June 15, 2005

Mr. Lawrence J. Corte
Western Nuclear, Inc.
2801 Youngfield Street, Suite 340
Golden, CO 80401

SUBJECT: AMENDMENT OF SOURCE MATERIALS LICENSE SUA-56 TO MODIFY THE GROUND-WATER AND SURFACE WATER MONITORING PROGRAMS AT WESTERN NUCLEAR, INC.'S SPLIT ROCK SITE, AMENDMENT 98 (TAC LU0083)

Dear Mr. Corte:

By letter dated May 24, 2004, Western Nuclear, Inc. (WNI), submitted a request to amend License Conditions 24 and 74 of its Source Materials License SUA-56. Requested amendments included modifying the compliance monitoring network by reducing the number of monitoring wells, reducing the number of parameters to be analyzed, and increasing the number of surface water samples. By letter dated November 10, 2004, the U.S. Nuclear Regulatory Commission (NRC) forwarded a Request for Additional Information (RAI) containing questions and comments regarding the number of wells in the proposed network, sampling frequencies, and mapping information. During the week of December 6, 2004, WNI raised specific issues with the NRC's comments and requested clarification of the RAI. WNI and the NRC discussed the issues, in general, via a teleconference on December 16, 2004, and in greater detail via a teleconference on December 20, 2004. As a result, the NRC issued a supplemental RAI on January 26, 2005, to which WNI responded on March 2, 2005.

NRC staff has documented its review of the submittals in a technical evaluation report (Enclosure 1), in which the staff determined the proposed remediation plan would provide for appropriate contamination tracking and public health and environmental protection. Approval of the requested modifications required wording changes for License Conditions 24 and 74. The revised license, reissued as Amendment No. 98 to Source Materials License SUA-56, is enclosed (Enclosure 2).

NRC staff has determined that this licensing action is categorically excluded from the need for further environmental review. According to 10 CFR 51.22(c)(11), amendments to materials licenses that result in "a change in process operations or equipment" are categorically excluded provided that "(I) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite, (ii) there is no signiifcant increase in individual or cumulative occupational radiation exposure, (iii) there is no significant construction impact, and (iv) there is no significant increase in the potential for or consequences from radiological accidents." Based on our analysis of the information received and reviewed, the licensing action complies with the requirements of the aforementioned categorical exclusion.

If you have any questions regarding this letter or the enclosures, please contact Mr.

Stephen J. Cohen, at (301) 415-7182 or via e-mail to sjc7@nrc.gov.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/reading-rm/adams.html.

Sincerely,

/RA/

Gary S. Janosko, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No.: 40-1162
License No.: SUA-56

Enclosures: Technical Evaluation Report
Amendment No. 98 to License SUA-56

cc: M. Thiesse, Wyoming DEQ
J. Wagner, WDEQ

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/RA/

Gary S. Janosko, Chief
Fuel Cycle Facilities Branch
Division of Fuel Cycle Safety
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License No.: SUA-56

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J. Wagner, WDEQ

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TECHNICAL EVALUATION REPORT FOR
WESTERN NUCLEAR, INC.'S MODIFICATIONS TO THE GROUND-WATER AND SURFACE WATER MONITORING PROGRAMS AT THE SPLIT ROCK SITE, JEFFREY CITY, WYOMING

Docket No.: 40-1162 **License No.:** SUA-56

DATE: June 10, 2005

FACILITY: Split Rock Site, Jeffrey City, Wyoming

TECHNICAL REVIEWERS: William von Till, Stephen J. Cohen

PROJECT MANAGER: William von Till

SUMMARY AND CONCLUSIONS:

By letter dated May 24, 2004, Western Nuclear, Inc. (WNI), submitted a request to amend License Conditions 24 and 74 of its Source Materials license SUA-56. Requested amendments included modifying the compliance monitoring network by reducing the number of monitoring wells, reducing the number of parameters to be analyzed, reducing sampling frequencies, and increasing the number of surface water samples. By letter dated November 10, 2004, the U.S. Nuclear Regulatory Commission (NRC) forwarded a Request for Additional Information (RAI) containing questions and comments regarding the number of wells in the proposed network, sampling frequencies, and mapping information. During the week of December 6, 2004, WNI raised specific issues with the NRC's comments and requested clarification of the RAI. WNI and the NRC discussed the issues, in general, via a teleconference on December 16, 2004, and in greater detail via a teleconference on December 20, 2004. As a result, the NRC issued a supplemental RAI on January 26, 2005, to which WNI responded on March 2, 2005.

Based on the available information presented herein, the NRC staff concludes that the proposed ground-water and surface water sampling programs are sufficient to monitor contamination after the cessation of active remediation. The ground-water monitoring program will be sufficient to track contamination emanating from on site disposal areas and provide early warning to downgradient receptors. The surface water monitoring program is sufficient to detect potential influxes of contamination from ground-water discharges into the Sweetwater River. It will also provide early warning protection to downstream surface water users.

BACKGROUND:

The Split Rock site is located in a remote and sparsely populated portion of Wyoming. After establishment of the mill facility, the mill town of Jeffrey City was founded and grew to accommodate a maximum population of 3,000 people. With the closure of nearby mines and decommissioning of the mill, the population of Jeffrey City has declined to approximately 75 residents; activities in the area focus primarily on ranching. Recreational land use includes fishing on the Sweetwater River and seasonal game hunting.

The Split Rock mill was constructed in 1957 and originally processed 400 tons per day of uranium ore. In 1961, milling capacity was increased to 845 tons per day, and capacity was increased again to 1,200 tons per day in 1967. By the 1970s, the mill was processing 1,700 tons per day of ore after a series of expansions. WNI placed the Split Rock mill on standby on June 19, 1981, after processing 7.7 million tons of ore. In 1986, the license was amended to terminate use of mill tailings pond for disposal, and the NRC required that WNI submit a Tailings Impoundment Reclamation Plan. In the summer of 1988, the mill was decontaminated and decommissioned; mill components were dismantled and buried in the areas designated as the mill burial site located primarily beneath the former mill site.

During mill operations, process wastes in the form of tailings solids and acidic liquids were discharged to the tailings disposal area. Non-milling and non-process wastes (e.g., sanitary wastes, paper products, etc.) were disposed in the Sewage Lagoon or the Waste Trench located in the southwest valley. Jeffrey City's landfill was also located in the southwest valley at one point in time. The decommissioned mill is buried in the northwest valley.

Three tailings impoundments were utilized during the milling period. The Old Impoundment was utilized from 1957 to 1977, and the Alternate Tailings Impoundment was constructed prior to 1977 for additional tailings storage. In 1977, the Old Impoundment was breached, and after it was repaired a new Main Tailings Impoundment was constructed. This 127.2-ac Main Tailings Impoundment was in service until milling operations ceased. WNI's impoundments were designed to maximize solids storage by allowing fluids to infiltrate into the subsurface. This practice caused contamination to migrate from the tailings impoundments and out through both the northwest and southwest valleys. Contamination through the northwest valley flows toward the Sweetwater River, while contamination through the southwest valley splits and flows toward the Sweetwater River to the northeast and the Red Mule development to the southeast.

TECHNICAL EVALUATION:

Ground-Water Monitoring

WNI is seeking to reduce the number of wells monitored and the frequency of monitoring for its corrective action monitoring and compliance monitoring programs. These modifications are in anticipation of the approval of WNI's alternate concentration limit (ACL) application or ground-water restoration exemption request, which will allow WNI to cease ground water extraction operations. On May 24, 2004, WNI requested that the NRC approve a new surface water and ground-water sampling program. The originally proposed ground-water sampling program was to be comprised of seven wells sampled annually for uranium, sulfate, and water levels and two wells sampled annually for Al, As, Be, Cd, fluoride, Mn, Mo, Ni, ammonia, nitrate, Pb, Ra-226 and -228, Sb, Se, Th-230, Tl, U, and water levels (nine wells total).

On November 10, 2004, and January 18, 2005, the NRC provided comments regarding this monitoring network, suggesting that seven more wells be added and that all wells be sampled semi-annually for the full list of parameters. NRC staff suggested that two wells could be removed from the program after approval of the ACL application. On March 2, 2005, WNI submitted a revised ground-water monitoring plan. This plan included all the requested wells; however, WNI stated that it would sample two wells for the full parameters list and the remaining wells for uranium and sulfate only. Figure 1 presents the monitoring network subject to this TER.

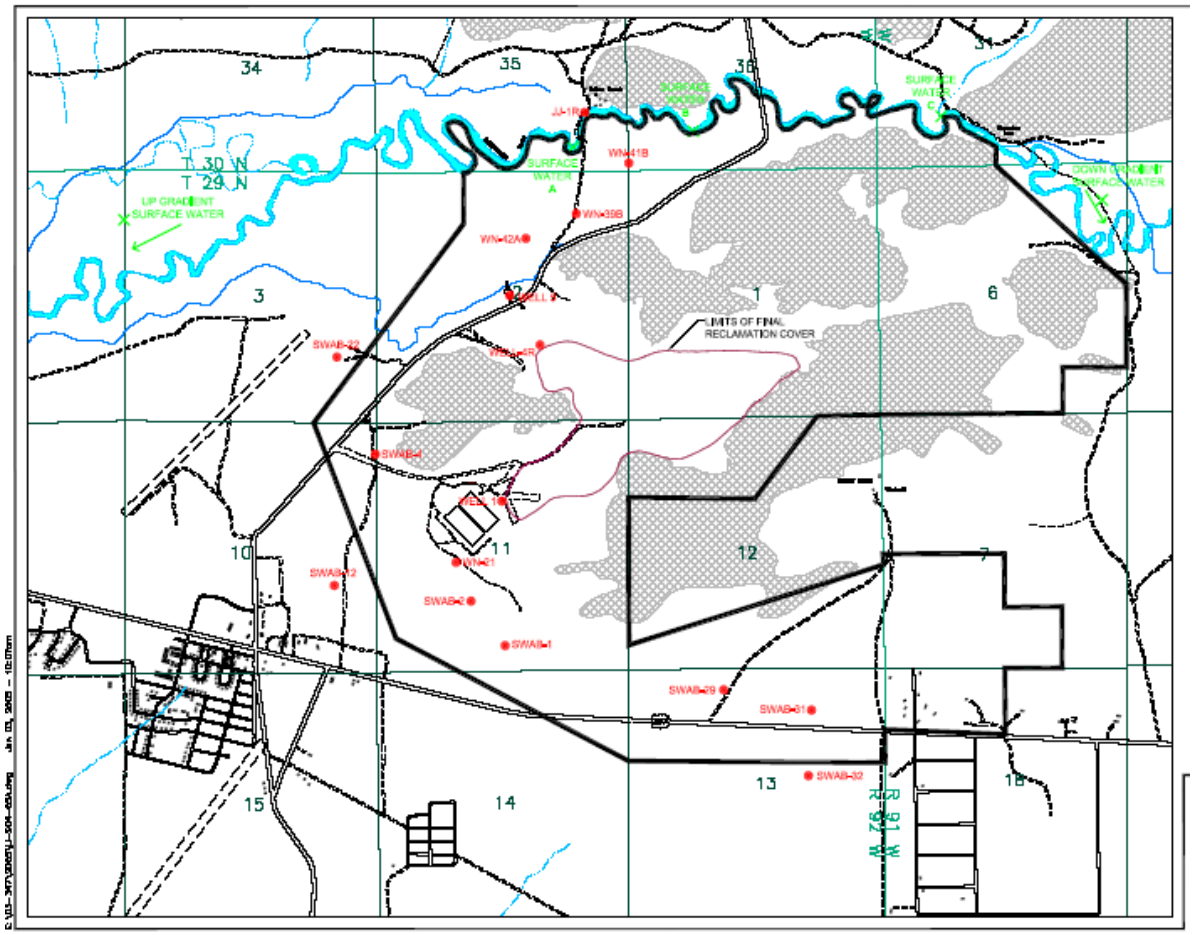

Figure 1 - Ground-Water and Surface Water Sampling Locations (WNI, 2005)

On May 17, 2005, NRC staff and WNI discussed the discrepancy in the monitoring plan and came to a final agreement. WNI would sample wells 1, 21, 4R, and 5 for the complete suite of analytes proposed in the May 24, 2004, license amendment request. The remaining wells would be sampled semi-annually for uranium, sulfate, and water levels and annually for the compete list of analytes. Table 1 summarizes the sampling program subject to this license amendment.

Table 1
Ground-Water Sampling Program

Monitoring Wells	Sampling Frequency	Parameters
1, 4R, 5, and 21	Semi-Annual	Al, Sb, As, Be, Cd, chloride, fluoride, Mn, Mo, Ni, ammonia, pH, nitrate, Pb, Ra-226 and -228, Se, sulfate Th-230, Tl, TDS, uranium, water levels
WN-39B, -41B, -42A, JJ-1R, SWAB-1, -2, -4, -12, -22, -29, -31, -32	Semi-Annual	uranium, sulfate, water levels
	Annual	Al, Sb, As, Be, Cd, chloride, fluoride, Mn, Mo, Ni, ammonia, pH, nitrate, Pb, Ra-226 and -228, Se, sulfate, Th-230, Tl, TDS, uranium, water levels

Surface Water Monitoring

On May 24, 2004, WNI requested that the NRC approve a new surface water sampling program to consist of 5 sampling points, each of which would be sampled for uranium and sulfate annually. On November 10, 2004, and January 18, 2005, the NRC provided comments regarding this surface water monitoring plan, suggesting that all locations be sampled semi-annually for the full list of parameters. On March 2, 2005, WNI submitted a revised sampling plan specifying that each surface water location be sampled semi-annually for uranium and sulfate.

On May 17, 2005, WNI and NRC staff discussed the discrepancy in the monitoring plan and came to a final agreement. The latest revision to the sampling plan will mimic the ground-water monitoring plan. All surface locations will be sampled semi-annually for uranium and sulfate and annually for the full suite of parameters. Table 2 contains a summary of the surface water monitoring plan.

Table 2
Surface Water Monitoring Program

Surface Water Locations	Sampling Frequency	Parameters
S-A, -B, -C, Upgradient, Downgradient	Semi-Annual	uranium, sulfate
	Annual	Al, Sb, As, Be, Cd, chloride, fluoride, Mn, Mo, Ni, ammonia, pH, nitrate, Pb, Ra-226 and -228, Se, sulfate, Th-230, Tl, TDS, uranium, water levels

Evaluation Findings

Based on the information provided in the license amendment request, the NRC staff concludes that the ground-water and surface water monitoring programs will provide an appropriate level of contaminant tracking and public health and environmental protection. Ground-water monitoring data will provide information regarding contaminant plume movement and early warning of contaminant encroachment upon potable water supplies. Surface water monitoring data will provide information regarding the discharge of pollutants into the Sweetwater River and protection of surface water users immediately downstream of the site.

RECOMMENDED LICENSE CONDITION CHANGES:

Proposed additions in **BOLD**. Proposed deletions are ~~struck~~.

24. ~~The licensee shall implement the environmental monitoring program outlined in Table 2 of its guidance titled "Current Environmental Monitoring Program," dated November 14, 1988. The licensee shall sample three surface water locations, S-5 [Sweetwater Below Mill], S-6 [Sweetwater Across from Mill], and S-7 [Sweetwater Above Mill]~~, **The licensee shall collect surface water samples from the Sweetwater River at the following five locations: 1) upstream of the proposed long-term care boundary near the western boundary of Section 3, township 29 N and range 92 W; 2) in a sharp meander directly upstream of well JJ-1R (SR-A); 3) approximately 3,000 river feet downstream of SR-A in riffle section (SR-B); 4) in tight meander downstream of Site, approximately 1,600 river feet upstream of diversion dam, in Section 31, township 30 N and range 91 W; 5) downstream of proposed long-term care boundary in Section 5, township 29 N and range 91 W . Samples shall be collected** at the same sampling frequency and for the same constituents [excluding static water level] as required for the first 12 wells under LC No. 74.A. The data obtained from this monitoring program shall be reported semiannually to the NRC in accordance with requirements of 10 CFR 40.65.

74. The licensee shall implement a compliance monitoring program containing the following:

A. Sample **wells JJ-1R, WN-39B, WN-41B, WN-42A, SWAB-1, SWAB-2, SWAB-4, SWAB-12, SWAB-22, SWAB-29, SWAB-31, and SWAB-32 semi-annually for uranium and sulfate and annually for aluminum, ammonia, antimony, arsenic, beryllium, cadmium, chloride, fluoride, lead, manganese, molybdenum, nickel, nitrate, pH, radium-226 and-228, selenium, sulfate, thallium, thorium-230,TDS, and uranium. Sample wells 1, 4R, 5, and 21 semi-annually for aluminum, ammonia, antimony, arsenic, beryllium, cadmium, chloride, fluoride, lead, manganese, molybdenum, nickel, nitrate, pH, radium-226 and-228, selenium, sulfate, thallium, thorium-230, TDS, and uranium. In addition, water levels shall be collected at all of the above wells for every sampling event.** ~~Southwest Valley Wells 1, B, 21, 24, 25, 16, 15, and Northwest Valley Wells 4, 5, 17, 19, 23, and 27, on a semiannual frequency for chloride, nitrate, sulfate, pH, TDS, water level, beryllium, cadmium, chromium, lead, nickel, radium-226 and 228, selenium, thorium-230, and uranium~~.

B. Comply with the following ground-water protection standards at point of compliance Well No. 4 and 21, with background being recognized in Well No. 15:

beryllium = 0.05 mg/l, cadmium = 0.01 mg/l, chromium = 0.05 mg/l, lead = 0.05 mg/l, nickel = 0.05 mg/l, radium-226 and 228 = 5 pCi/l, selenium = 0.013 mg/l, thorium-230 = 0.95 pCi/l, and uranium = 0.16 mg/l.

C Implement a corrective action plan program that shall recover and evaporate between 6 and 15 million gallons of contaminated water based upon minimizing recharge to the tailings. This program shall be constructed as described in the August 31, and September 28, 1989, submittals as modified by the licensee's April 3, 1990, January 13, 1992, September 23, 1993, April 18, 1997, May 20, 1998, and July 2, 1999, submittals. **All monitoring requirements for the corrective action program shall be those specified in license condition 74A.** The objective of the program shall be to return the concentrations of beryllium, cadmium, nickel, radium-226 and 228, selenium, thorium-230, and uranium to the concentration limits specified in Subsection 74B above. A final Corrective Action Program Plan, which includes a complete site characterization, must be received by NRC by October 31, 1999.

[Applicable Amendments: 25, 27, 36, 39, 40, 44, 48, 51, 56, 58, 61, 62, 67, 69A, 79, 89]

D. The licensee shall submit by December 15 of each year, a review of the corrective action program and its effect on the aquifer.

[Applicable Amendments: 25, 27, 36, 39, 40, 44, 48, 51, 56, 58, 61, 62, 67, 69A, 79]

E. The licensee shall reclaim the groundwater corrective action evaporation ponds in accordance with their February 7, 1994, report titled, "Western Nuclear, Inc. Split Rock Mill, Addendum A (February 7, 1994) to Revision 5 to the June 30, 1987, Uranium Tailings Reclamation Plan," with the following exception:

1 The preliminary radon attenuation barrier design for the Winter Storage Ponds (Area 2C, Figure 4, Drawing No. 91-225-E53 (Addendum A to Revision 5) consists of 6 inches of Cody Shale and 12 inches of Soil Borrow. This design is considered acceptable for estimating the surety amount. However, once the storage ponds are dismantled, the Licensee shall confirm the design and obtain NRC approval prior to placing the radon cover on the ponds. Reclamation to the Winter Storage Ponds shall be completed by the licensee within three years after cessation of use as determined by the NRC.

[Applicable Amendment: 92]