Facility name: MOSS AMERICAN (KERR-McGEE OIL CO.)

Location: 8716 GRANVILLE ROAD MILWAUKEE WI.

EPA Region: 5

Person(s) in charge of the facility: TONY HOLOSKA

Name of Reviewer: ROBERT E. GERSTEIN Date: 3/9/84

General description of the facility:

(For example: landfill, surface impoundment, pile, container; types of hazardous substances; location of the facility; contamination route of major concern; types of information needed for rating; agency action, etc.)

AN INACTIVE WOOD TREATING FACILITY (USING CREOSOTE) ALLEGED TO HAVE CAUSED CONTAMINATION OF THE LITTLE MENOMONEE RIVER. SIGNIFICANT CREOSOTE CONTAMINATION HAS BEEN DOCUMENTED IN PLANT SOILS AND THE ADJACENT RIVER BED

Scores: S_M = 32.14 (S_{gw} = 55.10 S_{sw} = 7.55 S_a = 0)

S_{FE} = 0

S_{DC} = 16.67

FIGURE 1
HRS COVER SHEET

Robert E. Gerstein
3/9/84

Ground Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
[1] Observed Release	0	45	1	45	45	3.1
If observed release is given a score of 45, proceed to line [4]. If observed release is given a score of 0, proceed to line [2].						
[2] Route Characteristics						3.2
Depth to Aquifer of Concern	0 1 2 3		2		6	
Net Precipitation	0 1 2 3		1		3	
Permeability of the Unsaturated Zone	0 1 2 3		1		3	
Physical State	0 1 2 3		1		3	
Total Route Characteristics Score					15	
[3] Containment	0 1 2 3		1		3	3.3
[4] Waste Characteristics						3.4
Toxicity/Persistence	0 3 6 9 12 (15) 18		1	15	18	
Hazardous Waste Quantity	0 1 2 (3) 4 5 6 7 8		1	3	8	
Total Waste Characteristics Score				18	26	
[5] Targets						3.5
Ground Water Use	0 1 2 (3)		3	9	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 12 16 18 20 24 (30) 32 35 40		1	30	40	
Total Targets Score				39	49	
[6] If line [1] is 45, multiply [1] x [4] x [5] If line [1] is 0, multiply [2] x [3] x [4] x [5]					57,330	
[7] Divide line [6] by 57,330 and multiply by 100			S_{gw} = 55.10			

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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3/9/84

Surface Water Route Work Sheet						
Rating Factor	Assigned Value (Circle One)		Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Release	0	(45)	1	45	45	4.1
If observed release is given a value of 45, proceed to line 4. If observed release is given a value of 0, proceed to line 2.						
2 Route Characteristics						4.2
Facility Slope and Intervening Terrain	0 1 2 3		1		3	
1-yr. 24-hr. Rainfall	0 1 2 3		1		3	
Distance to Nearest Surface Water	0 1 2 3		2		6	
Physical State	0 1 2 3		1		3	
Total Route Characteristics Score					15	
3 Containment	0 1 2 3		1		3	4.3
4 Waste Characteristics						4.4
Toxicity/Persistence	0 3 6 9 12 (15) 18		1	15	18	
Hazardous Waste Quantity	0 1 2 (3) 4 5 6 7 8		1	3	8	
Total Waste Characteristics Score				18	26	
5 Targets						4.5
Surface Water Use	0 1 (2) 3		3	6	9	
Distance to a Sensitive Environment	(0) 1 2 3		2	0	6	
Population Served/Distance to Water Intake Downstream	(0) 4 6 8 10 12 16 18 20 24 30 32 35 40		1	0	40	
Total Targets Score				6	55	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5				4860	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{SW} =	7.55		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Robert E. Lewton
3/9/84

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Observed Release	(0) 45	1	0	45	5.1
Date and Location:					
Sampling Protocol:					
If line 1 is 0, the S_a = 0. Enter on line 5. If line 1 is 45, then proceed to line 2.					
2 Waste Characteristics					5.2
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Waste Characteristics Score			20	
3 Targets					5.3
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Targets Score			39	
4 Multiply 1 x 2 x 3			0	35,100	
5 Divide line 4 by 35,100 and multiply by 100		S_a =	0		

FIGURE 9
AIR ROUTE WORK SHEET

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3/9/84

	S	S^2
Groundwater Route Score (S_{gw})	55.10	3036.01
Surface Water Route Score (S_{sw})	7.55	57.00
Air Route Score (S_a)	- 0 -	- 0 -
$S_{gw}^2 + S_{sw}^2 + S_a^2$		3093.01
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2}$		55.61
$\sqrt{S_{gw}^2 + S_{sw}^2 + S_a^2} / 1.73 = S_M =$		32.14

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Robert E. Bernstein
3/9/84

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multiplier	Score	Max. Score	Ref. (Section)
1 Containment	1 3	1		3	7.1
2 Waste Characteristics					7.2
Direct Evidence	0 3	1		3	
Ignitability	0 1 2 3	1		3	
Reactivity	0 1 2 3	1		3	
Incompatibility	0 1 2 3	1		3	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
Total Waste Characteristics Score				20	
3 Targets					7.3
Distance to Nearest Population	0 1 2 3 4 5	1		5	
Distance to Nearest Building	0 1 2 3	1		3	
Distance to Sensitive Environment	0 1 2 3	1		3	
Land Use	0 1 2 3	1		3	
Population Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Buildings Within 2-Mile Radius	0 1 2 3 4 5	1		5	
Total Targets Score				24	
4 Multiply 1 x 2 x 3				1,440	
5 Divide line 4 by 1,440 and multiply by 100		S_{FE} = 0			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

Robert E. Gerstein
3/9/84

Direct Contact Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	Score	Max. Score	Ref. (Section)
1 Observed Incident	0 45	1	45	45	8.1
If line 1 is 45, proceed to line 4 If line 1 is 0, proceed to line 2					
2 Accessibility	0 1 2 3	1		3	8.2
3 Containment	0 15	1		15	8.3
4 Waste Characteristics Toxicity	0 1 (2) 3	5	10	15	8.4
5 Targets					8.5
Population Within a 1-Mile Radius	0 1 (2) 3 4 5	4	8	20	
Distance to a Critical Habitat	(0) 1 2 3	4	0	12	
Total Targets Score			8	32	
6 If line 1 is 45, multiply 1 x 4 x 5 If line 1 is 0, multiply 2 x 3 x 4 x 5			3600	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 16.67		

FIGURE 12
DIRECT CONTACT WORK SHEET

Robert E. Hunter
3/9/84

DOCUMENTATION RECORDS
FOR
HAZARD RANKING SYSTEM

INSTRUCTIONS: The purpose of these records is to provide a convenient way to prepare an auditable record of the data and documentation used to apply the Hazard Ranking System to a given facility. As briefly as possible summarize the information you used to assign the score for each factor (e.g., "Waste quantity = 4,230 drums plus 800 cubic yards of sludges"). The source of information should be provided for each entry and should be a bibliographic-type reference that will make the document used for a given data point easier to find. Include the location of the document and consider appending a copy of the relevant page(s) for ease in review.

FACILITY NAME: Moss American (Kerr-McGee Oil Co.)

LOCATION: 8716 Granville Road Milwaukee, WI.

Robert E. Benton
3/9/84

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):

Creosote

Rationale for attributing the contaminants to the facility:

Results of on-site sampling & reported in Section II of "The Potential for Pollution of the Little Menomonee River from the Kerr-McGee/Moss America Plant Site Milwaukee Wisconsin" (September-October 1977) EPA-330/2-77-022 November 1977

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

N/A

Depth(s) from the ground surface to the highest seasonal level of the saturated zone [water table(s)] of the aquifer of concern:

N/A

Depth from the ground surface to the lowest point of waste disposal/ storage:

N/A

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3/9/84

Net Precipitation

Mean annual or seasonal precipitation (list months for seasonal):

N/A

Mean annual lake or seasonal evaporation (list months for seasonal):

N/A

Net precipitation (subtract the above figures):

N/A

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

N/A

Permeability associated with soil type:

N/A

Physical State

Physical state of substances at time of disposal (or at present time for generated gases):

N/A

* * *

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3/9/84

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated:

Creosote, Coal Tar

Compound with highest score:

Toxicity - Moderate - Assigned value - 2
Persistence - Unknown - assume highest value - 3
Matrix value - 15

Soure: Sax 5th ed.
Also see Kerr-McGee's Comment of 11/3/83 NPL-01-3-45

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

111 cubic yards

Assigned value - 3

Basis of estimating and/or computing waste quantity:

4/8/81 CERCLA Notification

see also Kerr McGee's Comment of 11/3/83
NPL-01-3-45

* * *

Robert E. Hunter

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:

The aquifer of concern is the Niagaran Dolomite which is hydraulically connected to the overlying glacial till. The Niagaran Dolomite is used as a water supply for private wells and a small subdivision. No municipal system in some areas. Assigned value-3

Sources: Bob Baumeister (WDNR) [608]-266-2294: Ron Hennings and Irene Lippelt (Wis. Geol. Survey) [608]-262-7430: Ken Weisner (WDNR) [608]-266-0014

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:

There are active wells located along Granville Road southwest of the site.

Distance to above well or building:

1500 feet Assigned value-4

Population Served by Ground Water Wells Within a 3-Mile Radius

Identified water-supply well(s) drawing from aquifer(s) of concern within a 3-mile radius and populations served by each:

The Milwaukee Municipal water system ends about 1.5 miles east and 1 mile south of the site. Private wells are used beyond the system boundaries - Edwin Kalisz, City of Milwaukee, Bureau of Engineers.

Menomonee Falls Water Dept system ends 1/2 mile west of Milwaukee County Line. "Private wells north of the freeway" - Max Vogt Direct of Public Works-Menomonee Falls

Computation of land area irrigated by supply well(s) drawing from aquifer(s) of concern within a 3-mile radius, and conversion to population (1.5 people per acre):

Total population served by ground water within a 3-mile radius:

House counts of homes beyond the municipal systems and tapping the Dolomite = 415

Population 415 x 3.8 = 1577 Assigned value = 3

Sources Ken Weismer (WDNR) 608-266-0014
Bob Baumeister (WDNR) 608-266-2294
Chad Charkowski 414-257-6517
Norm Hahn 608-267-7661

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7/10/84

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum):

Creosote related chemicals

Assigned value - 45

Rationale for attributing the contaminants to the facility:

"Stream Segment Survey of the Little Menomonee River" June 24 and 25, 1975 (with attachments) Transmitted under Memo EPA 5MWD Sept 3, 1975

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

N/A

Name/description of nearest downslope surface water:

~~N/A~~ Little Menomonee River

Average slope of terrain between facility and above-cited surface water body in percent:

N/A

Is the facility located either totally or partially in surface water?

N/A

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3/9/84

Is the facility completely surrounded by areas of higher elevation?

N/A

1-Year 24-Hour Rainfall in Inches

N/A

Distance to Nearest Downslope Surface Water

N/A

Physical State of Waste

N/A

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

N/A

Method with highest score:

N/A

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4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

See Ground Water Section

Compound with highest score:

See Ground Water Section

Assigned value - 15

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility, excluding those with a containment score of 0 (Give a reasonable estimate even if quantity is above maximum):

See Ground Water Section

Assigned value - 3

Basis of estimating and/or computing waste quantity:

* * *

5 TARGETS

Surface Water Use

Use(s) of surface water within 3 miles downstream of the hazardous substance:

Recreational Use only

Ken Weisner (WDNR)

Assigned value - 2

Robert E. Beaster
2/4/94

Is there tidal influence?

N/A

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

N/A.

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

None reported

Distance to critical habitat of an endangered species or national wildlife refuge, if 1 mile or less:

None reported

Population Served by Surface Water

Location(s) of water-supply intake(s) within 3 miles (free-flowing bodies) or 1 mile (static water bodies) downstream of the hazardous substance and population served by each intake:

None reported.

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3/9/84

Computation of land area irrigated by above-cited intake(s) and conversion to population (1.5 people per acre):

N/A

Total population served:

N/A

Name/description of nearest of above water bodies:

N/A

Distance to above-cited intakes, measured in stream miles.

N/A

Robert E. Gustem
3/9/84

AIR ROUTE

1 OBSERVED RELEASE

Contaminants detected:

None Reported

Date and location of detection of contaminants

Methods used to detect the contaminants:

Rationale for attributing the contaminants to the site:

* * *

2 WASTE CHARACTERISTICS

<u>Reactivity and Incompatibility</u>

Most reactive compound:

Most incompatible pair of compounds:

Robert E. Gunter
3/9/84

Toxicity

Most toxic compound:

Hazardous Waste Quantity

Total quantity of hazardous waste:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Population Within 4-Mile Radius

Circle radius used, give population, and indicate how determined:

0 to 4 mi 0 to 1 mi 0 to 1/2 mi 0 to 1/4 mi

Distance to a Sensitive Environment

Distance to 5-acre (minimum) coastal wetland, if 2 miles or less:

Distance to 5-acre (minimum) fresh-water wetland, if 1 mile or less:

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Distance to critical habitat of an endangered species, if 1 mile or less:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

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3/9/84

FIRE AND EXPLOSION

Not evaluated

1 CONTAINMENT

Hazardous substances present:

Type of containment, if applicable:

* * *

2 WASTE CHARACTERISTICS

Direct Evidence

Type of instrument and measurements:

Ignitability

Compound used:

Reactivity

Most reactive compound:

Incompatibility

Most incompatible pair of compounds:

* * *

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3/9/84

Not evaluated

Hazardous Waste Quantity

Total quantity of hazardous substances at the facility:

Basis of estimating and/or computing waste quantity:

* * *

3 TARGETS

Distance to Nearest Population

Distance to Nearest Building

Distance to Sensitive Environment

Distance to wetlands:

Distance to critical habitat:

Land Use

Distance to commercial/industrial area, if 1 mile or less:

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3/9/84

Not evaluated

Distance to national or state park, forest, or wildlife reserve, if 2 miles or less:

Distance to residential area, if 2 miles or less:

Distance to agricultural land in production within past 5 years, if 1 mile or less:

Distance to prime agricultural land in production within past 5 years, if 2 miles or less:

Is a historic or landmark site (National Register or Historic Places and National Natural Landmarks) within the view of the site?

Population Within 2-Mile Radius

Buildings Within 2-Mile Radius

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DIRECT CONTACT

1 OBSERVED INCIDENT

Date, location, and pertinent details of incident:

Reported in Milwaukee Sentinel 7/1/72
Nine youths burned by creosote during a clean-up effort downstream from site.

* * *

2 ACCESSIBILITY

Describe type of barrier(s):

* * *

3 CONTAINMENT

Type of containment, if applicable:

* * *

4 WASTE CHARACTERISTICS

Toxicity

Compounds evaluated:

Creosote

Compound with highest score:

Creosote. Toxicity - 2

* * *

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3/9/84

5 TARGETS

Population within one-mile radius

>100 and <1000
Estimated from building count from
U.S. G.S. Topo sheet

Assigned value=2

Distance to critical habitat (of endangered species)

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3/9/84