

NRC INSPECTION MANUAL

DQASIP

INSPECTION PROCEDURE 80521

RADIOLOGICAL ENVIRONMENTAL MONITORING (PREOPERATIONAL AND SUPPLEMENTAL)

PROGRAM APPLICABILITY: 2513, 2515, and 2525

80521-01 INSPECTION OBJECTIVE

To determine whether the radiological environmental monitoring programs are operational and adequate.

80521-02 INSPECTION REQUIREMENTS

02.01 Implementation of the Radiological Environmental Monitoring Program. Determine whether the radiological environmental monitoring program is effectively implemented and meets and satisfies requirements and commitments under normal and emergency operations.

02.02 Implementation of the Meteorological Monitoring Program. Determine whether the meteorological monitoring program is effectively implemented for normal and emergency operations.

02.03 Facilities, Equipment, and Supplies. Determine whether the licensee's laboratory facilities, equipment, instrumentation, and supplies are adequate, installed, and/or available to perform the required monitoring programs.

02.04 Documentation. Review procedures, measurements, reports, construction stage Final Environmental Statement, and Offsite Dose Calculation Manual (ODCM) to verify that the licensee's programs are operational.

02.05 Quality Assurance (QA) Program. Verify that the licensee has established and implemented an adequate QA program for both the radiological and meteorological monitoring programs.

02.06 Contractor Activities. Verify the adequacy of the licensee's program for oversight of contractor activities.

80521-03 INSPECTION GUIDANCE

03.01 Implementation of the Radiological Environmental Monitoring Program

- a. Review appropriate preoperational and annual reports to determine whether sampling locations, monitoring and measurement frequencies, land use

census, interpretation, and evaluation of data satisfy appropriate licensee commitments and technical specifications.

- b. In the preoperational phase of the program, verify by direct observation, discussions with staff, and review of records and purchase orders, that the sampling stations have been established and are operational. Inspect the installation and operability of all sampling (monitoring) stations (and associated equipment) for several different environmental media as described in the Construction Permit, and Environmental Report. Operationally, inspect a cross section of the fixed monitoring facilities.
- c. Review selected procedures for sampling, handling, and processing samples.
- d. Determine whether all required reports have been submitted on schedule since the last inspection. These reports include routine, nonroutine, and any special reports.
- e. Review the reports for omissions, obvious mistakes, anomalous measurements, observed biases, and trends in the data.
- f. Determine whether proper and timely followup and corrective actions were taken for anomalous measurements results in accordance with licensee's procedures.
- g. Through discussions with cognizant individuals, determine whether the licensee is prepared to implement necessary changes to the environmental monitoring program under emergency operations, e.g., additional sample locations, rapid analyses, and prompt reports.

03.02 Implementation of the Meteorological Monitoring Program

- a. Determine whether the programs meet licensee's commitments and requirements of Supplement 1 to NUREG-0737 and are in conformance with Regulatory Guide 1.97.
- b. Determine whether meteorological equipment and instrumentation described in the Environmental Report and Construction Permit are operable and calibrated.
- c. Review meteorological system maintenance records to assure preventive maintenance was performed and inoperable equipment was promptly repaired.
- d. Verify by direct observation that construction and other plant activities and natural topography have not adversely impacted the exposure of meteorological instruments (e.g., growth of foliage in the vicinity of the meteorological instruments should be limited to prevent interference with the measurements).

03.03 Facilities, Equipment, and Supplies. If the licensee is processing and analyzing environmental samples, verify the adequacy of the facilities and equipment to make accurate, consistent, and timely measurements, by direct observation and discussions with staff. Focus upon the following items:

- a. Laboratory layout, including space and configuration and storage.
- b. Analytical equipment: quantity, quality, and calibration dates.
- c. Availability of fresh laboratory supplies.

03.04 Documentation. Review selected documentation, including the following:

- a. Annual Environmental Monitoring Report.

- b. Operating procedures for routine and emergency operations.
- c. Calibration records.
- d. Construction stage Final Environmental Statement.
- e. Measurements.
- f. Inter- and intralaboratory comparisons.
- g. Maintenance records.
- h. State-licensee intercomparisons.
- i. NRC-licensee TLD colocated measurements.

03.05 Quality Assurance (QA) Program. Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams in the Environment," provides guidance for the content and extent of an acceptable program.

03.06 Contractor Activities. Review procedures and audits covering the licensee's program for monitoring their contractors' activities. Discuss with cognizant individuals the level of management commitment.

03.07 General. See also IP 83522 regarding organization and management aspects of environmental monitoring programs.

80521-04 REFERENCES

Radiological Assessment Branch Technical Position, November 1979, Revision 1.

Regulatory Guide 1.23, "Onsite Meteorological Programs."

Regulatory Guide 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant Conditions During and Following an Accident."

Regulatory Guide 4.1, "Programs for Monitoring Radioactivity in the Environs of Nuclear Power Plants."

Regulatory Guide 4.5, "Measurements of Radionuclides in the Environment -- Sampling and Analysis of Plutonium in Soil."

Regulatory Guide 4.6, "Measurements of Radionuclides in the Environment -- Strontium-89 and Strontium-90 Analyses."

Regulatory Guide 4.13, "Performance, Testing, and Procedural Specifications for Thermoluminescence Dosimetry: Environmental Applications."

Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment."

Regulatory Guide 4.16, "Measuring, Evaluating, and Reporting Radioactivity in Releases of Radioactive Materials in Liquid and Airborne Effluents from Nuclear Fuel Processing and Fabrication Plants."

NUREG-0472, "Radiological Effluent Technical Specifications for PWRs," February 1980.

NUREG-0473, "Radiological Effluent Technical Specifications for BWRs," July 1979.

NUREG-0737, "Clarification of TMI Action Plan Requirements," November 1980.

Supplement 1 to NUREG-0737, Generic Letter No. 82-33, D. G. Eisenhut to all licensees of operating reactors, applicants for operating licenses, and holders of construction permits. December 17, 1982.

EPA-600/4-82-062, "Quality Assurance Handbook for Air Pollution Measurement Systems: Volume IV, Meteorological Measurements," February 1983.

40 CFR Part 141, "Interim Primary Drinking Water Regulations," 41 FR 28402.

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