STATE OF WASHINGTON
DEPARTMENT OF HEALTH
OFFICE OF RADIATION PROTECTION
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April 15, 2009

TO: Interested Parties, Dawn Mining Company Closure

FROM: Mikel J. Elsen, Supervisor
Waste Management Section

SUBJECT: Dawn Mining Company Uranium Mill License Amended to Allow Continued Disposal of Sludge into TDA-4

This is to inform you that the Department of Health has amended Dawn Mining Company's (DMC) radioactive materials license, approving DMC's request to change License Condition 33 of its radioactive materials license. The change allows an additional two years of disposal of Midnite Mine water treatment plant (MMWTP) sludge into Tailings Disposal Area 4 (TDA-4) at the DMC millsite located near Ford, Washington. I have attached Amendment 25 to DMC's radioactive materials license and an addendum to existing State Environmental Policy Act (SEPA) documents for closure of the DMC millsite, for your information.

DMC's Request to Amend Radioactive Materials License WN-I043-2

DMC submitted the amendment application on November 20, 2008, for its Ford, Washington uranium millsite. The new license amendment grants DMC's request to dispose of MMWTP sludge until the end of the 2010 treatment plant operation season. License Condition 33 of the previous amendment states that "unless specifically approved by the department, receipt and disposal of MMWTP filtercake sludge at the licensee's millsite shall cease December 31, 2008." The department evaluated DMC's request in order to ensure that: (1) there would be no additional impacts to human health and the environment; and (2) extension of sludge disposal into TDA-4 would not delay the December 31, 2013 deadline for completion of the installation of the final cover and radon barrier over TDA-4. The attached SEPA Addendum provides the technical and regulatory basis for the department's evaluation of DMC's proposal for the two-year extension.

The initial authorization for Midnite Mine sludge disposal was granted by the department in 2001 after a detailed human health risk and environmental review (Addendum to Environmental Documents, sent to the DMC Interested Parties mailing list in June 2000). The authorization was granted after the department received concurrence from the U.S. Nuclear Regulatory Commission (USNRC), the U.S. Department of Energy (USDOE), and the Northwest Regional

Low-Level Radioactive Waste Compact. After detailed review of DMC's request to continue sludge disposal, the department determined that the two-year extension continues to meet the ten criteria required by USNRC guidance. Concurrence for authorizing the two-year extension has been received from USNRC, USDOE, and the Northwest Compact.

The department's review of DMC's amendment request also considered whether, under SEPA, there are changes to the approved closure plan that are substantial and/or involve new information indicating probable significant adverse environmental impacts not adequately evaluated in the existing environmental documents. The department's conclusion is that this license amendment does not include any changes to the approved closure plan that were not previously evaluated in those documents. The department is issuing the attached Addendum to document the changes to License Condition 33 of DMC's radioactive materials license.

Summary of Changes to DMC's Radioactive Materials License, Condition 33

The change to License Condition 33 is the establishment of conditions for the continuation of sludge disposal for two years, including milestones for filling and stabilization activities in TDA-4 during 2009 and 2010. If the milestones are not met for filling and stabilization activities in TDA-4, the authorization for the two-year extension may be modified, suspended, or revoked.

Conclusion

DMC's amendment request complies with applicable radiation protection laws and regulations contained in RCW 70.98 and WAC 246-252. The change to License Condition 33 allows DMC to proceed with decommissioning the facility in accordance with the approved millsite closure plan. There are no changes to the radioactive materials license that have not already been evaluated under existing SEPA documents. Amendment 25 is attached and will be posted on the department's website at http://www.doh.wa.gov/ehp/rp/default.htm. Anyone who is not on the department's list for receiving these mailings related to closure of the DMC millsite may be added to that list, or may request copies of these attachments, by contacting Kristin Felix at 360.236.3240, at Kristin.felix@doh.wa.gov, or at DOH Office of Radiation Protection, PO Box 47827, Olympia, WA 98504-7827.

MJE:krf

Attachments: 1. WN-I043-2, Amendment 25
2. Addendum to Existing Environmental Documents

Dawn Mining Company Uranium Millsite
ADDENDUM TO EXISTING ENVIRONMENTAL DOCUMENTS

April 2009

Washington State Department of Health
Office of Radiation Protection

This document is an addendum to the following existing environmental documents:

- **DMC Millsite:**
  - 1991 Final Environmental Impact Statement, Closure of the Dawn Mining Company Uranium Millsite
  - 1994 Supplemental Final Environmental Impact Statement for Millsite Closure
  - 2000 Addendum to Existing Environmental Documents
  - 2007 Addendum to Existing Environmental Documents
- **Midnite Mine Water Treatment Plant:**
  - 1992 Declaration of Non-Significance for Mill Processing of Midnite Mine Water Treatment Plant Sludge

Dawn Mining Company (DMC) submitted an application for a radioactive materials license amendment on November 20, 2008, for their Ford, Washington uranium millsite. The license amendment request is to extend the authorization of Midnite Mine water treatment plant sludge into Tailings Disposal Area 4 (TDA-4) for two years of water treatment plant operation, until the end of the 2010 treatment plant operation season. The current radioactive materials license WN-I043-2, Condition 33, states that "Unless specifically approved by the department, receipt and disposal of MMWTP filtercake sludge at the licensee's millsite shall cease December 31, 2008." Washington State Department of Health has evaluated DMC's request for extension of Midnite Mine water treatment plant sludge disposal to ensure that: (1) there are no additional impacts to human health and the environment; and (2) extension of sludge disposal into TDA-4 will not delay the December 31, 2013 deadline for the completion of the installation of the final cover and radon barrier.

The initial authorization for Midnite Mine sludge disposal was granted by the department in 2001 after detailed human health risk and environmental review (Addendum to Environmental Documents, June 2000). The authorization was granted after concurrence from the U.S. Nuclear Regulatory Commission, the U.S. Department of Energy, and the Northwest Regional Low-Level Radioactive Waste Compact. The direct disposal of sludge into TDA-4 is subject to the ten criteria found in the Nuclear Regulatory Commission's *Final Revised Guidance on Disposal of Non-Atomic Energy Act of 1954, Section 11.e(2) Byproduct Material in Tailings Impoundments* (September 22, 1995 Federal Register). After detailed review, the department has determined that extending sludge disposal for two years continues to meet the ten criteria required by NRC guidance, and will not delay construction of the final cover if DMC implements TDA-4 fill and cover construction activities in 2009 and 2010 as outlined below. Additionally, DMC's request does not increase the volume or activity of sludge from what was previously analyzed in the 2000 Addendum.

STATE ENVIRONMENTAL POLICY ACT

The department's review of DMC's license amendment request also considers whether, under the State Environmental Policy Act (SEPA), changes to the approved proposal are substantial and/or involve new information indicating probable significant adverse environmental impacts not adequately evaluated in the existing environmental documents. Because the volume of sludge disposed into TDA-4 from 2001 to 2008 is only about 31 percent of the volume of sludge evaluated in the June 2000 SEPA Addendum, with only about 27 percent of the radioactivity projected for disposal, all of the potential adverse impacts for direct disposal of sludge were adequately evaluated in the June 2000 SEPA addendum.

2009-2010 TDA-4 CLOSURE ACTIVITIES AND DIRECT DISPOSAL OF MIDNITE MINE WATER TREATMENT PLANT SLUDGE

DMC's November 20, 2008 application for extension of sludge disposal in TDA-4 and their *Technical Detail Addendum to the November 20, 2008 Request for Extension of Sludge Disposal*, dated December 24, 2008, state that continued sludge disposal in TDA-4 will not interfere with or delay the final closure of TDA-4 because all or a portion of TDA-4 will remain open and will be receiving fill material during the summer months of 2009 and 2010. During this two-year period, the addition of sludge will not adversely affect the stability, timing, or management of the filling and closure of TDA-4.

TDA-4 Sludge Disposal Areas

The current open area on the bottom of TDA-4 is approximately 15.1 acres. Of this total, the eastern portion is approximately 7.8 acres with approximately 75% of this area covered and stabilized with fill material excavated from the mill and stockpile areas in 2003. The western portion of TDA-4 is approximately 7.3 acres and will require fill to be placed to cover and stabilize currently uncovered tailings slimes. This activity is scheduled for 2009.

The eastern portion of TDA-4 is the area in which sludge has been placed for disposal since 2001. Approximately 25% of this area will require additional fill material and preparation for overliner placement in September/October of 2009. Sludge can be disposed in the eastern portion of TDA-4 until grading for the overliner begins. At that time sludge disposal would continue in the western portion of TDA-4. Relocating sludge disposal to the western portion of TDA-4 will not impact TDA-4 closure activities or pose any additional human health risk. The volume of sludge that would be disposed in the eastern portion of TDA-4 in 2009 is estimated to be approximately 45,000 cubic feet (1,667 cubic yards), only a small portion of the total fill required.

The western portion of TDA-4 currently includes filled and stabilized surfaces, and unstabilized areas of slimes and standing water. Stabilization activities in the western portion of TDA-4 during 2009 will cover all surfaces, resulting in a significant expansion in the stabilized surface area that will allow vehicle and truck traffic and provide additional areas for disposal of the estimated 1,667 cubic yards of sludge during the summer of 2010.

Volume

The June 2000 SEPA Addendum evaluated a total anticipated sludge volume of 753,000 cubic feet for placement into TDA-4. However, as of December 31, 2008, a total of 231,983 cubic feet of sludge has actually been placed. The proposed additional volume of sludge will be a very small increment of the total estimated volume of material needed to fill and stabilize the surface of TDA-4 to the level necessary for placement of the overliner. The volume of material that will be placed in TDA-4 to reach the final grade necessary for overliner placement is approximately 90,000 cubic yards. This volume consists of approximately 4,000 cubic yards of structural debris from millsite building demolition, 24,000 cubic yards of contaminated site soil, and 62,000 cubic feet of clean borrow material.

The maximum sludge volume that would be disposed in TDA-4 is estimated to be 45,000 cubic feet per year; or, for the two-year period, a total volume of no more than 3,350 cubic yards. If this volume of sludge is co-placed with the other filled materials, the 3,350 cubic yards would displace the need for an equivalent amount of clean fill material and would represent only about 4% of the estimated total volume of fill. When compared to the volumes of the other materials to be placed in TDA-4, the volume of sludge is small and will easily be incorporated into the rest of the fill material.

Consolidation

As summarized in the June 2000 Addendum to other SEPA documents, free-standing liquids are removed from the sludge at the Midnite Mine. Sludge is then placed in TDA-4 in lifts no greater than two feet and covered with clean fill or contaminated site soil. The elimination of free-standing liquids and two-foot lifts greatly reduces potential impacts from geotechnical instability. If sludge disposal were to be approved to continue in 2009 and 2010, these disposal techniques would remain the same. Considering these conditions, coupled with the small volume of sludge relative to the total volume of fill to be placed in TDA-4 prior to placement of the overliner, settlement and consolidation of the sludge as a contribution to overall consolidation within TDA-4 is not significant.

Geochemistry

Midnite Mine water treatment plant sludge and the existing materials within TDA-4 have similar circumneutral pH. Under these conditions, uranium has limited mobility, and disposal of additional sludge will not affect the current geochemical conditions within TDA-4. Further, the additional mass of uranium and other elemental constituents associated with disposal of an additional 3,350 cubic yards of sludge would be insignificant compared to existing materials in TDA-4 (tailings, contaminated site soil, mill debris).

Radioactive Materials

In the June 2000 Addendum to other SEPA documents, the calculated total radioactivity values (uranium, radium, and thorium) for mill demolition debris, site soil cleanup, processed sludge, and direct disposal of unprocessed sludge, totaled approximately 290 curies. In the year 2000, a volume of 753,500 cubic feet of sludge with an estimated radioactivity of 30 curies was approved for disposal in TDA-4. Less than one third of that anticipated volume was actually placed in TDA-4 between 2001 and 2008. Only 231,983 cubic feet (8,593 cubic yards) of sludge has been placed in TDA-4 since 2001. Based upon the calculated amount of radioactive material that has been disposed for the period, approximately 1 curie per season, only 8 curies have been disposed since 2001, with an additional 2 curies predicted during the two-year extension period.

If the two-year extension is approved, the total volume of sludge disposed in TDA-4 will be less than half of the originally approved volume and radioactivity.

Transportation Logistics

Transportation of water treatment plant sludge into TDA-4 would not adversely affect other closure activities or jeopardize the safety of workers. The number of sludge shipments would be approximately one truck per day. This transport volume would be inconsequential and would have no detrimental effect on the filling, grading, and overliner placement operations that will be occurring during this period. It is estimated that during active hauling of fill and contaminated site soils into TDA-4, an average of 30 truckloads of fill and contaminated site soils will be placed in TDA-4 each day. This volume of truck traffic is not large and can easily accommodate an additional one truck per day resulting from sludge disposal. In addition, filling, grading, and sludge disposal activities will occur in a separate location within TDA-4 than overliner placement activities. The overliner placement plan for the eastern portion of TDA-4 will also include relocation, as necessary, of the access road into TDA-4. Thus an additional one truck per day of sludge will not impact traffic related to fill placement, nor will it impact overliner placement operations or compromise safety.

Water Management

Disposal of additional water treatment plant sludge in TDA-4 would not affect water management plans. As discussed above, sludge will be placed on existing or newly filled and stabilized areas and will not be in contact with standing water.

CONCLUSION

Dawn Mining Company's license amendment request to extend direct disposal of Midnite Mine water treatment plant sludge into TDA-4 for two years complies with applicable radiation protection laws and regulations. The request does not increase the volume or activity of the sludge from what was previously analyzed and approved in the 2000 Addendum. During the two-year sludge disposal extension, the total volume and activity of sludge disposed in TDA-4 will total less than half of the originally approved volume and radioactivity. Furthermore, the extension of sludge disposal into TDA-4 for two years is consistent with applicable NRC guidance in that it will not interfere with the timing of closure activities and construction of the final radon barrier. DMC's amendment request does not involve substantial changes or new information indicating probable significant adverse environmental impacts that have not already been adequately evaluated in existing environmental documents. Therefore, the department will approve the license amendment request, conditioned so that proposed closure activities will proceed on schedule during 2009 and 2010. The department will condition the license amendment with milestones for proposed closure activities. If these milestones for closure activities in 2009 and 2010 are not met, the authorization for extended sludge disposal may be revoked. DMC would have the opportunity to challenge any decision by the department to withdraw the authorization for sludge disposal in TDA-4 based upon DMC not meeting closure milestones.