GERAGHTY
& MILLER, INC.
Environmental Services

Ground Water *Engineering* *Hydrocarbon* *Remediation* *Education*

July 19, 1991

DEPARTMENT OF
NATURAL RESOURCES
SED
1991 JUL 19 AM 10: 21

Mr. Michael W. Zillmer, Hydrogeologist
Wisconsin Department of Natural Resources
Box 12436
Milwaukee, WI 53212

Re: Proposed Drummed Waste Sampling Plan

Dear Mr. Zillmer:

In response to your April 1, 1991 letter discussing the characterization and removal of drummed wastes at the Moore Oil facility, we have prepared this brief drum sampling plan to address the management of the drummed wastes at the Moore Oil Company (Moore Oil) site located at 4033 West Custer Avenue, Milwaukee, Wisconsin.

Geraghty & Miller completed a drum inventory at the Moore Oil facility on June 19, 1991 (Table 1). Each drum was labeled and given a unique number. The drums were staged in the area shaded on Figure 1. The drums were placed in a single layer on pallets. None of the drums were observed to be leaking. E & K Hazardous Waste Services, Inc. (E & K) has been retained to survey, sample, secure and recontainerize (if necessary), and arrange for the treatment or disposal of the drummed wastes.

In general, E & K will follow the sampling procedures described below:

Container Handling

Container handling procedures are described for each material type. Personnel involved in handling and transporting containerized material shall work in teams containing no fewer than two people. Visual contact shall be maintained between members of the working team at all times. All team members shall be able to communicate between themselves and with the Safety Officer by two-way radio at all times on the work site when out of visual range.

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Preliminary Classification

Prior to physically handling a container, the following preliminary classifications check list shall be completed:

- Does the container exhibit leakage or deterioration, i.e., is it unsound?
- Does the container exhibit apparent internal pressure?
- Is the container empty?
- Does the container contain markings which would indicate that the contents are potentially explosive?

The results of the preliminary classification checklist shall dictate which specific procedures described below shall be followed. These results of the preliminary classification will be recorded on a container characterization form developed by E & K.

Leaking or Deteriorated Containers

During the drum inventory completed by Geraghty & Miller, none of the staged drums were observed to be leaking; however, any contents of containers that exhibit leakage or apparent deterioration such that movement will cause rupture (determined by the Field Supervisor) shall immediately be transferred to a repack container. Equipment, including transfer pumps used in the repack operation, shall be of explosion proof construction.

Any leaking containers containing sludges or semi-solids, containers that are structurally sound but which are open and contain liquid or solid material, and containers which are deteriorated but can be moved without rupture, shall be immediately placed in overpack containers.

Bulged Containers

During the drum inventory completed by Geraghty & Miller, none of the staged drums were observed to be bulging; however, containers which potentially may be under internal pressure, as evidenced by bulging during the sampling activities, shall be sampled in place. Extreme care shall be exercised when working with and adjacent to any potentially pressurized containers.

Should movement of a pressurized container be unavoidable, handling shall be by a grappler unit constructed for explosive containment. The bulged container shall be moved only as far as necessary to allow seating on firm ground or shall be carefully overpacked. Openings into pressurized containers shall be plugged and the bung holes fitted with pressure venting caps

set at 5 psi release.

Empty Containers

Empty containers containing less than 1 inch of solid residual material and those resulting from on-site bulking and repack operations shall be loaded into transport equipment and placed within the empty container staging area. Residuals, where possible, shall be transferred to repack containers prior to movement.

General Container Handling Procedures

The handling, movement, and transport of containers will be by use of mechanical equipment only; no containers will be handled manually.

The ignition manifold and exhaust components of equipment shall be maintained to prevent backfiring or generation of sparks within the exhaust gases. Class ABC fire extinguishers shall be placed throughout the site in easily accessible locations.

Container Sampling Protocol

This container sampling protocol section provides detailed discussions of sampling, sample preservation, and sample analysis activities to be conducted.

General Container Sampling Protocol

The following are the standard materials and equipment required for sampling:

- Personnel protection equipment
- One quart, wide-mouth glass bottle with teflon cap liner
- A uniquely numbered sample identification label affixed to sample container
- Chain of custody data sheets
- Glass sampling thief
- Remotely operated, pneumatic ram or check key device

During the initial reconnaissance and characterization, any customized containers, or suspicious looking containers will be clearly marked for special handling. Care and caution shall be exercised when opening containers containing materials of an unknown origin. A container will not be moved or opened unless it has been ascertained beyond reasonable doubt that the container is structurally sound. Containers should be sampled in place. Mechanical equipment should be grounded prior to the commencement of sampling. If the bung can be removed,

sampling contained liquids shall be by a glass thief, which shall then be broken and discarded within the barrel. A barrel that has a badly rusted bung, or that cannot be sampled as above, shall be safely entered with a hydraulic penetrating device operated remotely. All openings shall be plugged except during sampling operation. Pertinent information concerning the container and contents will be noted on a container characterization form for that sample.

Specific Sampling Procedure Using a Glass Thief

The following procedures will be incorporated when using a glass thief:

- Remove cover from sample container.
- Insert glass tubing almost to the bottom of the container or until a solid layer is encountered. About 1 ft of tubing should extend above the container.
- Allow the material in the container to reach its natural level in the tube.
- Cap the top of the sampling tube with a tapered stopper, ensuring liquid does not come into contact with stopper.
- Carefully remove the capped tube from the container and insert the uncapped end in the previously labeled sample container. Do not spill liquid on the outside of the sample container.
- Release the stopper and allow the glass thief to drain completely and fill the sample container. Fill the container to capacity.
- Cap the sample container tightly and place prelabeled sample container in a carrier.
- Replace the bung or place plastic over the container.
- Transport sample to laboratory for analysis.

Based on physical characteristics and professional judgement, the samples will be consolidated into potential waste-streams for analysis. The actual waste-streams will be established by E & K personnel based on observations of waste character made during the reconnaissance and sampling activities. Each waste-stream shall have a minimum of 2 composite samples analyzed with up to a maximum of 4 samples per waste-stream for waste-streams composed of more than 15 contributing drums. Approximately 20 to 30 samples are anticipated to be submitted for laboratory analyses.

As noted in the summary of the drum inventory (Table 1), several of the staged drums contain miscellaneous refuse, including well construction materials, personnel protective clothing, plastic sheeting, and wood. In addition, several drums contain soil cuttings from previous soil boring and well installation activities. It is anticipated that the drums containing miscellaneous refuse will be disposed of along with Moore Oil's general solid refuse. It is proposed that drummed soil be consolidated and handled with the existing contaminated soil that is securely

stockpiled on-site.

Analysis for liquid wastes will include methods 8010 and 8015 VOCs, flash point and appropriate characterization parameters needed for treatment or disposal facility acceptance. Solid waste parameters will include total metals, oil and grease and VOCs. EP or TCLP analysis will be performed, only if the total metal analysis concentration is greater than the regulatory concentration.

The proposed plan for the drummed wastes addresses the sampling and analytical needs as outlined in the Department's April 1, 1991 letter while minimizing duplicate analytical costs. This will provide for faster turn around from the laboratory and expedite the removal of the drummed wastes from the site.

If you have any questions regarding this proposed drum sampling plan, please feel free to give either of the undersigned a call. Moore Oil is anxious to receive your approval, such that E & K can complete the sampling and disposal of the drummed waste.

Respectfully submitted,

GERAGHTY & MILLER, INC.

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c: Don Gallo/Michael, Best & Friedrich

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
001	Red, no markings	1/5	≅ 8" Liquid in bottom, (water?).
002	Red, no markings	1/5	≅ 8" Red oil, looks like tranny fluid.
003	Red and blue, Citgo motor oil drum 600 15W-40	1/8	≅ 5" Light brown oil.
004	Red-rusty, no markings	1/8	4-5" Clear liquid (water?).
005	Black with red paint "Trash"	3/4 1/2	Tyvek and gloves. Oily liquid.
006	Black with red paint "Trash"	Full	Plastic sheeting.
007	Black with red paint, 4A soil	3/4	Soil.
008	Black with red paint	2/3	Water.
009	Black - yellow DNR marking 5/9/91 - M-Z-DNR	Full	Oily water.
010	Black - yellow DNR marking as above.	Near full	2" of dark brown oil on top of water.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
011	Black, no marking	Full	Several inches of dark brown - black oil on water.
012	Black - yellow DNR marking as above	Full	Thin film of dark brown oil on clear liquid (water?).
013	Black - yellow DNR marking as above	Full	≅ 12" dark brown-black oil over clear liquid (water?)
014	Black, no markings	1/10	2-3" Water in bottom.
015	Black, no markings	Full	3-4" dark brown to black oil over water.
016	Black - yellow DNR marking as above	Full	≅ 1" dark brown oil over water.
017	Black, open, "Kerosene"	3/4	6-8" water over thick dark grey sludge
018	Black, open	3/4	6-8" water over thick dark gray sludge.
019	Black, no markings	2/3	Olive gray soil.
020	Black with blue paint "oz pls"	Near full	2-3" dark brown oil on top of dark brown to black sludge.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
021	Black - blue markings "03-P/S"	4/5	2-3" black oil over sludge, same as Drum 020.
022	Black - blue markings "SOL; PO4"	Full	Black, tarry substance, similar to substance in bottom of Drums 020 and 021.
023	Blue plastic	Empty	Film of oil in bottom.
024	Black - yellow DNR markings same as above	3/4	Oil dry sand and rubbish.
025	Black - no markings	Near full	12-18" black oil over water. 2-3" dark gray metallic sludge in bottom.
026	Black - no markings	Near full	3-4" black oil over water.
027	Black - no markings	Near full	Clear liquid (water?) thin film of oil.
028	Black - no markings	Near full	4-5" black oil over clear liquid (water?). ≅ 1" grey metallic sludge in bottom.
029	Red with blue paint "LIQ 14"	Full	Greenish liquid, strong odor.
030	Red with blue paint "LIQ 13"	Full	Grayish liquid.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
031	Red with blue paint "12"	Full	Greenish liquid, same as Drum 029.
032	Black with blue marking "05 P/S"	Full	Oil and oil absorbent matting.
033	Black with blue paint "08 SOLID"	3/4	Full of black thick liquid.
034	Black with blue marking "06 P/S"	Full	Yellow to tan murky fluid. Solids at bottom of drum.
035	Black drum with blue marks "07 LIQ"	Full	Filled with black liquid (oil?) sediment at bottom, ≃ last 1/16 of drum has sludge
036	Red "Kendall" drum with blue marking "17"	1/2	Blue thick sludge. Sludge has metallic character to it.
037	Red "Penzgaurd III" with blue marking "16 SOLID" - yellow DNR marking as above	?	Could not open, appears full.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
038	Red with blue marking "15 SOLID" Yellow DNR marking as above	≈ 1/8	Thick black oily substance.
039	Red with blue markings "18"	7/8	Top 1/8 is curdled grey and black matter. Liquid beneath appears clear. Some oily (clear) residue.
040	Black, no markings	Full	Water and other clear liquid. Approximately 1/3 filled with sludge (grey curdled appearance).
041	Black with no markings	7/8	1/3 semi-clear liquid. Bottom 2/3 feels like soil/sediment.
042	Black with no markings	15/16	Liquid ≈ 3/4 drum. Liquid is red to brownish red. Curdled grey matter bottom.
043	Black with no markings	Full	Reddish to clear liquid. Liquid is th[illegible] Bungs previosuly not opened.
044	Black drum with no markings	Full	Reddish to clear liquid. Bungs prevously not opened.
045	Black drum with no markings	Full	Reddish clear liquid as above. Bungs previously no opened.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
046	Black with no markings	Full	Reddish to clear liquid. Bungs previoulsy not opened.
047	White drum with black lid and blue marking "01"	≈ 3/4	Black liquid appears to thin for oil.
048	Black with white markings "7"	Full	Yellow to clear. No sludge liquid.
049	Black with white markings "8"	Full	Yellow to clear liquid. No sludge at bottom.
050	Black with white markings "6"	Full	Clear liquid, no sludge at bottom.
051	Black with white markings "5"	Full	Clear liquid.
052	Red drum with yellow top	Full	Filled with oil-like liquid. No sludge at bottom.
053	Red drum with no markings	2/5	Oil-like liquid.
054	Red drum, no markings	Full	Red to brown oil like fluid. No sludge in bottom.
055	Red drum, no markings	≈ 1/8	Curdled white with brown liquid.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
056	Black drum with no markings	Full	Reddish to clear liquid.
057	Black drum with no markings	Full	Bungs previously unopened, filled with fluid. Reddish to clear liquid.
058	Black drum with no markings	Full	Reddish to clear liquid. Bungs prevoiusly unopened.
059	Black with no markings	Full	Reddish clear liquid. No sediment or sludge at bottom. Bungs previously unopened.
060	Red with yellow top, no markings	Full	Yellow to clear liquid. No sludge or sediment in bottom.
061	Red with yellow top. Black markings (4)	3/4	Greenish clear color.
062	Green with white markings (1) "Ken 15/40"	3/4	Clear liquid with white milky appearance. No sediment.
063	Red with black markings (1)	7/8	Greenish yellow film. No sludge or sediment on bottom.
064	Black with no markings	1/10	4" Oily-like fluid. No sludge or sediment.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
065	Red with black marking (stenciled)	1/20	2" White milky liquid. No sediment.
066	Green with no markings	1/10	3" Reddish fluid. Slightly viscous. No sludge or sediment.
067	Red with white markings "714"	1/6	6" Yellow to brown viscous fluid. No sludge or sediment.
068	Red with white markings "11"	3/4	Filled with white milky fluid. No sediment or sludge.
069	Red with white markings "12"	1/20	≈ 1.5" Clear liquid. No sediment or sludge
070	Red with white markings "10"	7/8	White murky fluid. Fluid has blue hue to it.
071	Red with white markings "9"	Full	Greenish fluid. No sediment or sludge.
072	Black with red marking "1"	7/8	Used oil sorb
073	Black with no markings	3/4	≈ 2 inches of liquid on top of sediment sludge.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
074	Black with no markings Top says "Winter Start"	Full	Reddish to clean liquid. No sediment.
075	Black drum, no markings "Winter Start" on lid	Full	Red fluid. No sediment.
076	Black with no markings.	Full	Reddish fluid. No sediment.
077	White fiber drum with red #7 on side	Full	White granular substance. Solid.
078	As above, #8 red on side	Full	White granular substance. Solid.
079	Red with blue marking "Solid 11" on side.	15/16	Grease, bluish grey
080	Red drum with blue markings "Solid 19".	3/4	Filled with white greasy sludge material.
081	5-gallon plastic drum	1/3	≈ 1.5 gallons of yellow to clear fluid.
082	Black with no markings.	1/2	Soil (cuttings) and plastic on top.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
083	Black with red lettering "SB-06"	1/2	Drill cuttings and 1/4 filled with well construction material (sand bags and quickcrete)
084	Black with no lettering	Full	Filled with plastic.
085	Black with no markings	1/2	Mostly filled with water. Some oil on top (≈ 4") and some sludge on bottom drum.
086	Black with red letters "MW-2"	7/8	Filled with soil cuttings. No fluid or liquid.
087	Black with no markings "SB-04"	Full	Filled with plastic. Plastic appears free of soil, however some rust stains.
088	Black with red markings	≈ 2/3	
089	Black with Red #13 on side	Empty	Appears empty.
090	Black with Red #10 on side	7/8	Filled with soil.
091	Black with Red #14 on side	3/4	Plastic and empty well construction material.
092	Black with Red markings "SB-05, soil"	≈ 2/3	Feels like plastic on top of soil.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
093	Black drum with no markings	1/3	Solids 1/2 filled with yellowish to clear liquid.
094	Black with no markings	1/2 1/3	Sediment. Yellowish to clear liquids.
095	Red with yellow top.	Full	Motor oil-like fluid. No sediment or sludge.
096	Red with yellow top, no markings	Full	Appears to be motor oil-like fluid. Sediment and sludge free.
097	Red with yellow top	Full	Filled with reddish brown motor oil-type liquid. High viscidity. No sediment or sludge.
098	Red with yellow top, no markings	Full	Filled with reddish brown motor oil-like fluid. No sediment or sludge.
099	Black with faded red markings "26 MW1A" and yellow DNR markings as above	Full	Filled with plastic as viewed from bung opening.
100	Black with red marking "20"	3/4	Plastic as viewed through bung opening.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
101	Black with faded red markings "MW 1B 25 [?]"	3/4	Filled with soil.
102	Black with faded red markings "17"	Full	Water and oil (top 1/8) mixture appears to be debris on top of oil.
103	Black with faded red markings "MW1A"		Appears empty.
104	Black with faded red markings "MW1A water/product"	1/8	Filled with oily/water mixture.
105	Black with faded red markings "23" and orange markings "Decon H^2O"	≈ 1/8	Filled with water-like fluid.
106	Blue drum with faded red marking "19", yellow DNR marking (5/9/91 DNR) with Chevron SRI grease-2 on lid	≈ 1/2	Filled with soil and PVC screen and riser.
107	Black with faded red markings "24" and "15A MW-01 [1]"	3/4	Filled with plastic and soil as viewed through bung.
108	Black with yellow DNR marking (5-9-91 MZ DNR)		Filled with well construction debris.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
109	Black with red markings "DEV H^2O 23"	1/10	≈ 3 inches fluid in drum.
110	Black with faded red markings "35 [?]" and yellow markings "5-9-91 MZDNR"	Full	Appears to be filled with Tyveks and well construction material.
111	Black drum, no markings	3/4	Filled with oil sorb. 7/8 filled with water or oil (?).
112	Black, no markings	1/2	Filled with wood and refuse.
114	Black, no markings	≈ 1/8	Filled with soil and liquid.
115	Black with no markings	≈ 2/3	Filled with soil.
116	Black, no markings	≈ 1/4	Filled with oily sludgy material.
117	Black with no markings	≈ 1/4	Filled with oily/water debris (sticks, leaves etc).
118	Black, no markings	≈ 1/4	Filled with rusty water, oil and debris.
119	Black with no markings	≈ 1/4	Filled with water, debris, and oil.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
120	Black with no markings	≈ 1/8	Filled with oily, water debris.
121	Black with no markings	≈ 1/2	Filled with oily water with sediment (≈ 1/4 of drum). Sediment has metallic appearance.
122	Black with no markings	1/2	Filled with oily water mixture. Sediment on bottom. Slight metallic luster.
123	Black, no markings	≈ 1/2	Filled with oily water debris laden fluid. Some sediment.
124	Black, no markings	1/2	Oily watery fluid. ≈ 2 inches sediment on bottom of drum.
125	Black, no markings	1/2	Filled with brown viscous oil-like fluid. no sediment.
126	Black with no markings	1/2	Filled with brown viscous oil-like fluid. No sediment or sludge.
127	Black with no markings	1/2	Filled with brown to black viscous fluid (oil like). No sediment or sludge.

Table 1. Moore Oil Drum Inventory Completed June 19, 1991.

Drum Inventory Number	Drum Description	Fraction of Capacity	Description of Contents
128	Black with no markings.	1/2	Filled with brown to black oily fluid. No sediment or sludge.
129	Black with no markings	1/2	Cuttings of soil and plastic and well construction materials (bentonite).
130	Black with no markings	1/2	Cuttings and cardboard debris. ≈ 1 gallon of water.
131	Black with no markings	1/3	Filled with oily water mixture. Sediment, 2 inches.

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