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**KERR-McGEE CORPORATION**

KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

February 10, 1992

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Mr. Fenton R. Rood  
Solid Waste Management Service  
Oklahoma State Department of Health  
1000 N.E. 10th Street  
Oklahoma City, Oklahoma 73152

Dear Mr. Rood:

Pursuant to Section IX.2 of the Consent Order entered in State of Oklahoma v. Kerr-McGee Corporation, No. C-90-91-H, Kerr-McGee Corporation hereby submits the attached written progress report for the month of January, 1992.

If you have any questions or comments, please contact me at (405) 270-2694 (OKC) or (918) 225-7753 (Cushing).

Sincerely,

Jeff Lux  
Project Manager  
Kerr-McGee Technology Division

cc: Bill Fisher - U.S. NRC, Arlington, Texas  
William M. Kemp - Radiation Protection Service  
David N. Fauver - U.S. NRC, Washington, D.C.  
Kerr-McGee Citizens' Oversight Committee

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## RADIOLOGICAL INVESTIGATION AND REMEDIATION

Decontamination of the floor of the uranium process building is essentially complete. Decontamination of the ceiling and beams has been delayed by the need to neutralize holding pond water. Decontamination of the ceiling and beams will continue in February. Additional surveying of the floor will be required, since cracks and holes in areas allow "shine" from soil underneath to obscure accurate surveying.

Radioactive contamination has been removed from Skull Creek, except for one small area east of the railroad bridge. Excavation of this area will commence when creek flow is significantly lower.

Kerr-McGee has received a standard source for thorium contaminated soil having an activity near the Option 1 limit. 3" detector data is being correlated with gama spectrum analysis to identify "sort points" for segregation of soil into Option 1 and Option 2 criteria.

The U.S. Nuclear Regulatory Commission (NRC) is still reviewing the license application submitted on October 17, 1991. NRC will notify Kerr-McGee of deficiencies in the license application and allow time for additional material to be submitted before issuing a license.

A soil boring program designed to investigate the potential of the site for location of a disposal cell for Option 2 soils is being conducted. Four soil borings were drilled during January; more may be performed in February. It appears that an engineered disposal cell, including a cover that extends above grade, may be the only viable method for disposal of Option 2 material on site.

A health physics program is being developed for submission to the NRC. The health physics program will consist of approved health physics procedures pertaining to radiation safety, instrumentation, and operations procedures.

## NON-RADIOLOGICAL ASSESSMENT AND REMEDIATION

The pH of Skull Creek at the property line has risen to above 6 on a regular basis since water began flowing in the new creek channel. However, what appears to be iron staining is occurring downstream from the site, causing a red discoloration of the creek. It is not known whether or not holding pond discharges contribute to the situation. Kerr-McGee is investigating methods for alleviating this unsightly problem.

Surface water that accumulated on the waste pits was transferred to holding ponds, neutralized, and discharged five times in January. The Oklahoma Water Resources Board (OWRB) was notified each time. Appropriate laboratory analyses were performed on upstream, holding pond, and downstream water samples. Results were submitted to the OWRB when received.

Progress on the remedial investigation (RI) and risk assessment (RA) projects continues. Several changes in the scope of work were negotiated with Scott Thompson during the past six months. Most were not adequately documented. The following section summarizes progress in the RI and RA, including changes in scope or schedule that have been discussed with the Solid Waste Management Service.

1. All waste sampling and analysis has been completed. All groundwater, surface water, and sediment sampling and analysis has been completed. An aquifer test has been performed on the monitor well installed in the Vamoosa aquifer. Aquifer tests have yet to be run on wells installed in the Vanoss shale and the unconfined unconsolidated materials.

2. CAD files containing topography, soil boring and monitor well locations, and physical features, have been generated. These files must be edited to show the location of the new Skull Creek channel. This should be completed in February.

3. Groundwater from the monitor well installed in the Vamoosa aquifer has been sampled for tritium. The purpose for tritium analysis is to determine that the groundwater in the uppermost aquifer is "confined" or "old" water, not impacted by the refinery site. The Kerr-McGee Technical Services group analyzed the groundwater sample for gross alpha and beta radiation. Sample results yielded less than 20 picoCuries per liter beta activity. Scott Thompson was contacted to see if this activity was adequately low to determine that the groundwater was "old" or confined water. Mr. Thompson contacted David Cohenour, the hydrogeologist who was reviewing groundwater issues. Confusion exists concerning the final determination, and both the OSDH and Kerr-McGee are reviewing their files to determine what decision was made.

All the above communication was strictly verbal. To remedy this situation, a letter summarizing the above discussion, with analytical data attached, was submitted to the OSDH in early February.

4. The location of surface water and sediment samples was changed. In August, 1991, a decision was made to rechannel Skull Creek. The creek was moved away from Pit 5 so that acid

seepage from the waste pit could be avoided. Since the purpose for the remedial investigation and risk assessment is to determine the impact of the waste pits to the environment, surface water and sediment samples needed to be collected at different locations and after the creek was moved.

This change was discussed with Mr. Thompson during a site visit, but the change was not documented. This change, although only a slight deviation from the scope of the work plan, caused a significant delay in the schedule of the work plan. Due to the need to move a crude oil transmission line and inclement weather, it took the contractor over three months to complete the creek project. This delayed the surface water and sediment sampling by several months.

To address this delay, Kerr-McGee submitted a request for an extension of the remedial investigation and risk assessment report deadlines to May, 29, 1992. The original schedule of implementation called for a draft report to be submitted in March, 1992.

5. While reviewing data requirements, it was observed that the RI work plan stated that groundwater elevations would be recorded in each monitor well on a monthly basis. The purpose was to identify those zones that are perennially saturated, and those zones that go dry during periods of dry weather.

Kerr-McGee failed to obtain groundwater elevations for all months. This was simply an oversight. However, 1991 was a very wet year, so it is possible that none of the wells would have been dry in any given month. Water levels are being recorded (the oversight was noticed in January) each month beginning in January, and will continue throughout the year.

6. The RI work plan stipulated a second round of surface water and sediment sampling, at a time when Skull Creek is at base flow. This has not occurred since the creek has been rechanneled, and if spring rains begin soon, this will not occur before the RI report is due. If this is the case, an addendum to the RI and RA reports will be issued when this data is obtained.

Evaluation of applicable technologies for waste pit remediation continues. This information will be used to prepare a feasibility study (FS) report. The following technologies have been or are being evaluated:

1. Excavation of the sludge with conventional earthmoving equipment.

2. Underwater excavation of the sludge with a dredge or dragline.
3. Neutralization of sludge with solid reagents.
4. Neutralization of sludge by washing with water or with liquid reagents.
5. Using neutralized sludge as a supplemental fuel.
6. Using neutralized sludge as a road improvement material on unpaved county roads.
7. Disposal of neutralized sludge in an on-site or an off-site disposal cell.
8. Hydrocarbon recovery by solvent extraction.
9. Hydrocarbon recovery by thermal desorption.
10. Incineration, both on-site and off-site.
11. Thermal processing through Kerr-McGee's ROSE (residual oil solvent extraction) unit.
12. Blending of neutralized sludge with asphalt.

#### ACTIVITIES PLANNED FOR FEBRUARY, 1992

1. A french drain will be installed in the old Skull Creek channel to convey acid seepage from pit 5 to the holding pond for neutralization. Before pumping and treatment can begin, a NPDES permit modification must be submitted to the OWRB.
2. Perform sampling and surveying of Skull Creek soil stockpile to determine "sort point" for survey instruments.
3. Complete excavation of contaminated soil east of railroad bridge when water levels permit. Option 2 material will be stockpiled with other Option 2 creek sediment. Option 3 material will be drummed for shipment to Barnwell, South Carolina.
4. Continue decontamination of ceiling and beams in uranium process building.
5. Perform aquifer tests on wells installed in the Vanoss shale and in the unconfined unconsolidated "aquifer".
6. Continue to search for a site acceptable for burial of Option 2 materials.