



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

February 9, 2017

Mr. Bill Halliburton, Administrator
Cimarron Environmental Response Trust
c/o: Environmental Properties
Management, LLC.
9400 Ward Parkway
Kansas City, MO 64114

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION NEEDED TO COMPLETE
THE SAFETY EVALUATION REPORT AND ENVIRONMENTAL
ASSESSMENT OF THE DECOMMISSIONING PLAN FOR THE CIMARRON
FACILITY NEAR CRESCENT, OKLAHOMA

Dear Mr. Halliburton:

By letter dated December 31, 2015, (Agencywide Documents Access Management System (ADAMS) Accession No. ML16032A285) the Cimarron Environmental Response Trust submitted a license amendment request for licensee approval of its proposed Decommissioning Plan (DP). The licensee submitted supplemental information to the U.S. Nuclear Regulatory Commission (NRC) by letter dated May 20, 2016 (ADAMS Accession No. ML16168A097).

The NRC staff is reviewing the submittals and has identified several areas where additional information is needed in order to complete its safety evaluation and environmental assessment. Please see the attached request for additional information and respond by letter to let us know when you expect to provide the requested information to the staff. We can also schedule a clarifying call with you, if this would be of help to you in responding to this request.

In accordance with Title 10 of the *Code of Federal Regulations* Part 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's ADAMS. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

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If you have any questions concerning this letter, please contact me at (301) 415-6664 or via email at Kenneth.Kalman@nrc.gov.

Sincerely,

/RA/

Kenneth Kalman, Project Manager
Materials Decommissioning Branch
Division of Decommissioning, Uranium Recovery,
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket No. 70-925

Attachment: As Stated
cc: Cimarron Site Service List

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Attachment: As Stated
cc: Cimarron Site Service List

DISTRIBUTION:

ADAMS Accession No.: ML16287A526

OFFICE	DUWP:PM	DUWP:LA	DUWP:BC	DUWP:PM
NAME	K. Kalman	C. Holston	T. Smith	K. Kalman
DATE	1/11/17	1/12/17	2/8/17	2/9/17

Cimarron Decommissioning Plan
Request for Additional Information for Safety Evaluation Report

This Request for Additional Information (RAI) pertains to Section 3.0 of the License Application (Radiological Status of Facility)

1. Description of the Deficiency

Although the extent and magnitude of uranium in the groundwater for the Western Area and Burial Area #1 is provided in Fig. 3-3 and Fig. 3-4 of the proposed decommissioning plan (DP), respectively, there is no description in Section 3.5.3 of the characteristics of the dissolved uranium in the aquifers within the different sub-areas.

Basis of the Request

Information on radiological status of groundwater is required under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 70.38 (g)4(i) and Section 16.4.6 of NUREG-1757, Vol. 1, Rev. 2, including summaries of the contaminated aquifers, maximum and average radionuclide activities or concentrations, along with their background levels at the site.

Formulation of RAI

Include a summary description of the magnitude and extent of uranium in each aquifer of the various sub-areas in the DP. Discuss, in more depth, the spatial distribution and isotopic variation of dissolved uranium in the sub-areas, influence of the geologic settings, and implications for remediation.

These RAIs pertain to Section 8.0 of the License Application (Planned Decommissioning Activities)

2. Description of the Deficiency

The DP proposes the use of the pump and treat method to remediate the uranium impacted groundwater at the Cimarron site. The remedial design criteria or objectives are not included in the DP, and there is no discussion about how the proposed design described in the DP meets these criteria or objectives.

Basis of the Request

Given that the remedial goal is to restore the uranium impacted aquifer, the pump & treat design includes nine (9) groundwater extraction wells for, Burial Area #1 (BA#1), with a combined nominal extraction rate of 100 gallon per minute (gpm); and twenty-four (24) groundwater extraction wells for the Western Alluvial Area (WAA) at a total pumping rate of 458 gpm from these extraction wells for treatment. The remedial design also includes groundwater injection and extraction trenches to enhance the groundwater remediation in the upland and transitional areas. Pursuant to 10 CFR 70.38(g)(4)(ii), the remedial objectives and criteria need to be discussed in the DP. Lack of these design criteria

would make it difficult to objectively evaluate the proposed pump and treat remedial design presented in the DP.

Formulation of RAI

Provide the remedial design criteria, and discuss how the selected design meets these selected criteria and is optimized to effectively remove uranium impacted groundwater in the alluvial and bedrock aquifers respectively in the WAA and BA #1. List the input parameters for the groundwater flow model, and attach selected groundwater capture zone maps.

3. Description of the Deficiency

The particle tracking/pathlines and flowlines are identical in a homogenous media under a steady state and two-dimensional condition. With this assumption, the particle track/pathlines shown in Fig. 8-5 for the BA#1 and Fig. 8-4 for the WAA can be approximated as flowlines. The flowlines showed in Fig. 8-5 appear to indicate a stagnation area within the central portion of the BA#1 uranium-impacted groundwater plume (north of GE-BA#1-03, east of GE-BA#1-04 and south of GE-BA#1-05). There appears a second stagnation area in the WAA between extraction well GE-WAA-02, GE-WAA-01 and GE-WAA-04, and the eastern boundary of WAA-U.>DCGL Remediation Area.

Basis of the Request

10 CFR 70.38(g)(4)(ii) requires a description of planned decommissioning activities. Based on the proposed groundwater extraction design, there appears to be a stagnation area within the BA#1 and WAA uranium-impacted groundwater field. The staff is concerned that contaminated groundwater exceeding the Derived Concentration Guide line (DCGL) in these stagnation areas may not be extracted.

Formulation of RAI

Provide a verification that these stagnation areas are indeed created by the proposed pump and injection system, and discuss potential remedies in the design or during extraction operation, to ensure the uranium-impacted groundwater in these stagnation areas will be extracted and treated.

4. Description of the Deficiency

As part of a pump and treat system design consideration, estimates of clean-up time for the contaminated aquifers are provided in Figure 9.1. The assumptions involved with aquifer cleanup time estimates are not included in the DP. These assumptions may include such parameters as uranium distribution coefficient (K_d), dissolved uranium distribution and transport in aquifers within different sub-areas, and groundwater flow. For example, the distribution coefficients, K_d are often assumed to be reversible and linear. The difference and uncertainty in aquifer clean-up times for various sub-areas

may have major impacts on the pump and treat design, operation and post-remedial groundwater monitoring.

Basis of the Request

The assumptions used for estimating the groundwater clean-up time, and their validity and associated uncertainties are not discussed in the DP, as required in 10 CFR 70.38(g)(4)(ii).

Formulation of RAI

Provide a list of assumptions used for the aquifer cleanup time estimates. Explain how each of these assumptions is valid and reasonable given that the geological materials in the impacted aquifers at the site vary considerably, ranging from mudstone, sandstone, to unconsolidated alluvial sediments. Provide an assessment and discussion of the impacts of uncertainties of the input parameters and assumptions on the clean-up time estimates for aquifers in various sub-areas.

5. Description of the Deficiency

The magnitude and extent of dissolved uranium in the groundwater at the site has been historically monitored and assessed through fully penetrating monitoring wells, but vertical distributions of dissolved uranium across the aquifer thickness have not been investigated. Under the currently proposed decommissioning plan, fully penetrating wells will be installed in the aquifer to extract uranium-impacted groundwater. If dissolved uranium is stratified in aquifers, a fully penetrating well will pump groundwater across the entire thickness of an aquifer, which may result in extracting and treating potentially uncontaminated groundwater.

Basis of the Request

The vertical distribution of dissolved uranium in the aquifer within various sub-areas is not discussed in the DP as required under 10 CFR 70.38(g)(4)(i). Stratified dissolved uranium in an aquifer may have implications on groundwater extraction well design and remediation.

Formulation of RAI

Provide an assessment of the likelihood that dissolved uranium varies vertically in different aquifers or portions of an aquifer at the site. Conduct a cost and benefit analysis of a pump and treat system with a combination of partially and fully penetrating wells, if the dissolved uranium is believed to be stratified at the site.

6. Description of the Deficiency

There is no detailed discussion of the factors considered in the trench design. The technical basis for the proposed injection rates are not provided in the DP.

Basis of the Request

The remedial targets of injection trenches are the Sandstone A and Sandstone B that are impacted by uranium at the site. Groundwater injection trenches with injection wells are proposed for sub-areas of the Western Upland Area (WUA). These include WU-BA3, WU-BA2, UP1 and UP2 within the sandstone A and BA#1 (the southern end and the eastern edge of "U>DCGL" within Sandstone B). The lengths and depths of the proposed trenches are also indicated in the DP, along with respective injection rates. It is noted that the lengths of some trenches in the UP1 area are relatively shorter given its impacted size. The amount of water that can be injected into the formation may depend on trench geometry, hydraulic head, and permeability among other factors. The permeability of the subsurface formation and hydraulic heads in the trenches may be the most important factors in controlling the injection rates.

Formulation of RAI

Provide a discussion in Section. 8.4.1 of the DP regarding the considerations taken into account in the injection trench design, including trench size and injection rates. Discuss the uncertainties associated with input parameters and their impact on the trench design and overall remedial objectives for the sub-areas of concern.

7. Description of the Deficiency

The process for assessing potential mineral scaling and fouling in the injection system is not provided in the DP.

Basis of the Request

10 CFR 70.38(g)(4)(ii) requires the licensee to provide a description of planned decommissioning activities. It's indicated in Section 8.4.3 that injecting water will be pretreated, as necessary, to prevent mineral scaling and fouling of the injection system piping, injection wells/trenches, and subsurface formation. A procedure or plan should be described in the DP regarding assessment of mineral scaling and fouling potential in the injecting system. This plan should include initial assessment of the injecting water, and criteria for initiating investigation during operation of mineral scaling and fouling in the system. When an issue of this nature arises during remedial operation, the stated plan or procedure should provide a clear path to resolve the problem.

Formulation of RAI

Describe the process, including measurements and procedures used to determine whether injection water needs pretreatment to prevent mineral scaling or fouling. In addition, discuss conditions that will prompt an evaluation of possible fouling in the injection system piping, injection wells, and subsurface formations.

8. Description of the Deficiency

It's stated in Section 8.4.4 of the DP that water delivery to injection wells and trenches will only be permitted if the extraction systems responsible for capture of the injected water are operating and maintaining sufficient capture. Table 8-2 provides a list of wells used for in-process monitoring of water levels in the remediation sub-areas with a specified schedule (e.g., daily during the first week of operation, weekly during the second through fourth week, and monthly thereafter). It's also indicated that depth to groundwater measurements will be conducted in selected monitoring wells to evaluate the influence of water injection on hydraulic gradient (Sec. 8.7.2), and but these selected monitoring wells and measurement schedule are not specified. It's not clear how the assessment of injected/contaminated groundwater capture will be effectively accomplished.

Basis of the Request

There are no specific discussions on conducting groundwater level monitoring and capture zone analysis in the DP to ensure sufficient capture of injected water under 10 CFR 70.38(g)(4)(ii).

Formulation of RAI

Discuss the process and procedure to demonstrate sufficient capture of the injected water, including the monitoring well locations and schedules of field groundwater level measurements, and capture zone analysis and remedial measures to take if sufficient captures are not achieved.

9. Comment

Modify Table 8-2 to include groundwater level measurement and groundwater sampling schedules.

10. Comment

In Section 12.2, include the sampling frequency, compositing, and analytical methods for monitoring the effluent discharging to the Cimarron River, as contained in the Oklahoma Pollutant Discharge Elimination System (OPDES) permit.

11. Description of the Deficiency

The uranium-impacted groundwater under remediation at the Cimarron site occurs in different aquifers, varying from alluvial deposit to fractured sedimentary rock across sub-areas. The groundwater flow and uranium transport mechanism also differs between these sub-areas, through granular pore space in the alluvial vs. predominant fractures in the bedrock, diffusive transfer of uranium from less permeable layer (e.g., siltstone) and permeable layers (e.g., sandstone) and potentially greater spatial variability of dissolved uranium in the bedrock, for instance. Discuss how these differences in groundwater flow

and uranium transport are considered in the proposed post-remediation groundwater monitoring network design.

Basis of the Request

Post-remediation groundwater monitoring for BA#1, WAAs, and WUAs will consist of at least 12 consecutive quarters of sampling and analysis to statistically demonstrate compliance with NRC criteria for license termination. The proposed groundwater monitoring wells are listed in Table 8-3 and Figure 8-10. However, the selection criteria for the post-remediation monitoring wells are not included in the DP as required in 10 CFR Part 70.38(g)(4)(ii).

Formulation of RAI

In Section 8.8 of the DP, provide the technical basis and discussion for the proposed post-remediation groundwater monitoring network for the various sub-areas at the site.

12. Description of the Deficiency

NRC staff is concerned that this weekly sampling schedule may not provide up-to-date data to adequately estimate the amounts of Uranium-235 and Uranium-238 adsorbed onto the resin and evaluate performance of the IX treatment system. During initial stage of groundwater extraction, the Uranium-235 and Uranium-238 concentrations in the influent may exhibit greater fluctuation as a result of variation in the amounts of groundwater from different extraction wells when pumping rates are being adjusted to achieve a desired or designed overall extraction rate. This may also occur when drawdowns are optimized to achieve a desired groundwater capture. A less frequent monitoring of the IX treatment system is appropriate when Uranium-235 and Uranium-238 concentrations in the influent are shown to be close to a steady state.

Basis of the Request

The proposed in-process monitoring for the ion-exchange (IX) treatment system includes collecting an in-coming contaminated water (influent) from the sampling port located between the pre-filter and the lead resin vessel, and the treated water (effluent) at the end of the polishing vessel. It indicates that the in-process monitoring of the IX treatment system will be initially conducted on a weekly basis. However, subsequent in-process monitoring of the IX treatment system is not provided or discussed in the DP as required in 10 CFR Part 70.38(g)(4)(ii).

Formulation of RAI

In Section 8.6.1, propose a complete in-process monitoring schedule, and discuss the basis upon which the in-process IX treatment system monitoring is based, and conditions that will initiate an evaluation of the proposed in-process monitoring schedule.

This RAI pertains to Section 11.0 of the License Application (Radiation Protection Plan)

13. Description of the Deficiency

The submitted DP references the Radiation Protection Plan (RPP) approved by License Amendment 15 and stated that several changes were made to the RPP to prepare for the extraction and treatment of uranium-impacted groundwater but the updated and revised RPP was not submitted for approval.

Basis of the Request

The DP does not provide enough information on the new decommissioning activities required for the technical review and evaluation criteria of NUREG-1757, Vol. 2. The RPP referenced in Section 11 of the proposed DP is for the old DP that relied on the use of monitored natural attenuation whereas the proposed DP relies on the pump and treat method. The updated RPP was not included in the DP or Appendixes for NRC staff to review.

Formulation of RAI

Please submit an updated Radiation Protection Plan (RPP), as an addendum to the DP, for the new pump and treat method which describes in detail the appropriate radiation protection procedures for the proposed pump and treat method.

These RAIs pertain to Section 11.8 of the License Application (Nuclear Criticality Safety)

14. Description of the Deficiency

Appendix C, "Exemption of Packaged Fissile Exempt Material from U-235 Possession Limit," states that the current technical basis of the waste acceptance criteria (WAC) for disposal of special nuclear material (SNM) is NUREG/CR-6505, "The Potential for Criticality Following Disposal of Uranium at Low-Level Waste Facilities." Appendix C further discusses that the radionuclide concentration transportation requirements are less than the current WAC; therefore, the fissile exempt concentration for transportation is the most conservative and limiting value. The provided discussion provides details regarding the limited risk of inadvertent criticality; however, it does not provide details as to whether inadvertent criticality is credible.

Basis of Request

10 CFR 70.17 states, in part, that the Commission may, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in [10 CFR Part 70] as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest.

10 CFR 70.61(a) states, in part, that each applicant or licensee shall evaluate, in the integrated safety analysis, its compliance with the performance requirements in paragraphs (b), (c), and (d) of [10 CFR 70.61].

10 CFR 70.61(b) states, in part, that the risk of each *credible* high-consequence event must be limited. Engineered controls, administrative controls, or both, shall be applied to the extent needed to reduce the likelihood of occurrence of the event so that, upon implementation of such controls, the event is highly unlikely.

10 CFR 70.61(d) states, in part, that the risk of nuclear criticality accidents must be limited by assuring that under normal and credible abnormal conditions, all nuclear processes are subcritical, including use of an approved margin of subcriticality for safety.

NUREG 1520, "Standard Review Plan for Fuel Cycle Facilities License Applications," states, in part, that any one of the following three independent acceptable sets of qualities could define an event as not credible: (1) An external event has a frequency of occurrence that can conservatively be estimated as less than once in a million years. (2) A process deviation consists of a sequence of many unlikely events or errors for which there is no reason or motive. In determining that there is no reason for such errors, a wide range of possible motives, short of intent to cause harm, must be considered. Complete ignorance of safe procedures is possible for untrained personnel, which should be considered a credible possibility. Obviously, no sequence of events should be categorized as not credible if it has actually occurred in any fuel cycle facility. (3) A convincing argument exists that, given physical laws, process deviations are not possible, or are extremely unlikely. The validity of the argument must not depend on any feature of the design or materials controlled by the facility's system of items relied on for safety (IROFS) or management measures. Such a demonstration of "not credible" must be convincing despite the absence of designated IROFS.

Formulation of RAI

In order to achieve reasonable assurance that the criteria described in 10 CFR 70.17 for specific exemptions is met, and that the criteria described in 10 CFR Part 70 paragraphs (a), (b), and (d) do not directly apply, please provide details as to why inadvertent criticality is not credible using any one of the three independent acceptable sets of qualities discussed in NUREG 1520 for defining an event as not credible. In this discussion, please provide details regarding any potential interaction between fissile-exempt material and any other fissile material on site. Additionally in this discussion, please provide details regarding the chemical and physical form of the material and its containers and their respective configurations.

15. Description of the Deficiency

The current basis of the WAC for disposal of SNM is NUREG/CR6505, "The Potential for Criticality Following Disposal of Uranium at Low-Level Waste Facilities." Assurance of subcriticality is based on specified assumptions, whose application and impact to the technical basis is not described in sufficient detail.

Basis of Request

Appendix C, "Exemption of Packaged Fissile Exempt Material from U-235 Possession Limit," states that the current technical basis of the waste acceptance criteria (WAC) for disposal of SNM is NUREG/CR-6505, "The Potential for Criticality Following Disposal of Uranium at Low-Level Waste Facilities." NUREG/CR6505 states that the assurance of subcritical conditions are based on three specified assumptions: 1) the SNM is uniformly distributed throughout the soil, 2) the soil matrix is SiO_2 , and 3) the SNM-contaminated soil matrix has a spherical geometry and an optimum water content for nuclear criticality.

Formulation of RAI

Please provide technical details regarding assumption 1. The SNM is uniformly distributed throughout the soil and assumption 2. The soil matrix is SiO_2 , as they relate to the processes performed.

Cimarron Decommissioning Plan
Request for Additional Information for Environmental Assessment

The purpose of this request for additional information (RAIs) is to obtain additional information and data that is necessary for the NRC to fulfill its responsibilities under the National Environmental Policy Act of 1969 (NEPA). The NRC staff will prepare an environmental assessment (EA) pursuant to 10 CFR 51.21 and 51.30. The staff will use the guidance in NUREG-1748 (Environmental Review Guidance for Licensing Actions Associated with Nuclear Material Safety and Safeguards Programs), especially Chapter 3, to prepare the EA. To support its environmental reviews, the NRC's regulations in 10 CFR 51.45 and 51.60 address the need for a licensee or applicant to submit an environmental report. Chapter 6 of NUREG-1748 provides guidance regarding the contents of an environmental report.

After reviewing the EPM environmental report and decommissioning plan, the NRC staff has determined that the following supplemental information is needed for the staff to complete an EA of the potential decommissioning impacts. For the items requested below, the relevant sections of Chapter 6 are cited. NUREG-1748 can be accessed here:

<https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1748/>.

1. Description of Deficiency

With regard to land use, the ER does not clearly indicate how much of the site has been released and what the current and future uses are of released and unreleased land, as listed in item 1c below. Sections 2.1 and 5.6.10 of the DP provide general information about the site acreage, but it is not clear whether this is a comprehensive accounting of former and current site acreage and land uses.

Basis of Request

Per NUREG-1748, Sections 6.3.1 and 6.4.1, and to fully address the potential impacts associated with current and future land uses, and to assess cumulative effects, the NRC needs a description of past, current and future land uses.

Formulation of RAI

Please verify or provide the following information, which can be presented as text, as a table, and/or as a figure:

- Amount of land originally under license
- Amount of land previously released: 117 acre parcel and 24 acre parcel?
- Current use of released land, if other than the two parcels (117 acre parcel and 24 acre parcel) listed in previous bullet
- Amount of unreleased land remaining
- Amount of land to undergo groundwater reclamation
- Amount of land that will not be released, if any
- Future use of released land, if known

2. Description of Deficiency

The number and types of workers that would be employed to conduct the groundwater reclamation is not indicated in the DP.

Basis of Request

Per NUREG-1748, Sections 6.3.2, 6.4.2, 6.3.10, and 6.4.10, and to assess the potential socioeconomic and traffic impacts the proposed groundwater treatment activities could have on the Logan County vicinity, the NRC needs information regarding the number and types of workers and where they would come from.

Formulation of RAI

Please provide the following information:

- Number of construction workers and where they would be commuting from
- Percent skilled/unskilled
- Number of operational workers and where they would be commuting from
- Percent skilled/unskilled
- Income that could flow into Logan County (e.g., tax payments, spending on goods and services, etc.)

3. Description of Deficiency

The types of equipment to be used during reclamation activities and the potential effect on air resources is not presented.

Basis of Request

Per NUREG-1748, Sections 6.3.6 and 6.4.6, the ER should assess the potential impact of the proposed action on air quality. This involves an accounting of the types of mobile and fixed equipment and other activities that could cause air emissions. If there could be air emissions other than emissions from the denitrification process, the types of equipment to be used need to be identified.

Formulation of RAI

Please provide the following information:

- Types of equipment that would be used during construction
- Types of equipment that would be used during operation
- Spec sheets for each piece of equipment, if available

4. Description of Deficiency

The ER does not present sufficient detail about the trenching that would be employed during the construction and operation of the project. In addition, information about the location of the stockpiled soils is necessary for both trenches and new building

excavations. In addition, the NRC staff expects that the information currently in the DP will change based on the revised remediation plan.

Basis of Request

Per NUREG-1748, Sections 6.3.4 and 6.4.4, and to assess the potential impacts on surface water, the NRC staff needs information about the trenching activities, including the location of stockpiled soils from the trenches and any building excavations. Protection of the stockpiled is required to minimize erosion and sedimentation.

Formulation of RAI

Please provide the following information:

- Surface area (trenches and process buildings) to be disturbed
- Number and size (length, width and depth) of trenches to be excavated (with locations)
- Estimated number and size of soil stockpiles (with locations)
- Method used to control erosion of soil stockpiles
- Disposition of stockpiles, if other than leaving in place

5. Description of Deficiency

The ER does not provide information about the ecology of the site.

Basis of Request

Per NUREG-1748, Sections 6.3.5 and 6.4.5, the ER should assess the potential impacts of a proposed action on terrestrial and aquatic ecological resources (flora and fauna). Part of this assessment involves conducting a review under Section 7 of the Endangered Species Act of federal threatened, endangered, and state species of concern inhabiting the site or its vicinity, as well as identification of sensitive habitats. The DP includes information about species listed under Section 7 of the ESA, but does not include a general description of the site ecology.

Formulation of RAI

Please provide information, including an assessment of the potential impacts, on the terrestrial and aquatic ecology of the Cimarron site.

6. Description of Deficiency

The ER does not provide information about noise levels and related potential impacts from the proposed activities, such as the ambient noise level anticipated at the site (day and night), a description of the nearest sensitive receptor, and types of equipment to be used (w/spec sheets).

Basis of Request

Per NUREG-1748, Sections 6.3.7 and 6.4.7, the ER should include information about potential impacts from noise. Without knowing the ambient noise conditions of the site, where the nearest sensitive receptors are, and the types of equipment to be used, the staff cannot assess the potential impacts.

Formulation of RAI

Please provide the following information:

- Daytime and nighttime readings of ambient sound at the site need to be identified
- The location and nature of the nearest sensitive receptor needs to be identified
- The make and model of each piece of noise-producing equipment needs to be identified, and how much noise it produces (usually determined at 50 ft, per spec sheet)

7. Description of Deficiency

The ER does not provide sufficient information about historic or cultural resources on the site, including any possible impacts on such resources.

Basis of Request

Per NUREG-1748, Sections 6.3.8 and 6.4.8, the ER should indicate whether any artifacts of historic or cultural significance were ever found on the site, or if a Class III archeological survey was ever performed for the site. If applicable, the ER should describe interactions with tribes or the State Historic Preservation Officer.

Formulation of RAI

Provide reports of previous archaeological surveys, if such surveys were conducted specifically for the Cimarron site. If applicable, provide information about any communications with historic preservation officials or tribes.

8. Description of Deficiency

It is not clear whether any new structures are proposed.

Basis of Request

Per NUREG-1748, Sections 6.3.9 and 6.4.9, the ER should contain information about the proposed appearance of the site (including new structures) and potential impacts on visual and scenic resources.

Formulation of RAI

Please provide the following information:

- Physical description of existing structure(s) on site (location on site, structure height, color)
- Physical description of proposed structures on site (location on site, structure height, color)
- The presence of physical landforms that may buffer a visual impact

9. Description of Deficiency

The ER does not provide specific information about transportation activities associated with the proposed action.

Basis of Request

Per NUREG-1748, Sections 6.3.2 and 6.4.2, and to assess potential transportation impacts, the ER should provide information about the proposed type, number and frequency of vehicles to be used at the site.

Formulation of RAI

Please provide the following information:

- Number of workers using POVs
 - Direction of their origin
 - During construction
 - During operation
 - During reclamation
- Site hours (construction and operation)
- Type, size and number of construction vehicles
- Frequency of incoming construction vehicles and their direction
- Type, size and number of operation vehicles
- Frequency of incoming operational vehicles, including waste vehicles, and their direction
- Direction from which construction and operational supplies originate
- Will access to the site be improved (e.g., widened, paved, signage, etc.)?

10. Description of the Deficiency

The use and storage of hazardous chemicals and the storage, transportation and disposal of wastes are not fully described in the DP.

Basis of Request

Per NUREG-1748, Sections 6.2.1.2, 6.3.12, and 6.4.12, the ER should provide information about the proposed use and management of chemicals and wastes.

Formulation of the RAI

Please provide a list of all proposed chemical storage (e.g., 5,000 gallon acid tank) and all expected wastes (for example: anion resins, biomass, solvents, construction & demolition debris), indicating whether the wastes are LLRW or non-LLRW, hazardous or non-hazardous. For each chemical or waste, list expected quantity, storage method, transportation mode and frequency, and destination/disposal site. Information can be presented as text or in a table.

11. Description of the Deficiency

The ER does not contain descriptive information about the proposed wastewater treatment discharges to groundwater and river outfalls.

Basis of Request

Per NUREG-1748, Sections 6.3.4 and 6.4.4, the ER should describe potential impacts from proposed treatment discharges to groundwater and surface water. The staff recognizes that some of the technical details are presented in the DP; however, descriptive summary information in the ER that can be used in the EA would be helpful.

Formulation of RAI

Specifically, the following information should be provided in the ER:

- Regarding discharge to the Cimarron River:
 - Volume of discharge from each outfall
 - Location of outfalls (bank or directly into river)
 - Water quality of discharges
- Regarding discharge to GW:
 - Volume of discharges
 - Location of discharges
 - Quality of discharges
- Will any treated GW be discharged to onsite reservoirs?
- What is the general split of surface water and GW?

12. Description of Deficiency

In Appendix A, on Nationwide Permits (NWP), Section D, of the Army Corps of Engineers (ACOE) regarding the two treated water outfalls.

Basis of Request

Per NUREG-1748, Sections 6.3.4 and 6.4.4, the ER needs to address the potential impacts on water resources. The ACOE letter states "...the District Engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects..."

Formulation of RAI

Please provide District Engineer's determination.

13. Description of Deficiency

With all the seismic activity that has taken place, recently, in Central Oklahoma, little information is presented with regard to the effects to the Cimarron site.

Basis of Request

Per NUREG-1748, Sections 6.3.3 and 6.4.3, the ER should address seismic characteristics and related potential impacts. Within the last several months, two very large earthquakes have occurred in Central Oklahoma, both within 50 miles of the Cimarron site, and one of which is the largest ever recorded in the State's history.

Formulation of RAI

Please respond to the following questions:

- What is the effect of large earthquakes on linear features, such as pipelines?
- Have there been any reports of damage, including pipeline ruptures, in the Cimarron area, as a result of these recent large earthquakes?
- If so, what plans does EPM have to mitigate such occurrences?