

The effects of the increased leakage of airborne radioactive gases due to fuel cladding defects continued after the scheduled shutdown on approximately May 10. There were 56 personnel contamination reports (PCRs) due to noble gas from January through April 1997. Through May 20, there had been 241 PCRs due to noble gas for the outage. Due to the presence of this increased potential for immersion dose from noble gas, the licensee investigated the relative merits of various dosimeters for their noble gas monitoring capabilities. This investigation involved the use of test phantoms with various dosimeters and thicknesses of protective clothing (PC) and the generation of a Health Physics Study/Technical Information Document (HPSTID 97-007, Technical Evaluation of Noble Gas Monitoring Capabilities, May 14, 1997). Presently, the beta dose to the skin is monitored using air sampling analysis and stay-time calculations while the photon dose to the skin, the lens dose equivalent, and the deep dose equivalent are tracked on a daily basis by electronic dosimeters and monitored on a periodic basis by thermoluminescent dosimeters (TLDs). Seabrook Procedure HD0958.05, "Dose Assessment for Noble Gas Environments," establishes a lower limit of 25 mrem per hour for the tracking and assignment of net-beta shallow dose equivalent. A licensee evaluation of containment stay times indicated that workers spend, at most, 33 hours per year in noble gas environments. HPSTID-97-008, "Noble Gas Skin Dose Assignment for OR05," addressed the individual doses due to the elevated noble gas concentrations on May 11 and 12, 1997, when the dose rate peaked at about 28.2 mrem per hour (7.67 derived air concentrations (DACS)). Of the 287 workers who were in the CTB during the elevated gas conditions, 11 individuals received greater than 100 mrem beta skin dose (the maximum individual beta skin dose was 187 mrem). Accordingly, this beta skin dose will be assigned to the workers in accordance with the licensee's procedures.

The licensee identified one incident, ACR No. 97-1169, in which contracted workers inadvertently performed backseating on reactor coolant pumps (RCPs) A, B, and C without HP coverage as required by the RWP. Previously, the workers had performed the same task on RCP D with HP coverage. A review indicated that the HP coverage requirement was misinterpreted by the workers, that there were no adverse radiological consequences, and that clear communication of HP coverage requirements during RWP briefings needed to be emphasized. An HP supervisor met with both the HP technician who provided the initial coverage on RCP D and the contracted supervisor to review the incident and to discuss RWP compliance in the future. The failure of the contracted workers to follow licensee procedure and to adhere to the RWP and to notify HP of the need for coverage for the additional work is a violation of NRC requirements. Accordingly, this licensee-identified and corrected violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. (NCV 50-443/97-03-09)

c. Conclusions

Positive performance was evident in the well-managed handling of the anticipated elevated airborne radioactivity levels due to operation with fuel cladding defects. The licensee effectively investigated the relative merits of various dosimeters for their noble gas monitoring capabilities. A licensee-identified and corrected violation involving adherence to a specific RWP requirement was noted and determined to be effectively resolved.

b. Observations and Findings

Source term, external to the reactor vessel, and radiation levels were higher this outage than for previous outages. The licensee reported that some of the reasons for this were the length of the operating period (463 days), the additional crud burst due to a reactor trip at 8% power, and fuel cladding defects. The dose rates in the reactor coolant inner loop areas were twice the levels encountered in past outages, and dose rates in the steam generator bowls were expected to be higher than in the past. Good communication and cooperation between HP and operations after shutdown led to successful efforts to remove crud and hot spots in piping and system components where it had not been seen in the past. These efforts led to lower dose rates in the areas affected, including the residual heat removal (RHR) areas.

A modification was performed prior to reactor head removal, which allowed venting of the air space beneath the reactor head, and this alleviated a potential for significant airborne radioactivity upon lifting of the reactor head. Elevated noble gas (up to 8 DACs) and iodine (a few % up to 20% of a DAC) airborne levels were initially encountered in containment after shutdown due to leaks in valving around the pressurizer relief tank. Containment remained posted as a Caution-Airborne Radioactivity Area until May 21. As of May 23, the airborne levels of noble gas and iodine on the refueling deck in containment had decreased to less than 2% of a DAC, each. The licensee stated that containment air was being exhausted through a filtered system [11,000 cubic feet per minute (CFM)] rather than through the unfiltered (40,000 CFM) system until the Iodine-131 in containment decreased to the point at which the projected dose in 31 days for continuous unfiltered release would be less than 0.03 mrem per month to any organ of a member of the public (10% of a Technical Specification requirement). The licensee was performing numerous air sampling operations throughout each day and demonstrated vigilant oversight of the situation.

On May 17, there were two incidents involving contractors and their failure to maintain high radiation area (HRA) barriers (ACR Nos. 97-1091 and 97-1139) in accordance with licensee technical specifications and procedure; and one incident involving contractors and their failure to follow licensee procedure and to adhere to a posted requirement to notify HP prior to entry into a truck containing packaged radioactive material (ACR No. 97-1099). These incidents were identified by the licensee, resulted in no significant adverse radiological consequences, and resulted in immediate and comprehensive corrective actions (including temporary denial of RCA access), review and evaluation of the incidents, meetings with the individuals involved and their management, a site-wide news article, and disciplinary actions. These failures of the contracted workers to adhere to a posted requirement to notify HP prior to entry into the truck and to maintain HRA barriers are violations of NRC requirements. These licensee-identified and corrected violations are being treated as Non-Cited Violations, consistent with Section VII.B.1 of the NRC Enforcement Policy. (NCV 50-443/97-03-10)

R8.3 (Closed) (URI 50-443/97-002-01) LER 50-443/97-005-00: Misposition of Main Steam Line Radiation Monitors.

On March 14, 1997, the licensee discovered that the four main steam line radiation monitors were positioned downstream of the atmospheric steam dump valves (ASDV) contrary to the description in UFSAR Section 11.5.2.1. On the same day, the radiation monitors were declared inoperable and appropriate actions were initiated. On March 20, the licensee repositioned radiation monitors (consistent with the UFSAR) and declared them operable. The licensee promptly corrected this event.

The inspector reviewed the most recent calibration results for four main steam line radiation monitoring systems (see R2.1 of this inspection report). All calibration results were within the licensee acceptance criteria.

The inspector also toured the main steam line radiation monitors and noted that the new location of the radiation monitors was about 2 feet upstream of the ASDV. It should be noted that the radiation monitors had capabilities to monitor at the old location (downstream of the ASDV). This licensee-identified and corrected violation is being treated as a non-cited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy. This item is closed. (NCV 50-433/97-03-07)

S1 Conduct of Security and Safeguards Activities

S1.1 General Comments (71707, 71750)

The inspectors observed security force performance during inspection activities. Protected area access controls were found to be properly implemented during random observations. Proper escort control of visitors was observed. Security officers were alert and attentive to their duties.

S1.2 Uncontrolled Vehicle in Protected Area

a. Inspection Scope

The inspector conducted a routine inspection of the station physical security program by verifying the all vehicles in the Protected Area were locked with the keys removed when unattended.

b. Inspection Findings

On May 22, the inspector identified an uncontrolled designated vehicle in the Protected Area during a routine inspection tour. The unattended vehicle had the keys in the ignition and the engine running. The inspector notified a security officer of the condition and the individual took possession of the vehicle keys after stopping the engine. The security officer found the operator of the vehicle out of sight in the vicinity of the vehicle while the vehicle was being off loaded.

Station management directed that an ACR be initiated to document the finding and to provide recommendations for corrective actions. After the completion of the immediate corrective action, which was to take possession of the vehicle keys by a security person, several other corrective actions were implemented. These included attaching a "cautionary tag" on the vehicle key ring by security personnel to aid the vehicle operators concerning the duties and responsibilities of the while being an authorized operator. Also the vehicle operator was coached and counselled by a security department supervisor concerning the event.

The Seabrook Station Physical Security Plan, requires that procedures be developed and implemented to control vehicles inside the station Protected Area. Security Department Instruction, SDI002.00, "Control of Vehicles", requires in part, that all Licensee Designated Vehicles (LDV's) when unattended must have the ignition locked, keys removed from the ignition and controlled by an authorized person. Contrary to the above, on May 22, at approximately 10:30 am, the inspector found LDV 16-02 unattended, with the keys in the ignition, and the engine running and not controlled by an authorized person. This is a violation of NRC requirements and the Station Security Plan. (VIO 50-443/97-03-08)

c. Conclusions

The inspector determined that the licensee promptly took control of the LDV when notified of the violation by the inspector. The licensee's response was prompt and provided adequate immediate corrective actions. This is the second NRC identified violation regarding the control of LDV's in the past year.

V. Management Meetings

X1 Exit Meeting Summary

The radiation physicist presented the inspection results to members of the licensee management at the conclusion of the inspection on April 25. The licensee acknowledged the findings presented.

The radiation specialist presented the inspection findings to members of the licensee management at the end of the inspection on May 23, and during a telephone discussion on May 30. The licensee acknowledged the findings.

The inspectors covering the inservice inspection presented the results to members of licensee management at the conclusion of the inspection on May 23. The licensee acknowledged the findings presented.

The inspectors presented the inspection results to members of licensee management, following the conclusion of the inspection period, on June 25. The licensee acknowledged the findings presented.

## INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering  
 IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems  
 IP 61726: Surveillance Observation  
 IP 62707: Maintenance Observation  
 IP 71707: Plant Operations  
 IP 71750: Plant Support Activities  
 IP 73051: Inservice Inspection - Review of Program  
 IP 73753: Inservice Inspection  
 IP 83729: Occupational Exposure During Extended Outages  
 IP 83750: Occupational Radiation Exposure  
 IP 84750: Radioactive Waste Treatment, and Effluent and Environmental Monitoring IP  
 IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities  
 IP 92902: Followup - Engineering  
 IP 92903: Followup - Maintenance  
 IP 93702: Prompt Onsite Response to Events at Operating Power Reactors

## ITEMS OPENED, CLOSED, AND DISCUSSED

Opened:

IFI 50-443/97-03-01	Review root cause of inadvertent steam generator drain-down. (Section O2.2)
VIO 50-443/97-03-02	Failure to take adequate corrective actions for use of pressure tubing. (Section M2.1)
IFI 50-443/97-03-03	Review station procedure revision process. (Section E2.1)
IFI 50-443/97-03-04	Review root cause evaluation for LLRT failure. (Section E2.2)
VIO 50-443/97-03-08	Designated Vehicle Left Unattended with Keys in the Ignition and Running (Section S1.2).

Closed:

NCV 50-433/97-03-05	Failure to promptly report LLRT failure in accordance with 10 CFR 50.72. (Section E2.2)
NCV 50-443/97-03-09	Failure to adhere to RWP requirements (Section R1.4)
NCV 50-443/97-03-10	Failure to adhere to posted radiological requirements (Section R1.6)

LER 96-009-00, Missed Surveillance PCCW Rate of Change Monitor Alarm. This is closed.  
 (NCV 50-443/97-03-06)

LER 97-005-00, Misposition of Main Steam Line Radiation Monitors. This item is closed.  
 (NCV 50-433/97-03-07)

Discussed: None