

DOCKET NO. 40-6175

**KERR-McGEE OIL INDUSTRIES, INC.**

Kerr-McGee Building • Oklahoma City 2, Oklahoma

**File Copy**

June 3, 1964

Mr. Donald A. Nussbaumer, Chief  
Source and Special Nuclear Materials Branch  
Division of Licensing and Regulation  
United States Atomic Energy Commission  
Washington 25, D. C.

Dear Sir:

This relates to your letter of January 30, 1964 addressed to Kerr-McGee Oil Industries, Inc. to the attention of Wayne C. Hazen, Golden, Colorado and to a reply to you from Harold Lambertus of our Oklahoma City office and further to your letter of March 16, 1964 to Mr. Lambertus and to my phone call to you of March 30, 1964.

Since my phone call of March 30 we have made a systematic survey of the laboratory, pilot plant and tailing areas connected with our Golden, Colorado metallurgical research operation. This survey indicates that contamination levels of both buildings and tailing area are well within acceptable contamination limits. We, therefore, request you to terminate our license SUB-143.

Your letter of March 16, 1964 requested us to submit the following information:

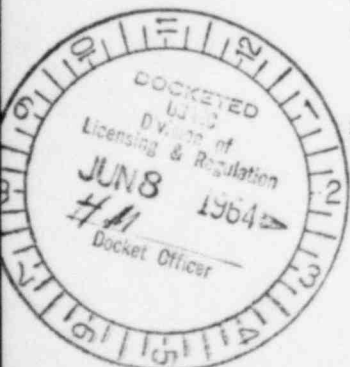
1. "The quantity and source material content of any residues or tailings accumulated during your operations and your plans for dealing therewith."

The drawings attached to this letter show the approximate size and configuration of the two ponds or tailing areas that were used at the time the pilot plant was in operation. This is the only area that received tailings or other products from the pilot plant operation.

Drawing "A", which is not necessarily drawn to scale, shows the location of the two pond areas with respect to the pilot plant building and the laboratory building.

Drawing "B" is a more detailed drawing of the pond areas which are designated Pond 1 and Pond 2. Pond 1 received no solid tailing but from time to time did floor wash-down water.

Three drill holes designated as 1a, 2a, and 3a were drilled in Pond 1. No tailings were cut with these holes.



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**ACKNOWLEDGED**

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Samples of the underlying soil were assayed with the following results:

<u>Hole No.</u>	<u>% U<sub>3</sub>O<sub>8</sub></u>	<u>% Thorium</u>	<u>Total U<sub>3</sub>O<sub>8</sub> &amp; Thorium</u>
1a	0.0003	0.0005	0.0008
2a	0.0235	--	--
3a	0.0058	0.0005	0.0063

We concluded there was no contamination problem at the location of Pond 1.

In Pond 2 the accumulation of tailings is concentrated in two areas - one located near the north end of the pond and the other near the south end of the pond. Seventeen holes were drilled over the pond and nine holes were assayed. This pond is about 60 feet wide and 150 feet long with an approximate area of 9000 square feet. There was no accumulation of tailing in the uncolored area in Pond 2 of Drawing "B". Tailing depth in the area colored red ranges from 0" to 12" and is assumed to have an average depth of 6". The area between the 12" and 24" contours is colored blue and has an assumed average thickness of 18". The area between the 24" and 36" contours is in yellow and represents an area with an assumed tailing depth of 30".

Tonnage and U<sub>3</sub>O<sub>8</sub> grade calculations were made on this basis:

<u>Area Designation</u>	<u>Area Sq.Ft.</u>	<u>Avg.Tail. Thickness</u>	<u>Avg.Assay U<sub>3</sub>O<sub>8</sub></u>	<u>Tons (100#/CF)</u>
White	2100	None	None	None
Red	4600	0.5'	0.0221	115
Blue	1300	1.5'	0.0109	97
Yellow	1000	2.5'	0.0058	125
			0.013%	337

The drill hole and assay data are given in the following table:

<u>Hole No.</u>	<u>Depth of Tailing</u>	<u>% U<sub>3</sub>O<sub>8</sub></u>	<u>% Thorium</u>
2	12"	0.0109	
3	31"	0.0058	0.0010
4	6"	0.0076	N.A.

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<u>Hole No.</u>	<u>Depth of Tailing</u>	<u>% U<sub>3</sub>O<sub>8</sub></u>	<u>% Thorium</u>
5	4½"		
6	12"		
7	11"		
8	11"		
9	8"		
10	5"		
11	0"	0.0020	0.0003
12	0"	0.0028	N.A.
13	6"	0.0409	0.0090
14	4"		
15	5"	0.0030	N.A.
16	36"		
17	16"	0.0174	0.0140
18	20"	0.0046	N.A.

2. "Your procedures for determining levels of radioactive contamination on all buildings and/or process equipment used during your operations, including instruments used therefore."

The survey of the buildings was conducted by B. N. Logan, Chief Chemist of the Kermac Nuclear operation at Ambrosia Lake, New Mexico. I quote from Mr. Logan's report as follows:

"The instrument used for alpha radiation counting is a Nuclear-Chicago Alpha Counter, Model 2112 equipped with an AP4 counting head. Removable alpha was determined by taking smears for assay. The instrument used for determining the levels of beta-gamma radiation is an Eberline Model E-112B Geiger Counter equipped with an HP-180 probe."

Tabulation of the Results of the Radiation Survey

	<u>Alpha Radiation, DPM/100<sup>0</sup>-cm<sup>2</sup></u>			<u>Beta-gamma Radiation</u>	
	<u>Maximum</u>	<u>Fixed</u>		<u>Levels, mr/hr</u>	
	<u>Removable</u>	<u>Max.</u>	<u>Av.</u>	<u>Max.</u>	<u>Av.</u>
Main Office Building	243	800	400	0.1	0.1
Pilot Plant Building	57	330	130	0.2	0.1
Geology Building (Sample Storage)	29	400	60	0.3	0.1
Small Butler Building	12	160	80	0.1	0.1
Limits given by the A.E.C. as maximum	1000	25,000	5,000	1.0	0.2

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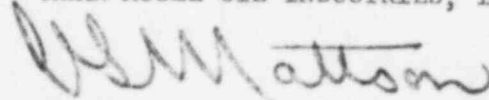
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In view of the fact that the tailing areas are substantially below A.E.C. tolerable limits, we are arranging with a contractor to bulldoze the dikes surrounding the pits so that the land may be utilized. There is no liquid in the pond areas and the present surfaces will be covered with about one foot of soil.

We trust that this information adequately answers the two points in your letter of March 16, 1964.

Very truly yours,

KERR-McGEE OIL INDUSTRIES, INC.



V. L. Mattson, Vice President  
Research and Development

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Enclosures (2)