GPU Nuclear

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July 14, 1982

Mr. Ronald C. Haynes, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Haynes:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report
Reportable Occurrence No. 50-219/82-16/03L

This letter forwards three copies of a Licensee Event Report to report Reportable Occurrence No. 50-219/82-16/03L in compliance with paragraph 6.9.2.b.4 of the Technical Specifications.

Very truly yours,

P B Fiedler

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:lse
Enclosures

cc: Director (40 copies)
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Director (3)
Office of Management Information and
Program Control
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

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OYSTER CREEK NUCLEAR GENERATING STATION
Forked River, New Jersey 08731

Licensee Event Report
Reportable Occurrence No. 50-219/82-16/03L

Report Date

July 14, 1982

Occurrence Date

June 11, 1982

Identification of Occurrence

An unmonitored release of radioactive water occurred due to contamination of service air piping in the New Radwaste Building. In one instance the leakage was to the discharge canal via the drainage system, and in two other instances, the leakage was to the soil.

This event is considered to be a reportable occurrence as defined in the Technical Specifications, paragraph 6.9.2.b.4.

Conditions Prior to Occurrence

The plant was at steady state operation.

Power Levels:	Reactor	1621 MWt
	Generator	540 MWe
	Mode Switch	Run

Description of Occurrence

On Friday, June 11, 1982 at approximately 2000 hours, New Radwaste Operations personnel were preparing to transfer spent resins from the storage tank into a shipping cask. Prior to the actual resin transfer operation, the tank was filled with condensate water to create a slurry and was then mixed using air at approximately 30 psig. With the air still mixing the tank contents, condensate water was used to backflush the resin transfer line into the tank. It was during this backflush that the vent line became plugged, (attributed to a blinded resin screen on the vent) which resulted in pressurizing the tank from the condensate transfer system. Water was forced back into the air line, through the pressure regulator and the in-line check valve (condensate water pressure at the tank is greater than air system pressure).

The first evidence of a problem was when the backflush line pressure did not decrease as expected. Further indications received later were an area high radiation alarm near the air receiver tank, and the discovery of radioactive fluid leaking from a moisture trap in the air line. The resin tank was isolated and all necessary safety and radiological concerns were promptly addressed. During the investigation into the extent of the problem, a leaking hose connection in an air line outside of the New Radwaste Building was discovered. Total leakage to the soil was estimated at approximately 10 ml, with a gross radioactivity of 0.62 microcuries.

The air system geometry is such that most of the contaminated water remained in the bottom of the air receiver tank (thus preventing the accumulation in the air compressor and after cooler from becoming contaminated). The air receiver is automatically blown down through a drain line which has a filter and a trap in the line. The available data suggests this feature was inoperable at the time of this event. During the primary decontamination of the air receiver, it was flushed with water several times via an alternate route utilizing a bypass around the filter/trap assembly.

It was realized on June 21, 1982, that the drain line from the air receiver leads to the storm drain which discharges directly to the discharge canal. It was estimated that a total of approximately 300 gallons was discharged, with gross radioactivity of 6.21 E-2 microcuries/ml. This correlates to a total of 0.0705 curies. Upon discovery of this event, the affected catch basins, storm drains, and the air receiver drain line were isolated.

During the secondary decontamination of the air receiver using a hydrolazer, water (less than 5 gallons) leaked to the soil outside the building. Approximately 30 ft^3 of soil (3 ft. x 10 ft. x 1 ft. deep) was collected and sampled; based on the sample results, all of the soil was returned to the original area.

Apparent Cause of Occurrence

The cause of the event was attributed to a blocked vent line from the spent resin tank. Since the resin-water mixture level in the tank was above the level of the screen on the vent line, the air pressure in the tank apparently trapped enough resins against the screen to prevent the venting of the tank. The vent valve in the line was checked after the event, and both the remote valve indication and valve operation checked out satisfactorily.

In addition, the check valve in the air system did not provide effective isolation of the spent resin tank from the Service Air System.

Analysis of Occurrence

The first of the three interrelated events was the leak from the hose connection. All surveys taken of the soil from this leak (estimated at 10 ml) showed no appreciable readings above background levels.

The second of these events was the leakage from the building to the soil. Several soil samples were examined before returning the soil back to its location. The maximum concentrations of the two detctable isotopes, Mn 54 and Co 60, were 7.09 E-5 and 3.71 E-4 microcuries/gm, respectively. Both of these values are within the limits set forth in 10 CFR 20 and 10 CFR 30 (10 CFR 30 is used to determine concentrations in the soil based on 1 gram.) Total volume leakage was estimated at approximately five (5) gallons.

The third of these events is the drainage to the discharge canal. Total volume leakage was estimated at 300 gallons. The isotopic analysis showed the following maximum concentrations:

Mn 54 9.46 E-3 microcuries/ml
Co 60 5.26 E-2 microcuries/ml

Although these releases occurred during 3 separate flushes of the air receiver, the following analysis assumes that all 300 gallons were released in 15 minutes. It also assumes a minimum dilution flow of 460,000 gpm, even though actual dilution flow was higher. Based on this, the concentrations of each isotope in the discharge are as follows, with their associated 10 CFR 20 limit:

Mn 54 4.11×10^{-7} microcuries/ml, limit 1.0 E-4 mcirocuries/ml
Co 60 2.29×10^{-6} microcuries/ml, limit 5.0 E-5 microcuries/ml

Corrective Action

The immediate corrective actions were to first isolate the affected spent resin tank and then prevent as much of the air system as possible from becoming contaminated. The air compressor was kept in operation, in order to prevent the syphoning of water into unaffected piping. A direct frisk was made of the ground under the total length of hose outside the building, and all readings were at or below background levels. Approximately 30 ft^3 of soil outside the building, affected by the leak during flushing, was collected, sampled, and then returned once sample results were analyzed and it was determined that no 10 CFR 20 or 10 CFR 30 limits were exceeded.

The check valve in the air line to the spent resin tank was examined and no failures were detected. The affected storm drains and catch basins in the drainage system were decontaminated and the radiation levels in the air receiver have been reduced to background levels.

In addition to these efforts, the procedure for the transfer of spent resins has been reviewed, and has been changed to reflect two (2) important concepts: 1) the air mixing operation will be halted prior to starting the backflushing operation, so that air and condensate water are not being forced into the tank at the same time; 2) prior to transferring resins from the tank, the level in the tank will be lowered to insure that the resin slurry is below the screen on the vent line (i.e., prevent inadvertant vent line blockage).

An evaluation will be conducted to determine what constitutes acceptable isolation of noncontaminated systems from contaminated systems. Based on the results of this determination, modification of existing systems will be considered to prevent future incidents of contamination entering "clean" systems through designed interconnections.

Additionally, procedural controls will be established to assure that in all nonroutine draining evolutions, the discharge point of the drain path will be verified prior to commencing the evolution. As an aid to implementing this requirement, a system of unique definition of noncontaminated drains will be evaluated.