UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I

475 ALLENDALE ROAD

KING OF PRUSSIA, PA 19406

February 26, 1999

Mr. R. A. Mellor
Vice President - Operations and Decommissioning

Connecticut Yankee Atomic Power Company
362 Injun Hollow Road
East Hampton, CT 06424-3099

SUBJECT: NRC INTEGRATED INSPECTION REPORT 50-213/98-06 AND NOTICE OF VIOLATION

Dear Mr. Mellor:

On January 18, 1999, the NRC completed an inspection at the Haddam Neck Plant. The enclosed report presents the results of that inspection. Also attached to this report are the slides from your presentation during the December 16, 1998, pre-decisional enforcement conference concerning an apparent procedural violation associated with the reactor coolant system decontamination project. NRC deliberations on this matter are continuing.

During the three-month period covered by this inspection, your conduct of activities at the Haddam Neck facility was characterized by the continuation of radiological work and completion of several tasks to transition to a decommissioning status. Your conduct of activities associated with control of radiological work at Haddam Neck was generally characterized as careful and thorough. However, there were two events involving locked high radiation area doors that were found unlocked by your staff. Although none of the events resulted in personnel injury or overexposure to radiation, the events were significant precursors that had the potential for unplanned radiation exposures to workers. The events revealed weaknesses in radiological controls used to prevent entry into high radiation areas

The security program was also inspected during this period. The inspection consisted of selective reviews of procedures and records, inspector observations, and interviews with security personnel. No safety concerns or violations were identified. The inspector determined that you are implementing a security program that effectively protects against acts of radiological sabotage.

Based on the results of this inspection, the NRC has determined that a violation of NRC requirements occurred. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in detail in the subject inspection report. The violation is of concern because the improvements to your radiation protection program, implemented after the December 1996 transfer canal incident and as a result of the Confirmatory Action Letter closed in May, 1998, did not prevent these events from recurring.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if you choose to provide one) will be placed in the NRC Public Document Room (PDR).

Sincerely,
Original signed by:
Mark C. Roberts for
Ronald R. Bellamy, Chief
Decommissionin and Laboratory Branch
Division of Nuclear Material Safety

Docket No. 50-213

License No. DPR-61

Enclosures:
1. Notice of Violation
2. NRC Inspection Report No. 50-213/98-06
cc w/encls:
D. Davis, Chairman, President and Chief Executive Officer
T. Bennet, Vice President and Chief Financial Officer
K. Heider, Decommissioning Director
G. Bouchard, Unit Director
J. Haseltine, Strategic Planning Director
G. van Noordennen, Regulatory Affairs Manager
J. Ritsher, CYAPCO Counsel
R. Bassilakis, Citizens Awareness Network (CAN)
J. Block, Attorney for CAN
J. Brooks, CT Attorney General Office
K. Ainsworth, Town of Haddam
State of Connecticut SLO

NOTICE OF VIOLATION

Connecticut Yankee Atomic Power Company Docket No. 50-213
Haddam Neck License No. DPR-61

During an NRC inspection conducted on November 3, 1998 - January 18, 1999, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:
Technical Specification 6.12.2 requires, in part, that in addition to the requirements of Specification 6.12.1, areas accessible to personnel with radiation levels greater than 1000 mR/hr at 45 cm from the radiation source shall be provided with locked doors to prevent unauthorized entry and doors shall remain locked except during periods of access by personnel under an approved RWP.
Contrary to the above, on two dates (November 5, 1998 and November 30, 1998), two different locked high radiation area doors in the containment building were found unlocked and unattended.
This is a Severity Level IV violation (Supplement IV).
Pursuant to the provisions of 10 CFR 2.201, Connecticut Yankee Atomic Power Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region I within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.
If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.
Under the authority of Section 182 of the Act, 42 U.S.C. 2232, this response shall be submitted under oath or affirmation.
Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.
In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.
Dated at King of Prussia, PA
this 26th day of February, 1999

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 50-213
License No.: DPR-61

Report No.: 50-213/98-06

Licensee: Connecticut Yankee Atomic Power Company
P. O. Box 270
Hartford, CT 06141-0270
Facility: Haddam Neck Station

Location: Haddam, Connecticut

Dates: November 3, 1998 - January 18, 1999

Inspectors: Marie Miller, Senior Health Physicist
John Wray, Decommissioning Health Physicist
Joseph Nick, Decommissioning Health Physicist
Paul Frechette, Safeguards Specialist
William J. Raymond, Senior Resident Inspector (Lead Inspector)
Approved by: RonaldBellamy, Chief, Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

EXECUTIVE SUMMARY
Haddam Neck Station

NRC Inspection Report No. 50-213/98-06

This routine inspection included aspects of licensee activities in preparation for dismantlement and decommissioning of the facility. The report covers a three-month period of inspection by resident and regional NRC personnel, and includes reviews and assessments of spent fuel safety, engineering and plant support activities, and management effectiveness.
Spent Fuel Safety:
The licensee procedures and controls were adequate to protect important plant systems, including the spent fuel pool and systems containing radioactive fluids, from freezing. Licensee performance was very good to implement the nuclear island modifications per its commitments and administrative controls.
Engineering and Support Activities:
Licensee corrective actions following an inadvertent discharge of radioactive waste water on June 20, 1998 were not fully effective to preclude a similar vulnerability in another waste processing system.
Plant Support and Radiological Controls:
The licensee applied good radiological controls for normal activities; however, they were challenged by two events involving locked high radiation area doors. These two events involved the same labor force and the licensee took immediate corrective actions to prevent recurrence. Radiation protection was effective in keeping workers' radiological exposures ALARA throughout 1998.
The licensee's corrective actions associated with preventative maintenance activities for the plant security program were reasonable, complete and effective.
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REPORT DETAILS
Summary of Facility Activities
The licensee continued activities to prepare the plant and supporting functions for turnover to a decommissioning operations contractor. These activities included upgrades to the containment polar crane, asbestos removal in containment, modifications to the security program, removal of the low pressure turbine, spent fuel cooling system modifications, processing of resins from the reactor coolant system decontamination, and site radiological characterization.
I. Decommissioning Operations
O1 Conduct of Operations
O1.1 Cold Weather Preparations/Spent Fuel Safety
a. Inspection Scope (71714)
The purpose of this inspection was to review licensee actions to assure plant systems were protected from freezing.
b. Observations and Findings
The licensee implemented a program to assure systems were protected from cold weather. Plant design features included area heating for buildings and heat-traced circuits for process piping and tanks.
The licensee provided administrative controls to assure the freeze protection circuits were maintained and operating. Preventive maintenance procedure (PMP) 9.1-52, Cold Weather Operations Checklist, was written and became effective on August 18, 1998. The procedure defined the periodic checks completed by the operators. The licensee planned to incorporate further guidance that reflected the results of engineering walkdowns to determine parameters to be monitored and the addition of buildings requiring monitoring to ensure interior temperatures remain above freezing. Maintenance personnel verified the condition of insulation and tested heat-traced circuits per PMP 9.9-146, and corrected deficiencies. The licensee completed preventive and corrective maintenance on the house heating boilers to assure their readiness for the heating season.
Inspection item 98-01-01 concerned the need to address certain discrepancies affecting freeze protection. The licensee's action plan addressing this item was summarized in memorandum ODM 98-144 (R1) dated November 30, 1998. The corrective actions included replacing defective coils in the steam heating system, installing electric heaters, and plans to drain plant systems that would no longer be used, such as the purification piping to the Ace demineralizer. The plan addressed the known deficiencies, and provided an assessment of the adequacy of temporary heating in the spent fuel building. The effectiveness of the measures to protect against freezing will be reviewed following the onset of cold weather in the 1998-1999 heating season.

c. Conclusions
Licensee procedures and controls were adequate to protect important plant systems, including the spent fuel pool (SFP) and systems containing radioactive fluids, from freezing.
O1.2 Operating Activities/Leakage from Dike
a. Inspection Scope (71714)
The purpose of this inspection was to review licensee actions regarding the leakage of rainwater from a dike area.
b. Observations and Findings
Plant staff had discovered on September 3, 1998, that water from a dike area around the aerated drain holdup tank (ADHUT) was leaking into the ground (see NRC Region I Inspection Report No. 50-213/98-05, Section O1.1). This was reported to the State of Connecticut as a radiological release due to the presence of very low measured quantities of radioactive contamination in the water.
After this discovery, the licensee developed a temporary modification to allow the alternate processing of rain water from the dike area sump to the waste test tanks for processing and release. This prevented the normal amount of rain water from overflowing the sump area. The licensee also implemented actions to decontaminate the dike area and seal small

cracks in the concrete base of the dike. However, when the repairs to the concrete were finished, rainwater collected in the diked area and the licensee observed that some rain water was still leaking into the ground. This second release to the ground was reported to the State of Connecticut in December 1998.
After a very heavy rainfall in January 1999, the accumulated rainwater leaked into the ground again. The licensee implemented another modification to process the rainwater through the Drain Tank. But instead of the original alignment (processing to the ADHUT) the licensee utilized a modification that was installed during the Reactor Coolant System (RCS) decontamination. This modification allowed the transfer of water from the Drain Tank to the Borated Water Storage Tank (BWST). This alignment offered greater storage capacity (the ADHUT capacity is 100,000 gallons, while the two BWSTs provide a total capacity of 180,000 gallons) and a greater flow (35-50 gpm vs. 3-5 gpm). The licensee believed that this processing of rainwater would prevent accumulation of water in the diked area and subsequent leakage into the ground.
The inspectors determined that the amount of radioactivity that could potentially seep into the ground would not exceed any environmental release limits established by the NRC. Therefore, the safety significance of these events is low.
c. Conclusions
The licensee appropriately notified the State of Connecticut regarding the low levels of contaminated water that were released to the environment. The inspectors determined that the releases were not safety significant and did not exceed any NRC regulatory limits.

II. Decontamination Support Activities
E1 Engineering Support for Decommissioning
E1.1 Spent Fuel Cooling System Modifications
a. Inspection Scope (37801, 60851, 60854, 37700)
The inspector reviewed modification activities that supported spent fuel safety. Plant design change activities to establish the nuclear island were reviewed to verify that the modifications were implemented in accordance with licensee controls. NRC Inspection Report No. 50-213/98-05 provides additional detail regarding the NRC review of these modifications.
b. Observations and Findings
The licensee completed modifications to install the intermediate cooling (IC) and spray cooling (SC) system per design change DCR CY-97010, 016, and 017. During this inspection period, the licensee completed the modifications; performed component level testing; tied the AA@ loop IC and SC systems into the Spent Fuel Pool Cooling System (SFPCS); completed functional and thermal performance testing (on November 12-18, 1998); and completed final turnover of the system to Operations on December 8, 1998.
The SFPCS operated smoothly on the AA@ loop, and maintained temperatures well below 100°F. The inspectors reviewed the completed test described in procedure ST 11.7-212A and ST 11.7 -212B, which verified the thermal performance of the AA@ and AB@ loops for the IC and SC system. The test procedure was well documented and no inadequacies were identified.
c. Conclusions
Licensee performance was very good to implement the nuclear island modifications per its commitments and administrative controls.

E8 Miscellaneous Engineering Issues
E8.1 Status of Previous Inspection Items
(Closed) Unresolved Item 97-01-01: Control of Systems in Defueled Mode. The licensee developed a method to designate the status of plant systems in the defueled mode. The licensee continued to implement the provisions of normal operating procedure (NOP) 2.0-9 to significantly reduce the number of illuminated annunciators as part of the process to abandon plant systems. The licensee actions were effective to help clarify plant status information for the operators. This item is closed.

(Closed) Unresolved Item 97-01-04: Degraded Material Conditions. The licensee responded to this item by letter CY-97-058 dated June 6, 1997. The licensee identified the apparent cause for this matter to be personnel error in the removal of trouble report tags during the completion of maintenance. The licensee removed the subject tags (113 total). Additional guidance was provided to personnel (OMDM #97-013) to clarify the methods and expectations on the tracking of material discrepancies. The inspector noted during routine inspection tours of the plant that the corrective actions were effective based on the reduced number and status of trouble report tags. This item is closed.

(Closed) Violation 97-01-05: Failure to Complete Surveillances. The licensee response to this item was described in letter CY-97-058 dated June 6, 1997. The corrective actions included: continued sampling and analysis of the reactor coolant water per the technical specification (TS) requirements; confirmation that the consequences of the missed samples was of low significance; revising work control manual (WCM) 3.3-1 (Revision 3 dated July 1, 1997) to better track the completion of surveillances in the defueled condition; issuing management expectations on the conduct of surveillances while defueled (memorandum CY-GHB-97-076); and, completing a review and periodic audit of the surveillance activities (action request number 97013787). This item is closed.
(Closed) Violation 97-01-06: Failure to Correct Adverse Condition. The licensee responded to this item by letter CY-97-058 dated June 6, 1997. The licensee took actions to complete the locked valve checklist. The corrective actions to improve the surveillance tracking system were as described in response to item 97-01-05, as discussed above. The licensee also issued memorandum station-wide to describe management expectations on the completion of the operational surveillance program. The operational surveillance program was significantly revised to eliminate many surveillances by License Amendment 193. This item is closed.
(Closed) Unresolved Item 97-01-09: Engineering Issues. This item was open pending licensee actions to resolve open issues relative to the service water system, the handling of loads over the SFP, and the analysis of the spent fuel cranes. The service water system was removed from service for the SFP after installation and startup of the IC and SC systems. The analyses associated with the loads on the spent fuel building crane were addressed in LER 97-04 (see details below). The NRC concerns associated with the spent fuel building cranes are being followed under inspection item 98-03-03, which remains open. This item is closed.
(Closed) Unresolved Item 97-05-01: Corrective Actions for Halon Actuation. This item was open pending the review of licensee actions to address the halon system for the control room. The licensee's event review team (CY-TS-97-0550) identified several corrective actions and recommendations (CY-GHB-97-163), which were completed as shown in memorandum CY-TS-98-0064, and the licensee tracking process for Action Tracking System (ATS) items 9701746, 9701550, 9701548, and 9701511. The corrective actions included covering the EPROM on the halon actuation controller to preclude an inadvertent discharge from camera flashes. This item is closed.

(Closed) Unresolved Item 97-05-02: Procedures for Decommissioning Operations. This item was open pending the review of licensee actions to revise operations procedures to reflect the permanently defueled condition of the plant. The licensee identified the procedures that needed to be updated (reference memorandum ODM 98-040), and provided periodic status reports (e.g., memorandum ODM 98-054) to track the status of the effort. Procedure revisions were processed to eliminate inappropriate references to power operations. The procedure upgrade was completed as summarized in memorandum NL/CY-98-137 dated December 3, 1998. Additional actions to revise procedure NOP 2.23-5 for the waste neutralization system was tracked in the licensee action tracking system as ATS 9700489. This item is closed.
(Closed) Unresolved Item 97-09-02: Inadequate Design Controls. This item concerned the failure to adequately control and maintain the facility design for modifications completed in 1974. The circumstances of the violation and the corrective actions were described in Inspection 97-09. No further information from the licensee was required. This item is closed.
(Closed) LER 97-04-00: Spent Fuel Bridge Load Limit. This item was open pending licensee actions to change the TS to reflect revised design basis numbers for the spent fuel building crane. By letter dated August 13, 1998 (CY-98-003), the licensee proposed changes to TS 3.9.7 that would increase the load limit from 1650 pounds to 1800 pounds. The changes reflect the licensee's revised evaluation of the combined weight of a fuel assembly, control rod and handling tool suspended on the crane. The limit is less that the bounding weight of 2300 pounds assumed in the accident analysis. This item is closed.
(Closed) Violation 97-03-03: Failure to Timely Correct SFP Design Error (01013). This item concerned a design deficiency in the service water system that had the potential to affect SFP cooling. The licensee responded to this item by letter CY-97-115 dated November 7, 1997. The immediate corrective actions to address the design configuration were described in Inspection 97-03. Licensee long-term actions were appropriate to track and implement corrective actions, address personnel errors, and control work assignments during periods of personnel turnover. Inspection 98-04 describes the licensee actions to implement the nuclear island and eliminate reliance on the service water system to cool the SFP. This item is closed.
(Closed) Unresolved Item 97-09-05: Loss of Security Equipment. This item was open pending the review of licensee actions to identify and correct the cause of the security system failures. The licensee response was tracked by ATS items 9800013 and 9802339. The cause of for the problems was identified and corrected, as described in memoranda dated April 23, 1998 and June 2, 1998 (SEC 98-050). The actions appear to have been effective based on the subsequent system performance. This item is closed.
(Closed) Unresolved Item 98-01-01: Address Deficiencies for Freeze Protection. This item was open pending NRC

review of licensee actions to address freeze protection deficiencies. This matter is described in Section O2.1 of this report. This item is closed.

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(Update) Unresolved Item 98-01-02: Maintenance Rule Program Revisions. This item was open pending licensee actions to update the maintenance rule program to reflect decommissioning. The licensee tracked this item under ATS 9801636, and completed revisions to the technical requirements manual (TRM) 16.7-6 Attachment 12.1, and engineering procedure (ENG) 1.7-147 Attachment 12.2). The program was defined to include the SFP, the pool inventory, the SFPCS and the primary water makeup system to the SFP. The revised program also includes consideration of supports for the systems to support the safe storage of spent fuel. No discrepancies were noted in the revised program elements. This item will remain open pending NRC review of the licensee's implementation of the maintenance rule for decommissioning.

(Update) Unresolved Item 98-03-02: Failure to Follow Procedures for Configuration Control. The licensee response to this item was provided by letter CY-98-151 dated September 21, 1998. This item concerned three examples whereby plant procedures were not followed resulting in a loss of configuration control. Licensee corrective actions were appropriate to correct the abnormal configuration and investigate the apparent causes for errors. The licensee found that personnel error was the cause for some of the events, and actions were appropriate to counsel personnel and review management expectations with operators. The licensee reinforced proper methods for independent verification of valve positions, instituted peer checks of critical configuration changes, installed blocking devices on valves that could result in the inadvertent release of liquids from the waste test tanks, and developed additional controls for the movement of manual valves.

Despite these actions, the licensee recognized additional vulnerabilities in configuration control that could result in the inadvertent release of waste water. On November 10, 1998, while discharging the AB@ recycle test tank (RTT), the operators noted a slow level increase in the AA@ RTT tank (adverse condition report ACR 98-952). Further licensee review identified that valves BR-V-414 A and B in the sample system were mispositioned, which allowed the RTTs to be cross-connected. The licensee concluded that an inadvertent discharge would have occurred if the AA@ tank had been on recirculation (a common practice) at the time; this would have been similar to the June 20, 1998 waste test tank (WTT) event. Thus, licensee corrective actions for the previous event were not fully effective.

The licensee investigation of this event was provided in the Root Cause Investigation Report for ACR 98-952 dated November 19, 1998. The investigation concluded that the 414A valve was either degraded or had opened during the discharge. The 414B valve was left open by chemists after taking a sample of the water to support the discharge. Other deficiencies included non-conservative decision making by the operators when they allowed the discharge to continue while investigating the tank level increase, and the long length of time it took operators to discover the level increase in the AA@ tank. Several contributing causes were identified and several actions were planned to improve the control of liquid discharges, including: locking closed all cross-connect valves between the AA@ and AB@ RTTs and WTTs; emphasizing expectations for monitoring releases; adding controls to chemistry procedures to verify final valve positions; and, having operators verify sample valve positions prior to discharges. The followup investigation was thorough and planned corrective actions were appropriate. During the management review of the event on December 8, the licensee identified the need to extend the corrective actions to assure that the procedures for all plant personnel who operate valves have suitable controls to verify final valve positions. This item remains open pending the completion of licensee actions in response to the November 10 RTT event, and subsequent review by the NRC.

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III. Plant Support and Radiological Controls

R1 Radiological Surveys and Controls

R1.1 Radiological Controls

a. Inspection Scope (83750)

The inspectors toured the radiologically controlled area (RCA) and discussed specific radiological controls with radiation protection (RP) supervision and RP technicians. The inspectors also reviewed radiological controls implemented for the routine activities including radiation work permits (RWPs), the Radiological Safety Reviews, and associated radiological surveys.

b. Observations and Findings

The inspectors toured various areas within the RCA, including the primary auxiliary building (PAB), the containment building, and outside areas in the RCA. Appropriate controls were observed for Radiation Areas (RAs) and High Radiation Areas (HRAs) . Postings and barriers were effectively placed to notify workers regarding changes in radiation levels. Appropriate controls were noted to prevent the spread of radioactive contamination. The inspectors noted that workers were taking the proper precautions for radiation protection as required by the licensee's staff. During tours, good radiological housekeeping and good worker awareness of radiological hazards was noted. The inspectors observed the staging of equipment and noted that areas were staged for good contamination controls and radioactive waste management.

No inadequacies were noted regarding the RWPs or the Radiological Safety Reviews for the routine activities. The licensee had estimated in the PSDAR that decommissioning activities could be completed with an estimated 109 person-rem of exposure to workers during 1998. Detailed planning for projects that were to be completed in 1998 indicated that

the estimated exposure would be over 117 person-rem due to the inclusion of additional work. The actual total dose for the decommissioning activities during 1998 was approximately 100 person-rem. Most of this worker exposure resulted from the RCS decontamination and the steam generator asbestos removal.

c. Conclusions

Radiological controls for decommissioning work were well-planned and RP personnel maintained close oversight of work. RP was effective in keeping workers' radiological exposures ALARA during 1998.

R1.2 Radiological Surveys

a. Inspection Scope

The purpose of this inspection was to continue the review of licensee contamination surveys at off-site properties that received or may have received material from the Haddam Neck plant in the past. The inspector review included off-site observations, confirmatory sampling, and selected review of characterization survey data.

b. Observations and Findings

Unresolved Item 97-09-04 concerned NRC review of the licensee actions to survey off-site areas that received soils, concrete blocks and other potentially contaminated equipment and materials for the HN plant and to recover contaminated materials for proper disposal. NRC inspection activity has continued throughout 1998 and included extensive observations by the inspectors, and confirmatory sampling by both the Connecticut Department of Environmental Protection and the NRC.

During this inspection, the inspector noted good technique for scanning surfaces areas and in the collection of surface soil samples. The licensee maintains good control and tracking of survey data and soil samples. The licensee also improved coordination between the State of CT and NRC with regard to assuring properties were ready for final status surveys and confirmatory samples. Soil samples were collected from off-site properties and were split with the licensee for analysis by gamma spectroscopy at the NRC Region I Radiation Measurement Laboratory in King of Prussia, Pennsylvania. Comparison of results have demonstrated good agreement.

Item 97-09-04 remains unresolved pending completion of the licensee's bounding dose assessment.

c. Conclusions

Licensee activities this period continued to be good with regard to conduct of characterization and final status surveys at off-site locations that had received potentially contaminated material. Based on the licensee's good performance, the NRC has determined it can reduce its confirmatory soil sampling activities, but will continue to review the licensee's survey results.

R2 Response to Events and Radiological Challenges

R2.1 Radiological Safety

a. Inspection Scope (83750)

The inspectors reviewed the licensee's identification and corrective actions associated with recent events or incidents, including actions taken when two doors used to control HRAs in the containment structure/building were found open.

b. Observations and Findings

The licensee reported that a Health Physics (HP) technician had found a locked HRA gate open in the lower annulus of the containment building on November 5, 1998. The gate was left open and was not attended as required by RP procedures. The HP technician immediately closed the gate and locked the door. Subsequently, the HP technician observed an asbestos worker on a nearby phone that was out of sight of the locked HRA gate. When the worker hung up the phone and returned to the gate, the HP technician questioned the individual. The worker stated that he had exited the area about 5 minutes prior to the discovery by the HP technician. The worker was instructed to leave the RCA, and the HP technician notified licensee supervisors regarding the event.

The licensee determined that the worker had made an error by not securing the door and was instructed regarding the proper procedure for securing locked HRA doors to prevent unauthorized entry to these areas. The period of time that the door was open and unguarded was determined to be very short (approximately five minutes) and no unauthorized entry into a HRA was made during that time period based on a review of personnel working in the containment building at the time.

The second incident involving an unlocked HRA gate was also reported by the licensee. Once again, the open gate was found by a HP technician in the containment building (charging floor, loop 3 staircase entrance) and was determined to have been left open by an asbestos worker. In this event, the worker was identified and stated that he knew the doors were to be closed and locked after each entry/exit. However, the worker did not verify that the door had locked after he attempted to shut it.

The licensee performed an investigation to determine the root cause and develop corrective actions to prevent a recurrence of the event. The root cause was determined to be personnel error in verifying that the door was locked. The recommended corrective actions included a re-indoctrination for all asbestos removal workers, a review of the events with all workers on the site, reducing the number of doors/gates used for entry to/exit from the locked HRAs, installation of alarms that sound when the doors/gates are left open, implementing a requirement for a door/gate guard when workers are in a locked HRA, and a review of radiation surveys to determine if doors/gates are required and if any modifications can be done to the existing number of areas.

These two incidents constitute a violation of the licensee's TS 6.12 that requires locked doors for HRAs. VIO 98-06-01

c. Conclusions

The RP staff took effective immediate corrective actions in response to the two incidents with unlocked HRA doors; however, the inspectors did not review the implementation of long-term corrective actions.

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R8 Miscellaneous Radiation Protection Issues

R8.1 Status of Previous Radiation Protection Items

a. Inspection Scope (71801)

The purpose of this inspection was to review licensee corrective actions in response to violations and unresolved items that were identified during the early phase of the licensee's site characterization program.

b. Observations and Findings

The inspector reviewed documentation packages that had been prepared by the licensee to support closure of several RP issues as identified below.

(Closed) Violation 97-08-01: Radiation Protection Procedures. This item concerned the failure to follow RP procedures regarding a contaminated personnel survey from February 22, 1995, contamination control surveys and postings, and surveys to support release of materials from the RCA to an on-site landfill. The licensee responded by letter dated December 5, 1997. The inspector determined that the corrective actions described by the licensee to address RP procedural compliance had been completed. The licensee's Radiation Protection Improvement Program addressed the adequacy of procedures, technician training, and management review for procedural compliance. Further, detailed surveys of the RCA yard were performed in late 1997 and 1998, loose debris was removed and the asphalt areas of the RCA were sealed to minimize the presence of removable material. Characterization of the landfill had begun as well as scoping surveys for other on-site and off-site areas that may have received potentially contaminated materials released from the RCA.

The licensee was continuing to perform surveys of the Southwest Site Storage Area (SSSA) on the peninsula to determine if materials that had been stored there had been inappropriate released from the RCA in the past. Current efforts involving surveys of the items in the SSSA have identified items that were above the release criteria used in the past. However, these surveys were limited and did not indicate items with significant contamination. Based on the findings, the licensee established stricter radiological controls to prevent the unrestricted release of materials from the SSSA until all items could be surveyed. These controls included installing a fence around the SSSA portion of the peninsula, posting of information (warning) signs, and security patrols of the area. The inspectors found the controls acceptable. This item is closed.

(Closed) Unresolved Item 97-08-02 Dose Assessment. This item concerned the adequacy of the licensee's dose assessment from a February 22, 1995 facial contamination event. The licensee's initial dose assessment did not document the technical basis for certain assumptions, such as exclusion of an inhalation pathway and a negligible alpha contribution. The licensee completed a revised dose assessment with basis for assumptions in April 1998. Ingestion was assumed to be the pathway based on the retention fraction post-ingestion. The evaluation of the internal exposure resulted in an increase of 10mrem CEDE and 160mrem CDE (bone). The inspector determined that the assumptions used to assess the alpha contribution and pathway were reasonable. This item is closed.

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(Closed) Violation 97-08-08: Radiation Protection Procedures. This item concerned the failure to survey material prior to release to an on-site landfill. The actions taken by the licensee were addressed in response to Violation 97-08-01 as discussed above. In addition, the inspector noted that characterization of the landfill was initiated. This item is closed.

(Closed) Unresolved Item 97-08-09: Reporting Requirements. This item addressed the question of whether the discussions with the NRC and the State regarding the discovery of contaminated material at an on-site landfill met the 10 CFR Part 50.72 reporting criteria. The licensee reviewed the reporting requirements and NUREG-1022, Revision 1 (LER Guidance) and determined that a 10 CFR 50.72(b)(2)(vi) report was not required. The inspectors also discussed the particulars of this matter with a principle author of NUREG-1022, Revision 1. There was general agreement that an information exchange between the licensee, NRC and State inspectors does not require a 50.72 report to the NRC.

(Closed) Unresolved Item 97-08-10: Radiation Protection Program. This item involved the failure of three security guards to sign-in on the correct Radiation Work Control permit. Although the guards could have sign-in on the general RWP#1, they signed the job specific RWP without attending the job pre-brief. Attendance at the job pre-brief was a requirement for the specific RWP, but was not a condition of the general RWP. The licensee identified this procedural violation through their Adverse Condition Reporting system. To prevent a recurrence, the licensee required that security personnel attend Enhanced Radiation Worker Training. The inspectors considered this a minor violation that was identified and corrected by the licensee. This item is closed.

(Closed) Unresolved Item 97-10-01: Radiation Protection Procedures. This item tracked the early off-site surveys that were conducted in response to findings from the licensee's site characterization program. The remediation actions being taken in response to the release of contaminated materials at many off-site locations has been frequently addressed by NRC since late 1997 and continues. This item is administratively closed and is being tracked by Unresolved Item 97-09-04.

c. Conclusions

The inspector determined that the licensee is making adequate progress to address NRC identified violations and unresolved items.

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S7 Quality Assurance in Security and Safeguards Activities
a. Inspection Scope (81700)
Area inspected was corrective actions associated with an audit finding associated with the effectiveness of corrective actions to address preventative maintenance issues identified in the 1997 QA audit of the security program, (Audit No. CY-97-A06-03).
b. Observations and Findings
The inspector reviewed the security audit finding, the resulting licensee ACR and the corrective actions implemented by the licensee.
c. Conclusions
The inspector concluded, based on observation of the area in question, discussions with security supervision, and procedural reviews, that the corrective actions implemented in response to the audit finding were effective.
IV. Management Meetings
X1 Exit Meeting Summary
The inspectors presented the inspection results to members of licensee management periodically during the inspection, and during a meeting with Mr. R. Mellor and others at the conclusion of the inspection on January 14, 1999. The licensee acknowledged the findings presented by the inspector. The inspector reviewed with the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified. The inspector met with licensee representatives at the conclusion of the security program inspection on December 7, 1998. At that time, the purpose and scope of the inspection were reviewed, and the preliminary findings were presented. The licensee acknowledged the preliminary inspection findings.
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X2 Pre-decisional Enforcement Conference Summary
A pre-decisional enforcement conference was held between Mr. Hubert Miller, NRC Region I Administrator and other NRC Regional Management and Mr. Don Davis, President, Chairman, and Chief Executive Officer and others on December 16, 1998. An apparent violation involved the Reactor Coolant System Decontamination procedures and is described in NRC Inspection Report No. 50-213/98-04, dated October 29, 1998. A copy of the licensee's presentation is attached to this report (Attachment 1). NRC deliberations on this matter are continuing.
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PARTIAL LIST OF PERSONS CONTACTED
*Don Davis, President, Chairman, and Chief Executive Officer
*Russell Mellor, Vice President Operations and Decommissioning
*Gary Bouchard, Unit Director
Kerry Harner, Chemistry Manager
*Kenneth Heider, Decommissioning Director
Doug Heffernan, Maintenance Manager
Gerry Waig, Operations Manager
James Pandolfo, Security Manager
*Richard Sexton, Radiation Protection Manager
*Gerry van Noordennen, Nuclear Licensing
*Robert Mitchell, Operations and Maintenance Manager
*John Haseltine, Strategic Planning Director
Pete Hollenbeck, Site Characterization Supervisor
Jim Lenois, Site Security Coordinator
Keith Sickles, Design Engineer
Edward Bingham, Engineering
Jay Tarzia, HP/Chemistry Technical Support
*WilliamSymczack, Engineering
*Art Domby, Troutman, Sanders, CYAPCO Counsel
* Denotes participation in pre-decisional enforcement conference.
INSPECTION PROCEDURES USED
IP 37700: Design Changes and Modifications
IP 37801: Safety Reviews, Design Changes, and Modifications at PSRs
IP 60851: Design Control of ISFSI Components
IP 60854: Preoperational Testing of an ISFSI
IP 71714: Cold Weather Preparations
IP 71801: Decommissioning Performance and Status Review at PSRs
IP 81700: Physical Security Program for Power Reactors
IP 83750: Occupational Radiation Exposure
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ITEMS OPEN, CLOSED, AND DISCUSSED
Open

98-06-01 VIO Inadequate Controls for Locked High Radiation Areas
Closed
97-01-01 URI Control of Systems in Defueled Mode
97-01-04 URI Degraded Material Conditions
97-01-05 VIO Failure to Complete Surveillances
97-01-06 VIO Failure to Correct Adverse Condition
97-01-09 URI Engineering Issues
97-03-03 VIO Failure to Timely Correct SFP Design Error
97-05-01 URI Corrective Actions for Halon Actuation
97-05-02 URI Procedures for Decommissioning Operations
97-08-01 VIO Radiation Protection Program
97-08-02 URI Dose Assessment
97-08-08 VIO Radiation Protection Procedures
97-08-09 URI Reportability
97-08-10 URI Radiation Protection Procedures
97-09-02 URI Inadequate Design Controls
97-09-05 URI Loss of Security Equipment
97-09-06 IFI Final Resolution of Audit Corrective Actions
97-10-01 URI Radiation Protection Procedures
98-01-01 URI Address Deficiencies for Freeze Protection
97-04-00 LER Spent Fuel Bridge Load Limit
Discussed
97-09-04 URI Off-site Release of Contaminated Materials
98-01-02 URI Maintenance Rule Program Revisions
98-03-02 URI Failure to Follow Procedures for Configuration Control
98-03-03 URI Spent Fuel Building Crane

LIST OF ACRONYMS USED
ACP Administrative Control Procedure
ACR Adverse Condition Report
ADHUT Aerated Drain Holdup Tank
ALARA As Low As Is Reasonably Achievable
BWST Borated Water Storage Tank
CDE Committed Dose Equivalent
CEDE Committed Effective Dose Equivalent
CFR Code of Federal Regulations
CYAPCo Connecticut Yankee Atomic Power Company
DEP Department of Environmental Protection
F Fahrenheit
gpm gallons per minute
HN Haddam Neck
HP Health Physics
FI Inspection Followup Item
IR Inspection Report
mrem millirem
NOP Normal Operating Procedure
NOV Notice of Violation
NRC Nuclear Regulatory Commission
PAB Primary Auxiliary Building
PDR Public Document Room
PSDAR Post-Shutdown Decommissioning Activities Report
QA Quality Assurance
RCA Radiological Controlled Area
RCS Reactor Coolant System
RP Radiation Protection
RTT Recycle Test Tank
RWPs Radiation Work Permits
SFP Spent Fuel Pool
URI Unresolved Item
WCM Work Control Manual
WTT Waste Test Tank