State of Wisconsin
Department of Natural Resources

TOXIC AND HAZARDOUS SPILL REPORT

4400-91 Rev. 6-86

te Div. Emergency Gov't. (608) 266-3232
U.S. Nat'l. Response Center (800) 424-8802
Chemtrec/Pesticides/Chlorine (800) 424-9300

Spill ID Number 04-16-049161 close
Y Y M M D D 0-99

Date of Incident	Day of Week	Time of Incident		Reported By (Name)	Telephone Number
12-4-93	Saturday	1:00	☐ A.M. ☒ P.M.	Tom Johnstone	(715) 398-3533
Date Reported	**Day of Week**	**Time Reported**		**Agency or Firm Reporting**	**Reported thru Div. Emergen. Gov't.**
12-4-93	Saturday	1:00	☐ A.M. ☒ P.M.	Murphy Oil	☒ Yes ☐ No

Substance Involved	Quantity	Units	Person or Firm Responsible
Light cycle oil #2	10	Barrels	Murphy Oil
Substance Involved	**Quantity**	**Units**	**Contact Name / Telephone Number**
			Bill Gustafson 715) 398-3533

Physical Characteristics

☐ Solid ☒ Liquid Color Yellowish
☐ Semisolid ☐ Gas Odor _____

Address — Street or Route
Stinson Avenue

City, State, Zip Code
Superior WI 54880

Cause of Incident
Packing gland let loose on mixer

Exact Location Description (intersection, mileage, etc.)
West side of tank 42 in dyke area

County Location	¼¼, ¼, Section, Town, Range
Douglas	___, ___, ___, T___N, R___

DNR Dist	DNR Area	Groundwaters Affected
NWD	Brule	☐ Yes ☒ No ☐ Potential

Surface Waters Affected	Name of Surface Water
☐ Yes ☒ No ☐ Potential	

Date District Notified	Day of Week	Time District Notified	
12-4-93	Saturday	1:00	☐ A.M. ☒ P.M.

District Person Notified	Telephone Number
Dave Zeug	(715) 635-2101

Date Investigated	Day of Week	Time Investigated	
12-6-93	Monday	9:00	☒ A.M. ☐ P.M.

Person Investigating	Telephone Number
Joe Davidowski	(715) 392-7988

Action Taken By DNR

☐ No Action Taken ☒ Investigation ☐ Supervise/Conduct Cleanup
☐ Spiller Required To Take Action; Type _____
☐ Contractor Hired By DNR; Name _____
☐ Amount Recovered _____
☐ 29.29 Enforcement

Other Agencies on Scene

Local _____
State _____
Federal _____

Action Taken By Spiller

☐ No Action Taken ☐ No Notification ☐ Investigate
☒ Containment; Type dyke
☒ Cleanup; Method Vacuum truck
☒ Amount Recovered 95 percent
☐ Monitor _____
☐ Contractor Hired; Name _____
☐ Other Action _____

Spill Location

☐ Industrial Facility/Paper Mill/Chem. Co.
☐ Gas/Service Station/Garage, Auto Dealer, Repair Shop
☐ Ag Coop/Facility/Cheese Factory/Creamery
☐ Other Small Business (bank, grocery, insurance co., etc.)
☐ Public Property (city, county, state, church, school, etc.)
☐ Utility Co., Power Generating/Transfer Facility
☐ Private Property (home/farm)
☐ Pipeline, Terminal, Tank Farm, Oil Jobber/Wholesaler
☐ Transportation Accident, Fuel Supply Tank Spill
☐ Transportation Accident, Load Spill
☐ Construction, Excavation, Wrecking, Quarry, Mine
☒ Other ~~Murphy Oil Refinery~~

Spilled Substance Destination

☐ Air
☐ Soil
☐ Groundwater
☐ Surface Water
☐ Storm Sewer
☐ Sanitary Sewer
☐ Contained/Recovered
☐ Other _____

Person Filing This Report (print name)
Joe Davidowski

Signature	Date Signed
Joe Davidowski	12-6-93

Additional Comments:

~~Spill occurred on December 4, 1993 at 1:00 p.m. Message was left on answering machine and~~ DNR received it on Monday, December 6, 1993 at 7:45 a.m. Spill was contained to dyke area and vacuum truck will clean up and remove any residual free oil.

DISTRICT

WISCONSIN
DEPT. OF NATURAL RESOURCES

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 715-635-4105

January 13, 1994

File Ref: 4530-1

Mr. William Gustafson
Murphy Oil USA, Inc.
P.O. Box 2066
2400 Stinson Avenue
Superior, WI., 54880

Dear Mr. Gustafson:

I am writing you to let you know that your application to treat contaminated soil from the Murphy Oil USA site at 2400 Stinson Avenue, Superior, WI., 54880 has been approved by the Department's Air Management Program. I have signed the form 4400-149 and have passed it on to the LUST program in Spooner. This 50 cubic yard soil pile can only be treated at Lakehead Blacktop in Superior if the following conditions are applied.

- While remediating the oil contaminated soil the plants new afterburner must be firing and operating properly.
- The temperature in the afterburner must remain above 1400 °F.

Due to the high concentration of Diesel Range Organics (5012 pounds DRO), Lakehead Blacktops plant may process only 4.5 cubic yards per hour (i.e. about 6.3 tons/hour of this contaminated soil). Refer to the attached spreadsheets for more detail. If you have any questions or concerns please feel free to call me at (715)392-0801.

Sincerely,

Phyliss J. Holmbeck

Phyliss J. Holmbeck
Air Management Engineer

cc: Northwest District Air Program
Lakehead Blacktop & Materials of Superior, Inc.
Sue Sutton - NWH
AM/7 - SLR

APPLICATION TO TREAT OR DISPOSE OF PETROLEUM CONTAMINATED SOIL
ASPHALT PLANT OR OTHER TYPE OF THERMAL TREATMENT UNIT

Form 4400-149

This form is required by the Department of Natural Resources for leaking underground storage tank sites to ensure that petroleum contaminated soil is treated or disposed of in compliance with NR 500-540, NR 158, and NR 419, Wis. Adm. Code. Failure to comply with applicable statutes and administrative rules may lead to violations of subchapters III and IV of ch. 144 Wis. Stats. and may result in forfeitures of not less than $10 or more than $25,000 for each violation, pursuant to ss. 144.426(1), 144.74 (1), and 144.99, Wis. Stats., or fines of not less than $100 or more than $150,000 or imprisonment for not more than 10 years, or both, pursuant to s. 144.74 (2), Wis. Stats. Each day of a continuing violation constitutes a separate violation. Department approval of this form is required prior to site remediation, except for soils to be buried in landfills.

DIRECTIONS: 1) Complete parts I and II. 2) Submit the application to the DNR project manager for approval. 3) Have the treatment facility complete part III of the approved form after the soil has been treated. 4) Return the ORIGINAL form to the DNR project manager. 5) Keep a copy for your files.

ALL SITES MUST COMPLETE PART I.

Part I. Source of Soil

Site/Facility Name: MURPHY OIL USA, INC

Site I.D. # (for DNR use only):

Site Address: 2400 STINSON AVE

Contact Name: BILL GUSTAFSON

City, State, Zip Code: SUPERIOR, WI, 54880

1/4, 1/4, Section, Township, and Range: NW¼, NW¼, sec. 36, T49N, R14N

The information on this form is accurate to the best of my knowledge.

Signature of Soil Generator

Telephone Number (include area code)

Consulting Firm: None

Contact:

Telephone Number:

Estimated Volume Contaminated Soil: Tank #4 2

50 Tons/cubic (yards) (circle one)

Soil Type (USCS)

___sand (SP, SW)
___silty/clayey sands (SM, SC)
___silt (ML, MH, OL)
X clay (Cl, CH, OH)
X gravel (GC, GM, GP, GW)
___peat (PT)

Type of Petroleum Contamination (Circle):

Gasoline Diesel Fuel/(#2 Fuel Oil)

Other _____

Distance to Nearest Residence/Business_____

Contaminant concentration:

One screened sample for each 15 yds³ and one laboratory analysis for each 300 yds³ of contaminated soil when the field instrument *registers contamination* OR one laboratory analysis for each 100 yds³ when the field instrument *does not register contamination* on soil shown to be contaminated during the site investigation/excavation or stockpiling. PLEASE ATTACH A TABLE LISTING RESULTS OF BOTH FIELD SCREENING AND LAB ANALYSES, AND INCLUDE SUPPORTING LAB REPORTS, IN ADDITION TO THE TPH AND BENZENE INFORMATION REQUESTED BELOW. NOTE: DILHR requires a minimum of 3 laboratory samples on excavated soil for PECFA claims.

Total Benzene in soil to be remediated (attach calculations) 4.62 lbs ✓

Total Petroleum Hydrocarbons(TPH) in soil to be remediated (attach calculations) _____ lbs

Total ~~TPH~~ DRO as 5,012 lbs ✓

A CH EMISSIONS CALCULATIONS

(a/1,000,000) x (2,800 lbs/yd³) x b = benzene emission in lbs., where a = benzene concentration of soil sample in ppm or mg/kg dry weight basis, and b = amount of contaminated soil in yds³. NOTE: This calculation can also be used to estimate TPH emissions by substituting TPH concentration (ppm or mg/kg) for "a". It may also be used to calculate VOCs.

Part II: Proposed Treatment Facility HEATHERINGTON & BERNER

Name of Plant LAKEHEAD BLACKTOP & MATERIALS OF SUPERIOR

Plant number and Model #7000 BATCH PLANT

Contact MR. JOSEPH KIMMEL

DNR Facility I.D. No. 8160376-4

Address 5800 Albany Ave. Superior WI (or location of portable plant)

Distance to Nearest Residence/Business 5,000 ft

LEAVE BLANK - DEPARTMENT OF NATURAL RESOURCES USE ONLY

Application Concurrence:

Air Management Phyllis Holmbeck Date 1/13/94

Project Manager _____ Date _____

Comments:

THIS SECTION TO BE COMPLETED BY THE ASPHALT/THERMAL UNIT PROCESSING THE CONTAMINATED SOIL
AFTER PROCESSING IS COMPLETED

Part III

WDNR Air Pollution Control Permit Number _____

Actual Volume of Soil Treated (tons/cubic yards) 13 yds.

Date of transport to plant November 10, 1994

Date of treatment 11-22 to 11-25 94

Transporter Name J. Kimmes Trucking, Inc.

Transporter License Number 12441

Circle One: (Roasted and Incorporated) Roasted Only

Total Benzene emissions in pounds for this batch (apply 50% destruction factor if no after burner is used) 99% Factor w/afterburner 0.1257 LBS

Benzene emissions to date for this plant (including this batch) for this calendar year 5.5954 LBS.

Signature of Treatment plant representative Roland E. Patterson

Telephone Number at Plant 715-392-1989

POST BURN SAMPLE RESULTS: COMPLETE ONLY FOR SOILS NOT INCORPORATED!

(One representative sample for each 100 cubic yards-not composites)

Sample Number				
TPH				

DNR APPROVAL IS REQUIRED BEFORE USING AS COMMON FILL

Date of backfilling or use as common fill _____ Location of fill site ____1/4____1/4____S____T____R

MURPHY OIL USA, INC.
SUPERIOR, WISCONSIN

Table 1

CALCULATIONS FOR BENZENE AND DRO FROM AN ASPHALT PLANT

Mass of Soil to be Thermally Treated

50 yd^3 x 2,800 lb/yd^3 = 140,000 lbs

(DRO):

(DRO) concentration in stockpiled soil SS-1 =

$$\frac{35800 \text{ ppm}}{1{,}000{,}000} \times 140{,}000 \text{ lbs} = 5{,}012 \text{ lbs. for total DRO emissions.}$$

BENZENE

(Benzene) concentration in stockpiled soil SS-1 =

$$\frac{33 \text{ ppm}}{1{,}000{,}000} \times 140{,}000 \text{ lbs} = 4.62 \text{ lbs. for total Benzene emissions.}$$

$\frac{33}{1{,}000{,}000} \times 140{,}000 \times 126 \text{ yds} = 12.5544 \text{ lbs}$

99% factor = [illegible] = 0.1257 lbs

LAKE SUPERIOR LABORATORIES

SAMPLE CONDITION UPON RECEIPT CHECKLIST

Client: TPT

Project: 344-93E TANK 42 STOCKPILE

Date Received: 12-13-93

COC # 11272

Samples Received By: PM LODARZ

P.M. Lodarz

(Signature)

		Yes	No
1.	Is there a chain of custody (COC) or letter stating information contained on a COC?	X	
2.	Is the date and time relinquished in agreement with that written on the letter or COC?	X	
3.	Do the samples received agree with the COC or accompanying paperwork (i.e. number of samples, matrices, sample tags, sample containers, analyses, etc.)?	X	
4.	Are all the samples within the holding times for requested analyses? Communicate any lapse of greater than 4 days beyond date of collection for VOA analysis.	X	
5.	Are all the sample containers intact (i.e., not broken, leaking, etc.)?	X	
6.	Did the samples arrive on ice? a) Are the samples at the proper temperature?	X X	
7.	Is there enough sample to do all the analyses?	X	
8.	Are the samples preserved correctly?	X	
9.	Are the VOA vials head-space free?	NA	

'NO' Items Explained:

NA = Not Applicable.

LAKE SUPERIOR LABORATORIES

LABORATORY ANALYSIS REPORT
728 GARFIELD AVENUE ■ DULUTH, MINNESOTA 55802
MN (218) 722-1911 ■ FAX (218) 722-3295
A DIVISION OF TWIN PORTS TESTING, INC.

Client
Murphy Oil U.S.A

Project: Murphy Oil-Tank 42 Stockpile
Project No. 344-93E

Collected By Mark Darby
Delivered By Mark Darby

Chem. Lab ID	3691-93LS			
Sample Type	Soil			
Collected	12/10/93			
Received	12/13/93			
Analyzed	12/21/93			
Reported	12/23/93			
Sample Description	SS-1(Stockpile)			
Analysis				
Diesel Range Organics	35800 mg/kg			
Methyl Tertiary Butyl Ether	<0.200 mg/kg			
Moisture	28.3%			
1,2,4-Trimethylbenzene	58.0 mg/kg			
1,3,5-Trimethylbenzene	36.0 mg/kg			
Benzene	33.0 mg/kg			
Ethylbenzene	20.0 mg/kg			
Toluene	16.0 mg/kg			
Total Xylenes	67.0 mg/kg			

Remarks

Patti Peterson 1/5/94
Analyzed By **Date**

Sara Arthur 1/5/94
Reviewed By **Date**

AIR PERMIT REVIEW CALCULATION SHEET Department of Natural Resources

Form 4500-89 Rev. 1-91

Made By: Phyllis Holmjack Date: 1/13/93

Discussed With & Checked By: _____

Re: Murphy Oil _____ Date: _____

_____ Approved: _____ Date: _____

Permit #: Superior _____ Date: _____

Soil Treatment 35800 ppm DRO (5,012 lbs DRO)
(Diesel range organics)

50 yd3

50 yd3 x 2800 lbs / 1 yd3 = 140,000 lbs @ 98% destruction

X (ton/hr) = (9 #/hr) (1.4 ton/yd3) (50 yd3) / (5012 lb DRO) (1 - 0.98)

→ = 6.284 Ton/hr

= 6.284 Ton/hr x 2000 lb/Ton x 1 yd3/2800 lb = 4,489 yd3/hr.

OR

X (ton/hr) = 9 #/hr / (inc (ppm) x (10-6) x 2000 lbs/ton x (1 - 0.98))

= 6.285 Ton/hr.

Footnotes/References:

Wisconsin Department of Natural Resources
Northwest District Air Management Program

Soil Roasting Proposal from Murphy Oil USA, Inc., 2400 Stinson Avenue, Superior, WI.

To Be Treated at Lakehead Blacktop Asphalt Plant in Superior.

Estimated Volume of Contaminated Soil: 50 cubic yards

Type of Petroleum Contamination: #2 Fuel Oil

Total Petroleum Hydrocarbons (DRO) in soil to be remediated: 5,012 pounds

Total Benzene in soil to be remediated: 4.62 pounds

DRO sample analysis: 35800 ppm DRO

Lead in soil to be remediated: NA pounds

VOC Emission Estimates

Soil Feed Rate (tons/hr)	Soil Feed Rate (kg/hr)	VOC conc. of soil (mg/kg)	VOC destruction efficiency %	Uncontrolled VOC Emission (lb/hr)	Controlled VOC Emission (lb/hr)	Allowable Emission (lb/hr)
80	72,576	35800	98	5728.0	114.6	9.0
70	63,504	35800	98	5012.0	100.2	9.0
60	54,432	35800	98	4296.0	85.9	9.0
50	45,360	35800	98	3580.0	71.6	9.0
40	36,288	35800	98	2864.0	57.3	9.0
30	27,216	35800	98	2148.0	43.0	9.0
20	18,144	35800	98	1432.0	28.6	9.0
16	14,515	35800	98	1145.6	22.9	9.0
8	7,258	35800	98	572.8	11.5	9.0
5	4,536	35800	98	358.0	7.16	9.0
3	2,722	35800	98	214.8	4.30	9.0
2	1,814	35800	98	143.2	2.86	9.0

Wisconsin Department of Natural Resources
Northwest District Air Management Program

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To Be Treated at Lakehead Blacktop Asphalt Plant in Superior.

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80	72,576	35800	25	5728.0	4296.0	9.0
70	63,504	35800	25	5012.0	3759.0	9.0
60	54,432	35800	25	4296.0	3222.0	9.0
50	45,360	35800	25	3580.0	2685.0	9.0
40	36,288	35800	25	2864.0	2148.0	9.0
30	27,216	35800	25	2148.0	1611.0	9.0
20	18,144	35800	25	1432.0	1074.0	9.0
16	14,515	35800	25	1145.6	859.2	9.0
8	7,258	35800	25	572.8	429.6	9.0
5	4,536	35800	25	358.0	268.50	9.0
3	2,722	35800	25	214.8	161.10	9.0
2	1,814	35800	25	143.2	107.40	9.0

MURPHY
OIL USA, INC.

SUPERIOR REFINERY
P O BOX 2066
SUPERIOR WISCONSIN 54880

January 10, 1994

Steve LaValley
Area Hazardous/Solid Waste Specialist
Department of Natural Resources
1705 Tower Avenue
Superior, WI 54880

RE: Analyses and Handling of Petroleum Impacted Soil

Dear Mr. LaValley:

On December 7, 1993, Murphy Oil generated approximately 50 yards of #2 fuel oil contaminated soil. The excavated material was a result of clean-up operations relating to the December 4, 1993, #2 fuel oil release at tank 42, (Reference Murphy Oil correspondence to the Department of Natural Resources of December 8, 1993).

Murphy Oil would like to thermally treat this soil at Lakehead Blacktop and Materials of Superior batch plant for asphalt incorporation.

Soil Pile sampling was conducted during December 10, 1993, and sent to Lake Superior Laboratories in Duluth Minnesota for analysis. The chain of custody and Application to Treat or Dispose of Petroleum Contaminated Soil are included.

If you have any questions or wish to discuss this matter further, please call me at (715)398-3533.

Sincerely,

William P. Gustafson
Environmental Operations Superintendent

bg.036

cc: Jim Gesick
Jim Britt
Jim Kowitz
Rick Lewandowski

SPUR

SERIAL NUMBER

№ 11272

LAKE SUPERIOR LABORATORIES

728 GARFIELD AVENUE • DULUTH, MINNESOTA 55802
MN (218) 722-1911 • FAX (218) 722-3295

A DIVISION OF TWIN PORTS TESTING, INC.

LABORATORY REQUEST AND CHAIN OF CUSTODY RECORD

Project Name/No. 344-93E / Bank 42 Stockpile / Murphy Oil U.S.A. P.O. # _____

Client Murphy Oil U.S.A. Report To MARK DARBY

Address _____ Twin Ports Testing

_____ Bill To TPT Job #

Phone _____

Remarks

Sampler Signature _____

Sampler (Print) MARK DARBY

Sample No./Location	Date	Time	Matrix: Air	Matrix: Liquid	Matrix: Solid	Number Of Containers	Preservative	Analyses: DRO	Analyses: PVOC	Analyses: Dry weight	LSL No.
SS1 (stockpile)	12/14/93	10:25			X	3	✓				3691

Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By
	3:00 12/13/93 PM				
Relinquished By	Date/Time	Received By	Relinquished By	Date/Time	Received By

Turnaround Time: 24 Hour Rush _____ 2-5 Day _____ 2 Week X