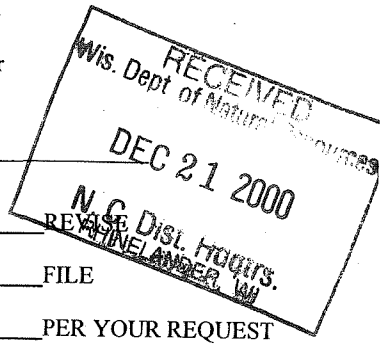
DATE: 12 - 15 - 00

TO:
__AM/7 - SLR_____Madison
X R&R _____Rhinelander

FROM: Phyliss Holmbeck
RE: ___Soil Treatment_____



____COMMENT ____REVISE

____FYI ____FILE

____TAKE ACTION ____PER YOUR REQUEST

____APPROVE ____ROUTE TO

____SIGN ____ RETURN

MURPHY
OIL USA, INC.

SUPERIOR REFINERY
2407 STINSON AVENUE
SUPERIOR WISCONSIN 54880

September 26, 2000

Ms. Phyliss Holmbeck
Wisconsin Department of Natural Resources
1401 Tower Avenue
Superior, WI 54880

RE: Soil Treatment Application for Soil Excavated
from the Marketing Loading Dock area at the Refinery.
Murphy Oil U.S.A., Superior, WI

Dear Ms. Holmbeck:

Enclosed is a thermal treatment application to treat approximately 528 cubic yards of petroleum contaminated soil from the Marketing Loading Dock area at the Refinery.

This soil was generated as a result of construction of a new additive storage tank facility at the marketing loading dock. Murphy had previously reported the results of a "spill investigation" in the same general area on January 14, 2000. The soil in this area was discovered to be contaminated during the course of excavation. Whereas the area previously reported was north, south and west of the vapor recovery unit (VRU), the excavated area was east of the VRU. The excavation was dug as far as possible toward the north, south and west, restricted by piping racks and pavement. The excavation was dug until clean on the east side, the only direction without restrictions. The source of the contamination may be due to past operation of the loading facility before concrete containment was put in under the piping to the north of this excavation or perhaps may be contaminated as a result of fires that occurred at the loading dock in years past. We can not say whether it was related to the vapor recovery spill of 10/9/99. Also, during the excavation an underground pipe was discovered. This pipe was disconnected at both ends. The original use of this pipe is unknown to anyone currently at the refinery. The contamination may have had something to do with this piece of piping. The piping contained water.

The extent of the contamination has been investigated and a letter with this information will be forwarded to the WDNR.

A map has been attached with the location marked. The site does not have a site#.

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

Sincerely,

Liz Lundmark

Liz Lundmark
Manager–Environmental and PSM

cc: Fred Green
Kevin Melnyk
Jim Britt
Dave Podratz

EL058

MURPHY USA

EMISSION CALCULATIONS
MURPHY OIL USA
SUPERIOR, WISCONSIN

GRO CALCULATION:

Sample #	Sample Concentration (mg/kg)
R-2/SP-1 2.5'	47
R-3/SP-2 2.5'	6.7

Average Sample Concentration (mg/kg)	Unit Conversion (2800 lbs./cubic yd) (1000000)	Volume (cubic yards)	Totals Emission (lbs.)
26.85	2.80E-03	528.0	**39.70**

BENZENE CALCULATION:

Sample #	Sample Concentration (mg/kg)
R-2/SP-1 2.5'	4.4
R-3/SP-2 2.5'	0.24

Average Sample Concentration (mg/kg)	Unit Conversion (2800 lbs./cubic yd) (1000000)	Volume (cubic yards)	Totals Emission (lbs.)
2.32	2.80E-03	528.0	**3.43**

[I:\tptfiles\00e1025\Soilapp mass calculations.xls]

State of Wisconsin
Department of Natural Resources

NOTIFICATION TO TREAT OR DISPOSE OF PETROLEUM CONTAMINATED SOIL & WATER

Form 4400-120
Rev. 9-95

This form is required by the Department of Natural Resources (DNR) to ensure that the remediation of petroleum contaminated soil and water is in compliance with NR-500-540, NR 158, NR 419 and NR 445, 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), 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. **Except for the remediation of virgin petroleum spills, this form needs to be submitted to the DNR 10 business days prior to the commencement of the remediation.**

DIRECTIONS: 1) Complete both sides of the form. 2) Have the responsible party sign the form. **This signature certifies that the information on this form and in all supporting documents is accurate.** 3) Submit the form with supporting documentation, lab reports and any maps to the appropriate District Air Management Program at least 10 business days prior to the commencement of remediation. 4) Submit a copy of this form to the DNR project manager and retain a copy for your records.

PART I - GENERAL INFORMATION

Site Name & Address: Murphy Oil USA 2407 Stinson Ave. Superior, WI 54880	**Date of Form Completion:** 9/26/2000
Site #:	**Do Other Remediation Systems Exist at This Site?** ☐ YES ☐ NO
County: Douglas	**Site Type:** ☐ LUST ☐ ERP ☐ CERCLA ☒ Other, Explain: Soil discovered during excavation
Responsible Party Name & Address: Murphy Oil USA P.O. Box 2066 Superior, WI 54880	**Responsible Party Signature:** Liz Lundmark **Telephone #:** 715-398-8204
Consulting Firm Name & Address: Twin Ports Testing, Inc. 1301 N. 3rd St. Superior, WI 54880	**Consulting Firm Contact:** Trudi Mossberger **Telephone #:** (715) 392-7114

PART II - SOIL AND WATER DATA (Attach Lab Reports and Calculations)

Type of Contamination: ■ Gasoline ☐ Diesel ☐ Fuel Oil ☐ Waste Oil ☐ Chlorinated Organics ☐ Other: _____

Soil Concentration:

GRO:	avg.	26.85	mg/kg/10^6	x	2,800 lb/yd³	x	528	yd³ =	39.70 lb
DRO:			mg/kg/10^6	x	2,800 lb/yd³	x		yd³ =	lb
Benzene:	avg.	2.32	mg/kg/10^6	x	2,800 lb/yd³	x	528	yd³ =	3.43 lb
Chlorinated Organics:			mg/kg/10^6	x	2,800 lb/yd³	x		yd³ =	lb
Other:			mg/kg/10^6	x	2,800 lb/yd³	x		yd³ =	lb

Water Concentration: GRO: _____ mg/L DRO: _____ mg/L Benzene: _____ mg/L

Chlorinated Organics: _____ mg/L Other: _____ mg/L

PART III - TREATMENT OR DISPOSAL FACILITY INFORMATION

Treatment/Disposal Facility Name & Address: Lakehead Blacktop & Materials 5800 Albany Ave. Superior, WI 54880	**Facility ID:** 816037640
	Air Pollution Control Permit #: 93-BAB-802
Facility Contact: Scott Kimmes	**Facility Located in 10-county Area in Southeast Wisconsin:** No
Telephone #: (715) 392-1989	**Distance to Nearest Residence or Business:** ~500ft.
Headquarter Address: 6327 Tower Ave. Superior, WI 54880	**Portable Sources Only:** Has a Portable Source Relocation Notification (Form 4500-25) Been Submitted for this Location: ☐ YES ☐ NO N/A

PART III - SOIL VACUUM EXTRACTION OR GROUNDWATER REMEDIATION

Site Contact & Telephone #:	**Proposed Operations (Attach Calculations)**
	Anticipated Start-Up Date:
Is Site Located in the 10-county Area in Southeastern WI	**Estimated Project Duration:**
	# of Wells:
Distance to Nearest Residence or Business:	**# of Emission Points:**
Pilot Test/Soil Venting Only	**Stack Height:**
(Attach Lab Reports and Calculations)	**Maximum Equipment Flow Rate (scfm or gpm):**
Date of Test:	**Total VOC Emission Rate (lb/hr):**
Flow Rate (scfm):	**Benzene Emission Rate (lb/hr):**
Total Withdrawal of Air (scf):	**Benzene Emission Rate (lb/yr):**
Total VOC Emission Rate (lb/hr):	
Benzene Emission Rate (lb/hr):	

PART III - OTHER REMEDIATION METHODS

Proposing Other Remediation Method: ☐ YES **Method Name:** _____

Attach a project description for other remediation methods including landspreading, passive aeration and bioremediation. At a minimum, the information submitted should include the following items (with any supporting lab reports and calculations):

- ✓ Address/Location of Remediation Site - Indicate if this location is in the 10-county area in Southeast Wisconsin and the distance to the nearest residence or business. Include a map or site plan if appropriate.
- ✓ Description of Remediation Method
- ✓ Project Contact & Telephone #
- ✓ Anticipated Start-Up and Estimated Project Duration
- ✓ Highest Estimated Hourly VOC Emissions
- ✓ Highest Estimated Hourly and Annual Benzene Emissions
- ✓ Emission Testing Methodology
- ✓ Final Destination of Soil

EN CHEM INC.

1795 Industrial Drive
Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
FAX: 920-469-8827

- Analytical Report -

Project Name : MURPHY MKTG. CONSTR.

Project Number : 00E1025

Client: TWIN PORTS TESTING

WI DNR LAB ID : 405132750

Sample No.	Field ID	Collection Date	Sample No.	Field ID	Collection Date
803447-001	R-2/SP-1 2.5'	7/20/00			
803447-002	R-3/SP-2 2.5'	7/20/00			

Please visit our Internet homepage at: www.enchem.com

The "Q" flag is present when a parameter has been detected below the LOQ. This indicates the results are qualified due to the uncertainty of the parameter concentration between the LOD and the LOQ.

Soil VOC detects are corrected for the total solids, unless otherwise noted.

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

J. Duracean — Approval Signature

7/28/00 — Date

En Chem Inc.

Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

Lab#:	TestGroupID:	Comment:
803447-001	GRO-S-ME	Early peaks present outside of window of analysis.

R-2/SP-1 2.5'

En Chem Inc.

Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

- Analytical Report -

Project Name : MURPHY MKTG. CONSTR.

Project Number : 00E1025

Client : TWIN PORTS TESTING

Field ID : R-2/SP-1 2.5'

Report Date : 7/27/00

Lab Sample Number : 803447-001

Collection Date : 7/20/00

WI DNR LAB ID : 405132750

Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	72.7				%		7/26/00	SM2540G	SM2540G	DJB

Organic Results

BTEX - METHANOL PRESERVED SOIL Prep Method: SW846 5030B Prep Date: 7/26/00 Analyst: PMS

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	102				%Recov		7/26/00	MOD 8021B
Benzene (4.4 mg/kg)	4400	34	82		ug/kg		7/26/00	MOD 8021B
Ethylbenzene	2900	34	82		ug/kg		7/26/00	MOD 8021B
Toluene	85	34	82		ug/kg		7/26/00	MOD 8021B
Xylenes, -m, -p	600	34	82		ug/kg		7/26/00	MOD 8021B
Xylene, -o	72	34	82		ug/kg	Q	7/26/00	MOD 8021B

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL Prep Method: Wi MOD GRO Prep Date: 7/26/00 Analyst: PMS

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	47			3.4	mg/kg		7/26/00	Wi MOD GRO
Blank Spike	96			1.0	%Recov		7/26/00	Wi MOD GRO
Blank Spike Duplicate	94			1.0	%Recov		7/26/00	Wi MOD GRO
Blank	< 2.5			2.5	mg/kg		7/26/00	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

En Chem Inc.

Green Bay, WI 54302
920-469-2436
800-7-ENCHEM
Fax: 920-469-8827

- Analytical Report -

Project Name : MURPHY MKTG. CONSTR.

Project Number : 00E1025

Field ID : R-3/SP-2 2.5'

Lab Sample Number : 803447-002

WI DNR LAB ID : 405132750

Client : TWIN PORTS TESTING

Report Date : 7/27/00

Collection Date : 7/20/00

Matrix Type : SOIL

Inorganic Results

Test	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Prep Method	Analysis Method	Analyst
Solids, percent	74.8				%		7/26/00	SM2540G	SM2540G	DJB

Organic Results

BTEX - METHANOL PRESERVED SOIL Prep Method: SW846 5030B Prep Date: 7/26/00 Analyst: PMS

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
a,a,a-Trifluorotoluene	102				%Recov		7/26/00	MOD 8021B
Benzene	240	33	79		ug/kg		7/26/00	MOD 8021B
Ethylbenzene	400	33	79		ug/kg		7/26/00	MOD 8021B
Toluene	< 25	25	60		ug/kg		7/26/00	MOD 8021B
Xylenes, -m, -p	900	33	79		ug/kg		7/26/00	MOD 8021B
Xylene, -o	43	33	79		ug/kg	Q	7/26/00	MOD 8021B

Organic Results

GASOLINE RANGE ORGANICS - SOIL/METHANOL Prep Method: Wi MOD GRO Prep Date: 7/26/00 Analyst: PMS

Analyte	Result	LOD	LOQ	EQL	Units	Code	Analysis Date	Analysis Method
Gasoline Range Organics	6.7			3.3	mg/kg		7/26/00	Wi MOD GRO
Blank Spike	96			1.0	%Recov		7/26/00	Wi MOD GRO
Blank Spike Duplicate	94			1.0	%Recov		7/26/00	Wi MOD GRO
Blank	< 2.5			2.5	mg/kg		7/26/00	Wi MOD GRO

All soil results are reported on a dry weight basis unless otherwise noted.

EN CHEM - GREEN BAY COOLER RECEIPT LOG

Batch No. 803447 Project Name or ID OOE 1025 No. of Coolers: 1

Temps: 1 1 1 °C WI only(circle): ROI

A. Receipt Phase: Date cooler was opened: 7-25-00 By: GD.

			Initals/Date
1: Were temperture blanks present? ..(record temperatures above)	YES	NO	GD 7-25-00
2: Were custody seals present? (Also record on COC)	YES	NO	
3: Are COC documents present?	YES	NO[2]	
4: Were all sample containers for tests requested on the COC received?	YES	NO[2]	
5: Do sample labels match the COC?	YES	NO[2]	
6: Are there any short holdtime tests?	YES[1]	NO	
7: Are sample volumes adequate for tests requested?	YES	NO[2]	
8: Are VOC samples free of bubbles >6mm	YES	NO[2]	NA
9: Are dissolved parameters field filtered?	YES	NO[2]	NA
10: Check sample pH of preserved samples. (not VOCs) Completed	YES	NO	NA OK OK GD 7/25/00
11: Are samples preserved properly?	YES	NO[2]	
12: Started nonconformance/phone log record if applicable. Completed	YES	NO	NA
13: Enter samples into Project Logbook. Completed	YES	NO	
14: Place laboratory sample number on all containers Completed	YES	NO	
15: Check laboratory sample number on all containers and COC Completed	YES	NO	GD

B. Log-In Phase: Date samples were logged-in: 7/25/00 By: BS

1: Were samples received on Ice? (Must be ≤ 4 C)	YES	NO[2]	BS 7/25/00
2: Is the COC signed as received by En Chem ?	YES	NO	
3: Is this Project a Quick Turn Project?	YES	NO	
4: Is there any sub-work?	YES	NO	
5: Are any samples nearing expiration of hold-time? (Within 2 days)	YES[1]	NO	Contacted
6: Initiate Subcontracting procedure, SOP 1-REC-4, if applicable. Completed	YES	NO	NA

Short Hold-time tests:

48 Hours or less	7 days	Footnotes
Coliform (6 hrs)	Flashpoint	1 Notify proper lab group immediately.
Hexavalent Chromium (24 Hrs)	TSS	2 Complete phone log.
BOD	Total Solids	
Nitrite	TDS	
Ortho Phosphorus	Sulfide	
Turbidity	Free Liquids	
Surfactants	Total Volatile Solids	
Sulfite	Aqueous Extractable Organics- ALL	
En Core Preservation	Unpreserved VOC's	
Color	Ash	

Rev. 12/15/99, Attachment to 1-REC-5.

*Subject to QA Audit.

I have reviewed Log-in sheets, resolved all nonconformance issues, corrected and properly documented these actions

Project Mgmt reviewed by/date TW 7/26/00

Company Name: Twin Ports Testing

Branch or Location: Superior, WI

Project Contact: Irvin Mossberger

Telephone: (715) 392-7114

Project Number: COE1025

Project Name: Murphy Mkt, Conc

Project State: WI

Sampled By (Print): Irvin Mossberger

Regulatory Program *(circle)*: UST RCRA CLP SDWA
NPDES/WPDES CAA NR_____
Other _____

1-week turnaround please

EN CHEM INC.

1241 Bellevue St., Suite 9
Green Bay, WI 54302
920-469-2436 • 1-800-736-2436
FAX 920-469-8827

525 Science Drive
Madison, WI 53711
608-232-3300 • 1-888-536-2436
FAX: 608-233-0502

1423 N. 8th Street, Suite 122
Superior, WI 54880
715-392-5844 • 1-800-837-8238
FAX 715-392-5843

CHAIN OF CUSTODY

14965

Page 1 of 1

P.O. # _____ Quote # _____

Mail Report To: Irvin Mossberger

Company: Twin Ports Testing

Address: 1301 N. 3rd St.
Superior, WI 54880

Invoice To: Mike Gotlieb

Company: Murphy Oil USA

Address: P.O. Box 2066
Superior, WI 54880

Mail Invoice To: Murphy Oil

Due 8/4/00
7/27/00

ANALYSES REQUESTED: 5/10/15/EX

FILTERED? (YES/NO): N N

PRESERVATION (CODE)*: F F

FIELD ID	SAMPLE DESCRIPTION	COLLECTION DATE	COLLECTION TIME	FIELD SCREEN ppm	MATRIX	GOOD COND.	TOTAL BOTTLES	COMMENTS	LABORATORY NUMBER
SB-2/SP-1	2.5'	7/20/00	8:50	86	soil	✓	1-20 m, 1-40 s		001
SB-3/SP-2	2.5'		10:47	91	"	✓	1 ✓		002
								No Meth Blank 7/25/00	

*Preservation Code
A=None B=HCL C=H2SO4
D=HN03 E=EnCore F=Methanol**
G=NaOH O=Other (Indicate)

**If not using En Chem's methanol, indicate volume of methanol added and mark the appropriate samples.

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature]	7/25/00 3:33	[signature]	7-26-00 3:33
[signature]	7-24-00 2:10	[signature]	7-24-00 2:10
[signature]		[signature]	7-25-00 0800

En Chem Project No. 803447

Sample Receipt Temp. ROL

Sample Receipt pH (Wet/Metals)

Custody Seal

Gannett Fleming

FIGURE 2

GENERAL DIRECTION OF GROUNDWATER FLOW

LEGEND

- Monitoring Well Location
- Monitoring Well Nest Location
- 65 Former Tank Location
- Liner

HILL AVENUE

MW-8

MW-6

MW-4

MW-5

MW-7

MW-1/T29

MW-2/T59

MW-1&PZ-1/T59

MW-1

MW-2

MW-3B

MW-1/PP
PZ-1/PP

MW-2/PP

Propane/ Butane Loading Area

MW-1/T31

MW-5/T66

MW-4&PZ-4/T66

MW-7/T66

MW-1/T67

MW-6/T66

MW-1&PZ-1/T66

MW-2/T67

PZ-2/T66

PZ-3/T66

MW-2/T66

MW-3/T66

MW-9

Flare

Warehouse

Maintenance Shop

Process Area

MW-1/T8

MW-2/T8

Railcar Loading Area

Fire House

Process Area

Process Area

Boiler House

Loading Area

Fire Water Pond No. 5

Storm Water Collection Pond No. 4

Pond 1 (Closed)

Pond 6 (Closed)

Fire Water Pond No. 2

Pond 7 Aeration Pond

Pond 8 Settling Pond

Fire Water Pond No. 3

100'ø Equalization Tank

30'ø Primary Clarifer

Treatment Plant Building

MW-10

STINSON AVENUE

MW-11

Storage

Lab

Office

Marketing

BARDON AVENUE

Impoundment Area

NEWTON CREEK

MW-14

MW-13

MW-12

NOTE

Monitoring Well Locations Are Based On Field Sketches From The Field Investigation Reports And Are Approximate.

0 300

Approximate Scale In Feet

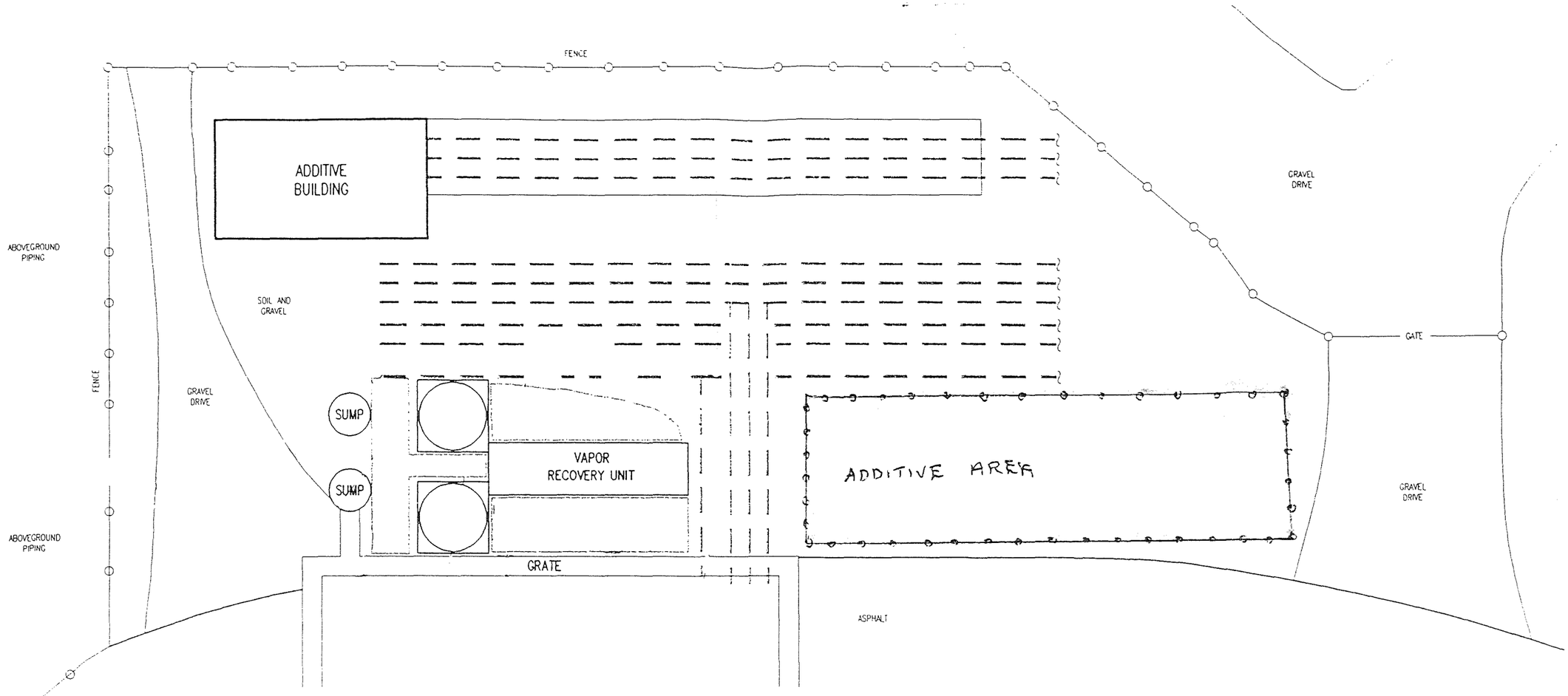
070899
34265WBB

SITE PLAN

MURPHY OIL USA, INC

SUPERIOR, WISCONSIN

Gannett Fleming



NOTES

1. *Locations Are Approximate Based On Field Measurements; Site Not Surveyed.*
2. *It Should Be Noted That Due To The Presence Of A Significant Amount Of Aboveground And Underground Utilities, As Well As Other Structures In This Area, There Is Extremely Limited Access.*

0 20

Scale In Feet

FUEL LOADING AREA