



ENTERGY

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April 15, 1994

U.S. Nuclear Regulatory Commission
Mail Station P1-137
Washington, D.C. 20555

Attention: Document Control Desk

SUBJECT: Grand Gulf Nuclear Station
Unit 1
Docket No. 50-416
License No. NPF-29
Response to Notice of Violation Identified During
Radiological Effluents and Chemistry Inspection
Report No. 50-416/94-06, dated 03/16/94
(GNRI-94/00067)

GNRO-94/00062

Gentlemen:

Entergy Operations, Inc. hereby submits the response to the
Notices of Violation 50-416/94-06-01 and 94-06-03.

Yours truly,

CRH/RR/
attachments

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Notice of Violation 94-06-01

Technical Specification (TS) 6.8.1.g requires the licensee to establish, implement and maintain written procedures covering implementation of the Process Control Program (PCP). TS 1.32 specifies that the PCP shall contain the current formulas, sampling, analyses, tests, and determinations to be made to ensure that processing of the solid radioactive waste, based on demonstrated processing of actual or simulated wet solid wastes, will be accomplished in such a way as to assure compliance with 10 CFR 20, 61, and 71, State regulation, burial ground requirements governing the disposal of solid radioactive waste. Section 49 of Amendment No. 45, of License No. 097, issued to Chem-Nuclear System, Inc., Barnwell, South Carolina, by the State of South Carolina, requires that shipments intended for storage shall not contain explosive gases.

Contrary to the above, on December 9, 1993, the licensee shipped a container of dewatered resins to the Chem-Nuclear waste disposal site which was found to contain a 95 percent Lower Explosive Limit (LEL) of methane.

I. Admission or Denial of the Alleged Violation

Entergy Operations, Inc. admits to this violation.

II. The Reason for the Violation, if Admitted

Filter media transfer from the 'B' Reactor Water Clean-up Phase Separator Tank was completed to a High Integrity Container on December 2, 1993. The container was dewatered and placed in a shipping cask. On December 9, 1993, the cask was shipped to the Barnwell burial site.

On December 10, 1993, personnel at Barnwell informed GGNS personnel that a gas release had occurred during unpacking. The gas was tested and determined to be 95 percent of the Lower Explosive Limit. The gas was assumed to be methane.

A subsequent investigation was performed to determine the cause of the occurrence. The results are as follows:

In February 1990, a radwaste shipment was determined to contain methane. The subject waste stream had been processed from the 'B' Condensate Phase Separator (CPS) tank. As a result of this condition, all waste streams were sampled to determine if methane was being generated. Testing determined that the methane generation was only occurring in the CPS tanks. Since it was believed by plant personnel that methane producing bacteria was isolated to the CPS stream, a methane sampling program was implemented for that particular waste stream. Shipments from the RWCU waste stream have not shown any indications of gas production until the December 1993 occurrence.

Additionally, personnel attempted to eliminate the source of the methane generating bacteria following the 1990 occurrence. The bacteria were determined to be originating from the Plant Service Water (PSW) system. The major contributor of PSW into the floor drains was PSW cooled heat exchangers. In order to reduce the amount of PSW introduced to the floor drains during heat exchanger maintenance, the drained heat exchanger water was pumped back into the PSW system. However, plant personnel were unable to completely eliminate the bacteria responsible for methane production from the various drain sources in the plant.

The investigation revealed that a malfunction of a filter backwash process occurred between August and October 1993, that allowed the RWCU waste stream to become contaminated with the bacteria. This was a major contributor to this occurrence.

Operations personnel were aware of the malfunction but did not realize the potential of cross-contamination. Therefore, the malfunction was not reported to personnel responsible for radwaste shipping. The investigation identified this lack of communication as a cause of the occurrence.

III. Corrective Steps Which Have Been Taken and Results Achieved

All resin shipments were suspended immediately following this incident pending an investigation of the circumstances surrounding the occurrence. The appropriate corrective action document was generated to initiate the investigation, document the results and recommendations for resolutions.

A shipment from the same waste stream that is awaiting shipment will be treated with a biocide and monitored prior to shipment. A program to treat the RWCU waste streams with biocide was implemented, along with a monitoring program to monitor all resin shipments, pending further evaluation and corrective actions.

IV. Corrective Steps to be Taken to Preclude Further Violations

A Task Force has been formed to address the Radwaste Shipment Issues. This group is evaluating possible resolutions to prevent recurring issues concerning methane-generating shipments.

Entergy feels that the above corrective action will prevent recurrence of this violation.

Notice of Violation 94-06-03

10 CFR 20.1302(a) requires that the license shall make or cause to be made, as appropriate, surveys to evaluate the extent of radiation levels and radioactive materials in effluents released to unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public in 10 CFR 20.1301.

Contrary to the above, during the period August 1993 to present, the licensee allowed water to overflow from the Standby Service Water (SSW) Basin and flow across parking lots and adjacent grounds without appropriate sampling and analyses prior to release. Licensee records indicate that the last time the SSW Basin was sampled and analyzed to appropriate Limits Of Detection (LLD) was during Batch Releases which were performed in August 1993.

I. Admission or Denial of the Alleged Violation

Entergy Operations agrees that sampling and analysis associated with operational leakage of the SSW system was a problem in need of correction. We realize that the system was not operating as designed and that additional measures should have been implemented to ensure appropriate sampling and analyses were in place. Those measures have been implemented as discussed below.

However, the Notice of Violation cites 10 CFR 20.1302(a) which discusses requirements associated with effluents released to unrestricted and controlled areas. In fact, the SSW basin overflow was released to neither an unrestricted nor controlled area -- rather the overflow was routed to a sediment basin within the restricted area.

The Grand Gulf restricted area is defined in various license basis documents including the Technical Specification. In Technical Specification Figure 5.1.3-1, for instance, the unrestricted and restricted areas of the site are clearly identified. The sediment basin to which the SSW basin overflow is routed is located in roughly the center of the restricted area. In other words, the outflow from the SSW basin was not to an unrestricted area.

The term "Controlled area," as described in 10 CFR 20.1003, is not used or defined for Grand Gulf. In fact, the NRC has noticed proposed rulemaking (FR volume 59, no. 23) which would eliminate the term "controlled area" from 10CFR20. In its basis for the proposed rulemaking, the NRC has taken the position that "neither the revised standards themselves, nor the supplemental information provide a basis for deciding whether to designate a given area as a "Restricted area" or a "Controlled area." In discussions with licensees and Agreement States, the absence of such a clear delineation appears to be the cause of considerable uncertainty among a number of licensees regarding how to implement the revised standards in this regard. The NRC believe that this situation can be alleviated by eliminating the term "Controlled area" from the regulations.

This change has the effect of returning the regulation to the former situation in which areas are either restricted or unrestricted for purposes of radiation protection." Since Grand Gulf has not defined controlled areas, nor does the NRC support the use of the term, the outflow from the SSW basin could not have been to a controlled area.

Recognizing that the NRC has identified a valid problem with the SSW basin outflow which Grand Gulf has taken steps to correct, nevertheless, we must deny the violation as incorrectly cited and/or contrary to prior NRC positions on 10CFR20 because the outflow was directed to a sediment basin within a restricted area.

II. Description of Circumstances Surrounding This Violation

During his inspection, the inspector observed operational leakage from the SSW system flowing through the site drainage system. This flow was due to spillage from the SSW basin return. The leakage flowed through the site drainage system to a sediment basin within the restricted area.

The design of the SSW system is clearly intended to allow a continuous release. For instance, with fans in operation, basin evaporation to the atmosphere can be on the order of 178 gpm (FSAR Table 9.2-6a). While good operational practice dictates that Grand Gulf take additional steps to sample and analyze the SSW basin, the potential for an unrecognized impact on radiation safety is negligible due to system design.

The RHR heat exchanger is the only potential source of radioactive contamination that could be released into the SSW system. The assumed method of inleakage to the SSW is reactor coolant from a ruptured tube in the RHR heat exchanger. The heat exchanger tubes are safety-related Category 1 design. The tubes are designed to withstand pressures of 500 psi. The RHR system also has pressure interlocks (135 #) for shutdown cooling valves that align the RHR heat exchanger to the reactor vessel. Therefore, SSW would only be in service with the vessel pressure at or below 135 psi. Additionally, hydrostatic tests are performed on the SSW system to verify the integrity of the system. This test would identify leakage in the tubes. Tests were performed and satisfactory results were obtained on both the A and B systems during RFO4 and RFO5 respectively. Radiation monitors are located on the outlet side of the RHR heat exchangers. These monitors would detect contaminated inleakage into SSW. Therefore reasonable assurance exists that no unrecognized cross-contamination of the SSW system could occur.

Appropriate sampling and testing of the basin water and discharge are also conducted, contrary to the violation statement. For instance, samples were obtained and analyzed subsequent to August 1993. Samples of liquid and sediment from the SSW basins were analyzed November 1993 and October 1993, respectively, to support outage maintenance activities. The liquid was tested to effluent levels and sediment was tested to environmental limits. Neither sample indicated any abnormal levels of activity.

However, plant personnel did not consider the operational leakage of the SSW system to be a release to an unrestricted area. Therefore, no sampling program was in place to routinely analyze the SSW basin leakage to effluent limits.

The sediment basin (to which the SSW basin outflow is routed) drains through a caisson to an unrestricted lake that is within the restricted area/site boundary. Environmental analyses are periodically performed on the sediment basin. These analyses have not indicated any abnormal activity being released via this pathway.

III. Corrective Steps Which Have Been Taken and Results Achieved

As previously mentioned, Entergy agrees that the operational leakage from the SSW basin was a problem which required stricter controls. Even though the leakage is not to an unrestricted area, we felt that it warranted prompt corrective action to ensure proper monitoring was in place. We have changed the analysis requirements for the SSW system. Samples are routinely obtained and tested for gamma-emitters to effluent limits as described in the GGNS ODCM.

IV. Corrective Steps to be Taken to Preclude Further Violations

Entergy believes that the above corrective actions are adequate to prevent recurrence.