

unknown release ? LAST site  
call check

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

Form 4400-149

file Misc

9-13/14

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

Murphy Oil USA - Lakehead Pipeline Terminal

Site Address

Contact Name

2800 East 21st Street

Richard Staupe

City, State, Zip Code

1/4, 1/4, Section, Township, and Range

Superior, WI 54880

NE 1/4 NE 1/4 Section 36 T48N R14W

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

Signature of Soil Generator

Telephone Number (include area code)

James P. Kowitz

715/398-8249

Consulting Firm

Contact

Telephone Number

Eder Associates

Jay Piper

608/836-1500

Estimated Volume Contaminated Soil

Soil Type (USCS)

195 Tons cubic yards (circle one)

\_\_\_ sand (SP, SW)

\_\_\_ silty/clayey sands (SM, SC)

\_\_\_ silt (ML, MH, OL)

X clay (Cl, CH, OH)

\_\_\_ gravel (GC, GM, GP, GW)

\_\_\_ peat (PT)

Type of Petroleum Contamination (Circle):

Gasoline Diesel Fuel/#2 Fuel Oil

Other crude oil

Distance to Nearest Residence/Business \_\_\_\_\_

Contaminant concentration:

One screened sample for each 15 yds<sup>3</sup> and one laboratory analysis for each 300 yds<sup>3</sup> of contaminated soil when the field instrument registers contamination OR one laboratory analysis for each 100 yds<sup>3</sup> 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) 0.0092 lbs

Total Petroleum Hydrocarbons(TPH) in soil to be remediated (attach calculations) 194.4 lbs

Total TPH as DRO

eder associates

8025 Excelsior Drive  
Madison, Wisconsin 53717-1900

FACSIMILE TRANSMITTAL SHEET

Date: 11/9/94  
Time: PM  
Job #: \_\_\_\_\_

TO: Phyllis  
WONR / Superior  
Telecopier #: (915) 392-7093

FROM: Dennis Kugle  
Telecopier #: (608) 831-3337

SUBJECT: Analytical lab reports & chain of  
custody record for Murphy Oil / Lakehead  
Pipeline Co. site contaminated soil  
samples # 7 & # 14.

Call if you need any more info. to approve  
Treat or Dispose same.

(Number of Pages including this page): \_\_\_\_\_

If you receive this communication in error, or if you encountered any problems with transmission, please telephone us at (608) 836-1500.

This facsimile is privileged and confidential and is intended only for the individual or entity named above and others who have been specifically authorized to receive it. If you are not the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited.

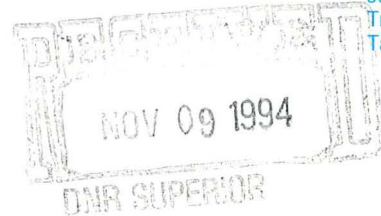
Original will follow:  No  by Regular Mail  by Express Mail



eder associates  
environmental scientists and engineers

OFFICES:  
Locust Valley, NY  
Madison, WI  
Ann Arbor, MI  
Augusta, GA  
Jacksonville, FL  
Trenton, NJ  
Tampa, FL

November 2, 1994  
File #367-20



Ms. Phyllis Holmbeck  
Wisconsin Department of Natural Resources  
1705 Tower Avenue  
Superior, WI 54880

Re: Murphy Oil, USA, Inc., Lakehead Pipeline Terminal, *Application to Treat or Dispose of Petroleum-Contaminated Soil*

Dear Ms. Holmbeck:

Enclosed is the *Application to Treat or Dispose of Petroleum Contaminated Soil* for crude oil contaminated soil excavated from the Murphy Oil USA, Inc. (Murphy) Lakehead Pipeline terminal. One hundred ninety-five cubic yards of contaminated soil were excavated at the terminal on September 13, and 14, 1994, then transported to and stored at Lakehead Blacktop and Materials of Superior, Inc. (Lakehead Blacktop).

Table 1 lists the laboratory results for soil samples collected during contaminated soil excavation. Samples 7 and 14 were collected to characterize the contaminated soil for disposal. The attached form 4400-149 was prepared using the results from these two samples.

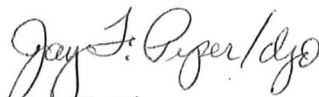
Table 2 contains calculations of the mass of benzene and diesel range organics (DRO) in the excavated soils stockpile. The soil stockpiled at Lakehead Blacktop contains 194.4 lbs of total petroleum hydrocarbons (TPH as DRO) and 0.0092 lbs of benzene.

Please send the completed application to Lakehead Blacktop, 6327 Tower Avenue, Superior, WI 54880. Also, send a copy to Mr. Richard Staupe, Murphy Oil USA, Inc., 2407 Stinson Avenue, Superior, WI 54880.

Thank you for your prompt review of this application. Please call Dennis Kugle or me if you have any questions.

Very truly yours,

EDER ASSOCIATES

  
Jay F. Piper

JFP/klj

Enc.

cc: R. Staupe (Murphy Oil)  
C. Saari (WDNR-Brule)

6L367-20.001

MURPHY OIL USA, INC.  
SUPERIOR, WISCONSIN

TABLE 2

LAKEHEAD PIPELINE TERMINAL  
PETROLEUM-CONTAMINATED SOIL EXCAVATION  
MASS OF DRO AND BENZENE IN SOIL STORED FOR TREATMENT

Mass of Soil to be Treated

195 cubic yards x 2,800 lb/cubic yards = 546,000 lbs

Mass of Petroleum Hydrocarbons as DRO

Soil DRO Analytical Results ( $\mu\text{g/g}$  or ppm)

Sample #7 = 898 ppm

Sample #14 = 141 ppm

ave  $\frac{898+141}{2} = 519.50 \text{ ppm}$

Geometric Mean of DRO Concentrations from Two Samples

$\sqrt{(898 \times 141)} = 356 \text{ ppm DRO}$

$\approx 519.50 \text{ ppm}$

Mass of DRO in Soil Stockpile:

$\frac{519.5}{10^6} \times 195 \times 2800 = 283,63 \text{ lbs DRO}$

356 ppm DRO x 546,000 lbs = 194,4 lbs of DRO  
1,000,000

$\approx 98\% \text{ Dist.}$

$283.63 \text{ lbs} (1 - 0.98) = 5.67$

## MURPHY OIL USA, INC.

## LAKEHEAD PIPELINE

TABLE 1

SOIL SAMPLE ANALYTICAL RESULTS ( $\mu\text{g/g}$  or ppm)

Sample I.D.	3	7	8	10	13	14	16	17	Interim Soil Cleanup Guideline ( $\mu\text{g/g}$ )
Purpose	Closure - Floor	Waste Characterization	Closure - Sidewall	Closure - Sidewall	Closure - Sidewall	Waste Characterization	Closure - Sidewall	Closure - Floor	
DRO	<5.0	<u>898</u>	8.55	47.0	7.53	141	<5.0	<5.0	100/250
Benzene	<0.003	<u>0.019</u>	<0.002	<0.002	<0.002	<u>0.015</u>	<0.005	<0.002	0.0055
Ethylbenzene	<0.005	1.80	<0.004	<0.004	<0.004	2.49	<0.013	0.014	2.90
Toluene	<0.010	0.047	<0.008	<0.008	<0.007	0.062	0.021	0.011	1.50
Xylenes	<0.005	3.27	<0.004	<0.004	<0.004	4.095	0.017	0.023	4.10
124-TMB	<0.005	5.0	<0.004	<0.004	<0.004	6.47	0.029	0.034	NS
135-TMB	<0.005	0.518	<0.004	<0.004	<0.004	3.77	<0.009	0.008	NS
Anthracene	<0.0037	NA	<0.0036	<0.0035	0.00338	NA	<0.0035	<0.0037	NS
Fluorene	<0.0027	NA	<0.0027	<0.0026	0.0103	NA	<0.0026	<0.0027	NS
Phenanthrene	<0.0023	NA	<0.0023	<0.0022	0.0156	NA	<0.0022	<0.0023	NS
Cadmium	<0.23	NA	<0.23	<0.22	<0.2	NA	<0.22	<0.23	NS
Lead	21.2	NA	19.8	14.9	<5.8	NA	15.2	12.1	NS

Table 1 Continued . . .

NOTES:

All analytes detected in analyses for diesel range organics (DRO), petroleum volatile organic compounds (PVOCs), polynuclear aromatic compounds (PAHs), lead, and cadmium analyses are reported. All detections are in bold type. Underlined results exceed the interim soil cleanup guideline.

<0.0023 = analyzed but not detectable at 0.0023  $\mu\text{g/g}$  method detection limit.

Interim soil cleanup guideline for GRO/DRO is 100 ppm for soils with  $K > 10\text{E-}6$  cm/sec and 250 ppm for soils with  $K < 10\text{E-}6$  cm/sec, such as the clay soil at Murphy.

NS = no standard.

NA = not analyzed.

JFP\6L367-20.001

Table 2 Continued . . .

Mass of Benzene

Soil Benzene Analytical Results ( $\mu\text{g/g}$  or ppm):

Sample #7 = 0.019 ppm

Sample #14 = 0.015 ppm

Geometric Mean of Benzene Concentrations for Two Samples:

$\sqrt{(0.019 \times 0.015)} = 0.0169$  ppm benzene

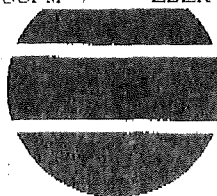
ave =  $\frac{0.019 + 0.015}{2} = 0.017$  ppm

Mass of Benzene in Soil Stockpile

$\frac{0.0169}{1,000,000}$  ppm benzene x 546,000 lbs = 0.0092 lbs benzene

The stockpiled soil contains 194.4 lbs of DRO and 0.0092 lbs of benzene.



**ANALYTICAL REPORT**

Eder Associates  
5025 Excelsior Drive  
Madison, WI 53717-1914

CUST NUMBER: 367-20  
SAMPLED BY: Client  
DATE REC'D: 09/15/94  
REPORT DATE: 10/11/94  
PREPARED BY: GLS  
REVIEWED BY: *[Signature]*

ATTN: Dennis Kuzle/ Dave Olig

	<u>Units</u>	<u>Detection Limit</u>	<u>7 09/13/94</u>	<u>Qualifiers</u>	<u>Date Analyzed</u>
<u>EPA 8020</u>					
Benzene	µg/g	0.009	0.019 ✓		09/17/94
Ethylbenzene	µg/g	0.018	1.80		09/20/94
Methyl tert Butyl Ether	µg/g	0.009	X		09/17/94
Toluene	µg/g	0.009	0.047		09/17/94
1,2,4-Trimethylbenzene	µg/g	0.018	5.00		09/20/94
1,3,5-Trimethylbenzene	µg/g	0.018	0.518		09/17/94
m, p-Xylene	µg/g	0.018	2.47		09/20/94
Xylene & Styrene	µg/g	0.018	0.080		09/17/94

Original No.:

20897

X - Analyzed but not detected.  
Results calculated on a dry weight basis.



**ANALYTICAL REPORT**

Eder Associates  
8025 Excelsior Drive  
Madison, WI 53717-1914

CUST NUMBER: 367-20  
SAMPLED BY: Client  
DATE REC'D: 09/15/94  
REPORT DATE: 10/11/94  
PREPARED BY: GLS *ML*  
REVIEWED BY: *JS*

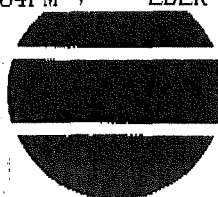
Attn: Dennis Kugle/ Dave Olig

	<u>Units</u>	<u>Detection Limit</u>	<u>14 09/13/94</u>	<u>Qualifiers</u>	<u>Date Analyzed</u>
<u>EPA 8020</u>					
Benzene	µg/g	0.001	0.015 ✓	ISH	09/17/94
Ethylbenzene	µg/g	0.476	2.49		09/20/94
Methyl tert Butyl Ether	µg/g	0.013	X	ISH	09/17/94
Toluene	µg/g	0.013	0.062	ISH	09/17/94
1,2,4-Trimethylbenzene	µg/g	0.476	6.47		09/20/94
1,3,5-Trimethylbenzene	µg/g	0.476	3.77		09/20/94
m- & p-Xylene	µg/g	0.476	3.82		09/20/94
o-Xylene & Styrene	µg/g	0.007	0.275	ISH	09/17/94

Analytical No.:

20898

X = Analyzed but not detected.  
Results calculated on a dry weight basis.

**ANALYTICAL REPORT**

Eder Associates  
8025 Excelsior Drive  
Madison, WI 53717-1914

CUST NUMBER: 367-20  
SAMPLED BY: Client  
DATE REC'D: 09/15/94  
REPORT DATE: 10/12/94  
PREPARED BY: DJB/DJ  
REVIEWED BY: *[Signature]*

Attn: Dennis Kugle/ Dave Olig

Modified Diesel Range Organics (DRO)  
Parameter # 78919

	<u>DRO</u>	<u>Qualifiers</u>	<u>Date Ext</u>	<u>Date Analyzed</u>	<u>Analytical No.</u>
8	8.55	D3 D4	09/16/94	10/07/94	20893
10	47.0	D3 D4 XXX	09/16/94	10/05/94	20894
13	7.53	D2 D4	09/16/94	10/07/94	20895
3	X		09/16/94	10/05/94	20896
7	898.7	D2 D4	09/16/94	10/06/94	20897
14	141.7	D2 D4	09/16/94	10/08/94	20898
17	X		09/16/94	10/08/94	20899
16	X		09/16/94	10/08/94	20900

Detection Limit 5.0  
Units  $\mu\text{g/g}$

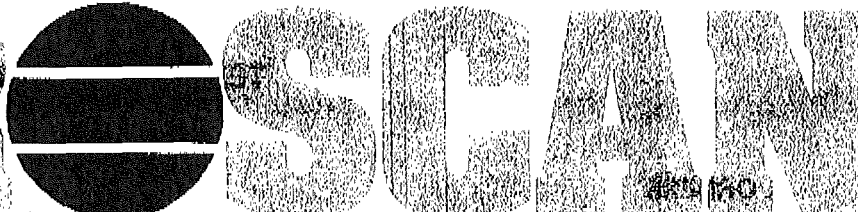
X = Analyzed but not detected.  
Results calculated on a dry weight basis.

Qualifiers: Only above indicated qualifiers apply.

- (D1) The chromatogram is distinct for diesel.
- (D2) The chromatogram is not distinct for diesel. It has characteristics of a product which has significant peaks within the DRO window.
- (D3) The chromatogram is not distinct for diesel or any common petroleum product. All peaks within the DRO window were quantitated.
- (D4) The chromatogram also contained significant peaks outside the DRO window.
- (D5) The chromatogram also contained significant peaks and a raised baseline outside the DRO window.
- (XXX) It is suspected that the sample was contaminated by the vial septa. (See attached chromatograms.)

The replicate spike recovery of this batch of samples was found to be 106.%, 107.%, 103.%, 106.%,

# REQUEST FOR SERVICES



303 W. MILITARY RD. ROTHSCHILD, WI 54474 1-800-338-SCAN

### CLIENT INFORMATION

Name: JAY PIPER\*  
 Company: EDER ASSOCIATES  
 Address: 8025 EXCELSIOR DR  
MADISON WI 53717  
 Phone: (608) 836-1500  
 P.O. #/Project #: 367-20 proj# / P.O.# 94101915  
 Quote / Reference #: \_\_\_\_\_  
 Note: Terms and conditions printed on back apply.

Turnaround Time \_\_\_\_\_

Normal

Rush

Date Needed \_\_\_\_\_

(Preapproved by Lab)

### ANALYTICAL REQUESTS

(use separate sheet if necessary)

21-0412

PAHs	S-LPNA	PVOCs	S-PVOC	DRO	SOIL DRO	Cd, Pb	MPEP
✓	✓	✓	✓	✓	✓	✓	✓

### Sample Type

(Check all that apply)

- Groundwater
- Wastewater
- Soil
- Solid Waste
- Oil
- Other \_\_\_\_\_

### Sample Handling

- Nonhazardous
- Flammable
- Skin Irritant
- Highly Toxic
- Other (specify) \_\_\_\_\_
- Refrigerate
- Work In Hood
- Wear Gloves

LAB USE ONLY	DATE	TIME	No. of Containers		SAMPLE ID	ANALYTICAL REQUESTS				REMARKS
			COMP	GRAB		PAHs	S-LPNA	PVOCs	S-PVOC	
13020893	9-13	PM	4		8	✓	✓	✓	✓	USE PVOC
13020894	↓	PM	4		10	✓	✓	✓	✓	for DRO T.S.
13020895	↓	PM	3		13	✓	✓	✓	✓	1 jar Broken
13020896	9-13	AM	3		3	✓	✓	✓	✓	
	4-13	AM			1		✓	✓		GFP 9-14
13020897	9-13	AM	3		7		✓	✓		
13020898	9-13	PM	3		14		✓	✓		
13020899	9-14	AM	4		17	✓	✓	✓	✓	
13020900	9-14	AM	4		16	✓	✓	✓	✓	

EDER ASS - Bill to EDER INC

### CHAIN OF CUSTODY RECORD

SAMPLERS: (Signature)  
J F Piper

RELINQUISHED BY: (Signature) <u>J Piper</u>	DATE/TIME 9-14 2PM	RECEIVED BY: (Signature)
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)

Del'v Hand Comm: Y  
 Ship Cont OK? Y N N/A  
 Rec'd Refrig? Y N N/A  
 Seals OK? Y N N/A  
 Samples leaking? Y N N/A  
 Comments: \_\_\_\_\_

\* CALL DENNIS KUGLE  
 or DAVE OLIG @608836  
 1500  
 WITH QUESTIONS

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED FOR LABORATORY BY: (Signature)	DATE/TIME
		<u>[Signature]</u>	9/14/04 10:00 AM

**ENVIROSCAN**

October 13, 1994

Eder Associates  
8025 Excelsior Drive  
Madison, WI 53717-1914

RECEIVED	
EDER ASSOC.	
MADISON, WI	
OCT 17 1994	
FILE NO.	_____
WJC	DIK
BAF	DUJ

ENVIRONMENTAL AND  
ANALYTICAL SERVICES

Attn: Dennis Kugle/ Dave Olig

Re: 367-20

Please find enclosed the analytical results for the samples received September 15, 1994.

All analyses were completed in accordance with appropriate EPA and Wisconsin methodologies. Methods and dates of analysis are included in the report tables.

The chain of custody document is enclosed.

If you have any questions about the results, please call. Thank you for using Enviroscan Corp. for your analytical needs.

Sincerely,

Enviroscan Corp.

Eric P. Martin  
Analytical Chemist

ATTACH EMISSIONS CALCULATIONS

(a/1,000,000) x (2,800 lbs/yd<sup>3</sup>) 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 yds<sup>3</sup>. 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

Name of Plant: Lakehead Blacktop and Materials of Superior, Inc. Plant number and Model: Heatherington End-Burner 7,000 lb batch plant
Contact: Mr. Joseph P. Kimmes DNR Facility I.D. No. 816.03.764
Address: 1500 Albany Ave., Superior, WI 54880 Distance to Nearest Residence/Business: 5,000 ft.
(or location of portable plant)

LEAVE BLANK - DEPARTMENT OF NATURAL RESOURCES USE ONLY

Application Concurrence:

Air Management: Phyllis Holmbeck Date: 2/10/94
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):
Date of transport to plant: Date of treatment:
Transporter Name: Transporter License Number:
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):
Benzene emissions to date for this plant (including this batch) for this calendar year:
Signature of Treatment plant representative Telephone Number at Plant:

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