
Manual Chapter 2641

IN-SITU LEACH FACILITIES INSPECTION PROGRAM

2641-01 PURPOSE

This chapter establishes the routine safety inspection program for in-situ leach (ISL) facilities. Included in the program are operating ISL facilities, research and development facilities, and facilities in preoperation, startup, and decommissioning status.

2641-02 OBJECTIVES

02.01 To establish general policy for the ISL facilities inspection program, including priorities for inspection.

02.02 To establish specific requirements for the frequency with which referenced inspection procedures (IPs) should be performed at ISL facilities.

02.03 To achieve consistency in performing inspections, whether performed by inspectors based in the regional office or in the Headquarters.

2641-03 PROGRAM ASSUMPTIONS

This program deals primarily with inspection of operating ISL facilities, but also addresses inspection requirements and assessment activities for facilities in construction, preoperation, startup status, and decommissioning.

Inspections during the operating phase begin upon issuance of the facility license, continuing until the facility ceases all operation and is placed in standby or inactive status, or is decommissioned. For guidance for facilities in standby or inactive status, or in decommissioning status refer to Inspection Manual Chapters 2801 (Uranium Mill and 11e.(2) Byproduct Material Disposal Site and Facility Inspection Program) and 2605 (Decommissioning Procedures For Fuel Cycle and Materials Licensees); Inspection Procedure 87654; NUREG 1575 MARSSIM (Multi-Agency Radiation Survey and Site Investigation Manual); and other NRC documents relating to decommissioning.

ISL facilities in non-operating status generally do not pose the same risk levels as operating facilities, especially if nuclear material has not yet been introduced into the facility, or has been placed in storage and is not in process. Certain IPs may not be applicable in these cases, and others utilized in accordance with the level of risk attached to each situation. However, since ground-water restoration costs may continue to rise as equipment ages or is removed from the site, IPs may play an important role in confirming estimates of ground-water restoration sureties.

Inspection activities for new facilities or those undergoing major modifications when no nuclear material is present are conducted as an adjunct to the licensing process. Their purpose is to establish the accuracy of representations made in the license application that certain facility structures or equipment meet stated safety and environmental criteria. Inspections are justified before a license is issued where inspection for the intended purpose would not be practical after construction is completed.

Facilities for which decommissioning plans are being prepared, or have been submitted but not approved, remain as operating facilities. Inspection requirements specified in this chapter remain in effect in these situations, but may be adjusted through coordination between the regional office and the Headquarters, to account for the lower risk associated with curtailed operations.

For sites in decommissioning, not all inspection procedures may be applicable, and inspection requirements may be adjusted to reflect the different activities and the increased or decreased levels of risk. Inspection requirements for decommissioning can be found in several NRC documents (e.g., MARSSIM, IP 87654, etc.).

2641-04 DEFINITIONS

04.01 In-situ Leach. In-situ leach mining involves the use of a leaching solution (lixiviant) to extract the mineral of interest from the geologic formation in which it occurs.

04.02 Performance Based License. Consistent with the regulatory reduction effort initiated in 1994, all new and renewed licenses are being issued as performance-based. A performance based license (PBL) allows the licensee to make changes to the facility without prior NRC approval if certain license conditions are met.

2641-05 PROGRAM DESCRIPTION

05.01 General. This chapter identifies requirements for the inspection of the health, safety, and environmental aspects of licensee operations. The inspector should be completely familiar with the current regulatory requirements and commitments associated with the license. These include the comparable parts of title 10, U.S. Code of Federal Regulations, licensee Operation Plans, the license application, applicable guides, and other codes to which licensees may commit by reference. In the case that NRC guidance documents are updated after a license or amendment is issued, the licensee is generally only committed to follow the original guidance. Thus, the particular revision of the guidance to which the licensee has been committed is important.

The recommended IPs and frequencies for the different programmatic areas are identified in the appendix. It identifies both a recommended minimum and a normal level of effort for inspection of certain program areas. The minimum and normal levels of inspections are specified as different frequencies of implementation of the various IPs comprising the overall program for a facility.

The "Minimum" frequency of inspection specified for a procedure is the lowest recommended frequency to which the inspection should be reduced. The "Normal" frequency is one which should be followed absent strong indications the licensee's performance is sufficiently outstanding or poor in the area covered by the procedure that a change is warranted. For a "Normal" inspection frequency, all elements of a procedure should be completed within the recommended "Normal" frequency.

There is no maximum frequency expressed or implied by the appendix. Any level of effort (i.e., frequency of inspection) above that specified as the "Normal" frequency should be based on a significant and demonstrated concern for safety and the environment in the continued operation of the in-situ leach facility. This would be determined by the responsible regional office or the Headquarters. Substantial adjustments to inspection frequency must be approved as specified in Section 05.02 of this chapter.

Some inspection procedures listed in the appendix may normally be conducted more frequently than annually, so more attention can be paid to licensees' efforts to implement changes in their safety programs resulting from modifications in plant processes and procedures.

The scope of IPs, taken as a whole, is not intended to be limited to only those elements discussed in the procedures. The descriptions and examples contained in the procedures are provided primarily for illustrative purposes. Examination of other safety-significant activities not expressed or implied in a procedure is left to the inspector's judgment, in consideration of the relative degree of safety risk posed by the activity.

As a result of reviews conducted under the authority of the National Environmental Policy Act, the NRC placed license conditions on facility operations involving environmental issues. Environmental inspections would be conducted at the same time as health and safety inspections.

Most ISL licensees have been issued a PBL delegating additional regulatory authority for various aspects of licensed activities to the licensees. These licensees are required to establish a Safety and Environmental Review Panel to evaluate all safety issues pertinent to the associated PBL conditions. This portion of the licensee's program should be inspected at each inspection.

During inspections, emphasis should be placed on performing physical examinations, observing conduct of operations, making independent measurements and interviewing personnel. Records review should be de-emphasized and involve a random selection of only those records that have safety and environmental significance. In addition to determining if the licensee is complying with regulatory or license requirements, the inspector's primary concern should be to determine if the licensed facility is being operated safely.

05.02 Program Adjustments. This program provides the responsible regional office and the Headquarters flexibility to adjust the frequencies, and scope of inspections for different functional areas at a facility. Periodic adjustments should be based on the inspection history, licensee performance and safety significance of findings, as delineated in sections 05.03-05.04. Occasional adjustments may also occur in response to other events or activities, as determined by the responsible regional office or the Headquarters. A reasonable allowance for responding to these events or activities should be incorporated in the inspection plan for the facility. Necessary adjustments may be difficult to implement within the constraints imposed by limited inspection resources within the regional office and the Headquarters. In such cases, implementation may involve a shift in the focus of already scheduled inspection resources for the subject facility, or a shift in allocated inspection resources from other facilities in the region that have exhibited superior performance. Resources may also be utilized from other regional offices or the Headquarters in a coordinated response to address significant safety or environmental issues that cannot otherwise be deferred.

Inspections during the construction and pre-operational phase of a facility will be conducted on a case-by-case basis. Pre-operational inspections will be conducted at least once before startup of facility operations. The inspection procedures for the construction/pre-operational phase are indicated in the appendix, as applicable.

Substantial adjustments in the planned inspection schedule for a facility (i.e., those that involve shifts in resources which may affect other facilities or result in exceeding a "normal" inspection frequency) should be coordinated between the Headquarters and the regional office.

05.03 Extension of Inspection Interval

- a. The interval between inspections may be extended (lengthened) on the basis of good licensee performance. The main consideration in extending the inspection interval should be evidence of well-managed and effective radiation safety and environmental protection programs which shows a history of compliance. Specifically, the inspection interval may be extended for licensees meeting the following conditions:

1. The violations identified during the licensee's current and preceding inspections were of a low safety significance and no more than two violations per inspection are Severity Level IV.
2. The licensee has not had a significant program change since the preceding inspection. Significant program changes should relate to changes in the scope or type of operations, changes in the authorized materials or possession limits, changes in key personnel, or changes in locations of use. (NOTE: Extension should not be considered for licensees who have undergone significant program changes to ensure the licensee can maintain adequate performance over the next inspection period.)

Licensees which meet the above criteria may have their inspection interval extended as follows:

Producing ISLs increased from 6 months to 1 year.

Standby or inactive ISLs from 1 year to 3 years.

ISLs in restoration from 1 year to 3 years.

For instance, a production ISL which meets the above criteria may have their next inspection due date lengthened to 1 year from the last inspection. The extension shall be valid only until the next inspection, but may be renewed on the basis of repeated favorable findings.

- b. To document the extension in the interval between inspections, a note (e.g., a memorandum or section within the inspection report) should be written by the inspector, approved and signed by the inspector's immediate supervisor, and placed in the docket file.
- c. The decision to extend the inspection should be made after each routine inspection. The project manager for the site should be informed and the master inspection plan updated.

05.04 Reduction of Inspection Interval

- a. The interval between inspections may be reduced (shortened) and inspections conducted more frequently than specified in the priority system on the basis of poor licensee

performance. The main consideration in reducing the inspection interval should be evidence of moderate to severe problems in the licensee's radiation safety or environmental protection programs. Poor compliance history is one indicator of such problems, while lack of management involvement or control over the radiation safety program is another indicator. Specifically, licensees that meet the following conditions shall be considered for reduction in inspection interval:

1. A Severity Level I, II, or III violation on the most recent inspection, or
2. Issuance of an order or escalated enforcement on the most recent inspection, or
3. If a "management paragraph" appears in the cover letter transmitting the notice of violation on the most recent inspection (i.e., a paragraph that requires the licensee to address adequate management control over the licensed program), or
4. An event requiring a reactive inspection, or
5. Repetitive violations.

The above list is not exhaustive; the inspection interval can and should be reduced for any other reason deemed pertinent by the regional or the Headquarters management. An example would be an enforcement conference where the outcome did not include escalated enforcement action, but did indicate the need for the licensee to improve some aspect(s) of its compliance program.

Licensees which meet the above criteria may have their inspection interval reduced by any length. For instance, licensee with a nominal annual inspection frequency and a poor performance record could be rescheduled for its next inspection in 6 months. The reduction may be valid only until the next inspection or another duration specified, but the regional or the Headquarters management shall consider the results of the next inspection when determining whether the reduced interval should be continued, changed, or returned to normal.

- b. To document the reduction in the interval between inspections, a note (e.g., a memorandum or section within the inspection report) should be written by the inspector, approved and signed by the inspector's immediate supervisor, and placed in the licensing file.
- c. The decision to reduce the inspection interval may be made at any time, but consideration should be given immediately after each routine inspection. The project manager for the site and the licensee should be informed and the master inspection plan updated.

05.05 Inspections After Escalated Enforcement. If escalated enforcement action has taken place for a particular licensee, a follow-up inspection should be scheduled and conducted within 6 months of the last inspection or sooner, in accordance with the guidance in this IP regarding reduction of inspection interval (Section 05.04), after completion of the escalated enforcement action, to assess the licensee's follow-up actions in response to the previous violations. Regions may perform this follow up inspection as a part of a routine inspection.

05.06 Performance-Based License. At sites operating under a PBL, the inspector should ensure that changes authorized under the PBL do not erode the basis for NRC's licensing decision. In

evaluating the changes made to the facility, inspectors should recognize that the reviews conducted by the licensee's evaluation panel are reviews of neither safety nor environmental acceptability; rather, the evaluation panel reviews under the PBL are a determination of whether the proposed changes require prior NRC review. Licensees are obligated to ensure that any change considered to the facility should be safe and environmentally acceptable. Then the evaluation panel is responsible for determining if the proposed changes need to be submitted to NRC. There will be circumstances where the licensee finds that the proposed changes are acceptable; however, the change may still require an NRC review.

As a general set of guidelines, NRC review will be required for changes to:

1. The items described in the application or subsequent submittals that would reduce the safety basis of the facility;
2. The procedures conditioned in the license or outlined, summarized, or included in the application; and
3. Any of the license conditions.

2641-06 REVIEW OF EVENTS

All inspections should include, as appropriate, a review of licensee reportable and non-reportable events received by the NRC or maintained at a licensee's facility. In the case of reports received by the NRC involving radiological health and safety, the region is responsible for determining the seriousness of the reported incident and whether an immediate reactive inspection is necessary. When such reports involve programmatic or technical areas normally addressed by the Headquarters, the regional office shall confer with the Headquarters to jointly determine what response, if any, is required, including whether the NRC response should include personnel from the Headquarters.

Non-reportable events are those determined by the licensee to fall outside criteria requiring them to be reported to the NRC. Although these events are not reported formally to the NRC, licensees occasionally may contact regional staff informally to describe the event. Still, licensees are often required, through license conditions or commitments, to maintain records of non-reportable events on-site. The records generally describe the events, the licensee's immediate response, the actions taken to investigate their safety significance, and the follow-up actions taken to prevent similar events in the future. Individually, such events may not appear safety-significant. A series of such events, however, may demonstrate a precursor condition exists for a future occurrence of a more serious event.

Inspections should examine non-reportable events for the particular programmatic area being inspected. The examination should be used to determine that licensee management has taken appropriate corrective actions to preclude recurrence. It also may provide an overview of the types of safety challenges experienced during plant operation and the general character of the licensee's responses to such events.

2641-07 INDEPENDENT INSPECTION EFFORT

Each inspector should spend onsite inspection time performing independent inspection effort. The amount of time spent should be commensurate with the level of risk, the complexity of the

facility, and the degree to which inspection resources have already been committed to significant safety and environmental issues already identified in the facility. This effort may include more in-depth inspection in selected technical areas than that normally called for by the formal procedures. The major objective of this effort should be to gain increased understanding of potential safety and environmental hazards of particular operations of interest, such as those which may have been involved in a series of recent non-reportable events.

Comparison of the findings from this type of effort with the licensee's findings may uncover unresolved safety and environmental questions and other problems not discovered through other means. Discovered hazards outside the scope of NRC IPs or regulatory authority should be conveyed to the licensee at the exit interview, described to regional management during debriefing, and included in the formal inspection report. In cases where regulatory jurisdiction for the observed potential hazard is clear, the finding shall be reported to the responsible agency for action (e.g., state regulatory authorities, Mine Safety and Health Administration, Environmental Protection Agency, etc.). In all cases where a finding involves a potential effect on radiological health and safety, the finding shall be followed during subsequent inspections until the licensee has addressed the concern. However, special follow-up inspections based solely on issues under other regulatory authorities are not required unless the potential hazard also directly involves radiological health or safety.

2641-08 RANDOM SELECTION AND EXAMINATION OF RECORDS

Many of the inspection procedures normally require the inspector to select certain types of records at random for closer examination. However, random selection is not always required. Certain records of interest may be sought at the discretion of the inspector.

Random selection is a technique that recognizes the fact that the NRC does not have the resources to inspect every detail of a facility. The NRC inspection program is predicated on the fact that the licensee is ultimately responsible for the safety of the licensed facility. Random selection, where specified in a procedure, allows the inspector to sample specific aspects of the licensee's safety and environmental program to be studied at a level of detail that would be impractical if exercised uniformly across the entire safety program. When random selection is specified in a procedure, the inspector should select records corresponding to activities that relate to the NRC's regulatory role, such as effluent monitoring records or ground-water restoration records. Also included should be records required to be retained for later decommissioning.

To reasonably verify operations are conducted in a safe and environmentally acceptable manner, the inspector should also randomly select personnel for interviews. The extent to which random selections or examinations are needed is left to the inspector's judgment of how uniformly operational and safety safeguards procedures are being followed.

The areas covered during an inspection need not be limited only to those elements discussed in the procedures, but may need to include examination of other activities not expressly delineated or covered in existing procedures. In such cases, the inspector must exercise good professional judgment in modifying the inspection and in identifying to the Headquarters the possible need for development of supplemental guidance. Conformance with the principles of reducing radiation exposure to as low as is reasonably achievable (ALARA) should be a principal concern at all times.

2641-09 RESPONSIBILITY FOR INSPECTIONS

The responsibility for inspection resides with the Region IV Office, except in the case of inspections for license functions handled within the Headquarters. To efficiently utilize resources, the Region IV office should ask the Headquarters to assist with inspections when specialized technical expertise is not available within the region.

2641-10 MASTER INSPECTION SCHEDULE

An inspection schedule involving radiological health, safety, and environmental inspections shall be maintained by the Region IV office. These inspections will be scheduled to ensure: (1) inspections are performed with the required frequencies (as prescribed in the appendix, or modified in accordance with this chapter); and (2) inspections do not overlap and cause undue burden on normal operations at a facility, within the available resources of the region.

Most scheduled inspections will be announced inspections, with adequate advance notice given to the licensee to ensure the appropriate licensee personnel can be available and inspectors can arrange to observe activities not conducted on a routine or regularly scheduled basis. However, inspection staffs retain the option for conducting inspections on an unannounced basis as necessary to fulfill the intent of the inspection.

To achieve the goals of cost saving and efficient use of staff time and travel, inspections (other than initial inspections) may be scheduled within a window around their inspection due date. Inspection of semi-annual licensees may vary around their due date by ±1 month. Inspection of annual licensees may vary around their due date by 3 months. Inspections will not be considered "overdue" until they exceed the open window. Inspections may be scheduled before their window if the inspector receives information that warrants an earlier inspection.

END

Attachment:

Appendix, "Inspection Procedures and Frequencies For Different Programmatic Areas"

APPENDIX

INSPECTION PROCEDURES AND FREQUENCIES FOR DIFFERENT PROGRAMMATIC AREAS

<u>Procedures</u>		<u>Inspection Frequencies</u>	
<u>Number</u>	<u>Title</u>	<u>Normal</u>	<u>Minimal</u>
83822	"Radiation Protection"	Semiannual	Annual
88045	"Environmental Protection"	Semiannual	Annual
89001	"In-Situ Leach (ISL) Facilities"	Semiannual	Annual
86740	"Transportation of Radioactive Materials"	Annual	Annual
88035	"Radioactive Waste Management"	Semiannual	Annual
88005	"Management Organization & Controls"	Semiannual	Annual
87102	"Maintaining Effluents from Materials Facilities As Low as Reasonably Achievable (ALARA)"	Annual	Annual
88050	"Emergency Preparedness"		As Needed

88064	"Emergency Procedures"	As Needed
88055	"Fire Protection"	As Needed
83890	"Closeout Inspection & Survey"	As Needed
92701	"Follow-up"	As Needed
92703	"Follow-up of confirmatory Action Letters"	As Needed
93001	"OSHA Interface Activities"	As Needed
88065	"Incident Investigation"	As Needed
87654	"Uranium Mill Site Decommissioning Inspections"	As Needed
87104	"Decommissioning Procedure for Materials Licensees"	As Needed