

**Ur-Energy Lost Creek In-Situ Recovery Project Holding Ponds  
Construction Approval  
40 C.F.R. Part 61, Subpart W  
Background Information for Construction Approval**

EPA Region 8 reviewed the Application for Construction Approval submitted by Ur-Energy USA Inc. (“Ur-Energy”) to EPA pursuant to 40 C.F.R. § 61.07 “for approval of construction or modification,” entitled “Application by Lost Creek ISR, LLC to Construct Holding Ponds at that Lost Creek In-Situ Uranium Project (“Lost Creek”). The original Application, was submitted on November 3, 2010, and a revised Application July 7, 2011 (collectively “Application”). The Application is for the construction of two holding ponds of 0.93 acres each at the Lost Creek In-Situ Recovery Project. Ur-Energy is anticipated to produce two million pounds of uranium per year at the Lost Creek facility.

**Facility Location**

The proposed Lost Creek facility is located at E1/2, Section 18, T25N, R92W in Sweetwater County, Wyoming. The town of Bairoil is 15 miles northeast of the site. The City of Rawlins is located 38 miles southeast of the site

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**Regulatory Authority**

EPA Region 8’s authority over Lost Creek is derived from the Clean Air Act (“CAA”), as amended at 42 U.S.C. section 7401 *et seq.* The holding ponds at Lost Creek are regulated pursuant to 40 C.F.R. Part 61, National Emission Standards for Hazardous Air Pollutants (“NESHAP”), Subpart A – General Provisions (“Subpart A”); and Subpart W – National Emissions Standards for Radon Emissions from Operating Mill Tailings (“Subpart W”).

Subpart W applies to “owners or operators of facilities licensed to manage uranium byproduct material during and following the processing of uranium ores, commonly referred to as uranium mills and their associated tailings.” (40 C.F.R. § 61.250). Subpart W defines “uranium byproduct material or tailings” as “the waste produced by the extraction or concentration of uranium from any ore processed primarily for its source material content.” (40 C.F.R. § 61.251(g)). Thus, any type of uranium recovery facility that is managing uranium byproduct material or tailings is subject to Subpart W. The requirements of Subpart W specifically apply to the structures at the uranium recovery facility that are used to “manage” or contain the uranium byproduct or tailings. At Lost Creek, these facilities are the holding ponds.

In addition to the requirements of Subpart W, the requirements in 40 CFR Part 61 Subpart A apply to Subpart W regulated structures. Subpart A requires owners or operators to submit to EPA an application for approval for either construction or modification of Subpart W regulated structures (i.e., holding ponds) before the construction or modification is planned to commence. (40 C.F.R. §61.07). Ur-Energy submitted the Mill Application for Construction Approval in accordance with Subpart A, 40 C.F.R. § 61.07. Subpart W requires that owners and operators meet either the numeric standard in 40 C.F.R. § 61.252(a) for those facilities in existence prior to 1989, or choose one of two work practice standards in 40 C.F.R. § 61.252(b) for facilities constructed after 1989. Subpart W also requires compliance with 40 C.F.R. § 192.32(a). (40 C.F.R. 61.252(c)).

Ur-Energy has opted for the work practice standard found in 40 C.F.R. section 61.252(b)(1), which allows for “phased disposal in lined tailings impoundments that are no more than 40 acres in area and meet the requirements of 40 C.F.R. 192.32(a) as determined by the Nuclear Regulatory Commission. The owner or operator shall have no more than two impoundments, including existing impoundments, in operation at any one time.” The two Lost Creek holding ponds are each less than one acre in surface area. In addition to reviewing the Ur-Energy Application materials for compliance with Subparts A and W, EPA must also consider compliance with 40 C.F.R. § 192.32(a). The provisions in 40 C.F.R. § 192.32(a) are implemented and enforced by the Nuclear Regulatory Commission (NRC) at the Lost Creek Facility. The NRC has regulations comparable to 40 C.F.R. § 192.32(a) and Lost Creek was reviewed for compliance with those regulations prior to the issuance of a radioactive materials license by NRC. NRC issued a radioactive materials license to Lost Creek on August 17, 2011 and provided EPA with a review of the Lost Creek Facility in their Safety Evaluation Report<sup>1</sup>. Based on our review, EPA has determined that the Lost Creek holding ponds will be in compliance with 40 CFR § 192.32(a).<sup>2,3</sup>

### **In Situ Recovery Operations and Proposed Facilities for Approval**

Uranium milling is the process of extracting uranium from uranium ore and processing it into uranium oxide (i.e., yellowcake) to be further processed into fuel rods for nuclear power. Ur-Energy proposes to construct and operate Lost Creek to process uranium into uranium oxide through an in situ recovery process (aka solution mining) with the resulting processing wastes (i.e., uranium byproduct) being both temporarily stored in holding ponds and injected permanently underground into permitted wells. EPA is approving construction of the two holding ponds with this action. EPA’s determination is that both holding ponds will be in compliance with 40 C.F.R. § 192.32(a), as required by 40 C.F.R. § 61.252(c). EPA’s determination is based on information found in the Application as well as the license application submitted to the NRC.

During the in situ recovery process, mineral uranium present in a saturated aquifer is dissolved using a solution (“lixiviant”) of native groundwater with an added oxidant, such as oxygen or hydrogen peroxide, as well as either carbon dioxide or sodium bicarbonate/carbonate. The uranium containing solution is pumped to the surface where it is recovered and processed into yellowcake. The waste stream from the process will be injected into the subsurface, with the holding ponds upstream to provide operational flexibility.

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<sup>1</sup> <http://pbadupws.nrc.gov/docs/ML1122/ML112231724.pdf>

<sup>2</sup> Memorandum, From Randall W. Breeden to Angelique Diaz, Ph.D., Re: Proposed Ground Water Monitoring System at the Lost Creek Uranium Mine, 12/7/2011

<sup>3</sup> RCRA Checklist for the Lost Creek Uranium Project ISR, 12/8/2011

## **Effective Date of Approval**

EPA's approval of the construction of two 0.93 acre holding ponds shall be effective immediately upon receipt of the original signed Approval to Construct by the applicant.

## **Paperwork Reduction Act**

Any requirements established by this Approval for the gathering and reporting of information are not subject to review by the Office of Management and Budget (OMB) under the Paperwork Reduction Act, because this Approval is not an "information collection request" within the meaning of 44 U.S.C. § 3502(4), 3502(11), 3507, 3512 and 3518. Furthermore, this Approval and any information-gathering and reporting requirements established by this Approval are exempt from OMB review under the Paperwork Reduction Act because it is directed to fewer than ten persons, 44 U.S.C. § 3502(4) and 3502(11); 5 CFR § 1320.5(a).

## **Environmental Justice Considerations**

On February 11, 1994, the President issued Executive Order 12898, entitled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The Executive Order calls on each federal agency to make environmental justice (EJ) a part of its mission by "identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations."

According to our EJ analysis, the area surrounding Lost Creek does not exceed the state average for either the percentage of minority population or the percentage of people below the poverty level and is not considered a potential EJ area.

## **Tribal Interests**

The two tribes potentially impacted by the Lost Creek facility are the Eastern Shoshone and Northern Arapaho. During NRC's NEPA process<sup>1</sup>, NRC initiated discussions with both tribes. According to the Lost Creek Supplemental Environmental Impact Statement (SEIS)<sup>2</sup>, "the Eastern Shoshone and Northern Arapaho Tribal Historic Preservation Officers (THPOs) were informed of an eligible prehistoric site discovered in the project area and are aware of the progress of the proposed Lost Creek ISR Project. The THPO from the Eastern Shoshone Tribe visited the prehistoric site and determined that while it held no interest to the tribe, they requested to be a signatory on an MOA for the protection of eligible prehistoric sites. The Northern Arapaho THPO also requested to be invited as signatory to the MOA." Additional information can be found in the SEIS, included a copy of the signed MOA.

EPA will notify the environmental director of the Eastern Shoshone and Northern Arapaho tribes of our Construction Approval by phone.

## **Administrative Record**

EPA has prepared an index to the Administrative Record.

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<sup>1</sup> <http://www.epa.gov/compliance/basics/nepa.html>

<sup>2</sup> <http://pbadupws.nrc.gov/docs/ML1112/ML11125A006.pdf>