INSPECTION PROCEDURE 88104

DECOMMISSIONING INSPECTION PROCEDURE FOR FUEL CYCLE FACILITIES

PROGRAM APPLICABILITY: 2600

88104-01 INSPECTION OBJECTIVES

01.01 To determine if licensed decommissioning activities are being conducted in a manner that will protect the health and safety of workers and the general public.

01.02 To determine if licensed decommissioning programs are being conducted in accordance with NRC requirements.

01.03 To provide inspection requirements and guidance for facilities needing a significant decommissioning effort and where licensee submittal of a decommissioning plan (DP) for NRC approval may be required.

88104-02 INSPECTION REQUIREMENTS

A review of the licensed activities will be commensurate with the scope of and the risks associated with the licensee's program. A determination of safety and compliance with NRC requirements will be based on direct observation of work activities, interviews with workers, demonstrations by workers performing tasks regulated by NRC, and independent measurements of radiation conditions at the facility, in addition to a review of licensee records.

All decommissioning activities performed by the licensee and its contractors should be considered for inspection. Inspection findings for contractor activities conducted under the site operator's license and supervision shall be documented against the site operator's program. Inspection findings for contractor activities conducted under the contractor's license and supervision shall be documented against the contractor's program. If it is unclear what radiation safety program governs a contractor activity, that activity shall be viewed as falling under the site operator's license and supervision.

In discussing issues with the licensee and reviewing records, cover the period back to the last inspection. Older records or issues preceding the last inspection should be reviewed, if warranted by circumstances such as a history of incidents, non-compliance, or high radiation exposures.

The inspection program should be tailored to each specific licensee. Most fuel cycle facility licensees will require submittal of a formal decommissioning plan for NRC review and approval. Cleanup efforts for most licensees will be a major effort. The inspection effort

should be commensurate with the known conditions of the facility and should be adjusted as more specific information concerning the facility becomes available. The field notes in Appendices A and B should be used by the inspector for each inspection.

02.01 Inspection Requirements Applicable from the Operational Program. The inspector should review all inspection procedures that were applicable to the licensee's operational program, and select those portions that carry over to the licensee's decommissioning program. The inspector should develop an inspection plan that will focus on the adequacy of routine activities that can significantly affect the health and safety of workers and the public and the environment around the licensee's facility. Refer to IMC 2600 and the IPs for fuel cycle facilities.

Some of the most important inspection elements should include: security and control of contaminated material; criticality safety; radiation protection for workers; solid waste management; transportation of radioactive materials; effluent releases and environmental monitoring; fire protection; emergency preparedness; management organization and controls; surveillance testing and safety limits; occupational safety and health; essential systems and services to support decommissioning, and final survey.

In addition to the inspection activities described above, the inspector should also use other parts of the NRC Inspection Manual that are routinely used on typical inspections and which are included in IMC 2600. IPs requiring specialized training, such as those for criticality safety, should be performed only by inspectors appropriately qualified to perform them.

02.02 Inspection of Key Decommissioning Activities. The inspector should develop an inspection plan to observe key decommissioning activities being performed by the licensee and its contractors. Key decommissioning activities, performed by the licensee and its contractors, occur in all phases of the decommissioning process. Key decommissioning activities for facilities requiring a significant decommissioning effort, such as building remediation and dismantlement, soil removal, and groundwater remediation, are identified below.

a. Inspections before Dismantlement. This is the decommissioning planning stage after the shutdown of operations and before dismantlement and remediation. Key activities and conditions may include: verification that the decommissioning plan (DP) has been reviewed and approved (if required); verification that security and control of contaminated material are in compliance with 10 CFR 20.1801 and 20.1802; identification and demarcation of areas in operation and areas undergoing decommissioning, where only part of a facility is being decommissioned; SNM inventory cleanout and removal of licensed materials from the facility; implementation of the licensee's decommissioning organization; compliance with decommissioning timeliness requirements; compliance with recordkeeping requirements for decommissioning; site characterization; and construction of site features to support decommissioning.

b. Inspections during Dismantlement and Remediation. This is the stage when the site is actively being decommissioned. Key activities include: maintenance of security and control of contaminated material; decontamination and dismantlement of structures; remediation of soil, sediment, surface waters, and groundwater; survey measurements and analytical methods; waste management and onsite storage; transportation and off-site disposal of wastes; on-site disposal of waste; restoration of the site; and inspection activities identified during the review of the licensee's DP. In-process inspections have been shown to be more efficient than one-time confirmatory surveys. In-process inspections allow NRC to take side-by-side measurements, collect water and soil samples, and address survey issues early in the decommissioning process.

c. Inspections after Remediation. Key activities in this stage include: licensee final survey; NRC confirmatory survey; and confirming final site status.

88104-03 INSPECTION GUIDANCE

General

Observations of licensee decommissioning activities in progress, equipment in use, facilities and use areas, and the implementation of specific license conditions and approved DPs and procedures will be primary indicators of the quality of the licensee's overall radiation safety program.

Review of licensee records related to decommissioning will also contribute to the evaluation of the licensee's program. In reviewing records, look for trends - such as increasing doses, effluent releases, or groundwater contamination - that may indicate areas of potential concern. Records of surveys, waste disposal, effluent release, receipt and transfer of radioactive materials, training, instrument calibrations, source checks, QA/QC audits, use logs, and air sampling may be examined randomly until the inspector is satisfied that the records are being maintained and are complete. Other records that are more closely related to health and safety, such as personnel dose-monitoring records and incident reports, should be examined in greater detail.

The planning and field conduct of an inspection should be coordinated with the NRC Licensing Project Manager, the regional inspection staff manager, and other regulatory agencies involved in the licensed facility. See Section 05.05 of MC 2602 and IP 93001 for further guidance.

Many of the inspection activities required during decommissioning are similar to inspection activities conducted at operating facilities. The guidance given in this section, therefore, includes references to other sections of the NRC Inspection Manual that are applicable to fuel cycle decommissioning. The inspector should refer to IMC 2602 for general policies and guidance for decommissioning inspections.

A major part of inspection activities will be related to evaluating the licensee's final survey program for release of the site under NRC regulations. For facilities that will require a final survey, the inspector should begin on this activity early in the decommissioning process, starting during site characterization, to ensure that the site will be remediated in accordance with NRC requirements and the licensee's approved DP. Confirmatory surveys, by the inspector or an NRC contractor, may be necessary. In-process inspections have been shown to be more efficient than one-time confirmatory surveys. In-process inspections allow NRC to take side-by-side measurements, collect water and soil samples, and address survey issues early in the decommissioning process. The extent of the confirmatory surveys will depend on the inspector's and the Licensing Project Manager's confidence in the quality of the licensee's final survey program. In general, minimal, or no confirmatory surveys are necessary for licensee's that have demonstrated, through NRC inspection or other means, that their final survey program is comprehensive, well-documented, and of high quality.

03.01 Inspection Requirements Applicable from the Operational Program. Many inspection activities will follow directly from those used during the licensee's operational program. Review the approved DP and supporting documents for licensee activities that are similar to those that were performed as part of the operational program. Develop the inspection plan to carry over to decommissioning the applicable inspection activities used during the operational phase of the licensee's program. Tailor the inspection plan to meet facility-specific conditions. See IMC 2600 and associated IPs for the fuel cycle facility operational safety inspection program.

Some of the operational program inspection requirements that carry over to decommissioning of most fuel cycle facilities are described below:

a. Security and Control of Contaminated Material. Security and control of radioactive material at the site shall be maintained, per 10 CFR 20.1801 and 20.1802. Confirm that licensee security and control of contaminated material are in compliance with the DP throughout the decommissioning process. Verify that the posting requirements of 10 CFR 20.1902 are met for any contaminated material. Containers of contaminated materials shall be labeled in accordance with 10 CFR 20.1904 and 20.1905. Contaminated materials in buildings should be secured and controlled by the licensee in such a manner as to prevent unauthorized access to radioactive material.

   In some situations, especially for materials licensees, the only way to prevent unauthorized access is to lock all access points to the material. However, mechanisms needed to prevent access are usually dependent upon the nature of the situation at the licensee's facility, such as the physical layout of the facility and the movement patterns of people within that facility. Other possibilities for securing against unauthorized removal include having a person present who could prevent such removal of material. The need to lock access to the licensed material must be determined on a case-by-case basis, after reviewing the details of the licensee's decommissioning program.

   At sites undergoing decommissioning, contaminated materials in outside areas may be secured and controlled by fencing (different types, depending on facility location and human populations around the facility, for example), soil covers, or other means. Three- to 4-foot-thick soil covers over contaminated soil, slag, or tailing piles are generally acceptable.

   Access to buildings, rooms, or indoor and outdoor areas where contaminated materials are present shall be limited only to individuals having the licensee's permission for access. See IP 83822, "Radiation Protection," and IMC 2681, "Safeguards Inspection of Fuel Facilities, Transport of SNM & Irradiated Fuel, and SNM Imports and Exports."

b. Criticality Safety. For SNM licensees, confirm that decommissioning activities do not compromise criticality safety. For example, examine modifications and changes that may affect criticality. Examples of modifications/changes that could affect criticality safety during decommissioning include: (1) disturbing the spacing between SNM containers in temporary storage, where spacing is used as a criticality control; and (2) introduction of moderation (e.g., water, plastic, other hydrogenous material) into moderation-controlled areas. To the extent that SNM is still present in quantities and forms that present criticality safety issues, it is important for inspectors to understand the nature of the controls being used to prevent criticality.

   Check instruments, including criticality alarm systems, to ensure that established calibration frequencies have been met. The inspection should include both process and health physics instrumentation. Technical assistance contract support is available to confirm that the survey instruments to be used for final surveys are being properly calibrated and used. See IP 88015, "Criticality Safety," and IP 88020, "Operations Review."

c. Radiation Protection for Workers. Inspect the licensee's approved health physics procedures, as implemented in the field, to determine that the approved program is being implemented and to establish the degree of potential for exposures. Tailor

subsequent inspections to concentrate on identified areas of risk. See IP 83822, "Radiation Protection."

d. Effluent Releases/Environmental Monitoring. Verify that licensee off-site monitoring and sampling locations and frequencies are sufficient to demonstrate that the public dose limits, in 10 CFR 20, are being met. The potential for off-site release may be lower during decommissioning than during operations, but inspections for off-site releases should continue to be performed during decommissioning, especially for licensee activities that may lead to airborne or waterborne releases to the environment. Verify instrument calibrations are being performed as required. See IP 88045, "Environmental Protection."

e. Emergency Plans and Fire Protection. Inspect the fire prevention and protection program and associated emergency plans. Fuel cycle facilities undergoing decommissioning may have combustible materials and sources of ignition, with the potential for dispersing radioactive materials during a fire and thereby creating potential conditions for onsite personnel to sustain exposures and injuries. Confirm that waste storage areas have adequate fire protection programs in place. Base the frequency and depth of inspection on site-specific conditions. See IP 88050, "Emergency Preparedness," and IP 88055, "Fire Protection."

f. Management Organization and Controls. Review licensee implementation of approved plans and programs, regulatory requirements, and license conditions for the management and control of decommissioning of the facility, including: the licensee organization in place for the decommissioning project; designation and qualification of the radiation safety officer; the QA program and annual review; records control and storage; internal review and audit; safety committee; procedure control for cleanup operations; and the decommissioning procedures to be implemented. See IP 88005, "Management Organization and Controls."

g. Surveillance Testing and Safety Limits. Although these procedures are directed toward production operations, the underlying concerns may be present during decommissioning. Verify that equipment and systems used to concentrate and remove residual radioactive materials are operating within safe limits, and that the licensee is monitoring and periodically testing them. See IP 88020, "Operations Review," and IP 88025, " Maintenance and Surveillance Testing."

h. Essential Systems and Services to Support Decommissioning. Verify, through observations in the facility and review of licensee records, that the support systems needed for dismantlement and cleanup efforts are functional. These systems include: electrical power; HVAC systems; water supply; in-plant communications systems; liquid and solid contaminated waste systems; sewage treatment plant; and in-plant lighting.

i. Occupational Health and Safety. Decommissioning activities often involve work practices, such as deep excavating and dismantlement of buildings, that present non-radiological safety hazards. NRC inspectors, although not OSHA inspectors, should be aware of and identify to both the licensee and OSHA (through the regional OSHA liaison), non-radiological health and safety issues that are caused by licensee decommissioning activities. See IMC 1007, "Interfacing Activities between Regional Offices of NRC and OSHA," and the corresponding Memorandum of Understanding between NRC and OSHA.

j. Documentation of Inspections. Fully document in a written report, supplemented by the fieldnotes in this IP, all visits to and inspections of each site undergoing decommissioning. Radioactive materials at the site present potential health and

safety hazards until the site is remediated and the license is terminated. See IMC 0610, "Inspection Reports."

03.02 Inspection of Key Decommissioning Activities. Identify all significant or key licensee activities of a particular site undergoing decommissioning, including before, during, and after remediation. Develop an inspection plan to focus on activities where potential health and safety problems may occur, especially accounting for high-risk activities. The frequency of inspections should be based on the particular set of decommissioning activities to be performed by the licensee. Typical key decommissioning activities are given below. Complete the fieldnotes for key decommissioning activities in Appendix A as part of your inspection report.

a. Inspections before Dismantlement

1. Facility Conditions. Verify that all requirements preceding actual facility remediation are in place, including: the DP has been reviewed and approved by NRC (if required); specific license conditions pertaining to the planning and preparation stage have been put in place by the licensee; site security is being maintained; and essential systems and services to support decommissioning activities are in place.

2. Timeliness Requirements. Verify that the licensee is meeting the approved decommissioning schedules.

3. Recordkeeping. Verify that recordkeeping of information important to the safe and effective decommissioning of the facility is consistent with the recordkeeping requirements in 10 CFR 30.35, 40.36, and 70.25.

4. Financial Assurance. Verify that the financial assurance requirements, including financial instruments, are being maintained in accordance with 10 CFR 30.35, 40.36, and 70.25.

5. SNM Inventory Cleanout. For SNM licensees, after routine plant production operations have been terminated and the licensee has completed the SNM inventory cleanout, perform an SNM audit of the condition of the facility. Finally, confirm that the Nuclear Materials Management and Safeguards System has been updated to reflect the licensee's current inventory of special nuclear material.

6. Site Characterization. Verify that site characterization activities are being conducted in accordance with all applicable radiation protection procedures. The inspector may want to conduct an inspection with the licensee (or licensee's representative) while the licensee is performing characterization. Where possible and warranted, conduct side-by-side measurements with the licensee and take independent measurements for comparison with licensee results. Under special circumstances, the inspector should split samples with the licensee during site characterization, where necessary, to confirm the adequacy and validity of licensee measurements. Evaluate how the results of the planned site characterization will lead to successful site remediation and the licensee's final survey.

The inspector should request that the licensee review all available historical records of material use, safety event reports, aerial photographs of the site, as-built facility drawings or blueprints, etc., to aid in the identification of activities that may have resulted in contamination at the site. Interviews with employees and former employees may also be useful to identify previous

activities and former locations where licensed material was used or disposed.

7. Construction of Site Features to Facilitate Decommissioning. Verify that the construction of new roads, rail spurs, drainage ditches, EPA storm water management units, and other features to be used for decommissioning are consonant with NRC-approved DPs and do not compromise health and safety considerations of workers and the public.

8. Other License Conditions and Approved Plans. Verify that licensee activities conform to specific license conditions, the approved DP, and licensee programs and procedures. Audit licensee performance on high-risk activities, as needed.

9. RCRA Facilities. The inspector should be aware of any ongoing US EPA-mandated RCRA facility investigations required by EPA's Hazardous and Solid Waste Amendments permit to identify potential releases to soil and surface water.

b. Inspections during Dismantlement and Remediation

1. Decontamination and Remediation of Soil, Sediment, Surface Waters, and Groundwater. Verify, by field observation and reviews of licensee records, that decontamination and remediation of soil, sediment, surface waters, and groundwater are being performed in accordance with NRC-approved plans. If a decommissioning plan is not required, verify that the remediation activities are being performed in accordance with applicable NRC regulations and guidance. Inspect licensee activities onsite, and inspect off-site areas that may have been contaminated by licensee operations.

   During dismantlement, inspectors should be mindful of the potential for inadvertent criticality associated with the dismantlement of ventilation systems, exhaust lines, and other process or support system equipment where significant holdup of processed material may have occurred during the operational period. Procedures for careful measurement of SNM content before dismantlement of such equipment, and examination for SNM content during dismantlement, should be provided the workers. Determine if such training has been provided to workers, and whether the appropriate procedures are being implemented during actual dismantlement activities.

2. Radioactive Waste Management. Confirm that the licensee is maintaining adequate waste management controls related to the release and disposal of liquid, airborne, and solid wastes. Radioactive wastes generated during decommissioning must be disposed of in a manner approved by NRC. Radioactive wastes generated during decommissioning include: building materials; process and facility equipment; concrete rubble; filters, trash, and sludge; material from the waste treatment lagoons; soil and vegetation; groundwater; and surface water. See IP 84850, "Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR 20 and 10 CFR 61," and IP 88035, "Radioactive Waste Management."

3. Low-Level Radioactive Waste Storage. During decommissioning, large quantities of low-level waste may be temporarily stored on-site before shipment to a licensed disposal facility. Confirm that the waste is stored in accordance with license conditions and current NRC guidance. See IP 84900, "Low-Level Radioactive Waste Storage."

4. Transportation of Wastes. Review the specifics of the licensee's packaging and transportation activities to determine which elements of the following IPs will be used during the inspection: IP 86740, "Inspection of Transportation Activities," and IP 84850, "Radioactive Waste Management - Inspection of Waste Generator Requirements of 10 CFR 20 and 10 CFR 61."

   Transportation of material would likely begin during the inventory cleanout stage and continue throughout the decommissioning process. Contaminated materials for off-site disposal must be packaged in accordance with U.S. DOT regulations published in 40 CFR Parts 171-178 and NRC regulations published in 10 CFR Part 71. NRC Regulatory Guide 7.1 provides guidance for packaging and transporting radioactive materials.

5. Restoration of Site. Verify that the licensee has restored the site to meet license conditions and specifications in NRC-approved plans.

6. Activities Identified during Review of DP. Plan to inspect any other significant activities or conditions that are specified in the licensee's DP.

c. Inspections after Remediation

1. Certification of Waste Disposal. Verify that the licensee has submitted NRC Form 314 or equivalent information regarding the disposition of all licensed material in accordance with 10 CFR 30.36, 40.42, and 70.38.

2. Licensee Final Survey Program. There are many elements of the licensee's final survey program that need to be inspected. This inspection should occur while the licensee is in the process of performing the final survey program. The purpose of the "in-process" final survey inspection is to provide confidence that the licensee's survey results are accurate and representative of the conditions at the facility. See Appendix B, "Final Survey Program Inspection Field Notes," for a detailed checklist of inspection items for the licensee's final survey program. See IP 83890, "Closeout Inspection and Survey," for closeout procedures.

3. Confirmatory Survey. It may be necessary for NRC, or an NRC contractor, to conduct confirmatory measurements to provide supplemental information, in addition to the findings of the in-process inspection, to ensure that the survey results reported by the licensee are accurate and representative of the conditions at the facility. However, comprehensive confirmatory surveys should only be necessary if there is significant doubt regarding the licensee's final survey results. For example, a confirmatory survey would be needed if an in-process inspection of the licensee's final survey program identifies multiple weaknesses or if a licensee has a history of violations that reduces the NRC's confidence in the survey results.

   The inspector may perform limited measurements (split samples, "side-by-side" direct measurements, etc.) as a part of the in-process inspection of a licensee's ongoing final survey program. The scope and number of these measurements should be significantly less than that performed during a "traditional" confirmatory survey performed after the licensee has completed the final survey. In-process inspections will be most effective for medium to large sites. For small sites, it may not be practical to perform an in-process inspection, because the final survey will likely be relatively informal and may only take a few days to complete. In this case, the inspector's close-out inspection would be performed after the licensee has completed the survey and submitted the final survey report. However, the inspection of small sites

should still include a review of the licensee's program to the extent practical, augmented by a limited confirmatory survey by NRC staff.

4. Site Maintenance for Restricted Use. If the site is to be released for restricted use, verify that all conditions limiting use of the site conform to license conditions and that NRC-approved plans and are in place and functional.

5. Conditions for Release for Unrestricted Use. Verify that the licensee has met all applicable conditions for release of the site for unrestricted use.

88104-04 INSPECTION RESOURCES

The direct onsite inspection hours required to complete this inspection are dependent upon: (1) the licensee's decommissioning activities being inspected; (2) the standard fuel cycle inspection modules covered in the inspection; (3) the overall complexity of decommissioning the facility; and (4) the duration of the licensee's decommissioning program. For facilities needing a significant decommissioning effort, it is estimated that approximately 10 to 40 inspection hours onsite will be needed to complete each inspection of a key decommissioning activity or standard fuel cycle inspection module from the operational program. The duration and complexity of the decommissioning effort may require multiple inspections a year.

END

Appendices:

A. "Fuel Cycle Facilities Decommissioning Inspection Field Notes for Facilities Needing Significant Decommissioning Effort"
B. "Final Survey Program Inspection Field Notes"

APPENDIX A

FUEL CYCLE FACILITIES DECOMMISSIONING INSPECTION FIELD NOTES FOR FACILITIES NEEDING SIGNIFICANT DECOMMISSIONING EFFORT

Region____
Inspection Report No._____ License No._____
Docket No._____
Licensee (Name & Address)_____
_____
Licensee Contact_____
Telephone No._____
Last Amendment No._____ Date of Amendment_____
Program Code_____
Date of Last Inspection_____
Date of This Inspection_____
Date of Next Inspection_____

Type of Inspection: ( ) Announced ( ) Unannounced
( ) Routine ( ) Special
( ) Initial Decomm. ( ) Reinspection of Decomm.

Level of Inspection: ( ) Normal ( ) Reduced ( ) Extended

Brief Description of Inspection Activities:

Brief Description of Findings and Action:

Summary of Findings and Action:

( ) No violations cited, clear NRC Form 591 or regional letter issued
( ) Violation(s), clear NRC Form 591 issued
( ) Violation(s), regional letter issued
( ) Followup on previous violations

Inspector:_____
Date_____
(Signature)

Approved:_____
Date_____

[Field notes are to be used by the inspector to assist with the performance of the inspection. Note that all areas indicated in the field notes are not required to be addressed during each inspection. However, for those areas not covered during the inspection, a notation ("Not Reviewed") should be made in each section where applicable. Additionally, all areas covered during the inspection should be documented in sufficient detail to describe what activities and/or records the inspector observed. The fieldnotes to the "Decommissioning Inspection Procedure for Fuel Cycle Facilities" should be supplemented with: (1) the applicable inspection procedures for operating facilities provided in the IP 88000 series; and (2) other formal, written documentation of the inspection, as necessary.]

1. SUMMARY OF DECOMMISSIONING STATUS

The checklist below is intended to provide, in a written outline format, summary documentation of the status of the licensee's facility in the decommissioning process. This documentation will be filed as part of the inspection report. The inspector should use this information to develop each inspection plan(s) for the various stages of decommissioning, namely before dismantlement, during dismantlement and site remediation, and after site remediation.

A.	Licensee ceased operational program.	( ) Y ( ) N
B.	Required decommissioning financial assurance mechanisms in place.	( ) Y ( ) N
C.	Decommissioning Plan (DP) required.	( ) Y ( ) N
D.	Licensee final survey required.	( ) Y ( ) N
E.	NRC confirmatory survey required.	( ) Y ( ) N
F.	NRC closeout inspection required.	( ) Y ( ) N
G.	Licensee doing decommissioning planning and preparation before dismantlement.	( ) Y ( ) N
H.	Licensee actively remediating site.	( ) Y ( ) N
I.	Licensee completed site remediation.	( ) Y ( ) N

Description of Facility Status:

2. INSPECTION OF KEY DECOMMISSIONING ACTIVITIES

The following is a generic checklist of major licensee activities occurring at various stages of decommissioning. From this generic checklist and from facility-specific activities you identify, develop the set of licensee activities to be inspected - for each individual inspection throughout the decommissioning process. Plan to inspect licensee activities that present potential high-risk conditions. Then apply the standard health and safety IPs in Section 3 of these fieldnotes to the specific licensee activities that are being inspected.

To complete the licensee activities checklist, the inspector will need to obtain information from the Licensing Project Manager, check the DP, make observations at the licensee's facility, review licensee records, take measurements and samples of contaminants, and undertake other investigative measures to determine whether the licensee is meeting all

regulatory and DP commitments for each decommissioning activity the licensee is performing.

A. LICENSEE ACTIVITIES INSPECTED BEFORE DISMANTLEMENT

1. SNM inventory cleanout/off-site removal of licensed material used in operations has been performed by licensee. ( )Y ( )N

2. Facility license conditions are in place and met by licensee. ( )Y ( )N

3. Site security and control of contaminated material being maintained in compliance with 10 CFR 20.1801 and 20.1802. ( )Y ( )N

4. Support systems and services (e.g., lighting, water supply) are in place. ( )Y ( )N

5. Decommissioning schedules are consistent with timeliness requirements in 10 CFR 30.36, 40.42, and 70.38. ( )Y ( )N

6. Licensee's recordkeeping is consistent with 10 CFR 30.35, 40.36, and 70.25. ( )Y ( )N

7. Financial assurance requirements are being maintained in accordance with 10 CFR 30.35, 40.36, and 70.25. ( )Y ( )N

8. Licensee is conducting site characterization in accordance with applicable radiation protection procedures. ( )Y ( )N

9. Construction of new site features (e.g., roads, rail spurs, staging areas, sediment control ponds) conforms to DP and does not compromise health and safety of workers and public. ( )Y ( )N

10. Licensee activities conform to specific license conditions and licensee programs and procedures. ( )Y ( )N

11. Other licensee activities: ( )Y ( )N

Basis for Findings:

B. LICENSEE ACTIVITIES INSPECTED DURING DECONTAMINATION, DISMANTLEMENT, AND SITE REMEDIATION

1. Site security and control of contaminated material being maintained in compliance with 10 CFR 20.1801 and 20.1802. ( )Y ( )N

2. Decontamination and dismantlement of structures are being performed consistent with DP and sound industry practice (structures include buildings, utilities, treatment lagoons, etc.). ( )Y ( )N

3. Decontamination and remediation of the following are being performed consistent with DP and sound industry practice:
   a. Soil. ( )Y ( )N
   b. Sediment. ( )Y ( )N
   c. Surface waters. ( )Y ( )N

d. Groundwater. ( )Y ( )N
e. Other mediums: ( )Y ( )N

4. Licensee release and disposal of decommissioning wastes are consistent with DP and approved by NRC for:

   a. Liquid wastes (e.g., groundwater, surface water, liquid from treatment ponds, process liquids). ( )Y ( )N

   b. Solid wastes (e.g., building materials, process and other facility equipment, concrete rubble, soil). ( )Y ( )N

   c. Other wastes: ( )Y ( )N

5. Temporary, onsite storage of low-level radioactive wastes from decommissioning meets license conditions and guidance in IP 84890. ( )Y ( )N

6. Packaging and shipment of radioactive waste materials meet requirements in 40 CFR Parts 171-178 and 10 CFR Part 71. ( )Y ( )N

7. Restoration of Site - Licensee has restored site to meet license conditions and NRC-approved plans. ( )Y ( )N

8. Licensee survey of material and equipment for free release sufficient to demonstrate compliance with release criteria. ( )Y ( )N

9. Other licensee activities: ( )Y ( )N

Basis for Findings:

C. LICENSEE ACTIVITIES INSPECTED AFTER COMPLETION OF SITE REMEDIATION

1. Licensee has submitted NRC Form 314 for disposition of licensed material in accordance with 10 CFR 30.36, 40.42, and 70.38. ( ) Y ( ) N

2. Licensee's final survey program is acceptable (see Appendix B for inspection items for final surveys). ( ) Y ( ) N

3. NRC confirmatory survey performed. ( ) Y ( ) N

4. Site maintenance activities (if any, for restricted use) conform to license conditions and NRC-approved plans and are in place and functional. ( ) Y ( ) N

5. Other licensee activities: ( ) Y ( ) N

Basis for Findings:

3. INSPECTION OF STANDARD FUEL CYCLE INSPECTION MODULES FROM THE OPERATIONAL PROGRAM

Identify the standard fuel cycle inspection modules to be covered during each inspection. [Inspection procedure modules A through L below correspond to the IPs identified in MC 2600 that are especially applicable to decommissioning.] Then identify the new activities, within the standard inspection modules, undertaken by the licensee during decommissioning. Some of the new licensee activities given below, as well as any other activities the inspector identifies, should be considered inspection items under the general set of health and safety inspection modules used in a typical fuel cycle facility inspection.

Minimum inspection areas for the initial decommissioning inspection: decommissioning organization; decommissioning activities in compliance with NRC-approved DP; licensee procedures for implementing the DP; RSC and RSO responsibilities; and the licensee's decommissioning training program.

A. MANAGEMENT ORGANIZATION & CONTROLS (IP 88005)

1. Describe the licensee's decommissioning organizational structure:

a. Licensee is performing decommissioning activities in compliance with its approved decommissioning plan. ( ) Y ( ) N

b. Licensee has implementing procedures for the decommissioning activities identified in the DP. ( ) Y ( ) N

c. The RSC and RSO fulfill license requirements to deal with all decommissioning activities. ( ) Y ( ) N

Basis for Findings:

B. OPERATOR TRAINING/RETRAINING (IP 88010)

1. Licensee has developed training program for new decommissioning activities (e.g., demolition of structures, excavation of soil); program is adequate. ( ) Y ( ) N

2. Training program being effectively implemented in the field. ( ) Y ( ) N

Basis for Findings:

C. CRITICALITY SAFETY (IP 88015)

1. Describe residual radioactive materials remaining on site and facility conditions that could affect criticality safety:

   a. Decommissioning activities do not compromise criticality safety. ( ) Y ( ) N

Basis for Findings:

D. MAINTENANCE/SURVEILLANCE TESTING (IP 88025)

1. Equipment and systems used to concentrate and remove residual radioactive materials are operating within safe limits. ( ) Y ( ) N

2. Licensee is monitoring and testing equipment and systems. ( ) Y ( ) N

Basis for Findings:

E. RADIATION PROTECTION (IP 83822)

1. The licensee's approved health physics program is being implemented in the field for new decommissioning activities. ( ) Y ( ) N

2. Site security and control of contaminated material are in compliance with 10 CFR 20.1801 and 20.1802. ( ) Y ( )N

Basis for Findings:

F. RADIOACTIVE WASTE MANAGEMENT (IP 88035 and IP 84850)

1. Temporary storage/staging areas for radioactive wastes from building demolition, equipment dismantlement, soil excavation, etc., are adequately posted and protected. ( ) Y ( ) N

2. Off-site disposal of decommissioning wastes conforms to free-release criteria and disposal site requirements. ( ) Y ( ) N

Basis for Findings:

G. TRANSPORTATION OF RADIOACTIVE MATERIALS (IP 86740)

1. Describe the licensee's program to package and ship decommissioning waste materials:

   a. Licensee's program meets all applicable 10 CFR and 49 CFR requirements for marking, labeling, placarding, and shipping paper requirements for radioactive waste shipments. ( ) Y ( ) N

Basis for Findings:

H. ENVIRONMENTAL PROTECTION (IP 88045)

1. All new effluent releases conform to decommissioning plan and applicable regulations. ( ) Y ( ) N

2. The licensee's environmental monitoring program is being implemented in conformance with the DP. ( ) Y ( ) N

3. Where active remediation (e.g., demolition of structures, excavation of soil) is being performed, radiation levels in unrestricted areas do not exceed 2 mrem in any hour. ( ) Y ( ) N

4. Other releases/conditions: ( ) Y ( ) N

Basis for Findings:

I. EMERGENCY PREPAREDNESS (IP 88050)

1. Licensee has an emergency plan adequate for decommissioning activities. ( ) Y ( ) N
2. Licensee's emergency plan is in place and operative for the duration of decommissioning. ( ) Y ( ) N

Basis for Findings:

J. FIRE PROTECTION (IP 88055)

1. Applicable portions of the operations fire protection program are in place and functional for decommissioning. ( ) Y ( ) N

2. Temporary onsite storage areas for decommissioning wastes have adequate fire protection. ( ) Y ( ) N

Basis for Findings:

K. CLOSEOUT INSPECTION AND SURVEY (IP 83890)

See (1) Section 2.C of these Field Notes and (2) Appendix B, "Final Survey Program Inspection Field Notes," for guidance on inspections of the licensee's final survey and licensee activities to be inspected after completion of site remediation.

L. OCCUPATIONAL HEALTH AND SAFETY (IMC 1007 AND IP 93001)

1. Describe the occupational health and safety observations made at the licensee's facilities:

a. Licensee and OSHA were informed of occupational health and safety issues observed during the inspection. ( ) Y ( ) N

Basis for Findings:

4. VIOLATIONS, NON-CITED VIOLATIONS, FOLLOWUP ITEMS, AND OTHER ISSUES

Briefly state (1) the requirements and (2) how and when the licensee violated the requirement. For non-cited violations, indicate why the violation was not cited. Briefly describe followup items and other issues.

END

APPENDIX B

FINAL SURVEY PROGRAM INSPECTION FIELD NOTES

1. **STATUS OF LICENSEE FINAL SURVEY**

A.	Final survey report submitted to the NRC.	( ) Y ( ) N
B.	Previous inspection(s) of licensee final survey program conducted.	( ) Y ( ) N
C.	Final survey report not submitted, licensee final survey in progress.	( ) Y ( ) N
D.	Final survey plan submitted and approved by NRC license reviewer.	( ) Y ( ) N

Basis for Findings:

2. **INSPECTION AREAS FOR LICENSEE FINAL SURVEYS**

Notes:

(1) For facilities where an approved decommissioning plan (DP) is required, inspections should be made against commitments in the DP and the licensee's final survey plan (which would have been approved by the NRC license reviewer during license review). For facilities where a DP is not required, inspections should be made against NRC regulations and license conditions.

(2) For facilities that require a significant decommissioning effort, all the inspection areas listed below should be inspected while the licensee's final survey program is in progress. For small, licensed facilities that do not require a significant decommissioning effort, only some of the inspection areas below may apply, and it may not be practicable to inspect these areas until after the licensee's final survey is completed and the licensee's final survey report has been submitted to NRC.

(3) Inspection of a licensee's final survey may include independent confirmatory measurements by the inspector or NRC contractor. The extent of the confirmatory measurements, and whether the use of an NRC contractor is warranted, depends on a number factors that are discussed in Section 2.C. In most cases, minimal confirmatory surveys should be sufficient.

(4) The inspector should identify which inspection areas listed below are performed during each inspection.

A. SITE CONDITIONS AT TIME OF LICENSEE FINAL SURVEY

1. Site has been decontaminated/remediated in accordance with DP or site procedures. ( ) Y ( ) N

Basis for Findings:

B. LICENSEE FINAL SURVEY PLANS AND PROCEDURES

1. Contaminants:

   a. Licensee has identified all potential contaminants. ( ) Y ( ) N

   b. Licensee has specified acceptable release criteria. ( ) Y ( ) N

   c. Licensee has clearly documented the basis for any alternate criteria, if applicable. ( ) Y ( ) N

2. Organization and Responsibilities:

   a. Survey program documented. ( ) Y ( ) N

   b. Survey staff responsibilities and qualifications documented. ( ) Y ( ) N

3. Quality Assurance/Quality Control:

   a. Organization ( ) Y ( ) N
   b. QA Program ( ) Y ( ) N
   c. Operational Procedures ( ) Y ( ) N
   d. Document Control/Records Management ( ) Y ( ) N
   e. Equipment Maintenance and Control ( ) Y ( ) N
   f. Audits and Corrective Action ( ) Y ( ) N
   g. Independent third party measurement QC ( ) Y ( ) N

4. Laboratory analytical procedures, including QA/QC, acceptable, and results adequately documented. ( ) Y ( ) N

5. Field Survey Instrumentation:

   a. Survey instrumentation is appropriate for contaminants of interest and site conditions. ( ) Y ( ) N

   b. Licensee has properly calibrated survey instrumentation. ( ) Y ( ) N

   c. Instrument operational procedures adequate ( ) Y ( ) N

Basis for Findings:

6. Licensee is performing the survey in conformance with the approved survey plan (or regulations, guidance in NUREG-1575 Rev. 1, and good industry practice, if NRC approval of a survey plan was not required):

   a. All potentially contaminated locations on-site and off-site have been properly classified as "impacted" or "non-impacted" areas. ( ) Y ( ) N

   b. "Survey Units" have been properly selected. ( ) Y ( ) N

c. Background determination acceptable. ( ) Y ( ) N

d. Number and location of measurements and samples in each "survey unit" is acceptable. ( ) Y ( ) N

e. Surface scan procedures and percent coverage acceptable. ( ) Y ( ) N

f. Surface activity measurement procedures acceptable.

(1) Direct. ( ) Y ( ) N
(2) Removable. ( ) Y ( ) N

g. Exposure rate measurement procedures acceptable. ( ) Y ( ) N

h. Surveying and sampling of the following media conducted as appropriate:

(1) Soil and sediment, surface and subsurface. ( ) Y ( ) N
(2) Groundwater. ( ) Y ( ) N
(3) Surface water. ( ) Y ( ) N
(4) Buildings, interiors and exteriors. ( ) Y ( ) N
(5) Equipment and systems. ( ) Y ( ) N
(6) Grounds. ( ) Y ( ) N
(7) Other media: ( ) Y ( ) N

Basis for Findings:

7. Licensee's Final Survey report sufficient to demonstrate that release criteria have been met

Note: The final survey report will, in general, not be available for review at the time of an "in-process" inspection of a final survey program. However, at the end of the survey project, after the final survey report has been submitted, the inspector should ensure that these areas have been reviewed by either the license reviewer or project manager. If questions remain as to whether these areas have been satisfied by the licensee, or the final survey report has not been reviewed, the areas listed below should be addressed during the inspection.

a. Survey results demonstrate, with 95% confidence, that average residual contamination in each "survey unit" is less than release criteria. ( ) Y ( ) N

b. Survey results demonstrate that the hot-spot criteria in NUREG 1575 Rev. 1 have been satisfied. ( ) Y ( ) N

c. Elevated survey results investigated by licensee. ( ) Y ( ) N

d. "Survey Units" reclassified, as necessary, based on survey results. ( ) Y ( ) N

e. Reclassified “survey units” surveyed with proper number and location of samples and proper percentage of the surface scanned ( ) Y ( ) N

f. Survey report provides sufficient documentation of procedures and QA/QC ( ) Y ( ) N

g. Survey report provides diagrams or other documentation identifying survey locations. ( ) Y ( ) N

Basis for Findings:

NOTE: Some licensees are performing their final survey using NUREG/CR-5849. NUREG-1575 Rev. 1 should not be applied to these licensees.

C. NRC CONFIRMATORY SURVEY

1. Evaluate whether a confirmatory survey is justified.

a. Significant, unresolved, weaknesses identified during the inspection of the licensee's final survey program. ( ) Y ( ) N

b. Repetitive violations. ( ) Y ( ) N

c. Significant public or Congressional interest. ( ) Y ( ) N

d. Small site where an in-process inspection not practical. ( ) Y ( ) N

2. If a confirmatory survey is justified, determine if an NRC contractor should be used. Meeting one or more of the three criteria listed below will, in general, justify the use of a contractor.

a. Licensee's final survey involves unique or complex technical issues. ( ) Y ( ) N

b. Confirmatory survey is expected to require more than a man-week effort to complete field surveys and sampling. ( ) Y ( ) N

c. Confirmatory survey is very high priority that cannot be completed by NRC staff in a timely manner. ( ) Y ( ) N

NOTE: IP 84750, “Radioactive Waste Treatment and Effluent and Environmental Monitoring,” provides procedures for a statistical test to determine if two measurements are in agreement.

END