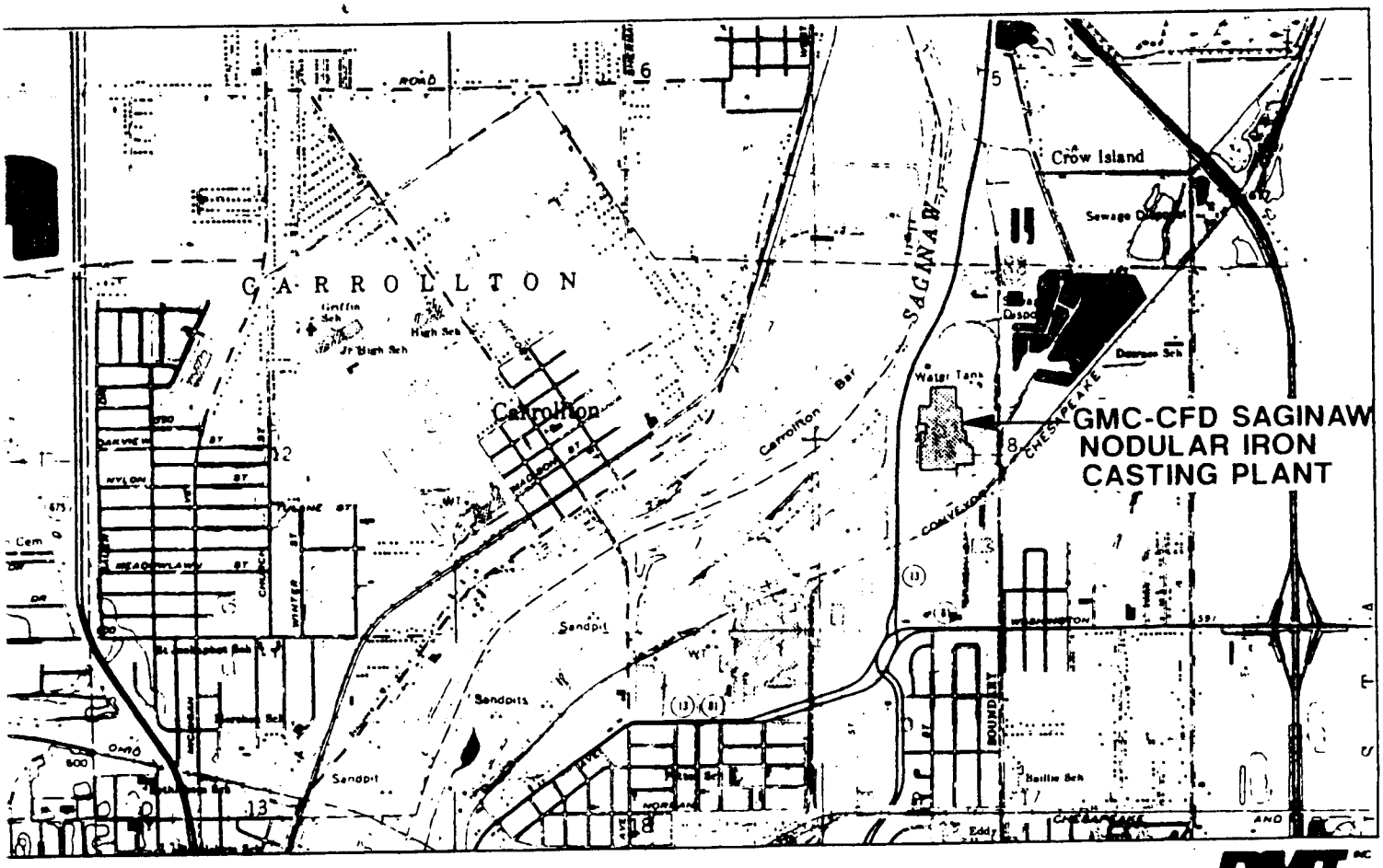
RECEIVED
NOV 17 1989
Waste Management
Division

central foundry

GM

SAGINAW NODULAR IRON CASTING PLANT
SAGINAW, MICHIGAN

DOCUMENTATION REPORT FOR RCRA CLOSURE OF A HAZARDOUS WASTE CONTROL TANK



RMT INC

RMT INC.
Great Lakes Office
325 S. Clinton Street
P.O. Box 447
Grand Ledge, MI 48837
Phone: 517-627-4044
FAX: 517-627-1284

RMT, Inc.
744 Heartland Trail
P.O. Box 8923
Madison, WI 53708-8923
Phone: 608-831-4444
FAX: 608-831-3334

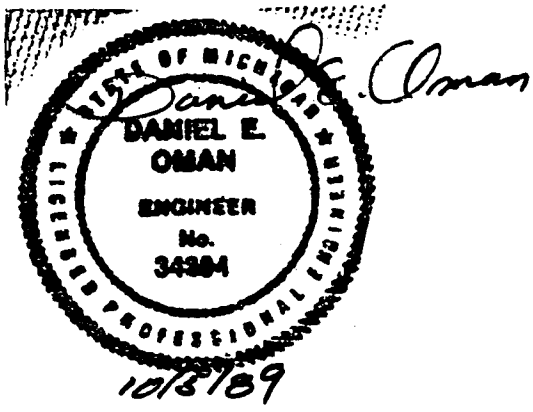
DOCUMENTATION REPORT FOR RCRA CLOSURE OF A HAZARDOUS WASTE CONTROL TANK

PREPARED FOR

GENERAL MOTORS CORPORATION
CENTRAL FOUNDRY DIVISION
SAGINAW NODULAR IRON PLANT

SAGINAW, MICHIGAN

OCTOBER 1989



Daniel E. Oman, P.E.
Manager, Engineering

Richard C. Krueger
Project Engineer

Thomas J. Jancek
Project Manager

1125.24 101:RTG:gmsn0731

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1. INTRODUCTION

1.1 Background

General Motors Corporation-Central Foundry Division-Saginaw Nodular Iron (GMC-CFD-SNI) operated a hazardous waste management unit, specifically known as the 1,1,1-trichloroethane hazardous waste control tank, under RCRA interim status between 1980 and 1985, and as a generator between 1985 and 1987. The waste control tank was identified on the facility's original RCRA Part A Permit Application and on subsequent revisions.

The waste control tank was located in the facility's oil building, and used as an overflow and spillage collection tank during loading and unloading operations performed on 55-gallon drums of spent 1,1,1-trichloroethane degreasing solvent.

GMC-CFD-SNI submitted a RCRA Closure Plan to the MDNR on December 22, 1987. The closure plan describes the key activities, tests, and performance standards for attaining "Clean Closure of the Waste Control Tank."

In an April 28, 1988, letter, the MDNR requested that additional information be provided before the closure plan could be approved. On May 26, 1988, GMC-CFD-SNI provided the additional information in a closure plan addendum, and the MDNR approved the closure plan on June 10, 1988.

1.2 Purpose and Scope

The purpose of this report is to document RMT's observations and the laboratory results of the closure activities performed by GMC-CFD-SNI in response to the approved closure plan.

The scope of this report includes descriptions of the following:

- On-site observation of the waste control tank decontamination activities.
- Decontamination liquids analytical results.
- Disposition of tank and decontamination liquids.
- Installation of soil borings and soil sample collection methods.
- Soil sample results and data interpretation.

2. TANK CLOSURE ACTIVITIES

2.1 Tank Decontamination and Disposition

Tank decontamination was conducted by a General Motors contractor, and included washing and triple-rinsing the inside of the tank. A surfactant/detergent was used during the washing operation to assist in removing liquid residue from the tank. The tank did not contain liquid prior to beginning the steam-cleaning operation. Decontamination liquids were pumped from the inside of the tank into two 55-gallon drums; the pump was then rinsed with potable water. The tank was damp after steam-cleaning, and was allowed to air dry.

Decontamination of the tank was determined by laboratory analysis of the decontamination rinsate, discussed in Section 2.2. Based on discussions with GMC-CFD-SNI personnel, the tank was cut up and disposed as scrap, along with other components salvaged from closing the GMC-CFD-SNI plant production operations.

2.2 Decontamination Liquids Analysis and Disposal

As indicated in Section 2.1, decontamination liquids were collected in two 55-gallon drums and identified on the outside of the drums as TST-1 and TST-2.

Decontamination liquid samples were collected near the liquid surface by immersing 40-milliliter VOA vials into the liquids in the drums. Samples were placed in coolers with ice. Chain-of-Custody forms were completed, and the coolers were shipped via overnight delivery to RMT Laboratories in Madison, Wisconsin.

Sample results are presented in Table 2-1.

TABLE 2-1

GMC-CFD-SAGINAW NODULAR IRON

TANK DECONTAMINATION LIQUID RESULTS FOR CLOSURE OF TRICHLOROETHANE WASTE CONTROL TANK

Chemical Parameters	RMT Sample No. 33974 Barrel #1	RMT Sample No. 33975 Barrel #2
Vinyl Chloride	< 0.50	< 0.50
Chloroethane	< 0.50	< 0.50
1,1-Dichloroethylene	< 0.50	< 0.50
1,1-Dichloroethane	< 0.50	< 0.50
1,2-Trans-Dichloroethylene	< 1.0	< 1.0
1,1,1,-Trichloroethane	0.76	< 0.50

Concentration in micrograms per liter (ug/L).

Sampled October 1988.

Based on discussions with MDNR personnel, the decontamination liquids were disposed into the sanitary sewer system upon notification to the Saginaw Water Treatment System.

3. SUBSURFACE INVESTIGATION

3.1 Overview

The subsurface investigations were conducted to document that hazardous constituents did not impact the underlying soil. Although only one investigation was anticipated in the closure plan, three investigations were needed because 1,1,1-trichloroethane was detected in several samples at less than a one-part-per-billion level. The three investigations are discussed in Section 3.4.

After evaluating the sampling methods, equipment, and laboratory data from the first two investigations, it was concluded that the source of the 1,1,1-trichloroethane may have been water obtained from the GMC-CFD-SNI potable water supply used by the concrete coring and decontamination equipment. This conclusion was reached because a field blank (collected during the second investigation) of the potable water supply system contained trace levels of 1,1,1-trichloroethane. Therefore, a third subsurface investigation was conducted (May 1989) which used water from a different source. Results from the third investigation indicated that the soil samples and the coring and decontamination liquids did not contain detectable levels of 1,1,1-trichloroethane. Therefore, the previous 1,1,1-trichloroethane levels were likely from water used during the sample collection process rather than from the samples themselves. General Motors concluded that the waste control tank had been decontaminated and that the chemical constituents of concern have not impacted the underlying soil.

3.2 Sample Locations

The waste control tank was located in the Oil Building on a concrete floor. Because the concrete floor did not have visible cracks near the tank, boring TST-1 was located in a low area near the tank (as described in the closure plan).

As described in Sections 3.1 and 3.4, additional sampling was required because the soil sample from TST-1 contained a detectable concentration of 1,1,1-trichloroethane. The sampling locations are presented on Figure 1, and are summarized as follows:

Phase 1 (July 1988)	Phase 2 (October 1988)	Phase 3 (May 1989)
TST-1	TST-1A	TST-5
	TST-2	TST-6
	TST-3	
	TST-4	

3.3 Sample Collection and Transportation Methods

At each sampling location, soil samples were collected after coring through the concrete. Samples were collected using a hand auger sampler by collecting the 0- to 6-inch soil column, and then by advancing the auger in the same hole to collect a 6- to 12-inch depth of soil below the top of the soil surface. The auger was scrubbed with a soapy water solution, rinsed with potable water, and then triple-rinsed with deionized water between samples.

Each sample was placed in three 40-milliliter VOA vials. VOA vial labels were completed, and the samples were placed in coolers with ice. Chain-of-Custody forms were completed (Appendix B), and the coolers were shipped via overnight delivery to RMT Laboratories in Madison, Wisconsin.

CERTIFICATION OF CLOSURE

"I certify, under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete; and the closure activities for this unit have been conducted in substantial conformance with the approved closure plan. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Daniel E. Oman
Manager, Engineering

James E. Wheeler
Manufacturing Manager
GMC-CFD

1125.25:RTG:gmc1002

3.4 Sample Analyses and Results

One soil sample was collected and analyzed during the Phase I investigation. As described in the closure plan addendum, 1,1,1-trichloroethane and five breakdown products were analyzed. A trip blank was also analyzed, but a field blank of the decontamination water was not collected. The results are presented in Table 3-1.

Because 4.9 micrograms per liter (ppb) of 1,1,1-trichloroethane were detected in the soil sample, seven additional soil samples were collected to determine the horizontal and vertical extent of the suspected contamination. These samples were collected from four borings (described in Section 3.2) in Phase II. The laboratory results are presented in Table 3-1. In addition, two field blanks and one trip blank were analyzed.

The Phase II results indicated that three soil samples and one field blank collected from the water supply (used for coring and decontamination) contained 1,1,1-trichloroethane at concentrations slightly above the detection limit. Therefore, it appeared likely that the concentrations detected in the soil and liquid samples collected in Phase I and Phase II may have originated from the coring and decontamination water.

In order to evaluate this possibility, the Phase III investigation was conducted. As requested by the MDNR, two soil borings (TST-5 and TST-6) were located on a two-foot radius from TST-1, and soil samples were collected of the 0- to 0.5-foot depth below the concrete floor. Water used for coring and decontamination was obtained from the driller's private well and not from the GMC-CFD-SNI potable water from the Saginaw

Table 3-1

GMC-CFD-SAGINAW NODULAR IRON

Organic Results for Closure of
Trichloroethane Waste Control Tank

	Phase I Sampled July 1988		Phase II Sampled October 1988							Phase III Sampled May 1989								
	RMT Sample Number, Sampling Location, and Depth (Feet)																	
	31676	31682	34633	34636	34637	34638	34639	34634	34635	34632	33976	34631	38831	38709	38829	38706	38830	38705
Chemical Parameters	TST-1 0-0.5	Trip Blank	TST-1A 1.5-2.0	TST-2 0-0.5	TST-2 1.5-2.0	TST-3 0-0.5	TST-3 1.5-2.0	TST-4 0-0.5	TST-4 1.5-2.0	Field Blank #1	Field Blank #2	Trip Blank	TST-5 0-0.5	TST-6 0-0.5	Field Blank W5	Field Blank W6	Trip Blank W5	Trip Blank W6
Vinyl Chloride	< 0.50	< 0.50	--	--	--	--	--	--	--	--	< 0.50	--	--	--	--	--	--	--
Chloroethane	< 0.50	< 0.50	--	--	--	--	--	--	--	--	< 0.50	--	--	--	--	--	--	--
1,1-Dichloroethylene	< 0.50	< 0.50	--	--	--	--	--	--	--	--	< 0.50	--	--	--	--	--	--	--
1,1-Dichloroethane	< 0.50	< 0.50	--	--	--	--	--	--	--	--	< 0.50	--	--	--	--	--	--	--
1,2-Trans-Dichloroethylene	< 1.0	< 1.0	--	--	--	--	--	--	--	--	< 1.0	--	--	--	--	--	--	--
1,1,1,-Trichloroethane	4.9	< 1.0	< 0.5	0.61	< 0.50	< 0.50	< 0.50	0.70	0.87	< 0.5	0.53	< 0.5	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Concentrations in ug/kg dry weight for soils and ug/L for liquids.
Field Blank #1 collected from soil sampling equipment, after decontaminating.
Field Blank #2 collected from Saginaw Potable Water Supply System.
Field Blanks W5 and W6 collected from concrete coring equipment liquids.
- indicates sample was not analyzed.

1125.24 101:RTG:gmsn0731.t

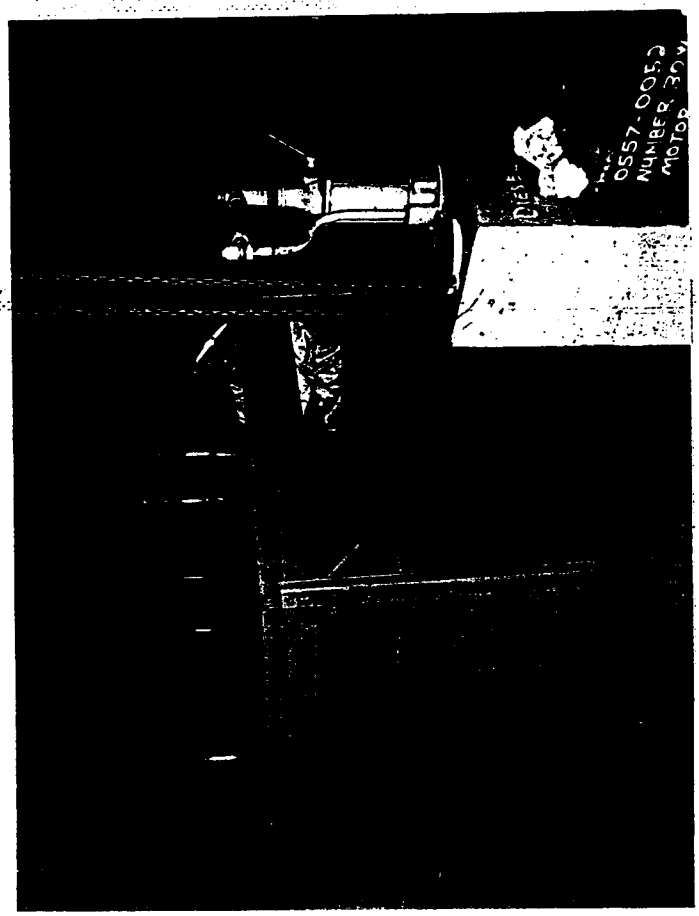
water supply system. Samples of water were collected from the concrete coring equipment, and labeled "Field Blank W5" and "Field Blank W6." In addition, two trip blanks were used (one for each transport cooler). The Phase III results are presented in Table 3-1, and indicate that 1,1,1-trichloroethane was not detected in the trip blanks, field blanks, and soil samples. Therefore, these results tend to support the hypothesis that the concentrations detected in previous soil and liquid samples originated from the coring and decontamination water.

From the laboratory results presented above, GMC-CFD-SNI concludes the following:

- The tank has been satisfactorily decontaminated.
- 1,1,1-trichloroethane has not migrated from the tank and impacted the underlying soil.
- The closure activities have been conducted in substantial conformance with the specifications in the approved closure plan, and have met the "clean closure" performance standard specified in the approved closure plan.

APPENDIX A

PHOTOGRAPHS OF CLOSURE ACTIVITIES


0557-0052
NUMBER
MOTOR

APPENDIX B

SAMPLE CHAIN-OF-CUSTODY FORMS

RMT Inc.

Madison, WI 53703
1406 East Washington Ave.
Suite 124
(608)255-2134

Washington, DC 20006
1625 I St. N.W.
Suite 719
(202)463-6909

Santa Monica, CA 90405
3420 Ocean Park Blvd.
Suite 3010
(213)452-5078

Grand Ledge, MI 48837
325 South Clinton Street
(517)627-4044

Greenville, SC 29607
11 Regency Hills Drive
(803)292-1921

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

(FOR LAB USE) Sample Type: (GW) WW, (SW) Soil, Other): **№ 000342**

Project No.	Client
1125.20	GMC/CFD-SNI

Sampler(s) (Signature)	Affiliation
James A. Nehls / TJJ	RMT-GLO

Container Inventory: VOA VIALS

Filtered (Yes/No)
Preserved (Code)
Refrigerated (Yes/No)

Code: A = None, B = HNO_3, C = H_2SO_4, D = NaOH, E = _____

RMT Lab No.	Yr. 88 Date	Time	Sample Station ID	Total Number Of Containers	VOA VIALS	Comments
31676	7-8		TST-1	3	3	TRICHLOR STORAGE TANK
31677	7-8		PS-2E	3	3	PAINT STORAGE-ENTRANCE
31678	7-8		PS-1C	3	3	PAINT STORAGE-CRACK
31679	7-8		PS-3SE	3	3	EAST EDGE PAINT PAD-S.E. CORNER
31680	7-8		PS-4E	3	3	" " " " -MID
31681	7-8		PS-5NE	3	3	" " " " -N.E. CORNER
31682	7/8		Trip Blank	3	3	

NOTE: PLEASE SEE RICK KRUEGER [redacted] LABORATORY WORK ORDER FORM!

Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time	Relinquished by (Sig.)	Date/Time
(1)		(2)		(3)	
Received by (Sig.)	Date/Time	Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
(4)		(5)		(6)	
Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time	Seal # ____ attached by ( ) Rcvd. Intact by ( )	
(7) UPS	7/12/88 10:30 am.	(8) K.M. Coates	7/12/88 10:30 am.	Seal # ____ attached by ( ) Rcvd. Intact by ( )	

Sample Destruction Authorization: Date:

(For Lab Use Only)
Receipt Temp (Good Iced) / Client P.O. Number:

RMT Inc.

Madison, WI 53703 — 1406 East Washington Ave. Suite 124 — (608)255-2134
Washington, DC 20006 — 1625 I St. N.W. Suite 719 — (202)463-6909
Santa Monica, CA 90405 — 2420 Ocean Park Blvd. Suite 3010 — (213)452-5078
Grand Ledge, MI 48837 — 325 South Clinton Street — (517)627-4044
Greenville, SC 29607 — 11 Regency Hills Drive — (803)292-1921

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

(FOR LAB USE) Sample Type: (GW, WW, SW, Soil, Other):

No. 003193

Project No.	Client	Total Number Of Containers
1125.24	GM SAGINAW NODULAR	

Sampler(s) (Signature): Ray D Seel — Affiliation: RMT

RMT Lab No.	Yr. 88 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 40ml VIAL	N	A	Y	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments
34631	11/2		TRIP BLANK	3	3							
34632			FIELD BLANK	3	3							
34633	11/2		TST-1-3	3	3							1.5-2.0' Sand dry
34634			TST-4-1	3	3							0-6" Sand wet
34635			TST-4-3	3	3							1.5-2.0' Sand dry
34636			TST-2-1	3	3							0-6" SAND wet
34637			TST-2-3	3	3							1.5-2.0' SAND DRY - paint odor
34638			TST-3-1	3	3							0-6" SAND WET
34639			TST-3-2	3	3							1.5-2.0' Sand dry odor paint

Code: A = None, B = HNO_3, C = H_2SO_4, D = NaOH, E = ____

Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time	Relinquished by (Sig.)	Date/Time
(1) Laurie Dinnon	10/27/88 3:20pm	(2) Ray D Seel		(3) Ray D Seel	11-3-88 2:00p.
Received by (Sig.)	Date/Time	Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
(4)		(5)		(6)	
Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time	Seal # ____ attached by (7) Rcvd. intact by (8)	
(7)	11-9-88 2045	(8)	11/9/88 2045	Seal # ____ attached by (7) Rcvd. intact by (8)	

Sample Destruction Authorization: Date:

(For Lab Use Only)
Receipt Temp ____ Client P.O. Number:

Numbers

Subsequent Analysis (Check)

RMT Inc.

Madison, WI 53703
1406 East Washington Ave.
Suite 124
(608)255-2134

Washington, DC 2001
1625 I St. N.W.
Suite 719
(202)463-6909

Santa Monica, CA 90405
3420 Ocean Park Blvd.
Suite 3010
(213)452-5078

Grand Ledge, MI 48837
325 South Clinton Street
(517)627-4044

Gree... SC 29607
11 Regency Hills Drive
(803)292-1921

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

(FOR LAB USE) Sample Type: (GW, WW, SW, Soil, Other) RINSATE No 002213

Project No.	Client
1125.24	GMC-CFO-SNI

Sampler(s) (Signature) James A. Mehl — Affiliation: GLO

RMT Lab No.	Yr 88 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: VOA Bottles	N	A	Y	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments
33974	10-7		TT-101 (#1 BARREL)	3	3							1ST BARREL OF RINSATE COLLECTED
33975	"		TT-102 (#2 BARREL)	3	3							2ND " " " "
33976	"		TT-103 (FIELD BLANK)	3	3							THE WATER - SAGINAW POTABLE H2O (USED FOR TT & PSP)

Code: A = None, B = HNO3, C = H_2SO_4, D = NaOH, E = _____

Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time	Relinquished by (Sig.)	Date/Time
(1) James A. Mehl	10-10-88 3:30P	(2)		(3)	
Received by (Sig.) (4)	Date/Time	Relinquished by (Sig.) (5)	Date/Time	Received by (Sig.) (6)	Date/Time
Relinquished by (Sig.) (7) UPS	Date/Time 10/11/88 1030 am	Received by (Sig.) (8) K.M. Gates	Date/Time 10/11/88 1030 am	Seal # ____ attached by ( ) Rcvd. intact by ( ) Seal # ____ attached by ( ) Rcvd. intact by ( )	

Sample Destruction Authorization: Date: _____

For Sample Numbers: _____ Project Manager: _____

(For Lab Use Only)
Receipt Temp 4°C Good (Iced) Client P.O. Number: _____
Receipt pH = _____ Subsequent Analysis: _____ (Check)
_____ Date Resubmitted: _____

RMT INC

Madison, WI 53717
744 Heartland Trail
Phone (608)831-4444
FAX (608)831-3334

Washington, DC | Santa Monica, CA | Grand Ledge, MI | Greenville,

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

Sample Type: (GW) WW, (SW) Soil, Other

№ 006363

Bottles Prepared by:	Date/Time	Office Code: (State)
BLL	5-3-89	GLO

Project No.	Client:
1125.24	GMC CFD SNI

RMT Lab NO.	Yr. 89 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 40 mL Vial	60 mL Glass Jar	Filtered (Yes/No) N	Preserved (Code) A	Refrigerated (Yes/No) Y				Comments:
38829	5-3	3:25p	W-5 (Water Used in Boring Loc. 5)	3	3								Sample iced until shipment
38830	5-2		Trip Blank	3	3								
38831	5-4	8:30a	TST-5	3		3							

Code: A - None
B - HNO_3
C - H_2SO_4
D - NaOH
E - _____

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Benjamin Lauren	2:35p 5-4-89	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #	Date/Time
Relinquished by (Sig.) ⑤ UPS (Next Day Air)	Date/Time 5/5/89 930 am	Received by (Sig.) ⑥ Shipper Name & # Cosandra Coates	Date/Time 5/6/89 930 am
Seal #	at'chd by ◯ Recvd. Intact by ◯	Seal #	at'chd by ◯ Recvd. Intact by ◯

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp. Good (rcvd. iced.) Receipt pH — NA

Client P.O. Number. _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

RMT INC

Madison, WI 53717
744 Heartland Trail
Phone (608)831-4444
FAX (608)831-3334

Washington, DC | Santa Monica, CA | Grand Ledge, MI | Greenville, S

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

Sample Type: (GW) WW, SW, Soil, Other) plus 5/3/89

№ 005797

Bottles Prepared by:	Date/Time	Office Code: (State)
Laurie Dunn	4/21/89	WI

Project No.	Client:
1125.24	(GMC CFD - SNI) plus GM- Modular

RMT Lab NO.	Yr. 89 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 60ml JAR	40ml VIAL							Comments:
				~~2~~	~~2~~								
38705	4/21		TRIP BLANK	3		3							
38706	5-1	1:20p	w-6 Water - 6 - (Used in Concrete Cutting)	3		3							Samples Kept on ice prior to shipment
	~~5-1~~	~~2:05p~~	~~T-6T-6~~	~~3~~	~~2~~								

Filtered (Yes/No): N N
Preserved (Code): A A
Refrigerated (Yes/No): Y Y

Code: A - None
B - HNO_3
C - H_2SO_4
D - NaOH
E - _____

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Benjamin Laurence	5-2-89 6:00p	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #	Date/Time
Relinquished by (Sig.) ⑤ Fedex # 218398 2780	Date/Time 5/3/89 900	Received by (Sig.) ⑥ Rosann Coates Shipper Name & #	Date/Time 5/5/89 900

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp (Good (cool iced)) Receipt pH _____

Client P.O. Number _____

Subsequent Analysis: _____ (Check)

Seal # _____ at'chd by ◯ Recvd. Intact by ◯ Seal # _____ at'chd by ◯ Recvd. Intact by ◯

Date Resubmitted _____

RMT INC
Madison, WI 53717
744 Heartland Trail
Phone (608)831-4444
FAX (608)831-3334

Washington, DC | Santa Monica, CA | Grand Ledge, MI | Greenville, S

F-268 (R2/88)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

Sample Type: (GW, WW, SW, (Soil), Other) **№ 006287**

Bottles Prepared by:	Sent by	Date/Time	Office Code:
BLL / L. Dunn		5-1-89 / 8:00a	(State) MI

Project No.	Client:
1125.24	(GMC CFD SNI) Proj GM - Modular

RMT Lab NO.	Yr. 89 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 60 ml Jar	N	A	Y	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments:
38709	5-1	2:05p	TST-6 (Location 6; 0-6" depth	3	3							Samples Kept on ~~ice~~ ice prior to shipment

Code: A - None
B - HNO_3
C - H_2SO_4
D - NaOH
E - _____

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Benjamin L Laurence	5-2-89 / 6:00p	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #	Date/Time
Relinquished by (Sig.) ⑤ Fed Ex #2183982780	Date/Time 5-3-89 / 900 am	Received by (Sig.) ⑥ Shipper Name & # Rosa M. Gates	Date/Time 5/3/89 900 am

Seal # _____ at'chd by ◯ Recvd. Intact by ◯ Seal # _____ at'chd by ◯ Recvd. Intact by ◯

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)
Receipt Temp Good Cold iced Receipt pH —
Client P.O. Number _____
Subsequent Analysis: _____ (Check)
Date Resubmitted _____

APPENDIX C

LABORATORY DATA SHEETS

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.20
SAMPLE NUMBER :31676

DATE: 08/11/88
W.O. #: 071588-0112520
SAMPLE DATE: 07/08/88

SAMPLE DESCRIPTION: TST-1

VOLATILE ORGANICS ANALYSIS

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	< 0.50	ug/kg dry wt.
CHLOROETHANE	< 0.50	ug/kg dry wt.
1,1-DICHLOROETHYLENE	< 0.50	ug/kg dry wt.
1,1-DICHLOROETHANE	< 0.50	ug/kg dry wt.
1,2-TRANS-DICHLOROETHENE	< 1.0	ug/kg dry wt.
1,1,1-TRICHLOROETHANE	4.9	ug/kg dry wt.

Laboratory Director

RMT INC.

LABORATORY REPORT

,IENT : GMC-CFD SAGINAW NODULAR IRON
ROJECT #: 01125.20
SAMPLE NUMBER :31682

DATE: 08/11/88
W.O. #: 071588-0112520
SAMPLE DATE: 07/08/88

SAMPLE DESCRIPTION: TRIP BLANK

VOLATILE ORGANICS ANALYSIS

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	< 0.50	ug/kg dry wt.
CHLOROETHANE	< 0.50	ug/kg dry wt.
1,1-DICHLOROETHYLENE	< 0.50	ug/kg dry wt.
1,1-DICHLOROETHANE	< 0.50	ug/kg dry wt.
1,2-TRANS-DICHLOROETHENE	< 1.0	ug/kg dry wt.
1,1,1-TRICHLOROETHANE	< 1.0	ug/kg dry wt.
BENZENE	< 1.0	ug/kg dry wt.
TOLUENE	2.8 *	ug/kg dry wt.
XYLENES	< 3.0	ug/kg dry wt.
METHYL ETHYL KETONE	< 100	ug/kg dry wt.
METHYL ISOBUTYL KETONE	< 100	ug/kg dry wt.

* Maybe due to lab air contamination.
Water BLK's had 3.7 ppb and 2.4 ppb.

Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 34631

DATE: 11/22/88
W.O. #: 110488-0112524
SAMPLE DATE: 11/02/88

SAMPLE DESCRIPTION: TRIP BLANK

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
TOLUENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<0.50	ug/l

Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 34632

DATE: 11/22/88
W.O. #: 110488-0112524
SAMPLE DATE: 11/02/88

SAMPLE DESCRIPTION: FIELD BLANK

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
TOLUENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<0.50	ug/l

Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBERS: 34633-34639

DATE: 11/22/88
W.O. #: 110488-0112524
SAMPLE DATE: 11/02/88

VOLATILE ORGANIC ANALYSIS REPORT

SAMPLE DESCRIPTION	1,1,1-TRICHLOROETHANE	UNITS
TST-1-2	<0.50	ug/kg dry wt.
TST-4-1	0.70	ug/kg dry wt.
TST-4-2	0.87	ug/kg dry wt.
TST-2-1	0.61	ug/kg dry wt.
TST-2-2	<0.50	ug/kg dry wt.
TST-3-1	<0.50	ug/kg dry wt.
TST-3-2	<0.50	ug/kg dry wt.

Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33974

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88

SAMPLE DESCRIPTION: TT-101 (#1 BARREL)

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/l
CHLOROETHANE	<0.50	ug/l
1,1-DICHLOROETHYLENE	<0.50	ug/l
1,1-DICHLOROETHANE	<0.50	ug/l
1,2-DICHLOROETHYLENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<1.0	ug/l

Kenneth C. Rummel
Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33975

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88

SAMPLE DESCRIPTION: TT-102 (#2 BARREL)

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/l
CHLOROETHANE	<0.50	ug/l
1,1-DICHLOROETHYLENE	<0.50	ug/l
1,1-DICHLOROETHANE	<0.50	ug/l
1,2-DICHLOROETHYLENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<1.0	ug/l

Kenneth C. Brunner
Laboratory Director

RMT INC.

LABORATORY REPORT

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33976

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88

SAMPLE DESCRIPTION: TT-103 (FIELD BLANK)

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/l
CHLOROETHANE	<0.50	ug/l
1,1-DICHLOROETHYLENE	<0.50	ug/l
1,1-DICHLOROETHANE	<0.50	ug/l
1,2-DICHLOROETHYLENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<1.0	ug/l
BENZENE	<1.0	ug/l
TOLUENE	<1.0	ug/l
XYLENES	<3.0	ug/l

Kenneth C. Brunner
Laboratory Director

RMT INC.
LABORATORIES

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33974

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88
REVISED & REISSUED: 02/01/89

SAMPLE DESCRIPTION: TT-101 (#1 BARREL)

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/1
CHLOROETHANE	<0.50	ug/1
1,1-DICHLOROETHYLENE	<0.50	ug/1
1,1-DICHLOROETHANE	<0.50	ug/1
1,2-DICHLOROETHYLENE	<1.0	ug/1
1,1,1-TRICHLOROETHANE	0.76	ug/1

Laboratory Director

RMT INC.
LABORATORIES

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33975

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88
REVISED & REISSUED: 02/01/89

SAMPLE DESCRIPTION: TT-102 (#2 BARREL)

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/l
CHLOROETHANE	<0.50	ug/l
1,1-DICHLOROETHYLENE	<0.50	ug/l
1,1-DICHLOROETHANE	<0.50	ug/l
1,2-DICHLOROETHYLENE	<1.0	ug/l
1,1,1-TRICHLOROETHANE	<0.5	ug/l

Laboratory Director

RMT INC.
LABORATORIES

CLIENT : GMC-CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
SAMPLE NUMBER : 33976
SAMPLE DESCRIPTION: TT-103 (FIELD BLANK)

DATE: 10/21/88
W.O. #: 101188-0112524
SAMPLE DATE: 10/07/88
REVISED & REISSUED: 02/01/89

VOLATILE ORGANIC ANALYSIS REPORT

PARAMETER	RESULT	UNITS
VINYL CHLORIDE	<0.50	ug/1
CHLOROETHANE	<0.50	ug/1
1,1-DICHLOROETHYLENE	<0.50	ug/1
1,1-DICHLOROETHANE	<0.50	ug/1
1,2-DICHLOROETHYLENE	<1.0	ug/1
1,1,1-TRICHLOROETHANE	0.53	ug/1
BENZENE	<1.0	ug/1
TOLUENE	<1.0	ug/1
XYLENES	<3.0	ug/1

Laboratory Director

RMT INC.
LABORATORIES

CLIENT: GMC CFD SAGINAW NODULAR IRON
SAMPLE #: 38831
PROJECT #: 01125.24
WORK ORDER #: 050589-0112524
REPORT DATE: 05/12/89
COLLECTION DATE: 05/04/89
STATION ID: TST-5
SAMPLE COLLECTOR: BLL

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

PARAMETER	RESULT	UNITS
1,1,1-TRICHLOROETHANE	<0.50	ug/kg dry wt.

Alan Doughty, Ph.D., Laboratory Director

RMT INC.
LABORATORIES

CLIENT: GMC CFD SAGINAW NODULAR IRON
SAMPLE #: 38709
PROJECT #: 01073.15
WORK ORDER #: 050389-0112524
REPORT DATE: 05/12/89
COLLECTION DATE: 05/01/89
STATION ID: TST-6
SAMPLE COLLECTOR: BLL

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

PARAMETER	RESULT	UNITS
1,1,1-TRICHLOROETHANE	<0.50	ug/kg dry wt.

Alan Doughty, Ph.D., Laboratory Director

RMT INC.
LABORATORIES

CLIENT: GMC CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24
WORK ORDER #: 050589-0112524
REPORT DATE: 05/12/89
SAMPLE COLLECTOR: BLL

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

SAMPLE	DATE	STATION ID	1,1,1-TRICHLOROETHAN	UNITS
38829	05/03/89	W-5	<0.50	ug/l
38830	05/02/89	TRIP BLANK	<0.50	ug/l

Alan Doughty, Ph.D., Laboratory Director

RMT INC.
LABORATORIES

CLIENT: GMC CFD SAGINAW NODULAR IRON
PROJECT #: 01125.24 REPORT DATE: 05/12/89
WORK ORDER #: 050389-0112524 SAMPLE COLLECTOR: BLL

VOLATILE ORGANIC COMPOUND ANALYSIS REPORT

SAMPLE	DATE	STATION ID	1,1,1-TRICHLOROETHAN	UNITS
38705	04/21/89	TRIP BLANK	<0.50	ug/l
38706	05/01/89	W-6	<0.50	ug/l

Alan Doughty, Ph.D./Laboratory Director

15,000 GAL. GASOLINE TANK
(REGULAR)

GASOLINE LINE

GASOLINE PUMP ISLAND

RETAINING WALL

DESK

FILE

CHAIR

TOILET

LOCKERS

HAZARDOUS WASTE
CONTROL TANK

(PHASE II)
TST-3

TST-5
(PHASE III)

TST-6
(PHASE III)

(PHASE I)
TST-1 &
TST-1A
(PHASE II)

TST-2
(PHASE II)

TST-4
(PHASE II)

BARREL STORAGE

STORAGE RACK

PAINT STORAGE | PERMA CLON STORAGE | POR ROC STORAGE | STORAGE

20'-0"

15'-0"

1 2 3 4

LEGEND

● TST-2 LOCATION AND NUMBER OF CORING

NOTE:
17'-2" FROM FINISHED FLOOR
TO BOTTOM OF ROOF SUPPORT
BEAMS

STORAGE RACK
DWG. # 5A-475

BULK OIL TANK
DWG. # 5A-10606

DRUM SUPPORTS
DWG. # 5A-10618

RECEIVED
NOV 17 1989
Waste Management Division

NO	BY	DATE	REVISION	APPD
3.				
2.	BLF	10/89	TEXT CORRECTION	
1.	BLH	8/89	ADDED TST LOCATIONS	

PROJECT: HAZARDOUS WASTE
CONTROL TANK CLOSURE PLAN
GM-CFD, SAGINAW, MICHIGAN

SHEET TITLE:
LOCATION OF TANK IN OIL BUILDING

DRAWN BY: MCS
CHECKED BY: RCK
APPROVED BY: TJJ
DATE:
SCALE:
PROJ. NO. 1123.24
DRWG. NO.
DATE PRINTED: OCT 9 1989
SHEET OF
FIGURE 1

RMT
744 Heartland Trail
P.O. Box 8923
Madison, WI 53708
Phone: 608-831-4444

NODULAR IRON FOUNDRY • SAGINAW FOUNDRIES
PLANT NO. 1 E. SAGINAW, MICHIGAN — CHEVROLET MOTOR DIVISION OF GENERAL MOTORS CORPORATION

NORTH

LAYOUT OF OIL DRAWN &
ACETYLENE STORAGE

DATE 12-20-45
SCALE 1"-1'-0"
DRAWN BY C. OSBORN
APPROVED BY

5A-440

DEQ

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT DIVISION
DEQ/HZW2

FOIA INVOICE

Issued Under Authority of Act 442, P.A. 1976 as amended.
Failure to submit payment by the date due will result in a penalty as prescribed by law.

INVOICE NUMBER: 136768
Invoice Date: August 26, 1998

JIM MCGUIGAN
EMCON
603 EAST DIEHL RD.
NAPERVILLE IL 60563

ALTERNATE ADDRESS/SHIPPED TO:
EMCON
603 EAST DIEHL RD.
NAPERVILLE IL 60563

Invoice Item	Quantity	Unit Cost	Total Cost
DOCUMENTATION REPORT FOR RCRA CLOSURE OF A PAINT STORAGE BUILDING & DRUM STORAGE AREA DOCUMENTATION REPORT FOR RCRA CLOSURE OF HAZARDOUS WASTE CONTRAOL TANK	1	$29.33	$29.33

ok to pay
Bill 84028-063.005

Total Principal:	$29.33
Postage:	$0.00
Sales Tax:	$0.00
Total Invoice:	$29.33

Payment Due Upon Receipt

MAKE CHECK OR MONEY ORDER PAYABLE TO: **STATE OF MICHIGAN**

TO ENSURE PROPER CREDIT, SEND THIS PORTION WITH PAYMENT TO:
MICHIGAN DEPT OF ENVIRONMENTAL QUALITY
CASHIER'S OFFICE
P O BOX 30657
LANSING MI 48909-8157
(Please note or make any mailing corrections below)

JIM MCGUIGAN
EMCON
603 EAST DIEHL RD.
NAPERVILLE IL 60563

INVOICE NO:
136768
WMD HZW2

For Cashier's Use Only:

EQP1046-1E (Rev.12/96)

Total Due: $29.33