INSPECTION OF FINAL SURVEYS AT PERMANENTLY SHUTDOWN REACTORS

PROGRAM APPLICABILITY: 2561

83801-01 INSPECTION OBJECTIVE

01.01 To ensure that Final Surveys performed at permanently shutdown reactors are conducted as stated in the licensee's Decommissioning Plan (DP) or License Termination Plan (LTP).

01.02 To verify that the sites of permanently shutdown power reactors have been decontaminated to acceptable radiological levels for unrestricted or restricted use.

83801-02 INSPECTION REQUIREMENTS

02.01 Preliminary Review. Review the licensee's Decommissioning Plan or License Termination Plan to determine the scope of facility contamination and the licensee's decontamination and final survey program.

02.02 Inspection of Final Surveys and Disposition of Materials

a. Verify, by inspection, the licensee's implementation of the final survey program to confirm the acceptability of the final survey results. See Appendix A, "Final Survey Program Inspection Area," for a detailed inspection checklist for the licensee's final survey program.

b. Confirm, by inspection of records (inventory, transfer, disposal, etc.), that licensed material is being, or has been, transferred to an authorized recipient.

c. Confirm, by inspection of records, that materials and equipment are released in accordance with all applicable regulations and license conditions.

02.03 Confirmatory Surveys. NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual," (MARSSIM) defines a confirmatory survey as "a type of survey that includes independent (third-party) measurements, sampling, and analyses to verify the findings of a final status survey." Surveys and sampling should be conducted simultaneously with the licensee during the licensee's final status surveys. The inspector should collect side-by-side or split samples with the licensee for comparative purposes, as well as comparing infield instrument readings and sensitivity. Where practical, counting samples previously collected and counted by the licensee is also acceptable. In areas where work-in-process surveys cannot be conducted, or samples collected, after-the-fact

confirmatory surveys and sampling may be performed. Sites where work-in-process surveys and sampling have not identified significant weaknesses in the final survey program may not require after-the-fact surveying and sampling. However, after-the-fact confirmatory surveys may be required for sites where significant unresolved weaknesses were previously identified or where repetitive violations were identified. The goal is to conduct sufficient confirmatory surveys and sampling so that the inspector can conclude that the licensee's survey program is being implemented in a manner that provides confidence in the results. The in-process approach has resulted in significant savings in cost, assured a more accurate final status survey, and helped the licensee in maintaining its release schedule.

The lead Nuclear Regulatory Commission (NRC) office for the facility will review each proposed full or partial release of a facility from a license to determine the necessity of performing a confirmatory survey.

a. Facilities where the final survey inspections have not identified significant deficiencies in the final survey program and final survey report, may not require a confirmatory survey.

b. Facilities that meet the following criteria may require a confirmatory survey:

1. Significant unresolved weaknesses identified during the inspection of the licensee's final survey program.

2. Repetitive violations.

3. Significant lack of Public or Congressional confidence with clean-up efforts at the site.

4. Partial site release where an in-process inspection is not practical.

02.04 Conduct of Confirmatory Surveys. If a confirmatory survey is necessary, it should be performed to determine if the licensee's results are accurate and sufficient to demonstrate that the facility meets NRC requirements.

02.05 Records. Determine if any plans or arrangements have been made for preserving records required by 10 CFR 20.2102-2110 and 10 CFR 50.75 (g).

02.06 Burial of Waste. Determine if waste has been buried onsite. If burial has occurred, review the licensee's actions to historically assess, characterize, survey, and model the burial site. The licensee should model its former burial sites for compliance with 10 CFR Part 20, Subpart E.

02.07 Final Inspection Report. Prepare a final inspection report that summarizes the actions taken under this inspection procedure and the findings and evaluations of the inspection staff. Issue the final inspection report to the licensee and distribute a copy of the final inspection report to the appropriate licensing staff.

83801-03 INSPECTION GUIDANCE

03.01 Preliminary Review. Review the general licensing history of the facility and the regulations for license termination (i.e., 10 CFR 50.82).

03.02 Inspection of Final Survey. Review any license conditions related to decontamination of the facility, the decommissioning plan or license termination plan, any approved final survey programs, and/or final survey reports, as applicable. The inspection

of the licensee's final survey program should occur while the licensee is in the process of performing the final survey. The purpose of this "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 A, "Final Survey Program Inspection Area," for a detailed inspection checklist for the licensee's final survey program.

03.03 Confirmatory Surveys Preparation. Review license records such as the LTP or DP for types of radioactive materials used onsite, the occurrence of any significant safety issues, and any special concerns about the site expressed by stakeholders. Also review NUREG-1575, MARSSIM .

03.04 Conduct of Confirmatory Surveys. It may be necessary for NRC, or an NRC contractor, to conduct confirmatory measurements to provide supplemental information after the licensee has completed its final survey, 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 about 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 significant, unresolved weaknesses that are not administrative in nature (i.e., measurement results and/or soil concentration levels in units not comparable to the release criteria, inadequate classification of an area, or improper instrument calibration), licensee has a history of repetitive violations that reduce NRC's confidence in the survey results; significant lack of public or Congressional confidence in clean-up efforts at the site; or the site is too small (e.g., partial site release) for an in-process inspection. Note that the inspector may perform limited measurements (split samples, "side-by-side," direct measurements, etc.) as part of the in-process inspection of a licensee's ongoing final survey program.

03.05 Records. Although termination of a license removes some of the legal obligations to maintain the records required by 10 CFR 20.2102-20.2110 and 10 CFR 50.75 (g), the licensee should be informed that retention of these records after license termination is highly recommended.

03.06 Final Inspection Report. The final survey inspection report becomes the official certification of the disposal of licensed material. The final survey inspection report forms the basis for retiring, and eventually disposing of, both the licensing and inspection files.

83801-04 INSPECTION RESOURCES

The direct onsite inspection hours required to complete this inspection depend on the overall complexity of the facility and the duration of the licensee's final survey program. For facilities needing a significant final survey effort, it is estimated that approximately 10 to 40 inspection hours will be needed to complete the inspection of the final survey of each system, building, or survey unit selected for inspection.

END

APPENDIX A

FINAL SURVEY PROGRAM INSPECTION AREA

I. CONSIDERATION FOR DESIGNING FINAL STATUS SURVEY INSPECTION

A. Has the final survey report been submitted to the Nuclear Regulatory Commission?

B. Has the licensee final survey program been previously inspected?

C. If the final survey report is not submitted, is the licensee's final survey in-process?

D. Has the final survey plan been submitted and approved by an NRC license reviewer?

II. INSPECTION AREAS FOR LICENSEE FINAL SURVEYS

A. Inspections should be made against commitments in the DP or LTP and the licensee's final survey plan (which would have been approved during Decommissioning Plan (DP) or License Termination Plan (LTP) review).

B. For facilities that require a significant decontamination effort, all the inspection areas listed below should be inspected while the licensee's final survey program is in progress. For facilities that do not require a significant decontamination effort, only some of the inspection areas below may apply, and it may not be practical 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.

C. 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 of factors that are discussed in Section 2.B. In most cases, limited in-process confirmatory surveys should be sufficient.

D. For each inspection, the inspector should identify which inspections (listed below) are covered.

III. LICENSEE FINAL SURVEY PLANS AND PROCEDURES

A. Determine if all potential contaminants have been identified.

B. Review the Organization and Responsibilities for adequacy/completeness:

1. Survey program documentation

2. Responsibilities and qualifications of the survey staff

C. Review the Quality Assurance/Quality Control program for adequacy/completeness:

1. Organizational structure

2. QA Program

3. Document Control/Records Management program

4. Equipment Maintenance and Control program

5. Audits and Corrective Action program

D. Determine if the laboratory analytical procedures, including QA/QC, are acceptable, and if the results are adequately documented.

E. Determine if the licensee prepared an adequate Final Survey Plan (FSS) plan in accordance with guidance documents.

F. Determine if the field and laboratory instrumentation used, or planned to be used, were adequate/appropriate for scanning, direct measurements, and analysis for the radionuclides of concern (ROCs).

G. Determine if the calibration accounted for the ROCs

H. Review ROCs, area classification, survey unit size, estimated mean and standard deviation.

I. Review the methods used to address the impact of multiple ROCs in FSS planning.

J. Review instrument use procedures:

1. Minimum Detectable Count (MDC) calculations

2. Actual vs. required scan sensitivity; and

3. Calibration, including accounting for multiple radionuclides and any environmental factors that may influence instrument performance.

K. Select survey units/areas for confirmation:

1. Determine scan coverage based on classification.

2. Review analytical procedures for appropriateness for measuring the ROCs.

3. Cross-check FSS data packages against plan requirements.

L. For soil sampling, determine sampling depth requirements and sampling intervals. At a minimum, samples should be collected from anomalous or other judgmental areas, together with selected licensee-archived samples, for confirmatory analysis. The necessity for, and the specific numbers of, other random/systematic samples should be separately evaluated, using the Data Quality Objectives (DQO) process.

M. For structure surfaces, direct measurements should, at a minimum, be limited to anomalous or judgmental areas and comparative measurement locations. The necessity for, and the specific numbers of, other random/systematic samples should be separately evaluated, using the DQO process.

N. If project documentation is complete, accurate, and represents current radiological conditions relative to the release criteria, then recommend acceptance; if insufficient, then provide technical comments.

O. Calculate action levels to investigate anomalies identified during verification/confirmatory surveys.

P. Evaluate each anomaly identified during verification/confirmatory surveys, for compliance.

1. Is it acceptable relative to size and concentration?

2. Has the licensee adequately addressed it?

3. Is it within the bounds of survey unit classification?

Q. Review if confirmatory analyses or measurements agree with the site's reported results.

R. Review if systematic agreement (randomly selected) and judgmental (location selected using professional judgment based on site knowledge) samples and measurements are less than the Derived Concentration Guidance Level.

IV. NRC CONFIRMATORY SURVEY

A. Review whether or not a confirmatory survey is justified.

1. Significant, unresolved, weaknesses identified during the inspection of the licensee's final survey program.

2. Repetitive violations

3. Significant public or Congressional interest

4. Partial site release where an in-process inspection is not practical

B. 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.

1. Licensee's final survey involves unique or complex technical issues.

2. Confirmatory survey is expected to require more than a person-week effort to complete field surveys and sampling.

3. Confirmatory survey is very high priority project that cannot be completed by NRC staff in a timely manner.

END