PA

Facility name: Moss American (Kerr-McGee Oil Co.)

Location: 8716 Granville Rd., Milwaukee, WI

EPA Region: 5

Person(s) in charge of the facility:

Name of Reviewer: J. Dikinis Date: April 29, 1983

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: $S_M = 35.94$ ($S_{gw} = 61.22$ $S_{sw} = 10.91$ $S_a = 0$)

$S_{FE} = 0$

$S_{DC} = 25$

FIGURE 1
HRS COVER SHEET

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	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	26	
5 Targets					3.5
Ground Water Use	0 1 (2) 3	3	6	9	
Distance to Nearest Well/Population Served	0 4 6 8 10 / 12 16 18 20 / (24) 30 32 35 40	1	24	40	
Total Targets Score			30	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			35,100	57,330	
7 Divide line 6 by 57,330 and multiply by 100			S_{gw} = 61.22		

FIGURE 2
GROUND WATER ROUTE WORK SHEET

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	18	18	
Hazardous Waste Quantity	0 1 2 3 4 5 6 7 (8)	1	8	8	
Total Waste Characteristics Score			26	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			7020	64,350	
7 Divide line 6 by 64,350 and multiply by 100			S_{SW} = 10.91		

FIGURE 7
SURFACE WATER ROUTE WORK SHEET

Air Route Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	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		(0)	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		(0)	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.

	s	s^2
Groundwater Route Score (S_{gw})	61.22	3747.89
Surface Water Route Score (S_{sw})	10.91	119.03
Air Route Score (S_a)	0	0
$s_{gw}^2 + s_{sw}^2 + s_a^2$		3866.92
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2}$		62.18
$\sqrt{s_{gw}^2 + s_{sw}^2 + s_a^2} \,/\, 1.73 = S_M =$		35.94

FIGURE 10
WORKSHEET FOR COMPUTING S_M

Fire and Explosion Work Sheet					
Rating Factor	Assigned Value (Circle One)	Multi-plier	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} =			

FIGURE 11
FIRE AND EXPLOSION WORK SHEET

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	15	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			5400	21,600	
7 Divide line 6 by 21,600 and multiply by 100			S_{DC} = 25		

FIGURE 12
DIRECT CONTACT WORK SHEET

June 28, 1982

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 Rd., Milwaukee, WI

All referenced materials with the exception of Sax, 5th Ed., and topographic sheets from Wisconsin-
Menomonee Falls Quadrangle
Thiensville Quadrangle
Wauwatosa Quadrangle
are found in USEPA Region V files.

4 Phone calls made:

① Ken Weisner - Physical & Chemical Wastewater Super
Ind. Waste Water Section, WDNR
608/266-0014

② Gary Edelstein - Env. Engineer, Superfund Coord.,
WDNR 608/267-7563

③ Bob Baumeister - Public Water Supply Section
608/266-2299

④ Chuck Goethel - Private Water Supply Section
608/266-3415

GROUND WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected (5 maximum):
Creosote detected in ground water taken from on-site wells. "The Potential For Pollution of the Little Menomonee River From The Kerr-McGee/Moss-American Plant Site Milw. WI" (Sept.-Oct. 1977) NEIC & EPA Region V November. 1977.

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Depth to Aquifer of Concern

Name/description of aquifers(s) of concern:

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

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

Net Precipitation

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

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

Net precipitation (subtract the above figures):

Permeability of Unsaturated Zone

Soil type in unsaturated zone:

Permeability associated with soil type:

Physical State

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

* * *

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 documented in soil, groundwater, sediment samples
JAN. 16, 1973 analysis of sediment samples identified 19 constituents including: dibenzofuran, benzophenanthrene, 2 benzpyrene isomers (All are common to coal tar distillates).

Compound with highest score:

benzpyrene. Human carcinogen ∴ toxicity = 3
syn. benzo(a)pyrene polycyclic compound ∴ persistence = 3
SAX. 5th Ed. pg. 267 & pg. 407

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): 4125.86 cu. yds.

90 A. site - 30 A contaminated in places to depth of 15'

30 A = 30 x 43560 ft.² = 1306800 ft²
1306800 ft² x 15 ft = 19602000 ft³ contaminated soil.

Basis of estimating and/or computing waste quantity:

Ave. conc.		
# 772407	0-1.5	23,700
	5-6.5	ND
	10-11.5	ND
# 772401	0-1.5	2500
	5-6.5	ND
	10-11.5	7900

* * *
÷6 = 5683 ppm ave.

19602000 ft³ x $\frac{5683}{1,000,000}$ =
111398.16 ft³ contaminant
111398.16 ft³ x $\frac{1 \text{ cu.yd}}{27 \text{ ft}^3}$ =
4125.86 cu. yds contaminant

data from NEIC report (see #1) pages 19, 4
Note: off-site concentrations not included. ∴ this is a conservative estimate of waste quantity

5 TARGETS

Ground Water Use

Use(s) of aquifer(s) of concern within a 3-mile radius of the facility:
Ken Weisner / Bob Baumeister report shallow aquifer (~20') not used as drinking water supply. Aquifer at 50-70 ft. used as supply and is assumed to be connected to shallow aquifer. Aquifer at ~500' used for drinking, but considered not contaminated nor connected.

Distance to Nearest Well

Location of nearest well drawing from aquifer of concern or occupied building not served by a public water supply:
Ken Weisner reported 4-6-83 in phone conversation w/ K.J. Getty (CFIT) that nearest well is between 1-2 miles of site ∴ 2

Distance to above well or building:

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:
Ken Weisner, WDNR identified the following wells within 3 mi. radius ~150 homes w/ private wells; 1 well serving ~25 homes; 2 municipal wells serving Menomonee Falls (pop. 28,000). Bob Baumeister reports that 15,000 of the 28,000 people in Menomonee Falls are served by [redacted] 2 wells. 2 aquifers are used by Menomonee Falls: Well #3 is 500' deep serving 6000; Well #4 is 66' deep serving 9000. Deep aquifer not used to calculate population served.

~~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:

150 × 3.8 = 570
25 × 3.8 = 95
675 + 9000 (Menomonee Falls pop.) =

9675 ∴ Score = 4

SURFACE WATER ROUTE

1 OBSERVED RELEASE

Contaminants detected in surface water at the facility or downhill from it (5 maximum): Creosote detected in Little Menomonee River sediments at site & downstream, none upstream. Many data sets available documenting the release. On site soil samples show creosote contamination same as river bed sediments. Refer to NEIC Report.

Rationale for attributing the contaminants to the facility:

* * *

2 ROUTE CHARACTERISTICS

Facility Slope and Intervening Terrain

Average slope of facility in percent:

Name/description of nearest downslope surface water:

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

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

Is the facility completely surrounded by areas of higher elevation?

1-Year 24-Hour Rainfall in Inches

Distance to Nearest Downslope Surface Water

Physical State of Waste

* * *

3 CONTAINMENT

Containment

Method(s) of waste or leachate containment evaluated:

Method with highest score:

4 WASTE CHARACTERISTICS

Toxicity and Persistence

Compound(s) evaluated

Please refer to ground water section

Compound with highest score:

"

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):

Please refer to ground water section

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:

Ken Weisner - reports recreational use only.

Is there tidal influence?

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:

None reported in area

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

None reported in area.

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.

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

Total population served:

Name/description of nearest of above water bodies:

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

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

Reactivity and Incompatibility

Most reactive compound:

Most incompatible pair of compounds:

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:

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?