environmental
properties management, LLC

September 13, 2019

Mr. Ken Kalman
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

Mr. Paul Davis
Oklahoma Department of Environmental Quality
707 North Robinson
Oklahoma City, OK 73101

Mr. Robert Evans
U.S. Nuclear Regulatory Commission
1600 East Lamar Blvd; Suite 400
Arlington, TX 76011-4511

Re: Docket No. 70-925; License No. SNM-928
Notes from August 29 Meeting on Project Scheduling

Dear Sirs:

Solely as Trustee for the Cimarron Environmental Response Trust (CERT), Environmental Properties Management LLC (EPM) submits herein notes from meetings conducted at NRC headquarters on August 29, 2019 in the following attachment.

These meetings were conducted to review documents submitted in response to requests for information isued by the U.S. Nuclear Regulatory Commission (NRC) and to address the development of a milestone schedule for the review, revision, and approval of *Facility Decommissioning Plan – Rev 1.* These notes document the status of certain activities and identify "next steps" which will be taken to facilitate the review process.

Please contact me at 405-642-5152 should you desire to discuss any of the information contained herein.

Sincerely,

Jeff Lux

Jeff Lux, P.E.
Trustee Project Manager

Attachment
cc: Michael Broderick, DEQ (electronic copy only)

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Cimarron Environmental Response Trust
Decommissioning Planning Meeting Notes
August 29, 2019

ATTENDEES:

Ken Kalman	Paul Davis	Bill Halliburton
Lifeng Guo	Mike Broderick	Jeff Lux
Karen Pinkston	Jordan Caldwell	
Ron Burrows		
Christine Pineda		
Reginald Augustus		

OVERVIEW:
There were two primary objectives for this meeting:

1. Review of documents submitted in response to NRC requests for information based on the acceptance review of the November 2, 2018 *Facility Decommissioning Plan – Rev 1* (the DP). This included identifying deficiencies in those responses so Environmental Properties Management LLC (EPM) can submit any additional information needed so NRC can initiate the detailed technical review of the DP.

2. Develop a schedule for submitting information, reviewing documents, issuing RAIs, responding to RAIs, preparing the Safety Evaluation Report (SER) and Environmental Assessment (EA), and preparing and issuing a license amendment approving the DP.

These notes are not a chronological description of issues addressed during the meeting. Several issues, such as the redefinition of the licensed area and treatability testing for Tc-99, were discussed multiple times. The intent of these notes is to capture the conclusions reached for each issue.

SCOPE OF WORK FOR CHARACTERIZATION AND WELL ABANDONMENT
This document proposed to perform the following scope of work:

- Clear access paths and constructing a "road" to provide access for vertical profiling and well installation.
- Advance a hydraulic profile tool using direct push technology to assess permeability and the vertical distribution of uranium and/or nitrate at locations where groundwater extraction wells will be installed in alluvial material.
- Collect aquifer soil samples at select extraction well locations using direct push technology to assess the grain size distribution (GSD) of the soil for extraction well screen slot size design and filter pack gradation selection.
- Abandon monitor wells which are no longer useful for characterization, in-process monitoring of groundwater remediation, or post-remediation monitoring.

The NRC and the DEQ agreed that approval of the proposed budget for 2019 provided the approval needed to proceed with this work.

POTENTIAL IMPACT OF TC-99 ON INFLUENT, EFFLUENT, AND WASTE

One of the NRC's requests for supplemental information addressed the potential presence of Tc-99 in water discharged to the Cimarron River. During meetings conducted April 4-5, 2019, additional issues related to the presence of Tc-99 in groundwater were identified. This submittal provided background information on the presence of Tc-99 in groundwater and discussed the potential presence of Tc-99 in ion exchange resin, bioreactor solids, and treated water. This submittal proposed to:

- Revise tables in the DP to include in-process analysis of water for Tc-99 as well as analysis for Tc-99 in the characterization of waste.
- Conduct a groundwater assessment for Tc-99 to delineate the current extent of Tc-99 in groundwater and to estimate the concentration of Tc-99 in influent to the water treatment system(s).
- Conduct a treatability test to determine the adsorption capacity of the ion exchange resin for Tc-99.
- Apply for modifications to the OPDES permit and the plan for reporting injection under the DEQ Underground Injection Control program if needed.

The NRC and the DEQ agreed that the response was appropriate. The issues addressed in the first three bullets are further discussed in subsequent sections of these notes. No modifications to either the OPDES permit or the Underground Injection Control program requirements will be needed.

RESPONSE TO NRC REQUEST FOR SUPPLEMENTAL INFORMATION (RFI)

This section presents a summary of each issue addressed in the February 28, 2019 RFI, followed by a description of the response to the RFI and the agencies' feedback on the adequacy of the response. Numbered attachments and enclosures referenced herein refer to attachments and submittals included in the May 7, 2019 response to the RFI.

D-Plan Section 2.7.6: Groundwater Models

The NRC requested that EPM submit the groundwater flow model input files in native format.

> Attachment 2 contained proposed revisions to Section 2.7.6 of the DP. Enclosure A was a CD containing the native input files.

*The NRC requested that the numerical groundwater flow models be modified to evaluate the impact on the capture zone of 1) anisotropic/heterogeneous conditions in the alluvial material and 2) shortened well screens in extraction wells. This evaluation will be performed by assigning a hydraulic conductivity to a layer in the alluvial material and extracting groundwater from only a ten-foot portion of the aquifer. If under nominal and both alternative pumping scenarios, particles placed around the edges of the plume **are** captured by extraction wells at their planned locations, the locations of the extraction wells will remain unchanged, and the minimum length for well screens will be ten feet. If under nominal and both alternative pumping*

*scenarios, particles placed around the edges of the plume **are not** captured by extraction wells at their planned locations, the locations and the screened intervals of extraction wells will remain as proposed in the DP.*

D-Plan Section 3.5: Groundwater
The DP did not include an explicit summary of the impacted aquifers in separate areas of the site.

> Attachment 2 contained proposed revisions to Section 3.5.

The response was satisfactory.

D-Plan Section 3.5.3: Current Extent of Contaminants of Concern in Groundwater
The DP did not address uranium activities and estimate the amount of uranium that would be recovered from the aquifer in Burial Area #1 (BA1) and the Western Areas (WA).

> Attachment 2 contained proposed revisions to Section 3.5 and Figures 3-3 (depicting uranium in the WA) and 3-4 (depicting uranium in BA1).

The response was satisfactory.

D-Plan Section 5.6.11 & RPP Section 6.9: Land Use
The DP stated that its annual administrative ALARA goal is 100 mrem Total Effective Dose Equivalent (TEDE), but it did not include a description of how this goal will be verified.

> The response identified air monitoring that will be performed and referred to the response to information requested related to Section 11.2 of the DP.

Further clarification is needed. If EPM does not provide this clarification prior to initiating the detailed technical review of the DP, this will be addressed in the NRC's Request for Additional Information (RAI) based on the detailed technical review of the DP.

D D-Plan Section 8.6: In-Process Monitoring
The DP did not include a demonstration that discharges will be in accordance with the Oklahoma Pollution Discharge Elimination Discharge System (OPDES) Permit and comply with effluent limits stipulated in 10 CFR 20.2001, taking Tc-99 into account and applying the unity rule.

> The response provided a calculation showing that a discharge containing a Tc-99 concentration of 466 picoCuries per liter (pCi/L) (the estimated influent concentration – implying no removal of Tc-99) and a uranium concentration of 5 pCi/L (uranium is expected to be non-detectable in the effluent), the sum-of-fractions value for the discharge would be 0.24, significantly less than the limit of 1 stipulated in 10 CFR 20.2001. The response also committed to the revision of the tables in the DP which

describes in-process monitoring and proposed to perform additional groundwater assessment for Tc-99 and to conduct a treatability test for Tc-99.

Proposed revisions to in-process monitoring tables were submitted in an August 2, 2019 letter. A scope of work and cost estimate for assessment of Tc-99 in groundwater were submitted in a July 31, 2019 letter. (Both are discussed below.)

The response was satisfactory.

D-Plan Section: 11: Radiation Protection Program
The DP referred to the RPP as Appendix O in one location. However, the RPP is located in Appendix N.

Attachment 3 contained a corrected revision of the reference in the DP.

The response was satisfactory.

D-Plan Section 11.1 & RPP Sections 10.1, 10.6: Air Sampling Program
Neither the DP nor the RPP included a description of how airborne radioactivity levels are estimated, or the technical basis for using 10 percent of the DAC as a trigger for air sampling.

Attachment 4 contained proposed revisions to the RPP and Appendix A to the RPP. After receiving the response, the NRC notified EPM that a correction to the calculation was needed. A revised Appendix A was submitted in a July 10, 2019 letter.

The NRC notified EPM that for numerous submittals, one or more of the following apply:

- *The response was not complete.*
- *Calculations were not included in the response.*
- *The response and/or calculations did not account for all relevant isotopes.*
- *Proposed changes in the RPP or DP did not incorporate sufficient information; other documents submitted, such as procedures or desk references, would need to be referenced in the amended license as tie-downs.*

In addition, the NRC noted that the acceptance review of radiation protection aspects of the DP and RPP is ongoing. A teleconference will be conducted to provide more detailed and additional information regarding radiation protection issues to minimize RAIs resulting from the detailed technical review of the DP and RPP.

NRC comments on the responses to requests for information related to radiation protection will simply be noted throughout this section as "To be addressed during a teleconference to be conducted within the next week."

D-Plan Section 11.2 & RPP Section 14: Respiratory Protection
The NRC requires respiratory protection triggers and a description of a potential respiratory protection program.

In addition to the explanation provided in the response, Attachment 3 contained proposed revisions of the DP and Attachment 4 contained proposed revisions to the RPP.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.3: Internal Exposure Determination
The DP did not include:

- A description of how compliance with the weekly intake of soluble uranium is determined by measurement of airborne radioactive materials.

  Attachment 4 contained proposed revisions to the RPP.

- A description of how the internal dose to an embryo/fetus will be determined.

  A description was provided in the response, and Attachment 4 contained proposed revisions to the RPP.

- Information regarding how worker intakes are determined.

  Proposed revisions to Section 11.3 of the DP, clarifying that procedures do not exist as they will not be required unless a bioassay program is implemented, were included in Attachment 3.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.4: External Exposure Determination
The DP did not provide:

- Information regarding the type, range, sensitivity, and accuracy of each individual monitoring device.

  The response indicated that workers will not receive dose requiring personal monitoring. Attachment 4 contained proposed revisions to Section 11.4 of the D-Plan.

- A description of action levels for workers' external exposure.

  The response indicated that workers will not receive dose requiring personal monitoring. Attachment 4 contained proposed revisions to Section 11.4 of the D-Plan.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.5 & RPP Section 6.1: Summation of Internal and External Exposure
Neither the DP nor the RPP included a description of how workplace monitoring for a declared pregnant worker accounts for the dose equivalent to the embryo/fetus.

The response stated that the need for DPW monitoring will not be needed. This issue was already addressed in the response to the RFI on Section 11.3 of the DP.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.6 & RPP Sections 10.2-10.4, 12, and 13: Contamination and Control Program
Neither the DP nor the RPP provided the following information:

- A description (e.g., maps) of restricted areas established at site.

  Three proposed figures were added to Section 8 of the RPP, and proposed revisions to the RPP were included in Attachment 4.

- The types and frequencies of contamination surveys for restricted and contaminated areas.

  Proposed revisions to the RPP were included in Attachment 4.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.7 AND RPP Section 7: Instrument Program
Neither the DP nor the RPP provided the following information:

1. A description of the method used to estimate Minimum Detectable Concentration (MDC) or Minimum Detectable Activity (MDA).

   A description and calculation were provided in the response. Attachment 4 contained proposed revisions to Section 7.5 of the RPP.

2. A description of instrument storage, calibration, and maintenance facilities for instruments used in field surveys, including onsite facilities used for laboratory analyses.

   A description and calculation were provided in the response. Attachment 4 contained proposed revisions to Section 7.5 of the RPP.

3. QA procedures for other instruments used in the radiation protection program.

Enclosure C contained operating procedures. Attachment 4 contained proposed revisions to Section 7.4 of the RPP.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 11.9 & RPP Section 5: Health Physics Audits, Inspections, and Recordkeeping

Neither the DP nor the RPP provided information on Health Physics Audits and the Recordkeeping Program and its QAPP.

Proposed revisions to Sections 5.3 and 5.4 of the RPP were included in Attachment 4. A draft QAPP was provided in Enclosure E.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 12: Environmental Monitoring and Control

If a key document (e.g., the RPP) has multiple revisions, it can cause confusion in the implementation of the DP. The DP contains a ***draft*** RPP Rev 4, but the ***final*** version is not provided. The DP does not reference the ***final*** revision of the RPP.

Attachment 4 provided proposed revisions to the draft Rev 4 of the RPP that was submitted as Appendix N to the DP. These proposed revisions will be incorporated into the ***draft*** RPP Rev 4 upon NRC approval to create the ***final*** RPP Rev. 4. License Condition 27(e) provides for licensee changes to the RPP (and DP). Subsequent revisions to the RPP will be made in accordance with License Condition 27(e). Consequently, the DP does not specify a revision number for the RPP. Language will be added to Section 6.6 of the DP clarifying this.

The response was satisfactory.

D-Plan Section 12.1: Environmental ALARA Evaluation

The DP did not include:

- ALARA goals for effluent control.

  For liquids, the OPDES limit serves as the ALARA goal. Proper personnel practices and engineering controls will mitigate onsite and offsite impacts due to airborne radioactive contamination. Air sampling will be performed as indicated previously. Proposed revisions to the DP were included in Attachment 3.

- A description of the procedures, engineering controls, and process controls to maintain doses ALARA.

Sections 8.3.2 and 8.3.3 of the DP provided a description of the ion exchange and biodenitrification systems, respectively. Section 12.3 discusses effluent controls. Proposed revisions to 12.2 of the DP were included in Attachment 3.

- A particular revision number, cited in the DP or the RPP, for RP-10 if the information in RP-10 is intended to be used to demonstrate compliance with NRC regulations.

  License Condition 27(e)(4) states, "Radiation protection program procedures or revisions to these procedures do not require review and approval by the ALARA Committee but do require review and approval by the Radiation Safety Officer." Consequently, proposed revisions to the RPP will cite the use of RP-10 without a revision number. Certain information contained in RP-10 will be added to the RPP so that a revision number for RP-10 does not need to be referenced in the license as a tie-down.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 12.2: Effluent Monitoring
The DP does not appear to contain:

- Information on the concentration of other radionuclides and whether any other radionuclides are present at levels above background.

The response identified the activity distribution of U-234, 235, and 238 as licensed material, plus non-licensed Tc-99.

- Justification that the sample ports provide representative samples.

The response said that sampling procedures will ensure that the sample is representative of the water flowing through the piping.

- A description of the environmental monitoring recording and reporting procedures.

The response said that Sections 15.3 and 15.4 of the RPP reference SAP procedure for sampling and analysis and require that results be reported to the NRC within 30 days of the completion of data review.

- Sufficient description of the QA program for effluent monitoring.

  The response stated that the DP commits to following Reg Guide 4.15. Section 14 of the DP addresses the quality assurance program, which applies to **all** monitoring, including effluent monitoring. The QAPP was included as Enclosure E.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 12.3: Effluent Control
The DP does not include the following information:

- Action levels or description of the action to be taken if a limit is exceeded.

  The only effluent is treated water, which must comply with OPDES permit limits. Proposed revisions to Section 12.2 of the DP clarified that treated water exceeding those limits is reprocessed.

- Estimates of doses to the public from effluents.

  Proposed revisions to Section 12.3 of the DP, reflecting the need to demonstrate compliance with this requirement, were included in Attachment 3.

To be addressed during a teleconference to be conducted within the next week.

D-Plan Section 13.1: Solid Radioactive Waste
The following information does not appear to be in the DP:

- The expected concentrations and other radionuclides in the resin, and for what waste acceptance criteria (WAC) resin blending is being performed.

  The response included identification of the radionuclides in the resin and clarified that the resin will be blended to meet fissile exemption concentration limits and moisture requirements stipulated in both DOT regulations and the disposal site's WAC.

- The expected volumes and concentrations for contaminated materials such as gloves, disposable sampling devices or contaminated piping or equipment that will be generated.

  The response stated that concentrations are expected to be non-detectable, and the volume is expected to be 0 – 15% of the resin volume.

- Information on whether any volumetrically contaminated waste is expected.

  The response stated that the only volumetrically contaminated waste that is expected is the resin, plus sediment or biomass if it contains detectable uranium or Tc-99. It is not known if the sediment or biomass will contain licensed material requiring it to be shipped as LLRW. Section 16 of the DP contained an estimate of the volume of biomass.

- The name and location of the disposal facility and whether there is a contractual obligation for a recipient of the solid radioactive waste.

  The response identified the two most likely disposal facilities and clarified that there is no contract with either facility.

Some of this information will be further addressed as proposed revisions to the DP. Other information will be addressed during a teleconference to be conducted within the next week.

RPP – General Comment
Throughout the RPP, the licensee used the term "RSO or designee". The RPP did not provide the qualifications of the designee.

The response described the process for determining the necessary qualifications to designate individuals for different aspects of radiation protection. Proposed revisions to Section 3.0 of the RPP were included in Attachment 4.

The following information does not appear to be in the RPP:

- DAC values, and their technical bases, for determining compliance with 10 CFR 20.1201(e) for soluble uranium.

  The response stated that Class Y was used for a uranium DAC, explained that Tc-99 concentrations are negligible, and showed that a scenario that would result in in an intake of 10 mg is inconceivable. Proposed revisions to the RPP to include intake calculations were addressed above.

- Expected radionuclide mixtures and the air sampling media to be used and discussion of how internal exposure is determined for mixtures of radionuclides.

  The response stated, “CERT plans to use laminated glass type filters for air sampling. Mixtures of radionuclides have been previously discussed. Internal monitoring and dose assessment were discussed previously. The radionuclides source term of concern is low-enriched uranium.”

- A list of all airborne action levels developed, actions taken when they are exceeded, and their technical bases.

  The response referenced responses to the RFI for Section 11.1 (addressed above). Proposed revisions to Section 11 of the DP were included in Attachment 3.

- The methodology for calculating the MDA for airborne samples as well as the MDA for each specific radionuclide that may be collected in air samples.

  The response referenced the response to the RFI for Section 11.7 (addressed above). Proposed revisions to Section 11 of the DP were included in Attachment 3.

To be addressed during a teleconference to be conducted within the next week.

RPP – External Exposure Determination
The RPP did not include a summary of area radiation monitoring results since 2006.

> Enclosure F tabulated dosimeter results received since License SNM-928 was transferred to the CERT.

To be addressed during a teleconference to be conducted within the next week.

RPP – Summation of Internal and External Exposures
The licensee stated (RPP 6.1): "Personnel monitoring has not been performed since 2006 because there was no potential to receive a dose that would require monitoring under 10 CFR 20.1502. During the design of groundwater extraction and treatment systems, new work activities, such as groundwater processing, were evaluated to determine if they may result in exposure requiring personnel monitoring." The DP did not provide the analysis that resulted in this conclusion and whether this analysis is current.

> The response explained why this statement is justifiable, as well as the calculated maximum dose in the vicinity of a treatment train. Proposed revisions to the RPP to include the external dose calculations were described above.

To be addressed during a teleconference to be conducted within the next week.

RPP – Facility Radiation Surveys – Release Criteria
The RPP did not provide the qualifications of a "qualified individual".

> The response described the task qualification process used at the Cimarron Site. Proposed revisions to Section 3.0 of the RPP, discussing the task qualification process, were included in Attachment 4.

To be addressed during a teleconference to be conducted within the next week.

RADIOLOGICAL SURVEY OF SUBASURFACE MATERIAL
The NRC contacted EPM to discuss the radiological survey of any subsurface material that may be brought to the surface during excavation or drilling activities. The NRC asserted that neither the DP nor the RPP contained a clear commitment to conduct radiological surveys of all subsurface soil or other material that will be brought to the surface during construction or subsequent operating activities.

> EPM submitted a markup of page 12-47 from the RPP showing proposed revisions to Section 12.5.1, committing to the radiological survey of any material brought to the surface.

The response was satisfactory.

REDEFINITION OF LICENSED AREAS

The NRC contacted EPM to discuss several concerns they had with the proposed licensed areas:

- Confirmatory surveys had not been performed for Subarea F and approving the proposed redefinition would release most of Subarea F from the license.

  In a letter dated June 7, 219, EPM submitted revisions to several figures in the DP. Figure 6-2 showed an expansion of the licensed area around BA1, including all of Subarea F.

- In a letter dated March 12, 2002, the NRC stated that although Subarea G had been demonstrated to be releasable for unrestricted use, it would not be released until Tc-99 had been addressed.

  A letter dated March 12, 2012 showed that the concentration of Tc-99 was well below the NRC criterion for groundwater site-wide. In a letter dated April 22, 2013, the NRC stated that Tc-99 will not have to be addressed in the groundwater remediation plan. From a decommissioning perspective, EPM maintains that Tc-99 has been addressed.

- Although Subareas G and N had been demonstrated to be releasable for unrestricted use, the February 16, 2011 license transfer order stated, "these areas should not be released until groundwater remediation is complete."

  In a letter dated June 7, 2019, a proposed revision to Figure 6-1 showed an expansion of the licensed area around the Western Area Treatment Facility (WATF). Figure 6-2 showed an expansion of the licensed area around BA1, including all of Subarea F. A new proposed Figure 6-3 showed those two areas, plus a "corridor" between the two water treatment areas. Finally, the letter provided justification for the release of those portions of Subareas G and N outside of the revised proposed licensed areas.

NRC stated that the redefinition of the licensed area may be considered separately from the DP. EPM will submit a separate license amendment request to release portions of Subareas G and N from the license, showing that the release of these areas is compatible with the 1999 Safety Evaluation Report prepared for SNM-928 Amendment 15. EPM will also request that a portion of an area previously released from the license be brought back under the license because of the presence of a plume of groundwater containing uranium above release limits. This license amendment may be issued prior to the license amendment that approves the DP.

RADIOLOGICAL SURVEY OF SEDIMENT EXCAVATED FROM THE 1206 DRAINAGE

During its review of the DP, the NRC observed that a mixture of sediment excavated from the 1206 Drainage and soil excavated from injection trenches will be placed in Subarea B, which has been released for unrestricted use and is no longer licensed by the NRC. The NRC requested

information on the radiological survey that will be performed on this material to confirm that the material placed in Subarea B does not exceed the license criterion for soil.

The sediment that will be excavated from the 1206 Drainage will be coming from an area that has been released for unrestricted use and which is no longer under license. That material will be mixed with soil that has been released for unrestricted use and is no longer under license. It will then be placed in an area that has been released for unrestricted use and is no longer under license. Nevertheless, EPM submitted proposed revisions to the DP describing the radiological survey to be performed for this material.

The DEQ has approved the survey plan for the material that will be placed in Subarea B. If this survey plan is not acceptable, the radiological survey of this material will be addressed in a RAI.

REVISED CALCULATION OF CHEMICAL INTAKE

The February 28, 2019 NRC request for supplemental information commented on Section 11.3 of the DP, requesting how compliance with the weekly intake of less than 10 mg would be determined. The May 7, 2019 response to the request for supplemental information provided this information in proposed revisions to Appendix A to the RPP. NRC review of the response identified several issues with the proposed revision of Appendix A. After teleconferences with NRC, Appendix A was revised and re-submitted on July 10, 2019.

To be addressed during a teleconference to be conducted within the next week.

REVISIONS TO DECOMMISSIONING PLAN FIGURES

During its review of the DP, the NRC observed that none of the figures in the DP present all of the following on a single figure: the uranium plume, the remediation components (e.g., trenches and wells), and the former Subareas.

EPM submitted proposed revisions which provide all three of these in the following figures:

- Figure 3-3, “Uranium in Western Area”
- Figure 3-4, “Uranium in Burial Area #1”

While revising these figures, it was noted that there were five figures in the DP for which the remediation area designations had not been changed from the names assigned to them in the 2015 DP. The submittal included proposed revisions to the following figures:

- Figure 3-1, “Nitrate in Western Area”
- Figure 3-2, “Fluoride in Western Area”
- Figure 3-3, “Uranium in Western Area”
- Figure 3-1, “Uranium in Burial Area #1”
- Figure 8-1, “Western Area Groundwater Remediation Areas”

These proposed revisions are under review. If not acceptable, this will be addressed in a RAI.

IN-PROCESS MONITORING AND WASTE CHARACTERIZATION

During the April 4-5, 2019 meetings, while addressing compliance with effluent limits including Tc-99 in the calculation, ancillary issues including in-process monitoring for Tc-99 as well as analysis for Tc-99 in produced wastes were identified. In addition, the decision to filter sediment exceeding 10 microns from the influent resulted in the identification of yet another waste stream.

> EPM submitted proposed revisions to Sections 8.5 – 8.7, Section 8.9, and Section 13.1 of the DP, and proposed revisions to Tables 8-3a through 8-3d of the DP. While making those revisions, it was decided that including references to Drawings in Appendices K-3, K-5, and K-7 would make it easier to determine exactly where measurements would be taken or samples collected during in-process treatment system monitoring.

These proposed revisions are under review. If not acceptable, they will be addressed in a RAI.

LICENSING OF TC-99

In 1996, Tc-99 was discovered in groundwater and the NRC was notified of its presence in groundwater. A February 14, 1997 letter to the NRC provided information on the origin and concentrations of Tc-99 in groundwater. In an April 22, 1997 letter, the NRC stated that radiological contaminants need not be specifically listed as an authorized material on licenses unless they occur in sufficient quantities to pose unique or significant radiation hazards to workers or the public. Based on the information provided in the February 14, 1997 letter, the NRC determined that Tc-99 need not be specifically listed in SNM-928.

EPM will perform an evaluation to determine if the processing of groundwater and the handling, packaging, transportation, and disposal of wastes produced during the processing of groundwater present unique or significant radiation hazards to workers or the public. If these activities do not pose such a risk, EPM will propose that Tc-99 not be specifically licensed. If these activities do pose such a risk, the NRC will determine the appropriate course of action as it relates to the licensing of Tc-99.

TREATABILITY TESTING FOR TC-99

Treatability testing will evaluate the ability of the ion exchange resin to capture the Tc-99 present in groundwater under the design treatment conditions (e.g., residence time, post pH adjustment, removal of particles exceeding 10 microns, etc.). Treatability testing ***cannot*** demonstrate that the removal of Tc-99 in the ion exchange system will prevent the accumulation of detectable Tc-99 in the biomass. It can only provide information on whether or not detectable Tc-99 will be detectable in the effluent from the ion exchange system. This determination will not impact the design or the operation of the water treatment systems. In-process monitoring will track the accumulation of Tc-99 in the treatment systems and may provide information needed to manage the wastes produced by water treatment. Also, treatability testing may be conducted prior to the conclusion of the Tc-99 groundwater assessment, but neither the scope of work nor funding for treatability testing is provided for in the 2019 budget.

The NRC decided that initiating the detailed technical review of the DP and RPP is not contingent upon completing treatability testing. To expedite the initiation of treatability testing, EPM will submit a scope of work and cost estimate for treatability testing and will propose to re-allocate funding for treatability testing from Task 4 "Decommissioning" to Task 6 "Unanticipated Work" if needed. EPM will initiate treatability testing upon approval by the NRC and the DEQ.

DESIGN CHANGES DUE TO DEVELOPMENT OF 90% DESIGN DOCUMENTS

Five drawings from Appendices J and K of the DP were cropped and annotated to illustrate some of the design changes that resulted as the 60% design drawings are advanced from the 60% design drawings provided in the DP. Changes include additions to the design, such as filtration of sediment from influent groundwater, provision of backup power, etc. The following changes were discussed during the meeting:

Changes Related to Treatment Facilities

- Backup power generators will be added to both the WATF and the Burial Area #1 Treatment Facility (BA1TF).
- The installation of filtration systems in both areas will minimize the potential for sediment to plug the resin, requiring changeout before the resin reaches its adsorption capacity.
- The orientation of ion exchange skids in the WATF was changed both to accommodate the installation of a filtration system and to improve traffic flow.
- The length of the ion exchange skid in the BA1TF was increased from 30' to 40' to accommodate the installation of a filtration system.
- The injection skid in the BA1TF will be installed on a concrete slab instead of gravel both for stability and cleanliness.
- The resin processing equipment in the WATF was reconfigured to simplify the process (e.g., placing the scrolling centrifuge directly over the ribbon blender so gravity feed eliminates the need for a screw auger to convey resin to the blender).
- Some of the material handling equipment (e.g., for the absorbent material) was reconfigured for simplicity and the lack of need for large containers of dense barite.
- Two exterior doors were added to the WATF building to eliminate the need for a sprinkler system for fire protection. One or more single doors may be replaced by double doors or overhead doors.
- Louvers were removed from exterior walls and air conditioning and fans were added to maintain temperatures within optimal temperature ranges and for the preservation of temperature-sensitive material (e.g., ion exchange resin).
- The communications vault in the BA1TF will be moved to the northwest for improved traffic flow.
- The size of the bioreactors was increased (with resulting changes to the mezzanine) to accommodate potentially higher influent nitrate concentrations.
- The drum filter and sumps were re-oriented to improve traffic flow.
- The awning/canopy and slab on which the dumpster for transportation of bioreactor solids was to be located was removed. Dumpsters may be staged in the area southeast of

the WATF building if the bioreactor solids must be handled as LLRW. Several dumpsters may need to be staged to provide time for sampling, analysis, and manifesting of the waste if it does contain detectable uranium or Tc-99.

Other Changes

- The design team is considering bringing power to the BA1TF from May Avenue (running along the east property line) instead of running power from the WATF to the BA1TF.
- Outfall 001 will be relocated to the east to utilize the trench leading to GE-WAA-05 rather than creating a new trench just for the discharge.
- The Remote Telemetry Unit (RTU) in the floodplain will be relocated.
- The 60% design transported groundwater from the western portions of the Western Alluvial Area to one influent tank, and from the eastern portions of the Western Alluvial Area to a second influent tank. Because all influent will be routed to one tank, the configuration of trenches for extraction piping was changed to significantly reduce the amount of trenching and pipe installation that will be required.
- The locations of some items on the west side of the WATF building (e.g., methanol tank, backup power generator, etc.), will be moved to provide for optimal spacing and access for maintenance.
- Some of the rooms in the WATF office building will be relocated and a janitor closet will be added.
- Consideration is being given to raising the filter press so a dumpster can be placed beneath the filter press. This would reduce the potential for spilling during transfer between the filter press and the dumpster.

Schedule

Key Dependencies

1. Submission of all information needed to complete responses to NRC requests for information is a predecessor to initiating the detailed technical review of the DP. This includes:
    a. Satisfactorily addressing deficiencies in the responses to the NRC's February 28, 2019 request for supplemental information.
    b. Revising groundwater flow models to evaluate the impact of aquifer anisotropy and heterogeneity and reduced screened intervals on the capture zone at nominal and alternative pumping scenarios.
    c. Completing the assessment of Tc-99 in groundwater, including calculating the estimated concentration of Tc-99 in the influent to water treatment facilities.
    d. Completing the vertical profiling of uranium concentrations at extraction well locations and specifying the top and bottom of screened intervals for groundwater extraction wells.
    e. Submitting redacted 90% design drawings to replace the 60% design drawings, with specifications and information not relevant to the agencies redacted.
    f. Submitting information on the radiological risk to workers and members of the public to confirm that the conditions of the April 14, 1997 letter regarding licensing Tc-99 still apply, and licensing is not required.

2. Completing the detailed technical review of the DP and the RPP is a predecessor to issuing RAIs.

3. The release of portions of Subareas G and N and redefining the licensed site will be addressed separately from the review of the DP and will be a predecessor to the approval of the DP.

EPM will provide the NRC and the DEQ a schedule for items 1(a) through 1(f) above. The NRC will then revise the schedule for the review of the DP accordingly.