



Callaway Plant

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Gentlemen:

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CALLAWAY PLANT UNIT 1
FACILITY OPERATING LICENSE NUP-30
SPECIAL REPORT 88-02
SODIUM HYPOCHLORITE SPILLS

The enclosed Special Report is submitted pursuant to the Environmental Protection Plan concerning two incidents in which sodium hypochlorite was spilled.

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Enclosure

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SPECIAL REPORT 88-02
SODIUM HYPOCHLORITE SPILLS

Two sodium hypochlorite (NaOCl) spills occurred at the Cr. Laway site. The first event occurred on June 13, 1988 at 1654 CDT with the plant in Mode 1 - Power Operations at 100 percent reactor power when approximately 13,000 gallons of one percent NaOCl, 12.45pH spilled. The second event occurred on June 17, 1988 at 1500 CDT with the plant also in Mode 1 - Power Operations at 100 percent reactor power when approximately 12,000 gallons of one percent NaOCl, 12.2pH spilled.

DESCRIPTION

Event 1:

At 1654 CDT on June 13, 1988, the Control Room was notified of a NaOCl spill at the Cooling Water Chemical Control System (CWCCS) building. The outside Equipment Operator (EO) was opening the 'A' NaOCl tank isolation valve, VDD1040A, when the flange on the tank side of the valve broke open. The flange and the piping in this system are made of PVC plastic. The break was due to fatigue failure at the flange connection caused by a high stress concentration around a portion of the flange lip.

NaOCl spilled on the left side of the EO's body and sprayed into his hair. The Medical Emergency Response Team (MERT) was called to assist the EO. No injuries resulted.

The NaOCl leak could not be isolated, therefore the contents of the 'A' NaOCl tank, approximately 13,000 gallons, were spilled into the CWCCS building. The sumps in the building became full and the excess NaOCl ran out of the building to the ground outside, across the access road and into a drainage ditch. Approximately 100 square yards of the outside area was saturated. NaOCl saturated into the ground or was recovered. The NaOCl did not affect any water system and no one was injured.

Event 2:

At 1500 CDT on June 17, 1988, the Control Room was notified of the second NaOCl spill in the CWCCS building. NaOCl Tank 'A' drain valve (VDD1076A) was inadvertently left open when clearing a Workman's Protection Assurance (WPA) tag following repair of the flange described in Event 1. Tank 'A' was initially empty, while Tanks 'B' and 'C' were filled. All three tanks are linked through a common header that balances the NaOCl level in each tank. When the WPA tag was cleared from Tank 'A', Tanks 'B' and 'C' drained to Tank 'A' in order to equalize the levels in all three tanks. Because the drain valve on Tank 'A' was open, a total of 25,000 gallons of NaOCl was released from the system, the total amount from Tanks 'B' and 'C'. Approximately 12,000 gallons spilled to an outside area of 100 square yards while the remaining amount went to the cooling tower basin via the building's sump pumps. All of the amount spilled on the ground was contained within the ditch and did not affect any water system. No one was injured.

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IMMEDIATE ACTIONS TAKEN

Event 1:

An earthen dam was built in the drainage ditch to contain the spilled NaOCl. The NaOCl in the ditch soaked into the soil. The pipe section from the 'A' tank to the isolation valve was replaced.

The cooling tower blowdown to the river was isolated and the sump pumps to the Cooling Tower Basin were secured. The remaining NaOCl was pumped to the Cooling Tower Basin while the blowdown was isolated. After sampling/analysis was performed for chlorine in the Cooling Tower Basin, the cooling tower blowdown was re-initiated since the amount of chlorine contained in the basin was in its specification.

The Missouri Department of Natural Resources inspected the spill on June 14, 1988 and found no significant concerns.

Immediately after the incident, the EO used the emergency shower to rinse off the NaOCl that was spilled on him. NaOCl did not injure his eyes as he was wearing glasses which blocked the spray. The EO was then checked by the MERT and found to have no injuries. He was taken to the Service Building to take a shower and change clothes, he then returned to work.

APA-ZZ-00811, Spill Prevention Control and Countermeasure Plan, was utilized by the operators to inform the appropriate personnel. This event was reported to the Nuclear Regulatory (NRC) as a 24 hour reportable event under the Environmental Protection Plan. The spill was also reported to the National Response Center and the Missouri Emergency Response Office by Union Electric's Emergency Response Coordinator.

Event 2

The earthen dam that was built for Event 1 was also used to contain the NaOCl spill for Event 2. The NaOCl Tank 'A' drain valve was closed.

The cooling tower blowdown was isolated until the sampling/analysis for chlorine was performed and found to be satisfactory. This event was reported to the NRC as a 24 hour reportable event under the Environmental Protection Plan. The spill was also reported to the National Response Center and the Missouri Emergency Response Office by Union Electric's Emergency Response Coordinator.

ACTIONS TAKEN TO PREVENT RECURRENCE

Event 1

The NaOCl lines from Tank 'B' and Tank 'C' were inspected and no cracking at the flange connections was observed. A change modification package is being evaluated to replace the present exposed PVC piping with a stronger more reliable pipe.

Event 2

Progressive discipline was initiated with the equipment operator involved in the incident. A letter was issued to all Shift Supervisors to discuss attention to detail with crews when clearing Workman's Protection Assurance tags.