

May 2, 2005

Mr. Jeff Lux, Project Manager  
Kerr-McGee Corporation  
Cimarron Corporation  
P.O. Box 25861  
Oklahoma City, OK 73125

SUBJECT: EVALUATION OF CIMARRON CORPORATION'S RESPONSE TO NRC  
COMMENTS ON TECHNETIUM-99 GROUNDWATER ASSESSMENT REPORT  
AND THE ASSESSMENT REPORT FOR THE WELL 1319 AREA

Dear Mr. Lux:

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of two of your submittals, both in response to NRC comments;

1. Response to NRC Comments on "Technetium-99 Groundwater Assessment Report" dated December 22, 2004, and
2. Response to NRC Comments on "Assessment Report for Well 1319 Area" dated December 22, 2004.

As discussed in previous telephone conversations and meetings, the NRC staff has taken the position that a comprehensive plan is needed to address groundwater contamination at the Cimarron site. Such a plan would have to address factors as identification of sources of contamination, hydrological and geochemical factors, and State and Federal regulations, as well as a proposal for groundwater remediation. Consequently, the NRC staff is concerned that some of the approaches discussed in the two submittals noted above appear to be addressing groundwater remediation in a piecemeal approach when a comprehensive approach is needed. Therefore, the comments in the attachments to this letter are intended to help you develop a more comprehensive plan. In conjunction with the proposal of a more comprehensive plan for groundwater remediation, the NRC staff would also suggest that you propose an amendment to License Condition 27 to work in concert with the plan.

L. Lux

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If you have any questions regarding this letter, please contact me at (301) 415-6664 or by e-mail at [klk@nrc.gov](mailto:klk@nrc.gov).

Sincerely,

**/RA/**

Kenneth L. Kalman, Project Manager  
Materials Decommissioning Section  
Division of Waste Management  
and Environmental Protection  
Office of Nuclear Material Safety  
and Safeguards

Docket No. 70-925  
License No. SNM-928

Enclosure:  
NRC Evaluation of Cimarron Corporation's Response to NRC Comments on Technetium 99  
and Well 1319 Assessment Reports

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J. Lux

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If you have any questions regarding this letter, please contact me at (301) 415-6664 or by e-mail at [klk@nrc.gov](mailto:klk@nrc.gov).

Sincerely,

Kenneth L. Kalman, Project Manager  
Materials Decommissioning Section  
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License No. SNM-928

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NRC Evaluation of Cimarron Corporation's Response to NRC Comments on Technetium 99  
and Well 1319 Assessment Reports

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**NRC Evaluation  
of Cimarron Corporation's Response to NRC Comments  
on Technetium-99 and Well 1319 Assessment Reports**

Response to NRC Comments on Technetium-99 Groundwater Assessment Report

As previously noted, the NRC staff believes that Cimarron needs to establish a site-wide, comprehensive post-decommissioning groundwater monitoring program for uranium and technetium-99 (Tc-99). In addition, it is important that the monitoring program be designed to provide adequate data regarding the extent of contamination as well as the effect of remedial actions.

The NRC staff does not believe that the proposed monitoring plan is adequate for addressing Tc-99 contamination in the U-Pond #1 and U-Pond #2 areas for the following reasons:

- Cimarron's recommendation to use two monitoring wells, Well 1312 and Well 1336A, is not adequate to address the potential Tc-99 concentrations in these two areas which extend from the uplands down gradient from the U-Ponds to down gradient areas in the alluvial system of the Cimarron River. Well 1312 and Well 1336A are located in upland areas and additional wells are needed down gradient to address the migration of Tc-99.
- Cimarron proposes to abandon several monitoring wells in these areas. NRC staff believes that no monitoring wells should be abandoned until the post-decommissioning groundwater monitoring program is completed.
- NRC staff recommends that all monitoring wells on the Cimarron site be evaluated for their suitability in the Environmental Monitoring Program before abandoning any monitoring wells from the U-Pond #1 and U-Pond #2 areas that have shown Tc-99 contamination. The NRC staff has discussed with Cimarron the possibility of using a phased approach for its groundwater program. In a phased approach, it may be possible to abandon wells for areas that have been demonstrated to be free of radioactive contamination or within regulatory release criteria.
- Because the source of the water at Seep 1208 is a groundwater spring, Seep 1208 or a monitoring well nearby should be included in any post-decommissioning groundwater monitoring program.

Response to NRC Comments on Assessment Report for Well 1319 Area

- In your response to NRC Comment 4, Cimarron adequately answered the questions pertaining to background levels of total uranium in Sandstone A, Sandstone B, and Sandstone C. However, Cimarron did not explain the approximately 30 pCi/L increase in total uranium in Well 1319A-2 from the June to September 2003 sampling events, nor did it explain whether the 60 pCi/L of total uranium in Well 1319B-3 represents groundwater contamination from Well 1319.

The NRC staff suspects that the change in total uranium in Well 1319A-2 is not related to the uranium contamination from Well 1319, but it is most likely related to contamination from the

uranium materials stored in this area when the site was active. The NRC staff suggests that Well 1319A-2 be sampled again to determine if there is a trend of increasing uranium levels in the groundwater. The NRC staff also suspects that Well 1319B-3, which is down gradient from the abandoned and uranium contaminated Well 1319, has been impacted by uranium from Well 1319. The total uranium in groundwater at Well 1319B-3 has increased from 61 pCi/L (September 2003) before pumping was started in Well 1319B-1 to 77 pCi/L (August 2004) after pumping ended in Well 1319B-1. The NRC staff suggests that Well 1319B-3 be sampled again to determine if the total uranium levels in the groundwater continue to increase.

- In response to NRC Comment 5, Cimarron stated that groundwater decommissioning of the 1319 area has been completed. The NRC staff believes that this statement may be premature and additional monitoring of wells in this area is needed. For example, in Attachment 1, "1319 On-Site Trends", Well 1319B-1 shows an approximate 20 pCi/L increase in total uranium concentration since pumping ceased on August 16, 2004. Additional monitoring of this well and Well 1319C-1 are needed to determine current total uranium trends.
- Also, in NRC Comment 5, Cimarron proposed to abandon several monitoring wells in this area. The NRC staff believes that no monitoring wells should be abandoned until the post-decommissioning groundwater monitoring program is completed.