



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

August 23, 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 August 9, 1977, an NRC Region III inspector made a brief tour of the subject licensee's West Chicago, Illinois Rare Earth Plant in a continuing effort to maintain cognizance of the status of the facility and the work in progress.

The Action Items (AI) No. 1 through 4, as agreed to by the licensee in their letter dated November 30, 1976, appear to remain satisfied. Work on AI No. 5 is in progress.

A NECO trailer had been loaded with "tote" boxes and was awaiting pickup by a tractor for delivery to Sheffield, Illinois. The pickup had been delayed because of heavy rain storms at the NECO burial site which had mired the truck tractors. Survey measurements of the trailer were performed by the RIII inspector: high readings of 6 mR/hr contact with the sides and about 3 mR/hr at one meter were obtained at about 2/3 the distance from the front end, low readings were 3 mR/hr contact and less than 1 mR/hr at a meter were obtained at the front (cab) end of the trailer. Several additional "tote" boxes were in various stages of final preparation for shipment.

ATCOR personnel were also loading new 55 gallon drums, gasketed lids with bolted rim seals, with thorium bearing material (ores and process concentrates) which had been stock piled inside the waste storage shed. Many drums had been filled, sealed and removed from the shed in groups of two (2) to four (4) on wood pallets. Several of these filled drums had been hosed down with water and were awaiting loading and shipment. The remaining drums had yet to be cleaned and appeared to have varying amounts of surface contamination from the filling process. The drums gave beta-gamma radiation survey levels of up to 30 mR/hr in groups of three (3) or four (4) when measured in between the drums. Individual drums measured from 10 to 20 mR/hr on contact and up to 5 mR/hr at a meter.

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The large tanks (three (3) 2,500 - 3,000 gallon and two (2) 5,000 gallon), used as overpacks for waste thorium mantel material and other similar concentrate waste material, had all been sealed and awaiting loading and shipment. These tanks are to be taken by TRI-STATE, licensed shipper, and delivered to NECO at Sheffield, Illinois. Tentatively, the shipment of these tanks are scheduled for this week, and week of August 15, 1977. Calculations to verify the requirements for a Type A shipment have yet to be made. The RIII inspector suggested that ATCOR personnel consider making a more extensive survey of vehicle tires and the mud being picked up in the waste area prior to leaving the site. Copious rain has created a mud problem at the site.

ATCOR personnel stated that their quarterly whole body exposure limits have been increased to 2500 mrem. They are also continuing to take daily air particulate samples (one hour duration) in the waste storage shed and are following the alpha activity decay by daily measurements. These contractor personnel also stated that at this moment they are not planning to assist Kerr-McGee personnel with the cleanup and transfer of thorium bearing material held by Marvin Moore Chemical Company.

The RIII inspector toured the Kerr-McGee plant site and discussed their plans for removing the thorium bearing material from Marvin Moore Chemical Company. Kerr-McGee personnel plan to visit the Chemical Company on August 10, 1977, to make surveys and to assess the extent of the situation and to determine the requirements for removal and cleanup of the thorium bearing material. Tentatively, Kerr-McGee personnel plan to employ "Liberty Trucking" a licensee, to transfer this material back to the West Chicago site from Marvin Moore Chemical Company. The RIII inspector again questioned the extent to which thorium bearing material may have been sold and/or transferred to others from the West Chicago site. The site personnel could not recall other specific transactions with the exception of the transfer/sale of thorium nitrate to the U.S. Government Depot's at Hammond, Indiana and Freeport, Illinois. These had taken place during the 1960's as they recalled. Thorium product material still on site is sold and will eventually be going to G. E. in Kewanee, Pennsylvania and to Huntsville, Alabama after repackaging in 55 gallon drums. Some other material (semarium/gallium oxalate), packaged in 55 gallon drums as "heavy oxalates" which were stored in and have now been moved from, the waste storage shed in the Kerr-McGee waste area, has also been sold. This material is now stored in the East shed along the road beside the waste area. Kerr-McGee personnel plan to clean and survey these drums prior to release.

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Brief inspection tours of the subject licensee's facility will continue as necessary to remain cognizant of the status of the facility and the progress of the work being performed.

*C. T. Oberg*  
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Radiation Specialist

cc: J. M. Allan