

December 27, 2000

Mr. John L. Erickson, Director
Division of Radiation Protection
Washington Department of Health
7171 Cleanwater Lane, Bldg. 5
P.O. Box 47827
Olympia, Washington 98504-7827

Dear Mr. Erickson

We have completed review of your November 16, 2000 submittal, regarding the proposed termination of Radioactive Material License, WN-I0133-1, issued to Western Nuclear, Inc., (WNI). The license covered the WNI Sherwood Uranium Mill Project (Sherwood) Site, a conventional uranium mill facility located near Wellpinit, Washington. You requested in your submittal that the U.S. Nuclear Regulatory Commission make a determination that all applicable standards and requirements pertaining to reclamation of the Sherwood Site have been met.

The process that we used to make the determination is set out in the Office of State and Tribal Programs Procedure SA-900. Our determination is based on two supporting bases: review of a completion review report documenting the Washington Department of Health (WDOH) staff's bases for its conclusion that all requirements have been met; and review of Washington's Agreement State uranium recovery program, conducted under the Integrated Materials Performance Evaluation Program (IMPEP).

First, the information you have submitted in Revision #2 to the Completion Review Report (CRR), dated November 2000, documents that the WDOH has performed a complete review of the Sherwood Site for compliance with regulatory and license requirements. WDOH's review covered all necessary technical areas and regulatory requirements relating to reclamation of the Sherwood Site including geotechnical engineering, surface water hydrology and erosion protection, radiation cleanup and control, and groundwater protection. WDOH also conducted appropriate inspections of site reclamation activities at the Sherwood Site. Based on the review findings documented in the CRR, WDOH concluded that the Sherwood Site has met all regulatory and license requirements.

Second, the most recent IMPEP review of the Washington Agreement State Program, conducted in September 1999, concluded that the Washington program is adequate to protect public health and safety, and compatible with NRC's regulatory program. This finding is consistent with previous Washington program evaluation findings.

Based on our review of the above information and in accordance with the provisions at 10 CFR 150.15a(a) and Section 274c of the Atomic Energy Act of 1954, as amended, we concur that all applicable standards and requirements for the protection of the public health, safety and the environment have been met for the termination of the Radioactive Material License, WN-I0133-1.

John L. Erickson

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December 27, 2000

A copy of our evaluation report, without associated attachments, entitled "Documentation of NRC Review on the Termination Findings of the Western Nuclear, Inc.'s Sherwood Uranium Mill License Submitted by the Washington State Department of Health" is enclosed.

If you have any questions, or we can be of further assistance, please contact me or Kevin Hsueh at (301) 415-2598.

Sincerely,

/RA/

Paul H. Lohaus, Director
Office of State and Tribal Programs

Enclosure:
As stated

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STP-AG-29

Documentation of NRC Review on the Termination Findings of the Western Nuclear, Inc.'s Sherwood Uranium Mill License Submitted by the Washington State Department of Health

Licensee: Western Nuclear, Inc. (WNI)
Licensee No.: WN-I0133-1
Location: Wellpinit, Washington
Area: approximately 383 acres
Type of License: Conventional Uranium Mill License
Full / Partial License Termination: Full License Termination

- A. Documentation of major events/activities related to the review of the Sherwood Proposal
1. On January 18, 2000, the NRC staff received a letter from the U.S. Department of Energy (DOE) regarding the Long-Term Surveillance Plan (LTSP) for the WNI's Sherwood site. The DOE letter can be found in **Attachment 1**.
 2. On March 2, 2000, NRC staff received the WNI's Sherwood proposal from Washington Department of Health (WDOH). A letter dated February 29, 2000 with a copy of the WDOH's Completion Review Report (CRR) can be found in **Attachment 2**.
 3. The review was conducted by an NRC staff team. A list of NRC staff technical reviewers can be found in **Attachment 3**.
 4. On May 2, 2000, NRC staff discussed the review process and status of NRC's review of the Sherwood proposal at a meeting with DOE, WDOH and WNI representatives.
 5. On May 19, 2000, after completing review of the CRR, NRC staff provided comments to WDOH. The cover letter and attached comments can be found in **Attachment 4**.
 6. On May 24, 2000, NRC staff met at the WNI's Sherwood site with DOE, WDOH and WNI representatives to observe site conditions and to discuss LTSP issues. NRC's comments (See Attachment 4) on WDOH's CRR were also discussed.
 7. On July 11, 2000, NRC staff received WDOH's response to the May 19, 2000 letter. The letter, dated July 10, 2000 and its attachment, WNI's response letter to NRC's comments, can be found in **Attachment 5**.
 8. On July 14, 2000, NRC and WDOH staff met to discuss the status of NRC's review, areas needing further information or clarification (See Table below), WDOH feedback and comments on the review process, future actions, and a proposed schedule for completion of the review.

No.	REVIEW AREA	POTENTIAL SIGNIFICANCE
1.	Geotechnical Engineering Appendix A to 10 CFR Part 40, Criterion 4, Embankment Stability	The saturated tailings may be subjected to liquefaction, as a result of earthquakes, which could potentially damage the cover (due to boils) and expose tailings.
2.	Geology and Seismology Appendix A to 10 CFR Part 40, Criterion 4, Embankment Stability	Staff needs further supporting information to verify the adequacy of data used to determine the design earthquake magnitude and other site characteristics.
3.	Groundwater Protection Appendix A to 10 CFR Part 40, Criterion 6(7), Non-radiological Hazards	It is not clear whether contaminated liquids, if potentially released from the impoundment through liquefaction failures, would remain within applicable requirements and, therefore, not potentially impact the groundwater.
4.	Radiation Cleanup and Control Appendix A to 10 CFR Part 40, Criterion 6(1)(ii), (5) and (6), Radiation Surveys and Soil Sample Analyses	Staff needs further supporting information to concur in WDOH's determination that the subject site has been cleaned up to the standards.
5.	Classification of Reclaimed Dam National Dam Safety Program Act (passed as Section 215 of the Water Resources Development Act of 1996)	The reclaimed tailings dam may be classified as a dam under Federal Guidelines for Dam Safety and the National Dam Safety Program. Such dams usually require maintenance; this may be contrary to the requirements of Part 40 Appendix A.

9. On August 9, 2000, NRC staff met with DOE, WDOH and WNI representatives at the DOE Long-Term Stewardship Workshop to discuss the status of NRC's review, areas where further information or clarification were needed, and the schedule for completion of the review.
10. On October 6, 2000, NRC staff received Revision #1 to the CRR from WDOH. WDOH indicated Revision #1 to the CRR provided responses to NRC's comments as documented in Attachment 4. The October 6, 2000 letter and its attachment can be found in **Attachment 6**.
11. On October 23 and 24, 2000, after completing review of Revision #1 to the CRR, NRC staff communicated with WDOH staff through e-mail on areas where further information or clarification was needed. On November 9, 2000, WDOH staff provided responses to NRC's comments through e-mail. These e-mails can be found in **Attachment 7**.
12. On November 9, 2000, NRC staff provided comments to DOE on a Draft LTSP. The comments reflect consideration of information contained in the CRR and resulting from

NRC staff review of the CRR. The letter notes that because the mill tailings will be saturated for an indefinite period of time, and a large amount of water is impounded behind the dam, the tailings impoundment system is formally classified as a dam. To meet Federal obligations under the requirements of the National Dam Safety Program Act, the dam must be inspected at regular intervals. The letter concludes that additional inspection items that must be included in the LTSP to meet applicable requirements. The comment letter and its attachment can be found in **Attachment 8**.

13. On November 20, 2000, NRC staff received Revision #2 to the CRR, from WDOH. Following review, NRC staff concluded that Revision #2 to the CRR addressed all NRC's comments and provided WDOH staff's bases for its conclusion that the WNI Sherwood Site has met all regulatory and license requirements. The letter and its attachment can be found in **Attachment 9**.
14. The five issues identified during the July 14, 2000 meeting were closed based on additional information documented in Revision #2 to the CRR (Items 1-4) or based on information provided in the November 9, 2000 letter from NRC to DOE (Item 5). This is summarized in the Table below.

No.	REVIEW AREA	COMMENTS
1.	Geotechnical Engineering Appendix A to 10 CFR Part 40, Criterion 4, Embankment Stability	Additional information is documented in the Seismic Evaluation and Liquefaction Potential sections under the Geotechnical stability portion of the Revision #2 to the CRR.
2.	Geology and Seismology Appendix A to 10 CFR Part 40, Criterion 4, Embankment Stability	Additional information is documented in the Capable Faults, Seismic Evaluation, and Liquefaction Potential sections under the Geotechnical stability portion of the Revision #2 to the CRR.
3.	Groundwater Protection Appendix A to 10 CFR Part 40, Criterion 6(7), Non-radiological Hazards	Same as item 3 and also in the summary section under the Groundwater Remediation portion of the Revision #2 to the CRR.
4.	Radiation Cleanup and Control Appendix A to 10 CFR Part 40, Criterion 6(1)(ii), (5) and (6), Radiation Surveys and Soil Sample Analyses	Additional information is documented in the Radiation Cleanup and Control portion of the Revision #2 to the CRR.

No.	REVIEW AREA	COMMENTS
5.	Classification of Reclaimed Dam National Dam Safety Program Act (passed as Section 215 of the Water Resources Development Act of 1996)	The reclaimed tailings dam is classified as a dam under Federal Guidelines for Dam Safety and the National Dam Safety Program Act. However this issue is addressed through LTSP (see Attachment 8). It was recommended that DOE should provide additional dam safety information, including a reference to monitoring piezometers along the dam face, and should add several inspection procedures to the LTSP.

B. Documentation of review comments on items specified in the STP procedure SA-900 "Termination of Uranium Mill Licenses in Agreement States."

1. A brief description of licensee's activities associated with decommissioning, tailings remediation and/or groundwater cleanup.

Comment: This information is provided in section 1 of the Revision #2 to the CRR. The submitted information was found to be complete.

2. Documentation that the completed surface remedial actions were performed in accordance with license requirements and regulations.

Comment: This information is provided in section 2 of the Revision #2 to the CRR. WDOH staff reviewed geotechnical stability, surface water hydrology and erosion protection, and radon emanation aspects of the reclamation of WNI's Sherwood site. Based on its evaluation, it was concluded that reclamation of the site has met all applicable standards and conformed with design specifications. The submitted information was found to be acceptable.

3. Documentation that the completed site decommissioning actions were performed in accordance with license requirements and regulations. This documentation should include a discussion of results of radiation surveys and confirmatory soil samples which indicates that the subject site meets unrestricted release requirements.

Comment: This information is provided in section 3 of the Revision #2 to the CRR. It is stated that WNI's initial measurement indicated that 95% of all gamma and soil sample grids were below the radium regulatory limit. Following the initial surveys, all gamma grids and soil grids that were in excess of limits were excavated until results indicated concentrations below the applicable limit. WDOH data confirm that WNI's sampling process was valid. It was concluded by WDOH that residual radioactive material in all

the areas potentially impacted by the mill operation were cleaned up to the State standards. The submitted information was found to be acceptable.

4. Documentation that the completed groundwater corrective actions, if necessary, were performed in accordance with license requirements and regulations.

Comment: This information is provided in section 4 of the Revision #2 to the CRR. WDOH's review of all groundwater quality data has determined that the hazardous constituents in the tailings impoundment (uranium, Ra-226, Ra-228, Th-230, arsenic, nickel, and thallium) are stable in groundwater within the range of natural variability and remain below regulatory limits. It was concluded by WDOH that the closure of WNI's Sherwood site is in compliance with Washington State groundwater regulations associated with uranium mill closure. The submitted information was found to be acceptable.

5. Discussion of results of State's site closure inspection.

Comment: This information is provided in section 5 of the Revision #2 to the CRR. It is stated that WDOH staff has performed appropriate site reclamation inspections over the years as site remediation moved from one phase to the next. WDOH employed inspection staff or provided specialized consultants to review and verify all important aspects of site closure. It was concluded that results of WDOH staff site inspections have provided a presence to ensure that site reclamation activities were performed as required by regulation and license conditions. The submitted information was found to be acceptable.

6. Documentation that release of this portion of the site will not negatively impact the remainder of the site to be closed at a later date, if it is a partial license termination case. Such documentation could be a statement from the appropriate State regulatory agency which confirms that the impact has been evaluated and includes the bases for the State's conclusion.

Comment: Not applicable. This is a full license termination.

7. IMPEP review of the WDOH uranium recovery regulatory program

Comment: Based on 1999 IMPEP review, the WDOH uranium recovery program was found to be satisfactory based on the IMPEP evaluation criteria. (A satisfactory rating is the highest rating possible for each IMPEP common and non-common performance indicator.) The overall Washington Agreement State program was found to be adequate to protect public health and safety and compatible with NRC's program. The IMPEP team had one recommendation in the Uranium Recovery area that the State develop additional specialized inspection procedures.

Based on review of the above information, as specified in the STP SA-900 Procedure, and in accordance with the provisions at 10 CFR 150.15a(a) and Section 274c of the Atomic Energy

