Hanford Waste Management Area C WIR Evaluation
11-06-2019 DOE-NRC Teleconference Summary

By letter dated April 30, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19112A091), the Nuclear Regulatory Commission (NRC) issued a Request for Additional Information (RAI) to the Department of Energy (DOE) regarding its Draft Waste Incidental to Reprocessing (WIR) Evaluation for Closure of Waste Management Area C (WMA C) at the Hanford Site. The DOE provided its responses to these RAIs by letter dated October 23, 2019 (ADAMS Accession No. ML19305A296).

On October 29, the DOE held a public meeting with its contractors and the NRC in Richland, Washington to discuss its responses to the NRC RAI. During this meeting, the NRC identified RAI responses that would need further discussion. As a result, the DOE established three public teleconferences to continue these discussions. The teleconference described below was the first of those three teleconferences. Call-in information was posted on the DOE Hanford WMA C webpage (https://www.hanford.gov/page.cfm/WasteManagementAreaC) prior to the call.

The following parties attended the teleconference:

- NRC: Lee Gladney, David Esh, Hans Arlt
- Washington River Protection Solutions (WRPS): Doug DeFord, Marcel Bergeron, Paul Rutland, Jim Field
- INTERA: Sunil Mehta, Matt Kozak
- TecGeo: Mike Connelly
- CH2M Hill Plateau Remediation (CHPRC): Bill McMahon
- Mission Support Alliance (MSA): Jenifer Colborn
- Veolia: Keith Quigley
- Public: Jeff Burright (State of Oregon)

Discussion

The RAI responses discussed during this call were 1-1, 2-1, 2-5, 2-6, 2-7, and 2-12. A summary of the discussion is provided below. The RAI comment is briefly summarized followed by a summary of the NRC staff's clarifying questions and the associated discussion during the teleconference. The reader of this teleconference summary should refer to documents above for the full text of the RAIs and DOE's response to the RAIs.

RAI 1-1

NRC's RAI related to the basis DOE provided that removal of waste from plugged pipelines is not necessary in order to satisfy removal of key radionuclides to the maximum extent that is technically and economically practical. In DOE's response (ML19305A296), it indicated that the cost of removing the plugged pipelines in WMA C could exceed $500 million."

- During this teleconference, the NRC staff had clarifying questions on the assumptions leading to this value because they wanted to better understand why the value was so large. DOE had scaled a previous analysis for a shorter pipe length to apply to a plugged pipeline which is much longer. NRC staff asked if the scaling calculation based on a finite pipe length was appropriate for the larger pipe length because some of the cost components were one-time costs and would not scale with the length of pipe removed.

- DOE explained that primary reason the costs are high is because manual digging is necessary due to other entities that may exist around the pipes, among other factors. DOE stated that scaling the cost estimate from the other report might overestimate the cost for the reasons NRC described, but that it is not unreasonable as a rough order-of-magnitude estimate, given that no more detailed estimate has been prepared.

RAI 2-1

This RAI was about DOE's quality assurance (QA) that had been applied to the draft waste evaluation. NRC requested that the DOE provide QA procedures as well as describe the process for evaluating and resolving errors. In addition to providing the requested materials, DOE's response addressed specific technical observations NRC had provided associated with QA.

- During this teleconference, the NRC staff questioned DOE's RAI response that suggested that the fact that the engineered cover did not overlay all the contaminated systems that would be left in place was a modeling decision, rather than a QA oversight. DOE indicated during the teleconference that it agreed with the NRC staff that the cover modeling was an oversight.
- The NRC staff asked if DOE's procedures require that modeling assumptions are listed and a basis is provided for modeling assumptions. DOE indicated that modeling assumptions are evaluated as part of the technical review process.
- The NRC staff asked DOE how it determines if there are errors in the software used for the analyses, such as bugs that are identified at some future date. The NRC staff indicated that the DOE had a good internal configuration control but wanted to know more about its external controls. DOE indicated that it normally keeps error logs and uses GoldSim (the software) for uncertainty cases. GoldSim (the company) notifies its users of errors that are found and addressed in new versions. DOE also added that if Pacific Northwest National Laboratory (PNNL) were to find an error in STOMP, they would evaluate it, and since it is in [ASME NQA-1 (Nuclear Quality Assurance-1)] compliance, if there were issues, they would need to do an extent of condition and other actions. In a worst-case scenario, DOE would redo the modeling work if the error was found to compromise the results.
- The NRC staff noted to DOE that the intruder doses to a pipeline may be 20 times too large (e.g., 36 mrem instead of 1.8 mrem) in the draft waste evaluation because it appeared that the results were calculated as if the pipelines were 100% full of waste when in fact DOE's intent was to assume the pipelines were 5% full. DOE agreed that the modeling results were performed for pipelines that were 100% full of waste, and consequently were 20 times larger than for 5% full pipelines and noted that this calculation is conservative.

RAI 2-5

This RAI was related to the basis for the inventory of plugged pipelines. In DOE's response, it described how its assumptions regarding the V-122 pipeline as plugged or not plugged could change the overall "plugged inventory" considered by a significant amount.

- During this teleconference, the NRC staff asked clarifying questions about determining the waste types associated with plugged pipelines, considering that the waste transfer records are incomplete. The NRC staff and DOE discussed the processes associated with pipe plugging, including that plugging could occur from a discrete event or from a gradual

process over time.

RAI 2-6

This RAI was related to the operational history of pipelines and their abandonment or replacement.

- During this teleconference, the NRC staff asked DOE how their inventory of pipelines was established and if all abandoned or replaced pipelines were accounted for in the inventory. DOE indicated that the inventory was obtained with a historical records search and added that it calculates piping inventory based upon historical tank farm operations. DOE indicated that the pipelines are accounted for when pipes are taken out of service. For instance, if a pipeline was taken out of service it was retained in the record system and a new pipeline would be given a new identification number.

RAI 2-7

This RAI was associated with the inventory of waste assigned to pipelines. The NRC staff had indicated that two assumptions had insufficient technical basis: first, that the pipelines are assumed to be 5% full of waste, and second, that the piping is assumed to be represented by 7.6 cm diameter lines. In its RAI, the NRC requested that the DOE provide additional basis for its assumptions and provide additional information, including regarding piping encasements. DOE had completed additional GoldSim modeling in response to NRC's RAI, and referenced the results in their RAI response.

- During this teleconference, the NRC staff had clarifying questions about the new modeling. It was determined during the call that the best way to evaluate this issue would be for DOE to provide files to the NRC as additional information to be considered. DOE was to provide their GoldSim model files for the NRC to review. The NRC staff will evaluate the information, when provided, to continue its review and, if necessary, further follow-up will be conducted.

RAI 2-12

This RAI was related to the basis to demonstrate that the WMA C PA model is a valid representation of the system, which is needed for decision-making. In its RAI, the NRC requested that the DOE provide additional information and model support for its review of the WMA C PA model. DOE's RAI response indicated they did not see value in many of the suggestions for additional model support.

- During this teleconference, the NRC staff sought clarification on why DOE did not believe simulation of past leaks would yield useful information and why DOE could not simulate observed advective flow into the tanks. DOE explained that they did not see value in simulating the system under conditions that are considerably different from closure conditions. DOE and NRC had discussion about advective flow into the tanks and the importance of grout shrinkage associated with this process.

At the end of the call, a member of the public indicated that the conversation was productive, and also indicated concern regarding the issues with pipelines, e.g. RAI 1-1.

Action Items

The following action items were identified during this teleconference:

- The DOE will provide GoldSim files to support RAI 2-7. (Complete)
- The NRC will send DOE a CNWRA report that was discussed as part of RAI 2-12. [This report, “Fiscal Year 2012 Meso- And Intermediate-Scale Grout Monolith Test Bed Experiments: Results and Recommendations, Final Report,” dated August 2012, is ADAMS Accession No. ML12251A305.] (Complete)
- The NRC will prepare summaries of the three teleconferences held in November 2019 and the DOE plans to make them available on the DOE Hanford WMA C website.
- The NRC will place additional DOE responses to RAIs in ADAMS Accession No. ML20042C425. (Complete)