

May 19, 2010

Mr. Richard E. Blubaugh
Vice President of Environmental Health
and Safety Resources
Powertech (USA), Inc.
5575 DTC Parkway, Suite 140
Greenwood Village, CO 80111

SUBJECT: SUMMARY OF APRIL 8, 2010, TELECONFERENCE ADDRESSING
TECHNICAL ISSUES, POWERTECH (USA), INC., PROPOSED DEWEY-
BURDOCK IN SITU RECOVERY FACILITY (TAC NO. J00606)

Dear Mr. Blubaugh:

On April 8, 2010, U.S. Nuclear Regulatory Commission (NRC) staff and representatives of Powertech (USA), Inc. (Powertech) held a teleconference to discuss a preliminary set of technical issues associated with the proposed Dewey-Burdock in situ recovery facility. The purpose of this teleconference was to explain the technical issues to ensure that Powertech understood the information being requested by the NRC staff. A summary of this meeting is enclosed, and contains the technical issues discussed during this teleconference, an expanded explanation, and a brief synopsis of any response by Powertech. A request for additional information letter will be sent to you in the near future that will include a complete list of technical issues and comments on your license application.

Once you receive this letter, please respond as one response package. If you have any questions, please contact me at 301-415-6443, or by email at ronald.burrows@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice for Domestic Licensing Proceedings and Issuance of Orders," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records

R. Blubaugh

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Sincerely,

/RA/

Ronald A. Burrows, Project Manager
Uranium Recovery Licensing Branch
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials
and Environmental Management Programs

Docket No. 40-9075

Enclosure:
Meeting Summary

cc: Amy Thurkill, Powertech (USA)
John Mays, Powertech (USA)
Bob Townsend, SD DENR
Mike Cepak, SD DENR
Marian Atkins, BLM
Mike McNeil, FS
Lynn Kolund, FS
Valois Shea, US EPA, Region 8

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MEETING SUMMARY

DATE: April 8, 2010

TIME: 10:00 a.m. – 4:00 p.m.

PLACE: U.S. Nuclear Regulatory Commission (NRC)
Two White Flint North
Room T3C2
Rockville, Maryland

PURPOSE: To discuss process and restoration, radiological and miscellaneous issues relating to Powertech (USA), Inc.'s (Powertech's) Dewey-Burdock in situ recovery (ISR) license application.

ATTENDEES: SEE ATTACHED ATTENDEE LIST

BACKGROUND:

The purpose of this meeting was to discuss process and restoration, radiological and miscellaneous issues relating to Powertech's Dewey-Burdock ISR license application. The meeting was publicly noticed on the NRC webpage on March 24, 2010.

DISCUSSION:

The teleconference started at 10:00 a.m. Eastern Time in Room T3C2. An opening statement was presented by Mr. Ronald A. Burrows, NRC. The meeting continued with a discussion of process and restoration, radiological and miscellaneous issues relating to Powertech's Dewey-Burdock ISR license application. Attached is a detailed summary of this discussion.

ACTIONS:

For individual actions associated with this teleconference, see the attached summary.

ATTACHMENTS:

1. Attendee List
2. Meeting Agenda
3. NRC and Powertech
Detailed Discussion Summary

Enclosure

MEETING ATTENDEES

Date: April 8, 2010

Topic: Teleconference to Discuss Issues Relating to Dewey-Burdock ISR License Application

NAME	AFFILIATION	PHONE NUMBER	E-MAIL
Ron Burrows	US NRC	301-415-6443	ronald.burrows@nrc.gov
Tom Lancaster	US NRC	301-415-6563	thomas.lancaster@nrc.gov
Varughese Kurian	US NRC	301-415-7426	varughese.kurian@nrc.gov
Steve Cohen	US NRC	301-415-7182	stephen.cohen@nrc.gov
Dan Gillen, via phone	US NRC		daniel.gillen@nrc.gov
Ted Johnson, via phone	US NRC		tedjohnson22@comcast.net
Linda Gersey, via phone	US NRC	817-860-8299	linda.gersey@nrc.gov
Brett Klukan	US NRC	301-415-3629	brett.klukan@nrc.gov
The following individuals participated via phone:			
Richard Clement	Powertech		
Richard Blubaugh	Powertech		
Wallace Mays	Powertech		
John Mays	Powertech		
Paul Bergstrom	Knight Piesold		
Cory Conrad	Knight Piesold		
Jim Kunkel	Knight Piesold		
Wes James	Petrotek		
Chris Pugsley	Thompson and Pugsley		
Mark Hollenbeck	Powertech		
Tony Thompson	Thompson and Pugsley		
Amy Thurkill	Powertech		
Jim Bonner	Powertech		
Monroe	Powertech		
Fabian Frohle	Powertech		

Brian Walsh	South Dakota Department of Environment and Natural Resources (SD DENR)		
Ben Hudson	SD DENR		
Bill Markley	SD DENR		
Bob Townsend	SD DENR		
Eric Holmes	SD DENR		
Mike Cepak	SD DENR		
Matt Hicks	SD DENR		
Sheldon Hamann	SD DENR		
Sarah Fields	Uranium Watch		
Grace Dugan	Counsel for Oglala Sioux Tribe		
Jeffrey Parsons	Attorney, Western Mining Action Project		
David Frankel	Attorney for Petitioners		

MEETING AGENDA
Powertech (USA) Inc. / Dewey-Burdock Project
April 8, 2010

MEETING PURPOSE: Teleconference to Discuss NRC's Request for Additional Information
Relating to Powertech's Dewey – Burdock Project Application

MEETING PROCESS:

<u>Time</u>	<u>Topic</u>	<u>Lead</u>
10:00 a.m.	Introductions	All
	Discussion of Process and Restoration Issues	All
	Break for lunch	All
	Discussion of Radiological Issues	All
	Discussion of Miscellaneous Issues	All
	Summary of Action Items	Moderator
	Public Comment/Questions	Moderator
4:00 p.m.	Adjourn	

NRC and Powertech's Detailed Discussion Summary

I. Process and Restoration Issues

1. Further define the vertical location of ore bodies proposed for uranium recovery.

Background: Exhibit 3.2-1 of the Technical Report Supplement provided the vertical locations of ore bodies proposed for uranium recovery. For several of the ore bodies, NRC staff was unable to identify whether the ore body proposed for uranium recovery is contained in the Fall River aquifer or Chilson aquifer. For those where the aquifer was identifiable, staff was also unable to determine the scaled vertical location of each ore body proposed for uranium recovery within its respective aquifer. Staff compared the ore body labels in Exhibit 3.2-1 to sub-strata labels illustrated in the "Typical Log" provided in Plate 2.6-1 of the Technical Report. Staff found that one of the ore bodies was labeled as being in the Fuson Shale. The location of proposed ore bodies for uranium recovery is necessary for staff to assess the manner in which the Dewey-Burdock operations will be protective of human health and the environment.

Needed: Please re-evaluate and revise Exhibit 3.2.1 to clearly indicate the aquifer (e.g., Fall River or Lakota) that contains each ore body proposed for uranium recovery. For each well field, illustrate the scaled vertical position of each ore body proposed for uranium recovery within the aquifer that contains it.

Response: The applicant understood the issue and asked if the NRC staff would like to see some cross sections and revised Figure 3.2-1

NRC: The NRC staff acknowledged that such information would be helpful. The additional information provided should present the above-requested information.

2. Expand on the description of the inventory of economically significant mineral and energy-related deposits and related activities.

Background: The Technical Report provided information regarding former mining in the area of the Dewey-Burdock project. The Technical Report did not provide sufficient information concerning former and active oil and gas wells potentially at or near the project. Additionally, the Technical Report did not clearly indicate whether former or active underground mine workings are at or near the Dewey-Burdock project. This information is necessary for staff to understand the potential impacts of the operations on water resources.

Needed: Please provide sufficient information concerning former and active oil and gas wells potentially at or near the Dewey-Burdock project and indicate whether there are any known underground mine workings at or near the project.

Response: The applicant understood the question.

3. Expand seismic evaluation to include the seismic event north of Dewey, South Dakota.

Background: Figure 2.6-4 of the Technical Report illustrates the location of seismic events in the region. The figure contains two maps. Within the map closest to the bottom of the figure, a seismic event is shown to have occurred immediately north of the Dewey-Burdock project. The Technical Report should include the above referenced seismic event in the evaluation of the seismicity in the project region.

Needed: Please include the above-referenced seismic event in the seismicity evaluation.

Response: The applicant understood the question.

4. Provide data and structure map for the top of the Morrison Formation.

Background: Section 2.7.2.2.16 of the Technical Report states “over 95 percent of exploration holes never penetrated deeper than the lower Lakota and upper Morrison.” The application provided limited information concerning the locations, data (e.g., geophysical logs), and associated evaluation for the five percent of the exploratory test holes that penetrate through the Lakota Formation. The applicant also did not provide a structure map of the top of the Morrison Formation. This information is necessary for staff to understand the potential impacts of the operations on water resources.

Needed: Please provide locations and documentation for exploratory test holes that penetrate through the Lakota Formation and provide a structure map of the top of the Morrison Formation.

Response: The applicant understood the question.

5. Hydraulic connection between Fall River aquifer and the ground surface.

Background: The application did not sufficiently indicate if the unconfined Fall River groundwater zone is hydraulically connected to the ground surface at or near the wellfields Burdock II and IV. This information is necessary for staff to understand the potential impacts of the operations on water resources.

Needed: Please evaluate where the unconfined Fall River groundwater surface is hydraulically connected to the ground surface at or near wellfields (including the bottom of open mine pits).

Response: They think they understand. They will show where the boundary of the Grenaras and show whether there is any extraction near the open pit mines. They can supply that.

6. Confining capacity of Fuson Member in areas of unconfined Fall River and Chilson production.

Background: Within or near areas where the Fall River aquifer is unconfined and uranium recovery is proposed within the Chilson Member, the Technical Report did not sufficiently indicate the Fuson Shale’s confining capacity (e.g., including the possible presence of Fuson permeable paleostream deposits). This information is necessary for staff’s understanding of the

operation's hydraulic containment of process fluids and to assess the manner in which the Dewey-Burdock operations will be protective of human health and the environment.

Needed: Using exploratory test-hole data and other data please expand the evaluation of Fuson Shale confining capacity within or near the areas where the Fall River aquifer is unconfined and uranium recovery is proposed within the Chilson Member.

Response: The applicant appeared to understand the question.

7. Provide additional aquifer test information.

Background: The Technical Report provided limited data for the 11-day aquifer test previously conducted by TVA in the Lakota aquifer in the Dewey area. The Technical Report also referenced a paper entitled, "Hydrogeologic Investigations at Proposed Uranium Mine Near Dewey, South Dakota," (Boggs, J. M., 1983). Submittal of TVA's Dewey aquifer test report and the above-referenced paper are requested for staff to understand the potential impacts of the operations on water resources.

Needed: Please provide the TVA's Dewey aquifer test report and the above-referenced paper.

Response: The applicant understood the question.

8. Cross sections with geophysical log results.

Cross sections with geophysical log results are requested for the southwestern corner of wellfield Dewey III and the eastern portion of wellfield Burdock III. Although a cross section of wellfield Dewey II was provided in Plate 2.6-12 of the Technical Report, staff requests that the cross section be revised to include geophysical log results. Additionally, staff requests the revision of the cross sections for wellfields Dewey II and III to include logs from all test holes that penetrated through the Lakota Formation. This information is requested for staff to understand the potential impacts of the operations on water resources.

Needed: Please provide the above referenced cross sections with geophysical log results.

Response: The applicant understood the question.

9. Clarify plugging and abandonment of all exploration holes.

Background: Section 5.7.1.3 of the Technical Report states "Effluent controls for preventing migration of recovery solutions to overlying and underlying aquifers consist of plugging and abandonment of all exploration holes..." NRC staff was unsure if this statement includes the former exploration holes that may not have been plugged or plugged properly.

Needed: Please clarify if the above-referenced quote refers to former exploration holes at or near production zones.

Response: The applicant understood the question.

10. Clarify the exact number and locations of wells.

Background: Staff is uncertain of the total number of wells within 2 kilometers of the project area and whether or not the 26 abandoned wells are a subset of the total. Additionally, NRC staff is uncertain of the number of livestock or domestic wells. The Technical Report Supplement indicated that the applicant has the right to replace three Inyan Kara stock wells (ID#s 17, 49, and 628) prior to initiation of operations. These wells are located within the proposed aquifer exemption area and would be replaced with water wells that are not completed within the proposed zones of operations. Staff notes that there is a fourth well (#61) within the aquifer exemption area and in the middle of the Burdock Wellfield #1. The staff is unsure of the status of this well. Additionally, the application did not clarify the procedure to replace any nearby well.

Needed: Please provide a table listing the well ID, location, coordinates, and aquifer for each of the following groups within and near the license area: livestock wells, domestic wells, wells with other uses, and wells with unknown uses. Please clarify that the lease agreement applies to all wells within the licensed area and those procedures that will be used to relocate and/or monitor any impacts. If a well is to be replaced, please provide the staff with an example of a proposed location.

Response: The applicant understood the question.

11. Details of the applicant's pumping test for independent review.

Background: The applicant provided the calculated drawdown for the pumping tests, but did not include any groundwater elevations for that time period. This information is necessary for staff to conduct an independent review of the potential impacts of the operations on water resources.

Needed: Please provide groundwater elevations for the pumping test data.

Response: The applicant understood the question.

12. Clarification of breccia pipes

a. Background: Exhibit 2.2-1 of the Technical Report Supplement includes a reference to Geological Survey Professional Paper 763 (Gott et al. 1974). NRC staff found that the illustrated breccia pipe study area within the 1974 document does not appear to include the Dewey half of the license area.

Needed: Please specify the source(s) of information used to illustrate breccia pipe locations in Exhibit 2.2-1 of the Technical Report Supplement. Additionally, please specify the specific area of the map in Exhibit 2.2-1 that illustrates known breccia pipe locations. This information is necessary for staff to understand the potential impacts of the operations on water resources.

b. Background: Exhibit 3.2.1 of the Technical Report Supplement and Figures 2.7-15 of the Technical Report indicate that uranium recovery in the Lakota formation is proposed within the northern portion of the Dewey license area where the Lakota's potentiometric surface is relatively high and flat compared to the steeper gradient in the southern

portion of the license area. NRC staff is uncertain whether this anomaly in the Lakota's potentiometric surface is linked to significant local recharge. For example, considering the absence of complete information for the TVA Lakota aquifer test, Unkpapa potentiometric data, and coverage of the 1974 breccia pipe study area (refer to 12a above) in the northern portion of Dewey license area, staff is uncertain whether this anomaly in the Lakota's potentiometric surface is linked to a pathway of significant local recharge from the Unkpapa (e.g., Lakota breccia pipes) to areas that are adjacent to proposed Lakota wellfield production zones. Staff notes that significant localized groundwater flow from the Unkpapa to an area that is adjacent to a proposed Lakota wellfield production zone may potentially have an adverse effect on the hydraulic containment of process fluids.

Needed: Staff requests further clarification of the cause of the relatively high and flat potentiometric surface of the Lakota in the northern portion of the Dewey license area. This information is necessary for staff to understand the potential impacts of the operations on water resources.

Response: Powertech understood the question.

13. Proposed operations / infrastructure outside of the license boundary.

Background: The Technical Report Supplement indicated that some of the proposed operations / infrastructure may be outside of the proposed license boundary. NRC staff notes that Exhibit 3.1-3 shows a portion of the plant to plant pipeline to be outside of the license boundary. NRC staff also notes that operations / infrastructure for the associated wellfields (e.g., upgradient portion of the horizontal excursion monitoring well ring) may also be outside of the license boundary.

NRC staff found that the application did not sufficiently address the control and containment of process fluids for operations / infrastructure that is outside of the proposed license boundary. This information is necessary for staff to understand the potential impacts of the operations on water resources and to assess the manner in which the Dewey-Burdock operations will be protective of human health and the environment.

Needed: NRC staff requests confirmation of the above-referenced wellfield locations relative to the license boundary. Please further clarify the control and containment of process fluids for proposed operations / infrastructure outside of the license boundary. Please further clarify the composition of the material that will flow through the plant to plant pipeline.

Response: The applicant appeared to indicate that the comment may contradict what was provided.

NRC: The monitoring well ring appears to be outside the license area.

Clarification: Referring to Exhibit 3.1-4 and using the township range blocks for scale, the mine unit outline of Dewey II and Burdock IV wellfields appear to be located such that one or more of the proposed horizontal excursion monitoring wells will be outside of the license boundary. Additionally, cross referencing the proposed Burdock IV ore body for uranium recovery in

Exhibit 3.1-4 to Exhibit 3.2-1, NRC is uncertain of the exact location of the Burdock IV wellfield relative to the license boundary (Exhibit 3.2-1 suggests both monitoring and production wells will be outside of the license boundary).

14. Provide revised and additional information on plans for the disposal of liquid wastes.

Background: The NRC needs to determine that liquid effluents generated from the process bleed, process solutions (e.g., backwash, resin transfer waters), wash-down water, well development water, pumping test water, and restoration waters are properly controlled.

a. The supplemental information provided on the liquid waste disposal options needs to be integrated into the application in a clearer manner. Rather than just indicating that here is some supplemental information, the sections of the original application that no longer apply should be identified, and other sections that need modification based on the new information should be updated (e.g., 6.1.9). As is, the documentation on liquid waste disposal is confusing and inconsistent.

Needed: The applicant needs to bring greater clarity and organization to the new information on liquid disposal options.

Response: The applicant understands the question.

b. It appears that the applicant is proposing several options for liquid waste disposal: direct disposal in deep wells; disposal in deep wells after extracting radium in settling ponds; or land application after extracting radium in settling ponds. This is not clearly stated in the application.

Needed: The applicant (upfront in Section 4.2) needs to clearly state the options being considered and their preference of use.

Response: The applicant understands the question.

c. No water balance diagrams have been provided in support of the discussion on handling liquid wastes.

Needed: The applicant needs to provide water balance diagrams for the Dewey and Burdock facilities during normal operation and during restoration.

Response: The applicant understands the question.

d. The applicant has indicated that the waste streams from operations and restoration would fall under the classification of non-hazardous, 11(e).2 waste suitable for deep injection well disposal under EPA Class V regulations. However, there is no specific table of projected quality of operational or restoration wastewater that would be disposed of in the deep wells.

Needed: The applicant needs to provide waste quality data tables and demonstrate the liquid waste will meet EPA Class V regulations as stated.

Response: The applicant understands the question.

- e. Additional information regarding the applicant's plans for deep well disposal is needed by the NRC staff to complete its review of the liquid waste disposal options.

Needed: The applicant needs to provide: (1) the results of the analyses to determine the targeted disposal zone; (2) the basis for reaching the conclusion of needing only one well at each site, including information on how the applicant will ensure backup storage capacity for liquid waste in the event that the deep wells need to be shut down for a short time (particularly for the option of deep well only); (3) the status of the application for the EPA Class V Permit; and (4) a discussion as to how it meets the requirements of 20.2002.

Response: The applicant understands the question.

- f. The calculation of storage volumes for the radium settling ponds for the deep well disposal option only assumes a 10-year project life for sludge accumulation.

Needed: The applicant needs to provide the pond contingencies for project life extending beyond 10 years.

Response: The applicant understands the question.

- g. The application does not clearly indicate the purpose of the central processing plant brine ponds, and why the sizes are different under the two disposal options.

Needed: The applicant needs to provide information to clarify this.

Response: The applicant understands the question.

- h. Regarding the design and construction of the ponds, a quality control program should be established for the following factors: (i) clearing, grubbing, and stripping; (ii) excavation and backfill; (iii) rolling; (iv) compaction and moisture control; (v) finishing; (vi) sub-grade sterilization; and (vii) liner sub-drainage and gas venting.

Needed: The applicant needs to provide impoundment construction specs for all these aspects and a description of the testing and inspection program during construction, including frequency of earthwork testing.

Response: The applicant understands the question.

- i. Information on inspection of the impoundment systems is insufficient.

The applicant needs to provide a commitment for and details of the periodic inspection of all impoundment systems in accordance with Regulatory Guide 3.11, including commitments to the following:

- Inspections should be made of the liner, liner slopes, and other earthwork features. Any damage or defects that could result in leakage should be immediately reported to the NRC staff. Appropriate repairs should be implemented as soon as possible.
- The monitoring and inspection program should include documented daily checks of impoundment freeboard and the leak detection system.
- When significant water levels are detected by the leak detection system, the water in the standpipes must be sampled for indicator parameters to confirm that the water in the detection system is from the impoundment.

Needed: The applicant should specify and provide the basis for selecting the indicator parameter(s) used to verify leaks.

Response: The applicant understands the question.

- j. Additional information is needed regarding contingency plans for dealing with leaks and spills.

The NRC staff needs to ensure that facility descriptions include a discussion of design features to contain contamination from spills resulting from normal operations and the likely consequences of any accidents.

Needed: The applicant needs to address the likelihood of, and measures for, preventing or containing a multiple tank failure such as might occur if one failed tank fell into an adjacent tank. Also provide information on the ability of the sump system to handle the volume of the largest spill from a hazardous materials source.

Response: The applicant understands the question.

- k. The applicant needs to describe the controls for shut down of the deep well injection system.

Needed: Provide information as requested.

Response: The applicant understands the question.

15. The applicant has not identified where it will dispose of 11e. (2) wastes.

Background: Prior to the start of operations, the NRC will need to verify that the applicant has an approved waste disposal agreement for 11e.(2) byproduct material disposal at an NRC or NRC Agreement State licensed disposal facility (Sections 4.2 and 6.2 of the Technical Report).

Needed: The applicant needs to provide this information now, or the license will have a condition requiring verification of the solid waste disposal agreement prior to the start of operations.

Response: The applicant understands the question.

16. Additional discussion of the land clean up program needs to be provided.

Background: The applicant needs to provide land cleanup information including: (1) which areas would be focused on during the surveys (such as well field surfaces, areas around structures in process and storage areas, on-site transportation routes, historical spill areas, retention ponds, and areas near the deep disposal wells); (2) plans for decommissioning non-radiological hazardous constituents as required by 10 CFR Part 40, Appendix A, Criterion 6 (7); and (3) the actual QAPP for radiological monitoring (including decommissioning), rather than just a commitment to include the aspects discussed in Regulatory Guide 8.15.

Needed: Provide information as requested.

Response: The applicant understands the question.

17. Section 6.3: The applicant needs to provide additional commitments in the section on removal and disposal of structures, waste materials, and equipment.

Background: Provide commitments: (1) to make plans for radioactivity measurements on the interior surfaces of pipes, drain lines, and ductwork by including plans to measure at all traps and other access points where contamination is likely to be representative of system-wide contamination; and (2) to assume that all premises, equipment, or scrap likely to be contaminated but that cannot be measured, would be assumed by the applicant to be contaminated in excess of limits and will be treated accordingly.

Needed: Provide information as requested.

Response: The applicant understands the question.

II. Radiological Issues

1. Additional information needs to be provided on the authority of the Radiation Safety Officer (RSO).

Background: It is not clear that the RSO has the responsibilities and authority discussed in Regulatory Guide 8.31.

Needed: To be consistent with the responsibilities and authority discussed in Regulatory Guide 8.31, Section 1.2, the applicant needs to provide a commitment that the Mine Manager cannot unilaterally override a decision of the RSO to suspend, postpone, or modify an activity.

Response: The applicant understands the question.

2. Additional information on the use of Radiation Work Permits (RWPs) needs to be provided in the application.

Background: The applicant has indicated that RWPs would be reviewed and approved by the RSO or the RSO designee in the absence of the RSO.

Needed: Provide the criteria by which the applicant will determine who is a qualified designee to replace the RSO (e.g., specialized training) in RWP review and approval activities and demonstrate how these criteria are consistent with Regulatory Guide 8.31.

Response: The applicant understands the question.

3. Additional information on the operational inspection program needs to be submitted.

Background: The applicant has indicated that the Dewey Burdock RSO, or an RSO designee would conduct a daily visual inspection of all work and storage areas in the facility to determine if standard operating procedures are being followed properly and good radiation practices are being implemented.

Needed: Provide the criteria (e.g., specialized training) by which the applicant will determine who is a qualified designee to replace the RSO in radiation safety inspection activities and expected frequency of inspections performed by the designee.

Response: The applicant understands the question.

4. Sampling and analysis results.

Background: Regulatory Guide 4.14, Section 7.0 (Recording and Reporting Results) recommends, among other things, providing the values of the lower limit of detection (LLD) error estimates and a description of the calculation of the LLD and error along with other quality assurance data. The following are some of the examples the staff has identified that do not appear to conform to these recommendations.

- a. In the Technical Report, no LLD or error values for fish are given in Tables 2.8-23 and 2.8-30 or in the lab report in Appendix 2.8-H.
- b. In Table 2.9-16 and 2.9-17 of the Technical Report, no LLD or error values are given for ground water.
- c. In Table 2.9-5 of the Technical Report, LLD values for soil samples are not provided.
- d. The results for sediment samples in Tables 2.9.8 and 2.9.9 of the Technical Report do not fully address reporting recommendations for LLD, error and quality assurance.
- e. In Table 2.9-12 of the Technical Report, LLD values for the radionuclide concentrations in air are reported. However, the LLD values are not reported on the corresponding laboratory report and NRC staff cannot locate the method of deriving these LLD values in the Technical Report.

Needed: For all radiological data reported, the applicant should address Regulatory Guide 4.14, Section 7.0 (Recording and Reporting Results), recommendations regarding LLD, error, and other quality assurance provisions.

Response: The applicant understands the question.

5. Reporting format of radiological sample results.

Background: Regulatory Guide 4.14 Section 7.5 states that the term “not detected”, “less than the lower limit of detection (LLD)”, or similar terms should never be used. However, in Tables 2.8-23, 2.8-30 and in 2.9-19 of the Technical Report the sample results are reported as “ND” and “u”, etc.

Needed: Consistent with Regulatory Guide 4.14, all radiological data should be reported as a value and its associated error estimate, including values less than the lower limit of detection or less than zero.

Response: The applicant understands the question.

III. Miscellaneous Issues

1. Provide additional information on chemicals that have the potential to impact radiological safety.

Background: Section 3.2.8. The NRC staff needs to determine whether the hazards associated with the storage and processing of hazardous materials with the potential to impact radiological safety have been sufficiently addressed in the process design for the recovery plant, satellite processing facilities, well fields, and chemical storage facilities.

a. The applicant needs to specifically identify specifically those chemicals used in uranium processing that have the potential to impact radiological safety.

Needed: Provide information as requested.

Response: The applicant understands the question.

b. The applicant needs to completely and clearly identify on Figures 3.2-4 and 3.2-5 the storage locations of all chemicals used in uranium processing (enlarge figure to be readable). The locations need to be consistent with the descriptions of chemical use provided in Section 3.2.8 of the application.

Needed: Provide information as requested.

Response: The applicant understands the question.

c. Section 3.2.8.3 on acid storage indicates the acid will be stored outside the CPP, but inconsistently also indicates the tank would be vented through the building roof. The applicant should correct this inconsistency.

Needed: Provide information as requested.

Response: The applicant understands the question.

2. Provide information demonstrating that dryer operations will meet 10 CFR Part 40, Appendix A, Criterion 8.

Background: The NRC staff needs to determine that maintenance and operation of yellowcake dryers, and checking and logging requirements contained in 10 CFR Part 40, Appendix A, Criterion 8, are followed. The applicant indicates that during drying operations, the operator would perform and document inspections of the differential pressure or vacuum every 4 hours, and document readings of the differential gauges for other emission control equipment at least once per shift. 10 CFR Part 40, Appendix A, Criterion 8, requires at least hourly monitoring of yellowcake dryer controls.

Needed: The applicant needs to provide plans to meet the requirements of 10 CFR Part 40, Appendix A, Criterion 8.

Response: The applicant understands the question. The applicant asked if they could provide information that 4 hours is sufficient. The staff responded that the applicant can submit this information.

3. Provide additional discussion of backup for operating systems.

Background: Section 3.2.12 is insufficient in its discussion of backup systems. The NRC needs to determine that control components of the systems are equipped with backup systems that activate in the event of a failure of the operating system or a common cause failure such as power failure.

Needed: The applicant needs to provide this additional discussion of backup in the event of system or power failure.

Response: The applicant understands the question.

4. Additional financial assurance information needs to be provided.

Background: Section 6.6. NRC staff requires certain information to ensure that the proposed surety amount is sufficient to fund all decommissioning activities documented in the license application, that the methods used to establish the surety amount are acceptable, and that the forecast costs are reasonable.

- a. The applicant has not identified a specific surety mechanism, nor has it made a commitment to one of the mechanisms identified in Criterion 9 of 10 CFR Part 40, Appendix A. This needs to be done prior to operation.
- b. The applicant has provided decommissioning cost estimates for two options based on 2008 dollars. Costs should be updated to current dollars just prior to licensing.
- c. There needs to be a discussion along with the tables in Appendix 6.6-A that provides explanatory information on the data in the tables, including the time period of the cost estimates, the sources and bases for assumptions, etc. For example, there is an

assumption that contaminated waste would be sent to Texas. However, there is no 11e.(2) disposal agreement at this time, so the basis for this assumption is questionable.

- d. The applicant includes a flare factor of 1.5 in its calculation of restoration costs. In addition ground water restoration costs are based on treatment of 10 pore volumes. Provide justification for the flare factor and for using 10 pore volumes total.
- e. The applicant has committed to annually adjusting the surety value. However, additional comments are needed to: (1) automatically extend the surety if the NRC has not approved the proposed revision 30 days prior to the expiration date; (2) revise the surety arrangement within 3 months of NRC approval of any revised closure (decommissioning) plan if the revised cost estimates exceed the amount of the existing financial surety; (3) submit (for NRC review) an updated surety to cover any planned expansion or operational change not included in the annual surety update at least 90 days prior to beginning associated construction; and (4) provide the NRC copies of surety related information submitted to the State of South Dakota and the Environmental Protection Agency, including a copy of the State's surety review or the final surety arrangement.

Needed: Provide information related to financial assurance as requested.

Response: The applicant understands the question.

- 5. Provide additional information and analyses related to site flooding.

Background: The applicant did not adequately address the potential for flooding of the site from large floods on nearby streams. In accordance with the requirements of 10 CFR Part 40, Appendix A, and the suggested criteria of NUREG-1569, the effects of potential flooding need to be addressed.

Needed: The applicant needs to provide appropriate estimates of peak flood discharges and water levels produced by large floods on Pass Creek, Beaver Creek, and local small drainage areas.

Response: The applicant understands the question.

- 6. Provide additional information and analyses related to retention pond design and the effects of local intense rainfall and flooding.

Background: The applicant did not provide sufficient information and analyses related to runoff and flooding from local intense rainfall with respect to erosion and the capacity of site retention ponds. In accordance with the requirements of 10 CFR Part 40, Appendix A, and the suggested criteria of NUREG-1569 and Regulatory Guide 3.11, the effects of potential flooding need to be addressed.

Needed: The applicant needs to provide: detailed site drawings showing detailed local topography and pond construction features; peak flood calculations; peak water level and velocity calculations; and erosion protection design features, as applicable.

Response: The applicant understands the question.