

George W

UNCLASSIFIED

September 14, 1960

AEC 981/21

COPY NO. _____

ATOMIC ENERGY COMMISSION

INCIDENT AT KERR-MCGEE OIL INDUSTRIES, INC.
SHILOH, N. M.

Note by the Secretary

The General Manager has requested that the attached memorandum from the Director of Compliance be circulated for the information of the Commission.

W. B. McCool
Secretary

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UNITED STATES GOVERNMENT

Memorandum

TO : A. R. Luedcke, General Manager
THRU : W. F. Finan, Assistant General Manager
for Regulation and Safety
FROM : L. D. Low, Director
Division of Compliance

DATE: August 31, 1960

SUBJECT: KERR-MC GEE OIL INDUSTRIES, INC., CHIPROCK, NEW MEXICO
LICENSE NO. R-157

SYMBOL: COM-10

We have been informed that a dam retaining the liquid effluents from subject company's uranium mill broke on August 22, 1960, and released from 150,000 to 200,000 gallons of the liquid to the San Juan River. As a result of this release, it would appear that quantities of radium-226 and thorium-230 were probably released in excess of AEC standards. On the basis of an initial estimate, the incident has been classified as a Type B as defined in 10 CFR 20 and AEC 0707.

The licensee did not advise AEC of this incident and it was not until August 30, 1960, that we were informed by the Utah State Health Department of its occurrence. A representative of the ID Inspection Division arrived at the mill on August 31, 1960, and is conducting a complete investigation. We also understand that the USHS and the Utah and New Mexico State Health Departments may conduct investigations. Our investigation will be coordinated with these agencies. We shall inform you of any significant developments in this matter.

The Division of Licensing and Regulation, the Office of the General Counsel and the Office of Public Information have been informed of this incident. We have discussed this matter with the Office of Congressional Liaison who we understand have informed the Joint Committee staff by telephone.

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H. L. Price, Director
Division of Licensing and Regulation

Signed
by
L. D. Low

L. D. Low, Director
Division of Compliance

KERR-McGEE OIL INDUSTRIES, INC., LICENSE NO. R-157

SYMBOL: CO:WEK

There is attached a copy of the report dated August 25, 1960, together with the ID transmittal memorandum also dated August 25, 1960, with respect to the follow-up inspection of subject licensee.

It was observed during the inspection that the licensee has failed to conduct proper surveys to determine the exposure of individuals within the restricted area and with respect to the concentration of radioactive material in liquid and airborne effluents released to the unrestricted areas. In addition, the licensee failed to post areas to indicate the presence of airborne radioactive material.

We suggest that the licensee be informed of these matters of non-compliance and be directed to describe in detail the corrective action taken or planned to be taken with respect thereto, including specific dates for completion, etc. (Please note paragraphs 2, 3, and 4 of the ID transmittal memorandum dated August 25, 1960.) We also suggest that mention be made of the fact that the investigation is still in progress with respect to the recent possible release of radium and thorium to the San Juan River.

We have suggested an order in this case for two reasons. First, the licensee was initially inspected in January, 1958, and on May 14, 1958, the licensee was requested to inform AEC of the actions they had taken or had planned to take to correct the items of noncompliance. The licensee's reply dated December 22, 1958, and the corrective action as noted in the follow-up report have not resulted in full compliance. Secondly, orders have been issued to several other mills when follow-up inspection findings resulted in similar circumstances.

Attachment:

Copy ID report dtd 8/25/60
Copy memo fm D. Walker to
L. D. Low dtd 8/25/60

CC: T. Conner, GC, w/attach
D. I. Walker, ID, w/o attach.

CO GC CO

W. KRINGSMAW:sd T. Conner L. D. Low

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L. D. Low, Director, Division of Compliance,
AEC Headquarters

AUG 25 1960

Donald F. Walker, Director, Division of License
Inspection, Idaho Operations Office

Original signed by
WILLIS B. JOHNSTON

FOLLOW-UP INSPECTION REPORT - KERR-MCGEE OIL INDUSTRIES, INC.,
SHIPROCK, NEW MEXICO - SOURCE MATERIAL LICENSE NO. R-157

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Transmitted herewith are four (4) copies of subject report.

The following items of noncompliance were observed or otherwise noted:

14 CFR 20.201 Surveys

(a) Surveys for air contamination both in restricted and unrestricted areas, and survey to determine concentrations of Radium-226 released to unrestricted areas are incomplete in that:

- (1) Surveys to determine amounts of airborne radioactive materials released to unrestricted areas have not been made.
- (2) Breathing zone samples have not been collected and time studies to relate exposures of employees to airborne concentrations of radioactive materials in restricted areas have not been made.
- (3) Some restricted areas found to have high concentrations of airborne uranium during AEC sampling programs have not been surveyed by the licensee.
- (4) The licensee had not, since the inclusion of a vanadium recovery circuit in the mill and the subsequent resumption of production on February 6, 1960, conducted a complete survey for airborne uranium contamination in the mill.

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- (5) The licensee, at the time of the inspection, had not sufficiently sampled the tailings pond seepage and the San Juan River to determine the status of compliance with 10 CFR 20.103(b)

- 10 CFR 20.203 Caution signs, labels, and signals
(d)(1)(ii) Areas having amounts of airborne licensed material in excess of 25 per cent of specified limits are not posted.

The above items of noncompliance were discussed with the following officers and employees of Kerr-McGee Oil Industries, Inc.: Dean A. McGee, President, Oklahoma City, Oklahoma; V. L. Mattson, General Manager, Minerals Division, Oklahoma City, Oklahoma; Wayne C. Hagen, Director, Metallurgical Research Laboratories, Golden, Colorado; C. L. Wise, Manager, Navajo Uranium Division, Shiprock, New Mexico; F. L. Hanagarne, Metallurgist, Navajo Uranium Division, Shiprock, New Mexico. Mr. Wise and Mr. Hanagarne were contacted during the inspection of the mill while Mr. McGee, Mr. Mattson, and Mr. Hagen were contacted in Oklahoma City, Oklahoma. Mr. Mattson stated that he had contacted Mr. Wise and had instructed him to have complete surveys made of the mill once a month; these surveys are to include breathing zone samples, samples to determine amounts of airborne licensed material released to unrestricted areas, and samples from areas previously not surveyed. Concerning the areas found to be excessively high as a result of the AEC sampling program, Mr. Mattson said that he would contact Mr. Wise and tell him to institute engineering studies so that adequate dust collection apparatus could be installed in these areas.

Four seepage areas from the Shiprock mill tailings ponds to the San Juan River have been found by the licensee. Only two sets of completed sample analyses of these seepage areas are available: one set of samples taken by the licensee and one set of samples taken by the inspectors. Both AEC and licensee sample data show concentrations of Radium-226 in the water from one seepage area to be greater than the MPC for Radium-226 in an unrestricted area. I do not feel that two samples constitute adequate evidence for notification of noncompliance under 10 CFR 20.103(b). However, the Shiprock mill has a definite problem with this seepage and should be greatly concerned. Licensee personnel are in disagreement on the possible effects of this seepage on a nearby U. S. Government helium plant and associated housing area.

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Mr. Hanagarne said that the helium plant obtained drinking water from the Shiprock municipal water system; on the other hand, Mr. Mattson stated that the helium plant pumped water directly from the San Juan River, downstream from the mill, for use in the plant and the adjoining housing area. Mr. Mattson said that a program was in the planning state whereby they would determine the drainage of the tailings seepage and its possible effects on local water users.

It is my opinion that an extensive sampling program should be instituted by the licensee, to:

1. Determine the volume of tailings liquor released to unrestricted areas by seepage.
2. Determine the concentrations of Radium-226 and Thorium-230 in the tailings liquor seepage.
3. Determine the present and potential effects of the tailings liquor seepage on all people living and working in the unrestricted areas surrounding the mill.

It is the opinion of the inspectors that Mr. Wise and Mr. Hanagarne consider the AEC regulatory program a necessary evil over which all production problems take precedence. (It appears that their compliance program is sandwiched into various persons' schedules, to be taken care of only when their normal jobs are completed; this is evidenced by the fact that the plant nurse does the air sampling.) Some statements made by the licensee were not consistent with previous inspection findings; e.g., Mr. Wise and Mr. Hanagarne stated that they had not seen the results of the September, 1959, AEC sampling program, but Mr. Peery, in the report of his December, 1959, visit to the mill, mentions comparing AEC sampling data to licensee sampling data with Mr. Hanagarne. It is our opinion, since contacting Mr. McGee and Mr. Mattson, that they were not aware of the conditions existing at the Shiprock mill and now that they are aware of their status of compliance, they will see that a realistic program is initiated.

In view of the enclosed report and the above finding, this office recommends that the Division of Licensing and Regulation contact the licensee through Mr. Dean A. McGee, President, Kerr-McGee Oil Industries, Inc., Oklahoma City, Oklahoma, to:

1. Inform him of the above items of noncompliance.

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2. Request him to submit plans for a complete air survey program. This information should include:
 - a. The names, qualifications, and duties of the persons assigned to the survey program.
 - b. The types and specifications of the instruments to be used in the survey program.
 - c. The areas of the mill which will be sampled, including the frequency of sampling and the types of samples to be taken, e.g., breathing zone or general air samples.
 - d. The method of determining amounts of airborne natural uranium released to unrestricted areas, including frequency of stack sampling, locations of unrestricted areas to be sampled, and frequency of sampling of unrestricted areas.
 - e. The analytical method to be used to determine the concentrations of uranium in the above-mentioned samples.
3. Request him to submit plans for the utilization of the results of the air survey program, where necessary, to achieve compliance with 10 CFR 20.101, 20.102 and 20.203.
4. Request him to institute a comprehensive program to evaluate the extent and effect of the mill effluent seepage.
5. Thank him for the courtesies and cooperation shown the inspectors by company personnel during the inspection of the mill and the visit to his office.

It is further recommended that copies of the above correspondence be sent to: Mr. V. L. Mattson, General Manager, Minerals Division, Kerr-McGee Oil Industries, Inc., Oklahoma City, Oklahoma; and Mr. C. L. Wise, Manager, Navajo Uranium Division, Kerr-McGee Oil Industries, Inc., Shiprock, New Mexico.

The status of the above items of noncompliance will be checked during a follow-up inspection conducted after the completion of correspondence between DLR and the licensee.

Enclosure:

Inspection Report (Kerr-McGee) 4 cys

OFFICE ▶	CC: W. B. CARLSON, GS, w/1 cy	II	LI
SURNAME ▶	CC: Vincent C. Vespe, AL, w/1 cy BCC: L. E. Snyder, ID Liaison, AEC Hdqts. w/o encl.	GHS Smith:fh 8-22-60	Walker
DATE ▶			