KERR-McGEE CHEMICAL CORPORATION
POST OFFICE BOX 55 • HENDERSON, NEVADA 89015

April 30, 1984

Mr. H. LaVerne Rosse, P.E.
Program Director
Waste Management Section
State of Nevada
Division of Environmental Protection
Capitol Complex
Carson City, NV 89710

Re: Hazardous Waste Activity - Annual Report

Dear Mr. Rosse:

Attached are the completed annual reports for Kerr-McGee Chemical Corporation's (KMCC) Henderson facility. Both the "Hazardous Waste Generator Report" and the "Hazardous Waste Treatment, Storage, and Disposal Report" were completed. As you know, KMCC did operate a hazardous waste landfill during the first part of January; however, the landfill has not received any waste since January 25, 1983.

As we have discussed, the closure/post-closure plan for the landfill is currently under revision. This revision includes the cost estimate for the closure/post-closure plan. This will be submitted to the Nevada Division of Environmental Protection (NDEP) upon completion, which is anticipated to be the end of May.

If there are any questions regarding the attached, please contact me at 565-8901, Ext. 234.

Sincerely,

K. Brothers

K. Brothers
Staff Process Engineer

KB:jc
Attachments

cc: R. B. Chase, Jr.
T. L. Hurst
J. R. Kelley
E. T. Still

KERR-McGEE CHEMICAL CORPORATION
POST OFFICE BOX 55 • HENDERSON, NEVADA 89015

April 5, 1984

Mr. H. LaVerne Rosse, P.E.
Program Director, Waste Management Section
Nevada Division of Environmental Protection
Capitol Complex
Carson City, NV 89710

Re: Kerr-McGee Chemical Corporation, Henderson, Nevada
EPA ID No. NVD 008290330

Dear Mr. Rosse:

Transmitted herewith are revised closure/post-closure plans for Kerr-McGee Chemical Corporation's (KMCC) two surface impoundments which at one time stored hazardous waste at the Henderson, Nevada plant. As you know, it is KMCC's intent to close these two HW storage impoundments and one HW landfill facility in accordance with RCRA interim status requirements.

We have amended the previous versions of our closure/post-closure plans for the surface impoundments to address the subjects we have discussed with you during the past three months as well as the items mentioned in both the EPA review document and your letter of November 8, 1983. We have made many revisions in the closure/post-closure plan for the hazardous waste landfill; however, we plan to obtain detailed cost estimates for various closure options. Therefore, as we discussed in our April 3 meeting, we plan to transmit the amended landfill closure plan in approximately a month.

For several reasons, many of the deficiencies listed in the EPA review are not applicable to KMCC's operations. For example, the EPA contractor erroneously assumed that the two surface impoundments (P-1 and S-1) which stored hazardous waste from the potassium perchlorate operation were final disposal facilities and would contain HW after closure. This is not correct because all HW has already been removed from these impoundments. Therefore, post-closure care will not be required.

The contractor also erred in believing that migration of HW components from the impoundments might have contaminated the groundwater and cleanup of groundwater was a necessary part of our closure plan.

These misunderstandings by the EPA contractor are addressed in the revised plans, and the correct interpretations are verified by supporting data.

While our revised RCRA Part A application that was submitted July 14, 1982, correctly reported the HW management facilities at our Henderson plant, we describe them again for your convenient reference as follows:

1. Two surface impoundments, labeled P-1 and S-1, stored a liquid chromium-bearing waste from the potassium perchlorate manufacturing operation. Production of potassium perchlorate was permanently terminated in September, 1982. No hazardous wastes were placed in these impoundments after January 25, 1983. All hazardous wastes have since been removed from both P-1 and S-1 impoundments. This removal was done after consultation with Mr. William D. Wilson, U.S. EPA, Region IX, who advised that such removal constituted only partial closure for which EPA had no permitting or approval authority under interim status regulations.

   Surface impoundment S-1 has been completely emptied and its contents removed, together with the membrane liner and two feet of soil from the bottom and sides. These materials were disposed of in the on-site hazardous waste landfill. Subsequent tests have confirmed that all hazardous waste constituents have been removed from this site.

   Surface impoundment P-1 has not received waste since January 25, 1983. Upon approval of the closure plan, the solids and liner will be removed as described in the attached closure plan.

2. A single-cell landfill was used for the disposal of low-level chromium-bearing filter mud from sodium chlorate production prior to January 25, 1983. Since that date, the landfill has not been used for any purpose, and the filter mud is disposed of off-site at the U. S. Ecology permitted HW facility in Beatty, Nevada. The filter mud from current sodium chlorate production is temporarily deposited in a secure container and shipped to Beatty every week. The amended closure plan for the landfill will be transmitted separately in approximately one month.

3. A single 55-gallon steel drum receives spent solvents. This solvent is reused in the shop area routinely.

In summary, Kerr-McGee wishes to keep its generator status and maintain less than 90-day storage facilities for sodium chlorate filter mud. We believe our amended closure/post-closure plans address the items mentioned in the EPA review document and comply with applicable sections of 40 CFR 265 for interim status closure. We would appreciate your review and early approval of these plans so we can proceed with the closure work.

Will you please contact K. Brothers at (702) 565-8901 if you have any comments or questions

Sincerely,

KERR-McGEE CHEMICAL CORPORATION

R. B. Chase, Jr.
Plant Manager

RBC:jc
Attachment

cc: William D. Wilson, Chief
U.S. EPA, Region IX

Certified Mail No. P 455 597 132
No. P 455 597 133

KERR-McGEE CHEMICAL CORPORATIO

HENDERSON, NEVADA PLANT

HAZARDOUS WASTE CLOSURE/POST-CLOSURE PLAN

I. Background

A revised Part A "Application for a Hazardous Waste Permit" for Kerr-McGee Chemical Corporation's (KMCC) Henderson, Nevada facility was submitted on July 14, 1982 to the U. S. Environmental Protection Agency (EPA), Region IX, with a copy to the Nevada Division of Environmental Protection (NDEP).

This application identified three hazardous wastes generated at the facility, together with the TSD Hazardous Waste Management facilities. These were reported as follows:

1. Liquid waste containing chromium from manufacturing potassium perchlorate which was stored in two lined surface impoundments, designated P-1 and S-1.

2. Filter cake mud containing chromium from the sodium chlorate production process which was disposed of in a hazardous waste landfill located on site.

3. Waste solvents stored in one 55-gallon steel drum.

In September of 1982, KMCC permanently terminated potassium perchlorate production. As described below in the closure plans for ponds S-1 and P-1, the potassium perchlorate operation was completely cleaned and the equipment transferred to other uses. All hazardous materials, including the liner, were removed from pond S-1 and placed in the on-site hazardous waste landfill prior to January 25, 1983. Neither the landfill nor pond P-1 received hazardous waste after January 25, 1983.

At this time, KMCC desires to close the two surface impoundments and the hazardous waste landfill under interim status standards. The generator identification number will be retained to allow off-site shipment of hazardous waste to permitted disposal facilities. The closure/post-closure plans for the two surface impoundments are described below. The closure/post-closure plan for the landfill will be submitted in approximately one month.

II. Closure/Post-Closure Plan for Surface Impoundment S-1

1. History

Pond S-1 was constructed in October of 1974. It was excavated in the native soil and the liner

was installed by Hydraulic Materials, a company which specialized in installing liners for surface impoundments. The excavation was smoothed and the bottom was sealed with 20-mil PVC. The east berm was covered with 30-mil laminated-reinforced CPE and the other three side berms were covered with 30-mil plain CPE. The sides were covered with CPE because of its greater resistance to sunlight. Pond S-1 had an approximate surface area of 47,500 $ft.^2$ and an approximate total volume of 270,000 $ft.^3$. Cleanup and closure of S-1, described below, were completed before January 25, 1983.

2. Maximum Inventory

The maximum hazardous waste inventory that could have been stored in S-1, allowing 2' freeboard, was approximately 1,700,000 gallons. The liquid waste had a total chromium concentration above 5 ppm which made it hazardous by definition. Salts, such as potassium chloride, crystallized on the bottom and sides below the water level as the solution became saturated as the result of solar evaporation. These crystals contained less than 5 ppm chromium when subjected to the "EP Toxicity" test, as shown in the attached data regarding the solid phase of pond P-1. The chromium remained mostly in the liquid phase.

3. Removal of Contents from S-1

Soon after potassium perchlorate production was terminated in 1982, S-1 was removed from service. Some liquid was allowed to solar evaporate, but no additional equipment was used to increase evaporation. The remaining free liquid was transferred by pumps and heavy duty hose lines to pond P-1. The dewatered solids (containing about 10 percent moisture) and the bottom and side liners were removed with a clamshell and paddle scraper. These bulk materials were handled as hazardous wastes and transported to the hazardous waste landfill on site. Also, the two feet of soil under the liner, as well as any contaminated soil resulting from closure, was removed and placed in the landfill.

To demonstrate that all hazardous constituents were removed from S-1 pond area, the following sampling and analyses were conducted:

i) Six soil corings (to a depth of 4') were taken from the pond site area at locations shown in attachments.

ii) To establish background, three soil corings (to a depth of 3') were taken from unaffected areas shown on the attached map.

iii) A composite sample of each coring, made up equal portions from each foot, was subjected to a total nitric acid extraction. The leachate was analyzed for total chromium.

iv) Statistical analysis (student-t test) was used to compare the background samples with those taken from the S-1 pond site. As attachment indicates, the t value is much lower than the t value for 99 percent, which indicates all hazardous constituents have been removed.

There are no plans to fill the pond area. After certification of proper closure, it potentially could be relined and used for a nonhazardous waste impoundment.

4. Decommissioning and Cleanup of Manufacturing Area

When production of potassium perchlorate was terminated, all in-process product was finished and delivered to inventory for commercial sale. All process piping, pumps, and vessels were drained, and the liquors transferred to pond P-1. The entire operation (pipes, vessels, etc.) was flushed with copious amounts of water to remove the hazardous waste component (chromium) as well as any residual salt solution that might remain. All rinsate streams were pumped to pond P-1 for storage, evaporation, and recycle.

After decontamination, as described above, most of the equipment was put in service in other areas of the plant. Unusable piping, tanks, etc., were sold as scrap. Complete cleaning was easily determined because any liquid residue crystallized on the equipment when the water evaporated. This was avoided by thorough flushing followed by inspection of the equipment after drying.

5. Decontamination of Cleanup Equipment

The clamshell, trucks, paddle scraper, transfer pipes, etc., used in the solids removal and cleanup operation were thoroughly flushed with fresh water. The rinsate was delivered to pond P-1.

6. Decontamination of Surrounding Area

Soil around pond S-1 that was contaminated during the cleanup was removed and placed in the hazardous waste landfill. This was monitored by visual and physical inspection. There is no runoff from S-1 since the tops of the berms are about one foot above ground level. In addition, there are no stormwater ditches or drainage systems which run into S-1 that

could be contaminated. As discussed in No. 3, all hazardous waste constituents were removed from the pond site.

7. Pollutant Migration

Any migration of the applicable hazardous waste constituent chromium into the underlying soil would have been detected by the soil sampling and analyses described in No. 3. Also groundwater monitoring, described below, would indicate pollutant migration.

8. Groundwater Monitoring

Closure/post-closure groundwater monitoring is not required for pond S-1 since all hazardous waste constituents have been removed. However, groundwater monitoring in the Henderson plant area is a separate program being conducted under Nevada State Groundwater Regulations. Monitoring in this program includes groundwater in the area of S-1. Data from this program demonstrate that no hazardous waste constituent (i.e., chromium) was traceable to S-1.

9. Closure/Cover Materials

As mentioned in No. 3 above, the pond S-1 site will not be filled, pending a decision to use the area for other purposes. Cover is not required since all hazardous waste constituents have been removed.

10. Closure/Post-Closure Costs

Kerr-McGee has already expended funds in the amount of approximately $30,000 to close pond S-1. Final certification by a Professional Engineer for the two surface impoundments and landfill will cost $1,500.

11. Closure Schedule

As stated above, surface impoundment S-1 was closed prior to January 25, 1983. Sampling and analyses were conducted after the solids and liner had been removed. After approval of closure plans for pond P-1 and the landfill, all work will be completed within 180 days, and the work will be monitored by responsible K-M officials and a Registered PE. The NDEP will be properly notified and provided with a certified copy of the PE inspection report.

III. Closure/Post-Closure Plan for Surface Impoundment P-1

1. History

Pond P-1 was constructed in April of 1972 and relined in 1980. The new liner was installed by B. F. Goodrich and consisted of 30-mil Hypalon. Pond P-1 has an approximate surface area of 26,000 $ft.^2$ and approximate volume of 125,000 $ft.^3$. Pond P-1 has not received any hazardous waste since January 25, 1983.

2. Maximum Inventory

The maximum hazardous waste inventory that could have been stored in P-1, allowing 2' freeboard, is approximately 700,000 gallons. The liquid waste had a total chromium concentration above 5 ppm which made it hazardous by definition. Salts, such as potassium chloride, have crystallized on the bottom and sides below the water level as the solution became saturated as the result of solar evaporation. These crystals contain less than 5 ppm chromium when subjected to the "EP Toxicity" test, as shown in the attached data.

3. Removal of Contents from P-1

As described in the S-1 closure plan, pond P-1 received some hazardous waste from the closure of S-1 and the decommissioning of the potassium perchlorate manufacturing process. Pond P-1 has not received any hazardous waste since January 25, 1983.

As stated above, the liquid phase of the potassium perchlorate waste contained chromium in excess of 5 ppm. All liquid has been solar evaporated or recycled back to the process to take advantage of chromium's corrosion inhibition characteristics. The pump and line used for recycle were flushed with fresh water and the rinsate placed in pond P-1, and allowed to solar evaporate., No other equipment was used to aid or promote evaporation.

To confirm the remaining solids in pond P-1 were nonhazardous, the solids were sampled and analyzed by Desert Research Institute as specified below:

i) Solid samples were taken from the bottom of the pond at locations shown on the attached map to a depth of one foot.

ii) These solids were subjected to the EP Toxicity Extractions and analyzed for the "EP Toxic" metals.

The attached analyses indicate the remaining solids in pond P-1 are not hazardous. KMCC proposes to remove these solids and liner and place in the on-site nonhazardous waste landfill. After this has been completed, KMCC proposes to demonstrate that no hazardous constituents have migrated from the P-1 pond area as described below in Section 7 "Pollution Migration."

4. Decommissioning of Manufacturing Area

Pond P-1 received wastes from the potassium perchlorate operation as did pond S-1. The decommissioning of the potassium perchlorate production area is described in detail in Section I.4. which is part of the pond S-1 closure plan.

5. Decontamination of Cleanup Equipment

Since the solids remaining in pond P-1 are not hazardous, special care in decontaminating the cleanup equipment will not be necessary.

6. Decontamination of Surrounding Area

Any surrounding soil affected by the removal of the nonhazardous solids in P-1 will be removed and placed in the nonhazardous waste landfill. This will be monitored by visual and physical inspection. Again, it should be noted that the waste remaining in P-1 is not hazardous.

7. Pollutant Migration

Any pollutant migration of the applicable hazardous waste constituent chromium from the liquid waste once contained in pond P-1 will be detected by the following sampling and analyses:

i) Six soil corings (to a depth of 4') will be taken from the pond-site area at locations shown in attachment.

ii) A composite sample of each coring will be made up of equal portions from each foot and subjected to a total nitric acid extraction. The leachate will be analyzed for chromium.

iii) Statistical analysis (student-t test) will be used to compare the results with the background samples as described in the S-1 closure plan (Section II.3.).

If pollutant migration has occurred, soil will be removed, and the pond-site area will be resampled.

This will be done until the chromium concentrations of the remaining soils do not exceed background concentrations. Soil analyses and statistical comparisons will be submitted to the NDEP for their review and concurrence.

Currently, there are no plans to fill the pond area. After certification of proper closure, it potentially could be relined and used for a nonhazardous waste impoundment.

8. Groundwater Monitoring

Closure/post-closure groundwater monitoring will not be required for pond P-1 since all hazardous waste constituents will be removed. However, groundwater monitoring in the Henderson plant area is a separate program being conducted under Nevada State Groundwater Regulations. Monitoring in this program includes groundwater in the area of P-1. Data from this program demonstrate that no hazardous waste constituent (i.e., chromium) was traceable to P-1.

9. Closure/Cover Materials

As mentioned in No. 7 above, the pond P-1 site will not be filled, pending a decision to use the area for other purposes. Cover is not required since all hazardous waste constituents have been removed.

10. Closure/Post-Closure Costs

Kerr-McGee has already expended funds in the amount of approximately $5,000 to recycle liquid from pond P-1 and conduct sampling and analyses. Future closure costs are estimated below:

Removal/Disposal of Solids	-	$10,000
Sampling and Analyses	-	2,000
Administrative	-	2,500
PE Certification	-	500*
Total		$20,000

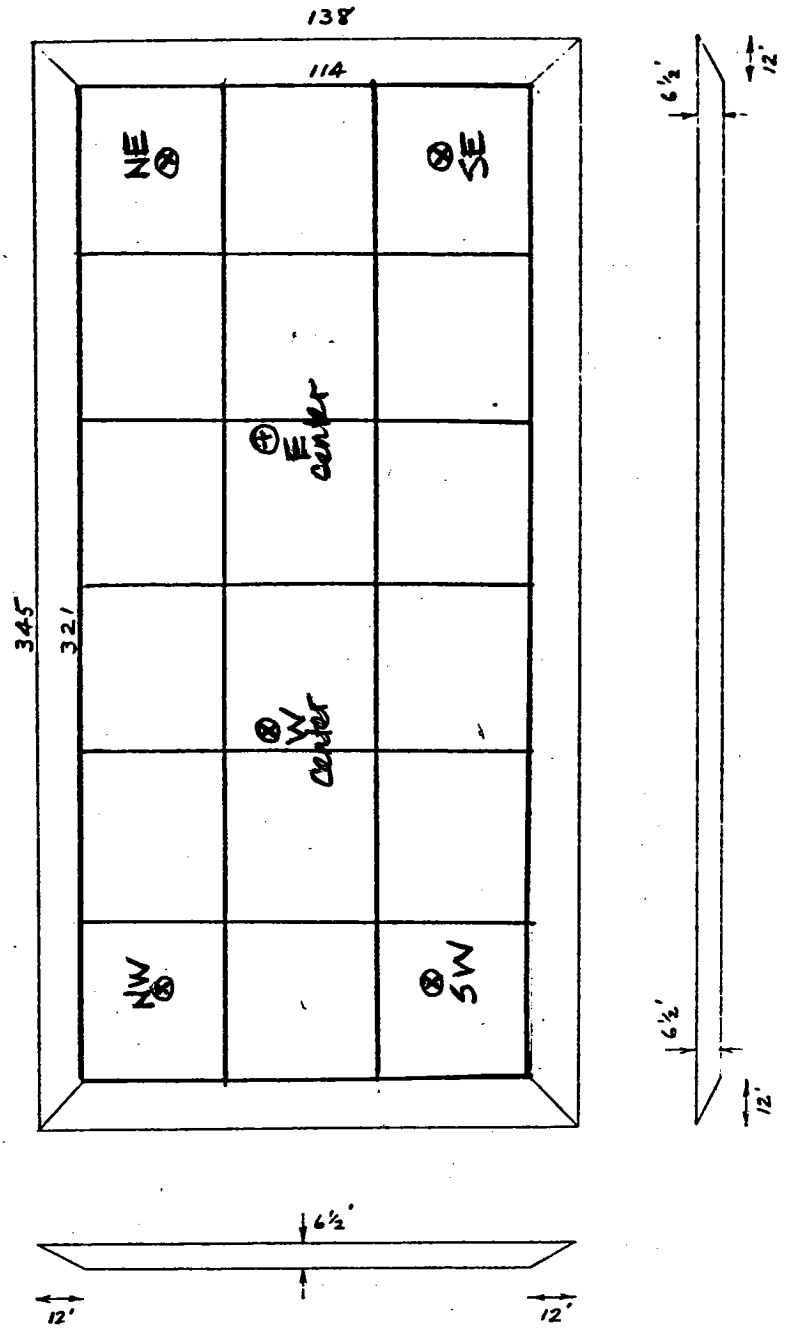
*Based on one-third total certification - $1,500

11. Closure Schedule

After approval of the closure plan, the following schedule will be followed:

Removal/Disposal of solids	- within	60 days
Sampling and analyses	- within	90 days
PE Certification	- within	120 days

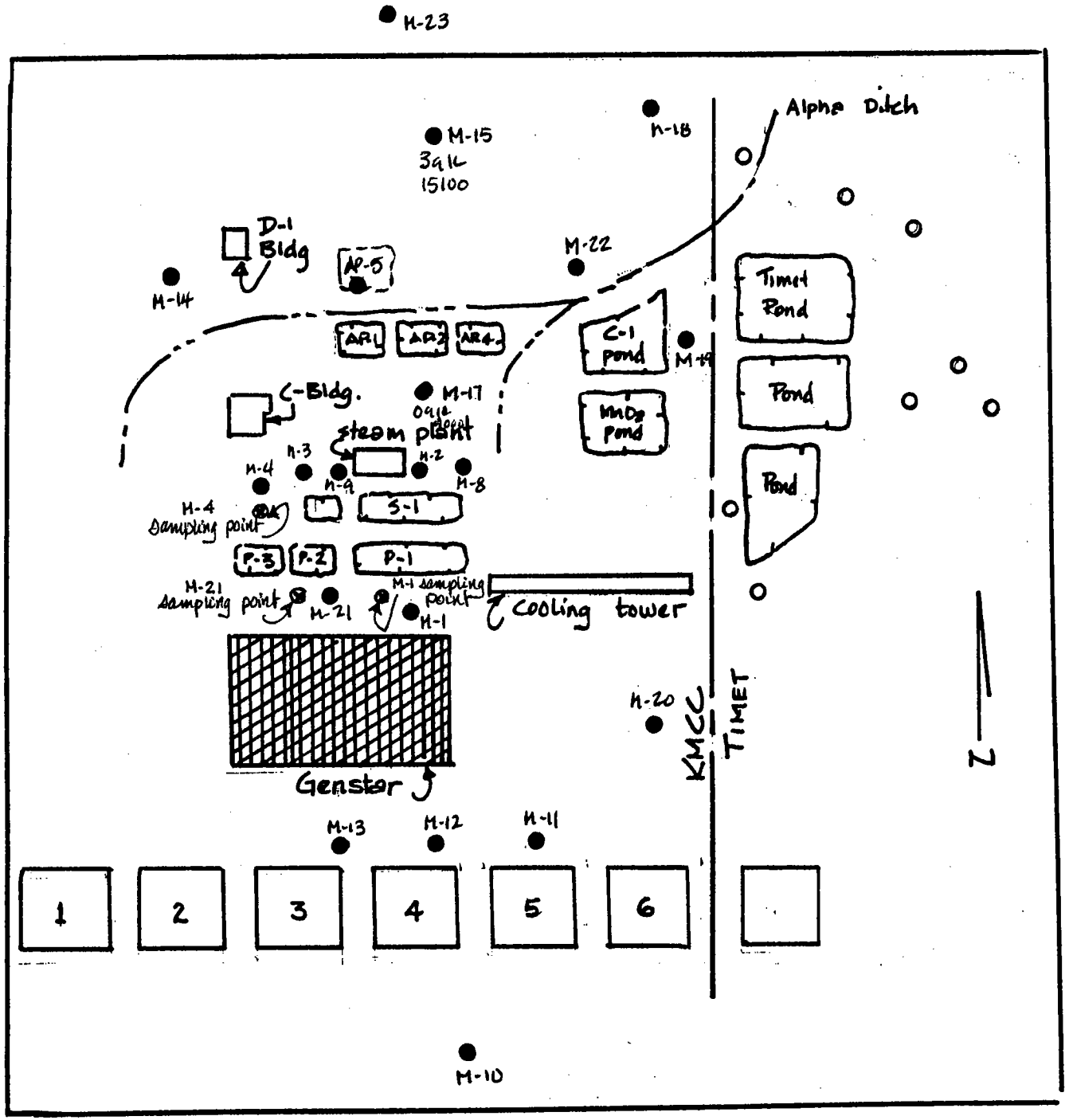
Closure will be monitored by responsible K-M officials and a Registered Professional Engineer. The NDEP will be properly notified and provided with a certified copy of the PE inspection report.



EVAPORATION POND S-1

Analyses Attached

Pond S-1



⊗ location of soil corings taken to establish background

WATER ANALYSIS LABORATORY
DESERT RESEARCH INSTITUTE

REPORT DATE: 21-MAR-84
FILE NAME: 7714KG.TBL

LAB # / DATE	SAMPLE POINT	CR MG/KG
7714 2-MAR-84	S-1 NW CORNER	11.2
7715 2-MAR-84	S-1 SW CORNER	7.7
7716 2-MAR-84	S-1 W CENTER	7.8
7717 2-MAR-84	S-1 E CENTER	14.4
7718 2-MAR-84	S-1 NE CORNER	12.9
7719 2-MAR-84	S-1 SE CORNER	8.4
7720 2-MAR-84	M-1 BACKGROUND	19.0
7721 2-MAR-84	M-21 BACKGROUND	8.0
7722 2-MAR-84	M-4 BACKGROUND	7.5

DATA REPORTED ON A WET WEIGHT BASIS.

calculated t value = 0.37
compared with $t_{0.01}$ with 7 degrees of freedom = 2.998

Therefore no significant difference between background soils and S-1 pond bottom.

See calculations

S-1 Statistical Comparison

Statistical comparison of chromium concentrations of soil corings taken from S-1 surface impoundment bottom and background soil corings. Soil corings were subjected to a total nitric acid extraction and the leachate was analyzed for total chromium. The sampling procedure is explained in detail in the closure/post closure plan.

Student t-test

$$t = \frac{|\bar{X}_1 - \bar{X}_2|}{\sqrt{\frac{\Sigma(X_1-\bar{X}_1)^2 + \Sigma(X_2-\bar{X}_2)^2}{(N_1-1)+(N_2-1)} \times \left(\frac{N_1+N_2}{N_1 N_2}\right)}}$$

Samples from S-1 (conc. mg/kg)

N_1	X_1	$(X_1 - \bar{X}_1)$	$(X_1-\bar{X}_1)^2$
1	11.2	11.2 - 10.4	0.64
2	7.7	7.7 - 10.4	7.29
3	7.8	7.8 - 10.4	6.76
4	14.4	14.4 - 10.4	16.00
5	12.9	12.9 - 10.4	6.25
6	8.4	8.4 - 10.4	4.00
	62.4		40.94 — $\Sigma(X_1-\bar{X}_1)^2$

$$\bar{X}_1 = \frac{62.4}{6} = 10.4$$

Background Samples (conc. mg/kg)

N_2	X_2	$(X_2 - \bar{X}_2)$	$(X_2-\bar{X}_2)^2$
1	19.0	19.0 - 11.5	56.25
2	8.0	8.0 - 11.5	12.25
3	7.5	7.5 - 11.5	16.00
			— $\Sigma(X_2-\bar{X}_2)^2$

Statistical Comparison (Cont.)

$$\bar{X}_2 = \frac{34.5}{3} = 11.5$$

$$t = \frac{|10.4 - 11.5|}{\sqrt{\frac{40.94 + 84.50}{5 + 2} \times \left(\frac{9}{18}\right)}}$$

$$= \frac{1.1}{\sqrt{\frac{125.44}{7} \times 2}} = \frac{1.1}{5.99}$$

$$t = 0.37$$

Degrees of Freedom:

$$N_1 + N_2 - 2 = d.f$$
$$6 + 3 - 2 = 7$$

From Statistical Table t value

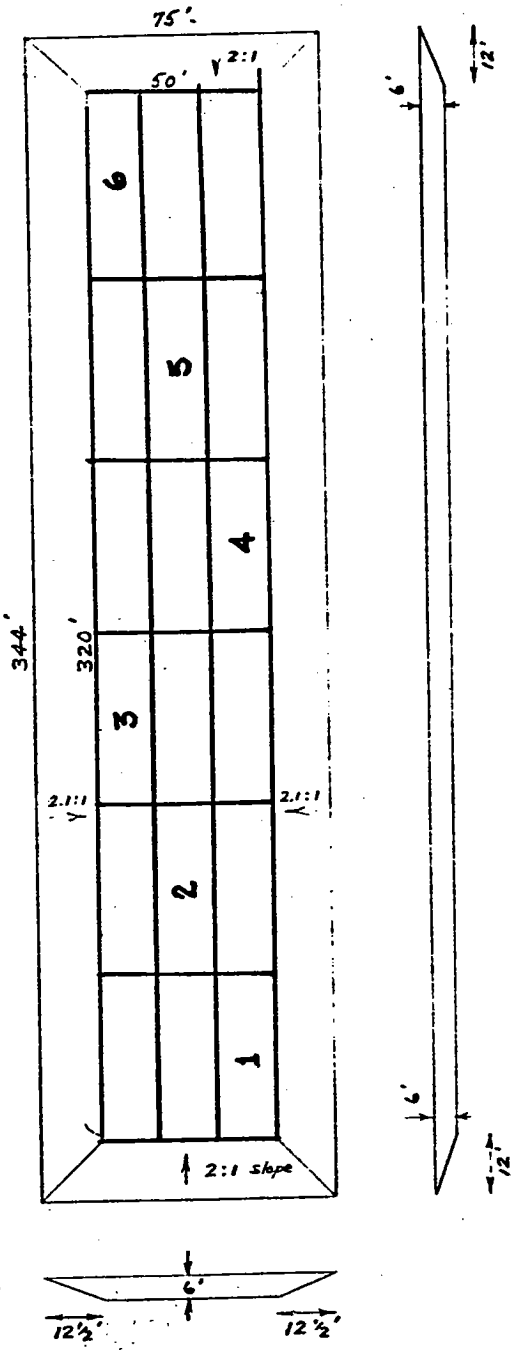
$t_{0.01}$ for 7 degrees of freedom

$= 2.998$

0.37 is much less than 2.998

Therefore there is no statistically significant difference between background soil corings and soil corings from the bottom of the S-1 impoundment

Pond P-1



EVAPORATING POND P-1

Analyses Attached

WATER ANALYSIS LABORATORY
DESERT RESEARCH INSTITUTE

REPORT DATE: 21-MAR-84
FILE NAME: 7724KG.TBL

LAB # / DATE	SAMPLE POINT	AG MG/L	AS MG/L	BA MG/L	CD MG/L	CR MG/L	HG MG/L
7724 18-OCT-83	P-1,EP-EX SAMPLE-1	<0.1	<0.1	<0.5	<0.1	1.3	<.002
7725 18-OCT-83	P-1,EP-EX SAMPLE-2	<0.1	<0.1	<0.5	<0.1	<.2	<.002
7726 18-OCT-83	P-1,EP-EX SAMPLE-3	<0.1	<0.1	<0.5	<0.1	<.2	<.002
7727 18-OCT-83	P-1,EP-EX SAMPLE-4	<0.1	<0.1	<0.5	<0.1	0.8	<.002
7728 18-OCT-83	P-1,EP-EX SAMPLE-5	<0.1	<0.1	<0.5	0.1	0.7	<.002
7729 18-OCT-83	P-1,EP-EX SAMPLE-6	<0.1	<0.1	<0.5	<0.1	1.1	<.002

WATER ANALYSIS LABORATORY
DESERT RESEARCH INSTITUTE

REPORT DATE: 21-MAR-84
FILE NAME: 7724KG.TBL

LAB #	PB MG/L	SE MG/L
7724	<0.5	<0.1
7725	<0.5	<0.1
7726	<0.5	<0.1
7727	<0.5	<0.1
7728	<0.5	<0.1
7729	<0.5	<0.1

2. CALCULATION OF "ERODIBILITY" AND SUPPORT SOILS INFORMATION

The Universal Soil Loss Equation (USLE) was used to calculate the erodibility of the top layer (See Plate A-1). Native onsite soils were used with two cases being studied.

Average Case - Slope and length across the waste cell cap - 4 % slope for 55 feet.

$$A = RK(LS)CP = \text{Soil Loss}$$

where:

R = 22 for Henderson (obtained from the U.S. Soil Conservation Service)

K = 0.02 Ton/Acre (obtained by using the soil erodibility nomograph (See Plate A-3)).

The grain size distribution was determined using ASTM D-136, and the permeability was determined to be 3.6×10^{-3} cm/sec by use of the constant head method for determining saturated hydraulic conductivity.

LS = 0.32 for 4% slope for 55' (See Plate A-4)

C = 1 for unvegetated fround (obtained from the U.S. Soil Conservation Service)

P = 1 (obtained from the U.S. Soil Conservation Service)

A = 22 x .02 Tons/Acre x 0.32 x 1 x 1 = 0.14 Tons/Acre.

This soil loss falls well within RCRA's guidelines of not exceeding 2 Tons/Acre.

The Universal Soil Loss Prediction Equation

The Universal Soil Loss Prediction Equation can be used to:

1. Predict soil loss from sheet and rill erosion.
2. Determine resource management systems.
3. Evaluate the effectiveness of various conservation practices.
4. Determine horizontal spacing for terraces and diversions.

The soil loss equation is A = RKLSCP.

A - Soil Loss Per Acre Per Year

The soil loss is usually expressed as average annual soil loss in tons per acre. Determinations can be made also for only a certain portion of a year. Soil loss for a certain portion of the year is signified by Ax.

R - Rainfall Factor

The rainfall factor is the number of erosion-index units in a normal year's rain or a portion of a normal year's rain. The erosion-index is a measure of the eroisive force of specific rainfall. It is a product value of two rainstorm characteristics: total kinetic energy of the storm times its maximum 30-minute intensity (EI). The erosion potential of rainfall is highest where the rainfall energy and intensity are greatest. In Alabama, the values are highest in the southern part of the state and lowest in the northeastern part.

K - Soil-Erodibility Factor

The soil-erodibility factor is the erosion rate per unit of erosion index for a specific soil in cultivated continuous fallow, on a 9 percent slope, 72.6 feet long. Soil-erodibility values are experimentally determined for different soils.

L - Slope Length

Slope length is defined as the distance from the point of origin of overland flow to either of the following: 1) the point where the slope decreases to the extend that deposition occurs, 2) the point where runoff enters a well-defined natural channel or waterway, or 3) the point where runoff enters a terrace or diversion channel. It is usually not the total length of the field.

S - Percent Slope

Upward or downward slant or inclination. The degree or extent of deviation from the horizontal or perpendicular.

C - Cropping Management Factor

This factor takes into consideration the combined effects of different crops, management of crop residues, fertility level, and methods and time of tillage. It is influenced by the distribution of erosive rainstorms and periods of plant growth during the year. The cropping-management factor is the expected ratio of soil loss from land cropped under specified conditions in comparison to soil loss from fallow conditions on which the "K" factor is evaluated. The computation of this factor is rather complex.

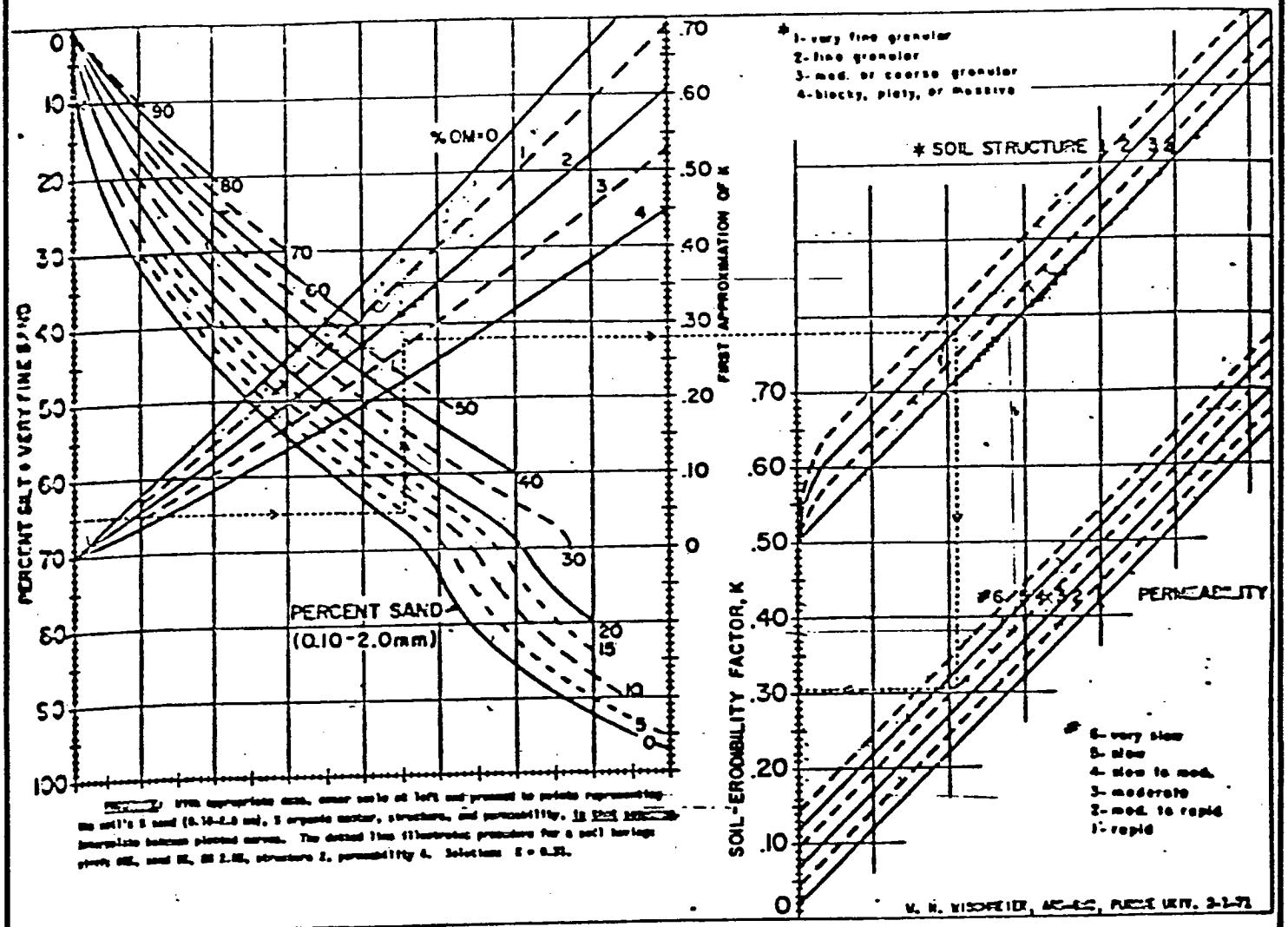
P - Erosion Control Practic Factor

This factor is the ratio of soil loss with contouring or stripcropping to that with up-and-down hill operation. The effects of terraces and diversions are taken into consideration in (L) slope length. The value of other conservation practices are built into the "C" cropping-management factor.

T - Soil Loss Tolerance

Soil loss tolerance is the estimated maximum average annual soil loss that can be tolerated and still permit a high level of crop productivity to be sustained economically and indefinitely. The establishment of tolerances for specific soils is largely a matter of collective judgement.

SOIL ERODIBILITY NOMOGRAPH



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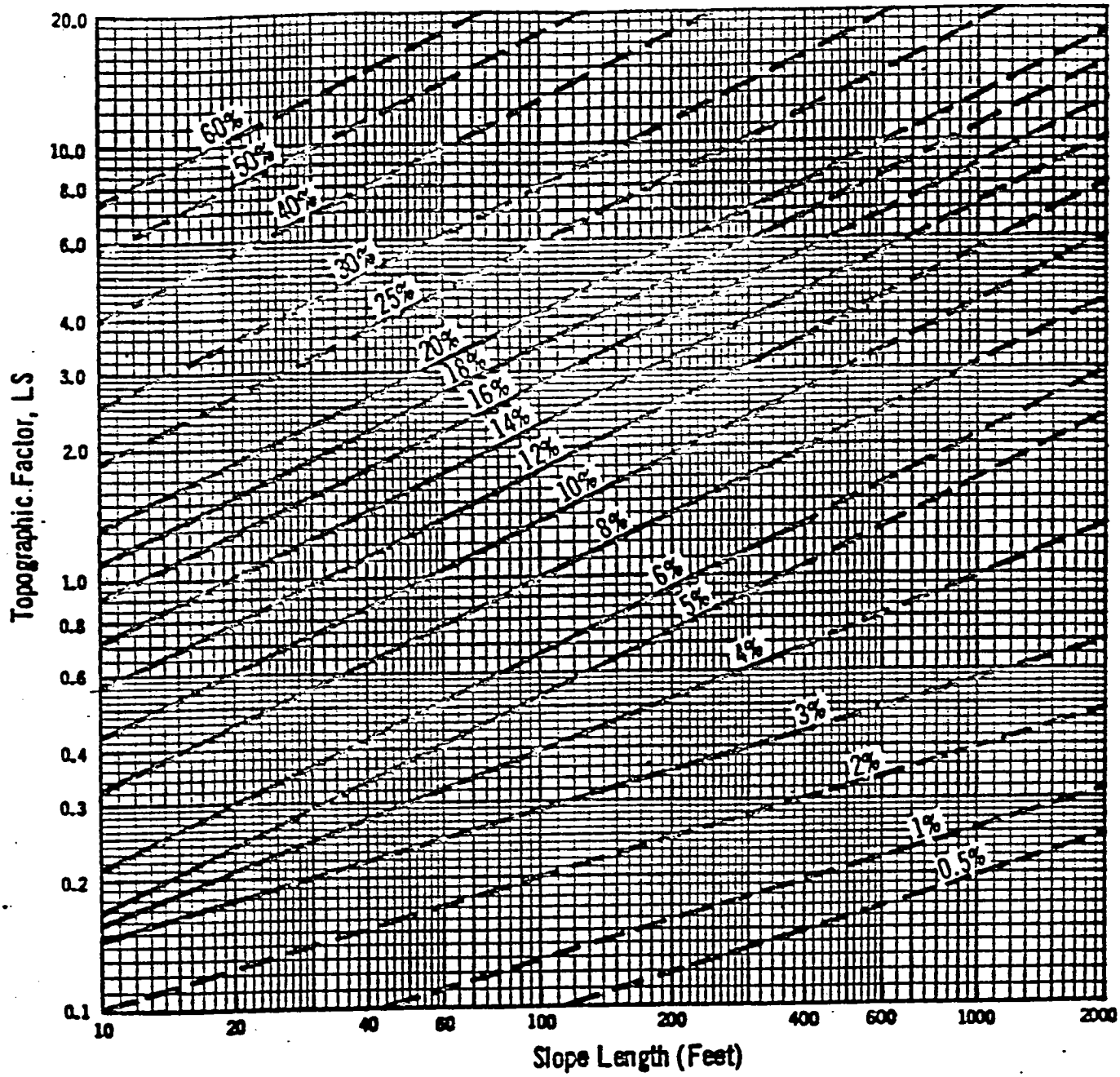
September-October 1971, Volume 26, Number 5

J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	Kerr McGee Waste Cell Cap	PLATE A-3
PROJECT NO. L-1359-2		

SLOPE EFFECT CHART (Topographic Factor, LS)*



*The dashed lines represent estimates for slope dimensions beyond the range of lengths and steepnesses for which data are available. The curves were derived by the formula:

$$LS = \left(\frac{\lambda}{72.6}\right)^{m} \left(\frac{430x^2 + 30x + 0.43}{6.57415}\right)$$

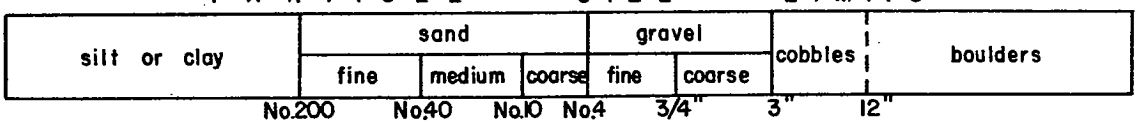
where λ = field slope length in feet and m = 0.5 if s = 5% or greater, 0.4 if s = 4%, and 0.3 if s = 3% or less; and $x = \sin\theta$. θ is the angle of slope in degrees.

J.H. KLEINFELDER & ASSOCIATES GEOTECHNICAL CONSULTANTS • MATERIALS TESTING	Kerr McGee Waste Cell Cap	PLATE A-4
PROJECT NO. L-1359-2		

MAJOR DIVISIONS			Group Symbols	TYPICAL NAMES
COARSE GRAINED SOILS More than 50% of material is Larger than the No. 200 sieve.	GRAVELS More than 50% of coarse part is larger than the No.4 sieve	CLEAN GRAVELS Little or no fines	GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES Appreciable amt of fines	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS More than 50% of coarse part is smaller than the No.4 sieve	CLEAN SANDS Little or no fines	SW	Well graded sands, gravelly sands, little or no fines.
			SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES Appreciable amt of fines	SM	Silty sands, sand-silt mixtures.
			SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS More than 50% of material is smaller than No. 200 sieve.	SILTS AND CLAYS Liquid limit LESS than 50		ML	Inorganic silts & very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity.
			CL	Inorganic clays of low to med. plasticity, gravelly clays, sandy clays, silty clays, lean clays.
			OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS Liquid limit GREATER than 50		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS



DESCRIPTIVE TERMS USED WITH SOILS

CONSISTENCY			MOISTURE CONTENT
	Silts and Clays	Sands and Gravels	
Strongest ↑	very stiff	very dense	Wettest ↑ wet
	stiff	dense	very moist
	firm	medium dense	moist
Weakest	soft	loose	slightly moist
			Driest dry

DESCRIPTIVE TERMS USED WITH CALICHE AND CEMENTED SOILS

	CALICHE	CEMENTED SAND AND GRAVEL	IDENTIFICATION TEST USING KNIFE AND STANDARD GEOLOGIST'S HAMMER
Strongest ↑	very hard	very hard	Difficult to scratch or break.
	hard	hard	Scratches leave only dust, requires many hammer blows to break.
	moderately hard	moderately hard	Can be readily cut with knife and crumbles with several hammer blows.
Weakest	partially cemented	partially cemented	Gouges easily with knife and crumbles readily with a few blows of a hammer

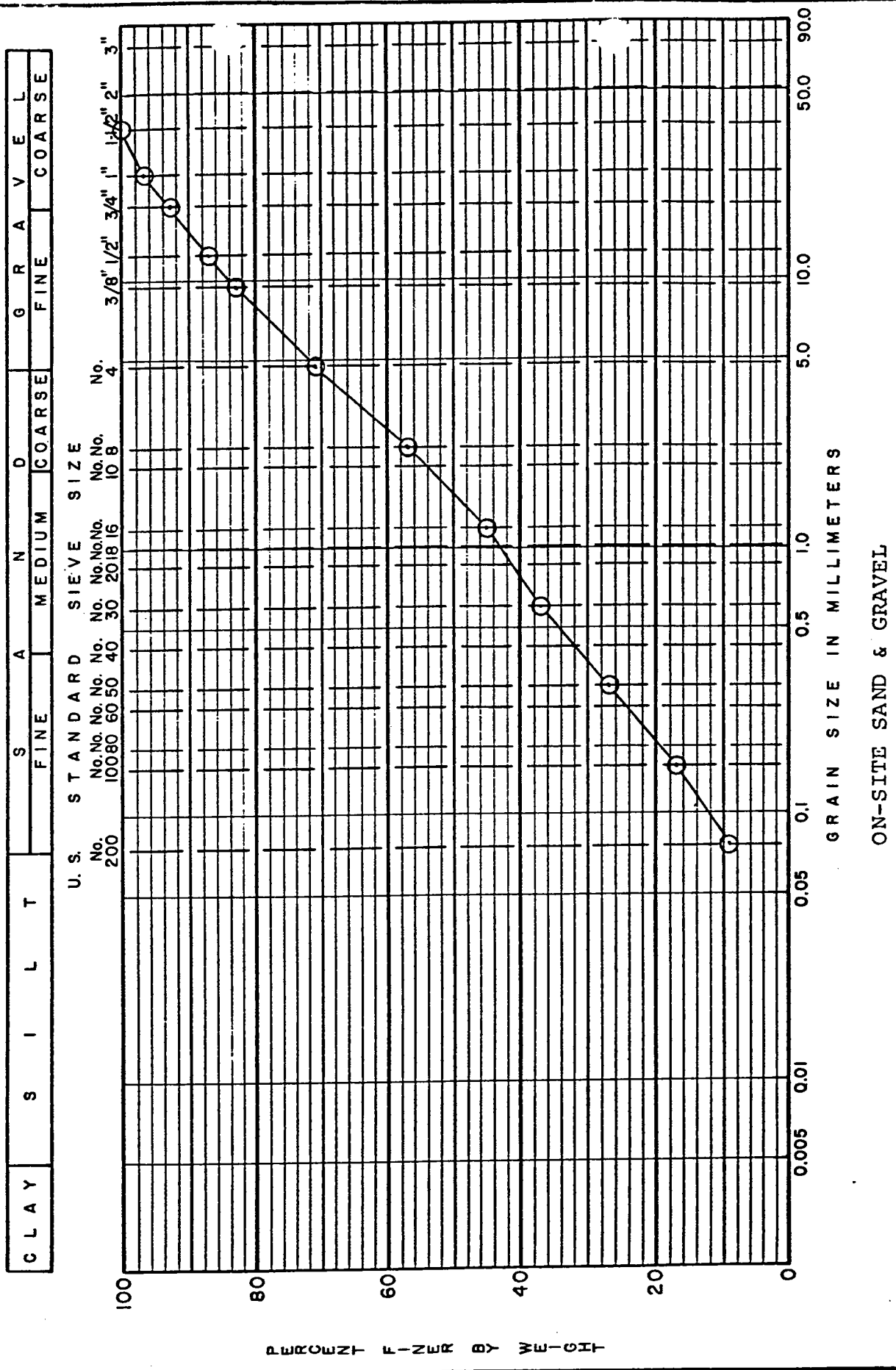
J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PROJECT NO.

EXPLANATION OF MATERIAL CLASSIFICATIONS

PLATE B

JHK20

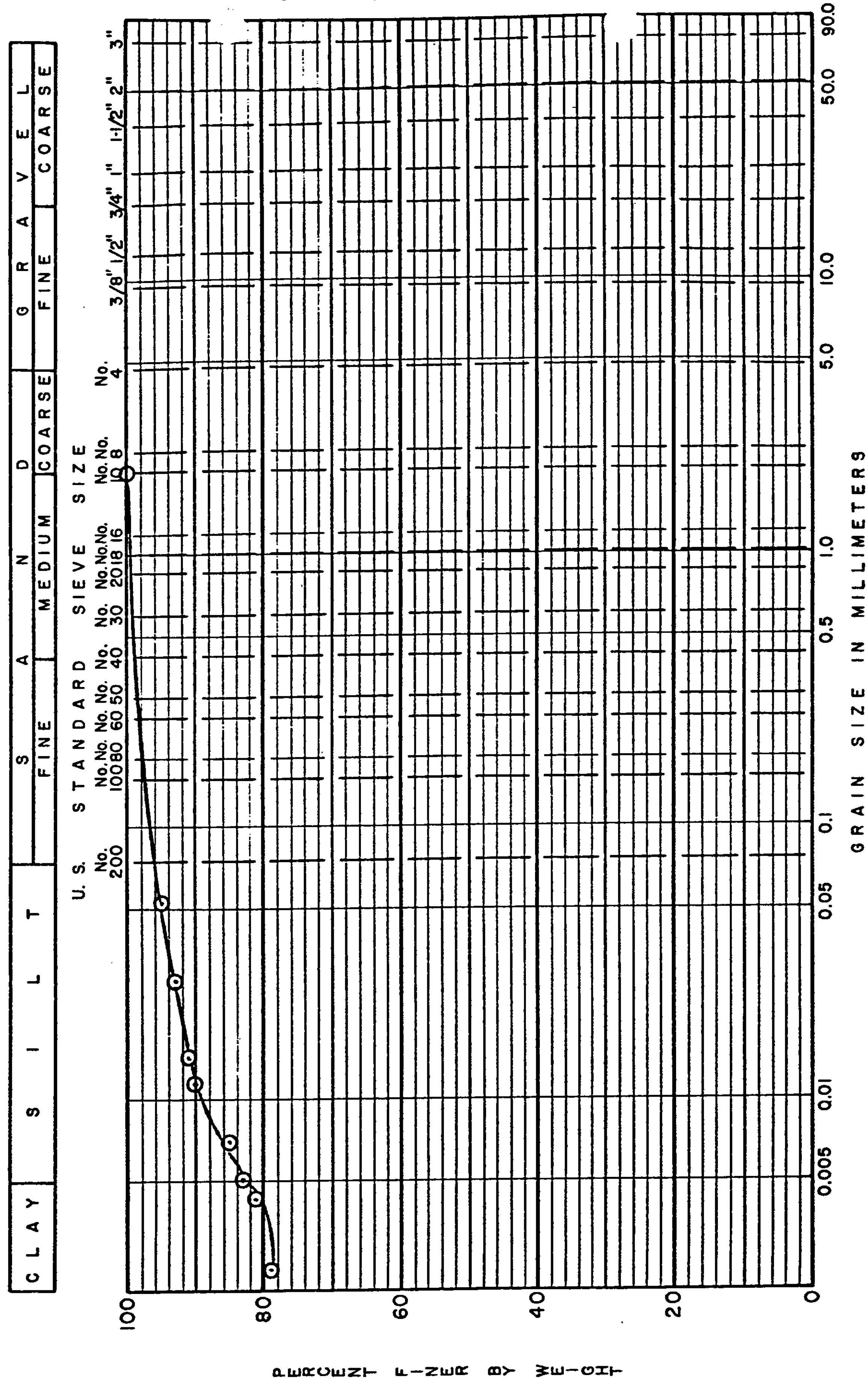


J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

GRAIN-SIZE DISTRIBUTION

PLATE 1

PROJECT NO. L-1359-2



IMPORTED CLAY

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

GRAIN-SIZE DISTRIBUTION

PLATE 2

PROJECT NO. I-1359-2

CODE NUMBER	MATERIAL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (% of dry wt.)
1	GRAVELLY SAND - brown	121	10.5
2	CLAY - green	92	28.8

NOTES:

(1) Tests were performed in accordance with ASTM D1557-78 test method.

*(2) Tests with an asterisk are check point results utilizing zero-air-void curves.

J.H. KLEINFELDER & ASSOCIATES
GEOTECHNICAL CONSULTANTS • MATERIALS TESTING

PROJECT NO. T-1359-2

COMPACTION TEST RESULTS

PLATE 3

APPENDIX V

June 1, 1984

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

UPDATED FILING

Director
State of Nevada
Department of Conservation and Natural Resources
Capitol Complex
201 South Fall Street
Carson City, Nevada 89710

Dear Director:

I am the chief financial officer of Kerr-McGee Corporation of Kerr-McGee Center, Oklahoma City, OK 73125. This letter is in support of this firm's use of the financial test to demonstrate financial assurance as specified in the Nevada Administrative Code (NAC) No. 444.9055.

1. This firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in NAC No. 444-9070. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: NONE.

2. This firm guarantees, through the corporate guarantee specified in NAC No. 444-9070, the closure or post-closure care of the following facilities owned or operated by subsidiaries of this firm. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility:

EPA Identification No., Name & Address	Cost Estimates	
	Closure	Post-Closure
NVD 008290330 Kerr-McGee Chemical Corporation P.O. Box 53 Henderson, NV 89015 Region IX	$128,000	$300,000

3. In states where the State of Nevada Department of Conservation and Natural Resources (Department) is not administering the financial requirements of NAC No. 444-9055, this firm, as owner or operator or guarantor, is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in NAC No. 444-9070. The current closure and/or post-closure cost estimates covered by such a test or guarantee are shown for each facility:

EPA Identification No., Name & Address	Cost Estimates Closure	Post-Closure
MSD 990866329 Kerr-McGee Chemical Corporation 607 14th Street, North Columbus, MS 39701	$ 428,000	N/A
MSD 081387730 Kerr-McGee Chemical Corporation Highway 11 South P.O. Box 789 Meridian, MS 39301	$ 91,000	$113,000
OKD 000396549 Kerr-McGee Refining Corportion P.O. Box 305 Wynnewood, OK 73098	$ 211,000	$ 95,000
ALD 071937890 Kerr-McGee Chemical Corporation Mobile Facility P.O. Box 629 Theodore, AL 36590	$1,150,000	$253,000
MOD 007128978 Kerr-McGee Chemical Corporation Forest Products Division P.O. Box 6208 2300 Oakland Kansas City, MO 64126	$ 103,000	N/A
TXD 057111403 Kerr-McGee Chemical Corporation 155 Buchanan Rd. Texarkana, TX 75501	$ 708,000	N/A
TXD 000807859 Southwestern Refining Company, Inc. (Landfarm) P.O. Box 9217 Corpus Christi, TX 78408	$ 34,000	$408,000
ILD 020367561 Kerr-McGee Chemical Corporation P.O. Box 166 Madison, IL 62060	$1,665,000	N/A

4. This firm is the owner or operator of the following hazardous waste management facilities for which financial assurance for closure or, if disposal facility, post-closure care, is not demonstrated either to Department or a State through the financial test or any other financial assurance mechanism specified in NAC No. 444-9055 or equivalent or

substantially equivalent State mechanisms. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: NONE.

This firm is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended December 31, 1983.

(SEE PAGE 4)

ALTERNATIVE I
(THOUSANDS OF DOLLARS)

1.	Sum of current closure and post-closure cost estimates (total of all cost estimates shown in the four paragraphs above)	$ 5,687
*2.	Total liabilities (if any portion of the closure or post-closure is included in total liabilities, you may deduct the amount of that portion from this line and add that amount to lines 3 and 4.)	$2,074,110
*3.	Tangible net worth	$1,700,173
*4.	Net Worth	$1,732,824
*5.	Current assets	$ 929,186
*6	Current liabilities	$ 713,169
7.	Net working capital (line 5 - line 6)	$ 216,017
*8.	The sum of net income plus depreciation, depletion and amortization	$ 401,046
9.	Total assets in U.S. (required only if less than 90% of firm's assets are located in the U.S.)	$3,001,307

		YES	NO
10.	Is Line 3 at least $10 million?.....	X	
11.	Is line 3 at least 6 times line 1?.....	X	
12.	Is line 7 at least 6 times line 1?.....	X	
13.	Are at least 90% of firm's assets located in the U.S.?..... (If not, complete line 14)		X
14.	Is line 9 at least 6 times line 1?.....	X	
15.	Is line 2 divided by line 4 less than 2.0?.....	X	
16.	Is line 8 divided by line 2 greater than 0.1?.....	X	
17.	Is line 5 divided by line 6 greater than 1.5?.....		X

I hereby certify that the wording of this letter is identical to the wording specified in NAC 444.9070, as such regulations were constituted on the date shown immediately below.

Marvin K. Hambrick
Title: Executive Vice President Finance

Date: June 1, 1984

UPDATED

CORPORATE GUARANTEE FOR CLOSURE OR POST-CLOSURE CARE

Guarantee made this 1st day of June, 1984 by Kerr-McGee Corporation, a business corporation organized under the laws of the State of Delaware, herein referred to as guarantor, to the State of Nevada Department of Conservation and Natural Resources (Department), obligee, on behalf of our subsidiary Kerr-McGee Chemical Corporation, of Kerr-McGee Center, Oklahoma City, Oklahoma 73125.

1. Guarantor meets or exceeds the financial test criteria and agrees to comply with the reporting requirements for guarantors as specified in NAC 444.9055.

2. Kerr-McGee Chemical Corporation owns or operates the following hazardous waste management facility covered by this guarantee:

EPA Identification No., Name & Address	Cost Estimates	
	Closure	Post-Closure
NVD 008290330 Kerr-McGee Chemical Corporation P.O. Box 53 Henderson, NV 89015	$128,000	$300,000

3. "Closure plans" and "post-closure plans" as used below refer to the plans maintained as required by NAC 444.9030 and 444.9035 for the closure and post-closure care of facilities as identified above.

4. For value received from Kerr-McGee Chemical Corporation, guarantor guarantees to Department that in the event that Kerr-McGee Chemical Corporation fails to perform closure and post-closure care of the above facility in accordance with the closure or post-closure plans and other permit or interium status requirements whenever required to do so, the guarantor shall do so or establish a trust fund specified in NAC 444.9055 in the name of Kerr-McGee Chemical Corporation in the amount of the current closure or post-closure cost estimates as specified in NAC No. 444-9050.

5. Guarantor agrees that if, at the end of any fiscal year before termination of this guarantee, the guarantor fails to meet the financial test criteria, guarantor shall send within 90 days, by certified mail, notice to the Director of the State of Nevada's Department of Conservation and Natural Resources (Director) and to Kerr-McGee Chemical Corporation that he intends to provide alternate financial assurance as specified in NAC No. 444-9055, in the name of Kerr-McGee Chemical Corporation. Within 120 days after the end of such fiscal year, the guarantor shall establish such financial assurance unless Kerr-McGee Chemical Corporation has done so.

6. The guarantor agrees to notify the Department Director by certified mail, of a voluntary or involuntary proceeding under Title 11 (Bankruptcy), U.S. Code, naming guarantor as debtor, within 10 days after commencement of the proceeding.

7. Guarantor agrees that within 30 days after being notified by the Department Director of a determination that guarantor no longer meets the financial test criteria or that he is disallowed from continuing as a guarantor of closure, or post-closure care, he shall establish alternate financial assurance as specified in NAC 444.9055, in the name of Kerr-McGee Chemical Corporation unless Kerr-McGee Chemical Corporation has done so.

8. Guarantor agrees to remain bound under this guarantee notwithstanding any or all of the following:

> amendment or modification of the closure or post-closure plan, amendment or modification of the permit, the extension or reduction of the time of performance of closure or post-closure or any other modification or alteration of an obligation of the owner or operator pursuant to NAC 444.9055.

9. Guarantor agrees to remain bound under this guarantee for so long as Kerr-McGee Chemical Corporation must comply with the applicable financial assurance requirements of NAC 444-9055 for the above-listed facility, except that guarantor may cancel this guarantee by sending notice by certified mail to the Department Director and to Kerr-McGee Chemical Corporation, such cancellation to become effective no earlier than 120 days after receipt of such notice by both Department and Kerr-McGee Chemical Corporation, as evidenced by the return receipts.

10. Guarantor agrees that if Kerr-McGee Chemical Corporation fails to provide alternate financial assurance as specified in NAC 444-9055, and obtain written approval of such assurance from the Department Director within 90 days after a notice of cancellation by the guarantor is received by the Department Director from guarantor, guarantor shall provide such alternate financial assurance in the name of Kerr-McGee Chemical Corporation.

11. Guarantor expressly waives notice of acceptance of this guarantee by the Department or by Kerr-McGee Chemical Corporation. Guarantor also expressly waives notice of amendments or modifications of the closure and/or post-closure plan and of amendments or modifications of the facility permit(s).

I hereby certify that the wording of this guarantee is identical to the wording specified in the Nevada Administrative Code No. 444.9070 as such regulations were constituted on the date first above written.

Effective date: June 1, 1984

KERR-McGEE CORPORATION

By: _____
Marvin K. Hambrick
Executive Vice President, - Finance

_____
Signature of Witness

ARTHUR ANDERSEN & CO.

20 BROADWAY, SUITE 1200
OKLAHOMA CITY, OKLAHOMA 73102
(405) 236-1491

June 1, 1984

Kerr-McGee Corporation
Kerr-McGee Center
Post Office Box 25861
Oklahoma City, Oklahoma 73125

Dear Sirs:

We have examined the consolidated balance sheet of Kerr-McGee Corporation and subsidiary companies (the "Company") as of December 31, 1983, and the related statements of income, retained earnings, capital in excess of par value and changes in financial position for the year then ended and have expressed an unqualified opinion on those statements in our report dated March 2, 1984. We have not performed any auditing procedures since that date. Our examination was made in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

At your request, we have read the letter dated June 1, 1984, from your chief financial officer to the State of Nevada Department of Conservation and Natural Resources to demonstrate assurance of closure and post-closure care required by EPA regulations. As further required by such regulations, we have compared the data which the letter from the chief financial officer specifies as having been derived from the independently audited financial statements as of and for the year ended December 31, 1983, referred to above with the corresponding amounts in such financial statements. In connection with this procedure, no matters came to our attention which caused us to believe that the specified data should be adjusted.

This report relates only to the data specified above and does not extend to the financial statements of the Company, taken as a whole, for the year ended December 31, 1983. It is furnished solely for the use of the Company and the Company's distribution to the State of Nevada Department of Conservation and Natural Resources and is not to be used for any other purpose.

Very truly yours,

Arthur Andersen & Co.

KERR-McGEE
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

January 13, 1984

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

Ms. Judith E. Ayers, Regional Administrator
U. S. Environmental Protection Agency
Region IX
315 Fremont Street
San Francisco, California 94105

Re: Kerr-McGee Chemical Corporation
EPA I.D. #NVD 008290330
Henderson, Nevada Location

Dear Ms. Ayers:

Attached is a Hazardous Waste Facility Certificate of Liability Insurance for Kerr-McGee Chemical Corporation. The certificate demonstrates evidence of the liability insurance specified in requirements 264.147 and 265.147 for non-sudden (gradual) occurrences.

We trust you will find the certificate in order; however, should there be any questions, please advise.

Very truly yours,

Charlotte Hix
Insurance & Claims Department

CH/vmr

Attachment

cc: E.T. Still

HAZARDOUS WASTE FACILITY

CERTIFICATE OF LIABILITY INSURANCE

1. Harbor Insurance Company, the "Insurer", of Los Angeles, California, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Kerr-McGee Chemical Corporation, (the "insured"), of Kerr-McGee Center, Oklahoma City, Oklahoma in connection with the Insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147.

The coverage applies at:

EPA I.D. #NVD 008290330
Kerr-McGee Chemical Corporation
Henderson Facility
Lake Mead Drive
(P. O. Box 55)
Henderson, Nevada 89015

for nonsudden accidental occurrences.

The limits of liability are: $3,000,000 each occurrence
$6,000,000 annual aggregate

exclusive of legal defense costs. The coverage is provided under policy number HI 167898 issued on January 16, 1984. The effective date of said policy is January 16, 1984.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the Insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.174(f).

(c) Whenever requested by a Regional Administrator of the U. S. Environmental Protection Agency (EPA)

the Insurer agrees to furnish to the Regional Administrator

a signed duplicate original of the policy and all endorsements.

(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrator of the EPA Region in which the facility is located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrator of the EPA Region in which the facility is located.

I hereby certify that the wording on this instrument is identical to the wording specified in 40 CFR 264.151(j),

as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Rodman A. Frates

Signature of Authorized Representative of Insurer

Rodman A. Frates
Authorized Representative of
Harbor Insurance Company
720 N.W. 50th Street
P. O. Box 18839
Oklahoma City, Oklahoma 73154

CERTIFICATE OF INSURANCE

(This Certific of Insurance neither affirmatively or negatively nds, extends or alters the verage, limits, terms or conditions of the policies certificates.)

This certificate is executed by Northwestern National Insurance Company
731 North Jackson, Milwaukee, Wisconsin 53201

1. Name and address of party to whom this certificate is issued

Sonia Crow, Regional Administrator
U. S. Environmental Protection Agency
Region IX
315 Fremont Street
San Francisco, CA 94105

2. Name and address of Insured

Kerr-McGee Chemical Corporation
Kerr-McGee Center
Oklahoma City, Oklahoma 73125

DESCRIPTION AND LOCATION OF OPERATIONS COVERED

See separate two page attachment for the:

HAZARDOUS WASTE FACILITY CERTIFICATE OF LIABILITY INSURANCE

SPECIAL PROVISIONS:

POLICY NUMBER	KIND OF INSURANCE	EXPIRATION DATE	LIMITS OF LIABILITY
CLA 224377	Comprehensive General Liability	July 1, 1984	$1,000,000 Each Occurrence $2,000,000 Annual Aggregate

This is to certify that the above Insurance Policies are in force in this company as of the date of this certificate. In the event of any material change in or cancellation of the above insurance, we will give you 30 days prior written notice of such change or cancellation.

C. L. FRATES & CO., INC.
P.O. Box 13839 Okla. City, Okla. 73154

7-8-82
DATED

AUTHORIZED REPRESENTATIVE

HAZARDOUS WASTE FACILITY

CERTIFICATE OF LIABILITY INSURANCE

1. Northwestern National Insurance Company, the "Insurer", of Milwaukee, Wisconsin, hereby certifies that it has issued liability insurance covering bodily injury and property damage to Kerr-McGee Chemical Corporation , (the "insured"), of Kerr-McGee Center, Oklahoma City, Oklahoma in connection with the Insured's obligation to demonstrate financial responsibility under 40 CFR 264.147 or 265.147. The coverage applies at:

EPA I.D. # NVD 008290330
Kerr-McGee Chemical Corporation
Henderson Facility
Lake Mead Drive
(P. O. Box 55)
Henderson, Nevada 89015

for sudden accidental occurrences.

The limits of liability are

$1,000,000 each occurrence

$2,000,000 Annual Aggregate,

exclusive of legal defense costs. The coverage is provided under policy number CLA 224377 issued on July 1, 1981. The effective date of said policy is July 1, 1981.

2. The Insurer further certifies the following with respect to the insurance described in Paragraph 1:

(a) Bankruptcy or insolvency of the insured shall not relieve the Insurer of its obligations under the policy.

(b) The Insurer is liable for the payment of amounts within any deductible applicable to the policy, with a right of reimbursement by the Insured for any such payment made by the Insurer. This provision does not apply with respect to that amount of any deductible for which coverage is demonstrated as specified in 40 CFR 264.147(f) or 265.174(f).

(c) Whenever requested by a Regional Administrator of the U.S. Environmental Agency (EPA) the Insurer agrees to furnish to the Regional Administrator a signed duplicate original of the policy and all endorsements.

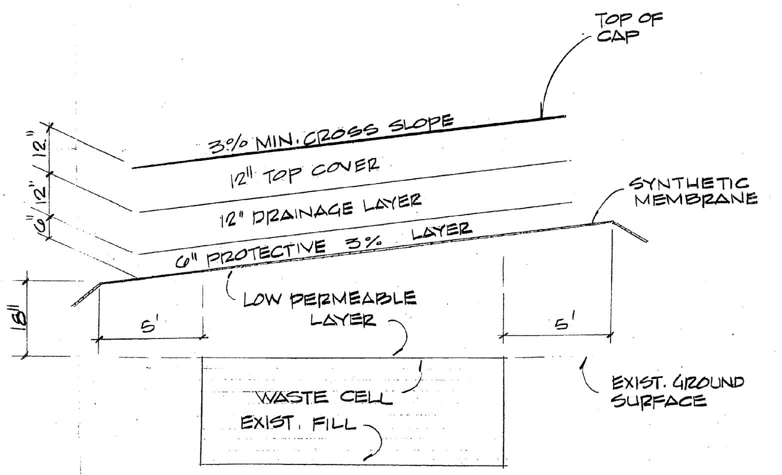
(d) Cancellation of the insurance, whether by the Insurer or the insured, will be effective only upon written notice and only after the expiration of sixty (60) days after a copy of such written notice is received by the Regional Administrator(s) of the Region in which the facility is located.

(e) Any other termination of the insurance will be effective only upon written notice and only after the expiration of thirty (30) days after a copy of such written notice is received by the Regional Administrator of the EPA in which the facility is located.

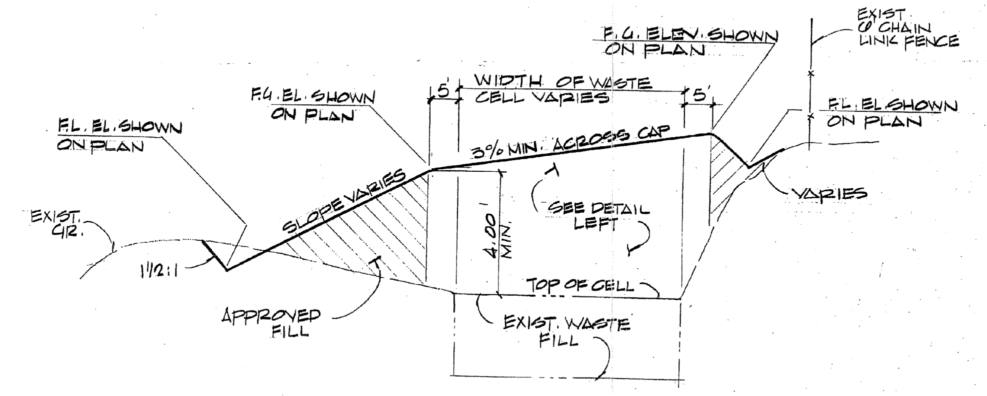
I hereby certify that the wording of this instrument is identical to the wording specified in 40 CFR 264.151(j), as such regulation was constituted on the date first above written, and that the Insurer is licensed to transact the business of insurance, or eligible to provide insurance as an excess or surplus lines insurer, in one or more States.

Signature of Authorized Representative of Insurer

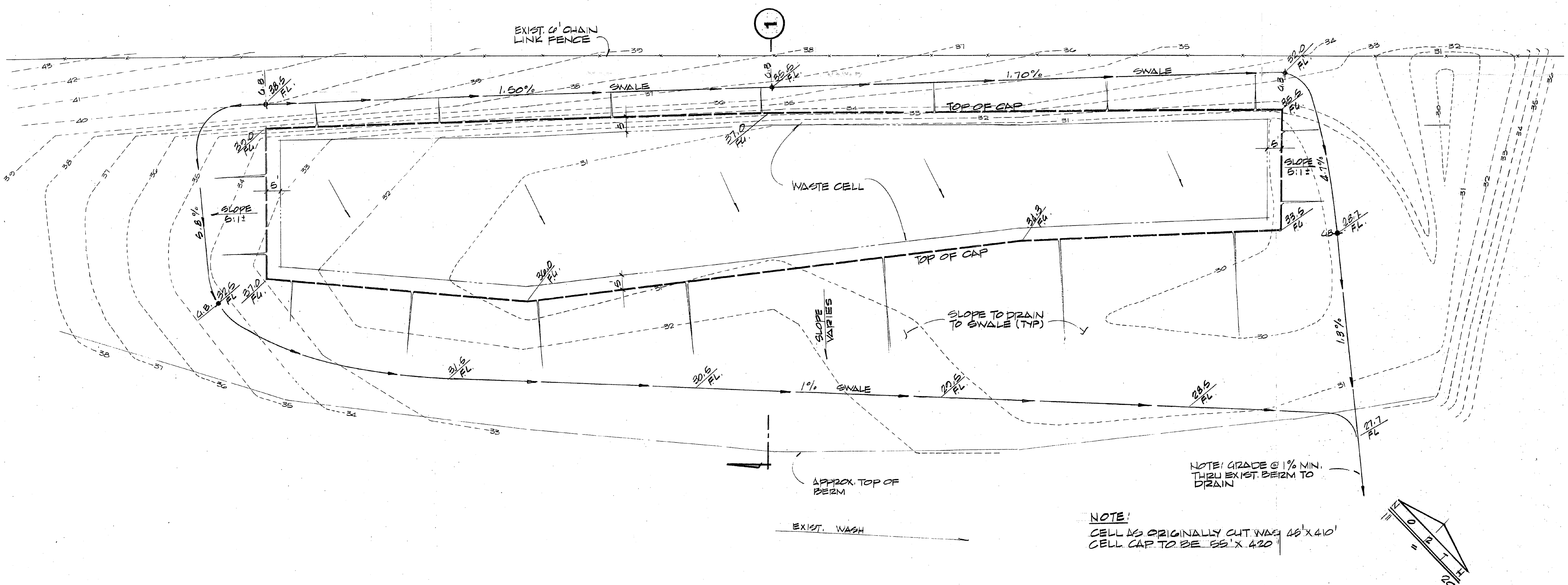
Rodman A. Frates
Authorized Representative of
Northwestern National Insurance Company
720 N.W. 50th Street
P. O. Box 18839
Oklahoma City, Oklahoma 73154



DETAIL



SECTION (1)



NOTE:
CELL AS ORIGINALLY CUT WAS 46' X 410'
CELL CAP TO BE 55' X 420'

PLAN

DATE	REVISIONS
	REVISED CAP THICKNESS PER KERR-MC GEE

HENNER
ENGINEERING AND MANAGEMENT, INC.
3549 SOUTH INDUSTRIAL ROAD, SUITE 9
LAS VEGAS, NEVADA 89109
(702) 733-6444

KERR MCGEE

WASTE CELL CAP PLAN & DETAILS

SHEET NO. 1