
INSPECTION PROCEDURE 71801

DECOMMISSIONING PERFORMANCE AND STATUS REVIEWS AT PERMANENTLY SHUTDOWN REACTORS

Effective Date: 01/01/2021

PROGRAM APPLICABILITY: IMC 2561, Appendix A

71801-01 INSPECTION OBJECTIVES

- 01.01 To evaluate the status of decommissioning and verify whether the licensee is conducting decommissioning and maintenance activities in accordance with regulatory and license requirements.
- 01.02 To maintain awareness of work activities to assess licensee control and conduct of decommissioning.
- 01.03 To evaluate the licensee's decommissioning staffing, personnel qualifications, and training requirements, including that of the contracted workforce, to ensure that license requirements are met, as applicable to the current decommissioning status.
- 01.04 To identify and document in an inspection report the status, progress, and changes that potentially impact decommissioning financial assurance, to supplement information for the Financial Assurance Branch (FAB) to support and ensure a thorough financial analysis review of the annual decommissioning trust fund reported by the licensee.

71801-02 INSPECTION REQUIREMENTS

02.01 Status of Decommissioning

- a. Attend and observe licensee meetings that plan, review, assess, and/or schedule the conduct of facility decommissioning and discuss with licensee representatives the status of decommissioning activities, problems encountered, and performance insights.
- b. Evaluate whether required maintenance is being conducted at an appropriate frequency and that preventative maintenance, as appropriate, is being performed and documented.
- c. Select 1-3 of the following:
 - 1) Verify that the licensee is updating the Final Safety Analysis Report (FSAR) or Defueled Safety Analysis Report (DSAR) as required in Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50.71.

- 2) Verify that the licensee has a characterization process that is consistent with its characterization strategy identified in the Site Characterization Plan, Post Shutdown Decommissioning Activities Report (PSDAR) or License Termination Plan (LTP) to assess the collection, evaluation, and use of data throughout the decommissioning process to support license termination.
- 3) Verify that the licensee has appropriately identified and stored in accordance with quality assurance requirements records important to decommissioning as defined in 10 CFR 50.75(g).
- 4) Select a representative sample of commitments and/or requirements from the Technical Specifications, PSDAR, LTP, or Offsite Decommissioning Calculation Manual (ODCM) and confirm that they are effectively implemented and met. This review could include a selected sample from the Emergency Preparedness Plan.

02.02 Decommissioning Operations

- a. Perform a plant tour to assess field conditions and decommissioning activities by assessing material condition of structures, systems, and components (SSCs), housekeeping, system configurations, and worker level of knowledge or procedure use and adherence. This tour shall include a tour of the control room and spent fuel pool when spent fuel is in the spent fuel pool. The tour should include the radiological control areas, including the containment or the drywell, as available.
- b. Observe 1-2 pre-job briefs for maintenance, surveillance, decommissioning activities, or special evolutions and/or periodic status meetings, as available.
- c. Observe 1-2 work activities, as available, to verify that the licensee identifies appropriate administrative and/or engineering controls in work plans and appropriately implements them to protect the public and the environment.

02.03 Decommissioning Staffing and Training

- a. Evaluate whether the licensee's organization and staffing are appropriately adjusted for changes in the status of decommissioning to ensure reasonable assurance of safety and security in accordance with regulatory requirements and the license.
- b. Select one to two work groups and ensure that staff are trained in accordance with license and regulatory requirements to include that personnel qualifications and training are current.

02.04 Decommissioning Planning, Scheduling, and Cost Assessment

- a. Review the licensee decommissioning strategy, schedule, and estimated cost, as docketed (per license, the U.S. Nuclear Regulatory Commission (NRC) evaluated PSDAR with any updates, or approved LTP with any approved updates). Determine whether the licensee has appropriately made any changes to decommissioning schedule major milestones and associated costs in accordance with 10 CFR 50.82(a)(7).

- b. Discuss with the licensee's site project controls organization the on-going and completed major decommissioning activities that occurred since the last required decommissioning trust fund report submittal. Document major on-going and completed decommissioning activities.
- c. Inquire as to overall financial status of decommissioning to identify any financial spot check triggers listed in section 03.04. Maintain awareness to any changes to the financial allocation control process and communicate those changes to the Project Manager or Financial Assurance Analyst, as applicable. The initial review of the financial allocation control process shall be done by the FAB.

02.05 Problem Identification and Resolution. Verify that the licensee is identifying problems related to decommissioning and maintenance activities at an appropriate threshold and entering them into the corrective action program. If applicable, for a sample of problems documented in the corrective action program, verify that the licensee has identified and implemented appropriate corrective actions.

71801-03 INSPECTION GUIDANCE

General Guidance

The primary objective of this inspection procedure is to evaluate the adequacy of the licensee's decommissioning program, the status of decommissioning and to ensure that decommissioning activities and site operations are appropriately controlled through on-site observations and a review of staffing, training, schedule and overall financial status.

The following guidance is provided to assist the inspector to fulfill the specific inspection requirements outlined below. It is not intended to be prescriptive or that it contain every attribute described in the guidance section. This inspection procedure is a general topic inspection procedure that provides guidance and inspection requirements for a general assessment of licensee performance and activities. Refer to the appropriate specific decommissioning inspection procedure(s) described in Inspection Manual Chapter 2561 for specific or in-depth topical area inspections.

This IP applies to all states of decommissioning from the permanent cessation of reactor operations until license termination. The inspection resources devoted to decommissioning power reactors will be dependent on the phase of decommissioning being implemented. The inspector is not required to complete all the inspection requirements listed in the IP, nor is the inspector limited to those inspection requirements listed if any additional safety concerns are identified. Inspectors should select inspection items using a performance based, risk-informed approach, while also considering variety. Inspectors should review a sampling of past inspection reports to inform their selection. Based on a licensee performance, the inspector may choose to inspect any aspect of the licensee's process in order to provide reasonable assurance of adequate protection of public health and safety and the environment.

Based on a high-level review of overall financial status and decommissioning activities, the inspector should determine if any triggers criteria described in section 03.04 below exist in which case the Project Manager FAB may initiate a Financial Assurance Spot Check Assessment (Refer to the Reactor Decommissioning Financial Assurance Working Group Final

Report, issued May 1, 2020, ADAMS Accession No. ML20120A550) with the licensee. The Financial Assurance Spot Check Assessment is performed by FAB to ensure there is reasonable assurance the decommissioning trust fund remains adequate to complete the decommissioning.

Definitions

Decommissioning Trust Fund – the radiological trust fund required by 10 CFR 50.75 and administered by an independent trustee (usually a Bank) to demonstrate the licensee has adequate funds to reasonably complete the radiological decommissioning of the site.

Financial Assurance – the requirement in 10 CFR 50.75 for the licensee to provide a decommissioning trust fund that demonstrates the financial ability to complete the radiological decommissioning in 60 years.

Financial Assurance Spot Check - An audit/assessment performed by the FAB of the licensee's decommissioning trust fund expenditures and assets to assess that there is reasonable assurance that there are sufficient funds to complete the radiological decommissioning within the 60-year requirement (10 CFR 50.82).

License Termination Plan (LTP) – required in 10 CFR 50.82 and meets requirements in NUREG 1700, Standard Review Plan for Power Reactors to complete the decommissioning and terminate the license or allow a partial site release of the site except the Independent Spent Fuel Storage Installation (ISFSI).

Post Shutdown Decommissioning Activities Report (PSDAR) – required by 10 CFR 50.82 that outlines the licensee's strategic schedule, site specific decommissioning cost estimate and affirmation of the adequacy of the site environmental review to perform the decommissioning. For details, see Regulatory Guide 1.185.

Specific Guidance

03.01 Status of Decommissioning

- a. The inspector should assess whether decommissioning is being performed in accordance with license requirements and docketed commitments. This status should include documenting ongoing and planned decommissioning activities, management or organizational changes, and the schedule of conduct of decommissioning as compared to the PSDAR or LTP schedules. The inspector should review implementation of any recent license amendments. The inspector should also ascertain whether additional inspections are necessary to assess conditions or decommissioning activities that are different than expected or represent changes in performance or quality and make recommendations to NRC management.
- b. Review the current maintenance backlog and assess the age and prioritization of the items. Determine how often the licensee updates and reviews the backlog. Assess the licensee's work prioritization system to determine whether goals have been established for the completion of items and whether there is a method to bring additional management attention and resources to bear on items on the list and are of risk significance. Assess whether factors such as redundancy, status of decommissioning, staffing, and the importance and function of equipment are considered and that

important systems are prioritized appropriately. Determine whether the timeliness of corrective actions (take or planned) is commensurate with safety. Identify whether backlog items create operational work-a-rounds or system line-ups are different than described in the PSDAR, DSAR, or LTP.

c. Select 1 – 3 of the following:

- 1) Refer to Section 8.2, Keep the Final Safety Analysis Report Current, of Regulatory Guide 1.184, for additional guidance.
- 2) Refer to NUREG–1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) for more guidance. For specific technical guidance for the implementation of MARSSIM, inspectors may should review NUREG 1757, Volume 2, Consolidated Decommissioning Guidance - Characterization, Survey, and Determination of Radiological Criteria and NUREG 1507, Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions.
- 3) The inspector should perform a review of the licensee’s record keeping process in accordance with 10 CFR 50.75(g). A tour of the records area may be appropriate to verify the records location. These decommissioning files should be centrally located in a clearly identified area and designated as containing records and information pertinent to decommissioning. Facility operating procedures should clearly identify the need for and responsibility for collecting, maintaining, updating and retrieving these decommissioning records. These records should be periodically reviewed by facility management to ensure that they are complete and able to eventually support the intended decommissioning function. The inspector should consider whether the information in the 10 CFR 50.75(g) report is incorporated into the licensee planning documents and procedures. If a spill is identified on-site, the inspector’s review should be under IP 84750.
- 4) When a licensee begins the decommissioning process, the standard technical specifications are updated to defueled technical specifications to reflect the decommissioning status of the power reactor. A licensee is expected to reasonably follow the decommissioning strategy and schedule for major milestones described in the PSDAR. If the licensee has an approved LTP, the LTP is incorporated as a license amendment and requirements and commitments made in the LTP are required to be met and are inspectable. Changes to the LTP can be made without prior NRC approval so long as the change is consistent with the terms specified in the license. The inspector should risk-inform their selection of requirements by considering reviews of the safe storage and handling of spent fuel and highly radioactive material, effluent controls, site surveys, emergency preparedness, and license termination activities, as applicable. This verification could be based on documented licensee surveillances, procedural requirements, or control room records and activities should be observed in person, as able.

03.02 Decommissioning Operations

- a. The inspector should conduct a plant walkthrough inspection and assess the general material condition of the site with focus on SSCs associated with the safe storage of spent fuel, radiological effluent controls, and radiation protection. The inspector should consider accompanying a radiation protection technician and/or an operator on rounds. This inspection should include an assessment of lighting, electrical distribution, fire protection equipment, housekeeping, and material condition in all areas of the plant with risk-informed focus on SSCs described in the TS, PSDAR, DSAR, and LTP. This review will provide insight into the resources and level of ownership applied to maintain the power reactor site in a manner commensurate with plant and personnel safety.
- b. Inspectors should risk-inform their selection of pre-job briefs to attend while also considering variety of such meetings. Assess whether appropriate information regarding command and control, coordination across organizational boundaries, lines of communication, stop work situations, response actions for abnormal or emergency situations, management and quality assurance oversight, and radiation protection considerations are discussed.
- c. Inspectors should risk-inform their selection of work activities to observe as described above, but the quantity and quality of activities will vary depending on the current phase of decommissioning and inspection effort should be scaled accordingly. The inspector should observe workers perform specific tasks to ascertain whether the activities are being conducted safely. This would include a field assessment of worker knowledge gained through questions and answers and a field review of the procedures and/or instructions in use to ascertain their adequacy. The inspector should determine whether the workers are cognizant of radiological conditions and safety considerations, which would indicate the level of organizational communications and effectiveness.

03.03 Decommissioning Staffing and Training

- a. The selection of staffing requirements and inspection efforts should be performance based considering the licensee's effectiveness and any changes to staffing levels since the last inspection. The licensee's organization structure will likely undergo many changes as the plant transitions through the decommissioning process. The inspector should consider risk-informing a sampling of staffing requirements such as those found in the emergency plan, technical specifications, the quality assurance program, radiation protection program, and the fire protection program. In addition, substantial changes are also typically made to the Administrative Controls section of the TSs during decommissioning, including changes to facility staff responsibilities, staffing organization, and staffing levels. Refer to the amendment for defueled technical specification for this information. The inspector should refer to 10 CFR 50.120 for training regulations.
- b. Confirm for the programs reviewed in 3.03 a. that associated personnel qualifications and training are current.

03.04 Decommissioning Planning, Scheduling, and Cost Assessment

- a. Title 10 CFR 50.82(a)(7) requires the licensee to notify the NRC, in writing with a copy sent to the affected States, before performing any decommissioning activity that is not consistent with or could be a change from the actions or schedules described in the PSDAR. The scope of this review is to identify whether the licensee is meeting its commitments, including major milestones as described in the PSDAR or LTP with any updates, as applicable. The inspector should consider discussing with the NRC project manager to gain any insights prior to the inspection. The inspector should focus on and review major decommissioning activities to determine whether significant departures from docketed schedules are expected or has already occurred, such as rescheduling a major milestone by more than 6 months to a year. The inspector should review whether the licensee has assessed and documented any change that significantly impacts the decommissioning cost estimate. The inspector should determine whether the licensee has a process or protocols with any trigger criteria that it uses to determine whether changes to schedule and costs warrant a written modification report to the NRC and whether it is appropriately implemented. Pertinent guidance on changes to the PSDAR and on significant cost is provided below from Reg Guide 1.185:

“The licensee may change the PSDAR any time after submittal. However, if the licensee makes significant changes to major schedules or to the cost estimate, it must provide written notification to the NRC per 10 CFR 50.82(a)(7). The NRC staff will use changes to the milestone schedule to schedule inspections of the licensee’s activities and to provide assurance that the licensee is conducting decommissioning safely and in accordance with regulatory requirements. Examples of changes in activities and schedule include, but are not limited to, changing from long-term storage to active dismantlement, changing the method used to remove the reactor vessel or steam generators from cutting and segmenting to intact removal, or changing the schedule to affect major milestones. Licensees do not need to report changes on the removal of structures, systems, or components that are not contaminated or in the immediate proximity of contaminated systems that could result in a worker dose. Examples of significant increases in cost associated with decommissioning the facility include (1) a revised cost estimate that is more than 20 percent greater than the site-specific cost estimate or the PSDAR cost estimate, or (2) a 25-percent increase in cost needed to complete any major milestone. For any significant increase in cost, the licensee must provide written notification to the NRC. Notification should be made if cost changes occur as a result of changes in the timing of activities, or if the change in planned decommissioning activities results in a significant increase in decommissioning costs.”

The inspector should document any major decommissioning activities that have and/or are occurring during the inspection period as well as any major changes in schedule. The inspector should verify that the licensee has a process to evaluate the impacts of schedule changes on cost to complete decommissioning. Some examples of emergent conditions are unavailability of waste generator capacity, unavailability of skilled and trained workers, prolonged safety stand-downs, or major adverse weather conditions.

- b. The inspector should note that major decommissioning activities identified in the decommissioning cost estimate may not correlate one for one with the major decommissioning milestones identified in the PSDAR or LTP major milestone schedule. The inspector should discuss with the licensee the relation between the major decommissioning milestones in the PSDAR or LTP and the decommissioning activities

in the decommissioning cost estimate for schedule and cost status updates. For definitions and examples of major decommissioning activities refer to 10 CFR 50.2, "definitions." Regulatory Guide 1.202, "Standard Format and Content of Decommissioning Cost Estimates for Nuclear Power Reactors" define decommissioning activities for a decommissioning cost estimate.

The inspector should observe decommissioning activities defined in the PSDAR or LTP and/or in the decommissioning cost estimate, as able, to accurately document site activities in periodic inspection reports.

- c. The scope of this inspection element is to engage with the licensee on the overall financial status of decommissioning to determine whether further review is needed by the FAB. The inspector and the project manager, as available, should discuss the following topics and questions with appropriate licensee personnel to determine if any of the triggers for a FAB spot check are met. Since the last inspection of cost control:
- 1) Has there been a significant change in the decommissioning strategy or approach? A significant change would include moving from DECON to SAFSTOR or a decision that would increase the cost or timing of cost of the decommissioning (for example shipment of all waste to a licensed radioactive disposal facility vs survey for reuse of soils and concrete debris).
 - 2) Has the scope of work changed significantly, such as the volume of soil remediation or time for removal of major components doubling or waste shipments increasing by over 20%?
 - 3) Have there been significant unexpected decommissioning expenditures, such as 25% of a major milestone?
 - 4) What, if any, quality assurance protocols for financial assurance tracking and reporting are used and when?
 - 5) Were there any significant unexpected delays, such as greater than 25% in accomplishing planned activities?
 - 6) Are there currently any financial challenges to complete decommissioning?
 - 7) Has there been any significant decline in the trust fund balance?
 - 8) Were there any 10 CFR 50.82(a)(7) compliance issues (i.e. significant cost and schedule changes from the PSDAR) identified by the licensee?
 - 9) How is the accuracy of the financial assurance estimate determined?
 - 10) Are major activities identified as decommissioning items in the PSDAR or site-specific cost estimate?
 - 11) Were there any changes to the financial allocation control process?
 - 12) Do any of the answers to the above affect safety?

d. Inspectors should use the Financial Assurance Spot Check Assessment Trigger Criteria below to identify circumstances which may warrant the initiation of an NRC decommissioning reactor financial assurance spot check. If there is indication that any of the following have occurred or might occur, the inspector should notify the Project Manager who will enlist the support from the FAB to initiate a Financial Assurance Spot Check Assessment in accordance with LIC-205. The inspector should document whether any of the trigger points were met, and if so, that it has been communicated to the FAB. The inspectors should review and document the completion of the FAB's initial evaluation of the financial allocation control process.

- 1) Documented fraudulent financial activities (any reported or suspected by the licensee)
- 2) Bankruptcy (including any planned entry into bankruptcy)
- 3) Any indication of a significant decline in the trust fund balance
- 4) A substantiated allegation in the area of financial assurance

03.05 Problem Identification and Resolution. Additional guidance can be found in IP 71152, "Problem Identification and resolution" and IP 40801, Problem Identification and Resolution at Permanently Shutdown Reactors."

71801-04 RESOURCE ESTIMATE

The required number of direct inspection hours for this inspection procedure will vary significantly based on a number of factors such as active decommissioning and dismantlement activities, licensee and contractor experience, specific hazard complexities and other environmental factors. Note that for all decommissioning inspection activities, the frequency of performance, level of effort warranted, and specific inspection requirements to be evaluated and verified vary based on the stage of decommissioning at the facility, the scope of licensee activities, and the overall specific decommissioning strategy chosen for the plant (i.e., SAFSTOR or DECON). IMC 2561 contains a discussion of the expected inspection frequency and resource estimates during each phase of decommissioning and should be used when planning resources to conduct this inspection.

71801-05 COMPLETION STATUS

Inspection findings, open items, follow-up items, and conclusions shall be documented in accordance with Inspection Manual Chapter 0610 and other relevant regional or headquarter instructions. Inspections resulting from allegations will be documented and dispositioned in accordance with Management Directive 8.8.

71801-06 REFERENCES

NRC 1997. "Radiological Criteria for License Termination," 10 CFR Parts 20, 30, 40, 50, 51, 70, and 72, *Federal Register*, Vol. 62, pp. 39058-39092 (62 FR 39058), July 21, 1997.

NRC, 2000. NRC Regulatory Guide 1.184, Decommissioning of Nuclear Power Reactors, Revision 1, issued July 2000, Washington, DC, Agencywide Documents Access and Management System (ADAMS) Accession No. ML003701137.

NRC, 2000. NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM). EPA 402-R-97-016, Rev. 1, DOE/EH-0624, U.S. Department of Defense (DoD), U.S. Department of Energy (DOE), U.S. Environmental Protection Agency (EPA), and NRC, Revision 1, issued August 2000, Washington, DC., ADAMS Accession No. ML003761445.

NRC, 2020. NUREG 1757, Volume 2, Consolidated Decommissioning Guidance - Characterization, Survey, and Determination of Radiological Criteria. Revision 2 to be issued in 2020.

NRC, 2020. NUREG 1507, Minimum Detectable Concentrations with Typical Radiation Survey Instruments for Various Contaminants and Field Conditions. Revision 2 to be issued in 2020.

NRC, 2001. List of corrections to Multi-Agency Radiation Survey and Site Investigation Manual, Revision 1, Federal Register Notice, 66 FR 34727, pages 34727-34728 (2 pages).

NRC, 2001. "Releasing Part of Power Reactor, a Facility or Site for Unrestricted Use Before the NRC Approves the License Termination Plan," 10 CFR Parts 2, 20, and 50, *Federal Register*, Vol. 66, pp. 46230-46239 (66 FR 46230), September 4, 2001.

NRC, 2002. Regulatory Issue Summary 2002-02, Lessons Learned Related to Recently Submitted Decommissioning Plans and License Termination Plans, issued January 16, 2002, Washington D.C., ADAMS Accession No. ML013510432.

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NRC, 2006. NUREG-1757, Consolidated NMSS Decommissioning Guidance, Volume 2, Characterization, Survey, and Determination of Radiological Criteria, Revision 1, issued September 2006, Washington, D.C., ADAMS Accession No. ML063000252.

NRC 2011. Final Rule on Decommissioning Planning, Federal Register Notice, issued June 17, 2011 (76 FR 35512) ADAMS Accession No. ML11272A154.

NRC, 2011. NRC Regulatory Guide 1.159, Assuring the Availability of Funds for Decommissioning Nuclear Reactors, Revision 2, issued October 2011, Washington, D.C., ADAMS Accession No. ML112160012.

NRC, 2013. NRC Regulatory Guide, 1.185, Standard Format and Content for Post-Shutdown Decommissioning Activities Report, Revision 1, issued June 2013, Washington, D.C., ADAMS Accession No. ML13140A038.

NRC 2017. LIC-205, "Procedures for NRC's Independent Analysis of Decommissioning Funding Assurance for Operating Nuclear Power Reactors and Power Reactors in Decommissioning," Revision 6, dated April 10, 2017, ADAMS Accession No. ML17075A095.

NRC, 2018, NUREG-1700, "Standard Review Plan for Evaluating Nuclear Power Reactor License Termination Plans," Revision 2, issued April 2018, Washington, D.C., ADAMS Accession No. ML18116A124.

NRC, 2019, Reg Guide 1.179, Standard Format and Content of License Termination Plans for Nuclear Power Reactors, Revision 2, issued July 2019, Washington D.C., ADAMS Accession No. ML19128A067.

NRC, 2020, Reactor Decommissioning Financial Assurance Working Group Final Report, issued May 1, 2020, ADAMS Accession No. ML20120A550.

END

Attachment 1
Revision History for IP 71801

Commitment Tracking Number	Accession Number Issue Date Change Notice	Description of Change	Description of Training Required and Completion Date	Comment Resolution and Closed Feedback Form Accession Number (Pre-Decisional, Non-Public Information)
	None 8/11/97 CN 97-012	Original issuance.	None	NA
	ML20240A293 09/30/20 CN 20-045	Major revision for 1) periodic update to provide additional decommissioning inspection guidance and lessons learned, 2) to delete obsolete or rarely used instructions and materials, 3) to add additional references and definitions 4) to combine the overlapping financial review information in IP 36801 into IP 71801 and 5) to address recommendations from Reactor Decommissioning Financial Assurance Working Group Final Report, issued May 1, 2020, ADAMS Accession No. ML20120A550.	None	ML20240A292