

Cimarron Monthly Status Update  
January 17, 2018  
*(Red text identifies actions and responsibilities.)*

Attendees:

NRC

Lifeng Guo  
Esther Houseman  
Robert Evans

DEQ

Jordan Caldwell  
David Cates  
Paul Davis  
Michael Broderick

EPM

Bill Halliburton  
Jeff Lux

**Administrative Issues**

Sale of Southwest Quarter of Section 12 – The sale of this property has been executed.

***Cimarron Holdings will install a fence along the north boundary of the SW Quarter after a surveyor retained by EPM to produce legal descriptions of current Trust property completes the survey and produces legal descriptions.***

Sale of 2-Acre Property with Office Building – EPM has drafted a Purchase and Sale Agreement (Agreement) for the sale of this property. The Agreement is now undergoing legal review to develop a lease agreement that includes all the required provisions. ***Upon receipt of the revised Agreement from legal, EPM will submit to NRC and DEQ for review and comment.***

Unclaimed NRC Fees – NRC has generated but not sent an invoice for unclaimed fees. EPM may have paid NRC Region IV fees for eight of the fourteen calendar quarters for which NRC may be recovering fees. Consequently, EPM requested documentation that provides detail on what fees apply to what calendar quarter, and what fees are for Region IV and/or Headquarters as backup information for the invoice. EPM also requested accompanying documentation describing the work performed during those time periods. ***NRC will send the invoice for past fees.***

Sufficiency of Funding – A teleconference regarding the sufficiency of trust funds was conducted at the request of Mr. Rob Yalen, attorney for the Department of Justice (DOJ). It is possible that additional funding from the Savannah Trust may become available, provided it is determined that existing funding is not sufficient to achieve complete remediation of the Cimarron site. EPM generated projected remediation costs, extending beyond license termination to achievement of DEQ-established criteria, and prepared a draft presentation. EPM met via teleconference with NRC and DEQ to obtain their feedback on the presentation prior to conferencing with NRC, DEQ and DOJ. ***DEQ will meet with their management to finalize the decision to utilize either the full or reduced infrastructure (hopefully by the end of January). EPM will revise the presentation after hearing back from DEQ, and will then facilitate a subsequent teleconference with NRC, DEQ, and DOJ.***

Proposed 2018 Budget – EPM submitted a proposed budget for 2018 on December 22, 2017. The proposed budget for 2018 includes funding to complete the remaining pilot testing activities, assess the sediment in the 1206 drainage, and assess the vertical distribution of hydraulic conductivity and uranium concentration in transition zone deposits in BA1. ***NRC and DEQ will comment on the proposed budget.***

**Licensing/Permitting Issues**

## Cimarron Monthly Status Update

January 17, 2018

*(Red text identifies actions and responsibilities.)*

Stormwater Permit – Inspections have been performed every 14 days, and after each precipitation event exceeding 0.5 inches of rainfall. Stormwater controls have been maintained and documented on inspection reports. *EPM will continue inspections until vegetative cover has been established and stormwater controls have been removed.*

OPDES Permit – Discharge monitoring reports (DMRs) are being submitted electronically on a monthly basis. Until water treatment begins, DMRs will simply state “No Discharge”. *EPM will continue submitting DMRs on a monthly basis in accordance with the permit.*

Underground Injection – Approximately 250,000 gallons of potable water were injected into Injection Trench GWI-BA1-01 in December. EPM submitted the first injection report to DEQ on January 15, 2018. The injection well inventory will be revised when the 60% design for groundwater remediation is completed; a new inventory will need to be submitted to the Underground Injection Control (UIC) program. *EPM will continue submitting underground injection reports on a monthly basis until injection testing is complete, and will submit a revised injection well inventory after completion of the 60% design.*

NRC Inspection and Technical Meeting – NRC Region IV suggests scheduling an inspection, in conjunction with a technical meeting, after submittal of *Facility Decommissioning Plan – Rev 1*, and in conjunction with the Annual Environmental Monitoring and 2<sup>nd</sup> quarter groundwater assessment sampling event. *EPM will provide a milestone schedule to NRC and DEQ, and will schedule the groundwater sampling events accordingly once the submittal of Facility Decommissioning Plan – Rev 1 can be more definitively estimated.*

### Decommissioning Issues

Analytical Methods for Determining Enrichment – EPM submitted an Enercon technical memorandum on the analytical method for enrichment determination on May 4, 2017. DEQ approved the use of ICP-MS in a letter dated May 23, 2017. *NRC will comment on this report once health physics personnel are assigned to this task.*

Conservative Assumption of Enrichment for each Treatment Train – Enercon prepared a technical memorandum calculating the assumed U-235 enrichment for each treatment train, and values to be used for nuclear material control purposes. Assumed enrichment values will be based on ICP/MS analytical results. The technical memorandum was submitted to NRC and DEQ on August 22, 2017. *NRC will comment on this report once health physics personnel are assigned to this task.*

### Pilot Test Trench Testing

BA1 – The “pump test” in GETR-BA1-01 is complete; pumping from the trench at 16 gallons per minute (gpm) drained the trench dry. The injection test in GWI-BA1-01 is complete; this trench was able to deliver over 10 gpm to Sandstone A in the vicinity of the trench.

Uranium Pond #1 and #2 – Injection testing began on January 5, 2018 and is nearing completion; it appears this trench will also be able to deliver over 10 gpm

## Cimarron Monthly Status Update

January 17, 2018

*(Red text identifies actions and responsibilities.)*

to Sandstone A in the vicinity of the trench. Upon concluding this test, an injection test will be performed in Injection Trench GWI-UP1-01 and -02.

Testing should be concluded in January.

***EPM will submit a report on the construction and testing of the pilot test trenches to NRC and DEQ.***

Burial Area #1 Pore Volume Determination – Extraction Trench GETR-BA1-01 was constructed to extract contaminated groundwater from transition zone material. The transition zone soils are predominantly silty and clayey soils, with intermittent sand lenses. The transition zone material in BA1 has very low hydraulic conductivity, but contains groundwater yielding the highest concentrations of uranium, so the time required to reach the DCGL is longest in this area.

The duration of remediation presented in the 2015 *Facility Decommissioning Plan* was based on an extremely conservative assumption; that the maximum concentration of uranium in groundwater in an area (e.g., the BA1 Transition Zone) is uniformly distributed throughout the entire area, and throughout the entire saturated thickness. The December 2016 investigation in the alluvial deposits demonstrates this is not the case.

Soil data indicates that elevated concentrations of uranium in transition zone material are almost exclusively associated with higher permeability material. Based on existing lithologic information for borings advanced in transition zone deposits, the volume of medium to high permeability soil in the transition zone will be estimated to refine the duration of remediation calculation.

The proposed budget for 2018 includes funding to advance borings with a geoprobe rig equipped with the hydraulic profiling tool (HPT) to produce the data needed to more accurately determine the three-dimensional extent of permeable material in the transition zone deposits. ***EPM will base the pore volume of higher-permeability soil in the transition zone on evaluation of soil boring logs for existing monitor wells. That pore volume will be the basis for the duration of remediation estimate in Facility Decommissioning Plan – Rev 1. If during decommissioning plan review NRC and DEQ conclude that additional assessment is needed, the work can then be contracted without need for a supplement to the 2018 budget.***

1206 Drainage – A drive point piezometer installed in the sediment in the western branch of the 1206 drainage yielded groundwater containing over 200 ug/L uranium. A soil probe was used to obtain data to estimate the volume of sediment in the western channel. Preliminary evaluation of that data indicates that 100 – 150 cubic yards of sediment are in the channel. The same type of assessment will now be conducted in the eastern channel of the 1206 drainage. ***EPM will submit a technical memorandum providing the data and estimated volumes of sediment in both channels. Those volumes will be the basis for the plans for remediation of these areas in Facility Decommissioning Plan – Rev 1.***

### Milestone Schedule Information

- January 22 – Complete injection testing in Uranium Pond #2

## Cimarron Monthly Status Update

January 17, 2018

*(Red text identifies actions and responsibilities.)*

- January 30 – Submit Q4 2017 data and updated comprehensive analytical data spreadsheet.
- February 16 – Complete injection testing in Uranium Pond #1
- March 16 – Submit report on construction and testing of Pilot Test trenches
- March 30 – Submit technical memorandum on 1206 drainage sediment volume estimates
- March 30 – Submit *Groundwater Evaluation Report* updating the evaluation of COC concentrations relative to groundwater elevation or season
- March 30 – Submit Q1 2018 groundwater assessment data
- May 30 – Submit technical memorandum on estimating the duration of remediation
- June 30 – Submit *Facility Decommissioning Plan – Rev 1*

*EPM will continue to update milestone schedule information in subsequent monthly status update notes.*

Cimarron Monthly Status Update  
February 14, 2018  
*(Red text identifies actions and responsibilities.)*

Attendees:

NRC

Ken Kalman

Lifeng Guo

Esther Houseman

Robert Evans

Varughese Kurian

Robert Nelson

DEQ

Paul Davis

Jordan Caldwell

EPM

Jeff Lux

Bill Halliburton

**Administrative Issues**

Sale of 2-Acre Property with Office Building – EPM has drafted a Purchase and Sale Agreement (Agreement) for the sale of this property. The Agreement and a Lease prepared by legal counsel was reviewed and returned to the legal department for revision. *The revised Agreement and lease will be sent to Cimarron Holdings to verify that they are willing to execute it before submitting proposal to sell the property to the Department of Justice (DOJ).*

Unclaimed NRC Fees – NRC has generated an invoice for unclaimed fees. NRC stated the invoice had been sent, but EPM has not received it. *EPMC will contact NRC's "FEES Resource" to determine if the invoice has been sent.*

Sufficiency of Funding – EPM generated projected remediation costs, extending beyond license termination to achievement of DEQ-established criteria, and prepared a draft presentation for DOJ. EPM met via teleconference with NRC and DEQ to obtain their feedback on the presentation prior to conferencing with NRC, DEQ and DOJ. EPM has revised the presentation based on their comments. *EPM will facilitate a teleconference with NRC, DEQ, and DOJ to present the sufficiency of funding for the Cimarron remediation project.*

Proposed 2018 Budget – EPM submitted a proposed budget for 2018 on December 22, 2017. During a January 19, 2018 teleconference, NRC requested a breakdown of contractor costs for License Compliance and Decommissioning activities. EPM submitted the breakdown on February 12<sup>th</sup>. *NRC and DEQ will comment on or approve the proposed budget.*

Federal Cost Account "Triggers" - During recent discussions, NRC brought up the requirements of Section 3.2.4 in the Cimarron Trust Agreement, which requires notification by the Trustee when 25%, 50%, and 75% of the Federal Account will be spent, and cessation of remediation when 75% of the Federal account has been spent. It is not clear what Federal Account balance should represent the "time zero" balance for these calculations. EPM prepared a draft description of the issue and proposed resolution on February 7, 2018. NRC and DEQ agree that the balance of the Federal Account at the end of the quarter preceding NRC approval of *Facility Decommissioning Plan – Rev 1* be the initial balance. They also agreed that Section 3.2.4 clarifies that NRC can approve continuing decommissioning at 75% if it is believed that sufficient funding remains to complete decommissioning. *EPM will submit a letter to DOJ describing the issue and stating that NRC and DEQ have agreed on how to determine the initial balance of the Federal Account, and request DOJ concurrence that this is in accordance with Section 3.2.4 of the Agreement.*

Cimarron Monthly Status Update  
February 14, 2018  
*(Red text identifies actions and responsibilities.)*

**Licensing/Permitting Issues**

Decommissioning Plan Submittal – EPM stated that the decommissioning plan is scheduled for submittal before the end of the second quarter of 2018.

Site Visit – EPM has scheduled the submittal of reports or technical memoranda on the pilot test, the calculation of pore volume in Burial Area #1, and the assessment of sediment volume in the 1206 drainage by the end of March. All of these documents support the revisions to 60% design and duration of remediation estimates incorporated into *Facility Decommissioning Plan – Rev 1*. EPM proposed a meeting at the site for NRC and DEQ to see the infrastructure constructed for the pilot tests, discuss the results of testing, and learn how the information obtained impacts the decommissioning plan. It is believed this meeting can significantly expedite the review and approval process for *Facility Decommissioning Plan – Rev 1*. *EPM will send an e-mail requesting such a meeting to the NRC and DEQ Project Managers.*

**Decommissioning Issues**

Analytical Methods for Determining Enrichment – EPM submitted an Enercon technical memorandum on the analytical method for enrichment determination on May 4, 2017. DEQ approved the use of ICP-MS in a letter dated May 23, 2017. *NRC approved without comment.*

Conservative Assumption of Enrichment for each Treatment Train – Enercon prepared a technical memorandum calculating the assumed U-235 enrichment for each treatment train, and values to be used for nuclear material control purposes. Assumed enrichment values will be based on ICP/MS analytical results. The technical memorandum was submitted to NRC and DEQ on August 22, 2017. *NRC approved without comment.*

**Pilot Test Trench Testing**

BA1 – The “pump test” in GETR-BA1-01 is complete; pumping from the trench at 16 gallons per minute (gpm) drained the trench dry. The injection test in GWI-BA1-01 is complete; this trench was able to deliver over 10 gpm to Sandstone A in the vicinity of the trench, and the influence of the injection was evident in wells near the extraction trench.

Uranium Pond #1 and #2 – Injection testing began on January 5, 2018 and is complete; both trenches were able to deliver more than the design injection rate. Burns & McDonnell is conducting an evaluation to determine if less injection trench is needed to flush the upland areas sufficiently.

*EPM will submit a report on the construction and testing of the pilot test trenches to NRC and DEQ.*

Burial Area #1 Pore Volume Determination – Soil data indicates that elevated concentrations of uranium in transition zone material are almost exclusively associated with higher permeability material. Based on existing lithologic information for borings advanced in transition zone deposits, the volume of medium to high permeability soil in the transition zone will be estimated

## Cimarron Monthly Status Update

February 14, 2018

*(Red text identifies actions and responsibilities.)*

to refine the duration of remediation calculation. *EPM will submit a technical memorandum on the calculation of the pore volume for BA1 transition zone material to NRC and DEQ.*

60% Design for *Facility Decommissioning Plan – Rev 1* – The following lists the major changes to the decommissioning plan:

Partial Infrastructure – The number of groundwater extraction wells in the large part of the floodplain which contains groundwater with less than 180 pCi/L uranium will be reduced to target “hot spots”, as approved in 2016.

Western Area Influent Blending – The groundwater influent streams from both of the western area groundwater extractions systems will be blended in a single influent tank prior to treatment. This yields beneficial effects for both uranium removal and biodenitrification, and simplifies operation and maintenance of the treatment systems.

Biodenitrification System Design – Veolia Water Treatment (VWT) is preparing a 60% design for the biodenitrification systems based on a single influent stream. It may be cost-effective to increase the size of the Western Area Treatment Facility (WATF) and install the biodenitrification systems inside the building.

Western Area Treatment Facility – the WATF is being relocated southeast of where it had been shown in the 2015 decommissioning plan. As described above, it may also be expanded to include the biodenitrification systems.

1206 Drainage – An assessment of the volume of sediment in the 1206 West Drainage and the upper portion of the 1206 East Drainage was conducted. An evaluation is being performed to determine if it would be cost effective to excavate the sediment rather than attempt to remediate the groundwater in the sediment.

*All of these changes will be addressed in Facility Decommissioning Plan – Rev 1.*

### Milestone Schedule Information

- March 16 – Submit report on construction and testing of Pilot Test trenches
- March 30 – Submit technical memorandum on 1206 drainage sediment volume estimates
- March 30 – Submit *Groundwater Evaluation Report* updating the evaluation of COC concentrations relative to groundwater elevation or season
- March 30 – Submit Q1 2018 groundwater assessment data
- May 30 – Submit technical memorandum on estimating the duration of remediation
- June 30 – Submit *Facility Decommissioning Plan – Rev 1*

*EPM will continue to update milestone schedule information in subsequent monthly status update notes.*



## Cimarron Monthly Status Update

March 26, 2018

*(Red text identifies actions and responsibilities.)*

### Administrative Issues

Sale of 2-Acre Property with Office Building – EPM sent a draft Purchase and Sale Agreement (Agreement) for the sale of this property, along with a proposed lease for the building, to Cimarron Holdings for their review and comment or acceptance. If Cimarron Holdings accepts the Agreement and lease, EPM will prepare a proposal to divest the property for submission to the DOJ. If Cimarron Holdings comments on the Agreement or lease, EPM will revise the documents as appropriate before submitting a proposal to divest the property to the DOJ.

*Cimarron Holdings will review the Agreement and lease prior to proposing to sell the property to the Department of Justice (DOJ).*

Unclaimed NRC Fees – NRC sent an invoice for unclaimed fees. EPM has completed their review of fees and has approved the invoice for payment. *No further action is needed.*

Sufficiency of Funding – EPM had finalized a presentation based on the sufficiency of funding.

*EPM will contact Rob Yalen (DOJ) to determine the status of the Savannah Trust to determine if DOJ is still interested in exploring this issue. If so, EPM will facilitate a teleconference with NRC, DEQ, and DOJ.*

Proposed 2018 Budget – EPM submitted a final proposed budget for 2018 on March 21, 2018. That revised budget includes schedule information as well as the breakdown of contractor costs for License Compliance and Decommissioning activities. *NRC will comment on or approve the proposed budget.*

Federal Cost Account “Triggers” – Section 3.2.4 of the Cimarron Trust Agreement requires notification by the Trustee when 25%, 50%, and 75% of the Federal Account will be spent, and cessation of remediation when 75% of the Federal account has been spent. EPM submitted a letter to DOJ recommending that the balance of the Federal Account at the end of the quarter preceding approval of the decommissioning plan be used as the basis for those calculations. In an e-mail dated March 19<sup>th</sup>, DOJ concurred with that recommendation. *No further action is needed.*

### Licensing/Permitting Issues

Decommissioning Plan Submittal – *Facility Decommissioning Plan – Rev 1* is scheduled for submittal before the end of the second quarter of 2018.

Site Visit – EPM has scheduled the submittal of reports or technical memoranda on the pilot test, the calculation of pore volume in Burial Area #1, and the assessment of sediment volume in the 1206 drainage by the end of March. All of these documents support the revisions to 60% design and duration of remediation estimates incorporated into *Facility Decommissioning Plan – Rev 1*. A meeting will be conducted May 16-17 to see the infrastructure constructed for the pilot tests, discuss the results of testing, and learn how the information obtained impacts the decommissioning plan. It is believed this meeting can significantly expedite the review and approval process for *Facility Decommissioning Plan – Rev 1*. *EPM prepare for the meeting and will send an agenda prior to the meeting.*



### **Decommissioning Issues**

Pilot Test Report – The initial survey of newly installed monitor wells and injection and extraction sumps did not provide sufficiently precise relative top-of-casing (TOC) elevations, and additional survey work was required. Final TOC elevations were received the week of March 19-23. The delay caused by the need to re-survey monitor wells has impacted the schedule for submittal of this report.

*EPM will submit a report on the construction and testing of the pilot test trenches to NRC and DEQ per the schedule below.*

Burial Area #1 Pore Volume Determination – Soil data indicates that elevated concentrations of uranium in transition zone material are almost exclusively associated with higher permeability material. Based on existing lithologic information for borings advanced in transition zone deposits, the volume of medium to high permeability soil in the transition zone will be estimated to refine the duration of remediation calculation. *EPM will submit a technical memorandum on the calculation of the pore volume for BA1 transition zone material to NRC and DEQ per the schedule below.*

60% Design for *Facility Decommissioning Plan – Rev 1* – The following lists the major changes to the decommissioning plan:

Partial Infrastructure – The number of groundwater extraction wells in the large part of the floodplain which contains groundwater with less than 180 pCi/L uranium will be reduced to target “hot spots”, as approved in 2016.

Western Area Influent Blending – The groundwater influent streams from both of the western area groundwater extractions systems will be blended in a single influent tank prior to treatment. This yields beneficial effects for both uranium removal and biodenitrification, and simplifies operation and maintenance of the treatment systems.

Biodenitrification System Design – Veolia Water Treatment (VWT) is preparing a 60% design for the biodenitrification systems based on a single influent stream. It may be cost-effective to increase the size of the Western Area Treatment Facility (WATF) and install the biodenitrification systems inside the building.

Western Area Treatment Facility – the WATF is being relocated southeast of where it had been shown in the 2015 decommissioning plan. As described above, it may also be expanded to include the biodenitrification systems.

1206 Drainage – An assessment of the volume of sediment in the 1206 West Drainage and the upper portion of the 1206 East Drainage was conducted. An evaluation is being performed to determine if it would be cost effective to excavate the sediment rather than attempt to remediate the groundwater in the sediment.

*All of these changes will be addressed in Facility Decommissioning Plan – Rev 1.*

Cimarron Monthly Status Update  
March 26, 2018  
*(Red text identifies actions and responsibilities.)*

Milestone Schedule Information

- March 30 – Submit Q1 2018 groundwater assessment data
- March 30 – Submit technical memorandum on 1206 drainage sediment volume estimates
- March 30 – Submit *Groundwater Evaluation Report* updating the evaluation of COC concentrations relative to groundwater elevation or season
- April 6 – Submit technical memorandum on estimated pore volume for permeable transition zone material in Burial Area #1
- April 20 – Submit report on construction and testing of Pilot Test trenches
- May 30 – Submit technical memorandum on estimating the duration of remediation
- June 30 – Submit *Facility Decommissioning Plan – Rev 1*

*EPM will continue to update milestone schedule information in subsequent monthly status update notes.*

Cimarron Monthly Status Update  
April 18, 2018  
*(Red text identifies actions and responsibilities.)*

Attendees:

NRC

Ken Kalman

Lifeng Guo

Varughese Kurian

Stephanie Anderson

Robert Nelson

DEQ

Paul Davis

EPM

Jeff Lux

Bill Halliburton

**Administrative Issues**

Sale of Property with Office Building – Cimarron Holdings accepts the terms of both the Purchase and Sale Agreement and the Lease Agreement. EPM received the plat and legal description for this 0.737-acre (more or less) property. EPM is executing a contract with a realtor. Upon receipt of the executed contract, EPM will incorporate it into a proposal to divest the property. The proposal will then be sent to the DOJ. ***EPM will execute the contract and submit the proposal to the Department of Justice (DOJ).***

Unclaimed NRC Fees – NRC sent an invoice for unclaimed fees. EPM has paid the invoice. ***No further action is required.***

Sufficiency of Funding – EPM finalized the presentation on the sufficiency of funding. ***EPM will send the latest revision to NRC, DEQ, and Rob Yalen (DOJ), and request a teleconference with NRC, DEQ, and DOJ.***

Proposed 2018 Budget – Approval letters for the final proposed budget for 2018, submitted March 21, 2018, is in concurrence review by both NRC and DEQ. ***NRC and DEQ will approve the proposed budget.***

**Licensing/Permitting Issues**

Decommissioning Plan Submittal – *Facility Decommissioning Plan – Rev 1* is scheduled for submittal before the end of the second quarter of 2018.

Site Visit – EPM submitted several technical memoranda over the past two weeks. Along with the Pilot Test Report, which will be submitted shortly, these documents provide information supporting some of the revisions to 60% design and duration of remediation estimates that will appear in *Facility Decommissioning Plan – Rev 1*. A meeting will be conducted May 16-17 to review and discuss the impact of those efforts, and to discuss the changes to the decommissioning plan that result from these efforts. This meeting should significantly expedite the review and approval process for *Facility Decommissioning Plan – Rev 1*. ***EPM will prepare for the meeting and will send an agenda prior to the meeting.***

**Decommissioning Issues**

2018 Groundwater Evaluation Update – An update of the evaluation of quarterly groundwater data was submitted to NRC and DEQ via e-mail on March 29, 2018. Hard copies followed via

April 18, 2018

*(Red text identifies actions and responsibilities.)*

Federal Express. This technical memorandum evaluated the relationship between depth to water and COC concentrations, as well as potential seasonality of COC concentrations. The technical memorandum concluded that neither relationship is evident. Quarterly groundwater sampling and analysis will continue through 2018. If the 2019 evaluation generates the same conclusion, quarterly groundwater sampling and analysis will be discontinued. *EPM will continue collecting and analyzing groundwater samples from the same locations through 2018.*

1206 Drainage Assessment and Assessment of Remedial Alternatives – An assessment of the volume of sediment in the 1206 West Drainage and the upper portion of the 1206 East Drainage was completed. Remedial alternatives were evaluated, and a technical memorandum reporting on the assessment and describing the selected remedial alternative was prepared. The technical memorandum was submitted to NRC and DEQ via e-mail on March 30, 2018. Hard copies followed via Federal Express. *NRC and DEQ will review and comment on the technical memorandum. EPM will incorporate the proposed change in remediation infrastructure in Facility Decommissioning Plan – Rev 1.*

Burial Area #1 Pore Volume Determination – Soil data indicates that elevated concentrations of uranium in transition zone material are almost exclusively associated with higher permeability material. Based on existing lithologic information for borings advanced in transition zone deposits, the volume of medium to high permeability soil in the transition zone was determined. A technical memorandum reporting on the results of this evaluation was submitted to NRC and DEQ via e-mail on April 9, 2018. Hard copies followed via Federal Express. *NRC and DEQ will review and comment on the technical memorandum. EPM will incorporate the results into duration of remediation calculations in Facility Decommissioning Plan – Rev 1.*

Determination of Maximum Enrichment – The nuclear criticality evaluation done in response to an RAI using an estimated maximum enrichment based on isotopic activity results by alpha spectroscopy. Since that nuclear criticality evaluation was completed, EPM submitted a tech memo showing that analysis by ICP-MS yields results with far lower uncertainty. Enercon prepared a technical memorandum determining the maximum enrichment based on ICP-MS data to see if that would require them to re-do the nuclear criticality evaluation. Because the estimated maximum enrichment was lower than previously calculated, the nuclear criticality evaluation does not need to be redone. EPM submitted the technical memorandum via e-mail on April 17<sup>th</sup>. *NRC and DEQ will review and comment on the technical memorandum. EPM will incorporate the results into duration of remediation calculations in Facility Decommissioning Plan – Rev 1.*

Pilot Test Report – The initial survey of newly installed monitor wells and injection and extraction sumps did not provide sufficiently precise relative top-of-casing (TOC) elevations, and additional survey work was required. Final TOC elevations were received the week of March 19-23. The delay caused by the need to re-survey monitor wells has impacted the schedule for submittal of this report. *EPM will submit a report on the construction and testing of the pilot test trenches to NRC and DEQ per the schedule below.*

## Cimarron Monthly Status Update

April 18, 2018

*(Red text identifies actions and responsibilities.)*

60% Design for *Facility Decommissioning Plan – Rev 1* – The following lists the major changes to the decommissioning plan:

Partial Infrastructure – The number of groundwater extraction wells in the large part of the floodplain which contains groundwater with less than 180 pCi/L uranium will be reduced to target “hot spots”, as approved in 2016.

Western Area Influent Blending – The groundwater influent streams from both western area groundwater extractions systems will be routed to a single influent tank prior to treatment.

Western Area Treatment Facility (WATF) – The WATF is being relocated southeast of where it had been shown in the 2015 decommissioning plan. As described above, it may also be expanded to include the biodenitrification systems.

Biodenitrification System Design – The 60% design for the biodenitrification systems will be revised based on a single influent stream. The WATF will be expanded to include the biodenitrification systems inside the building.

1206 Drainage – Much of the sediment in the 1206 Drainage will be excavated, and Extraction Trench GETR-WAA-01 will be re-configured to maximize the effectiveness of groundwater recovery in the remaining transition zone material.

Injection and Extraction Trenches – The lengths and configuration of some injection and extraction trenches will be modified based on the results of the Pilot Test, but it is too early to describe those changes.

*All of these changes will be addressed in Facility Decommissioning Plan – Rev 1.*

### Milestone Schedule Information

- April 30(?) – Submit report on construction and testing of Pilot Test trenches
- May 16 – 17 – Conduct meetings in Oklahoma to discuss recent submittals and the impact of recent findings on *Facility Decommissioning Plan – Rev 1*. Tour the Cimarron site to familiarize agency personnel with Pilot Test infrastructure.
- May 30 – Submit technical memorandum on estimating the duration of remediation
- June 30 – Submit *Facility Decommissioning Plan – Rev 1*

*EPM will continue to update milestone schedule information in subsequent monthly status update notes.*

Cimarron Monthly Status Update  
August 16, 2018  
*(Red text identifies actions and responsibilities.)*

Attendees:

NRC

Christine Pineda  
Martha Poston-Brown  
Robert Evans

DEQ

Paul Davis  
Jordan Caldwell

EPM

Bill Halliburton  
Jeff Lux

Administrative Issues

Sale of Property with Office Building – The sale of this property was executed July 6, 2018. *No further action is required.*

Proposed Budget for 2019 – EPM plans to finalize the scope of work for Burns & McDonnell, Veolia, and Enercon by the end of August, finalize cost estimates by the end of September, and submit a proposed budget for 2019 to NRC and DEQ by December 1, 2018. *EPM will prepare a proposed budget over the course of the next two months.*

Licensing/Permitting Issues

Schedule for Submittal of Decommissioning Plan – EPM will submit *Facility Decommissioning Plan – Rev 1* by the end of September 2018. *EPM will continue with revision of the plan.*

New Branch Chief – NRC informed EPM that Bill vonTill will become the new Chief of the Decommissioning Branch in NRC headquarters, starting in October 2018. EPM was also informed that Janine Katanic will become the new Chief of the Decommissioning Branch in Region IV. EPM requested that NRC provide EPM the names and addresses to whom submittals should be submitted in accordance with the Cimarron Trust Agreement. EPM will attempt to schedule a meeting with Mr. vonTill during late October or early November to provide a briefing on the Cimarron site and to walk through the decommissioning plan. *NRC will provide EPM contact information. NRC and EPM will schedule a meeting when Mr. vonTill is available.*

Annual Environmental Monitoring Data – Samples have been collected and the laboratory has reported the results. The data has been reviewed and should be submitted to the agencies within the next two weeks. *EPM will send the data to NRC and DEQ.*

OPDES Permit – Discharge monitoring reports (DMRs) are being submitted electronically on a monthly basis. Until water treatment begins, DMRs will simply state “No Discharge”. *EPM will continue submitting DMRs on a monthly basis in accordance with the permit.*

NRC Inspection – Ms. Poston-Brown informed EPM that an inspection will be scheduled for the week of October 22 – 26. *NRC will inform EPM of the specific dates for the inspection.*

Stormwater Inspection – On August 7<sup>th</sup>, Patrick Vinson (DEQ) conducted an inspection of the vegetation established in the areas that were disturbed during the 2017 pilot test. On that same day, he e-mailed EPM an inspection report approving the re-establishment of vegetation in all



## Cimarron Monthly Status Update

August 16, 2018

*(Red text identifies actions and responsibilities.)*

disturbed areas. DEQ issued a Notice of Termination for the Stormwater Permit on August 8<sup>th</sup>. *No further action is required.*

Underground Injection – As a result of the 2017 Pilot Test, the number and configuration of injection trenches and wells is being revised. A revised inventory was submitted to the Underground Injection Control (UIC) program on August 14<sup>th</sup>. *DEQ will review and approve the planned injection.*

### Decommissioning Issues

1206 Drainage – Disposition of Sediment – On April 2<sup>nd</sup>, EPM submitted a technical memorandum presenting a remediation strategy for the 1206 drainage. After discussions with NRC and DEQ, EPM provided further explanation in a letter dated May 25<sup>th</sup>. On June 18<sup>th</sup>, EPM clarified the need for a decision from DEQ on the proposed disposition of sediment that will be excavated from the 1206 Drainage. DEQ approved the remediation approach in a letter dated June 25<sup>th</sup> but has not responded to the proposed disposition of sediment. NRC has not commented on any of the submittals. EPM needs NRC approval of the remediation strategy and DEQ approval of the proposed disposition of sediment to complete the revision of the decommissioning plan. *DEQ will provide a decision on the disposition of sediment. NRC will review the April 2<sup>nd</sup> and May 25<sup>th</sup> submittals and comment on or approve the proposed remediation strategy.*

Pilot Test Report – EPM submitted a report on the 2017 Pilot Test on June 1<sup>st</sup>. Based on information obtained during the 2017 Pilot Test, injection trenches in UP1, UP2 and BA1 are being reconfigured, and one of the extraction trenches in BA1 is being relocated. To date, except for a question regarding the X and Y values used in the pump test analysis, neither NRC nor DEQ have commented on the Pilot Test Report. Lack of feedback from NRC and DEQ may defer the submittal of the revised decommissioning plan. *NRC and DEQ will comment on the Pilot Test Report.*

Facility Decommissioning Plan – Rev 1 – EPM is continuing the revision of the decommissioning plan and will plan to submit the decommissioning plan by the end of September, based on the assumption that NRC nor DEQ will agree with the conclusions reached in the submittals listed in the two sections above.

Duration of Remediation – Data obtained during the 2017 Pilot Test indicated that groundwater extraction trenches constructed in the transition zone soil will not produce groundwater at the modeled rates. More detailed lithologic modeling determined that the transition zone deposits have a much smaller effective pore volume than previously modeled. The BA1 transition zone is the most critical area because it contains the highest uranium concentrations in the least permeable strata. The duration of remediation is being revised based on the updated information, and it appears that the duration of remediation will be longer than was estimated during in the 2015 Facility Decommissioning Plan. *EPM will provide updated duration of remediation estimates in Facility Decommissioning Plan – Rev 1.*

Cimarron Monthly Status Update

August 16, 2018

*(Red text identifies actions and responsibilities.)*

**Milestone Schedule Information**

- September 30 – Submit *Facility Decommissioning Plan – Rev 1*
- October 22 – 26 – NRC Inspection
- Early November? – Meet with Bill vonTill
- December 1 – Submit proposed budget for 2019.