

NRC INSPECTION MANUAL

QASIP

INSPECTION PROCEDURE 88035

RADIOACTIVE WASTE MANAGEMENT

PROGRAM APPLICABILITY: 2600

88035-01 INSPECTION OBJECTIVE

To determine whether the licensee is complying with regulations and license requirements related to the release and disposal of liquid, airborne, and solid waste, and the reporting of waste disposal information to the NRC.

88035-02 INSPECTION REQUIREMENTS

02.01 Radioactive liquid effluents. Determine compliance with the following listed regulations and/or license requirements applicable to the facility:

- a. 10 CFR 20.106 [release to unrestricted areas]
- b. 10 CFR 20.303 [release into sanitary sewerage]
- c. license requirements for:
 1. limits on release rates, concentrations, and total quantities,
 2. analysis for specific radionuclides,
 3. monitoring of specified release points, and
 4. any limits on activity contained in holding or storage tanks.

02.02 Radioactive airborne effluents. Determine compliance with the following listed regulations and/or license requirements applicable to the facility:

- a. 10 CFR 20.106 [release to unrestricted areas]
- b. license requirements for:

1. limits on release rates, concentrations, and total quantities,
2. analysis for specific radionuclides,
3. monitoring of specified release points, and
4. any limits on activity contained in holding or monitoring tanks.

02.03 Records and reports of radioactive effluents. Determine compliance with the following listed regulations and/or license requirements applicable to the facility:

- a. 10 CFR 40.65 [effluent reporting requirements]
- b. 10 CFR 70.57 [effluent reporting requirements]
- c. 10 CFR 20.401 [records of ... disposal]
- d. license requirements for:
 1. effluent reports, in terms of frequency and content, and
 2. maintenance of records

02.04 Liquid and airborne effluent monitoring instruments. Determine compliance with license requirements for:

- a. calibrations and functional tests,
- b. correlation of monitor reading and laboratory measurement of radioactivity in the release path, and
- c. settings for trips and alarms.

02.05 Procedures for controlling the release of effluents

- a. Review all the changes in effluent control procedures made since the last inspection and verify that:
 1. they were made in accordance with the licensee's procedural control system and reviewed and approved by management and supervision, and
 2. they afford the same or a higher level of control of effluents as the procedures reviewed during previous inspections.
- b. Determine whether the licensee is following his effluent control procedures.

02.06 Radioactive solid waste. Determine compliance with the following listed regulations and/or license requirements applicable to the facility.

- a. 10 CFR 20.203 [caution signs, labels]
- b. 10 CFR 20.301 [general requirements for disposal]
- c. 10 CFR 20.401 [records of ... disposal]
- d. license requirements for:
 1. use of specified containers and packages,

2. identification of the quantity and radionuclide composition of waste in containers and packages,
3. records of waste shipments and waste in storage, and
4. reports of solid waste shipment and waste in storage.

02.07 Waste burial. Determine compliance with the following listed regulations and/or license requirements applicable to the facility:

- a. 10 CFR 20.304 [burial in soil]
- b. license requirements for:
 1. use of specified containers and packages,
 2. quantity and radionuclide composition of waste in containers and packages,
 3. identification of containers and packages,
 4. restoration of excavated areas, trenches, etc.,
 5. markers for burial sites, e.g., trenches, holes, cairns, vaults, and
 6. records (of container contents, burial location, etc.)

02.08 Storage of high-level liquid waste. Determine compliance with license requirements for:

- a. chemistry controls of liquid waste solutions,
- b. temperature limitations of waste solutions,
- c. temperature limitations of waste solutions, and
- d. monitoring of container and/or vault integrity.

88035-03 INSPECTION GUIDANCE

03.01 Radioactive liquid effluents

03.02 Radioactive airborne effluents

03.03 Records and reports of radioactive effluents. Examine the waste release records generated since the last inspection--all annual or semiannual reports, all pertinent nonroutine event reports, and a random selection of liquid and airborne waste records equivalent to about 2 months of operation.

Review the reports and records for obvious mistakes, anomalous measurements results, trends, missing data (compare the recorded date with the requirements), and verify the accuracy of the data in

the report or record with the licensee if any of these aspects are identified or suspected.

03.04 Liquid and airborne effluent monitoring instruments. The objective of a calibration is to assure the continued adequacy and operability of the instrument system. The adequacy of the system is judged on the basis of its stability with time and its ability to reproduce measurement within acceptable limits (which must be specified by the licensee in his calibration procedures) over the useful range of the instrument. The useful range must encompass the normal and reasonably expected values of the monitored variable, including values expected from anticipated operational occurrences.

The term "calibration" may be defined in license requirements but if it is not, use the following:

"A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter which the channel monitors. The CHANNEL CALIBRATION shall encompass the entire channel including the sensor and alarm and/or trip functions, and shall include the CHANNEL FUNCTIONAL TEST. THE CALIBRATION may be performed by any series of sequential, overlapping, or total channel steps such that entire channel is calibrated."

The calibration procedure and method used should:

- a. check the response over the range of the readout advice; for example, 1/4, 1/2, 3/4;
- b. verify the actuation at prescribed setpoints of alarms or other automatic functions of the system;
- c. require periodic (i.e., at least quarterly) comparison of monitor readings against the concentrations (or release rates) of radioactive material in the monitored release path;
- d. verify that the sensitivity of the monitor is within an acceptable range--the background radiation, internal to the monitor from crud buildup or from external sources, remains at an acceptable level;
- e. be performed using a written procedure approved by appropriate plant supervision; and
- f. require documentation of the results and review and approval of results by appropriate plant supervision.

The setpoints of effluent and process monitors should be set forth in written procedures along with instructions which describe the rules and authority required to change specified setpoints. The bases for each setpoint should be known by the operator/technicians and should be explained in plant procedures.

The comparison of monitor readings with laboratory measurements of radioactive material in the release path is made primarily to assure

the response of the monitor is within an acceptable range for values which form the bases for the alarm and trip setpoints.

03.05 Procedures for controlling the release of effluents

- a. Select 1 or more procedures for both liquid and airborne systems and verify that the procedural steps are being followed; the verification should be made by whatever means are required, i.e., observation of an operation review of selected records (checkoff sheet for valve lineup, lockout, sample analysis, etc.), and discussion with workers, technicians, operators, etc.

03.06 Radioactive solid waste

- a. Check posting of storage areas and labeling of a selected number of containers.
- b. There may not be specific requirements included in the license, however, items (2) and (3) are required for compliance with 20.301 and 20.401, and item (1) should be covered by licensee procedures.

03.07 Waste burial. If the licensee buries noncontaminated waste onsite, e.g., in a landfill, verify that a monitoring program exists which assures that the waste is indeed "nonradioactive."

There may not be specific license requirements which cover the items in b., however, these essential elements should be covered by licensee procedures, and some, e.g., (2), (5), and (6) are necessary to demonstrate compliance with 20.304.

03.08 Storage of high-level liquid waste. Normally applies only to reprocessing facilities.

03.09 Earthen (surface) waste retention systems. Requirements should be stipulated in the license; the licensee may refer to programs or controls contained in the license application.

END