NRC – DEQ – EPM Telecon Notes
January 28, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Lifeng Guo	Pam Dizikes	Bill Halliburton
Varughese Kurian	Mike Broderick	Mike Logan
Gerald Schlapper	Paul Davis	

Administrative Issues

December 10 Status Report – No comments were received. A "Final" version of the notes was sent January 31, 2014. ***No further action required.***

2013 Financial Report – A year-end and 4th quarter financial report will be sent to NRC and DEQ within the next couple of weeks. ***EPM***

Proposed 2014 Budget – A revised draft budget for 2014 was submitted to NRC and DEQ on December 12th. NRC will send final comments. EPM will revise and submit as a "final" 2014 budget. ***NRC, then EPM***

Royalties for Producing Oil Wells – The well in Section 13 was completed and is likely producing. Royalty payments are typically issued on an annual basis, and EPM has been told to expect oil companies to report little or no "proceeds" during the first year due to higher costs than in subsequent years. EPM sent a paper summarizing Oklahoma land law related to oil and gas production to DEQ and NRC. ***EPM***

Standby Trust –EPM received the Trust Agreement documents from US Bank, and will send to NRC. Upon their approval, EPM will execute the document and transfer the funds to the Standby Trust Fund. ***EPM***

Proposals to Sell Properties – EPM has turned over the Purchase and Sale agreements for both properties to Burns & McDonnell's Stakeholder Management personnel to provide notice and conduct the sale. Stakeholder Management is soliciting the support of the nationwide firm DTZ, a global real estate brokerage and consultancy which also offers facilities management services. Stakeholder Management solicited their support to ensure that the sale of these properties is conducted in a fair, transparent, and effective manner. ***EPM***

"Security" Improvements for Buildings – EPM had expanded steel installed on the rear door of the office building and the front door and windows of the MOFF building. In addition, steel angle iron was bolted to two sets of double doors on the TiO2 building where the previous more flimsy braces had been bent by people attempting to open the doors. A locksmith is scheduled to install a lock in the MOFF building's front door so it can be secured. ***EPM***

Groundwater Design Issues

Groundwater Flow Models – Burns & McDonnell submitted groundwater flow models (without groundwater extraction) on December 26th. Upon receipt of comments by NRC and DEQ, EPM will revise the model accordingly and add groundwater extraction to the model to generate well

locations and anticipated flow rates to capture the plumes for both Phase I and Phase II groundwater remediation. ***NRC and DEQ, then EPM***

Treatability Test Status – The test treatability test was completed, and data review should be complete this week. Comprehensive treatability test data will be sent to NRC and DEQ once data review is complete. Test results appear to be adequate to support the preparation of a design for water treatment. Release surveys began last week and continue this week and next. A report on the treatability test is scheduled to be submitted to NRC and DEQ in March. ***EPM***

Decommissioning Plan – A kick-off meeting was conducted January 14 and 15 to begin the preparation of the decommissioning plan. John Hesemann, an engineer with Burns & McDonnell, was introduced as the individual who will coordinate between the water treatment, civil, electrical, and hydrogeological design teams. An action item list was generated to identify decisions that must be made and work that must be completed to complete the preparation of a groundwater treatment design soon enough to submit the decommissioning plan by the end of September. New issues for which decisions must be made were identified, including:

- Should water be treated for nitrate after removal of uranium?
- Should all water go to one treatment system, or have separate systems for BA1 and the WAA to accommodate different groundwater chemistry?
- Should we expand the area around the 1206 drainage way to accommodate all U, NO3, and F that exceeds MCLs?
- If we have two treatment systems, should we have two outfalls, or combine the two effluents into one outfall?
- Should we try to remediate the entire plume, or work from one area to another to minimize flow rate (hence resin bed size)?
- Do we need pre-treatment storage to maintain more consistent flow through the resin bed(s)
- What impact will material control and accountability requirements have on the design?
- What is the optimum balance between maximizing flow (to minimize the duration of remediation) and minimizing resin volume (so resin can be more "loaded" before reaching the 1,200 gram U-235 possession limit)?

EPM will be overseeing the development of the decommissioning plan, which will be prepared in accordance with NUREG-1757, *Consolidated Decommissioning Guidance.*

License Issues

License Termination when Groundwater < DCGL – NRC was recently asked if license SNM-928 would be terminated upon demonstration that all groundwater was below the DCGL of 180 pCi/l, when ongoing water treatment would continue to concentrate uranium in resin. After considering the regulatory implications, it was determined that if ongoing remediation activities performed would result in the accumulation of licensable quantities of SNM, the license could not be terminated. This led to discussion about the discharge of low concentrations of uranium under an OPDES permit. It is not certain whether DEQ would require at least some treatment for uranium after the DCGL is met. It is possible that, if uranium concentrations were below some

value (e.g., 60 ug/l), treatment for uranium would not be required prior to discharge. DEQ will provide feedback on this concept to NRC and EPM. This could have a significant impact on both the groundwater remediation design and the length of time required to achieve license termination. ***DEQ***

U-235 in Cation Resin – The treatability test showed that the cation resin adsorbed less than 2 pCi/g total uranium. The cation resin will therefore be releasable for unrestricted use and can be sent to a municipal landfill for disposal. However, because the cation resin bed will be much larger than the anion resin bed, it will still accumulate some U-235. The question was raised, "If the cation resin is releasable for unrestricted use, does the quantity of U-235 in the cation resin need to be included in the "inventory" for comparison with the 1,200 gram U-235 possession limit? NRC will provide feedback on this. ***NRC***

Financial Assurance – NUREG-1757 provides specific guidance on the documentation required to provide sufficient financial assurance in the decommissioning plan. A Trust is the licensee, and the Trustee functions in a different capacity than the Trustee of a trust fund would function, and because the current funding is less than the funding that will be needed to obtain license termination. All these present challenges in the preparation of financial assurance documentation for the decommissioning plan. EPM will draft a section on financial assurance and send it to NRC for review and comment before the decommissioning plan is submitted so these problematic issues can be satisfactorily addressed in the decommissioning plan. ***EPM***

U-235 Possession Limit – The groundwater remediation design may involve the use of a large quantity of anion resin. It is possible that increasing the possession limit for U-235 may make a significant difference in the implementation of the groundwater remediation design. EPM is evaluating the benefits vs. the drawbacks of proposing an amendment to the license to authorize the possession of greater than 1,200 grams of U-235. ***EPM***

Inspection – The conclusion of the treatability test is the last activity of any radiological significance that will occur between now and 2015. Since the next inspection will consist of a records review, there is no need to schedule an inspection during January or February. NRC will notify DEQ and EPM when an inspection is scheduled. ***NRC***

NRC – DEQ Teleconference
Groundwater Remediation Technical Issues
February 11, 2014

Attendees:
NRC: Ken Kalman, Lifeng Guo, Varughese Kurian
DEQ: David Cates, Mike Broderick, Pam Dizikes
EPM: Bill Halliburton, Mike Logan, Jeff Lux

License Termination Issues

1. Concentration of Uranium – EPM understands that license SNM-928 cannot be terminated if ongoing groundwater remediation will result in the concentration of uranium in licensable quantities. This includes both adsorption to resin and repeated application of water containing even low levels of uranium to the land.

2. Final Status Survey – EPM understands that repeated land application of water containing even low levels of uranium will result in the requirement to perform a final status survey on land application area prior to license termination. In addition, since the use of land application would require the construction of an impoundment to store treated water, a final status survey would also be required for the impoundment area.

3. Planning for Phase II – We have determined that, although groundwater containing COCs above both the DCGL and DEQ criteria has been fully delineated, the extent of groundwater containing COCs exceeding the MCLs has not been fully delineated in areas outside of the areas of concern for Phase I, and that the concentration of nitrate exceeds the MCL in some background wells in Sandstone A. Additional groundwater sampling and analysis will be performed to complete this delineation, and an alternate criterion for nitrate in Sandstone A must be developed. However, this work need not be completed to submit a Decommissioning Plan, because this additional work pertains only to the remediation that must be performed after license termination.

   Our current plan is to provide a conceptual remedial design for Phase II in the Decommissioning Plan so that NRC and DEQ approve a groundwater remediation method that will not involve the concentration of uranium after license termination. A detailed Phase II groundwater remediation program will then be presented to DEQ after the completion of Phase I.

4. Use of Remediation "Zones" – Our current concept for groundwater remediation is to establish "zones" in Burial Area #1 and in the Western Alluvial Area, such that groundwater extraction and/or injection can be shut down in one zone, while continuing in the other zones. For instance, groundwater injection and extraction components could be installed in Burial Area #1 in such a configuration that the upland Sandstone A, the transition zone, and the alluvial material, could all be operated as discrete remediation "zones".

The benefit of this operational scheme is that, once the uranium concentration in all monitoring locations is below the Derived Concentration Goal Level (DCGL), groundwater remediation operations within individual zones could be temporarily shut down, while continuing groundwater remediation in the other zones. After allowing groundwater elevation to return to "static" elevations, samples collected in these shut down zones would reflect post-remediation concentrations, which would be representative of groundwater after groundwater rises to the during-remediation unsaturated zone and potential "rebound".

Consequently, concentration data would be the same as if groundwater extraction and reinjection had been terminated, but continued remediation could continue to reduce uranium concentrations. This would reduce the time required to reduce Chemical of Concern (COC) concentrations in groundwater to less than Maximum Contaminant Levels (MCLs), which is necessary to achieve unrestricted release of the site from DEQ.

NRC stated that they would like a more detailed description of this issue and our desired approach, and said that they will be scheduling a trip to Oklahoma in late April or early May. They suggested that EPM schedule a meeting during their visit to present a conceptual groundwater remediation design and further discuss this issue. DEQ and EPM agreed that this would be a good way to address this issue.

Phase I License Issues

1. U-235 in Cation Resin – Data obtained from the recent treatability test shows that cation resin adsorbs small quantities of U-235, such that several grams of U-235 may accumulate in the resin beds during groundwater remediation. The site Quality Assurance Coordinator has explained that material control and accountability requirements allow licensees to not include insignificant quantities of SNM generated in specific locations in their possession limit. Because cation resin beds will adsorb only very small quantities of U-235, and that will be extremely diffuse in a large volume of resin, the mass of U-235 in cation resin will not be calculated to apply against the 1,200-gram possession limit for U-235.

2. U-235 Possession Limit – *(Details provided in these notes which were not discussed during the teleconference are italicized.)* Enercon Services is evaluating the impact of increasing the possession limit for U-235. *This includes assessing concerns related to:*

    a. *Material control and accountability,*
    b. *Waste classification, packaging, transportation, and disposal,*
    c. *Criticality*
    d. *Other regulatory requirements*

The groundwater remediation design team will estimate the quantity of anion resin that will be necessary, based on anticipated flow rates, during Phase I remediation. They will then determine if a full shipment of loaded or partially loaded resin will be generated before we accumulate 1,200 grams of U-235. If a full shipment of resin will contain significantly more than 1,200 grams of U-235, Enercon may recommend requesting an

increase in the possession limit for U-235, after evaluating the above potential concerns. If Enercon recommends requesting an increase in the possession limit, EPM will present this request to NRC for evaluation prior to submitting the Decommissioning Plan. Pending feedback from NRC, EPM may then include this as a formal license amendment request as part of the Decommissioning Plan.

3. Financial Assurance – The estimated cost for site decommissioning must be compared with available funding in the "Financial Assurance" section of the Decommissioning Plan. If NRC intends to reserve the Standby Trust Fund for monitoring and maintenance, this will have an impact on the funding available for groundwater remediation. NRC indicated that this is the current intent of NRC. The residual funding in the Federal Account will therefore be compared with the available Federal Account funds, less 25% of the original Federal Account.

Phase I Remediation Technical Issues

1. Water Treatability Test Report – A report on both Run 1 and Run 2 of the water treatability test will be issued in March. All data has been compiled and qualified by data review. NRC and DEQ were asked if they want to see the data now, or wait for the report, and both agencies indicated they would prefer to wait until the report is submitted.

2. Groundwater Flow Model – Burns & McDonnell personnel are now incorporating groundwater extraction and injection features in the revised groundwater flow models. They are waiting on comments from NRC and/or DEQ on the flow models submitted in December. They will revise the groundwater flow models in accordance with NRC and DEQ comments before they finalize the placement of wells and generated estimated flow rates. The groundwater flow models with extraction and injection added will then be submitted to NRC and DEQ for review and comment prior to finalizing the design for the Decommissioning Plan.

3. Nitrate in Injected Water – The current plan is to extract groundwater from the Western Alluvial Area transition zone and alluvial material during Phase I groundwater remediation. The calcium and magnesium will be removed with a cation resin, followed by the removal of uranium with an anion resin. After treatment, a portion of this water will be injected into the fractured Sandstone A in the Western Upland Area. However, this injected water may contain nitrate at a concentration above its MCL. Would the DEQ Underground Injection Program allow the injection of water that may contain a higher concentration of nitrate than is already present there, so that the uranium-bearing water can be flushed from the sandstone? If not, additional treatment to remove the nitrate prior to re-injection must be provided for in the Decommissioning Plan.

4. DEQ OPDES Permit – Including nitrate removal after removal of cations and uranium from groundwater will increase the cost and complexity of groundwater remediation. The OPDES permit under which treated water will be discharged to the Cimarron River will limit both the concentration of nitrate in the water and the mass of nitrate discharged to the River on a daily basis. The chief concern related to daily mass loading is the nitrate concentration at which blue-green algae bloom in the Cimarron River becomes a

concern. DEQ was requested to notify EPM what they would consider this concentration to be. EPM will then multiply this concentration by the minimum daily flow rate reported by the US Geological Survey at the Guthrie gaging station (there is no station at the Cimarron site) to determine a maximum daily mass loading rate.

Phase II Issues

1. COC's Below Re-Opening Criteria, but Above MCLs – *(The first portion of this issue presents background information which was not discussed during the teleconference. This background information is italicized.) Amendment 15 to license SNM-928, issued in 1999, specified the unrestricted release criterion of 180 pCi/l for uranium in groundwater (the DCGL). In 1999, a DEQ-approved risk assessment established "re-opening criteria" for uranium (110 ug/l), nitrate (52 mg/l), and fluoride (4 mg/l) in groundwater. Groundwater assessment performed from 1999 - 2011 focused on uranium exceeding the DCGL and uranium, nitrate and fluoride exceeding the re-opening criteria. Previous licensees were willing to retain ownership of the Cimarron site with deed restrictions preventing the use of groundwater as drinking water.*

   In 2011, the license was transferred to the Trust, and the Trust Agreement states that the objective of the Trust is to "... ultimately sell, transfer or otherwise dispose or facilitate the reuse of all or part of the Cimarron Trust Assets, if possible, all as provided herein with no objective or authority to engage in any trade or business." The Trust will not retain the property, and the beneficiaries of the Trust desire to reduce groundwater concentrations to below MCLs if funding allows so the property can be disposed of without restrictions on its future use. Delineation of COCs in groundwater has focused on those areas that had been identified as exceeding the DCGL and re-opening criteria.

   Review of historical data indicates that there are other areas in which groundwater exceeds (or once exceeded) MCLs. Additional groundwater assessment will be needed to ensure that groundwater site-wide can be remediated to comply with MCLs.

2. Alternate Criterion for Nitrate in Sandstone A – Review of historical groundwater data also indicates that nitrate exceeds or has exceeded MCLs in several "background" locations. This is restricted to groundwater in Sandstone A. This may be due to historic applications of fertilizer in Subarea A, which was leased to a local farmer/rancher, or to a golf course located uphill and upstream from the Site. Nitrate concentrations in Sandstone A background locations will be evaluated, and groundwater samples will be collected from other locations for analysis, to determine if it is appropriate to develop an alternate criterion for nitrate in Sandstone A.

3. Discharge Concentration for Uranium – During Phase II, recovered groundwater will contain low concentrations of uranium, definitely less than the DCGL (all groundwater will be below the DCGL) and probably less than half of the DCGL. Treatment for the removal of uranium must continue until the average concentration of uranium in groundwater is low enough to enable the discharge of the water without treatment. DEQ was requested to notify EPM whether this average concentration should be less than 2X the MCL, a specific value (e.g., 50 ug/l), or less than the MCL.

NRC – DEQ – EPM Telecon Notes
March 11, 2014
(Red text indicates who will take the next action)

Attendees

Lifeng Guo
Varughese Kurian
Gerald Schlapper
Ken Kalman
David Cates
Pam Dizikes
Mike Broderick
Paul Davis
Tad Dow
Ray Roberts
Jeff Lux
Bill Halliburton

Administrative Issues

February 11 Technical Issues Notes – A "Final" version of the notes was sent March 3, 2014. ***No further action required.***

2013 Financial Report – The year-end and 4th quarter financial report was sent to NRC and DEQ January 31. ***EPM***

Proposed 2014 Budget – Additional detail on the 2014 budget was submitted to NRC and DEQ on February 25th. EPM awaits NRC and DEQ approval of the budget. ***NRC and DEQ***

Standby Trust –EPM received the Trust Agreement documents from US Bank, and sent them to NRC for review. NRC has drafted an approval letter, and upon receipt EPM will execute the document and transfer the funds to the Standby Trust Fund. ***NRC***

Proposals to Sell Properties – Burns & McDonnell Stakeholder Management has contacted numerous real estate agencies to contract with them to schedule site tours and conduct an auction and subsequent sale of the 24-acre and the 117-acre properties. Most have declined to assist them in the transaction. Stakeholder Management is negotiating a contract with Von Coburn, a realtor for Keller-Williams Real Estate, with an office near Guthrie, OK. The 4th Quarter public information update informed people that interested parties should contact Jeff Lux, who has provided four people copies of the Purchase and Sale Agreement for the 117-acre property. If willing to sign the agreement, they will be notified of the date and time for a tour of the property. ***EPM***

Section 7 Lease Offer – EPM received a lease offer from Jackfork Land, related to a well Sundance Energy will drill in the northwest corner of Section 7, T16N-R3W. The mineral rights related to this property were retained by Tronox. EPM has notified both Sundance Energy and Jackfork Land that the proper entity to contact is Tronox. ***No Further Action Required***

Section 11 Royalties – EPM met with Sundance Energy on March 11th, and was told that the first disbursements checks have already been sent. EPM received a Division Order dated February 3. Upon receipt, the funds will be deposited in the Trust Accounts; 10% to the Administrative Account, 10% to the Federal Account, and 80% to the State Account. ***EPM***

Section 12 Pipeline ROW Easement – EPM received a pipeline right-of-way easement offer from Jackfork Land. It showed an oil well located near the northwest corner of Section 12, and a pipeline running due east and due south of that well. EPM met with Sundance Energy, and they

agreed to an alternate route, since that route ran through a large portion of the WAA uranium and nitrate plumes. They will send a new pipeline right-of-way easement reflecting a different route. EPM will request approval to execute the easement. Funding for the easement will be distributed to the accounts in the same proportion as royalty checks. ***EPM***

Royalties for Producing Oil Wells – The well in Section 13 was completed and is now producing. This well was drilled in the far northwest corner of Section 13, and horizontally run beneath Section 12, rather than locate a well in Section 12. Eventually royalty checks should be received for this production, and EPM will distribute the funds as discussed above. ***EPM***

Groundwater Design Issues

Groundwater Flow Models – Burns & McDonnell submitted groundwater flow models (without groundwater extraction) on December 26th. EPM is adding groundwater extraction to the model to generate well locations and anticipated flow rates to capture the plumes for both Phase I and Phase II groundwater remediation. NRC will submit comments or both NRC and DEQ within another week. ***NRC***

Treatability Test Status – A report on the treatability test is scheduled to be submitted to NRC and DEQ in March. ***EPM***

2014 Investigation – Hand auger borings and drive-point piezometers will be installed in the 1206 drainage to better characterize the sediment and groundwater in the channel. This is needed to determine whether excavation or trenching would best enhance remediation in the transition zone material. When reviewing historical data, EPM noticed that there are wells that have exceeded MCLs, but which have not been monitored due to the fact that they never exceeded DCGLs or DEQ "re-opening criteria". Additional sampling is being conducted this week to obtain updated information, primarily in the former plant area. Fourteen monitor wells were installed south (upgradient) of Subarea N in 2003, but have never been sampled for analysis. Because it appears that are screened in shallow Sandstone A lenses yield nitrate above MCLs, these wells are being sampled and analyzed for nitrate to determine if an alternate criterion for nitrate in groundwater in Sandstone A should be the goal of Phase II remediation rather than the MCL. Results for all three will be reported to NRC and DEQ when the data is received and has completed data review. ***EPM***

Decommissioning Plan – The decommissioning plan is schedule to be submitted to NRC and DEQ by the end of September. Design considerations that were discussed include:

- Nitrate concentration in discharge to river – After meeting with DEQ, we can calculate anticipated permit limits based on upgradient nitrate concentrations in the river and the estimated nitrate concentration and flow rate in the discharged water. ***EPM***
- Nitrate injection – During the meeting with DEQ, we learned that groundwater containing nitrate at concentrations exceeding its MCL can be injected in impacted areas as long as the groundwater in the impacted also has nitrate at concentrations above its MCL. ***EPM***

- Treatment for nitrate – The design team is evaluating treatment methods for nitrate. ***EPM***
- One key parameter that EPM needs from DEQ is the uranium concentration at which EPM can discharge to the River without treatment. If water can be discharged to the River without treatment once the discharge complies with permit limits, EPM can calculate anticipated permit limits based on upgradient concentrations in the River and the anticipated flow rate. This is important because Phase I (operating under NRC license) continues until we can discontinue treating for uranium. EPM requested a meeting with DEQ to discuss this. ***DEQ***
- Analyzing influent and effluent for U-235 calculation – Based on data obtained from the treatability study, EPM has proposed a method for calculating the mass of U-235 in the resin based on mass concentration data, rather than on isotopic activity analysis. EPM sent information on this concept to NRC and DEQ for review and comment. ***NRC and DEQ***
- Pre- and post-treatment storage requirements – EPM has determined that it will be necessary to include pre-treatment storage of produced water, and may need post-treatment storage (or mixing) prior to discharge. This will be addressed in the conceptual remedial design. ***EPM***
- Material control & accountability requirements – Proposed changes to 10 CFR 74 will not take effect until 2016. However, since it is unlikely that groundwater remediation will begin until 2016, the Decommissioning Plan will address material control and accountability as though it were already in effect. ***EPM***

Conceptual Design Presentation – Plans for a site visit were discussed. The current plan is for NRC to tour the Cimarron site the afternoon of April 30th. The conceptual design presentation can then be conducted in a larger, better equipped conference room in Burns & McDonnell's Oklahoma City office on May 1st. EPM will send directions and parking information for the meeting. ***EPM***

License Issues

License Termination when Groundwater < DCGL – NRC was recently asked if license SNM-928 would be terminated upon demonstration that all groundwater was below the DCGL of 180 pCi/l, when ongoing water treatment would continue to concentrate uranium in resin. After considering the regulatory implications, it was determined that if ongoing remediation activities performed would result in the accumulation of licensable quantities of SNM, the license could not be terminated. This led to discussion about the discharge of low concentrations of uranium under an OPDES permit. It is not certain whether DEQ would require at least some treatment for uranium after the DCGL is met. It is possible that, if uranium concentrations were below some value (e.g., 60 ug/l), treatment for uranium would not be required prior to discharge. DEQ will provide feedback on this concept to NRC and EPM. This could have a significant impact on both the groundwater remediation design and the length of time required to achieve license termination. ***DEQ***

U-235 in Cation Resin – The treatability test showed that the cation resin adsorbed less than 2 pCi/g total uranium. The cation resin will therefore be releasable for unrestricted use and can be

sent to a municipal landfill for disposal. However, because the cation resin bed will be much larger than the anion resin bed, it will still accumulate some U-235. The question was raised, "If the cation resin is releasable for unrestricted use, does the quantity of U-235 in the cation resin need to be included in the "inventory" for comparison with the 1,200 gram U-235 possession limit? NRC will provide feedback on this. ***NRC***

Financial Assurance – NUREG-1757 provides specific guidance on the documentation required to provide sufficient financial assurance in the decommissioning plan. A Trust is the licensee, and the Trustee functions in a different capacity than the Trustee of a trust fund would function, and because the current funding is less than the funding that will be needed to obtain license termination. All these present challenges in the preparation of financial assurance documentation for the decommissioning plan. EPM will draft a section on financial assurance and send it to NRC for review and comment before the decommissioning plan is submitted so these problematic issues can be satisfactorily addressed in the decommissioning plan. ***EPM***

U-235 Possession Limit – The groundwater remediation design may involve the use of a large quantity of anion resin. It is possible that increasing the possession limit for U-235 may make a significant difference in the implementation of the groundwater remediation design. EPM is evaluating the benefits vs. the drawbacks of proposing an amendment to the license to authorize the possession of greater than 1,200 grams of U-235. ***EPM***

Inspection – The conclusion of the treatability test is the last activity of any radiological significance that will occur between now and 2015. Since the next inspection will consist of a records review, there is no need to schedule an inspection during January or February. NRC will notify DEQ and EPM when an inspection is scheduled. ***NRC***

NRC – DEQ – EPM Telecon Notes
April 8, 2014
(Red text indicates who will take the next action)

Attendees

Lifeng Guo
Varughese Kurian
Gerald Schlapper
Ken Kalman
David Cates
Pam Dizikes
Brian Sanford
Paul Davis
Tad Dow
Monty Elder
Ray Roberts
Jeff Lux
Bill Halliburton
Mike Logan
John Hesemann

Administrative Issues

Approval of 2014 Budget – EPM awaits NRC and DEQ approval of the budget. ***NRC and DEQ***

Standby Trust Status – EPM will execute the Standby Trust Agreement and transfer the funds to the Standby Trust Fund. ***EPM***

Disposition of 2 Properties – Burns & McDonnell Stakeholder Management is negotiating a contract with Keller-Williams Real Estate, with an office near Guthrie, OK. Several people have contacted EPM to obtain copies of the Purchase and Sale Agreement for the 117-acre property. Two have responded that they are willing to sign the agreement. One individual contacted EPM to obtain a copy of the Purchase and Sale Agreement for the 24-acre property, and responded that he is willing to sign the agreement. Once the contract with Keller-Williams is in place, they will be notified of the date and time for tours of the properties. The knowledge that additional funding will be received means the Trust has options available to it should a potential buyer desire additional considerations related to the removal of contaminated equipment on the 24-acre property. ***EPM***

Section 12 Pipeline ROW Easement – Jackfork Land, representing Sundance Energy, sent a new pipeline right-of-way easement reflecting a different route. EPM will execute the easement. Funding ($31,125) for the easement will be distributed to the accounts in the same proportion as royalty checks. ***EPM***

Anadarko Settlement – Anadarko has agreed to a $5.15 billion settlement. It is anticipated that the Cimarron Trust accounts will receive a total of approximately $80,000,000 sometime later this year. The expectation of incoming funding opens options to expedite groundwater remediation at the Site.

License Issues

U-235 Possession Limit – Increasing the possession limit for U-235 may make a significant difference in the implementation of the groundwater remediation design. EPM is evaluating the benefits vs. the drawbacks of proposing an amendment to the license to authorize the possession of greater than 1,200 grams of U-235. ***EPM***

Groundwater Design Issues

Groundwater Flow Model – Burns & McDonnell will submit revised groundwater flow models (with groundwater extraction) within the next month. ***NRC***

NRC – DEQ – EPM Telecon Notes
April 8, 2014
(Red text indicates who will take the next action)

Treatability Test Report – A report on the treatability test was submitted to NRC and DEQ on March 17th. ***EPM***

2014 Investigation – 1) 1206 drainage – Hand auger borings were advanced and drive-point piezometers were installed in the 1206 drainage to better characterize the sediment and groundwater in the channel. This will help determine if excavation or trenching will enhance remediation in the transition zone material. 2) MCL assessment – When reviewing historical data, EPM noticed that there are wells that have exceeded MCLs, but which have not been monitored due to the fact that they never exceeded DCGLs or DEQ "re-opening criteria". Additional sampling is being conducted this week to obtain updated information, primarily in the former plant area. 3) Background nitrate evaluation – Fourteen monitor wells were installed south (upgradient) of Subarea N in 2003, but have never been sampled for analysis. Because it appears that are screened in shallow Sandstone A lenses yield nitrate above MCLs, these wells are being sampled and analyzed for nitrate to determine if an alternate criterion for nitrate in groundwater in Sandstone A should be the goal of Phase II remediation rather than the MCL. Results for all three will be reported to NRC and DEQ when the data is received and Burns & McDonnell has completed data review. ***EPM***

Conceptual Design Presentation – The additional funding that will come from the Anadarko settlement opens the possibility of conducting groundwater remediation for all COCs in one phase, rather than waiting until the completion of uranium remediation to address areas where only nitrate and/or fluoride exceed MCLs. EPM will provide a comparison of conceptual designs for the phased and non-phased remediation programs, including the benefits and drawbacks of each, during the meetings to be conducted in Oklahoma on April 29 and 30. EPM will prepare a summary description of the two process for distribution to NRC and DEQ by April 18th so the agencies can prepare for the meetings on the 29th and 30th. ***EPM***

NRC – DEQ – EPM Telecon Notes
May 13, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Varughese Kurian	Pam Dizikes	Mike Logan
Gerald Schlapper	Tad Dow	
	Paul Davis	

Administrative Issues

Approval of 2014 Budget – EPM received NRC approval of the 2014 budget in a letter dated April 9th. DEQ will approve the budget shortly. ***DEQ***

Standby Trust Status – The Standby Trust Agreement has been executed, and the funds were transferred to the Standby Trust Fund on April 25th. ***No Action Required***

Disposition of 2 Properties – Burns & McDonnell Stakeholder Management is negotiating a contract with Keller-Williams Real Estate, with an office near Guthrie, OK. Several people have contacted EPM to obtain copies of the Purchase and Sale Agreement for the 117-acre property. Two have responded that they are willing to sign the agreement. One individual contacted EPM to obtain a copy of the Purchase and Sale Agreement for the 24-acre property, and responded that he is willing to sign the agreement. Once the contract with Keller-Williams is in place, they will be notified of the date and time for tours of the properties. ***EPM***

Section 12 Pipeline ROW Easement – Jackfork Land, representing Sundance Energy, sent a new pipeline right-of-way easement reflecting a different route. EPM executed the easement on May 12th. Funds ($31,125) received from Sundance Energy for the easement will be distributed to the accounts in the same proportion as royalty checks. NRC and DEQ requested a copy of the easement letter and offer with a map showing the location of the pipeline. ***EPM***

Anadarko Settlement – Anadarko has agreed to a $5.15 billion settlement. It is anticipated that the Cimarron Trust accounts will receive a total of approximately $80,000,000 sometime later this year. ***No Action Required***

2014 Budget Supplement – Preparations for the April 29 – 30 meeting, generating both non-phased and phased approach information, and needed additional investigation, all represent work that was not included in the scope of work on which the proposed 2014 budget was based. EPM is tracking the cost of out-of-scope work and generating a cost estimate for the 2014 design investigation yet to be performed. EPM will submit a request to supplement the 2014 budget for this amount. Work that would have been done as part of the groundwater remediation design will not be included in the budget supplement request. ***EPM***

Media Request – Mr. Bob Sands, OETA reporter, was advised that significantly more information may be available in two or three months, and responded, "Actually that was the time frame I was thinking of for a follow up story. I kinda figured it would take some more time to figure out the groundwater issues." ***No Action Required***

NRC – DEQ – EPM Telecon Notes
May 13, 2014
(Red text indicates who will take the next action)

License Issues

U-235 Concentration Limit Paper – Enercon Services will prepare a submittal which will evaluate the concept of removing the U-235 possession limit, and replacing it with a U-235 concentration limit. The concentration limit will be based on saturation of the anion resin (5,370 ± 800 pCi/g was the highest U-235 concentration in resin in the treatability test). A criticality safety analysis will be included to demonstrate that as long as the U-235 concentration does not exceed the potential maximum concentration in saturated resin, criticality issues are not present. The paper will be submitted for NRC evaluation to determine if any other issues may preclude a license amendment request to replace the U-235 possession limit with a U-235 concentration limit. This paper may be submitted before the end of June. ***EPM***

Groundwater Design Issues

Treatability Test Report – A report on the treatability test was submitted to NRC and DEQ on March 17th. Comments were received on April 25th. Responses to comments may be provided after the nitrate treatability test has been completed. ***EPM***

2014 March Investigation – Results of the investigation were presented during the April 29 – 30 meeting. In the 1206 drainage, lithologic logs and groundwater samples provided evidence of two sources of uranium in the WAA, and assisted in the development of the groundwater remediation design. Evaluation of nitrate data for groundwater collected from numerous upgradient wells confirmed that nitrate concentrations in the shallow subsurface often exceed its MCL at background locations. It was decided that additional investigation was needed in Sandstone A in the Process Building Area to identify the source of increasing nitrate in Well 1329. ***EPM***

2014 Design Investigation – Significant additional field investigation and bench testing will be performed as a result of the April 29 and 30 meetings. This includes:

- Complete delineation of nitrate in the WAA via Geoprobe® borings, followed by well installation and groundwater sampling
- Complete delineation of uranium in BA1 via Geoprobe® borings, followed by well installation and groundwater sampling
- Revise particle tracking models by expanding particle placement to the edge of the uranium MCL plume in BA1 and the nitrate MCL plume in the WAA
- Complete delineation of nitrate and fluoride in Sandstones A and B in UP2 Area by installing several clusters of wells screened in Sandstones A and B and collecting groundwater samples
- Identify the source for increasing nitrate in Well 1329 by installing two Sandstone A monitor wells near "source operations" and collecting groundwater samples
- Determine if uranium in Sandstone C in PBA is natural by sampling Sandstone C wells for uranium concentration and activity, and comparing with background concentration to activity ratios (typically 1 ±0.1).
- Perform literature review and bench-scale tests on resins. A literature review will be conducted to determine if anion resin may "swell", reducing permeability and requiring a reduction in groundwater flow rates over time. Clean Harbors will estimate cation:anion

resin exchange ratios as uranium concentrations decrease. In addition, bench scale tests will be conducted to evaluate the density of wet but drained anion resin and the "bulking" effect of adding cement to anion resin in various proportions to comply with fissile exempt limits.

- Conduct a treatability test for nitrate, using peroxide to evaluate effectiveness. If peroxide is ineffective or cost prohibitive, a second treatability test will be conducted with sodium hypochlorite, followed by granular activated carbon (GAC), to determine if the amount of GAC that will be required. DEQ and NRC requested a paper describing the chemistry behind nitrate treatment with both peroxide and hypochlorite. ***EPM***

Groundwater Flow Model – Burns & McDonnell will submit revised groundwater flow models which include groundwater extraction after the 2014 design investigation is complete. ***EPM***

Agency Decisions

Phased or Non-Phased Approach – NRC and DEQ will collaborate on a decision regarding whether to implement a non-phased (all COCs in all areas) or a phased (first uranium to MCL, then nitrate and fluoride) approach to groundwater remediation. ***NRC and DEQ***

Discharge of Non-Treated Water with Uranium < MCL – The discharge limit for uranium under an OPDES permit will be significantly higher than the MCL. DEQ will determine whether they will be willing to allow EPM to discharge water containing uranium concentrations below the MCL (or below the permitted discharge limit) to the Cimarron River without treatment for uranium. ***DEQ***

Release Criterion for Volumetrically Contaminated Material – Cation resin, granulated activated carbon, and other materials may become impacted by low concentrations of uranium. The license contains unrestricted release criteria for surface contamination, but not for volumetrically contaminated material. There is neither a minimum concentration nor a minimum quantity below which U-235 is not licensable in 10 CFR 20 Appendix C. NRC requested an e-mail describing the issue more fully. NRC will evaluate an unrestricted release criterion for volumetrically contaminated material. ***NRC***

Disposal of Cation Resin in a Subtitle D Landfill – If cation resin, GAC, or other materials contain very small quantities of licensed material, EPM proposes to dispose of that material in a Subtitle D (municipal waste) landfill. The treatability test showed that cation resin contained a maximum of < 2 pCi/g and < 1 mg/kg uranium, which is within the range of background for soil. DEQ will determine if material such as this can be disposed of in a Subtitle D landfill. ***DEQ***

Nitrate Remediation Goal in Process Building Area – During the April 29 – 30 meeting, it was suggested that the risk-based criterion of 52 mg/l nitrate be used as a remediation goal for nitrate in Sandstone A in the Process Building Area. Significantly more groundwater assessment work will be needed if groundwater remediation plans must address the MCL as the cleanup goal, because nitrate often exceeds its MCL in shallow subsurface water-bearing zones. DEQ will determine if delineation of nitrate only to the 52 mg/l concentration is needed for Sandstone A in the Process Building Area. ***DEQ***

Decommissioning Plan Submittal – A schedule for submittal of a decommissioning plan is dependent upon several of the agency decisions in the previous section. Considering the investigation work yet to be performed, submittal of a decommissioning plan by the end of the year may be aggressive. ***No Action Required***

NRC – DEQ – EPM Telecon Notes
June 10, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman
Mike Norato
David Cates
Paul Davis
Kate Deaton
Kelly Dixon
Monty Elder
Jeff Lux
Bill Halliburton
John Hesemann

Administrative Issues

Standby Trust Status – The Standby Trust Agreement has been executed, and the funds were transferred to the Standby Trust Fund on April 25th. ***No Action Required***

Disposition of 2 Properties – Burns & McDonnell Stakeholder Management is negotiating a contract with Keller-Williams Real Estate, with an office near Guthrie, OK. Several people have contacted EPM to obtain copies of the Purchase and Sale Agreement for the 117-acre property. Two have responded that they are willing to sign the agreement. One individual contacted EPM to obtain a copy of the Purchase and Sale Agreement for the 24-acre property, and responded that he is willing to sign the agreement. Once the contract with Keller-Williams is in place, they will be notified of the date and time for tours of the properties. ***EPM***

Section 12 Pipeline ROW Easement – Jackfork Land, representing Sundance Energy, sent a new pipeline right-of-way easement reflecting a different route. EPM executed the easement on May 12th. Funds ($31,125) received from Sundance Energy for the easement will be distributed to the accounts in the same proportion as royalty checks. NRC and DEQ requested a copy of the easement letter and offer with a map showing the location of the pipeline. ***EPM***

Anadarko Settlement – Anadarko has agreed to a $5.15 billion settlement. It is anticipated that the Cimarron Trust accounts will receive a total of approximately $80,000,000 sometime later this year. ***No Action Required***

2014 Budget Supplement – Preparations for the April 29 – 30 meeting, generating both non-phased and phased approach information, and needed additional investigation, all represent work that was not included in the scope of work on which the proposed 2014 budget was based. EPM is tracking the cost of out-of-scope work and generating a cost estimate for the 2014 design investigation yet to be performed. EPM will submit a request to supplement the 2014 budget for this amount. Work that would have been done as part of the groundwater remediation design will not be included in the budget supplement request. ***EPM***

Media Request – Mr. Bob Sands, OETA reporter, was advised that significantly more information may be available in two or three months, and responded, "Actually that was the time frame I was thinking of for a follow up story. I kinda figured it would take some more time to figure out the groundwater issues." ***No Action Required***

License Issues

NRC – DEQ – EPM Telecon Notes
June 10, 2014
(Red text indicates who will take the next action)

U-235 Concentration Limit Paper – Enercon Services will prepare a submittal which will evaluate the concept of removing the U-235 possession limit, and replacing it with a U-235 concentration limit. The concentration limit will be based on saturation of the anion resin (5,370 ± 800 pCi/g was the highest U-235 concentration in resin in the treatability test). A criticality safety analysis will be included to demonstrate that as long as the U-235 concentration does not exceed the potential maximum concentration in saturated resin, criticality issues are not present. The paper will be submitted for NRC evaluation to determine if any other issues may preclude a license amendment request to replace the U-235 possession limit with a U-235 concentration limit. This paper may be submitted before the end of June. ***EPM***

Groundwater Design Issues

Treatability Test Report – A report on the treatability test was submitted to NRC and DEQ on March 17th. Comments were received on April 25th. Responses to comments may be provided after the nitrate treatability test has been completed. ***EPM***

2014 March Investigation – Results of the investigation were presented during the April 29 – 30 meeting. In the 1206 drainage, lithologic logs and groundwater samples provided evidence of two sources of uranium in the WAA, and assisted in the development of the groundwater remediation design. Evaluation of nitrate data for groundwater collected from numerous upgradient wells confirmed that nitrate concentrations in the shallow subsurface often exceed its MCL at background locations. It was decided that additional investigation was needed in Sandstone A in the Process Building Area to identify the source of increasing nitrate in Well 1329. ***EPM***

2014 Design Investigation – Significant additional field investigation and bench testing will be performed as a result of the April 29 and 30 meetings. This includes:

- Complete delineation of nitrate in the WAA via Geoprobe® borings, followed by well installation and groundwater sampling
- Complete delineation of uranium in BA1 via Geoprobe® borings, followed by well installation and groundwater sampling
- Revise particle tracking models by expanding particle placement to the edge of the uranium MCL plume in BA1 and the nitrate MCL plume in the WAA
- Complete delineation of nitrate and fluoride in Sandstones A and B in UP2 Area by installing several clusters of wells screened in Sandstones A and B and collecting groundwater samples
- Identify the source for increasing nitrate in Well 1329 by installing two Sandstone A monitor wells near "source operations" and collecting groundwater samples
- Determine if uranium in Sandstone C in PBA is natural by sampling Sandstone C wells for uranium concentration and activity, and comparing with background concentration to activity ratios (typically 1 ±0.1).
- Perform literature review and bench-scale tests on resins. A literature review will be conducted to determine if anion resin may "swell", reducing permeability and requiring a reduction in groundwater flow rates over time. Clean Harbors will estimate cation:anion resin exchange ratios as uranium concentrations decrease. In addition, bench scale tests will be conducted to evaluate the density of wet but drained anion resin and the "bulking"

effect of adding cement to anion resin in various proportions to comply with fissile exempt limits.

- Conduct a treatability test for nitrate, using peroxide to evaluate effectiveness. If peroxide is ineffective or cost prohibitive, a second treatability test will be conducted with sodium hypochlorite, followed by granular activated carbon (GAC), to determine if the amount of GAC that will be required. DEQ and NRC requested a paper describing the chemistry behind nitrate treatment with both peroxide and hypochlorite. ***EPM***

Groundwater Flow Model – Burns & McDonnell will submit revised groundwater flow models which include groundwater extraction after the 2014 design investigation is complete. ***EPM***

Agency Decisions

Phased or Non-Phased Approach – EPM will present a design for either a non-phased or a phased approach in the Decommissioning Plan (D-Plan). Information on why the proposed approach is preferable will be included in the D-Plan. ***EPM***

Discharge of Non-Treated Water with Uranium < MCL – The discharge limit for uranium under an OPDES permit will be significantly higher than the MCL. DEQ will determine whether they will be willing to allow EPM to discharge water containing uranium concentrations below the MCL (or below the permitted discharge limit) to the Cimarron River without treatment for uranium. ***DEQ***

Release Criterion for Volumetrically Contaminated Material – Cation resin, granulated activated carbon, and other materials may become impacted by low concentrations of uranium. The license contains unrestricted release criteria for surface contamination, but not for volumetrically contaminated material. There is neither a minimum concentration nor a minimum quantity below which U-235 is not licensable in 10 CFR 20 Appendix C. NRC requested an e-mail describing the issue more fully. NRC will evaluate an unrestricted release criterion for volumetrically contaminated material. ***NRC***

Disposal of Cation Resin in a Subtitle D Landfill – If cation resin, GAC, or other materials contain very small quantities of licensed material, EPM proposes to dispose of that material in a Subtitle D (municipal waste) landfill. The treatability test showed that cation resin contained a maximum of < 2 pCi/g and < 1 mg/kg uranium, which is within the range of background for soil. DEQ will determine if material such as this can be disposed of in a Subtitle D landfill. ***DEQ***

Nitrate Remediation Goal in Process Building Area – During the April 29 – 30 meeting, it was suggested that the risk-based criterion of 52 mg/l nitrate be used as a remediation goal for nitrate in Sandstone A in the Process Building Area. Significantly more groundwater assessment work will be needed if groundwater remediation plans must address the MCL as the cleanup goal, because nitrate often exceeds its MCL in shallow subsurface water-bearing zones. DEQ will determine if delineation of nitrate only to the 52 mg/l concentration is needed for Sandstone A in the Process Building Area. ***DEQ***

Decommissioning Plan Submittal – A schedule for submittal of a decommissioning plan is dependent upon several of the agency decisions in the previous section. Considering the investigation work yet to be performed, submittal of a decommissioning plan by the end of the year may be aggressive. ***No Action Required***

NRC – DEQ – EPM Telecon Notes
July 15, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Lifeng Guo	Paul Davis	Bill Halliburton
	Kate Deaton	Mike Logan
	Tad Dow	
	Pam Dizikes	
	Mike Broderick	
	Pam Dizikes	

Administrative Issues

Disposition of 2 Properties – EPM executed a listing agreement with Keller-Williams Real Estate. Keller-Williams is placing public notices in three newspapers this week, and plans to provide tours of the properties August 18th. ***EPM***

2014 Budget Supplement – A supplemental budget request will be submitted to provide funding for field investigation, laboratory analysis, data evaluation, etc. needed to complete a groundwater remediation plan. The budget supplement will not propose increased funding for EPM, Burns & McDonnell, or Enercon. For these three entities, the scope of work will change, but not the funding. Funding will be needed for Clean Harbors, the construction company that will clear access for a geoprobe rig, the geoprobe company, the driller, the analytical laboratory, and field supplies. None of this work will begin until NRC and DEQ approve the budget supplement. ***EPM***

2015 Budget – The proposed 2015 budget will be submitted on or about October 1, 2015. Funding for groundwater design scope of work that will not be performed in 2014 will be moved to 2015.

Groundwater Design Issues

Resin Tests – Tests to determine the bulk density of dry and wet-drained resin and to evaluate the mass/density relationship for various mixtures of resin and cement or barite are ongoing. A memo reporting the results of the test will be submitted upon completion of the tests.

Treatability Tests – An activity plan for a nitrate treatability test as well as a test to determine the characteristics of spent cation resin and regeneration water is in development. The test will not be conducted until the 2014 budget supplement is approved.

2014 Design Investigation – EPM met with DEQ personnel on July 2 to review the proposed scope of work for the 2014 design investigation. Aspects of the work that were discussed include:

- Access clearance
- Geoprobe testing in Burial Area #1 for uranium, and in the Western Alluvial Area for nitrate
- Delineate uranium to its MCL in Burial Area #1
- Delineate nitrate to its MCL in the Western Alluvial Area

- Determine if the uranium in Sandstone C in the Process Building Area is natural or licensed
- Identify the potential source of increasing nitrate in Well 1329
- Evaluate Burial Area #2 as source of uranium to the Western Alluvial Area
- Evaluate Sandstones A and B in the Uranium Pond #2 Area
- Obtain samples for geotechnical testing of soil in the treatment plant area
- Conduct packer tests to evaluate injection rates in Sandstones A and B

The schedule is dependent upon the timing of budget supplement approval.

Groundwater Remediation Design – Design activities have been terminated due to difficulties treating the quantities of water that evolving regulatory decisions require. EPM is evaluating other treatment technologies and different ways to phase remediation to determine if a different approach using ion exchange may be practical, or if a different treatment technology must be implemented to enable EPM to remediate groundwater.

License Issues

Annual 27(e) Change Report – No annual report of 27(e) changes was submitted this year, because there were no changes to the Decommissioning Plan or Radiation Protection Plan which would have required a change evaluation in accordance with License Condition 27(e). NRC requested that EPM submit a formal letter in the same format as previous annual reports to document that no changes were made. ***EPM***

U-235 Concentration Limit Paper – Enercon Services will prepare a submittal which will evaluate the concept of removing the U-235 possession limit, and replacing it with a U-235 concentration limit. The concentration limit will be based on saturation of the anion resin (5,370 ± 800 pCi/g was the highest U-235 concentration in resin in the treatability test). A criticality safety analysis will be included to demonstrate that as long as the U-235 concentration does not exceed the potential maximum concentration in saturated resin, criticality issues are not present. The paper will be submitted for NRC evaluation to determine if any other issues may preclude a license amendment request to replace the U-235 possession limit with a U-235 concentration limit. This paper may be submitted before the end of June. ***EPM***

NRC – DEQ – EPM Telecon Notes
August 19, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman
Lifeng Guo
David Cates
Paul Davis
Pam Dizikes
Tad Dow
Jeff Lux
Bill Halliburton
Mike Logan

Administrative Issues

Disposition of Property West of Highway 74 – A tour of the property west of Highway 74 was conducted the morning of August 18th for those who had reviewed the Purchase and Sale Agreement and were interested in purchasing the property. Following the tour, sealed bids were received, and the high bid was for $258,000. Pending receipt of a 10% earnest payment and proof of funding, a proposal to sell the property will be distributed to DOJ, NRC, and DEQ for approval to conduct the transaction. A copy of all documentation received will be attached to the proposal. ***EPM***

Disposition of Property with Buildings – A tour of the property containing the former process buildings was conducted the afternoon of August 18th for those who had reviewed the Purchase and Sale Agreement and were interested in purchasing the property. Following the tour, a single sealed bid was received, for $6,200. This is approximately $2,290 in excess of the cost of the transaction, including closing costs and realtor's fees. Pending receipt of a 10% earnest payment and proof of funding, a proposal to sell the property will be distributed to DOJ, NRC, and DEQ for approval to conduct the transaction. A copy of all documentation received will be attached to the proposal. ***EPM***

2nd Quarter 2014 Public Information Update – Comments were received from DEQ. NRC wants another opportunity to review the update before it is finalized. The public information update will be distributed and uploaded to www.certoklahoma.com after comments from NRC have been incorporated. ***EPM***

2014 Budget Supplement – A proposed budget supplement for 2014 was submitted on July 25th. Additional funding is needed to perform investigation work needed to proceed with groundwater remediation design. No additional funding is requested for EPM, Burns & McDonnell, or Enercon Services. Additional funding is needed for the construction company clearing access for a geoprobe rig, a geoprobe company, a driller, analytical laboratory, and Clean Harbors. Work will not begin until the budget supplement is approved. DEQ and NRC have scheduled a meeting to discuss the budget supplement on Thursday, August 21st, and will respond to EPM thereafter. ***NRC and DEQ***

2015 Budget – A proposed budget for 2015 will be submitted on or about October 1, 2014. ***EPM***

Groundwater Design Issues

Resin Tests – Testing to evaluate the dry and wet-drained density of resin, as well as mass/density relationship for various mixtures of resin with cement or barite have been completed. A memo reporting the results of the test will be submitted this week. ***EPM***

Treatability Tests – An activity plan describing a nitrate treatability test, plus a test to determine the characteristics of multiply-loaded cation resin and cation resin regeneration water, was drafted by Clean Harbors and submitted to EPM and Burns & McDonnell for comment. The activity plan is being revised in accordance with those comments. The test will not be performed until the 2014 budget supplement is approved. ***EPM***

2014 design investigation – Pending approval of budget supplement.

Technology Evaluation – Development of a groundwater remediation has been terminated. A team has been assembled to evaluate other treatment technologies and phasing methods. In 2014, this will consist of evaluation of alternate technologies to see if some other method of treating uranium which would not require cation removal should be considered in place of ion exchange, as well as to consider other ways to "phase" the remediation to overcome problems encountered with treatment of large volumes of water by ion exchange. Treatment technologies being evaluated include, but are not limited to:

- Ion exchange
- Electrocoagulation
- Reverse osmosis
- Anaerobic digestion
- Redefinition of phases

DEQ suggested considering introducing TOC into that portion of the Western Alluvium where uranium is below the DCGL, but nitrate is above the MCL. This will be added to the list of ideas being evaluated.

NRC suggested a literature review of methods being used at DOE sites to treat groundwater for uranium. This will be added to the ideas being evaluated. ***EPM***

License Issues

U-235 Concentration Limit Paper – Enercon Services will prepare a submittal which will evaluate the concept of removing the U-235 possession limit, and replacing it with a U-235 concentration limit. The concentration limit will be based on saturation of the anion resin. A criticality safety analysis will be included to demonstrate that as long as the U-235 concentration does not exceed the potential maximum concentration in saturated resin, criticality issues are not present. The paper will be submitted for NRC evaluation to determine if any other issues may preclude a license amendment request to replace the U-235 possession limit with a U-235 concentration limit. This paper may be submitted before the end of June. ***EPM***

Other?

NRC – DEQ – EPM Telecon Notes
September 9, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Gerald Schlapper	Pam Dizikes	Bill Halliburton
Lifeng Guo	Paul Davis	Mike Logan

Administrative Issues

NRC Region IV Management – Region IV Regional Administrator Marc Dapas, Deputy Regional Administrator Kriss Kennedy, DNMS (Division of Nuclear Material Safety) Director Mark Shaffer, DNMS Deputy Director Linda Howell, and RSFS (Repository and Spent Fuel Safety) Branch Chief Ray Kellar have been in these positions for less than one year. EPM will provide an overview of the Cimarron decommissioning project to Region IV management as per Mr. Schlapper. ***NRC***

Disposition of Property West of Highway 74 – A proposal to sell the property for $258,000, along with a copy of all documentation received, was submitted to DEQ and NRC on August 27th. If NRC and DEQ approve, the proposal will be submitted to NRC, DEQ, DOJ, EPA and the bankruptcy court for formal approval. ***NRC and DEQ***

Disposition of Property with Buildings – A proposal to sell the property for $6,200, along with a copy of all documentation received, was submitted to DEQ and NRC on August 27th. If NRC and DEQ approve, the proposal will be submitted to NRC, DEQ, DOJ, EPA and the bankruptcy court for formal approval. ***NRC and DEQ***

2nd Quarter 2014 Public Information Update – The public information update for the 2nd quarter of 2014 was sent to all public contacts and uploaded to www.certoklahoma.com on September 4.

2014 Budget Supplement – A revised budget supplement request was submitted to NRC and DEQ on September 8th. This budget supplement is not anticipated to require additional funding beyond the approved amount for 2014, but requests approval to shift authorized funding to Task 4, "Site Decommissioning" from other tasks. Work will not begin until the budget supplement is approved. ***NRC and DEQ***

2015 Budget – A proposed budget for 2015 is not likely to be submitted by October 1, 2014, due to uncertainty regarding the cost to design a remediation project for which the technologies to implement are not yet known. A proposed budget will be submitted by November 1, and may be based on conservative assumptions regarding the cost of remedial design. ***EPM***

Groundwater Design Issues

Resin Tests – A memo reporting the results of the test was submitted to NRC and DEQ via e-mail on August 19th. The memo may be revised based on questions/comments from NRC or DEQ. ***NRC and DEQ***

2014 Design Investigation – Pending approval of budget supplement. If the budget supplement is approved by September 12th, field work may begin in early October. All contracts are in place, and work will begin as soon as possible after budget supplement approval. ***EPM***

NRC – DEQ – EPM Telecon Notes
September 9, 2014
(Red text indicates who will take the next action)

Alternatives Evaluation – A team has been assembled to evaluate other treatment technologies and ways to phasing remediation. This is a high-level evaluation; if a technology offers promise, treatability tests may be conducted. Technologies being evaluated include:

- Use of different anion resin
- Deep well injection
- Zeolite material
- Denitrification by peroxide or hypochlorite
- Phytoremediation for nitrate (barrier or in-situ treatment)
- Electrocoagulation
- Reverse osmosis
- Bioreduction (ex-situ and in-situ)
- In-situ bioreduction for uranium (post-DCGL)
- Downblending with depleted uranium

NRC suggested a review of methods being used at DOE sites to treat groundwater for uranium. EPM learned that DOE is treating groundwater for uranium at the Hanford, Fernald, and Tuba City, and EPM has contacted project personnel for all three sites. Information derived from DOE includes the potential for use of an alternative anion resin. NRC will provide contact information for the Homestake Mining site, and DEQ will provide contact information for other DOE sites conducting groundwater remediation for uranium. ***EPM, NRC, DEQ***

EPM will schedule a teleconference with NRC and DEQ technical personnel with the groundwater evaluation team to discuss progress on the alternatives evaluation. The teleconference will not be scheduled prior to September 19th to assist in assembling the appropriate people. ***EPM***

License Issues

U-235 Concentration Limit Paper – Enercon Services should complete an evaluation a U-235 concentration limit based on saturation of the anion resin. A criticality safety analysis will be included to demonstrate that as long as the U-235 concentration does not exceed the potential maximum concentration in saturated resin, criticality issues are not present. The paper will be submitted for NRC evaluation to determine if any other issues may preclude a license amendment request to replace the U-235 possession limit with a U-235 concentration limit. This paper will be submitted before the end of September. ***EPM***

NRC – DEQ – EPM Telecon Notes
November 18, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Varughese Kurian	Tad Dow	Bill Halliburton
Lifeng Guo	Paul Davis	Mike Logan
Robert Evans	Mike Broderick	Jay Maisler
Gerald Schlapper	Kate Deaton	Anubhav Gaur

Administrative Issues

Disposition of Properties – On October 21st, DOJ sent EPM a list of questions comments which had been generated by the agencies reviewing the proposal to sell the properties. EPM revised the Purchase and Sale Agreements in accordance with comments and provided the revised agreements, along with answers to agency questions on November 5th. If the agencies approve the sale, EPM will authorize the realtor to conduct the transaction. If the agencies respond with additional questions or comments, EPM will address those. ***DOJ***

2015 Budget – EPM provided an overview of the proposed budget for 2015, and explained the basis for changes or additions relative to the approved budget for 2014. NRC and DEQ will review the proposed budget and either approve it or request more information. ***NRC and DEQ***

Upcoming Meetings

Meeting to discuss status and accomplishments – NRC suggested four dates for a meeting at NRC headquarters, all in the month of January 2015. None of those four dates are open for all parties whom NRC would like to have in attendance. NRC will select potential dates in February 2015. ***NRC***

Meeting to discuss remediation approach – NRC will suggest dates in March to conduct a meeting (at the Site?) to discuss the approach to groundwater remediation. ***NRC***

Documentation Issue – During the NRC inspection conducted on November 17-18, inspectors identified numerous documents of which they were not aware because those documents had not been placed in ADAMS. Most of the correspondence between EPM, NRC, and DEQ are being transmitted via e-mail, so many of those documents are not being placed in ADAMS. EPM will compile documents containing information of substance from 2012 – 2014 on CD, and will send the CD to NRC HQ, NRC Region IV, and DEQ. NRC will identify which documents should be placed in ADAMS. ***EPM and NRC***

Groundwater Design Issues

Resin Tests – Two treatability tests are being planned.

The first test is referred to as the "LSI" test. It involves mixing calcium carbonate water with calcium sulfate water to see if precipitates form. Then the pH of aliquots of calcium carbonate water and calcium sulfate water will be adjusted to 7.0, 6.5, 6.0, 5.5, and 5.0. Each pH adjusted sample will be analyzed to determine the Langelier Saturation Index (LSI) for each water at each pH. Aliquots will also be analyzed for Eh to indicate whether the uranium speciation has changed. EPM and Enercon Services will collect

groundwater samples, and the tests will be run by the laboratory that performs the analyses. ***EPM***

The second test is referred to as the "treatability" test, and consists of up to four separate tests. The first test involves adjusting the pH of the water to prevent scaling, and then seeing if DOWEX 1 will effectively remove the uranium without plugging. The second test involves reducing the pH of water, removing the uranium, and then running the water through a nitrate-selective resin for nitrate removal. The third test involves running water with neither pH adjustment nor cation removal through DOWEX 21 resin to determine if that resin can be used without pretreatment for uranium removal. The fourth test involves filtering influent water prior to running the water through a cation resin to determine if the uranium contained in the cation resin in Run 2 of the 2013 treatability tests was an artifact of particulate matter or of chemical binding to the resin. EPM prefers to have an independent company (the one designing the treatment system(s)) complete the design of and perform the treatability tests. EPM is contacting companies about doing this. ***EPM***

Vendor Issues – Clean Harbors notified EPM that, due to the increasing scope and complexity of the groundwater remediation project, they do not feel they are the right company to provide treatability testing and treatment system design for this project. They provided contact information for personnel in Evoqua (formerly Siemens) for information on specific resins. Evoqua also concluded that their background is in the removal of inorganics from water, and the complexity of this project is beyond their normal scope of work. Both companies withdrew from providing continuing support.

EPM has contacted several companies regarding their ability (in terms of both technical capability and ability to meet schedule needs) to step in and provide remaining treatability testing as well as provide a 60% design for needed treatment system(s) by the end of June 2015. EPM will keep NRC and DEQ informed of progress in this effort to bring a new company on board. ***EPM***

2014 Design Investigation –

Grab sample uranium results – Collection and analysis of grab samples of groundwater in Burial Area #1 (BA1)from direct push equipment indicates that uranium exceeding its MCL may extend approximately 200 feet northeast of Monitor Well TMW-24. Because these were grab samples collected from a single zone containing the highest permeability material, they may not be representative of a sample collected from a well that screens the entire saturated thickness of the alluvial aquifer. Seven new wells will be installed in BA1 to complete the delineation of uranium exceeding its MCL in this area.

Grab sample nitrate results – Collection and analysis of grab samples of groundwater in the Western Alluvial Area (WAA) from direct push equipment indicates that nitrate exceeding its MCL may extend to the cut bank of the Cimarron River. Because these were grab samples collected from a single zone containing the highest permeability material, they may not be representative of a sample collected from a well that screens

the entire saturated thickness of the alluvial aquifer. Seven new wells will be installed in the WAA to complete the delineation of nitrate exceeding its MCL in this area.

Well installation – Twenty-one new monitor wells have been installed and developed in the Process Building Area (PBA), Burial Area #2, and Uranium Pond #2. Most of the PBA wells have been sampled for laboratory analysis. Well installation will resume after Thanksgiving week.

Borings in which injection tests will be performed have been drilled and geophysically logged. Packer tests will be conducted during the next two weeks.

Field work will be completed before the end of year. ***EPM***

License Issues

U-235 Concentration Limit Paper – EPM submitted a paper by Enercon Services, evaluating the use of a U-235 concentration limit based on saturation of the anion resin. A criticality safety analysis was included to demonstrate that criticality is not an issue. The paper was submitted for NRC evaluation; unless NRC identifies issues of concern, EPM will submit a license amendment request to replace the U-235 possession limit with a U-235 concentration limit as part of the decommissioning plan submittal. ***NRC***

Inspection – NRC inspectors presented a summary of the inspection results. There were no findings, although an observation related to the absence of documentation in ADAMS (addressed above) was noted. NRC will issue an inspection report. ***NRC***

NRC – DEQ – EPM Telecon Notes
December 9, 2014
(Red text indicates who will take the next action)

Attendees

Ken Kalman	David Cates	Jeff Lux
Varughese Kurian	Tad Dow	Bill Halliburton
Lifeng Guo	Paul Davis	John Hesemann
	Kate Deaton	

Administrative Issues

Disposition of Properties – On 10/21/2014, DOJ sent EPM questions and comments regarding the proposal to sell the properties. EPM provided revised Purchase and Sale Agreements and responded to questions on 11/5/2014. EPM was notified that Stewart Industries is selling on of their buildings in another location and will need to remove their inventory from that building. In August, potential purchasers were told it could take several months to authorize the purchase of the properties, so Stewart Industries deferred the sale to the end of the year. For them, the need to purchase the property with the buildings on it has become urgent. EPM will authorize the realtor to conduct the transactions when the agencies approve the sale. NRC will contact DOJ to encourage them to hasten the process. ***DOJ***

Third Quarter Public Information Update – The public information update was sent out by e-mail and hard copy. The update was also posted on www.certoklahoma.com.

2015 Budget

The introduction of a new vendor to complete treatability testing and water treatment system design in 2015 impacts the proposed budget for 2015. The proposed budget submitted 10/31/2104 was based on the assumption that Burns & McDonnell, Enercon, and a third party would conduct remaining treatability tests and that Burns & McDonnell would design the water treatment system in collaboration with a third-party "geochem/treatment support" consultant. Three companies are expected to submit proposals for treatability testing and groundwater remediation design prior to Christmas. It will be January before a vendor can be selected and a cost estimate for these two functions to be agreed upon.

Consequently, EPM will re-submit the spreadsheet attached to the 10/31/2014 submittal, reducing the costs for Burns & McDonnell support and Enercon support, and replacing the line item for "Geochem/Treatment Support" with "Treatment Vendor". No costs will be assigned to the Treatment Vendor – "TBD" will be entered for the cost. This will provide funding for all other aspects of the work except for the treatment vendor. Once a proposal and cost estimate is agreed upon, EPM will submit a budget amendment request seeking to fund treatability testing and treatment system design. ***EPM***

Upcoming Meetings

Meeting to discuss status and accomplishments – A meeting will be held 3/11/2015, from 8:30 to 11:30, at NRC headquarters. If needed, additional time may be available in the afternoon. The meeting will be publicly noticed. ***NRC***

Meeting to discuss remediation approach – Based on data received during the investigations performed in November and December, EPM and a vendor-to-be-named should be prepared to present the conceptual groundwater remediation and water treatment design by the end of April. EPM will verify this date once an agreement is reached with a water treatment vendor. ***EPM***

Clean Harbors Exit – With Clean Harbors exiting the project, NRC asked several questions related to the contract, remaining funds, etc. EPM will reply to both NRC and DEQ via e-mail and follow the response with a formal submittal. ***EPM***

Groundwater Design Issues

Treatment System Design Vendor –EPM contacted several companies regarding their ability (in terms of both technical capability and ability to meet schedule needs) to step in and provide remaining treatability testing as well as provide a conceptual design for water treatment system(s) by the end of April 2015. Three companies are expected to submit proposals:

- EnergySolutions – Tentatively, EnergySolutions will conduct treatability tests at their facilities and provide design of an ion-exchange treatment system. Anoxic ex-situ treatment may be part of the treatment system rather than ion exchange for nitrate removal.
- Kurion/AVANTech – EPM initially contacted each of these companies separately, but they independently contacted each other and are expected to partner in preparing a proposal. Tentatively, they would conduct treatability tests at the Site and provide design of either an ion-exchange treatment system or use hydroxyl-apatite as a treatment medium for uranium. They would likely evaluate anoxic ex-situ treatment for nitrate rather than ion exchange.
- Enviroklean Product Development, Inc. (EPDI) – EPDI is a local (offices in Oklahoma City) company evaluating the use of zeolite as a treatment medium for uranium.

It is anticipated that all three companies will submit proposals to EPM prior to Christmas. EPM will keep NRC and DEQ informed of progress in this effort to bring a new company on board. ***EPM***

2014 Design Investigation – The last monitor wells should be installed by the end of this week, and groundwater sampling should be completed next week. Field work will be completed before the end of year. ***EPM***

License Issues

U-235 Concentration Limit Paper – On 10/6/2014, EPM submitted a paper by Enercon Services, evaluating the use of a U-235 concentration limit based on saturation of the anion resin. A criticality safety analysis was included to demonstrate that criticality is not an issue. The paper was submitted for NRC evaluation; if NRC identifies no issues of concern related to the evaluation, EPM will submit a license amendment request to replace the U-235 possession limit with a U-235 concentration limit as part of the decommissioning plan submittal. This review is

critical to the development of a groundwater remediation plan, as even a 6,000 gram U-235 possession limit would require complete revision of the groundwater remediation approach, as well as water treatment technologies.

EPM will submit the paper formally, as other branches within NRC will be requested to perform the review and provide feedback. NRC will expedite the review process as much as possible. ***EPM and NRC***

Inspection – NRC inspectors presented a summary of the inspection results. There were no findings, although an observation related to the absence of documentation in ADAMS (addressed above) was noted. NRC will issue an inspection report within the next few weeks. ***NRC***