



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
799 ROOSEVELT ROAD
GLEN ELLYN, ILLINOIS 60137

July 14, 1977

MEMORANDUM FOR: Region III Files

THRU: G. T. Lonergan, Chief, Materials Radiological
Protection Section No. 1

FROM: C. T. Oberg, Radiation Specialist

SUBJECT: KERR-MC GEE CHEMICAL CORPORATION, WEST CHICAGO, ILLINOIS
LICENSE NO. STA-583
BRIEF TOUR OF FACILITY BY REGION III INSPECTOR

On July 6, 12 and 13, 1977, NRC Region III personnel made brief tours of the subject licensee's West Chicago, Illinois Rare Earth Plant in a continuing effort to maintain cognizance of the status of the facility.

Contracted personnel from Atcor (Park Mall, Peekskill, N.Y.) were at the waste area preparing waste material for shipment from the North shed to NECO, Sheffield, Illinois for burial. Thorium bearing material in the form of thorium sulfate mixed with debris and dirt which had been stored in metal "Tote" boxes (approximate internal dimensions; 41 inches by 41 inches by 30 inches) had been moved out of the shed, checked for integrity, and surveyed for radiation levels. Boxes which were not full were topped with waste mantle material. The acceptable boxes were sealed with plywood tops by bolting to an existing flang or by securing to a 2 inch by 4 inch board bolted to the side of the box. The plywood tops had been sealed with calking compound prior to bolting in place and were subsequently recalked again to assure a good seal. The material was being prepared for transportation under Group III classification as Type A quantities. Each "tote" box had been painted and marked "Radioactive LSA."

On July 6, 1977 a total of 18 of these boxes were ready for shipment. Atcor personnel were reminded by RIII personnel that the shipment must meet the requirements of 10 CFR 71 for Type A quantities shipment. The highest contact measurement obtained from these boxes was about 80 mR/hr, which, based upon the contractors calculation (1 mCi/cu.ft. for 100 mR/hr survey reading), gave a maximum of about 24 mCi for the sealed box. Calculations made by Atcor have been reviewed by RIII personnel and appear to be correct and applicable.

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On July 12, 1977, nine (Nos. 1 through 9) of the sealed tote boxes were surveyed at one meter and loaded onto a flatbed truck owned by NECO for transport to Sheffield, Illinois and subsequent burial. Approximately 20 more boxes were either completed for shipment or in various stages of preparation for shipment. The truck was covered with a tarpaulin, surveys and wipes were taken from the tires. The truck survey gave about 6 mR/hr contact as the highest measurement, about 1 mR/hr at a meter and the reading in the cab was 0.6 mR/hr. The highest wipe test from the tires of the truck gave 120 dpm beta-gamma and 0 dpm alpha/100 cm².

The truck left the Kerr-McGee site at approximately 9:45 a.m. on July 12, 1977 after all proper paper work/invoices had been completed. The net weight of source material on the truck, as determined using scales at the Kerr-McGee plant site, was 22500 pounds which averaged 2500 pounds for each of the nine tote boxes.

On July 13, 1977, the second shipment of nine (Nos. 10 through 18) boxes were loaded on the NECO truck and taken to Sheffield. These nine boxes were prepared as previously stated in foregoing paragraphs, and surveyed. The highest contact reading was about 35 mR/hr, and about 3 mR/hr at one meter from the boxes. The measurement of the truck after loading gave as highest readings about 6 mR/hr contact, about 2 mR/hr at a meter and about 0.4 mR/hr in the cab. Wipe measurements of the truck tires were comparable to those obtained on July 12, 1977. The next shipment is tentatively scheduled for Tuesday, July 19, 1977.

Copies of the shipment record of July 12, 1977, survey data of the truck and survey data of the 18 "tote" boxes shipped to date were given to the inspector and are retained as part of the Kerr-McGee file.

On July 13, 1977, a reporter and photographer from the Chicago Tribune were on site to obtain pictures and a report for the media. Film badges were issued to these individuals by Atcor personnel. Mr. Jan Strasma, Public Information Officer, RIII, was also on hand at the Kerr-McGee site during the loading and surveying of the shipment.

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Typical Atcor personnel daily dosimeter readings for the period July 11 and 12, 1977, for four individuals have been recorded as follows:

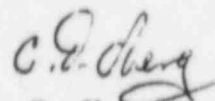
| <u>Individual</u> | <u>Readings in mR</u> | | |
|-------------------|-----------------------|----------|------------------------|
| | (7/11) | (7/12) | (7/13 (to 10:00 a.m.)) |
| No. 1 | 18 | 8 | 4 |
| No. 2 | 10 | 12 | --- |
| No. 3 | 27 | (Absent) | --- |
| No. 4 | 23 | 19 | --- |

Tours to the Kerr-McGee, West Chicago, site will continue as necessary to observe the operations by Atcor to package and ship thorium bearing material from the waste area under contract by the licensee.

Subsequent to the second shipment, the RIII inspector toured the remaining Kerr-McGee facilities. Evidence of fence repairs were obvious around part of the plant area. The inspector also observed that some of the R.M. warning signs posted on the fence have been stolen or mutilated. During discussion with the site personnel, the inspector was informed that additional fence repairs are contemplated, new signs will be posted, the new security guard and patrol under contract with Kerr-McGee is working out very well, that the processed thorium source material remaining on site had been sold to Teledyne Corp. and is to be moved out in 50 unit lots, that no further shipments of removed switch gear has been made and that Kuhn and Auer Co. have removed most, if not all, of their equipment from the site.

At the conclusion of the inspection tour on July 13, 1977, the inspector accompanied Kerr-McGee and ANL personnel to the storm sewer out-flow into Kress Creek. The ANL personnel stated that they were to stake areas and perform surveys. No surveys of this area were performed at this time by the RIII inspector.

Additional tours of the Kerr-McGee, West Chicago site will be made as necessary to maintain cognizance of the status of the facility.


C. T. Oberg
Radiation Specialist

cc: J. M. Allan