

Liquid Release Task Force Recommendations Implementation Status
as of July 10, 2009

LLTF Recommendation	Status	Task Force Recommendation	Summary of Actions
(1)	Completed	The staff should review and develop a position to address using lake water that contains licensed radioactive material for other site purposes, such as for use in the fire protection system.	NRC has established a position on using lake water containing radioactive materials for other site purposes. IE Bulletin 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment" provides guidance on use of contaminated systems and safety evaluations. In addition, NRC has issued Regulatory Issue Summary (RIS) RIS-08-33 that describes the NRC regulations on the re-use of previously discharged radioactive materials.
(2)	Completed	The NRC should develop guidance to the industry for detecting, evaluating, and monitoring releases from operating facilities via unmonitored pathways.	Updated regulatory guidance has been provided in Regulatory Guide (RG) 1.21, "Measuring, Evaluating, and Reporting Radioactive Material in Liquid and Gaseous Effluents and Solid Waste" and in Regulatory Guide 4.1, "Environmental Monitoring For Nuclear Power Plants." In addition, technical guidance has been provided for monitoring and evaluating leaks and spills in NUREG/CR-6948, "Integrated Ground-Water Monitoring Strategy for NRC-Licensed Facilities and Sites: Logic, Strategic Approach and Discussion," and NUREG/CR-6805, "A Comprehensive Strategy of Hydrogeologic Modeling and Uncertainty Analysis for Nuclear Facilities and Sites."
(3)	Completed	The NRC should revise the radiological effluent and environmental monitoring program requirements and guidance to be consistent with current industry standards and commercially available radiation detection technology.	Updated regulatory guidance has been provided in RG 1.21 and RG 4.1 on the radiological effluent and environmental monitoring programs.
(4)	Completed	Guidance for the REMP should be revised to limit the amount of flexibility in its conduct. Guidance is needed on when the program, based on data or environmental conditions, should be expanded.	Updated regulatory guidance has been provided in the RG 4.1 that limits the amount of flexibility in the conduct of the environmental monitoring program, and on expanding the program based on operational occurrences or ground water monitoring results.
(5)	Completed	Develop guidance to define the magnitude of the spills and leaks that need to be	Updated regulatory guidance has been provided in the RG 1.21 to include a definition of significant contamination that should be

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		documented by the licensee under 10 CFR 50.75(g). Also, clearly define "significant contamination." Summaries of spills and leaks documented under 10 CFR 50.75(g) should be included in the annual radioactive effluent release report.	documented in the nuclear decommissioning records under 10 CFR 50.75(g). The updated regulatory guide also provides guidance on reporting summaries of leaks and spills in the annual radioactive effluent release reports (available on the NRC web page).
(6)	Completed	The staff should provide guidance to the industry which expands the use of historical information and data in their 50.75(g) files to the operational phase of the plant. The data provides good information on current and future potential radiological hazards that are important during routine operation, and can aid in planning survey and monitoring programs.	Updated regulatory guidance has been provided in the RG 4.1 on use of historical information and 10 CFR 50.75(g) files during the environmental program review.
(7)	Completed	The NRC should evaluate the need to enact regulations and/or provide guidance to address remediation.	Updated regulatory guidance has been provided in the RG 1.21 on evaluating and implementing remediation of onsite contamination.
(8)	Completed	The NRC should require adequate assurance that leaks and spills will be detected before radionuclides migrate offsite via an unmonitored pathway.	<p>Staff have revised and issued Regulatory Guide 1.21, "Measuring, Evaluating and Reporting Radioactive Material In Liquid and Gaseous Effluents and Solid Waste." This RG provides updated guidance for monitoring abnormal discharges before radionuclides migrate offsite via an unmonitored pathway. The RG also includes updated guidance on reporting abnormal releases to the site environs from systems, structures, and components, as well as guidance on reporting abnormal discharges to the unrestricted area. Additionally, all licensees must comply with the existing requirement to monitor and report effluents that are discharged, including abnormal discharges that may migrate offsite.</p> <p>For new reactor license applicants, NRC is reviewing applications using the guidance of NEI 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination." Section 3.2.2 of this guidance requires that "The applicant will establish an on-site ground water monitoring program to ensure timely detection</p>

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			<p>of inadvertent radiological releases to ground water."</p> <p>NRC has proposed rulemaking for existing reactors titled "Decommissioning Planning" (ML090490280) that would require ground water monitoring and detection of leaks and spills before migration offsite. The Commission is currently considering the relative merits of the safety benefit and the cost considerations of this proposed rule.</p>
(9)	Completed	To support one possible option for recommendation (6), regulatory guidance should be developed to define acceptable methods to survey and monitor onsite groundwater and sub-surface soil for radionuclides.	Updated regulatory guidance has been provided in the RG 1.21. In addition, technical guidance has been provided for monitoring and evaluating leaks and spills in NUREG/CR-6948, "Integrated Ground-Water Monitoring Strategy for NRC-Licensed Facilities and Sites: Logic, Strategic Approach and Discussion," and NUREG/CR-6805, "A Comprehensive Strategy of Hydrogeologic Modeling and Uncertainty Analysis for Nuclear Facilities and Sites."
(10)	Completed	The NRC should revise radioactive effluent release program guidance to upgrade the capability and scope of the in-plant radiation monitoring system, to include additional monitoring locations and the capability to detect lower risk radionuclides (i.e., low energy gamma, weak beta emitters, and alpha particles).	RG 1.21 was revised and includes provisions for on-site monitoring capability for various release points (including ground water) and radionuclides (including low energy gamma, weak beta, and alpha radioactivity). Pre-release sampling and analyses are required for batch releases. For continuous releases, guidance is provided for continuous monitoring, periodic sampling and composite sampling with both on-site and off-sample analyses that provides detection methods and capabilities for low energy gamma, weak beta emitters, and alpha particles.
(11)	Completed	Determine whether there is a need for improved design, materials, and/or quality assurance requirements for SSCs that contain radioactive liquids for new reactors.	A staff review has concluded that the current requirements in 10 CFR 20.1406 adequately address this recommendation for new reactors. Draft guide DG-4012 "Minimization of Contamination and radioactive Waste Generation – Life Cycle Planning" has been issued to provide guidance on how to meet this regulation.
(12)	Completed	The staff should consider whether further action is warranted to enhance the performance of SFP telltale drains at nuclear power plants.	The staff reviewed the operating experience, regulatory requirements and guidance related to SFP liner leakage collection capability. Based on the operating experience, the staff concluded that the existing regulatory requirements are adequate.
(13)	Completed	The staff should verify that there has been an evaluation of the effects of long term SFP	NRC staff have verified that plant licensees who have experienced SFP leakage have assessed and evaluated the potential for adverse

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		leakage (boric acid) on safety significant structures (concrete, rebar), or the staff should perform such an evaluation.	impact, both short term and long term, on structural integrity of the reinforced concrete SFP structure and determined the design licensing basis remains satisfied and will continue to remain satisfied.
(14)	Completed	The staff should assess whether the maintenance rule adequately covers SSCs that contain radioactive liquids.	<p>The scope of 10 CFR 50.65, the Maintenance Rule (MR), as defined in paragraph 50.65(b)(1), includes all safety-related SSCs relied upon to remain functional during and following design-basis events to ensure the integrity of the reactor coolant pressure boundary, the capability to shut down the reactor and maintain it in a safe shutdown condition, or the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the guidelines in 10 CFR 50.34(a)(1), 10 CFR 50.67(b)(2), or 10 CFR 100.11 as applicable.</p> <p>Paragraph 50.65(b)(2) includes in the scope of the MR certain non-safety-related SSCs (i) that are relied upon to mitigate accidents or transients or used in the plant emergency operating procedures; or (ii) whose failure could prevent safety-related SSCs from fulfilling their safety-related functions; or (iii) whose failure could cause a reactor scram or actuation of a safety-related system. Therefore, the MR does not require that SSCs with functions involving containing or preventing the uncontrolled release of radioactive liquids under normal operating conditions be included within the scope of licensee's maintenance rule programs; nor was it intended to do so.</p>
(15)	Completed	The staff should verify that the license renewal process reviews degradation of systems containing radioactive material such as those discussed in this report.	These systems are not within the scope of the 10 CFR 50.4 license renewal regulations. The license renewal review focuses its evaluation on SSCs most important to safety. The radioactive waste systems discussed in the LLTF report do not meet the scoping

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			criteria that are contained in 10 CFR 54.4. Imposing a new requirement on license renewal applicants to include aging management of radioactive waste systems would require a change to 10 CFR Part 54 and would have a major impact on the license renewal program that is not warranted based on safety.
(16)	Completed	The NRC staff should open a dialogue with the States regarding the application of the NPDES system to discharges of radioactive materials to promote a common understanding of how the associated legal requirements in this area are addressed.	Several state-issued NPDES permits were reviewed. The majority of the permits did not regulate the discharge of radioactive materials. The staff has recommended consideration of a workshop with the States to promote a common understanding of groundwater protection regulations, aquifer classification systems and implementation procedures related to nuclear power plant operations.
(17)	Completed	Inspection guidance should be developed to review onsite contamination events including events involving contamination of ground water.	The staff issued inspection guidance in the form of a Temporary Instruction TI 2515/173 to verify compliance with the NEI 07-07 voluntary initiative on ground water contamination events. Following completion of this Temporary Instruction, the NRC will incorporate on-going review of ground water contamination events into its routine inspection program.
(18)	Completed	The inspection program should be revised to provide guidance to evaluate effluent pathways such that new pathways are identified and placed in the ODCM as applicable. In addition, guidance should be included as to when a new release path becomes "permanent" for purposes of inclusion in the ODCM and routine annual reporting.	The staff has revised Inspection Procedure 71122.01 as part of this recommendation. The staff issued additional inspection guidance in the form of a Temporary Instruction TI 2515/173 to verify compliance with the NEI 07-07 voluntary initiative on ground water contamination events. Following completion of this Temporary Instruction, the NRC will incorporate on-going review of ground water contamination events back into its routine inspection program.
(19)	Completed	Limited, defined documentation of significant radioactive releases to the environment should be allowed in inspection reports for those cases where such events would not normally be documented under the present guidance.	The staff has revised Inspection Manual Chapter 612 to specify that limited, defined documentation of the review of abnormal or unplanned radioactive discharges (e.g., leaks and spills) be provided in the inspection reports.
(20)	Completed	The staff should revise the Public Radiation	The proposed revision to the Public Radiation SDP has been

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		SDP to better address the range of events that can occur, including unplanned, unmonitored releases or spills.	approved by the Commission (SECY-07-0112). The staff has revised the Public Radiation Safety SDP to include leaks and spills.
(21)	Completed	10 CFR 20.1406 requires in part that applicants for licenses shall describe in their application how facility design and procedures for operation will minimize contamination of the environment. The NRC should develop regulatory guidance to describe acceptable options to meet this requirement.	The staff has issued a new Regulatory Guide 4.21 that provides guidance on meeting the requirements in 10 CFR 20.1406. For new reactor license applicants, NRC is reviewing applications using the guidance of NEI 08-08, "Generic FSAR Template Guidance for Life Cycle Minimization of Contamination."
(22)	Completed	NRC should evaluate whether the present decommissioning funding requirements adequately address the potential need to remediate soil and groundwater contamination, particularly if the licensee has no monitoring program during plant operations to identify such contamination.	In SECY-06-0065, dated May 17, 2006, the Commission directed the staff to review the agency's decommissioning funding requirements. As directed by the Commission for year 2011, the staff will review the formula used in calculating decommissioning funding requirements and adjust it, if necessary. To help establish a baseline, the staff took this opportunity to assess the impact of the remediation costs for unmonitored, contaminated soil and groundwater on the decommissioning costs of Connecticut Yankee Nuclear Power Plant (CY), Maine Yankee Atomic Power Company (MY), and Yankee Nuclear Power Station (Rowe). The staff has evaluated and concluded that present decommissioning funding requirements are adequate with respect to the potential need to remediate soil and groundwater contamination. The staff based its conclusion on the worst case decommissioning scenario for which there is actual experience. For that case, the licensee had sufficient funds to cover the cost of \$850 million to decommission Connecticut Yankee, including the additional costs resulting from unmonitored releases. Moreover, Connecticut Yankee was decommissioned to a more stringent State release criterion, which likely increased the cost beyond what it would have been under NRC criteria.
(23)	In-progress	The NRC should consider the development of guidance on the evaluation of radionuclide transport in groundwater. American National Standard (ANSI/ANS) 2.17 addresses this issue and is being extensively updated.	The staff participated in the ANS 2.17 writing committee, which has completed a draft revision to this ANSI/ANS industry standard. The staff has included this ANSI standard as a reference in the revision to Regulatory Guide 1.21.

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(24)	Completed	The NRC's guidelines for "immediate notification" public communications should continue to be based on public health and safety considerations. To support the NRC's openness goals, the NRC staff should consider whether to notify the public of radioactive releases to the environment that are not significant from a radiation dose perspective, but that could be of general public interest nonetheless.	10 CFR 50.72 requires licensees to report any event for which a news release is planned, and additional guidance for implementing this requirement relative to leaks and spills of radioactive material is contained in RG 1.21 (Revision 2). Additionally, the Nuclear Energy Institute (NEI) issued NEI 07-07, "Industry Ground Water Protection Initiative – Final Guidance Document," August 2007. This is an industry initiative that puts in place a process to provide prompt notifications to local and state and federal agencies. The NRC implements inspections under Temporary Instruction TI-2515/173 to monitor the implementation and effectiveness of this industry initiative.
(25)	Completed	NRC staff should review NUREG/BR-0308, "Effective Risk Communication," and other training tools to ensure an event's risk is provided with appropriate context.	The staff has reviewed the guidance and training related to stakeholder communication on events and concluded that adequate guidance already exists. Regulatory Guide 1.21 has been revised and includes guidance on using NUREG/BR-0308 effective risk communication when notifying local authorities of leaks and spills.
(26)	Completed	Nuclear power plant licensees should consider entering into agreements with local and state agencies to voluntarily report preliminary information on significant radioactive liquid releases that do not otherwise trigger reporting requirements. The present industry ground water protection initiative may address this.	The Nuclear Energy Institute (NEI) issued NEI 07-07, "Industry Ground Water Protection Initiative – Final Guidance Document," August 2007. This initiative establishes a communication protocol whereby licensees establish a working relationship with and provide information directly to local and state agencies.