ATTACHMENT 71122.01

INSPECTION AREA: Radioactive Gaseous And Liquid Effluent Treatment And Monitoring Systems

CORNERSTONE: Public Radiation Safety

INSPECTION BASES: This inspection area verifies aspects of the Public Radiation Safety cornerstone not measured by performance indicators. In Public Radiation Safety, the effluent release occurrence performance indicator measures radioactive gaseous and liquid releases that were above Technical Specification and/or Offsite Dose Calculation Manual limits. Radiation exposure to the public is to be below the 10 CFR Part 20 and 40 CFR Part 190 limits. Doses below the design objectives of Appendix I to 10 CFR Part 50 and 40 CFR Part 190 dose values are considered ALARA. Radioactive effluent treatment systems and monitors are required by Criteria 60 and 64 of Appendix A to 10 CFR Part 50. Proper operation of the system and monitors, as described in the licensee's Radioactive Effluent Control Program, will ensure an adequate "defense-in-depth" against an unmonitored, unanticipated, and unplanned release of radioactive material to the environment.

LEVEL OF EFFORT: Inspect biennially

71122.01-01 INSPECTION OBJECTIVES

01.01 To ensure that the gaseous and liquid effluent processing systems are maintained so that radiological releases are properly mitigated, monitored, and evaluated with respect to public exposure. Performance requirements are found in General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50, Radiological Effluent Technical Specifications (RETS), and the Offsite Dose Calculation Manual (ODCM).

01.02 To ensure that abnormal radioactive gaseous or liquid releases and conditions when effluent radiation monitors were out-of-service are controlled in accordance with the licensee's requirements.

01.03 To verify that the licensee's quality control program to ensure that the radioactive effluent sampling and analysis requirements are satisfied so that releases of radioactive materials are adequately quantified and evaluated.

71122.01-02 INSPECTION REQUIREMENTS

02.01 Inspection Planning and In-Office Inspection

a. Review the most current Radiological Effluent Release Report to verify that the program was implemented as described in RETS/ODCM. Review the report for significant changes to the ODCM and to radioactive waste system design and operation. Determine whether the changes to the ODCM were made in accordance with Regulatory Guide 1.109 and NUREG-0133 and were technically justified and documented (The licensee's documents containing the technical justifications should be reviewed during the onsite inspection). Determine whether the modifications made to radioactive waste system design and operation changed the dose consequence to the public. Verify that technical and/or 10 CFR 50.59 reviews were performed when required. Determine whether radioactive liquid and gaseous effluent radiation monitor setpoint calculation methodology changed since completion of the modifications.

b. Determine if anomalous results reported in the current Radiological Effluent Release Report were adequately resolved.

c. Review RETS/ODCM to identify the effluent radiation monitoring systems and its flow measurement devices. Review any effluent radiological occurrence performance indicator incidents for onsite follow-up. Review licensee self assessments, audits, and licensee event reports that involved unanticipated offsite releases of radioactive material.

d. Review the Final Safety Analysis Report (FSAR) description of all radioactive waste systems.

02.02 Onsite Inspection

a. Walk-down the major components of the gaseous and liquid release systems (e.g., radiation and flow monitors, demineralizers and filters, tanks, and vessels) to observe current system configuration with respect to the description in the FSAR, ongoing activities, and equipment material condition.

b. When possible, observe the routine processing (including sample collection and analysis) and release of radioactive liquid waste to verify that appropriate treatment equipment is used and that radioactive liquid waste is processed and released in accordance with procedure requirements. If possible, observe the sampling and compositing of liquid effluent samples. In lieu of direct observation, review several radioactive liquid waste release permits, including the projected doses to members of the public.

c. When possible, observe the routine processing (including sample collection and analysis) and release of radioactive gaseous effluent to verify that appropriate treatment equipment is used and that the radioactive gaseous effluent is processed and released in accordance with RETS/ODCM requirements. In lieu of direct observation, review several radioactive gaseous effluent release permits, including the projected doses to members of the public.

d. Review the records of any abnormal releases or releases made with inoperable effluent radiation monitors. Review the licensee's actions for these releases to ensure an adequate defense-in-depth was maintained against an unmonitored, unanticipated release of radioactive material to the environment. For example, were appropriate compensatory sampling and radiological analyses conducted at the RETS/ODCM required frequency when effluent monitors were declared out-of-service? For unmonitored releases, did the licensee perform an evaluation of the type and amount of radioactive material that was released and the associated projected doses to members of the public?

e. Review changes made by the licensee to the ODCM as well as to the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection. For each system modification and each ODCM revision that impacted effluent monitoring or release controls, review the licensee's technical justification and determine whether the changes affect the licensee's ability to maintain effluents ALARA and whether changes made to monitoring instrumentation resulted in a non-representative monitoring of effluents. For significant changes (factor of 5) to dose values reported in the Radiological Effluent Release Report from the previous report, evaluate the factors which may have resulted in the change. If the change was not influenced by an operational issue (e.g., fuel integrity, extended outage, or major decontamination efforts), independently assess the licensee's offsite dose calculations by using the NRC PC-DOSE computer code (agreement should be within a factor of 2) or by reviewing the verification and validation records for the licensee's dose calculation.

f. Review a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee has properly calculated the offsite dose from radiological effluent releases and to determine if any annual TS/ODCM (i.e., Appendix I to 10 CFR Part 50 values) were exceeded and, if appropriate, issued a PI report if any quarterly values were exceeded.

g. Review air cleaning system surveillance test results or licensee specific methodology to ensure that the system is operating within the licensee's acceptance criteria. Review surveillance test results or methodology the licensee uses to determine the stack and vent flow rates. Verify that the flow rates are consistent with RETS/ODCM or FSAR values. NOTE: Differences between assumed and actual stack and vent flow rates will affect the methodology used to calculate projected doses to members of the public as required by the ODCM.

h. Review records of instrument calibrations performed since the last inspection for each point of discharge effluent radiation monitor and flow measurement device. Review any completed system modifications and the current effluent radiation monitor alarm setpoint value for agreement with RETS/ODCM requirements.

i. Review calibration records of radiation measurement (i.e.,counting room) instrumentation associated with effluent monitoring and release activities. Review quality control records for the radiation measurement instruments. Look for indications of degraded instrument performance and at the corrective actions taken.

j. If the licensee is committed to follow the guidance in Regulatory Guides 1.33 and/or 1.21, and/or 4.15, review the results of the interlaboratory comparison program to verify the quality of radioactive effluent sample analyses performed by the licensee. Review the licensee's quality control evaluation of the interlaboratory comparison test and associated corrective actions for any deficiencies identified. If applicable, review the licensee's assessment of any identified bias in the sample analysis results and the overall effect on calculated projected doses to members of the public.

k. Review the results from the licensee's QA audits to determine whether the licensee met the requirements of the RETS/ODCM.

02.03 Identification and Resolution of Problems

a. Review the licensee's self assessments, audits, Licensee Event Reports, and Special Reports related to the radioactive effluent treatment and monitoring program since the last inspection. Determine if identified problems are entered into the corrective action program for resolution.

b. Review corrective action reports related to the radioactive effluent treatment and monitoring program. Interview staff and review documents to determine if the follow-up activities are being conducted in an effective and timely manner commensurate with their importance to safety and risk:

1. Initial problem identification, characterization, and tracking.
2. Disposition of operability/reportability issues.
3. Evaluation of safety significance/risk and priority for resolution.
4. Identification of repetitive problems.
5. Identification of contributing causes.
6. Identification and implementation of effective corrective actions.
7. Resolution of non-cited violations (NCVs) tracked in the corrective action system.
8. Implementation/consideration of risk significant operational experience feedback.

Emphasis should be placed on ensuring problems are identified, characterized, prioritized, entered into a corrective action, and resolved.

c. For repetitive deficiencies or significant individual deficiencies in problem identification and resolution identified above, determine if the licensee's self-assessment activities are also identifying and addressing these deficiencies.

71122.01-03 RESOURCE ESTIMATE

The estimated hours to complete this procedure ranges from a minimum of 36 hours to a maximum of 44 hours, with a base of 40 hours.

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