

UNITED STATES  
U.S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF FEDERAL AND STATE MATERIALS  
AND ENVIRONMENTAL MANAGEMENT PROGRAMS  
WASHINGTON, D.C. 20555

September 29, 2011

**NRC REGULATORY ISSUE SUMMARY 2011-11  
REGARDING LONG-TERM SURVEILLANCE CHARGE FOR  
CONVENTIONAL OR HEAP LEACH URANIUM RECOVERY FACILITIES  
LICENSED UNDER 10 CFR PART 40**

**ADDRESSEES**

All holders of operating licenses for conventional or heap leach uranium recovery facilities, holders of licenses for conventional or heap leach uranium recovery facilities in decommissioning, companies that have submitted applications to construct new conventional or heap leach uranium recovery facilities or letters of intent to submit such applications, UMTRCA Title II sites, Agreement State Radiation Control Program Directors, and State Liaison Officers.

**INTENT**

The U.S. Nuclear Regulatory Commission (NRC) is issuing this Regulatory Issue Summary (RIS) to reiterate its policy regarding the Long-Term Surveillance Charge (LTSC) for applicable uranium recovery facilities. This RIS discusses existing NRC policy regarding the scope and corresponding dollar amount of the LTSC to be paid to the general treasury of the United States, or to an appropriate State agency, prior to the transfer of title to the long-term custodian for long-term care and license termination. It also further clarifies matters discussed in an NRC letter to the U.S. Department of Energy (DOE) dated June 17, 2010, regarding increases in the LTSC (Agencywide Documents Access and Management System (ADAMS) accession number ML100670337). No specific action or written response is required.

**BACKGROUND**

Both conventional and heap leach uranium milling processes generate mill tailings, which are primarily a sandy waste material containing the radioactive decay products from the uranium chains (mainly the Uranium-238 chain) and heavy metals. During operations, the tailings are deposited in a tailings impoundment or disposal cell. The goal of the tailings impoundment or disposal cell is to provide long-term protection of human health and safety, to protect the environment, and to isolate the tailings without ongoing maintenance. Specifically, Criterion 1 to Appendix A of Title 10 of the *Code of Federal Regulations* (CFR), Part 40 (10 CFR Part 40) states:

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The general goal or broad objective in siting and design decisions is permanent isolation of tailings and associated contaminants by minimizing disturbance and dispersion by natural forces, and to do so without ongoing maintenance.

Criterion 6 to Appendix A of 10 CFR Part 40 states that licensees are required to place a cover over the tailings or wastes “which provides reasonable assurance of control of radiological hazards...for 1,000 years, to the extent reasonably achievable, and, in any case, for at least 200 years.”

Prior to license termination, a Long-Term Surveillance Plan (LTSP) is submitted to NRC for review. According to 10 CFR 40.28(b)(2) and (b)(3), cited below, groundwater monitoring must be considered in the LTSP:

(b)(2) A detailed description, which can be in the form of a reference of the final disposal site conditions, including existing ground water characterization. This description must be detailed enough so that future inspectors will have a baseline to determine changes to the site and when these changes are serious enough to require maintenance or repairs;

(b)(3) A description of the long-term surveillance program, including proposed inspection frequency and reporting to the Commission (as specified in appendix A, Criterion 12 of this part), *frequency and extent of ground water monitoring if required*, appropriate constituent concentration limits for ground water, inspection personnel qualifications, inspection procedures, recordkeeping and quality assurance procedures[.] (Emphasis added).

Additionally, prior to license termination, all operators of uranium mills are required to pay an appropriate LTSC to the general treasury of the United States, or the appropriate State agency, as stated in the following excerpt from Criterion 10 to Appendix A of 10 CFR Part 40:

A minimum charge of \$250,000 (1978 dollars) to cover the costs of long-term surveillance must be paid by each mill operator to the general treasury of the United States or to an appropriate State agency prior to the termination of a uranium or thorium mill license.

The LTSC is a one-time charge, in an amount such that an assumed 1 percent annual real interest rate would provide interest income sufficient to cover the annual costs of site surveillance incurred by the long-term custodian. Specifically, the intent of the minimum LTSC is to cover costs of a “passive monitoring” approach to site surveillance, whose assumptions are described in NUREG-0706, Vol. I, “Final Generic Environmental Impact Statement of Uranium Milling Project M-25,” dated September 1980 (ADAMS accession number ML032751663); Appendix R, “Costs of Post-Operational Site Surveillance” of NUREG-0706, Vol. III, “Final Generic Environmental Impact Statement of Uranium Milling Project M-25 – Appendices G-V,” dated September 1980 (ADAMS accession number ML032751669); and “[NRC] Staff Guidance on the License Termination Process for Conventional Uranium Mill Licensees,” dated November 27, 1996 (ADAMS accession number ML100840671).

Recently, the U.S. Department of Energy (DOE) raised an issue to the NRC regarding the minimum LTSC amount required by the NRC's regulations. Specifically, DOE inquired as to what long-term care activities would merit an increase in the LTSC above the minimum amount. DOE stated that, based on actual costs of site surveillance and control activities, the minimum amount paid as the LTSC may not be sufficient to cover the costs for the needed site surveillance and control activities, in certain cases. For instance, sites with alternate concentration limits (ACLs) may require increased groundwater monitoring not covered by the "passive monitoring" approach assumed in the development of the minimum LTSC.

## **SUMMARY OF ISSUE**

Pursuant to Criterion 10 to Appendix A of 10 CFR Part 40, an increase in the LTSC above the minimum amount is within NRC's regulatory authority:

If site surveillance or control requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater than those specified in Criterion 12...*variance in funding requirements may be specified by the Commission.* (Emphasis added).

The NRC's position on the LTSC – described in "[NRC] Staff Guidance on the License Termination Process for Conventional Uranium Mill Licensees," (ADAMS accession number ML100840671) – is well established and goes back over 14 years. Escalation of the LTSC is consistent with NRC's historical practice. The LTSC of the Atlantic Richfield Company's (ARCO's) Bluewater Uranium Mill and Tailings site was escalated for sampling of groundwater (ADAMS accession number ML103410026). At the Sohio Western Mining Company's L-Bar uranium mill tailings site, the LTSC was escalated for the maintenance required to address future accumulation of sedimentation in the diversion channels (ADAMS accession numbers ML042580467 and ML042580457).

If site surveillance or control requirements are expected to be greater than those specified in Criterion 12 to Appendix A of 10 CFR Part 40 and provided that there is a nexus to radiological health and safety, the NRC may consider increasing the LTSC above the minimum amount, adjusted to current year dollars. The increase in the LTSC would cover those additional expected long-term surveillance and control activities relied on for the performance of the tailings impoundment. The NRC may consider increasing the LTSC for long-term maintenance and control activities undertaken to ensure maintenance of radiological health and safety such as, but not limited to: (1) groundwater monitoring; (2), rip-rap, erosion or other cover repair; (3) fencing; and (4) vegetation control

The custodial agency or the applicant/licensee may propose to increase the LTSC above the minimum amount to cover those additional expected long-term surveillance and control activities, including groundwater monitoring, that the custodial agency or the applicant/licensee deems necessary for the performance of the tailings impoundment. Along with an overall bottom-line amount corresponding to the proposed LTSC, the following, at a minimum, should be provided as a basis for increasing the LTSC above the minimum: (1) the scope of each additional long-term surveillance and control activity, together with a justification for its inclusion, and an explanation of its connection to radiological health and safety; (2) specifically with respect to groundwater monitoring, the frequency and duration of monitoring, number of wells

monitored, and constituents analyzed; and (3) a site specific cost estimate with a basis (e.g., unit costs, and source of costs).

Consistent with past practice, on a site-specific basis, NRC staff will continue to work with the custodial agency and the licensee to address the LTSC, with any final variances in the funding requirements to be determined solely by the NRC. It is recommended that the licensee, the custodial agency, and the NRC staff meet prior to the submittal of the LTSP to discuss the scope of the LTSP and the LTSC.

After the meeting or as soon as possible if no meeting is held, the custodial agency should prepare and submit its LTSP. If the custodial agency desires to include commitments that would increase the LTSC above the minimum, the custodial agency should provide the basis as discussed above to support its request for an increased LTSC. If the custodial agency desires to have commitments in the LTSP that exceed the requirements set forth in Appendix A of 10 CFR Part 40 and do not have a nexus to radiological health and safety (e.g., fencing that is not necessary to ensure maintenance of radiological health and safety), the custodial agency would solely be responsible for funding such commitments. It is anticipated that the groundwater monitoring for long term surveillance and control may differ from the licensee's existing program. The licensee is required to continue its existing groundwater monitoring program, in accordance with its license requirements, until its license is terminated. The LTSP will define the specific long term groundwater monitoring program, and it is the responsibility of the long term custodian to implement the long term groundwater monitoring program, if any, as described in the LTSP. Consistent with Criterion 10 to Appendix A of 10 CFR Part 40, any final variances in the LTSC will be determined solely by the NRC.

As part of its demonstration that sufficient financial resources for decommissioning, decontamination, reclamation, and long term surveillance and control are available when needed, licensees should clearly address the LTSC as part of their annual update to the financial assurance instrument(s) and cost estimate. New license applicants should also address and justify the LTSC as part of their license application and/or initial cost estimate and financial assurance instrument(s) provided prior to operations. The applicant/licensee should consider all activities for site surveillance and control as specified in Criterion 12 to Appendix A of 10 CFR 40, including groundwater monitoring. The cost estimates should contain a detailed basis (e.g., unit costs and their source) and justification for the LTSC calculated by the applicant/licensee. If the applicant/licensee expects long term surveillance or control requirements, including groundwater monitoring, to be greater than those specified in Criterion 12 to Appendix A of 10 CFR 40, the applicant/licensee should provide the basis as discussed above to support its calculation for an increased LSTC.

#### **FEDERAL REGISTER NOTIFICATION**

A notice of opportunity for public comment on this RIS was published in the *Federal Register* (76 FR 18807) on April 5, 2011, for a 30 day comment period. Comments were received and considered in finalizing this RIS.

**CONGRESSIONAL REVIEW ACT**

This RIS is not a rule as designated in the Congressional Review Act (5 U.S.C. §§ 801-886) and, therefore, is not subject to the Act.

**PAPERWORK REDUCTION ACT STATEMENT**

This RIS contains and references information collection requirements that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, approval number 3150-0020.

**PUBLIC PROTECTION NOTIFICATION**

The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid OMB control number.

## CONTACT

This RIS requires no specific action or written response. If you have any questions about this summary, please contact the technical contact listed below.

**/RA/**

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### Enclosures:

1. Recently Issued FSME Generic Communications
2. Staff's Evaluation of Comments

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<b>Name</b>	BJones (via email)	KMcConnell	TDonnell (via email)	LSreenivas	LCamper	
<b>Date</b>	6/21/11	6/23/11	6/30/11	7/8/11	09/29 /11	/ /

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List of Recently Issued Office of Federal and State Material and Environmental Management Programs Generic Communications			
Date	GC No.	Subject	Addressees
11/19/2010	IN-2010-24	Notice of Possible Source Leakage During Non-Routine Maintenance on a Gammacell 40 Irradiator	All academic Type A broad scope licensees; all medical institutions; all self shielded irradiators less than or equal to 10,000 cures licensees; all Radiation Control Program Directors and State Liaison Officers.
04/27/2011	IN-2011-11	Reporting Requirement for Heat and Smoke Detector Failures in 10 CFR Part 36 Irradiators	All holders of irradiator licenses issued by the U.S. Nuclear Regulatory Commission under to Title 10 of the <i>Code of Federal Regulations</i> (10 CFR), Part 36, "Licensees and Radiation Safety Requirements for Irradiators;" Agreement State Radiation Control Program Directors and State Liaison Officers
01/21/10	RIS-2010-02	The Global Threat Reduction Initiative (GTRI) Federally Funded Voluntary Security Enhancements for High-Risk Radiological Material	All holders of operating licenses for nuclear power reactors and research and test reactors under the provisions of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those that have ceased operations and have certified that fuel has been permanently removed from the reactor vessel and have no spent fuel stored on-site. All U.S. Nuclear Regulatory Commission (NRC) fuel cycle facilities licensed under 10 CFR Part 40, "Domestic Licensing of Source Material" or 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material" and gaseous diffusion plants certified under 10 CFR Part 76, "Certification of Gaseous Diffusion Plants." All holders of site-specific licenses for independent spent fuel storage installations (ISFSIs) under the provisions of 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-level Radioactive Waste, and Reactor-related Greater than Class C Waste," and all holders of 10 CFR Part 50 licenses with ISFSIs under the general license provisions of 10 CFR Part 72. All NRC materials licensees authorized to possess Category 1 or Category 2 quantities of radioactive materials, under the provisions of 10 CFR Parts 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," 40, and 70.



List of Recently Issued Office of Federal and State Material and Environmental Management Programs Generic Communications			
Date	GC No.	Subject	Addressees
05/25/10	RIS-2010-04	Monitoring the Status of Regulated Activities During a Pandemic	All holders of operating licenses for nuclear power reactors and research and test reactors under the provisions of Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities," except those that have ceased operations and have certified that fuel has been permanently removed from the reactor vessel and have no spent fuel stored on-site. All U.S. Nuclear Regulatory Commission (NRC) fuel cycle facilities licensed under 10 CFR Part 40, "Domestic Licensing of Source Material" or 10 CFR Part 70, "Domestic Licensing of Special Nuclear Material" and gaseous diffusion plants certified under 10 CFR Part 76, "Certification of Gaseous Diffusion Plants." All holders of site-specific licenses for independent spent fuel storage installations (ISFSIs) under the provisions of 10 CFR Part 72, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel, High-level Radioactive Waste, and Reactor-related Greater than Class C Waste," and all holders of 10 CFR Part 50 licenses with ISFSIs under the general license provisions of 10 CFR Part 72. All NRC materials licensees authorized to possess Category 1 or Category 2 quantities of radioactive materials, under the provisions of 10 CFR Parts 30, "Rules of General Applicability to Domestic Licensing of Byproduct Material," 40, and 70.
09/10/10	RIS-2010-09	Radiation Safety Officers For Medical-Use Licenses Under 10 CFR Part 35	All U.S. Nuclear Regulatory Commission (NRC) medical-use licensees, NRC master material licensees, Agreement State Radiation Control Program Directors, and State Liaison Officers.
01/25/11	RIS-2011-01	NRC Policy On Release Of Iodine-131 Therapy Patients Under 10 CFR 35.75 To Locations Other Than Private Residences	All U.S. Nuclear Regulatory Commission (NRC) medical-use licensees, NRC master material licensees, Agreement State Radiation Control Program Directors, and State Liaison Officers.
Note: This list contains the six most recently issued generic communications, issued by the Office of Federal and State Materials and Environmental Management Programs (FSME). A full listing of all generic communications may be viewed at the NRC public website at the following address: <a href="http://www.nrc.gov/reading-rm/doc-collections/gen-comm/index.html">http://www.nrc.gov/reading-rm/doc-collections/gen-comm/index.html</a>			

**STAFF EVALUATION OF PUBLIC COMMENTS RECEIVED ON PROPOSED GENERIC COMMUNICATION, DRAFT REGULATORY ISSUE SUMMARY 2011-XX, "LICENSEE JUSTIFICATION OF LONG-TERM SURVEILLANCE CHARGE" (76 FR 18807)**

<b>No.</b>	<b>Subject</b>	<b>Comments and Associated Commenters</b>	<b>Response</b>
1a	Groundwater monitoring during long-term surveillance and control	<p>The U.S. Department of Energy (DOE) stated that groundwater monitoring may also be required to comply with Title 40 of the Code of Federal Regulations Part 192.03, "Monitoring," and may need to be reflected in the long-term surveillance charge.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>The NRC staff finds that these regulations pertain to monitoring prior to license termination and transfer of the site to the long term custodian. However, monitoring might be considered necessary during long-term surveillance and control.</p> <p>The RIS is modified to recommend that the licensee, NRC and the long term custodian meet prior to creation of the Long Term Surveillance Plan (LTSP). The purpose of this meeting would be to discuss the scope of the LTSP, including groundwater monitoring. Groundwater monitoring must have a nexus to radiological health and safety.</p> <p>Additionally, the RIS is modified to request that the LTSP clearly state the scope of groundwater monitoring during long term surveillance and control, including the frequency and duration of monitoring, number of wells monitored, constituents analyzed, and a cost estimate.</p>

No.	Subject	Comments and Associated Commenters	Response
1b	Groundwater monitoring during long-term surveillance and control	<p>DOE states that NUREG-0706, Appendix R, Scenario II is the most applicable cost model for calculating long-term surveillance charge for sites with a continuing groundwater monitoring program.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>The NRC staff agrees that Scenario II might be applicable to certain sites. However, 10 CFR Part 40, Appendix A, Criterion 10 states that “if site surveillance or control requirements at a particular site are determined, on the basis of a site-specific evaluation, to be significantly greater than those specified in Criterion 12...variance in funding requirements may be specific by the [NRC].” In other words, on a site specific basis, the Long Term Surveillance Charge (LTSC) may be increased above the minimum amount specified in Criterion 10. Given the site-specific nature of the LTSC, the LTSC for a given site that needs a groundwater monitoring program may be higher or lower than the Scenario II cost presented in NUREG-0706, Appendix R. For instance, groundwater monitoring in perpetuity may not be necessary in all cases. Therefore, as described in the draft RIS, if the custodial agency seeks to increase the LTSC above the minimum amount, a detailed basis must be provided.</p>

No.	Subject	Comments and Associated Commenters	Response
2	Groundwater monitoring during long-term surveillance and control	<p>DOE states that the RIS does not address an estimate of the duration of required groundwater monitoring, and expects that monitoring will be required for a longer period than had been anticipated previously.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>As discussed in Comment 1a, prior to the creation of the LTSP, the RIS will recommend that the licensee, NRC and long term custodian discuss the scope of the LTSP and activities during long term surveillance and control that might warrant an increase in the LTSC, including groundwater monitoring.</p> <p>The draft RIS requested that licensees or license applicants specify, with a sufficient basis, the number of wells to be sampled; the frequency of sampling; the duration of sampling; and the constituents analyzed during long-term site surveillance and control. However, the NRC staff agrees that the RIS does not clearly state that the custodial agency may recommend such measures. The final RIS requests the long term custodian to propose actions it deems necessary during long-term surveillance and control, including groundwater monitoring, and cost out these actions.</p>

<b>No.</b>	<b>Subject</b>	<b>Comments and Associated Commenters</b>	<b>Response</b>
3	Consistency with regulations and guidance	<p>DOE states that it finds no inconsistency in the regulations and guidance, including the draft RIS, pertaining to criteria for assessing the LTSC. DOE also states that it contends the draft RIS is also consistent with the 1998 "License Termination/Site Transfer Protocol between the U.S. Department of Energy and the U.S. Nuclear Regulatory Commission"</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	The NRC staff agrees with this comment. No changes to the final RIS are needed.

No.	Subject	Comments and Associated Commenters	Response
4	Groundwater monitoring during long-term surveillance and control	<p>DOE states that it generally expects to continue the groundwater monitoring program implemented by the licensee, and states that it understands the monitoring program may also be modified through development and acceptance of the LTSP.</p> <p>DOE also states that it agrees with the RIS language that indicates the licensee should implement the groundwater program that will carry over to the monitoring program that DOE will implement.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>The NRC staff wants to clarify that the RIS does not suggest that the licensee would be required to change its groundwater monitoring program in response to the LTSP. The references to 10 CFR 40.28(b)(2) and (b)(3) provide a basis for considering groundwater monitoring in the LTSP.</p> <p>If the custodial agency believes that changes to the groundwater monitoring program should be implemented for long term surveillance, it should provide a basis in the LTSP, including the frequency and duration of monitoring, number of wells sampled, and constituents analyzed. Any groundwater monitoring during long term surveillance and control must have a nexus to radiological health and safety.</p> <p>The final RIS states that the licensee should continue its existing groundwater monitoring program, unless modified by license amendment, until license termination. The final RIS also states that it is the responsibility of the long term custodian to implement the groundwater monitoring program, if any, as described in the LTSP.</p>

<b>No.</b>	<b>Subject</b>	<b>Comments and Associated Commenters</b>	<b>Response</b>
5	Vegetation control	<p>DOE recommended that the need for vegetation control should be based, in part, on considering the long-term effect of the climax plant community on disposal cell performance rather than considering the need for vegetation control only at the time of transition.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>If the long-term custodial agency demonstrates that future vegetation growth will have an adverse impact on cell performance, the NRC may consider increasing the LTSC. No changes are needed to the final RIS.</p>
6	Control of noxious and invasive weeds	<p>DOE states that as long term custodian of certain sties, it may incur additional costs related to activities such as the control of noxious and invasive weeds. DOE acknowledges the NRC's position that the long-term surveillance charge will reflect only those costs having a nexus to radiological health and safety.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>The NRC staff agrees that the LTSC may be increased for costs of controlling noxious and invasive weeds, provided that there is a nexus to radiological health and safety, e.g., the roots of the noxious and/or invasive weeds are expected to penetrate the radon barrier or otherwise adversely affect the performance of the cover.</p>

No.	Subject	Comments and Associated Commenters	Response
7	Site specific basis for the LTSC	<p>DOE states that it will submit to NRC, on a site-by-site basis, the rationale for suggesting that a given scenario is the appropriate model for determining the LTSC.</p> <p>Thomas C. Pauling, Director, Office of Site Operations, Office of Legacy Management, U.S. Department of Energy.</p>	<p>Given the site-specific nature of the LTSC, a detailed basis would be required to support an increase in the LTSC above the minimum amount. The long term care activities that may merit an increase in the LTSC must be fully costed, as the estimated costs for such activities may merit an LTSC that is higher or lower than the cost scenario (Scenario II, III, IV, or V) suggested by the long term custodian.</p> <p>For example, if it is agreed that groundwater monitoring is needed during long term surveillance and control, the maximum Scenario II costs need not necessarily apply. With respect to only groundwater monitoring, the amount of the increase in the LTSC would depend on items such as the frequency and duration of sampling, number of wells sampled, and constituents analyzed. For this reason, activities that may merit an increase in the LTSC must be fully costed.</p> <p>The final RIS is revised as described in Comment 2: it requests the long term custodian to propose actions it deems necessary during long-term surveillance and control, including groundwater monitoring, and cost out these actions.</p>