Update Report - Previous Report
Date February 25, 1983

NRC FORM 366 (7-77)

U. S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT

CONTROL BLOCK: (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

01 — LICENSEE CODE: N J O C P 1 (2) — LICENSE NUMBER: 0 0 - 0 0 0 0 0 - 0 0 (3) — LICENSE TYPE: 4 1 1 1 1 (4) — CAT (5)

CON'T 01 — REPORT SOURCE: L (6) — DOCKET NUMBER: 0 5 0 0 0 2 1 9 (7) — EVENT DATE: 0 1 2 3 8 3 (8) — REPORT DATE: 0 5 2 9 8 5 (9)

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

02 Chemical Waste Storage Tank (CWST) "B" overflowed into a surrounding concrete
03 vault. Radioactive water seeped through vault exterior wall causing an unmoni
04 tored release outside the New Radwaste Bldg. This event is reportable as
05 defined in the Technical Specifications, paragraph 6.9.2.b.4. A maximum of
06 8 gallons of water was released and contained in the immediate area. The
07 safety significance is considered to be minimal.
08

09 — SYSTEM CODE: M A (11) — CAUSE CODE: E (12) — CAUSE SUBCODE: E (13) — COMPONENT CODE: I N S T R U (14) — COMP SUBCODE: E (15) — VALVE SUBCODE: Z (16)

(17) LER/RO REPORT NUMBER — EVENT YEAR: 8 3 — — SEQUENTIAL REPORT NO.: 0 0 1 — / — OCCURRENCE CODE: 0 3 — REPORT TYPE: L — — — REVISION NO.: 1

ACTION TAKEN: B (18) — FUTURE ACTION: X (19) — EFFECT ON PLANT: Z (20) — SHUTDOWN METHOD: Z (21) — HOURS (22): 0 0 0 0 — ATTACHMENT SUBMITTED: Y (23) — NPRD-4 FORM SUB: N (24) — PRIME COMP. SUPPLIER: A (25) — COMPONENT MANUFACTURER: F 1 3 0

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

10 Malfunction of level instrumentation on CWST "B" allowed the overflow to occur.
11 The contaminated soil was removed and area released as clean. Bubbler
12 threaded connections are checked during loop calibrations. Air regulators are
13 blown down quarterly. Air regulator filters are replaced semiannually. Vault
14 level instrumentation will be installed.

15 — FACILITY STATUS: E (28) — % POWER: 0 4 9 (29) — OTHER STATUS (30): NA — METHOD OF DISCOVERY: A (31) — DISCOVERY DESCRIPTION (32): Operator Observation

16 — ACTIVITY RELEASED: L (33) — CONTENT OF RELEASE: M (34) — AMOUNT OF ACTIVITY (35): 40 micro curies total — LOCATION OF RELEASE (36): NW corner of New Radwaste Bldg

PERSONNEL EXPOSURES
17 — NUMBER: 0 0 0 (37) — TYPE: Z (38) — DESCRIPTION (39): NA

PERSONNEL INJURIES
18 — NUMBER: 0 0 0 (40) — DESCRIPTION (41): NA

LOSS OF OR DAMAGE TO FACILITY (43)
19 — TYPE: Z (42) — DESCRIPTION: NA

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PDR ADOCK 05000219
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PUBLICITY
20 — ISSUED: N (44) — DESCRIPTION (45): NA

NRC USE ONLY

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Writer's Direct Dial Number:

May 29, 1985

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report Revision

This letter forwards Licensee Event Report (LER) 50-219/83-01/03L-1 in compliance with paragraph 6.9.2.b.4 of the Technical Specifications.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

lr/1660f

Enclosures

cc: Administrator
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NRC Resident Inspector
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Forked River, N. J. 08731

IE22
1/1

OYSTER CREEK NUCLEAR GENERATING STATION
Forked River, New Jersey 08731

Licensee Event Report
No. 50-219/83-01/03L-1

Report Date

May 29, 1985

Previous Report Date

February 25, 1983

Occurrence Date

January 23, 1983

Identification of Occurrence

A malfunction of the level instrumentation on a Chemical Waste Storage Tank (CWST) caused an unmonitored release of radioactive water at the northwest side of the New Radwaste (NRW) Building.

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

Conditions Prior to Occurrence

The plant was operating at steady state with the mode switch in the "Run" position.

Reactor power	955	MWt
Generator output	245	MWe

Description of Occurrence

At approximately 0000 hours on January 23, 1983, the floor drains for the plant and the regeneration headers were lined up to CWST "B" (WC-T-1B). Over the next eight hours the level in the tank increased from 23% to 53%. During the next fourteen hours the tank level reading remained at approximately 53% while additions to the tank inventory continued. During this fourteen hour period the operators failed to note the significance of the constant tank level reading. At 2215 hours some of the contents of CWST "A" (WC-T-1A) were transferred to CWST "B". The level in "A" was observed by the operator to decrease by 10% in ten minutes with no corresponding increase in "B" tank level; therefore, the transfer was terminated. At 2225 hours the supervisor went to the 23 foot level of the NRW building to investigate. The supervisor found water leaking from the piping penetrations in "B" and "C" vaults (Each CWST is housed inside interconnecting concrete vaults). At 2300 hours the contents of CWST "B" were partially transferred to CWST "A".

The unmonitored release occurred when water seeped from the vault to the ground outside through minor cracks in the walls of the NRW building.

Apparent Cause of Occurrence

The primary cause of the occurrence is attributed to two factors. First, foreign material was found in the air pressure regulator for the bubbler system level indication for CWST "B". This material caused partial plugging of the regulator which contributed to the false level indication. Second, on February 2, 1983, the threads on the bubbler system clean-out cap were found to be leaking air. This resulted in the tank level indication remaining at 26% for 8 hours while the tank level actually rose to 56%.

A secondary cause of the occurrence is attributed to the CWST vault floor drains system being plugged with debris. If the floor drain had not been plugged, the run time on the sump pump for the vault's floor drain system would have given indication that water was overflowing into the vault. In addition, the operators did not identify the false level indication until after the tank overflowed and contaminated water had seeped through the very minor cracks in the vault's three feet thick concrete wall.

Analysis of Occurrence

In addition to the air leak found at the bubbler system clean-out cap, wich was due to galled pipe threads, false level indication on January 23, 1983 was caused by the partially plugged air pressure regulator. Both factors resulted in a decrease in air pressure and air flow in the bubbler system. The determination that both factors were contributory is based on: (1) After the regulator was blown down on January 24, 1983 the tank level indication was checked to be in good working order by filling the tank to 70% and then lowering it and observing proper level response and (2) the leaking pipe cap threads caused a similar steady false level indication ten days after the first incident.

The NRW building was designed to meet NRC Regulatory Guide 1.143. The guide calls for the enclosure of all liquid radwaste systems within a seismic envelope of sufficient capacity to contain the total liquid contents of the building in the event of an earthquake causing major failure of the internals. The so-called "bathtub", concrete portion of the structure, was designed and constructed to control leakage. The exterior walls including the foundation mat were analyzed for seismic Category I loading conditions which exceeds Regulatory Guide 1.143 criteria. The design and construction were performed in accordance with American Concrete Institute codes ACI 318-71 and ACI 301-72. The construction specification required water-stops at all construction joints of exterior walls. The west wall is three (3) feet thick concrete reinforced with No. 8 at 6 inches vertical bars and No. 8 at 16 inches horizontal bars at each face.

A visual inspection of the west wall exterior surface revealed vertical hairline cracks in several locations. Hairline cracks usually occur when the tensile stress on the section is greater than the tensile strength of the concrete. Tensile stresses are induced due to rapid moisture loss at elevated ambient air temperatures and lower atmospheric humidity. Reinforcement provided in the concrete section bonds to the concrete, restrains drying shrinkage and reduces the spacing and width of such cracks.

Hairline cracks are common occurrences in mass concrete. These cracks, if the section is properly reinforced, as are the subject building walls, have no safety significance. The west wall, even with existing hairline cracks, is able to sustain all loading combinations and will fulfill its intended design function. Seepage water trapped in hairline cracks has no effect on structural integrity.

Soil samples were taken outside the building where the seepage was observed. The highest gross beta concentration was 1.18 E-3 Microcuries per gram. On January 28, 1983, groundwater samples were taken from two test wells which showed no evidence of the spill. This was expected, since a maximum of 1 to 8 gallons of contaminated water is estimated to have seeped out of the building, and was totally contained in the soil next to the building. Approximately 2.5 cubic feet of contaminated soil was removed and disposed of. Soil samples taken directly below where the contaminated soil was removed, showed activity levels well below 10CFR30 limits. Based on the above, the safety significance of this event is considered minimal.

Corrective Action

Immediate corrective actions taken were as follows: The contaminated area near the northwest corner of the NRW building was roped off. Herculite was secured against the wall to contain the seepage. The soil directly beneath where seepage was observed was removed and replaced with Speedi-Dri. Once the floor drains were unplugged, the 10,000-12,000 gallons of water in the vaults were pumped to CWST "A" and "C". When the seepage was terminated, all the contaminated soil along with the Speedi-Dri was removed and disposed of. (Altogether four 5 gallon buckets of contaminated material was removed). Several days after the incident the herculite was removed. The wall was surveyed for contamination and then released as a clean area. After the February 2, 1983 false level indication observation, the threaded clean out cap was cut off, new threads were cut, a rubber stopper was placed in the bubbler pipe and a new cap was installed.

The following corrective actions have been implemented: (1) all threaded connections in the bubbler piping are checked for leaks during routine loop calibrations, (2) blowdown of the air regulators is performed quarterly, and (3) the cellulose filters associated with the air regulators are replaced semiannually.

An evaluation was performed to determine the feasibility of coating the interior walls of the CWST vaults. It has been concluded that coating the vault walls is not beneficial for the following reasons:

(1) ALARA Considerations

Projected occupational exposures (ranging from a minimum of 5 to a maximum of 22 man-rems) resulting from CWST vault coating efforts exceed the estimated offsite dose impact.

(2) Offsite Dose Impact

The estimated dose impact of liquid releases of the magnitude observed during this event and one previous event (LER 50-219/81-08/03L), even under the most conservative conditions assumed, is negligible. Based upon a conservative estimate of total curies released during each event and assuming the total release occurred over a twenty four hour period into the discharge canal, offsite doses were estimated using Regulatory Guide 1.109 methodology for both the total body and GI tract via the ingestion pathway. The latter was found to be limiting and represented only 0.0013 percent of 10 CFR 50, Appendix I, Section II.A annual allowable dose to a member of the public (10 millirems any organ). However, it is unlikely that releases of this type would ever get offsite. Wall seepage would be confined to the soil directly adjacent to the NRW building wall at the hairline crack locations.

Two modifications are currently ready for implementation. The first modification will provide water detection instrumentation in each of three (3) CWST vaults which will alarm in the NRW control room. The second modification will replace the dished floor drain strainers in the CWST vaults with inverted basket strainers to minimize plugging potential. These modifications, together with the corrective actions already implemented, are considered adequate to ensure that the potential for further releases is minimized.