file

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Tommy G. Thompson, Governor
George E. Meyer, Secretary
William H. Smith, District Director

Northwest District Headquarters
810 West Maple, P.O. Box 309
Spooner, WI 54801-0309
TELEPHONE 715-635-2101
FAX 715-635-4105
TDD 715-635-4001

May 10, 1996

FILE REF: 4440
WDNR ERRP ID.
#66-00007

Ms. Mary Caplon
Project Engineer
RMT, Inc.
P.O.Box 8923
Madison, WI 53708-8923

SUBJECT: WisDOT Shell Lake, Forms

Dear Ms. Caplon:

In my last letter to you, I neglected to include the attached "Notification to Treat or Dispose of Petroleum Contaminated Soil & Water" Form 4400-120. This form must be completed for the former Allen Gas/ WisDOT Shell Lake site. Please complete the form promptly and return it to Phylliss Holmbeck, WDNR Air Management, 1701 Tower Avenue, Superior, WI 54880.

This form is required for all remediation cases including WisDOT sites. Please make sure the required forms are completed and submitted to WDNR for your remediation work in the future. The process and standards for allowing air and wastewater discharges for petroleum remediation work have been greatly simplified. Completion of the general form is a minor inconvenience compared to the site specific permit process.

The form is used for internal purposes such as tracking and file documentation. The absence of the form in this case caused some internal confusion and contributed to some of the delay in our response to you.

Thank you for your attention to this matter.

Sincerely,

TJK

Thomas J. Kendzierski, P.G.
ERR Unit Supervisor
Northwest District

cc: Phylliss Holmbeck - Superior
Marc Hershfield - WDOT District 8
Kevin Gehrmann - WDOT Madison

file

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May 8, 1996

FILE REF: 4440
WDNR ERRP I.D
#66-00007

Ms. Mary R. Caplon
Project Engineer
RMT Inc.
P.O. Box 8923
Madison, WI 53708-8923

SUBJECT: WisDOT Shell Lake Remedial Activities

Dear Ms. Caplon:

Thank you for the April 16, 1996 update on the Shell Lake site.

A while back you had requested that the air discharge sampling be reduced from monthly to quarterly. I agree with your assessment that quarterly monitoring should be adequate at this stage of the project. You may reduce the monitoring frequency if you wish. Please continue to report the air monitoring results to me and Phylliss Holmbeck, DNR-Superior.

By the third quarter of 1996 the Closure Flexibility modifications to NR700 Wis. Admin. Code should be effective. I would suggest a review at that time to see how this site complies with the code modifications for closure. If it does not qualify for closure at that time I would also suggest determining a projected closure date for the site.

Please continue to keep me posted on your progress on the site.

Sincerely,

Thomas J. Kendzierski, P.G.
ERR Unit Supervisor
Northwest District

cc: Phylliss Holmbeck - Superior
Marc Hershfield - WDOT District 8
Kevin Gehrmann - WDOT Madison

April 16, 1996

Mr. Tom Kendzierski
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
WDNR ERRP I.D. #66-00007
Progress Report #3

Dear Mr. Kendzierski:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system during the fourth quarter 1995 and the first quarter 1996.

The system operates continuously in automatic mode. An RMT representative visits the site monthly to perform routine system monitoring and maintenance. An autodialer, located in the control panel at the site, provides remote monitoring capabilities between monthly site visits.

Soil Vapor Extraction System

SVE Monitoring

SVE system measurements, such as vacuum flow rates and temperatures, were recorded monthly; and vapor extraction gas samples were taken during the site visits. The vapor extraction well sample was analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and for total gasoline. The SVE system monitoring results are summarized in Table 1. In addition, the analytical laboratory reports of the vapor extraction gas samples collected during this period are included in Attachment 1.

SVE System Performance

The SVE system operates continuously with automatic shut-down when the SVE moisture separator high-level switch is activated. The SVE system must be manually restarted after the separator tank is drained. The cumulative run time of the SVE blower is monitored and displayed on the blower hour meter, located in the operator control panel. The hour meter recording taken during the monthly site visits indicates that the SVE system operated continuously until December 1995, when two motor drive belts were broken. The SVE system remained shut down until the belts were replaced during the January 1996 site visits.

During this period of SVE operation, vapors were extracted from vapor extraction wells VE-1, VE-2, VE-3, and VE-4 (Figure 1). BTEX and total gasoline concentrations reported in the SVE system gas samples and the airflow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

Figures 2 and 3 summarize the cumulative recovery and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 967 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through March 21, 1996. Benzene has not been detected in the off-gas samples since May 1995, and the

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608/831-4444 - 608/831-3334 FAX

gasoline emission rate of the SVE system is below the WDNR limit of 5.7 lb/hr. In addition, the gasoline emission rate of the system has approached an asymptotic level. Therefore, cycling of the SVE wells will begin next quarter to assure all unsaturated soils are remediated.

On the basis of the treatment system operating data, we will be modifying the off-gas sampling frequency from monthly to quarterly. If this change is not acceptable, please contact me. The previous progress report submitted November 2, 1995, also proposed the change in sampling frequency. A reply to this request has not been received.

If you have any questions or comments, please contact us.

Sincerely,

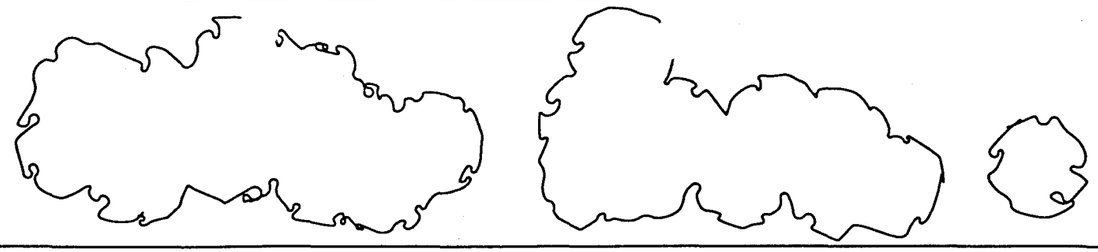
Mary R. Caplon
Project Engineer

Richard Fish
Project Director

amg

Attachments

cc: Kevin Gehrmann, WisDOT
Phyliss Holmbeck, WDNR - Superior, Wisconsin



OFF ROAD VEHICLE TRAIL (OLD RAIL ROAD GRADE)

MW-2

AUTO REPAIR SHOP

SVE-2

FORMER PUMP CONTROL HOUSE

ALLEN GAS & OIL: FORMER CONCRETE DIKE FOR BULK TANKS

MW-3

SVE-4

MW-5

MW-1

SVE-1

SVE-3

TELEPHONE POLE

U.S. HIGHWAY 63

TO SHELL LAKE

MW-4

LEGEND

SVE-2	EXISTING SOIL VAPOR EXTRACTION WELL
MW-1	EXISTING GROUNDWATER MONITORING WELL

0 20 40

SCALE: 1" = 20'

SITE PLAN

WDOT SHELL LAKE

RMT INC.

DWN. BY:	BLG
APPROVED BY:	
DATE:	OCTOBER 1993
PROJ.#	10318.03
FILE #	0304

FIGURE 1

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.05

File: Shellmar.wk1
By: MRC
Revision: 15-Apr-96

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
20-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
24-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
22-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	
06-Nov-95	58	1.5	100	4210.76	ND	2.92E-06	323	0.0E+00	5.7E-02	0.63	870.7	Note 3.
22-Jan-96	58	1.8	90	4210.76	ND	2.12E-06	346	0.0E+00	4.4E-02	0.63	948.2	
19-Feb-96	58	1.8	92	5974.24	ND	ND	346	0.0E+00	0.0E+00	0.63	948.2	
19-Mar-96	58	1.3	94	6657.27	ND	1.60E-06	293	0.0E+00	2.8E-02	0.63	967.4	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.
3. System was down December 1995.

TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM

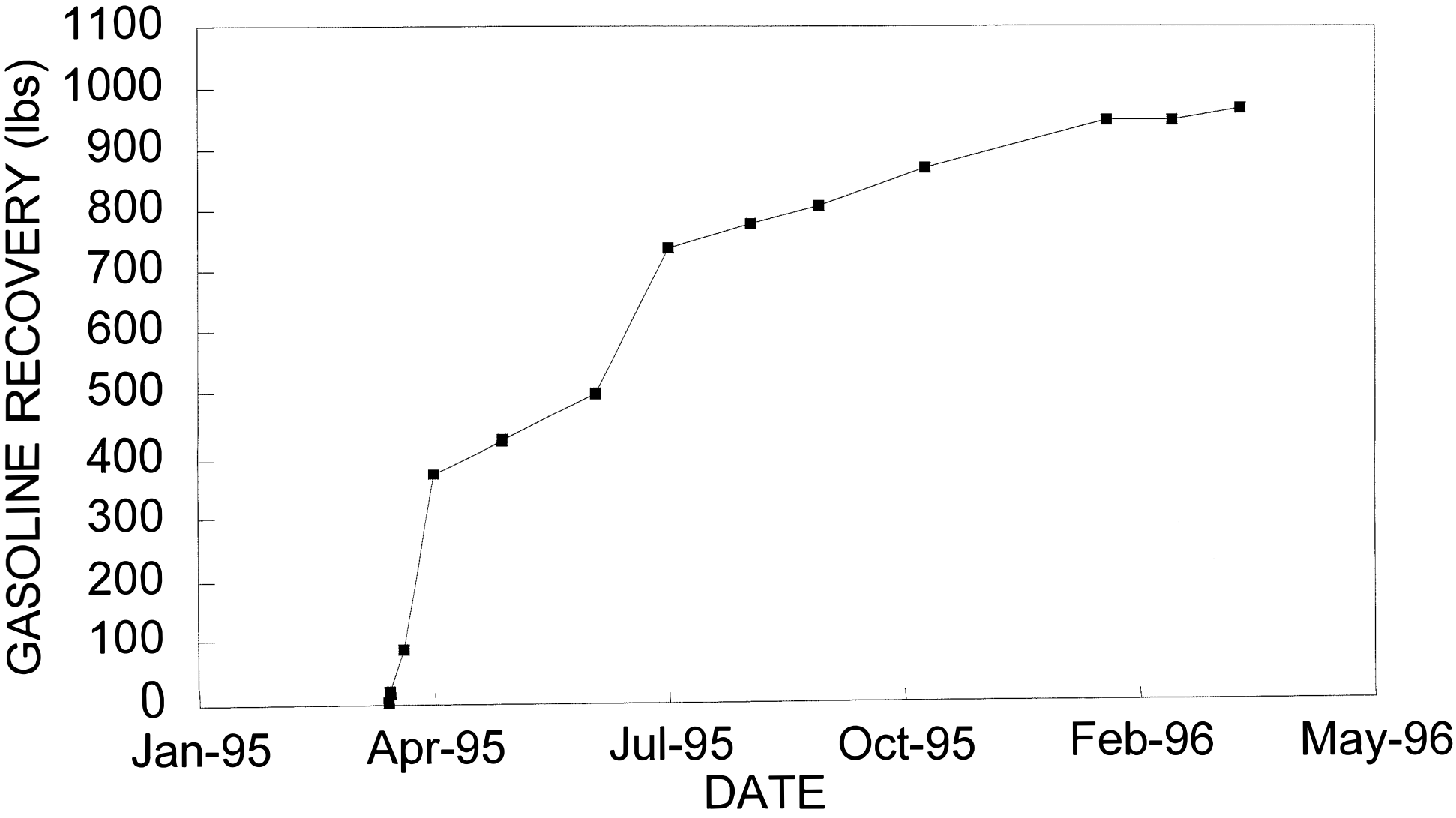


FIGURE 2

GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM

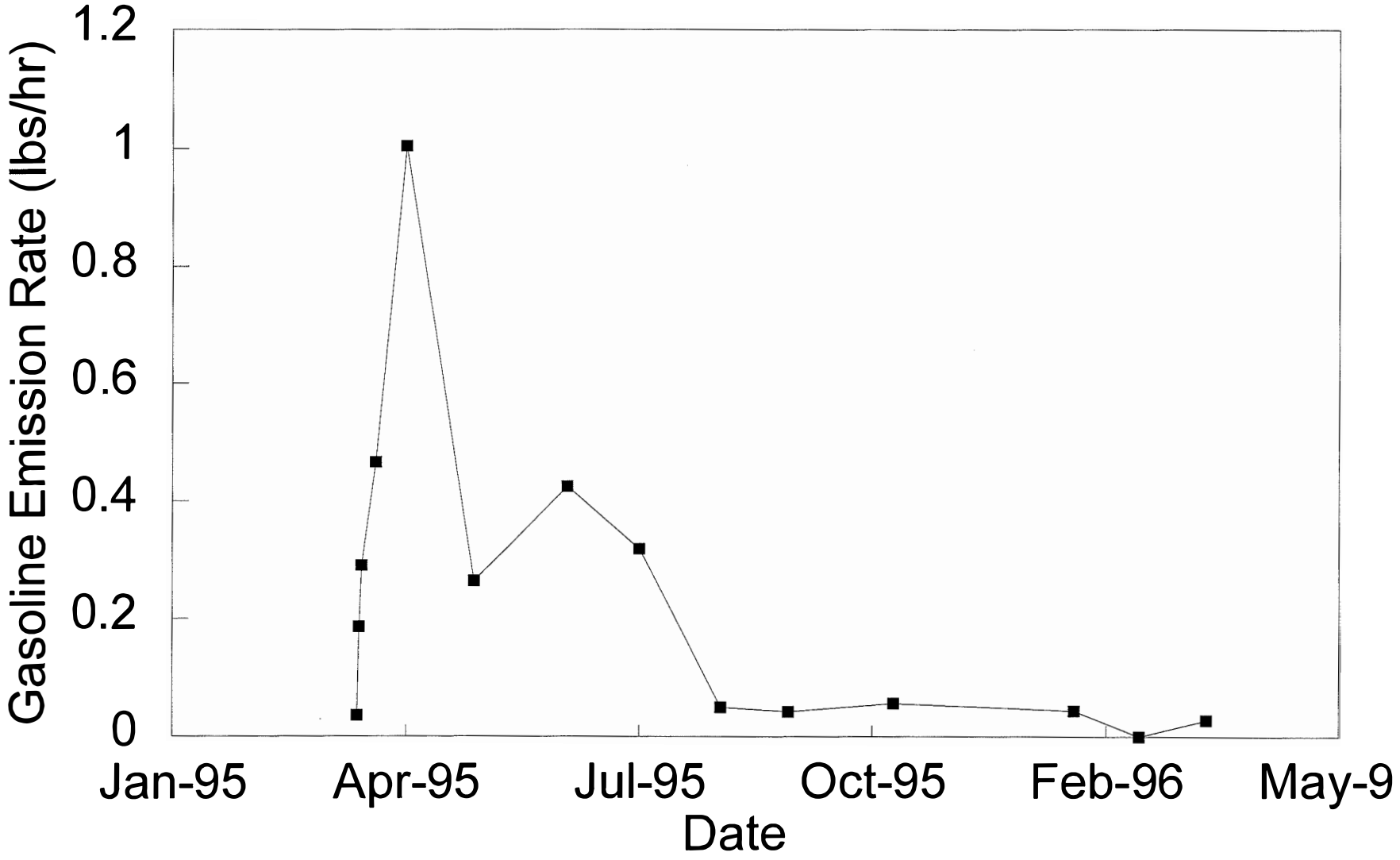


FIGURE 3

ATTACHMENT 1

PORTABLE GC RESULTS SUMMARY

Date: 3-20-96 Project Name: Shell Lake Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$<4 \times 10^{-9}$	$<5 \times 10^{-9}$	1.8×10^{-8}	4.1×10^{-8}	7.7×10^{-8}	1.4×10^{-6}	1.5×10^{-6}
Manifold (dup)	$<4 \times 10^{-9}$	$<5 \times 10^{-9}$	$<6 \times 10^{-9}$	7.2×10^{-8}	1.0×10^{-7}	1.4×10^{-6}	1.6×10^{-6}

Notes: Results to Bruce Greer. Mary Upton

Analyst: K Baker

QC: C. Spaulding

Analysis Date: 3-20-96

QC Date: 3-21-96

PORTABLE GC RESULTS SUMMARY

Date: 02-21-96 Project Name: Shell Lake Project # 10318.09

Note: All Units in lbs/ft^3

Sample ID 02-19-96	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$< 2 \times 10^{-9}$	$< 2 \times 10^{-9}$	$< 3 \times 10^{-9}$	$< 2 \times 10^{-9}$	$< 3 \times 10^{-9}$	$< 2.7 \times 10^{-8}$	$< 3.9 \times 10^{-8}$

Notes: Results to Bruce Greer.

Analyst: [signature]

QC: [signature]

Analysis Date: 02-21-96

QC Date: 2-22-96

PORTABLE GC RESULTS SUMMARY

Date: 01-23-96 Project Name: Shell Lake Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID 01-22-96	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$<1.82 \times 10^{-9}$	$<2.32 \times 10^{-9}$	$<2.75 \times 10^{-9}$	$<2.2 \times 10^{-9}$	$<3.85 \times 10^{-9}$	2.12×10^{-6}	2.12×10^{-6}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

Results to Bruce Grace

1/23/96

ETI RBA6

Date: 11-7-95

PORTABLE GC RESULTS SUMMARY

Project Name: Shell Lake

Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline	GC	Date
Manifold 11/6	–	5.59E-8	1.15E-7	2.33E-7	2.89E-7	2.23E-6	2.92E-6	KLS	11.7.95

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

file

CORRESPONDENCE/MEMORANDUM — **State of Wisconsin**

DATE: March 15, 1996 FILE REF: 4440

TO: Phyliss Holmbeck

CC:

FROM: Thomas J. Kendzierski

SUBJECT: DOT - Shell Lake ERRP # 66-00007

Please refer to RMT's request for permission for reduced air monitoring in their November 2, 1995 letter to me.

I copied what I felt was relevant regarding the SVE system from the file. Keep the paper copies for your files.

The Remedial Action Plan Report dated November 1993, which I have enclosed, was harder to copy. Please copy what you need and return the report to me as soon as you can.

Give me a call to discuss this as soon as you have had time to review it. I don't see that an air permit was applied for, was one necessary or did we miss this one?

Thanks.

RMT INC.

FAX TRANSMITTAL

RMT, INC.
744 HEARTLAND TRAIL
P.O. BOX 8923
MADISON, WI 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

February 27, 1996

Recipient Fax Number: 715-635-4057 Total # of pages: 4

To: Tom Kenderzierski Company:WDNR-Shell Lake

From: Mary Caplon 608/831-4444

Project: WDOT-Shell Lake SVE remediation system

Message:

RE: SVE Sampling frequency reduction from monthly to quarterly

The figures and laboratory reports referenced in this letter are not being transmitted with this fax. This information was included in the original letter sent to your office in November 1995. Please let me know if you need another copy of this or any other information.

call on Friday

Clipton

November 2, 1995

Mr. Tom Kendzierski
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
WDNR ERRP I.D. #66-00007
Progress Report #2

Dear Mr. Kendzierski:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system during the third quarter 1995.

The system operates continuously in automatic mode. An RMT representative visited the site monthly to perform routine system monitoring and maintenance. An autodialer, located in the control panel at the site provides remote monitoring capabilities between monthly site visits. Due to a malfunction, the autodialer was removed for repair during the July site visit. The autodialer has been operating normally since it was repaired and reinstalled in August.

Soil Vapor Extraction System

SVE Monitoring

SVE system measurements, such as vacuum flow rates and temperatures, were recorded, and vapor extraction gas samples were taken monthly during this quarter of operation. The vapor extraction well samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbons (TPH) or total gasoline. The SVE system monitoring results are summarized in Table 1, which is included in Attachment 1. In addition, the analytical laboratory reports of the vapor extraction gas samples collected during this quarter are included in Attachment 1.

SVE System Performance

The SVE system operates continuously with automatic shut-down when the SVE moisture separator high level switch is activated. The SVE system must be manually re-started after the separator tank is drained. Cumulative run time of the SVE blower is monitored and displayed on the blower hour meter located in the operator control panel. The hour meter recording taken during the monthly site visits indicates that the SVE system has operated continuously during this quarter.

During this period of SVE operation, vapors were extracted from vapor extraction wells VE-1, VE-2, VE-3, and VE-4. BTEX, TPH, and total gasoline concentrations reported in the SVE system gas samples and the airflow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

RMT, INC. — MADISON, WI
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P.O. BOX 8923 • 53708-8923
608/831-4444 608/831-3334 FAX

Figures 1 through 3, included in Attachment 1, summarize the cumulative recovery of benzene and total gasoline and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 806 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through September 22, 1995. Benzene has not detected in the off gas samples since May 1995. The gasoline emission rate of the SVE system is well below the WDNR limit of 9 lb/hr and continues to decline.

On the basis of the treatment system operating data, we are requesting approval from the WDNR to modify the off-gas sampling frequency from monthly to quarterly. The SVE system operational data will continue to be reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

TABLE 1
SVE OPERATIONS LOG

DOT - SHELL LAKE
HELL LAKE, WISCONSIN
ROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 20-Nov-95

	OPERATIONAL DATA				LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
2-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
9-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	86.4	
3-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
9-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
0-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
2-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	

OTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

Rib KRRP #7

PHONE CONVERSATION RECORD

DATE: 2/21/96
TIME: 14:21

CONVERSED WITH: MARY CARLON RMT RISN
608 831-4444

SUBJECT/PROJECT: SHALL LAKE DOT SITE

UNIQUE ID#.:

RMT REQUESTED REDUCTION IN SAMPLING FREQUENCY AT SITE, IN NOVEMBER. NEEDS A RESPONSE FROM DNR.
REDUCTION IN AIR SAMPLING REFERRED HER TO JIM ROSS

Signature: Tom Radzinski
(please write legibly)

November 2, 1995

Mr. Tom Kendzierski
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
WDNR ERRP I.D. #66-00007
Progress Report #2

Dear Mr. Kendzierski:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system during the third quarter 1995.

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Soil Vapor Extraction System

SVE Monitoring

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During this period of SVE operation, vapors were extracted from vapor extraction wells VE-1, VE-2, VE-3, and VE-4. BTEX, TPH, and total gasoline concentrations reported in the SVE system gas samples and the airflow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

RMT, INC. — MADISON, WI
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608/831-4444 - 608/831-3334 FAX

Figures 1 through 3, included in Attachment 1, summarize the cumulative recovery of benzene and total gasoline and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 808 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through September 22, 1995. Benzene has not detected in the off gas samples since May 1995. The gasoline emission rate of the SVE system is well below the WDNR limit of 9 lb/hr and continues to decline.

On the basis of the treatment system operating data, we are requesting approval from the WDNR to modify the off-gas sampling frequency from monthly to quarterly. The SVE system operational data will continue to be reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

ATTACHMENT 1

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 24-Oct-95

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
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29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
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10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
20-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
24-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
22-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

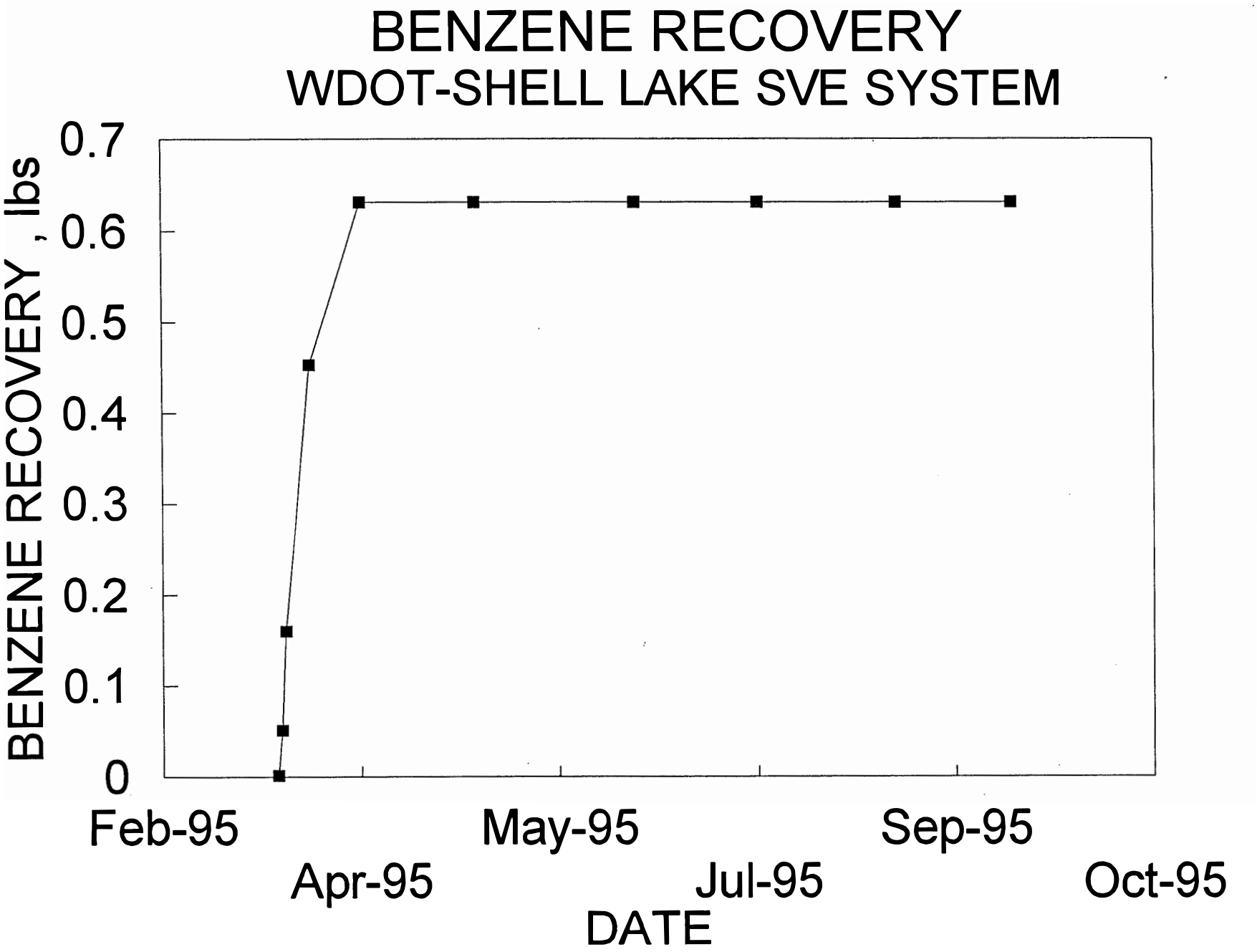
BENZENE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
BENZENE RECOVERY , lbs
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
DATE

FIGURE 1

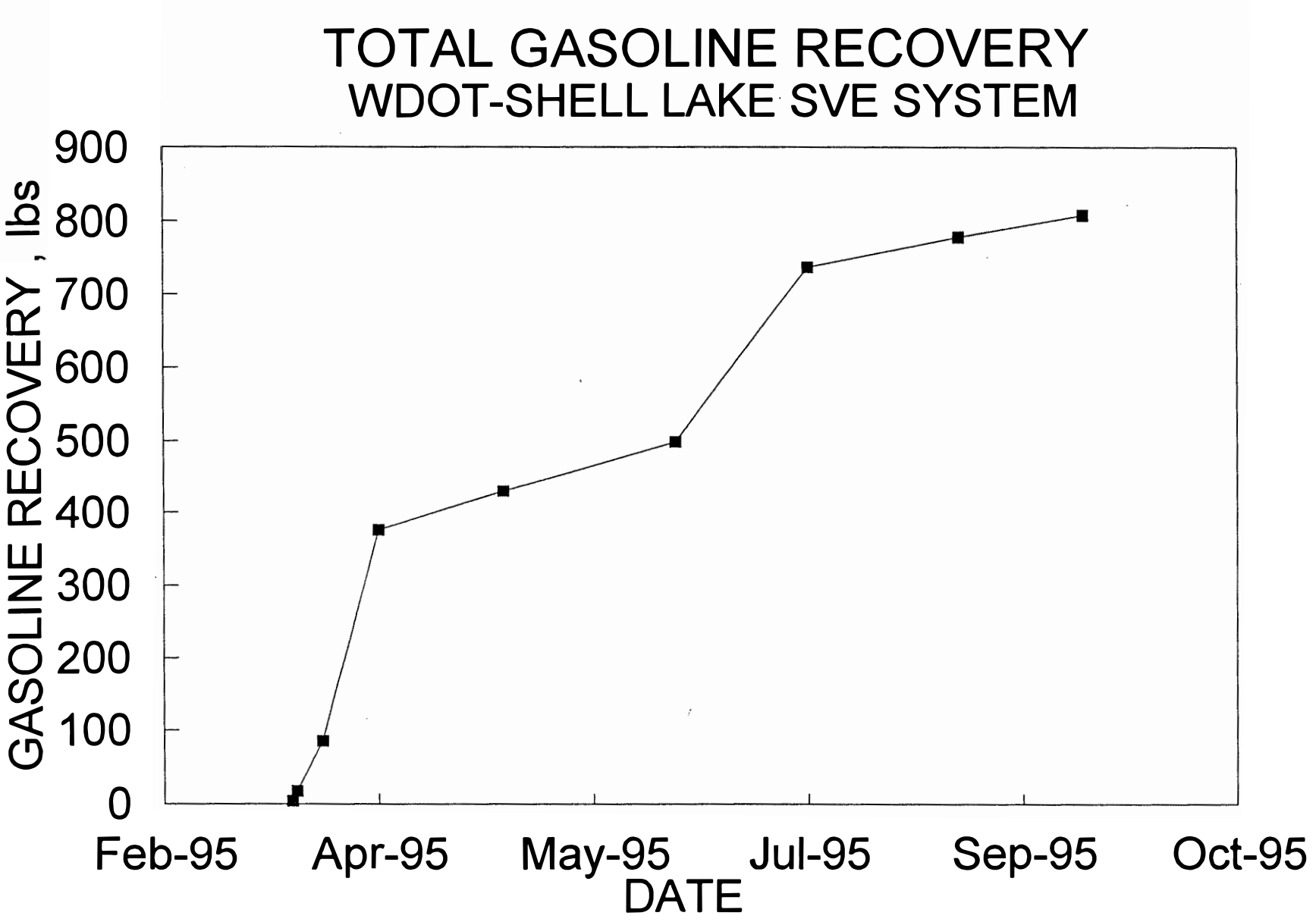
TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
GASOLINE RECOVERY , lbs
900
800
700
600
500
400
300
200
100
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
DATE

FIGURE 2

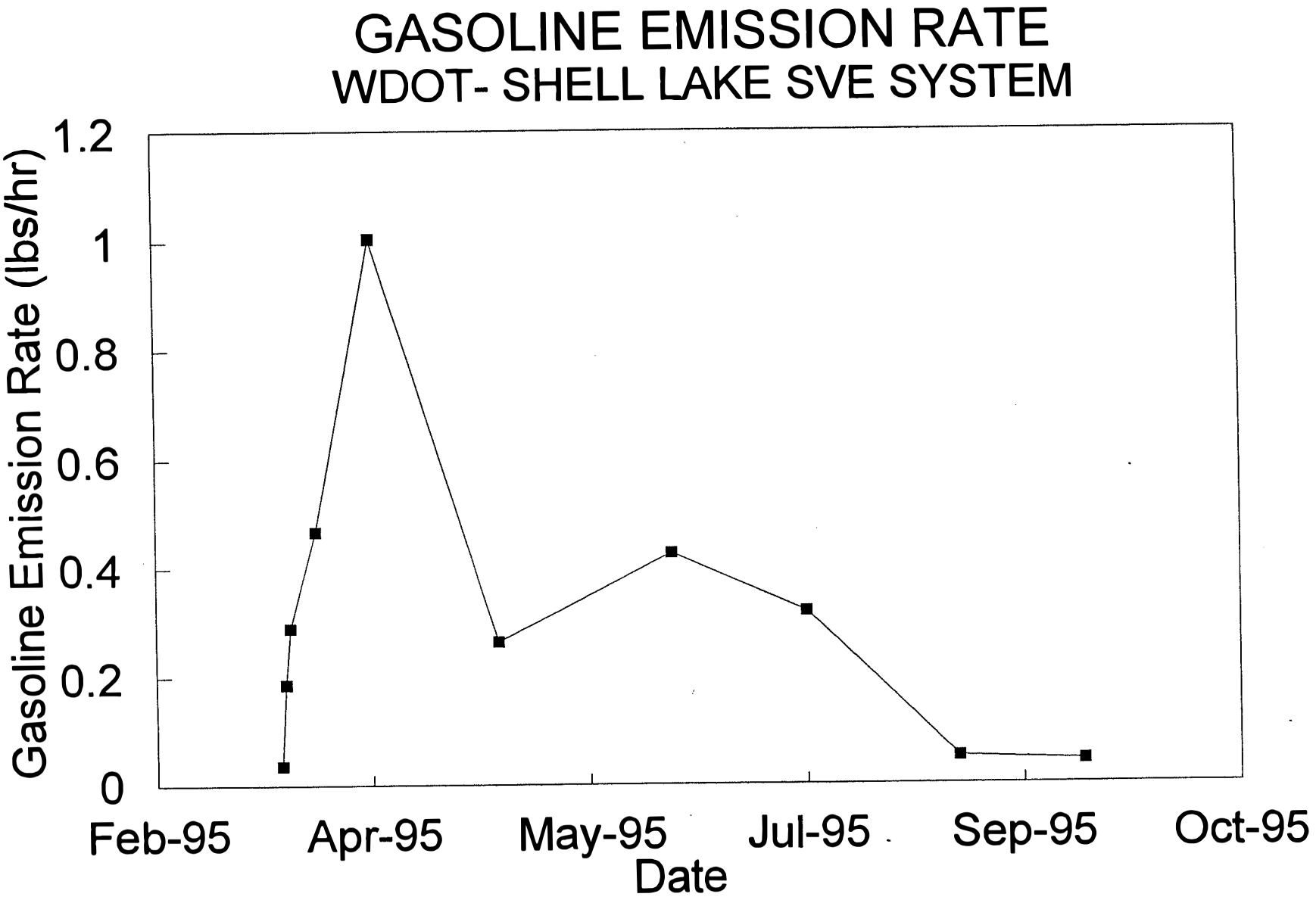
GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM
Gasoline Emission Rate (lbs/hr)
1.2
1
0.8
0.6
0.4
0.2
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
Date

FIGURE 3

PORTABLE GC RESULTS SUMMARY

Date: 07-21-95

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 07-20-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold 3:05pm	ND	4.06×10^{-7}	ND	3.3×10^{-7}	2.17×10^{-7}	1.55×10^{-5}	1.65×10^{-5}
(TNT DUP) Manifold 3:05pm	ND	4.06×10^{-7}	ND	4.4×10^{-7}	3.03×10^{-7}	1.66×10^{-5}	1.77×10^{-5}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

Rcd
7/24/95

Report No.: 95.028
Report Date: August 25, 1995
ECCS PN: 1187

Client Name: RMT, Inc.
744 Heartland Trail
P.O. Box 8923
Madison, WI 53708-8923

Attention: Dick Fish

Project Name: WDOT Shell Lake
RMT Project: 10318.04

Date Collected: 08/24/95
Date Received: 08/24/95
Date Analyzed: 08/24/95

Sample Description	Benzene (0.2 ug/L)	Toluene (0.2 ug/L)	Ethyl Benzene (0.2 ug/L)	Xylenes (0.4 ug/L)	Total Hydrocarbon* (.4 ug/L*)
Manifold	<0.2	<0.2	<0.2	3.5	31

Method detection limit given in parenthesis below compound name.
ug/L = micro-grams per liter (weight/volume) = mg/cubic meter
* Calculated based on the average response factor of BTEX.

Analysis by GC-FID.

Approved by:

Michael Linskens

Michael J. Linskens
Senior Chemist

cc: Mary Caplon

Environmental Chemistry Consulting Services, Inc.
6414 Copps Avenue, #201 • Madison, Wisconsin 53716 • Phone 608-221-8700 • FAX (608) 221-4889

Date: 9-22-95

PORTABLE GC RESULTS SUMMARY

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	-	1.0E-7	1.4E-7	3.9E-7	2.9E-7	1.3E-6	2.2E-6

B.G.

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QC'd 9-22-95
KKS

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer, Secretary
William H. Smith, District Director

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

NORTHWEST DISTRICT HEADQUARTERS
P.O. Box 309
STH 70 West & First Street
Spooner, Wisconsin 54801
TELEPHONE 715-635-2101
TELEFAX 715-635-4013

September 26, 1995

MR KEVIN GEHRMANN
WISCONSIN DEPARTMENT OF TRANSPORTATION
RISK AND SAFETY MANAGEMENT
4802 SHEBOYGAN AVENUE
PO BOX 7915
MADISON WI 53707-7915

SUBJECT: SHELL LAKE PROPERTY, USH 63, SHELL LAKE WI
WDNR ERRP ID #66-00007

Dear Mr Gehrmann:

The Department of Natural Resources received your progress report on the remediation system dated August 1, 1995.

The case has also been assigned a different ID number (WDNR ERRP #66-00007) -- please be sure that you and your consultant use this number on all correspondence and reports sent to the Department regarding this site. All submittals should be directed to:

Wisconsin Department of Natural Resources
Attn: Tom Kendzierski
STH 70 West & First Street, P.O. Box 309
Spooner, WI 54801

If you have any questions concerning this letter, please contact me at (715) 635-4057.

Sincerely,

Tom Kendzierski
Hydrogeologist Supervisor

kb

c: Mary Caplon/Richard Fish
RMT Inc
744 Hartland Trail
PO Box 8923
Madison WI 53708-8923

C. MARC HERSCHFIELD
DOT

TC 9/19/95 unassigned high Shauna

August 1, 1995

1-6
2-0
3-0
4-8
5-8
22

REC
AUG
CUM
AREA HQ.

Mr. James A. Hosch
Wisconsin Department of Natural Resources
P.O. Box 397
Cumberland, WI 54829

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
Progress Report #1

Dear Mr. Hosch:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system through June 1995.

The system operates continuously in automatic mode. An RMT representative visited the site as required under NR 419 during the first month of operation to perform initial system monitoring and maintenance and to measure water levels in monitoring wells. Following the first month of the overall remediation system operation, site visits were scheduled on a monthly basis.

Soil Vapor Extraction System

SVE Monitoring

SVE system operation measurements, such as vacuum flow rates and temperatures, and vapor extraction gas samples were taken the first 3 days of the SVE operation, weekly for the following 2 weeks, and monthly thereafter. The vapor extraction well samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbons (TPH) or total gasoline. The SVE system monitoring results are summarized in Table 1, which is included in Attachment 1. In addition, the analytical laboratory reports of the vapor extraction gas samples collected during this quarter are included in Attachment 1.

SVE System Performance

The SVE system operates continuously with automatic shut-down when the SVE moisture separator tank is full. The system has shut down three times since start-up due to a high level alarm in the moisture tank. The SVE system must be manually re-started after the separator tank is drained. The cumulative run time of the SVE blower is monitored and displayed on the blower hour meter located in the operator control panel. The system has operated for a total of 850 hours since start-up.

During this period of SVE operation, vapors were extracted from vapor extraction wells VE-1, VE-2, VE-3, and VE-4. BTEX, TPH, and total gasoline concentrations reported in the SVE system gas samples and the air flow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

RMT, INC.

RMT, INC. – MADISON, WI
744 HEARTLAND TRAIL = 53717-1934
P.O. BOX 8923 = 53708-8923
608/831-4444 = 608/831-3334 FAX

Figures 1 through 3 included in Attachment 1, summarize the cumulative recovery of benzene and total gasoline and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 500 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through June 19, 1995. The gasoline emission rate of the SVE system is well below the WDNR limits of 9 lb/hr.

On the basis of the analytical and monitoring data obtained from the first quarter of the system operation, the SVE system is effectively extracting petroleum-contaminated vapors from the subsurface at the site. The SVE system will continue to operate in continuous automatic mode and will continue to be monitored monthly and reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

ATTACHMENT 1

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 18-Jul-95

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

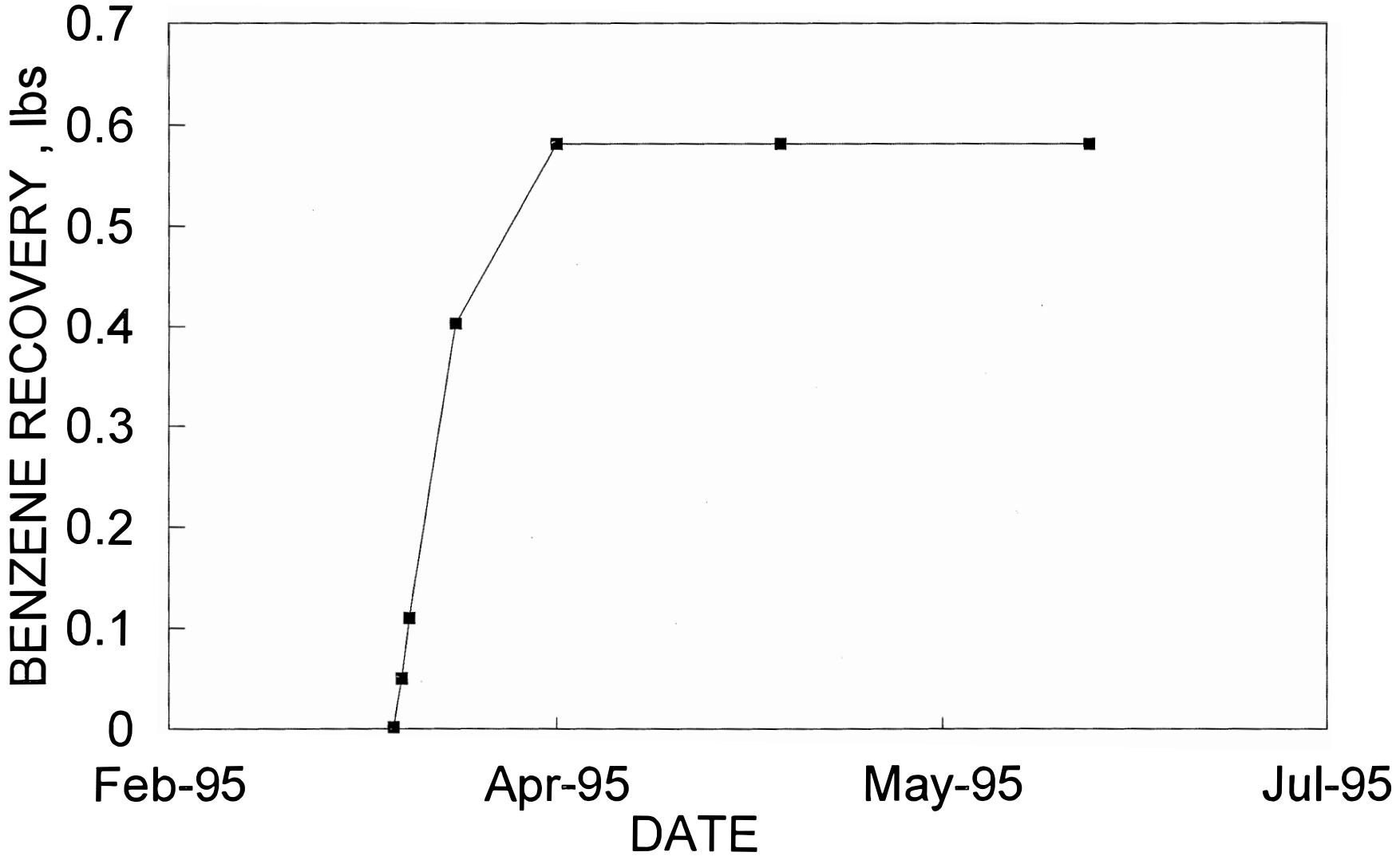
BENZENE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
BENZENE RECOVERY , lbs
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Feb-95
Apr-95
May-95
Jul-95
DATE

FIGURE 1

TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM

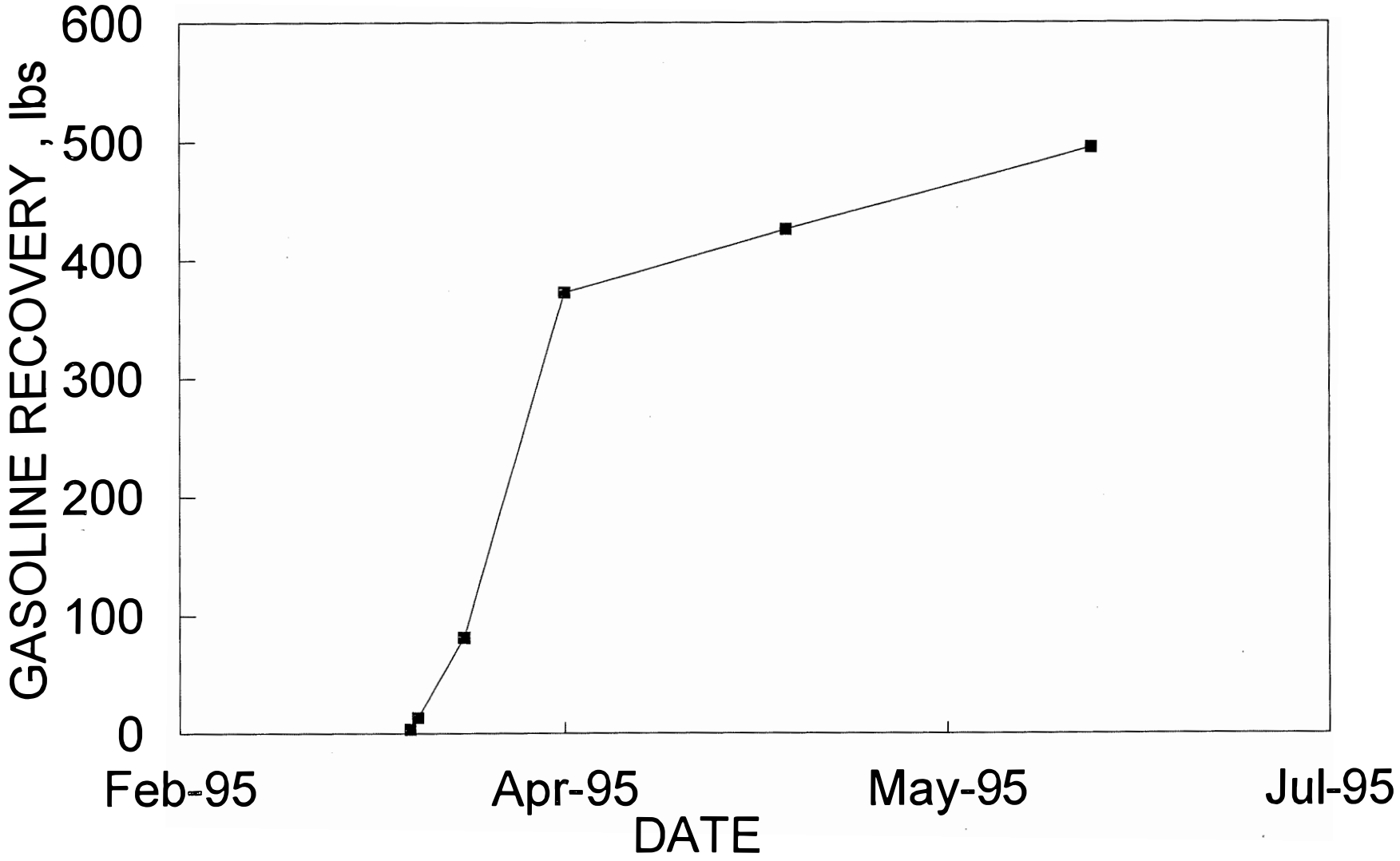

FIGURE 2

GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM

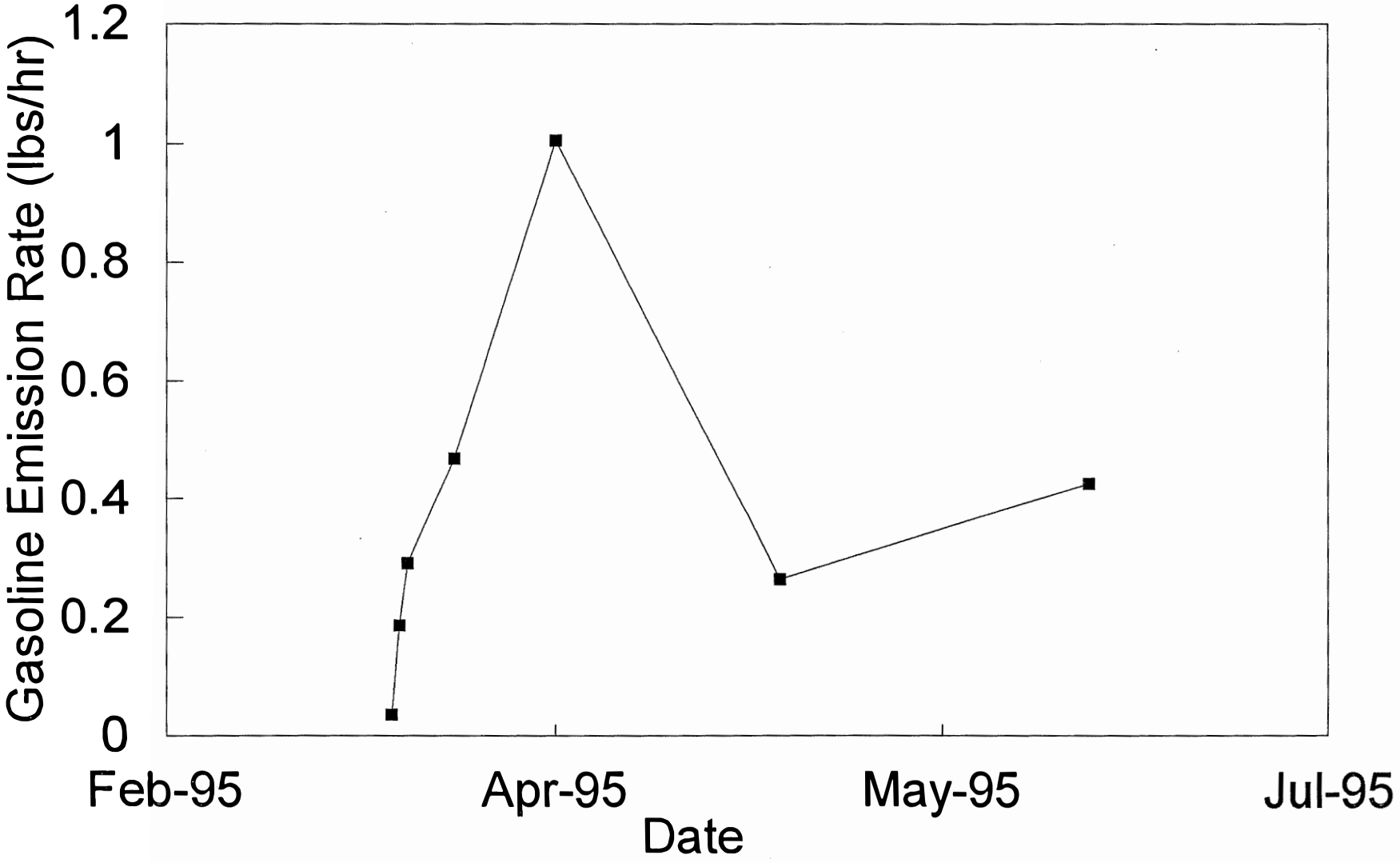

FIGURE 3

Bruce Greer

PORTABLE GC RESULTS SUMMARY

Date: 06-20-95

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 06-19-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold 11:35AM	ND	4.78×10^{-7}	8.25×10^{-8}	9.08×10^{-8}	1.1×10^{-7}	1.30×10^{-5}	1.38×10^{-5}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 6.20.95
ems

Date: 5.12.95

PORTABLE GC RESULTS SUMMARY

Project Name: ~~O'Gorman Project~~ Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 5.10.95 2) 3pm	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	ND	5.9×10^{-7}	8.0×10^{-8}	9.3×10^{-8}	1.0×10^{-7}	8.0×10^{-6}	8.9×10^{-6}

B1'

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QC'd 5/15

WW

04

PORTABLE GC RESULTS SUMMARY

Date: 04-12-95 Project Name: Shell Lake Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 04-11-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
2:00 P.M. sc-pl	2.07×10^{-8}	1.29×10^{-6}	3.03×10^{-7}	3.30×10^{-7}	2.31×10^{-7}	3.16×10^{-5}	3.38×10^{-5}

Notes:
BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).
ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 4.13.95

Date: 3-30-95

PORTABLE GC RESULTS SUMMARY

Project Name: WDOT Shell Sale

10318.04
Project #

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	TotalGasoline
12:30 Sample	6.3E-8	1.10E-6	1.49E-7	2.34E-7	9.8E-8	1.30E-5	1.46E-5

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 3.30.95

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-228
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 23, 1995
Date Received: March 24, 1995
Date Analyzed: March 24, 1995

Parameter:

Detection Limit:	Benzene 0.1 µg/L	Toluene 0.1 µg/L	Ethyl Benzene 0.2 µg/L	Xylenes 0.5 µg/L	*Total Petroleum Hydrocarbon 1 µg/L
Discharge Air	1.2	6.1	0.8	2.7	150

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl HNS
Manager, Analytical Services

RMT INC.
LABORATORIES

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Fox Valley, WI
Columbus, OH
Milwaukee, WI

Nashville, TN
Greenville, SC

Augusta, GA
Lansing, MI

Chicago, IL
Los Angeles, CA

Cincinnati, OH
Madison, WI

F-268 (R2/92)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

228 **№ 054544**

Bottles Prepared by: | Date/Time

Project No.: 10318.04

Client: WisDOT - Shell Lake

Lab No.	Date (Yr. 95)	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 6 GLASS BULB	Filtered (Yes/No)	Preserved (Code)	MATRIX	Comments
	3/23	11:00 a.m.	DISCHARGE AIR	1	1			AIR	ANALYZE FOR BTEX & TPH.

Code: A - None
B - HNO3
C - H_2SO_4
D - NaOH
E - HCl
F - _____

RESULTS TO:
BRUCE GREER @
RMT IN MADISON
608/831-4444 x 3194

SAMPLER
Relinquished by (Sig.) ① Mark E. Rowe — Date/Time 3/23/95 11:50 a.m.

Received by (Sig.) ② — Shipper Name & # — Date/Time

Relinquished by (Sig.) ③ — Date/Time

Received by (Sig.) ④ Bruce Greer — Shipper Name & # PE — Date/Time 3-24-95 1030

Relinquished by (Sig.) ⑤ — Date/Time

Received by (Sig.) ⑥ — Shipper Name & # — Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)
Receipt Temp _____ Receipt pH _____ _____ _____

Custody Seal | Present/Absent | Seal | Intact/Not Intact | Seal #'s

WHITE - LABORATORY COPY YELLOW - REPORT APPENDIX PINK - SAMPLER/SUBMITTER

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-221
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 22, 1995
Date Received: March 23, 1995
Date Analyzed: March 23, 1995

Parameter:

	Benzene	Toluene	Ethyl Benzene	Xylenes	*Total Petroleum Hydrocarbon
Detection Limit:	0.1 µg/L	0.1 µg/L	0.2 µg/L	0.5 µg/L	1 µg/L
Discharge Air	1.3	6.1	1.1	2.9	100

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl HNS
Manager, Analytical Services

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

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Santa Monica, CA
Atlanta, GA
Baton Rouge, LA
Troy, MI

Grand Ledge, MI
[illegible]ille, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, WI

CHAIN OF CUSTODY RECORD

221 Sample Type: (GW, WW, SW, Soil, Air, Other) **№ 032950**

Bottles Prepared by:	Date/Time	Office Code: (State)

Project No.	Client:
10318-04	WisDOT - Shell Lake

RMT Lab NO.	Yr. 95 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: Glass Bulb	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments
	3/22	10:40	Shell Lake Discharge Air	1	1				Analyze for BTEX & TPH

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

Report Analytical Results To:
Bruce Breer @ RMT
in Madison.
608/831-4444. x 3194

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Mark E. LaRowe	3/22/95 11:05 am.	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Bruce Breer Shipper Name & # BC	Date/Time 3/23/95 1000
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #	Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp _____ Receipt pH _____

Client P.O. Number _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

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

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-209
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 21, 1995
Date Received: March 22, 1995
Date Analyzed: March 22, 1995

Parameter:

	Benzene	Toluene	Ethyl Benzene	Xylenes	*Total Petroleum Hydrocarbon
Detection Limit:	0.1 µg/L	0.1 µg/L	0.2 µg/L	0.5 µg/L	1 µg/L
Discharge Air	0.2	0.9	0.3	ND	18

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl RRD
Manager, Analytical Services

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

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Santa Monica, CA
Atlanta, GA
Baton Rouge, LA
Troy, MI

Grand Ledge, MI
[illegible]ille, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, WI

CHAIN OF CUSTODY RECORD

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

№ 032951 209

Bottles Prepared by: | Date/Time | Office Code: (State)

Project No.: 10318-04

Client: WIS DOT - SHELL LAKE

Container Inventory: WASH BULB

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: 95 Date	Time	Sample Station ID	Total Number Of Containers		Comments:
	3/21	10:40	SHELL LAKE DISCHARGE AIR	1	1	ANALYZE FOR BTEX AND TPH

RESULTS TO:
BRUCE GREER @ RMT
IN MADISON
608/831-1989 x 3366

	Date/Time		Date/Time
SAMPLER Relinquished by (Sig.) ① Mark E. LaRose	3/24/95 11:40 AM	Received by (Sig.) ② Shipper Name & # Precision	3/24/95 1000
Relinquished by (Sig.) ③		Received by (Sig.) ④ Shipper Name & #	
Relinquished by (Sig.) ⑤		Received by (Sig.) ⑥ Shipper Name & #	

HAZARDS ASSOCIATED WITH SAMPLES

PETROLEUM VOLATILES

(For Lab Use Only)

Receipt Temp ____ Receipt pH ____

Client P.O. Number ____

Subsequent Analysis: ____ (Check)

Date Resubmitted ____

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

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.05

File: Shellmar.wk1
By: MRC
Revision: 15-Apr-96

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
20-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
24-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
22-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	
06-Nov-95	58	1.5	100	4210.76	ND	2.92E-06	323	0.0E+00	5.7E-02	0.63	870.7	Note 3.
22-Jan-96	58	1.8	90	4210.76	ND	2.12E-06	346	0.0E+00	4.4E-02	0.63	948.2	
19-Feb-96	58	1.8	92	5974.24	ND	ND	346	0.0E+00	0.0E+00	0.63	948.2	
19-Mar-96	58	1.3	94	6657.27	ND	1.60E-06	293	0.0E+00	2.8E-02	0.63	967.4	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.
3. System was down December 1995.

TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM

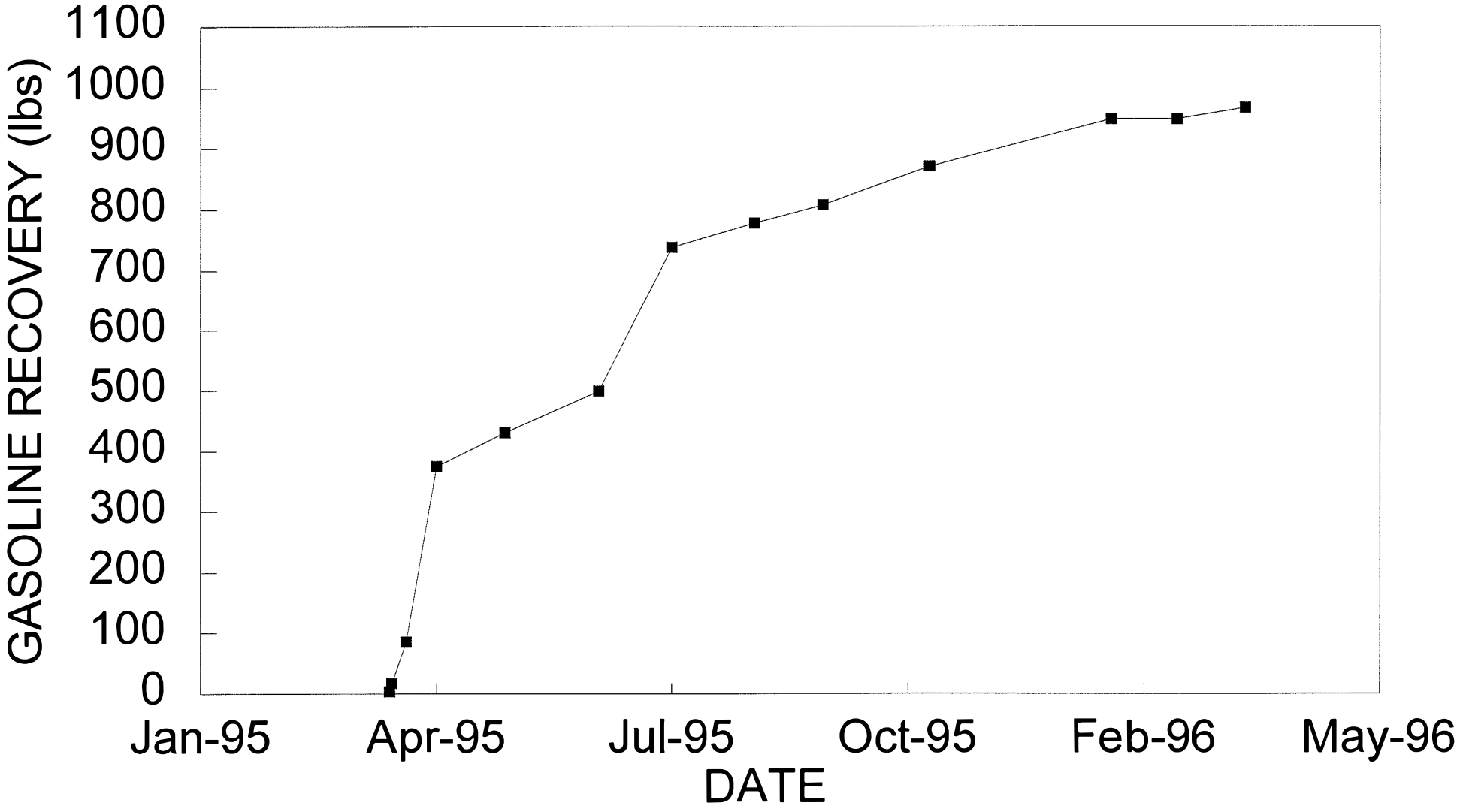

FIGURE 2

GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM

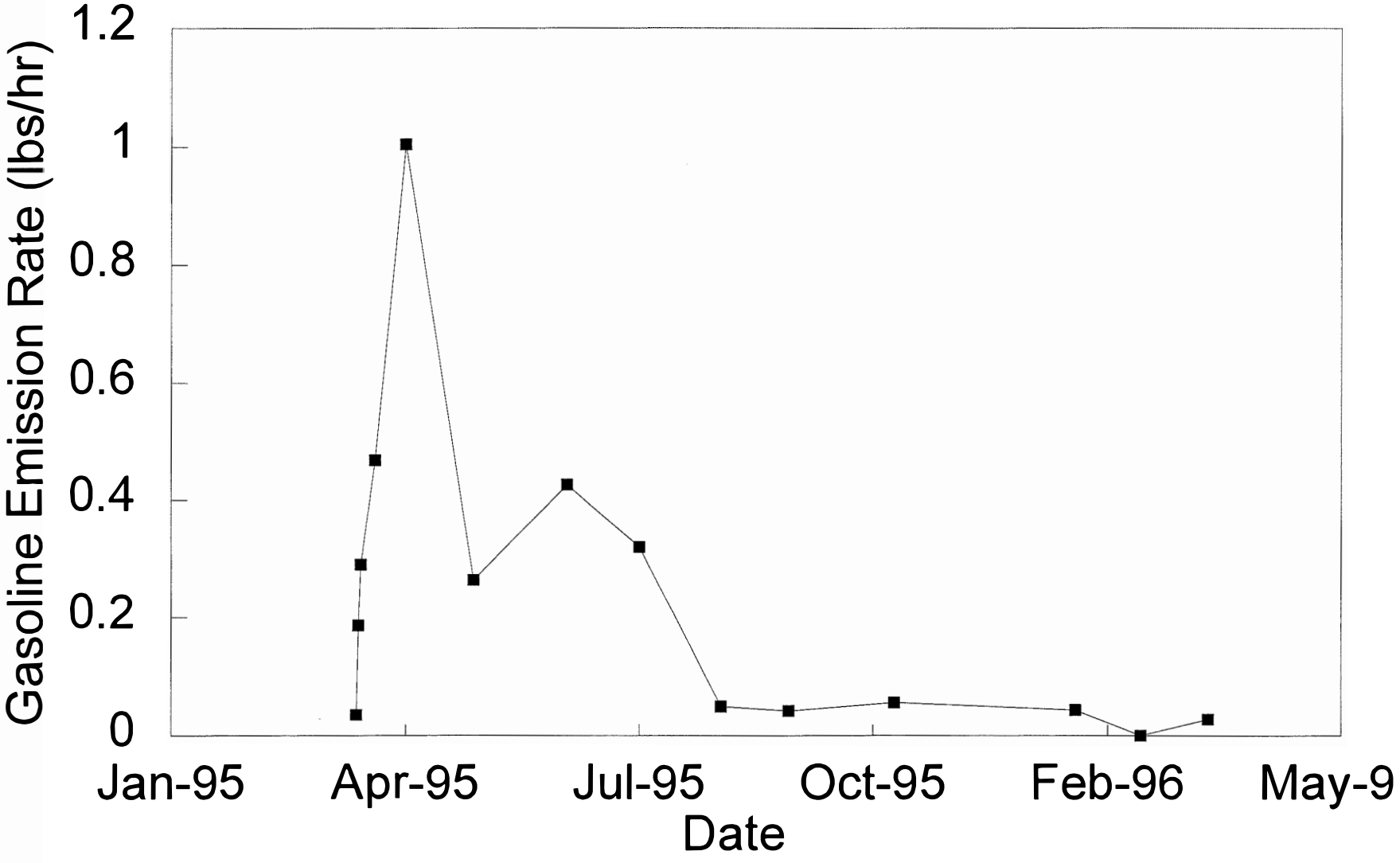

FIGURE 3

ATTACHMENT 1

PORTABLE GC RESULTS SUMMARY

Date: 3-20-96 Project Name: Shell Lake Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$<4 \times 10^{-9}$	$<5 \times 10^{-9}$	1.8×10^{-8}	4.1×10^{-8}	7.7×10^{-8}	1.4×10^{-6}	1.5×10^{-6}
Manifold (dup)	$<4 \times 10^{-9}$	$<5 \times 10^{-9}$	$<6 \times 10^{-9}$	7.2×10^{-8}	1.0×10^{-7}	1.4×10^{-6}	1.6×10^{-6}

Notes: Results to Bruce Greer. Mary Taylor

Analyst: K Baker

QC: C. Spaulding

Analysis Date: 3-20-96

QC Date: 3-21-96

PORTABLE GC RESULTS SUMMARY

Date: 02-21-96 Project Name: Shell Lake Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID 02-19-96	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$< 2 \times 10^{-9}$	$< 2 \times 10^{-9}$	$< 3 \times 10^{-9}$	$< 2 \times 10^{-9}$	$< 3 \times 10^{-9}$	$< 2.7 \times 10^{-8}$	$< 3.9 \times 10^{-8}$

Notes: Results to Bruce Greer.

Analyst: [signature]

QC: [signature]

Analysis Date: 02-21-96

QC Date: 2-22-96

PORTABLE GC RESULTS SUMMARY

Date: 01-23-96 Project Name: Shell Lake Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID 01-22-96	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	$<1.82 \times 10^{-9}$	$<2.32 \times 10^{-9}$	$<2.75 \times 10^{-9}$	$<2.2 \times 10^{-9}$	$<3.85 \times 10^{-9}$	2.12×10^{-6}	2.12×10^{-6}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

Results to Bruce Greer

1/23/96

ETI BA6

Date: 11-7-95

PORTABLE GC RESULTS SUMMARY

Project Name: Shell Lake

Project # 10318.05

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline	GC	Date
Manifold 1/6	–	5.59E-8	1.15E-7	2.33E-7	2.89E-7	2.23E-6	2.92E-6	KLS	11. 7.95

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

file

CORRESPONDENCE/MEMORANDUM — **State of Wisconsin**

DATE: March 15, 1996 FILE REF: 4440

TO: Phyliss Holmbeck

CC:

FROM: Thomas J. Kendzierski

SUBJECT: DOT - Shell Lake ERRP # 66-00007

Please refer to RMT's request for permission for reduced air monitoring in their November 2, 1995 letter to me.

I copied what I felt was relevant regarding the SVE system from the file. Keep the paper copies for your files.

The Remedial Action Plan Report dated November 1993, which I have enclosed, was harder to copy. Please copy what you need and return the report to me as soon as you can.

Give me a call to discuss this as soon as you have had time to review it. I don't see that an air permit was applied for, was one necessary or did we miss this one?

Thanks.

RMT INC.

FAX TRANSMITTAL

RMT, INC.
744 HEARTLAND TRAIL
P.O. BOX 8923
MADISON, WI 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

February 27, 1996

Recipient Fax Number: 715-635-4057 Total # of pages: 4

To: Tom Kenderzierski Company:WDNR-Shell Lake

From: Mary Caplon 608/831-4444

Project: WDOT-Shell Lake SVE remediation system

Message:

RE: SVE Sampling frequency reduction from monthly to quarterly

The figures and laboratory reports referenced in this letter are not being transmitted with this fax. This information was included in the original letter sent to your office in November 1995. Please let me know if you need another copy of this or any other information.

call on Friday

Clipboard

November 2, 1995

Mr. Tom Kendzierski
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
WDNR ERRP I.D. #66-00007
Progress Report #2

Dear Mr. Kendzierski:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system during the third quarter 1995

The system operates continuously in automatic mode. An RMT representative visited the site monthly to perform routine system monitoring and maintenance. An autodialer, located in the control panel at the site provides remote monitoring capabilities between monthly site visits. Due to a malfunction, the autodialer was removed for repair during the July site visit. The autodialer has been operating normally since it was repaired and reinstalled in August.

Soil Vapor Extraction System

SVE Monitoring

SVE system measurements, such as vacuum flow rates and temperatures, were recorded; and vapor extraction gas samples were taken monthly during this quarter of operation. The vapor extraction well samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbons (TPH) or total gasoline. The SVE system monitoring results are summarized in Table 1, which is included in Attachment 1. In addition, the analytical laboratory reports of the vapor extraction gas samples collected during this quarter are included in Attachment 1.

SVE System Performance

The SVE system operates continuously with automatic shut-down when the SVE moisture separator high level switch is activated. The SVE system must be manually re-started after the separator tank is drained. Cumulative run time of the SVE blower is monitored and displayed on the blower hour meter located in the operator control panel. The hour meter recording taken during the monthly site visits indicates that the SVE system has operated continuously during this quarter.

During this period of SVE operation, vapors were extracted from vapor extraction wells: VE-1, VE-2, VE-3, and VE-4. BTEX, TPH, and total gasoline concentrations reported in the SVE system gas samples and the airflow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

RMT, INC. – MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 608/831-3334 FAX

Figures 1 through 3, included in Attachment 1, summarize the cumulative recovery of benzene and total gasoline and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 806 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through September 22, 1995. Benzene has not detected in the off gas samples since May 1995. The gasoline emission rate of the SVE system is well below the WDNR limit of 9 lb/hr and continues to decline.

On the basis of the treatment system operating data, we are requesting approval from the WDNR to modify the off-gas sampling frequency from monthly to quarterly. The SVE system operational data will continue to be reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 20-Nov-95

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (in w.c.)	Diff. Pressure (in w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.51	5.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
20-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
24-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
22-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

file ERRP #7

PHONE CONVERSATION RECORD

DATE: 2/21/96
TIME: 14:21

CONVERSED WITH: MARY CARLON RMT MSN
608 831-4444

SUBJECT/PROJECT: SHELL LAKE DOT SITE

UNIQUE ID#.:

RMT REQUESTED REDUCTION IN SAMPLING FREQUENCY AT SITE, IN NOVEMBER. NEEDS A RESPONSE FROM DNR.
REDUCTION IN AIR SAMPLING REQUESTED HER TO JIM ROSS

Signature: Tom Radzevich
(please write legibly)

November 2, 1995

Mr. Tom Kendzierski
Wisconsin Department of Natural Resources
P.O. Box 309
Spooner, WI 54801

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
WDNR ERRP I.D. #66-00007
Progress Report #2

Dear Mr. Kendzierski:

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The SVE system operates continuously with automatic shut-down when the SVE moisture separator high level switch is activated. The SVE system must be manually re-started after the separator tank is drained. Cumulative run time of the SVE blower is monitored and displayed on the blower hour meter located in the operator control panel. The hour meter recording taken during the monthly site visits indicates that the SVE system has operated continuously during this quarter.

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RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

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On the basis of the treatment system operating data, we are requesting approval from the WDNR to modify the off-gas sampling frequency from monthly to quarterly. The SVE system operational data will continue to be reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

ATTACHMENT 1

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 24-Oct-95

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	
20-Jul-95	54	1.5	108	1594.86	ND	1.65E-05	323	0.0E+00	3.2E-01	0.63	737.4	
24-Aug-95	77	2.5	110	2410.93	ND	1.93E-06	432	0.0E+00	5.0E-02	0.63	778.3	Note 2.
22-Sep-95	72	1.5	82	3099.35	ND	2.20E-06	324	0.0E+00	4.3E-02	0.63	807.8	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

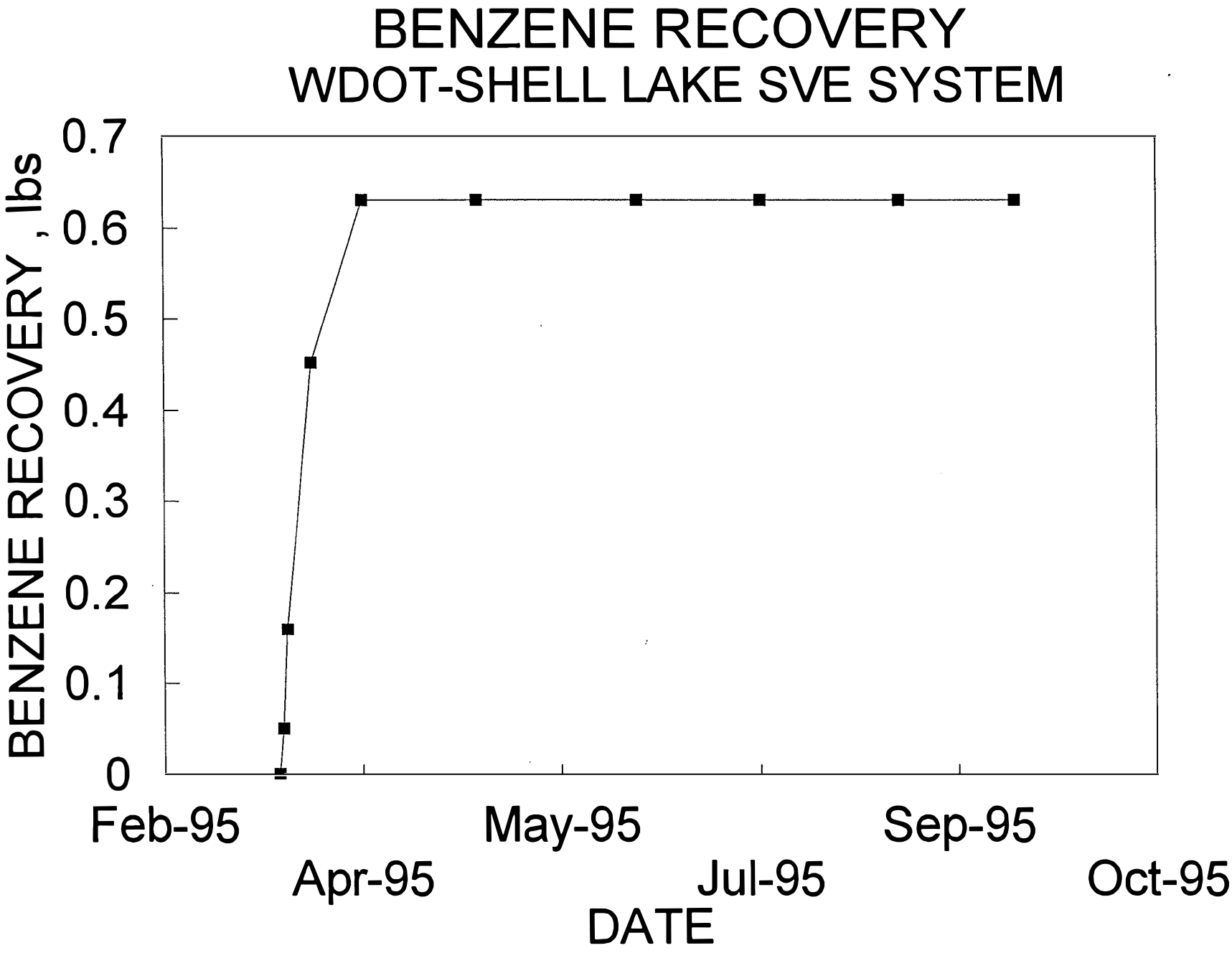

BENZENE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
BENZENE RECOVERY , lbs
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
DATE

FIGURE 1

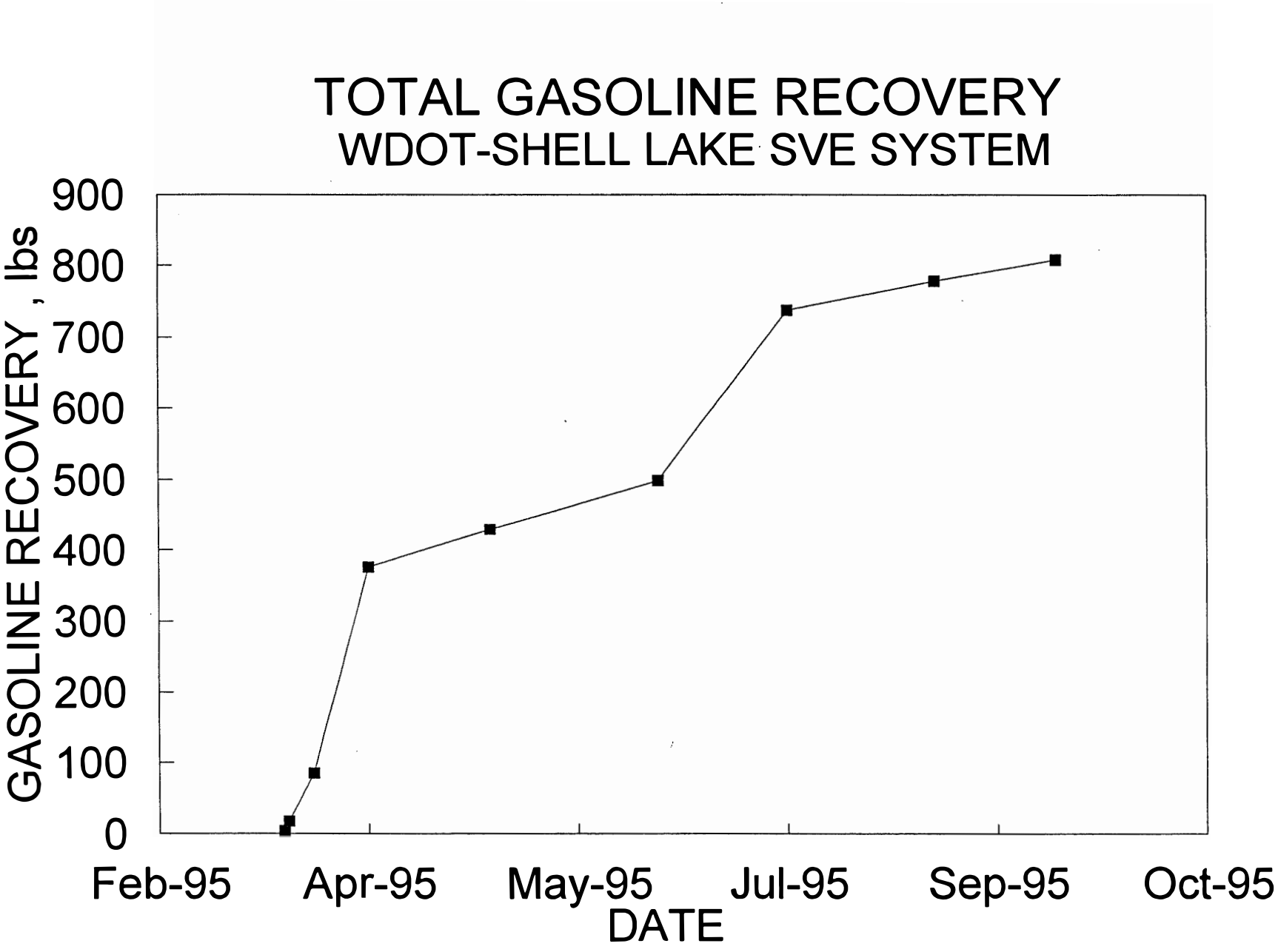

TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
GASOLINE RECOVERY , lbs
900
800
700
600
500
400
300
200
100
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
DATE

FIGURE 2

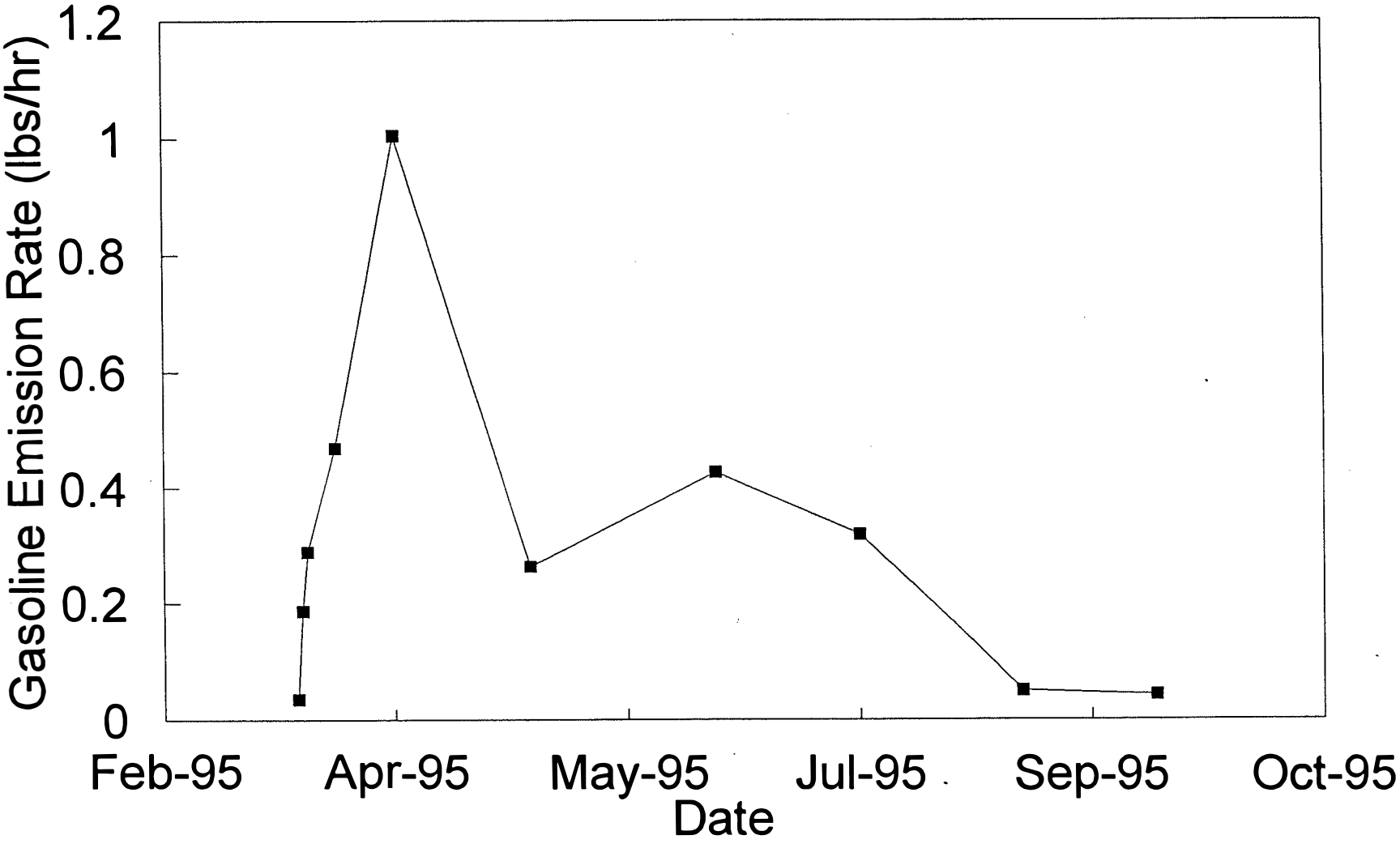

GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM
Gasoline Emission Rate (lbs/hr)
1.2
1
0.8
0.6
0.4
0.2
0
Feb-95
Apr-95
May-95
Jul-95
Sep-95
Oct-95
Date

FIGURE 3

PORTABLE GC RESULTS SUMMARY

Date: 07-21-95 Project Name: Shell Lake Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 07-20-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
manifold 3:05pm	ND	4.06×10^{-7}	ND	3.3×10^{-7}	2.17×10^{-7}	1.55×10^{-5}	1.65×10^{-5}
manifold 3:05pm	ND	4.06×10^{-7}	ND	4.4×10^{-7}	3.03×10^{-7}	1.66×10^{-5}	1.77×10^{-5}

(TMS D-8)

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

Ed
7/24/95

Report No.: 95.028
Report Date: August 25, 1995
ECCS PN: 1187

Client Name: RMT, Inc.
744 Heartland Trail
P.O. Box 8923
Madison, WI 53708-8923

Attention: Dick Fish

Project Name: WDOT Shell Lake
RMT Project: 10318.04

Date Collected: 08/24/95
Date Received: 08/24/95
Date Analyzed: 08/24/95

Sample Description	Benzene (0.2 ug/L)	Toluene (0.2 ug/L)	Ethyl Benzene (0.2 ug/L)	Xylenes (0.4 ug/L)	Total Hydrocarbon* (.4 ug/L*)
Manifold	<0.2	<0.2	<0.2	3.5	31

Method detection limit given in parenthesis below compound name.
ug/L = micro-grams per liter (weight/volume) = mg/cubic meter
* Calculated based on the average response factor of BTEX.

Analysis by GC-FID.

Approved by:

Michael Linskens

Michael J. Linskens
Senior Chemist

cc: Mary Caplon

Environmental Chemistry Consulting Services, Inc.
6414 Copps Avenue, #201 • Madison, Wisconsin 53716 • Phone 608-221-8700 • FAX (608) 221-4889

Date: 9-22-95

PORTABLE GC RESULTS SUMMARY

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	–	1.0E-7	1.1E-7	3.9E-7	2.9E-7	1.3E-6	2.2E-6

B.G.

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QC'd 9-22-95
KKS

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer, Secretary
William H. Smith, District Director

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

NORTHWEST DISTRICT HEADQUARTERS
P.O. Box 309
STH 70 West & First Street
Spooner, Wisconsin 54801
TELEPHONE 715-635-2101
TELEFAX 715-635-4013

September 26, 1995

MR KEVIN GEHRMANN
WISCONSIN DEPARTMENT OF TRANSPORTATION
RISK AND SAFETY MANAGEMENT
4802 SHEBOYGAN AVENUE
PO BOX 7915
MADISON WI 53707-7915

SUBJECT: SHELL LAKE PROPERTY, USH 63, SHELL LAKE WI
WDNR ERRP ID #66-00007

Dear Mr Gehrmann:

The Department of Natural Resources received your progress report on the remediation system dated August 1, 1995.

The case has also been assigned a different ID number (WDNR ERRP #66-00007) -- please be sure that you and your consultant use this number on all correspondence and reports sent to the Department regarding this site. All submittals should be directed to:

Wisconsin Department of Natural Resources
Attn: Tom Kendzierski
STH 70 West & First Street, P.O. Box 309
Spooner, WI 54801

If you have any questions concerning this letter, please contact me at (715) 635-4057.

Sincerely,

Tom Kendzierski
Hydrogeologist Supervisor

kb

c: Mary Caplon/Richard Fish
RMT Inc
744 Hartland Trail
PO Box 8923
Madison WI 53708-8923

C. MARC HERSCHFIELD
DOT

TC 9/19/95

unassigned high

Shawna

1-6
2-0
3-0
4-8
5-8
22

August 1, 1995

REC
AUG
CUM
AREA RD.

Mr. James A. Hosch
Wisconsin Department of Natural Resources
P.O. Box 397
Cumberland, WI 54829

RE: WisDOT-Shell Lake Remedial Activities
Shell Lake, Wisconsin
Progress Report #1

Dear Mr. Hosch:

The Wisconsin Department of Transportation (WisDOT) has operated the soil vapor extraction (SVE) system at Highway 63, Shell Lake, Wisconsin, from March 21, 1995, to the present. This progress report provides an update and evaluation of the performance of this remediation system through June 1995.

The system operates continuously in automatic mode. An RMT representative visited the site as required under NR 419 during the first month of operation to perform initial system monitoring and maintenance and to measure water levels in monitoring wells. Following the first month of the overall remediation system operation, site visits were scheduled on a monthly basis.

Soil Vapor Extraction System

SVE Monitoring

SVE system operation measurements, such as vacuum flow rates and temperatures, and vapor extraction gas samples were taken the first 3 days of the SVE operation, weekly for the following 2 weeks, and monthly thereafter. The vapor extraction well samples were analyzed for benzene, toluene, ethylbenzene, xylenes (BTEX), and total petroleum hydrocarbons (TPH) or total gasoline. The SVE system monitoring results are summarized in Table 1, which is included in Attachment 1. In addition, the analytical laboratory reports of the vapor extraction gas samples collected during this quarter are included in Attachment 1.

SVE System Performance

The SVE system operates continuously with automatic shut-down when the SVE moisture separator tank is full. The system has shut down three times since start-up due to a high level alarm in the moisture tank. The SVE system must be manually re-started after the separator tank is drained. The cumulative run time of the SVE blower is monitored and displayed on the blower hour meter located in the operator control panel. The system has operated for a total of 850 hours since start-up.

During this period of SVE operation, vapors were extracted from vapor extraction wells VE-1, VE-2, VE-3, and VE-4. BTEX, TPH, and total gasoline concentrations reported in the SVE system gas samples and the air flow rate from the extraction wells indicated that there is sufficient vacuum influence in the source area.

RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

Figures 1 through 3 included in Attachment 1, summarize the cumulative recovery of benzene and total gasoline and the emission rate of total gasoline. On the basis of these data, approximately 0.6 of a pound of benzene and 500 pounds of total gasoline have been removed from the site since the start of the SVE system operation on March 21, 1995, through June 19, 1995. The gasoline emission rate of the SVE system is well below the WDNR limits of 9 lb/hr.

On the basis of the analytical and monitoring data obtained from the first quarter of the system operation, the SVE system is effectively extracting petroleum-contaminated vapors from the subsurface at the site. The SVE system will continue to operate in continuous automatic mode and will continue to be monitored monthly and reported on a quarterly basis.

If you have any questions or comments, please contact us.

Sincerely,

Mary R. Caplon
Project Engineer

Richard Fish
Project Director

psp

Attachments

cc: Kevin Gehrmann, WisDOT

ATTACHMENT 1

TABLE 1
SVE OPERATIONS LOG

WDOT - SHELL LAKE
SHELL LAKE, WISCONSIN
PROJECT NUMBER: 10318.04

File: Shellsve.wk1
By: MRC
Revision: 18-Jul-95

OPERATIONAL DATA					LABORATORY DATA		CALCULATED DATA					COMMENTS
Date	Blower Vacuum (In w.c.)	Diff. Pressure (In w.c.)	System Temp. (deg. F)	Cumulative Operation (hours)	Benzene (lb/cf)	Total Gasoline (lb/cf)	Airflow Rate (cfm)	Emission Rate Benzene (lbs/hr)	Emission Rate Gasoline (lbs/hr)	Cumulative Emissions Benzene (lbs)	Cumulative Emissions Gasoline (lbs)	
21-Mar-95	68	4.0	89	3.66	1.25E-08	1.13E-06	530	4.0E-04	3.6E-02	0.00	0.1	Note 2.
22-Mar-95	67	3.5	89	24.29	8.13E-08	6.25E-06	495	2.4E-03	1.9E-01	0.05	4.0	Note 2.
23-Mar-95	68	3.8	89	50.3	7.50E-08	9.38E-06	516	2.3E-03	2.9E-01	0.16	17.5	Note 2.
29-Mar-95	70	4.0	94	195.61	6.3E-08	1.46E-05	534	2.0E-03	4.7E-01	0.45	85.4	
11-Apr-95	68	3.5	89	485.08	2.07E-08	3.38E-05	495	6.2E-04	1.0E+00	0.63	376.3	
10-May-95	66	3.5	92	688.30	ND	8.90E-06	495	0.0E+00	2.6E-01	0.63	430.1	
19-Jun-95	69	3.8	90	850.35	ND	1.38E-05	514	0.0E+00	4.3E-01	0.63	499.1	

NOTES:

1. ND = Not Detected
2. Total gasoline was reported as total petroleum hydrocarbons on laboratory reports.

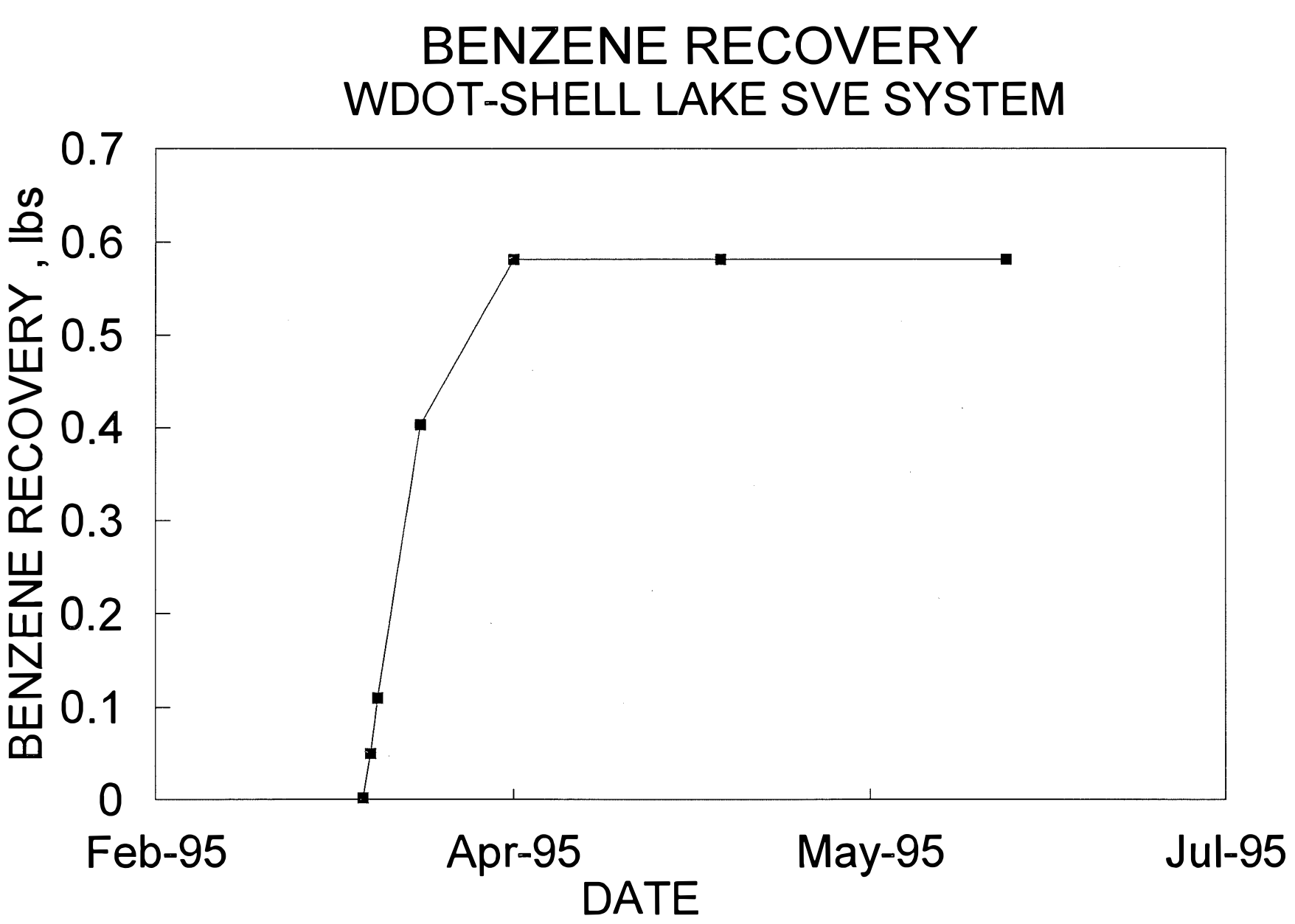

BENZENE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
BENZENE RECOVERY , lbs
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Feb-95
Apr-95
May-95
Jul-95
DATE

FIGURE 1

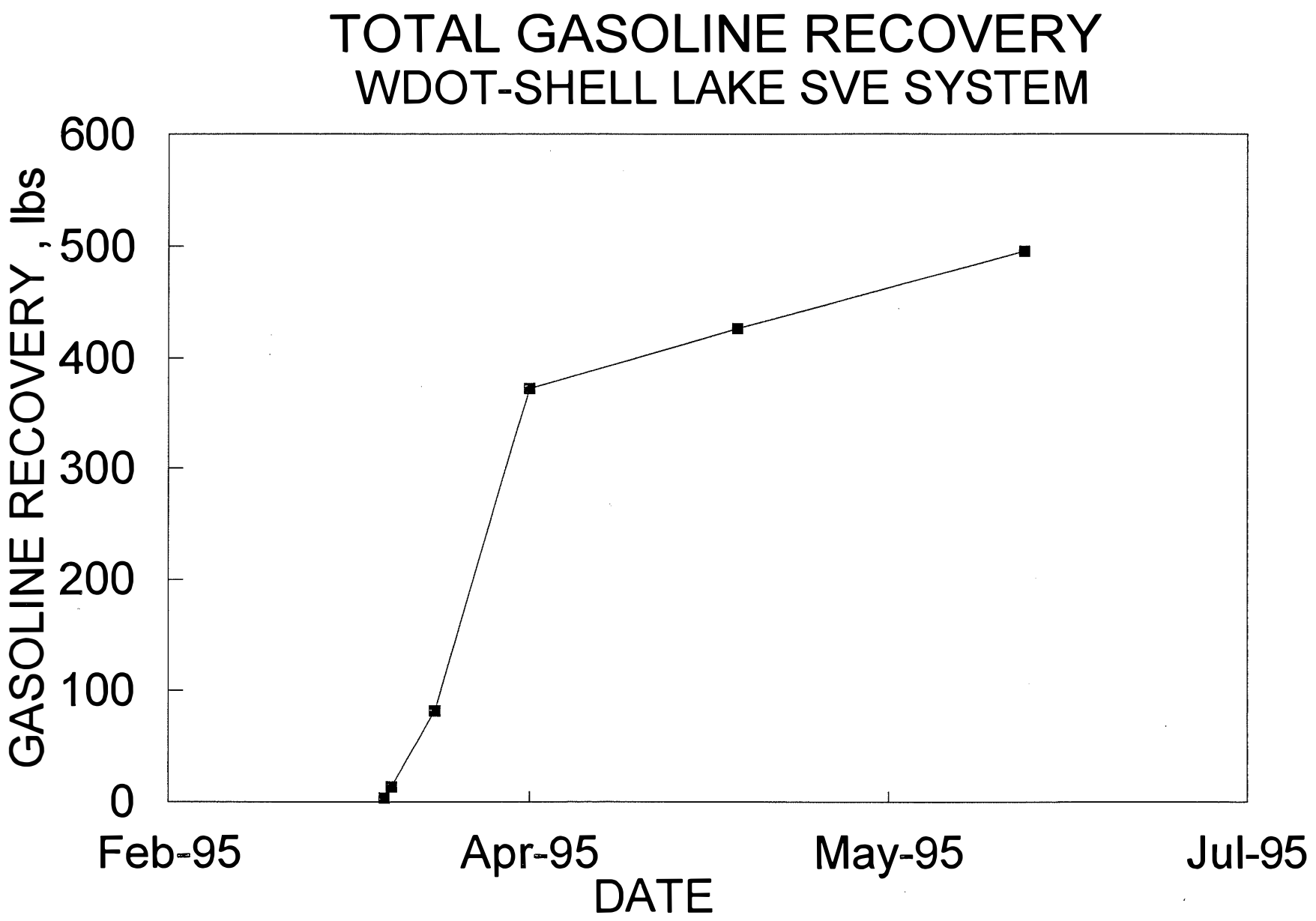

TOTAL GASOLINE RECOVERY
WDOT-SHELL LAKE SVE SYSTEM
GASOLINE RECOVERY , lbs
600
500
400
300
200
100
0
Feb-95
Apr-95
May-95
Jul-95
DATE

FIGURE 2

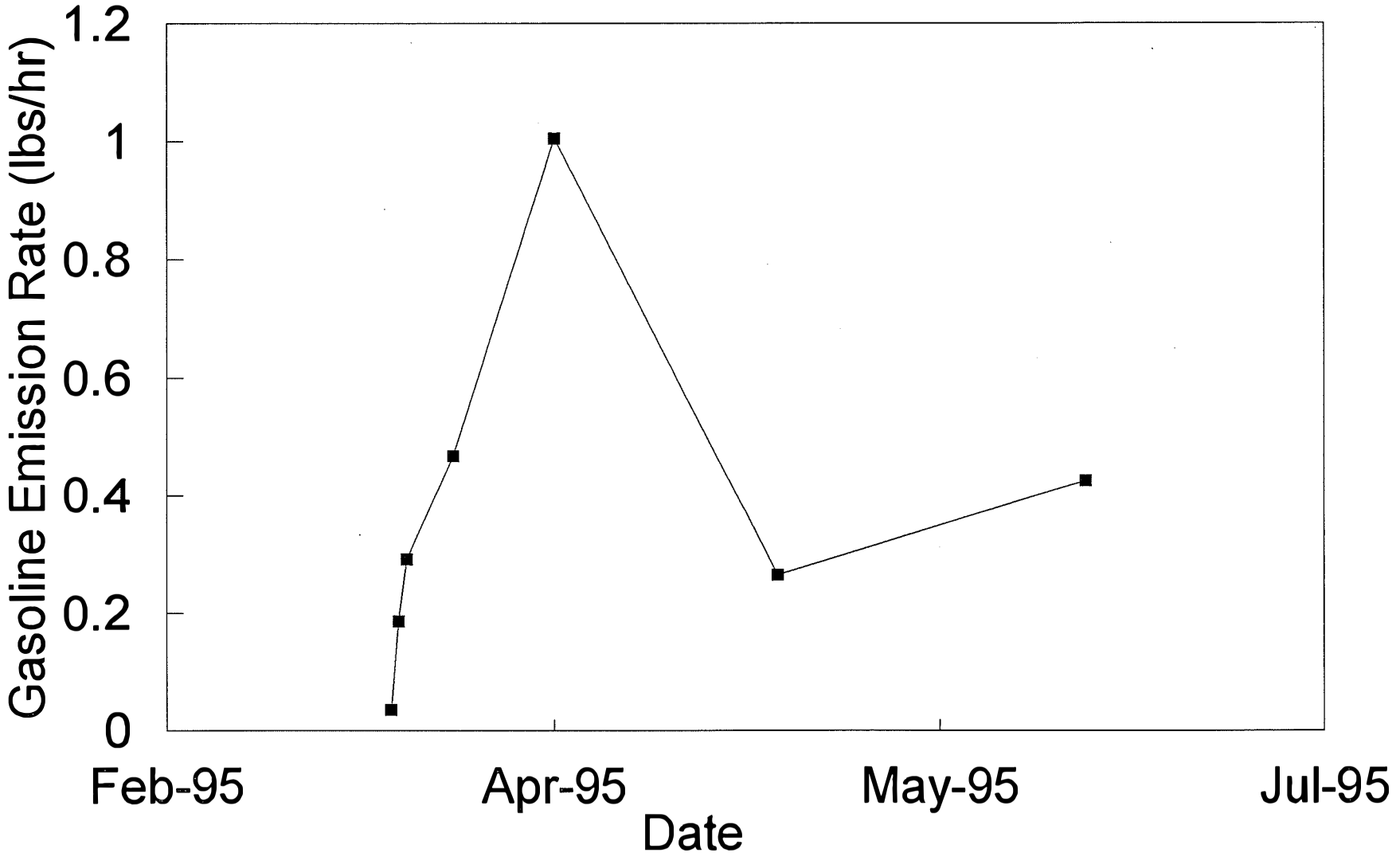

GASOLINE EMISSION RATE
WDOT- SHELL LAKE SVE SYSTEM
Gasoline Emission Rate (lbs/hr)
1.2
1
0.8
0.6
0.4
0.2
0
Feb-95
Apr-95
May-95
Jul-95
Date

FIGURE 3

Bruce Greer

PORTABLE GC RESULTS SUMMARY

Date: 06-20-95

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 06-19-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold 11:35AM	ND	4.78×10^{-7}	8.25×10^{-8}	9.08×10^{-8}	1.1×10^{-7}	1.30×10^{-5}	1.38×10^{-5}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 6.20.95
kms

Date: 5.12.95

PORTABLE GC RESULTS SUMMARY

Project Name: ~~O'Gorman Project~~ Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 5.10.95 2:30	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
Manifold	ND	5.9×10^{-7}	8.0×10^{-8}	9.3×10^{-8}	1.0×10^{-7}	8.0×10^{-6}	8.9×10^{-6}

B''

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QC'd 5/15

WM

07

PORTABLE GC RESULTS SUMMARY

Date: 04-12-95

Project Name: Shell Lake

Project # 10318.04

Note: All Units in lbs/ft^3

Sample ID 04-11-95	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
2:00 P.M. sc-pl	2.07×10^{-8}	1.29×10^{-6}	3.03×10^{-7}	3.30×10^{-7}	2.31×10^{-7}	3.16×10^{-5}	3.38×10^{-5}

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 4.13.95

Date: 3-30-95

PORTABLE GC RESULTS SUMMARY

Project Name: WDOT Shell Lake

10318.04
Project #

Note: All Units in lbs/ft^3

Sample ID	Benzene	Toluene	Ethyl-benzene	m,p-Xylene	o-Xylene	Aliphatics	Total Gasoline
12:30 Sample	6.3E-8	1.10E-6	1.49E-7	2.34E-7	9.8E-8	1.30E-5	1.46E-5

Notes:

BD = Below detection (using maximum sensitivity of operation conditions described in sampling procedures).

ND = Nondetect (no concentration detected for operation conditions less than maximum sensitivity).

QCd 3.30.95

RWS

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-228
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 23, 1995
Date Received: March 24, 1995
Date Analyzed: March 24, 1995

Parameter:						
	Benzene	Toluene	Ethyl Benzene	Xylenes	*Total Petroleum Hydrocarbon
Detection Limit:	0.1 µg/L	0.1 µg/L	0.2 µg/L	0.5 µg/L	1 µg/L
Discharge Air	1.2	6.1	0.8	2.7	150

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl RRD
Manager, Analytical Services

RMT INC.
LABORATORIES

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Fox Valley, WI
Columbus, OH
Milwaukee, WI

Nashville, TN
Greenville, SC

Augusta, GA
Lansing, MI

Chicago,IL
Los Angeles, CA

Cincinnati, OH
Madison, WI

F-268 (R2/92)
(Use Black Ink Only)

CHAIN OF CUSTODY RECORD

228 **№ 054544**

Bottles Prepared by: | Date/Time

Project No.: 10318.04

Client: WisDOT- Shell Lake

Lab No.	Yr. 95 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: 6 GLASS BULB	Filtered (Yes/No)	Preserved (Code)	MATRIX	Comments
	3/23	11:00 a.m.	DISCHARGE AIR	1	1			AIR	ANALYZE FOR BTEX & TPH.
									RESULTS TO: BRUCE GREER @ RMT IN MADISON
									608/831-4444 x 3194

Code: A - None
B - HNO3
C - H_2SO4
D - NaOH
E - HCl
F - _____

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Mark E. Rowe	3/23/95 11:50 a.m.	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Bruce Greer Shipper Name & # PE	Date/Time 3-24-95 1030
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #	Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)
Receipt Temp
Receipt pH

Custody Seal | Present/Absent | Seal | Intact/Not Intact | Seal #'s

WHITE - LABORATORY COPY YELLOW - REPORT APPENDIX PINK - SAMPLER/SUBMITTER

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-221
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 22, 1995
Date Received: March 23, 1995
Date Analyzed: March 23, 1995

Parameter:	Benzene	Toluene	Ethyl Benzene	Xylenes	*Total Petroleum Hydrocarbon
Detection Limit:	0.1 µg/L	0.1 µg/L	0.2 µg/L	0.5 µg/L	1 µg/L
Discharge Air	1.3	6.1	1.1	2.9	100

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl HNS
Manager, Analytical Services

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

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Santa Monica, CA
Atlanta, GA
Baton Rouge, LA
Troy, MI

Grand Ledge, MI
[illegible]ille, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, WI

CHAIN OF CUSTODY RECORD

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

№ 032950

Bottles Prepared by:	Date/Time	Office Code: (State)

Project No.	Client:
10318-04	WisDOT - SHELL LAKE

RMT Lab NO.	Yr. 95 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: GLASS BULB	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments
	3/22	10:40	SHELL LAKE DISCHARGE AIR	1	1				ANALYZE FOR BTEX & TPH

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

REPORT ANALYTICAL RESULTS TO:
BRUCE BREER @ RMT
IN MADISON.
608/831-4444. x 3194

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Mark E. LaRowe	3/22/95 11:05 am.	② Shipper Name & #	
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Bruce Breer Shipper Name & # RC	Date/Time 3/23/95 1000
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #	Date/Time
Seal #	at'chd by ◯	Recvd. intact by ◯	Seal # at'chd by ◯ Recvd. Intact by ◯

HAZARDS ASSOCIATED WITH SAMPLES

(For Lab Use Only)

Receipt Temp _____ Receipt pH _____

Client P.O. Number _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

PRECISION ENVIRONMENTAL

Field Monitoring and Testing Services

8251 Main Street N.E.
Minneapolis, Minnesota 55432-1849
(612) 780-9787 • FAX (612) 780-7157

Report No: 95-209
Report Date: March 27, 1995
Project No: F263-A

Client Name: RMT Laboratories
744 Heartland Trail
Madison, Wisconsin 53708

Attention: Bruce Greer

Project Name: Wis DOT- Shell Lake
Client Project No: 10318.04

Date Collected: March 21, 1995
Date Received: March 22, 1995
Date Analyzed: March 22, 1995

Parameter:

	Benzene	Toluene	Ethyl Benzene	Xylenes	*Total Petroleum Hydrocarbon
Detection Limit:	0.1 µg/L	0.1 µg/L	0.2 µg/L	0.5 µg/L	1 µg/L
Discharge Air	0.2	0.9	0.3	ND	18

ND = Not Detected
To convert results to PPMv (volume/volume) divide the µg/L air result by the following:
Benzene: 3.5 Toluene: 4.1 Ethyl Benzene: 4.7 Xylenes: 4.7

µg/L = mg/cubic meter

Analysis by GC-PID and GC-FID (EPA Method 18).
*Based on the response factor for Benzene.

Approved by:

Rick Dahl

Richard R. Dahl RRS
Manager, Analytical Services

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

Madison, WI 53717
744 Heartland Trail
Phone (608) 831-4444
FAX (608) 831-7530

Santa Monica, CA
Atlanta, GA
Baton Rouge, LA
Troy, MI

Grand Ledge, MI
[illegible]ille, TN

Greenville, SC
Schaumburg, IL

Dublin, OH
Waukesha, WI

CHAIN OF CUSTODY RECORD

Sample Type: (GW, WW, SW, Soil, Other) **№ 032951** 209

Bottles Prepared by: | Date/Time | Office Code: (State)

Project No.: 10318.04

Client: WisDOT - SHELL LAKE

RMT Lab NO.	Yr: 95 Date	Time	Sample Station ID	Total Number Of Containers	Container Inventory: GLASS BULB	Filtered (Yes/No)	Preserved (Code)	Refrigerated (Yes/No)	Comments
	3/21	10:40	SHELL LAKE DISCHARGE AIR	1	1				ANALYZE FOR BTEX AND TPH

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

RESULTS TO:
BRUCE GREER @ RMT
IN MADISON
608/831-1989 x 3366

SAMPLER Relinquished by (Sig.)	Date/Time	Received by (Sig.)	Date/Time
① Mark E. LaRose	3/21/95 11:40 AM	② Shipper Name & #	3/22/95 1000
Relinquished by (Sig.) ③	Date/Time	Received by (Sig.) ④ Shipper Name & #	Date/Time
Relinquished by (Sig.) ⑤	Date/Time	Received by (Sig.) ⑥ Shipper Name & #	Date/Time

HAZARDS ASSOCIATED WITH SAMPLES

PETROLEUM VOLATILES

(For Lab Use Only)

Receipt Temp _____ Receipt pH _____

Client P.O. Number _____

Subsequent Analysis: _____ (Check)

Date Resubmitted _____

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

May 2, 1995

Mr. James Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
Cumberland Area Headquarters
P.O. Box 397
1341 2nd Avenue
Cumberland, WI 54829

RE: Site Status Report
WDOT Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, WI

Dear Mr. Hosch,

This letter is to update you on the status of remedial action at the Shell Lake Property. The following activities are currently on-going:

- The SVE system has operated continuously since March 21, 1995.
- RMT will be submitting off-gas results on a quarterly basis.
- During the May site visit, an additional silencer will be installed on the system to further reduce outside noise.

If you have any questions, please call me at 831-1989, ext. 3194.

Sincerely,

Bruce Greer/dck

Bruce Greer, P.E.
Senior Project Engineer

cc: Kevin Gehrmann, WDOT-Risk & Safety Management

RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

Shawna Pf 3/20/95

March 20, 1995

RECEIVED
MAR 23 1995
CUMBERLAND
AREA HQ.

Mr. James Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
Cumberland Area Headquarters
P.O. Box 397
1341 2nd Avenue
Cumberland, WI 54829

RE: Site Status Report
WDOT Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, WI

Dear Mr. Hosch,

This letter is to update you on the status of remedial action at the Shell Lake Property. The following activities are currently on-going:

- Construction of the building for the SVE system has been completed and the electrical system has been installed.
- The equipment was installed during the first week of March, with start-up scheduled for March 21.

If you have any questions, please call me at 831-1989, ext. 3194.

Sincerely,

Bruce Greer/dak

Bruce Greer, P.E.
Senior Project Engineer

cc: Kevin Gehrmann, WDOT-Risk & Safety Management

RECEIVED
MAR 28 1995
NORTHWEST DISTRICT
HEADQUARTERS

RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

December 20, 1994

Mr. James Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
Cumberland Area Headquarters
P.O. Box 397
1341 2nd Avenue
Cumberland, WI 54829

RE: Site Status Report
WDOT Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, WI

Dear Mr. Hosch,

This letter is to update you on the status of remedial action at the Shell Lake Property. The following activities are currently on-going:

- Construction of the underground piping and building foundation for the SVE system was completed in December, 1994.
- The equipment and building will be installed during the first quarter of 1995.

If you have any questions, please call me at 831-1989, ext. 3194.

Sincerely,

Bruce Greer/dak

Bruce Greer, P.E.
Senior Project Engineer

cc: Kevin Gehrmann, WDOT-Risk & Safety Management

RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer, Secretary
William H. Smith, District Director

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

NORTHWEST DISTRICT HEADQUARTERS
P.O. Box 309
STH 70 West & First Street
Spooner, Wisconsin 54801
TELEPHONE 715-635-2101
TELEFAX 715-635-4013

September 26, 1995

MR KEVIN GEHRMANN
WISCONSIN DEPARTMENT OF TRANSPORTATION
RISK AND SAFETY MANAGEMENT
4802 SHEBOYGAN AVENUE
PO BOX 7915
MADISON WI 53707-7915

SUBJECT: SHELL LAKE PROPERTY, USH 63, SHELL LAKE WI
WDNR ERRP ID #66-00007

Dear Mr Gehrmann:

The Department of Natural Resources received your progress report on the remediation system dated August 1, 1995.

The case has also been assigned a different ID number (WDNR ERRP #66-00007) -- please be sure that you and your consultant use this number on all correspondence and reports sent to the Department regarding this site. All submittals should be directed to:

Wisconsin Department of Natural Resources
Attn: Tom Kendzierski
STH 70 West & First Street, P.O. Box 309
Spooner, WI 54801

If you have any questions concerning this letter, please contact me at (715) 635-4057.

Sincerely,

Tom Kendzierski
Hydrogeologist Supervisor

kb

c: Mary Caplon/Richard Fish
RMT Inc
744 Hartland Trail
PO Box 8923
Madison WI 53708-8923

c. MARC HERSCHFIELD
DOT

Shanna

February 17, 1995

Mr. James Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
Cumberland Area Headquarters
P.O. Box 397
1341 2nd Avenue
Cumberland, WI 54829

RE: Site Status Report
WDOT Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, WI

Dear Mr. Hosch,

This letter is to update you on the status of remedial action at the Shell Lake Property. The following activities are currently on-going:

- Construction of the building for the SVE system has been completed and the electrical system has been installed.
- The equipment will be installed during the first week of March, with start-up scheduled for mid-March.

If you have any questions, please call me at 831-1989, ext. 3194.

Sincerely,

Bruce Greer/dak

Bruce Greer, P.E.
Senior Project Engineer

cc: Kevin Gehrmann, WDOT-Risk & Safety Management

RMT, INC. – MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

ERP

January 26, 1995

RECEIVED
FEB 10 1995
CUMBERLAND
AREA HQ.

Mr. James Hosch, Hydrogeologist
Wisconsin Department of Natural Resources
Cumberland Area Headquarters
P.O. Box 397
1341 2nd Avenue
Cumberland, WI 54829

RE: Site Status Report
WDOT Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, WI

Dear Mr. Hosch,

This letter is to update you on the status of remedial action at the Shell Lake Property. The following activities are currently on-going:

- Construction of the building for the SVE system will start Monday, February 6, 1995.
- The equipment will be installed during late February.

If you have any questions, please call me at 831-1989, ext. 3194.

RECEIVED
JAN 30 1995
CUMBERLAND
AREA HQ.

Sincerely,

Bruce Greer/dtk

Bruce Greer, P.E.
Senior Project Engineer

cc: Kevin Gehrmann, WDOT-Risk & Safety Management

RMT, INC. — MADISON, WI
744 HEARTLAND TRAIL - 53717-1934
P.O. BOX 8923 - 53708-8923
608/831-4444 - 608/831-3334 FAX

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

April 20, 1994

Mr. James A. Hosch
Department of Natural Resources
P. O. Box 397
Cumberland, WI 54829

RE: Shell Lake Property - Washburn County

Dear Mr. Hosch:

Thank you for you letter of April 15, 1994 regarding the above project in which you indicate that the last communication from our office was received by you May 21, 1993.

I have reviewed my files and find that on June 28, 1993, a workplan for additional investigation was submitted to you for approval. On September 14, 1993 we received your letter of September 13, 1993 which was our "Notice to Proceed" and acknowledged receipt of our workplan.

On November 19, 1993, the Phase III Site Investigation and the results of the pilot SVE system was submitted to you in report form. On December 6, 1993, we submitted a RAP seeking your approval to proceed with the design and installation of a SVE system. On December 15, 1993 we received your approval to proceed which was dated December 13, 1993.

Obviously, you file is not reflective of the communications we have had in this matter and it is inaccurate to suggest that we have not communicated with you regarding this site in over a year.

That being said, I regretfully must inform you that we have no funds to proceed with the design and installation of the system as recommended in the RAP. In recent conversation with the District, no funds are currently available and neither do they anticipate any funding in the immediate future. Therefore, WDOT will not be proceeding with the remediation of this site at this time. I will, of course, advise you immediately of any change.

Sincerely,

Kevin J. Gehrmann
Risk Manager

cc: Del Laughlin

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Cumberland Area Headquarters

P.O. Box 397
1341 2nd Ave.
Cumberland, WI 54829
Telephone 715-822-3590
Telefax 715-822-3592
NWD ID No.: ERP 7

April 15, 1994

Kevin J. Gehrmann
Wisconsin Department of Transportation
Risk and Safety Management
4802 Sheboygan Avenue
PO Box 7915
Madison, Wi 53707-7915

RE: Shell Lake Property, USH 63, Shell Lake, Washburn County, Wisconsin

Dear Mr. Gehrmann:

After reviewing our files it appears that the last correspondence that we've have from you regarding the above case was entitled, Summary of Phase III Site Investigation, dated May 3, 1993 and received in our office May 21, 1993. Please provide us with a status update within 30 days of receipt of this letter.

Thank you for your cooperation in this matter. Should you have any questions regarding this request, please contact our office at 715-822-3590.

Sincerely,

James A. Hosch

James A. Hosch
Hydrogeologist

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Cumberland Area Headquarters

P.O. Box 397
1341 2nd Ave.
Cumberland, WI 54829
Telephone 715-822-3590
Telefax 715-822-3592

December 13, 1993

File Ref: ERP #7

Mr. Kevin J. Gehrmann
Risk Manager
Wisconsin Department of Transportation
P.O. Box 7915
Madison, WI 53707-7915

RE: Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, Wisconsin

Dear Mr. Gehrmann:

The Department has received the reports entitled "Phase III Environmental Site Investigation" and "Remedial Action Plan" prepared by RMT, dated October 1993 and November 1993, respectively. Currently, workload and staffing levels do not allow us to provide you with direct oversight at this time.

This letter serves as your **"Notice to Proceed"** with investigation and remediation of the site. All actions must comply with all applicable statutes, program guidance, standards and Administrative Rules. This letter is not an approval of your work plans and/or reports. They will be filed as public records until the Department is able to review them, or until site remediation is completed.

In order to assist you and your consultant in understanding what is required by the Department, I have attached a Remedial Investigation Checklist for your reference. This checklist was prepared by the Department as a summary of what needs to be done, the rules that need to be followed, and the standards which need to be met for complete assessment of a LUST site.

Your consultant should follow the Department's "Guidance for Conducting Environmental Response Actions" (PUBL SW-1577-92). All samples should be analyzed according to the parameters in the "Leaking Underground Storage Tank (LUST) and Petroleum, Analytical and Quality Assurance Guidance" (PUBL-SW-130-93). It is very important that your consultant understand and meet the standards established by the Department; however, you, as the responsible party, are ultimately responsible for the investigation and remediation that is required at your site, according to Wisconsin Statute 144.76. Failure to follow guidance may result in delays when the site is reviewed for closure or reimbursement from PECFA.

Any well construction variances or WPDES permits, if applicable, should be obtained prior to construction, disposal or discharge.

PECFA payment requests, along with necessary reports or closure documents, can still be submitted for review upon completion of milestones as detailed in ILHR 47 or reaching the expenditure of $40,000 in site work. Form 4's received by this office will be processed in order of the date that they were received.

Effective the date of this letter, every 90 days, you or your consultant should provide the Department with a brief status report of one or two pages, providing an update on site activities and your proposed schedule. The Department should be notified immediately of any emergency actions and follow them up with a report. As workload and staff levels are adjusted, the status of this case may be changed and we may be able to review your consultant's work for completeness and acceptability. You will be informed, in writing, if the site status is changed.

The Department will review your case when the full extent of contamination has been determined and appropriate clean-up has occurred.

If you should have any questions, please feel free to contact our office at 715/822-3590.

Sincerely,

James A. Hosch
Hydrogeologist

JAH:dk

cc: Patrick Smith - RMT, Inc., P.O. Box 8923, Madison, WI 53708-8923
Tom Kendzierski - DNR Spooner

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

December 6, 1993

Jim Hosch
Wisconsin Department of Natural Resources
Northwest District
Spooner Cumberland Area
P.O. Box 397
Cumberland, WI 54829

Re: Shell Lake, Washburn County, WI

Dear Mr. Hosch:

Several remedial options have been discussed and evaluated in the enclosed report.

Our consultant has recommended and we concur, that the most feasible alternative is an SVE system.

We seek your approval to proceed with this design and implementation of this system.

If you have any questions regarding this site, please call me at (608) 266-0705.

Sincerely,

Kevin J Gehrmann DOT

Kevin J. Gehrmann
Risk Manager

cc: Gene McDonald DOT w/enc

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

November 19, 1993

Gene McDonald
Wisconsin Department of Transportation
District 8, Room 551
1701 N. 4th Street
Superior, WI 54880

Re: Shell Lake, Washburn County, WI

Dear Mr. McDonald:

A phase III investigation and pilot SVE system have been conducted at the above site. The petroleum-impacted soil is now defined and the groundwater impacts are below the ES's and PAL's.

A remedial action plan is being developed for a soil vapor extraction and bioventing system which will be submitted later this month. The five on-site monitoring wells will continue to be monitored for the duration of the SVE system.

Enclosed is a copy of the phase III report.

If you have any questions regarding this site, please call me at (608) 266-0705.

Sincerely,

Kevin J. Gehrmann KJG

Kevin J. Gehrmann
Risk Manager

cc: Jim Hosch w/enc

DT84

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Cumberland Area Headquarters

P.O. Box 397
1341 2nd Ave.
Cumberland, WI 54829
Telephone 715-822-3590
Telefax 715-822-3592

September 13, 1993

File Ref: ERF #7

Mr. Kevin Gehrmann
Wisconsin Department of Transportation
Risk and Safety Management
4802 Sheboygan Ave.
P.O. Box 7915
Madison, WI 53707-7915

RE: Shell Lake Property, Highway 63, City of Shell Lake, Washburn County, Wisconsin

Dear Mr. Gehrmann:

The Department has received the report entitled "Workplan for Additional Subsurface Investigation" prepared by RMT, Inc., dated June 1993. Your site is currently ranked as a "medium priority" based on risk to the environment. However, current workload and staffing levels do not allow us to provide you with direct oversight at this time.

This letter serves as your **"Notice to Proceed"** with investigation and remediation of the site. All actions must comply with all applicable statutes, program guidance, standards and Administrative Rules. This letter is not an approval of your work plans and/or reports. They will be filed as public records until the Department is able to review them, or until site remediation is completed.

In order to assist you and your consultant in understanding what is required by the Department, I have attached a Site Investigation Checklist for your reference. This checklist was prepared by the Department as a summary of what needs to be done, the rules that need to be followed, and the standards which need to be met for complete assessment of a LUST site.

Your consultant should follow the Department's "Guidance for Conducting Environmental Response Actions" (PUBL SW-1577-92). All samples should be analyzed according to the parameters in the "Leaking Underground Storage Tank (LUST) and Petroleum, Analytical and Quality Assurance Guidance" (PUBL-SW-130-93). It is very important that your consultant understand and meet the standards established by the Department; however, you, as the responsible party, are ultimately responsible for the investigation and remediation that is required at your site, according to Wisconsin Statute 144.76. Failure to follow guidance may result in delays when the site is reviewed for closure or reimbursement from PECFA.

Any well construction variances or WPDES permits, if applicable, should be obtained prior to construction, disposal or discharge.

PECFA payment requests, along with necessary reports or closure documents, can still be submitted for review upon completion of milestones as detailed in ILHR 47 or reaching the expenditure of $40,000 in site work. Form 4's received by this office will be processed in order of the date that they were received.

Effective the date of this letter, every 90 days, you or your consultant should provide the Department with a brief status report of one or two pages, providing an update on site activities and your proposed schedule. The Department should be notified immediately of any emergency actions and follow them up with a report. As workload and staff levels are adjusted, the status of this case may be changed and we may be able to review your consultant's work for completeness and acceptability. You will be informed, in writing, if the site status is changed.

The Department will review your case when the full extent of contamination has been determined and appropriate clean-up has occurred.

If you should have any questions, please feel free to contact our office at 715/822-3590.

Sincerely,

James A. Hosch
Hydrogeologist

JAH:dk

cc: Richard Fish - RMT, Inc.
Tom Kendzierski - DNR Spooner

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

June 28, 1993

Mr. Jim Hosch
Wisconsin Department of Natural Resources
P.O. Box 397
Cumberland, WI 54829

Re: Shell Lake Property, USH 63, Shell Lake, Wisconsin

Dear Mr. Hosch:

To further investigate the necessary remediation at the above site, RMT has decided to: install soil borings, install and develop a water table monitoring well and install vapor extraction wells. They are also going to conduct a pilot test, collect soil samples and perform a bioventing evaluation on the SVE wells.

If you have any questions regarding this site, please contact me at (608) 266-0705.

Sincerely,

Kevin J. Gehrmann KDA
Kevin J. Gehrmann
Risk Manager

enc

cc: Eugene McDonald

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

May 18, 1993

Mr. Jim Hosch
Wisconsin Department of Natural Resources
P.O. Box 397
Cumberland, WI 54829

Re: Shell Lake Property, USH 63, Shell Lake, Wisconsin

Dear Mr. Hosch:

At the above site, four soil borings and four groundwater monitoring wells were installed November 9-14, 1992. Laboratory analysis for PVOCs, DRO, GRO and compositional lead were done. Private wells and the city of Shell Lake municipal wells are possible downgradient receptors at this site.

Based on the findings, RMT recommends installing one combination groundwater monitoring/SVE well and one to three additional soil borings/SVE wells. A SVE pilot scale test and a remedial options analysis should be conducted.

If you have any questions regarding this site, please contact me at (608) 266-0705.

Sincerely,

Kevin Gehrmann KA

Kevin J. Gehrmann
Associate Risk Manager

cc: Del Laughlin
Brad Wolbert

RMT INC.

#7

LETTER OF TRANSMITTAL

Medium

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

DATE	JOB NO.
7 May 1993	10318.02

ATTENTION: Tom Kendzierski

RE: WDOT - Shell Lake (Former Allen Bulk Oil Storage facility)

TO: WDNR Northwest District
Hwy 70 West,
P.O. Box 309
Spooner, WI 54801

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Contract Documents ☐ Purchase Order ☐ Waiver of Lien ☐ Laboratory Analysis Report
☐ Certificates of Insurance ☐ Copy of letter ☐ Plans ☒ Letter Report

COPIES	DATE	NO.	DESCRIPTION
1	7 May 1993		WDOT - Shell Lake Interim report

THESE ARE TRANSMITTED as checked below:

☐ FOR APPROVAL ☐ SIGN AND RETURN ☒ FOR YOUR USE
☐ APPROVED AS NOTED ☐ FOR REVIEW AND COMMENT ☐ AS REQUESTED
☐ APPROVED AS SUBMITTED ☐ RETURNED FOR CORRECTIONS ☐ _____

REMARKS:

Tom,

Enclosed please find 1 copy of a summary letter detailing findings, conclusions and recommendations of the preliminary site investigation performed by RMT at the WDOT-Shell Lake property (the formerAllen Bulk Oil Storage facility) located on USH 63 in Shell Lake Wisconsin. If you have any questions or comments reguarding this investigation please contact me at your convenience.

COPY TO Kevin Gehrmann, WDOT

SIGNED: Daniel A. Reid

F-334

Wisconsin Department of Transportation

Tommy G. Thompson
Governor

Charles H. Thompson
Secretary

DIVISION OF BUSINESS MANAGEMENT
4802 Sheboygan Avenue
P.O. Box 7915
Madison, WI 53707-7915

Date: 12/21/92

Steve Palzkill
Department of Transportation
Box 309
Spooner, WI 54801

Subject: Shell Lake Tank Closure Request, USH 63

Dear Mr. Palzkill:

RMT and contractors removed five 15,000-gallon ASTs at the above location for the WDOT on 7/20/92. Samples were taken from beneath the tanks and contamination was discovered beneath the northern third of the structure. 950 gallons of residual tank fluids yielded during the abandonment activity have been transported off site and stored in a secure area at the request of the DNR.

RMT is currently conducting a Phase III investigation to determine the nature and extent of petroleum-impacted media at this site. Findings will be included in future reports.

If you have any questions regarding this information please don't hesitate to call me at (608) 266-0750.

Sincerely,

Kevin Gehrmann

Kevin Gehrmann
Associate Risk Manager

cc: Brad Wolbert
Del Laughlin

Prizkill - Cumberland

RMT INC.

FAX TRANSMITTAL COVER SHEET
RMT, INC.
744 HEARTLAND TRAIL
P.O. BOX 8923
MADISON, WI 53708-8923

PLEASE COMPLETE ONE TRANSMITTAL FOR EACH FAX BEING SENT.

Fax Submitted	Transmit Fax By	Recipient Fax Number
Date: November 4,1992 Time: 3:30 pm	This Date: November 4, 1992 This Time: 3:30 pm	(715) 635 4105

Recipient Name(s)

Tom Kendzierski

Recipient's Company Name	Sender's Name
WDNR	Dan Reid
Number of pages including this page	Project Number
4	10318.02

Special Instructions

Tom,

This transmittal details RMT's Scope of Services for the impending subsurface investigation that we will be conducting the week of November 9, 1992 at the former Allen Gas and Oil bulk fuel storage depot, USH 63, Shell Lake, Wisconsin. Tentative boring locations are shown on Figure 3. Drilling is scheduled to start on Monday afternoon 11/9/92 and the fieldwork should be completed by Friday 11/13/92. If you have any questions or comments reguarding this fieldwork please contact me at (608) 831-4444 ex. 149.

Sincerely,

Dan

Daniel D. Reid
Project Hydrogeologist

If you do not receive all of the pages, please call (608) 831-4444, extension 247, as soon as possible.

Our facsimile number is (608) 831-3334.

20.99:ADM:f-138.WI

10318.02

Project: Shell Lake Site Investigation
Purchase Order: TRB3027312
County: Washburn

SCOPE OF SERVICES

Objective:

- To perform a site investigation to determine the nature and extent of petroleum-impacted soil and groundwater encountered during the abandonment of five former aboveground bulk storage tanks adjacent to USH 63 in Shell Lake, Washburn County, Wisconsin.
- To evaluate and develop conceptual options for remediation of impacted soils and groundwater

Scope of Services:

During the site investigation, RMT will provide the following services:

- Prepare a Workplan for review and approval by the WDNR.
- Prepare a site-specific health and safety plan.
- Prepare and administer a drilling contract for installation of nine soil borings and the construction of four water table wells, one piezometer, and four vapor extraction wells within the borings.
- Contact appropriate authorities, and coordinate the locating and clearing of underground utilities and conduits.
- Observe and document the installation of nine soil borings. Soil samples will be collected at 2.5-foot intervals using a split-spoon sampler in nine soil borings (two soil borings will be adjacent to each other to install the nested water table well and piezometer). Soils will be described according to the Unified Soil Classification System.
- Field-screen soil samples on-site for volatile organic compounds (VOCs) using a photoionization detector (PID). Headspace analysis will be used to indicate the presence of petroleum constituents in the soil vapors.
- Laboratory-analyze one soil sample from each of the nine borings and one additional soil sample from each of the five monitoring well borings, based on headspace analysis, for a total of 14 samples. These samples will be analyzed for gasoline-range organics (GRO), diesel-range organics (DRO), petroleum volatile organic compounds (PVOCs), and lead.

Additional analysis of soil samples from unsaturated zone

- Observe and document the installation and development of four 2-inch-diameter water table wells and one 2-inch diameter piezometer according to NR 141 regulations. The four water table wells will be located in the area surrounding the former location of the aboveground tanks and will be installed approximately 7 feet into the water table (total depth of well estimated to be 20 to 30 feet). The piezometer will be nested next to a water table well and located downgradient from the former USTs, and completed in the same sand and gravel deposit.

- Observe and document the installation of four vapor extraction wells according to NR 141. The wells will be located in the vicinity of the former ASTs to a depth of approximately 15 feet.

- Perform grain-size analysis of a representative soil sample of the aquifer at each water table well screen location and at the piezometer screen location (five samples total).

- Perform in-field hydraulic conductivity tests on the monitoring wells, using the single-well response method.

- Survey the locations and elevations (to mean sea level) of each monitoring well, per NR 141 regulations.

- Measure and record water levels, check for floating product, and collect one round of groundwater samples from the five monitoring wells. A trip blank, field blank and duplicate sample will also be collected for a total of eight samples. Samples will be analyzed for VOCs (Method 8021), for GRO, DRO, ~~PVOCs~~, and compositional lead.

- Evaluate and interpret the field data and laboratory analysis results.

- Develop conceptual remedial alternatives for remediation of impacted soil and groundwater.

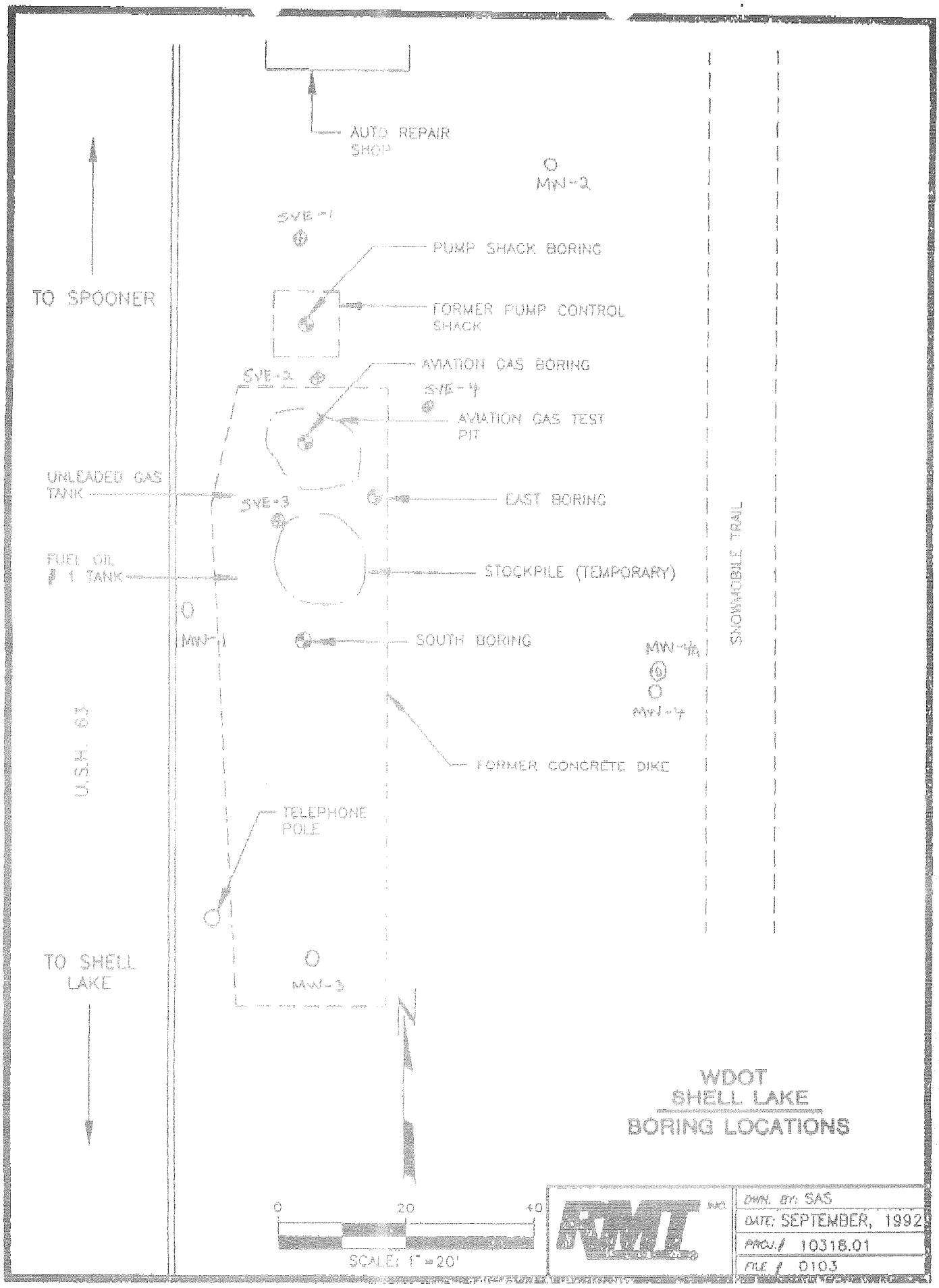
Output:

- RMT will issue a report of its findings, conclusions, and recommendations. This report will include boring logs, tabulated soil and groundwater analytical data, laboratory data sheets, a figure showing boring and monitoring well locations, a geologic cross section, a water table map, copies of pertinent documents regarding the site, and significant photographs taken during site activities. The report will address the following:

  - Findings, conclusions, and recommendations for the site based on the site investigation.

  - Conceptual remedial alternatives for remediation of impacted soils and groundwater at the U.S.H. 63, Shell Lake Wisconsin site.

  - Preliminary order-of-magnitude remediation cost estimate.



WDOT
SHELL LAKE
BORING LOCATIONS

FIGURE 3

WDOT Shell Lake

State of Wisconsin

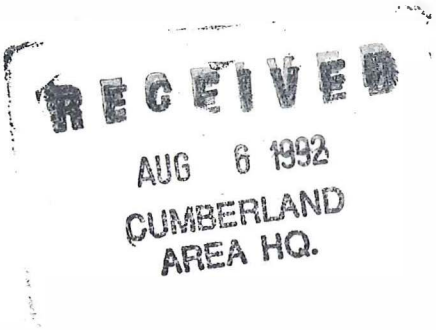
CORRESPONDENCE/MEMORANDUM

DATE: August 5, 1992

FILE REF: 4430
Allen Site - Shell Lake

TO: Steve Palzkill - Cumberland

FROM: Dave Kafura - Spooner



SUBJECT: Allen Gas Site in Shell Lake

I talked with RMT project manager Mark LaRowe(?) regarding the 19 barrels of waste from the remediation of the Allen Gas/DOT right-of-way project in Shell Lake.

I expressed our concern with the poor security of the containers at this site, considering the proximity of the containers to a major highway and to the campground. They currently have a snow fence surrounding the containers with a "no smoking" sign on one side. I told Mark that we expect the containers to be stored within a locked storage area, such as a trailer for this site and that we expect this to be done by the end of the week.

I also told him that the site would have to meet the requirements of the hazardous waste regulations under NR 615, especially the notification and manifesting requirements. I suggested that he get the hazardous waste notification forms submitted for this site as there is a 2-3 week delay in receiving the EPA ID#. Mark also mentioned that there is probably significant contamination of soils at this site. Be aware that the above-ground storage tanks are not exempt from the TCLP rules. If you need any assistance with this site, let me know.

cc: Gary LeRoy/Tom Kendzierski
Marcia Johnson