



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
611 RYAN PLAZA DRIVE, SUITE 400  
ARLINGTON, TEXAS 76011-8064

September 13, 2001

S. Jess Larsen, Program Manager  
Kerr-McGee Corporation  
Kerr-McGee Center  
P.O. Box 25861  
Oklahoma City, Oklahoma 73125

SUBJECT: KERR-MCGEE TECHNICAL CENTER DECOMMISSIONING PLAN  
REQUEST FOR ADDITIONAL INFORMATION

Dear Mr. Larsen:

I am writing to notify you that we have initiated the review of your revised decommissioning plan (DP) for the Kerr-McGee Chemical L.L.C. Technical Center, dated April 5, 2001. We have determined that additional information is required to complete the technical review of the DP. Enclosed is a request for additional information to support our review as discussed with your staff during our September 10, 2001 telephone conversation.

The technical review of the Derived Concentration Guideline Levels (DCGLs) established in your DP is being performed by NRC headquarter's staff under a technical assistance request from our office. If there are any questions or deficiencies regarding the DCGLs, you will be contacted under separate cover.

To continue our review, we request that you submit your response to this letter within 90 calendar days from the date of this letter. Please reply in duplicate and refer to the license and docket numbers specified below. Should you have any questions on this matter, please contact Rachel Carr at (817) 276-6552.

Sincerely,

*/RA/*

D. Blair Spitzberg, Ph.D., Chief,  
Fuel Cycle Decommissioning Branch

Docket: 040-08006  
License: SUB-986

Enclosure: As stated

bcc (via ADAMS distrib):  
EWMerschoff  
DDChamberlain  
LLHowell  
CLCain  
DBSpitzberg  
RSCarr  
MCHernandez  
NMIB  
MIS System  
RIV Nuclear Materials File - 5th Floor

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| RSCarr        | MCHernandez | DBSpitzberg |
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| 09/11/01      | 09/11/01    | 09/13/01    |

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**KERR-McGEE TECHNICAL CENTER  
DECOMMISSIONING PLAN REVIEW**

**REQUEST FOR ADDITIONAL INFORMATION**

Please respond to the following items as they pertain to your Decommissioning Plan (DP), Revision 0, dated March 2001:

1. Section 2.2.2.2, Laboratories Where Source Materials Were Used, documents that smear surveys conducted prior to the 1985 expansion of the west wings of your facility verified that the smearable alpha surface activity was less than 200 dpm/100cm<sup>2</sup>. NRC inspections conducted between 1985 and 1995 did not document a review of these surveys. Please submit the data from these surveys for our review.

In addition, please provide information regarding any release of materials to the environment, surface soil regrading, and any soil samples that might have been taken in this area prior to the expansion.

2. Section 2.2.2.4.2, Sample Preparation Facility, states that the sample prep room was enclosed and contained a ventilating hood. Section 2.3.1.5, Air/Hood Vents Cleaned, states that you do not expect to find accumulations of source material in the lab hood system. Please clarify whether your final status survey plan includes (1) dismantling and surveying the ventilation system in the sample preparation facility, and (2) surveying the roof of the sample preparation facility.
3. Figure 2.4, highlights the locations to be surveyed. Provide the classification for the bathroom area (buffer zone) between Class 1 Sample Prep (P-2) room and Class 2 Pilot Plant room and your justification for this classification.
4. Section 2.3.1.4, Sewer/Drain Lines, states that the drain traps in the designated use laboratories will be inspected and surveyed for residual contamination. Please provide information regarding the survey, including what surveys will be conducted, the survey instrument(s) that will be used and the calculated MDC for the survey.
5. Section 2.4.5, Groundwater Impacts From Licensed Activities, indicates that the down gradient wells were plugged and abandoned as a result of the excavation activities in December 2000, and that the last data from the down gradient wells (1,7,8) were collected in February 2000. Section 2.4.8, Shallow Groundwater Impacts From Excavation Activities, states that a small groundwater seep in the northwest corner of the excavation pit was identified with a total uranium concentration of approximately 1270 pCi/l, and that ongoing analysis of water samples shows a decline in total uranium concentrations. Please comment on apparent migration of uranium and the elevated uranium concentrations in the excavation pit and the seep water. (IFI 40-8006/0101-01)

6. Section 3.2.2.1, Background in Building Materials or Equipment, includes Table 3.1 which provides a summary of background radioactivity for matrix specific materials which were measured in unaffected areas of your facility. Please provide information regarding the following:

- The locations where matrix samples were collected
- The instrument(s) used for the analysis
- The type of radiation (e.g.,  $\beta/\gamma$ ) measured
- The efficiency of the instrument(s) used

7. Table 3.4, Soil Characterization Data, provides data which includes contributions from natural background. Please comment on the elevated background values for natural thorium in the area locations annotated as “N of Pits” and “E. Drainage.” In addition, please comment on the elevated background values for uranium in the area location annotated as “E. Drainage.”

The area location annotated as “TSSL Drain Area,” appears to have the highest value measured by a NaI instrument. Please provide justification for not collecting samples in this area.

8. Section 3.4.3, On-site Storage, states that waste will be stored in a designated “access restricted” location. Please clarify whether this waste storage location is onsite. If radioactive waste will be stored onsite, clarify whether this waste will be stored onsite until license termination.

9. Table 5.1, Cimarron/Technical Center Radiation Monitoring Instruments, provides typical efficiency and confidence levels for instruments used during decommissioning. This is satisfactory for preliminary work. However, for the final status survey, the efficiencies and confidence levels will have to be calculated for the specific measurements. Section 6.7 of NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), stipulates that it is important to use actual background count rate values and detection efficiencies when determining counting and scanning parameters, particularly during final status and verification surveys. Please revise Table 5.1 to include actual instrument efficiencies and confidence levels.

10. Section 6.3, Data Quality Objectives, Item Number 7, states that the MDC for scans should be less than the  $DCGL_{EMC}$ . However, Section 5.5.2.6 of MARSSIM states, that for Class 2 or Class 3 areas, neither measurements above the  $DCGL_W$  nor areas of elevated activity are expected, because the survey design for Class 2 or Class 3 survey units is not driven by the EMC. Therefore, the MDC for scans for Class 2 and Class 3 areas should be less than the  $DCGL_W$ . Please revise the DP to reflect the intent of MARSSIM.

11. Section 6.4.7, Determine the Data Collection Requirements for Statistical Tests, states that the design process may be redesigned utilizing more suitable values for  $\alpha$ ,  $\beta$  and LBGR, if the required number of measurements determined for a survey unit exceed “reasonable bounds.” The null hypothesis states that the residual contamination in the survey unit is greater than the  $DCGL_W$ . The Type II Error is made when the null hypothesis is not rejected when it is false and the initial value for beta equals 0.05. The

Type II error rate is the error rate of concern by the NRC, because it directly effects the release criteria. Therefore, the beta value ( $\beta=0.05$ ) can not be adjusted without justification and approval by the NRC. Please provide a commitment that the beta value will not be changed without the NRC's approval.

Section 6.4.7 also states, "if the  $DCGL_{EMC}$  is lower than the MDC, the spacing of the grid samples will be accordingly." Please clarify this sentence.

12. Section 6.4.9, Specify Required Level of Beta/Gamma Scan Measurements, states that on soil surfaces, beta/gamma scans will be performed using sodium iodide detectors. Please provide the energy peak for determining the presence of uranium and thorium in soils. If the DCGL is based on thorium, please provide the gamma peak for which the beta/gamma scan is based.

Note that, in accordance with Section 4.3.2 of MARSSIM, when using one radionuclide to measure the presence of others, a sufficient number of measurements, spatially separated throughout the survey unit, should be made to establish a "consistent" ratio. Additionally, when the ratios are determined using final status survey data, MARSSIM recommends that at least 10 percent of the measurements (both direct measurements and samples) include analyses for all radionuclides of concern. Section 5.5.3 of MARSSIM also cautions that scanning for alpha emitters or low-energy beta emitters for land area survey units is generally not considered effective because of problems with attenuation and media interferences.

13. Section 6.4.9 also states that for Class 2 areas, surface scans will be performed on at least 10 percent of structure surfaces and/or fixed equipment and soil surfaces. Generally floors will receive 15 percent surface scans or greater, walls and ceilings will receive less than 10 percent.

However, Chapter 5 of MARSSIM indicates that for Class 2 survey units surface scans are performed over 10 to 100 percent of structure surfaces, with upper wall surfaces and ceilings receiving surface scans over 10 to 50 percent. For soil surfaces, scans are performed over 10 to 100 percent of open land surfaces. Please revise your DP to include surface scans of not less than 10 percent of upper wall surfaces and ceilings. Optionally, you may provide a justification for the reduced scanning in Class 2 survey areas.

14. Section 6.4.10, Specify Contingency Action, discusses the contingency actions in the event the scan threshold is exceeded. The contingency action is acceptable. However, Section 5.5.3 of MARSSIM states that for any survey area which exceeds the investigation level, the area should be reclassified and documented as such in the final status survey report. Please revise your DP to include the investigation of any measurements which exceed the investigation levels and the documentation, in the final status survey report, of any actions taken.

15. Section 6.5, Final Status Survey Instrumentation, states that source response checks are performed on a daily basis for all instruments being utilized for Final Status Survey work. However, MARSSIM recommends that a response check should be performed twice daily when in use. Please revise your DP to include that a response check for survey equipment be performed twice daily when in use. Optionally, you may provide a justification to perform source checks as described in your DP.
16. Section 6.6.1, Review and Approval of the Survey Design, states that all final status survey plans will be reviewed and approved prior to being implemented. Please provide clarification regarding who is responsible for the review and approval of the plans.
17. Section 6.6.1, also states that the final status survey plans should verify that the scan MDC is less than the  $DCGL_{EMC}$ . However, for Class 2 and Class 3 scans, the MDC should be less than  $DCGL_w$ . Please revise your DP to reflect the appropriate DCGL for Class 2 and Class 3 survey areas.