Enclosure 2

GRAND GULF NUCLEAR STATION

PROCESS CONTROL PROGRAM

December 9, 1981

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I. Interfaces:

A. The Radwaste Solidification System receives wet waste inputs from the following:
Equipment Drain Filter (D001),
Floor Drain Filter (D003),
Evaporator Bottoms Tanks (A014 A and B)
Spent Resin Tank (A007)
RWCU Phase Separator Tanks (A010 A and B)
Waste Surge Tanks (A002 A and B)

B. Support Systems include:
Radwaste Building Ventilation
Condensate and Refueling Waste Storage
Liquid Radwaste
Equipment and Floor Drains
Instrument Air
Service Air
125V DC
480V DC
120/208V DC

II. Operable Solidification System Equipment required:

A. Either A, B or C Waste Holding Tank (A001 A, B, or C) and associated Waste Metering Pumps (C001 A, B, or C).
B. Either A or B train solidification equipment including:
Cement feeder valves (D005 A or B).
Air slide conveyor (D017 A or B)
Mixer feed pump (D002 A or B)
Chemical addition pump (C002 A or B)
Fillport (D006 A or B)
C. Transfer cart and capping mechanism
D. Overhead crane

III. Interlocks/Instrumentation required:

A. On the operable Waste Holding Tank:
1. Level monitor and associated level alarms (Hi and Low)

B. On the operable mixer unit:

1. Pump discharge low pressure switches and associated lights for waste metering pump, chemical additive metering pump, and mixer feeder
2. Drum in place switch and associated light
3. Fillport down switch and associated light

4. Cement flow switch and associated light
5. Waste container full switch and associated annunciator

C. Modicon programmable controls or manual override controls.

IV. Administrative Controls:

A. Administrative procedures will require that:

1. Directions for extensive or complex jobs where reliance on memory cannot be trusted shall require the written procedure to be present and referred to directly.
2. Directives shall include appropriate quantitative and/or qualitative criteria for verifying that the specified activities have been satisfactorily accomplished.

B. Operation of the Radwaste Solidification System will be performed by operators using a directive, meeting the Administrative Procedure requirements in IV.A (above) and in accordance with GGNS Operations Procedure.

C. Access to process flow control (Modicon Program) will be limited to the Radwaste Supervisor or his designated alternate.

V. The interlocks/instrumentation provided in III (above) will assure that:

A. The operator knows the level in the Waste Holding Tank.

B. Process flow is established in all required flow paths.

1. This will prevent the introduction of waste to the shipping container without the proper solidification agents.

C. The shipping container is in place under the fillport and the fillport lid is sealed against the container before any process flow can start.

D. The shipping container will not be over filled.

VI. Sampling and Process Parameters:

A. This section and Enclosure I of the Process Control Program will establish the program of sampling, analysis, and verification of solidification, which is necessary to insure complete solidification of each type of radioactive waste.

B. The minimum sampling requirement for verification of solidification is every tenth batch of each type of waste except for floor and equipment filter sludges which will be required to have one representative sample at least every twentieth batch.

C. The representative test specimen will be obtained for verification of solidification from the first five (5) batches of each generic stream after the plant startup to obtain operational characteristics of process parameters.

D. Batch, Process Parameters, and boundary conditions are defined in Table I.

E. Verification of solidification is as follows:

1. Three test samples (500ml) will be taken in plastic beakers.
2. The design proportions of solidifying agents, (Table I), will be added to all test samples.
3. Test samples will be allowed to cure. The cured product will be split to verify the mass is a solid with definite shape and no free water.
4. All test samples must past solidification tests. If test fails, retest as per Section E.3 of Enclosure I.

VII. Packaging Procedures

The total contained activity, external dose rate, surface contamination, and physical form of solidified waste will be verified to be within limits prior to shipment.

A. Containers will be remotely smeared and decontaminated prior to storage.

1. Containers that are not within limits will be manually decontaminated and re-smeared.

B. The curie content of each container will be estimated from the following parameters:

1. Type of waste contained (corrosion products, fission products or mixed).
2. Mid plane, centerline container dose rate.
3. Density of material in container.
4. Geometric configuration.
5. Correction factor (C).

C. An isotopic analysis will be performed on every tenth batch of waste input to the solidification system.

1. Total activity in a container will be calculated from the isotopic analysis.
2. The calculated activity will be compared to the estimated activity.
3. The correction factor (C) will be adjusted, as necessary, to assure that the estimated activity is greater than or equal to the calculated activity.

D. Plant operating instruction 04-S-05-4, "Preparation of Solid Radwaste for Off Site Shipment" shall be followed to assure that the requirements of 49CFR Parts 100 to 199, "Transportation", 10CFR20, and 10CFR70 are met.