

CIMARRON CORPORATION

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March 3, 2005

Mr. Ken Kalman
Office of Nuclear Materials Safety & Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: Docket No. 070-00925; License No. SNM-928
NRC Notification of the Decommissioning of the Kerr-McGee Cimarron Site

Dear Mr. Kalman:

Cimarron Corporation (Cimarron) has reviewed correspondence between NRC and EPA related to notification of the Decommissioning of the Kerr-McGee Cimarron site in accordance with the NRC-EPA Memorandum of Understanding (MOU). Based upon this review, it appears that there are some misunderstandings related to the Kerr-McGee Cimarron site. This letter is intended to provide clarification on several issues.

The issues addressed in this letter are:

- Decommissioning criteria for soils
- Restricted versus unrestricted release
- Groundwater decommissioning

Decommissioning Criteria for Soils

Decommissioning of soils has already been completed at the Cimarron site. There appears to be some misunderstanding regarding the relationship between the EPA Residential Soil Concentration limits for uranium in soils (47 mg/kg total uranium as well as 401 pCi/g U-234, 20 pCi/g U-235+D and 74 pCi/g U-238+D) and the NRC Unrestricted Release activity limit for uranium in soils (30 pCi/g total uranium)¹. For the Kerr McGee Cimarron site, the average mass enrichment of U-235 is 2.7%².

Table 1 illustrates the activity ratios and associated specific activities and masses for U-234, U-235, and U-238, assuming a mass enrichment of 2.7% U-235. The final column provides the calculated mass concentration for each nuclide as well as the summed total Uranium mass concentration, calculated using Equation 1.

¹ Cimarron NRC License SNM-928, Condition 27(c).

² Cimarron Decommissioning Plan Groundwater Evaluation Report, 1998.

Table 1
Calculation Results for 2.7% Enrichment Uranium

Nuclide	Activity Ratio	Nuclide Activity for the Case of Total U activity of 30 pCi/g ³	Specific Activity (pCi/μg) ⁴	Mass Concentration of Nuclide (μg/g)
U234	0.74	22.2 pCi/g	6200	0.0035
U235	0.03	0.9 pCi/g	2.162	0.41
U238	0.23	6.9 pCi/g	0.335	20.6
Total	1.0	30.0		21.0

Equation 1

$$\text{Mass Concentration of Nuclide} = \frac{\text{Nuclide Activity}}{\text{Nuclide Specific Activity}}$$

Table 1 above demonstrate that 21 μg/g (21 mg/kg) total uranium is equivalent to 30 pCi/g total uranium at a mass enrichment of 2.7% U-235. Residual soil concentrations are well below the NRC licensed Unrestricted Release activity limit for uranium in soils (equivalent to 21 mg/kg), which is less than half of the EPA Residential Soil Concentration limit for uranium in soils (47 mg/kg).

The residual uranium in soils at the Cimarron site is not in equilibrium (i.e. U-234, U-235 and U-238 are not in equilibrium with their daughters). Table 2 compares the EPA MOU isotopic criteria with the calculated licensed isotopic activity concentration limits for U-234, U-235+D and U-238+D based upon an average enrichment of 2.7% by mass.

Table 2
EPA MOU Criteria and Calculated Cimarron License Criteria for 2.7% Enrichment

Nuclide	EPA/NRC MOU (pCi/g)	License Criteria ^a (pCi/g)
U-234	401	22.2
U-235+D	20	0.9
U-238+D	74	6.9

^acalculated; see Table 1 above

Table 2 above demonstrates that the NRC-approved Cimarron license release criteria for U-234, U-235+D and U-238+D are well below (i.e. less than 10%) the individual isotopic limits (including +D) established in Table 1 of the EPA/NRC MOU.

³ The nuclide activity = 30 pCi/g times the corresponding activity ratio in the second column.

⁴ The Health Physics and Radiological Health Handbook, p264-265. The original unit of specific activity is 10¹²Bq/g. The values listed in this column apply correction factors to convert the original units in Bq/g to pCi/μg.

In summary, the NRC-approved Cimarron license release criteria of 30 pCi/g total uranium is well below the applicable Table 1 MOU limits, whether applying the individual isotopic limits or the total uranium concentration limit.

Restricted versus Unrestricted Release

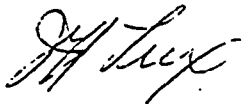
There appears to be some misunderstanding regarding the release of the Cimarron site for unrestricted use. As demonstrated in NRC's Environmental Assessment for the Cimarron Decommissioning Plan, the decommissioning criteria are fully protective of the public health and safety and the environment. EPA stated "It is EPA's understanding that the future land use ... are likely to continue to be industrial use after NRC decommissions."⁵ Compliance with the NRC-approved decommissioning criteria will allow for the release of the site for unrestricted use.

Groundwater Decommissioning

There appears to be some misunderstanding regarding the status of groundwater characterization and remediation at the Cimarron site and the inclusion of various regulatory agencies in the process. EPA states, "It is EPA's understanding that NRC is planning to first implement a source control remediation strategy that may also address groundwater contamination." Cimarron has already completed the identification and removal of sources of licensed materials which may have contributed to groundwater impact. In addition, Cimarron has evaluated numerous groundwater remediation strategies; that evaluation included both pilot and feasibility studies. Finally, Cimarron has already held several meetings with both NRC and the Oklahoma Department of Environmental Quality (DEQ) to identify the final regulatory and technical issues requiring resolution prior to the implementation of the preferred groundwater remediation strategy.

If you have any questions or comments regarding this information, please call me at 405-270-2694.

Sincerely,



Jeff Lux
Project Manager

cc: Derek Widmayer