

Edwin I. Hatch Nuclear Plant Solid Radioactive Waste Process Control Program

September 1984

8604170150 860324
PDR ADOCK 05000321
P PDR



Georgia Power

the southern electric system

SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM
FOR THE
GEORGIA POWER COMPANY
EDWIN I. HATCH NUCLEAR PLANT

SEPTEMBER 1984

DISTRIBUTION LIST

<u>Recipient</u>	<u>Title/Location</u>	<u>No. of Copies</u>
E. C. Sorrell	Supervisor-Document Control Plant Hatch	8
S. C. Ewald	Manager-Radiation Safety Georgia Power Company 333 Piedmont, 14th Floor Atlanta, Georgia	4
L. T. Gucwa	Manager-Nuclear Engineering and Chief Nuclear Engineer Georgia Power Company 333 Piedmont, 14th Floor Atlanta, Georgia	1
B. L. Maulsby	Supervisor-Environmental Center Georgia Power Company Decatur, Georgia	2
W. F. Garner	Manager-Nuclear Plant Support-Hatch Southern Company Services Inverness Center Building 10, Room 300 Birmingham, Alabama	1
J. N. McLeod	Supervisor-Safety Analysis Southern Company Services Inverness Center Building 40, 6th Floor Birmingham, Alabama	1

EDWIN I. HATCH NUCLEAR PLANT
SOLID RADIOACTIVE WASTE PROCESS CONTROL PROGRAM

I. PURPOSE

The processing of radioactive waste for disposal at a licensed radioactive waste burial site requires that the waste be appropriately analyzed, processed, and packaged, thus representing a final waste form that is acceptable for transportation to and burial at a licensed radioactive waste disposal site. The purpose of this Process Control Program is to document the radioactive waste processing methods and the quality control steps that are taken at the Hatch Nuclear Plant to verify compliance with applicable regulatory requirements and, in particular, to assure an acceptable waste product meeting the applicable waste stability characteristics of 10 CFR 61.56.

At Plant Hatch, the routine processing systems that generate radioactive waste requiring offsite disposal are:

- The reactor water clean-up system.
- The condensate clean-up system.
- The spent fuel pool clean-up system.
- The liquid radwaste system.

All of these systems employ the use of either bead ion exchange resins or the powdered ion exchange resins as the processing medium. Spent resins are dewatered in an appropriate liner based on the waste class and burial site criteria. In addition to these processing systems, two other types of radioactive wastes that are routinely processed are the compactable and noncompactable trash (DAW) and slightly radioactively contaminated oils.

This Process Control Program addresses the processing of these types of wastes and the measures which are in-place to assure the generation of an acceptable waste product. Operating criteria for spent resin transfer to an appropriate liner and in-liner dewatering are addressed, as are also the

criteria for the processing of DAW (compactable and noncompactable trash) and miscellaneous contaminated liquids (including oils).

II. REGULATORY OVERVIEW

All waste processing, packaging, and shipping are conducted in accordance with approved procedures to assure compliance with applicable federal, state, and burial site requirements. Waste processed for disposal is evaluated per approved plant procedures for compliance with the following:

- Waste classification requirements of 10 CFR 61.55.
- Waste characteristic requirements of 10 CFR 61.56.
- Manifest reporting requirements of 10 CFR 20.311.

Packaging of waste is in containers which meet DOT specifications and are appropriate for the applicable waste class. Shipments are conducted in accordance with the requirements of 49 CFR 172-177 and 10 CFR 71.

All waste processing is performed in a manner consistent with the principles of ALARA. The procedures that have been developed to cover waste processing operations address appropriate radiation safety measures, such as job preplanning, radiation source shielding, job prerequisites, and material requirements so as to minimize stay times.

III. DEWATERING OF RESINS

The processing of the liquid streams by ion exchange resins (bead or powdered) results in a waste product that is most appropriately dewatered in a suitable disposable liner (carbon steel or high-integrity container). Prior to transfer of the spent resin to a liner, a sample is collected and analyzed by gamma spectroscopy to quantify the radioactive material concentration. Based on this information, the waste is appropriately classified in accordance with approved procedures per the criteria of 10 CFR 61.55. If a sample of the resin cannot be collected prior to transfer to a liner due to either design or operational limitations, a sample collected after transfer or an external radiation level measurement may be used in accordance with approved procedures for determining waste class.

The dewatering process is conducted in accordance with approved procedures with appropriate operating parameters to assure a waste product with as little freestanding water as possible but, in no case, in excess of 1 percent by volume (i.e., meeting the waste stability criteria of 10 CFR 61.56). The specifics of the dewatering process vary depending on the type of dewatering process employed* and the type of resin (bead or powdered). However, the common approach to dewatering is the removal of essentially all interstitial water. Appropriate verifications (dependent on the process method) are conducted to assure an acceptable waste form.

IV. PACKAGING OF DAW (COMPACTABLE AND NONCOMPACTABLE TRASH)

All radioactively contaminated trash is appropriately packaged, surveyed, and labeled prior to shipment for disposal. Bagged wastes are opened to assure exclusion of unacceptable waste products, such as water and oil. Compactable trash is processed by compaction to reduce the volume of the waste; noncompactable materials are segregated and normally packaged separately. After packaging, the waste containers are stored awaiting shipment. Periodic inspection of the storage area is conducted to assure container integrity.

V. PROCESSING OF OILS

Periodically, it may become necessary to process slightly radioactively contaminated oils for offsite disposal. These liquid wastes are either processed by absorption or solidification. Absorption is accomplished using at least twice as much absorbant as is necessary to completely absorb the liquid; only an absorbant approved by the burial site is used. Any solidification of liquids is conducted in accordance with approved plant procedures or a contractor-supplied solidification procedure that has been specifically developed for the solidification process. (Refer to Section VI for the use of a contractor of contractor-supplied process for waste processing.)

* The dewatering process at Plant Hatch is a contractor-supplied system. Refer to Section VI for the process controls that are applicable.

The solidification of liquids (including oils) utilizing the onsite mixing unit is conducted in accordance with approved operating procedures and parameters (HNP-8043 and HNP-8044). Per HNP-8043, test samples are conducted every tenth batch to verify the pre-established mixing ratios. Any unacceptable products require a re-evaluation of the mixing ratios; any unacceptable waste containers are identified (by visual inspection), and appropriate actions are taken to assure that the waste as shipped meets the applicable waste stability requirements of 10 CFR 61.56. Additionally, all containers of the solidified waste are inspected prior to closure to assure a solidified matrix absent of any freestanding water.

VI. USE OF CONTRACTOR FOR WASTE PROCESSING

Contractor-supplied process and/or service may be used at Plant Hatch for the processing of radioactive waste for offsite disposal. For the operation of such a process, it may be desirable to use process control measures and procedures developed by the contractor specifically for the system or process. Therefore, previously addressed process control measures for a particular type waste may be superseded by contractor-supplied measures, as appropriate.

Prior to the use of a contractor-supplied process or service for waste processing at Plant Hatch, a management review of the contractor's process control and procedures is performed to assure that the operation is compatible with plant operation and is in accordance with regulatory requirements.

For the processing of waste that is intended to be shipped for disposal at a licensed radioactive waste burial site, additional precautions are taken to assure a final waste product that meets the appropriate waste stability requirements of 10 CFR 61.56. In particular, the following items, as applicable, are to be documented by the contractor (or Plant Hatch manuals or procedures) prior to utilization for waste processing:

- A general description of the solidification or dewatering process, including type solidification agent (if applicable), major process equipment and interface with plant equipment, types of waste that can be processed, and operating parameters.
- Process control measures that provide for the verification of the generation of a suitable waste product, including items (as may be appropriate for the process method), such as representative sampling, laboratory tests, and acceptance criteria.
- Specifically approved procedures for the operation of the process equipment that will assure operation within the bounds as delineated by the process control measures.
- Appropriate acceptance criteria for evaluating the acceptability of the final waste product.