



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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February 25, 2003

Mr. K. Heider
Vice President - Operations and Decommissioning
Connecticut Yankee Atomic Power Company
362 Injun Hollow Road
East Hampton, CT 06424-3099

SUBJECT: NRC INTEGRATED INSPECTION REPORT 50-213/2002-004

Dear Mr. Heider:

On January 31, 2003 the NRC completed an inspection at the Haddam Neck Plant, which began on November 18, 2002. The findings of the inspection were discussed with Mr. Noah Fetherston, and others by telephone on February 13, 2002. The enclosed report presents the results of that inspection.

During this eleven week period, we inspected your decommissioning operations relative to preparations for spent fuel handling, facility design changes and safety reviews, organizational changes, self assessment and auditing programs. We also inspected decommissioning performance and facility support activities including radiation protection, radioactive waste management, effluent controls, and emergency preparedness. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors. The preparations for spent fuel handling and facility design changes and safety reviews had adequate safety focus. Organizational changes at the facility supported the increased level of decommissioning activities. Facility support activities including radiation protection controls, radioactive waste management, effluent controls, and emergency preparedness were effective. During December, remediation activities contaminated a facility non-potable water supply system. Because of your prompt and effective actions, the resulting monitored, but unplanned liquid release to the yard drain system was well below regulatory limits. Based on the results of this inspection, no violations were identified.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR) and will be accessible from the NRC Web site at <http://www.nrc.gov/reading-rm.html>. No reply to this letter is required.

Sincerely,

/RA James Kottan Acting for/
Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Material Safety

Mr. K. Heider

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

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NRC Inspection Report No. 50-213/2002-004

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 50-213

License No.: DPR-61

Report No.: 50-213/2002-004

Licensee: Connecticut Yankee Atomic Power Company (CYAPCO)
P. O. Box 270
Hartford, CT 06141-0270

Facility: Haddam Neck Station

Location: Haddam, Connecticut

Dates: November 18, 2002 through January 31, 2003

Inspectors: L. Peluso, Health Physicist, DNMS
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J. Wray, Health Physicist, DNMS
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Approved by: Ronald Bellamy, Chief, Decommissioning and Laboratory Branch (D&LB)
Division of Nuclear Materials Safety (DNMS)

EXECUTIVE SUMMARY

Haddam Neck Station
NRC Inspection Report No. 50-213/2002-004

This routine integrated inspection included aspects of licensee activities regarding dismantlement and decommissioning of the facility. The report covers inspections by NRC regional and headquarters personnel conducted over an eleven week period. It includes reviews and assessments of preparations for spent fuel handling, facility design changes and safety reviews, organization, self-assessments and auditing, decommissioning performance, and facility support activities related to radiation protection, radioactive waste management, effluent controls, and emergency preparedness. It also includes a review of the licensee's response to the cross-contamination between the reactor cavity water and a facility non-potable water supply system.

Decommissioning Operations and Spent Fuel Pool Safety

Spent Fuel Building (SFB) modifications have been planned and conducted safely. SFB Security and effluent concerns had been adequately addressed. Plans and procedures to ultrasonically test spent fuel assemblies for leaks and other potential damage were adequate. Proposed plans to ensure total Special Nuclear Material (SNM) accountability were adequate.

The conclusions by the licensee in the three Safety Evaluations (SE) related to liquid waste processing were correct. Modifications to the liquid waste processing system were made in accordance with design change packages.

The licensee's operations, oversight, and decommissioning operations contractor (DOC) organizations and staffing were sufficient to support ongoing decontamination, decommissioning and independent spent fuel storage activities. The licensee maintained an effective quality assurance audit and self assessment program to identify strengths, programmatic weaknesses, and areas of declining performance.

Decommissioning activities were being conducted in accordance with the licensee's technical specifications and related procedures. Containment polar crane modifications have been made to upgrade the lift capacity so that the Reactor Pressure Vessel (RPV) can be safely removed. An adequate lift test of 110% of maximum load was developed.

Plant Support and Radiological Controls

The waste tank farm dismantlement and reactor cavity decontamination work activities were conducted safely. Controls for high radiation area and potential airborne work activities were adequate. However, controls were not established to prevent an unplanned liquid release at concentrations above detectable environmental levels from the high pressure hydrolazer pump used to provide pressurizer water to decontaminate reactor cavity walls. The pump cooling water was not contained, because it was not expected to be contaminated. The release was monitored and the calculated whole body dose to the hypothetical member of the public was well below NRC regulatory limits. The licensee's evaluation was conducted in accordance with the Radiological Effluent Manual Offsite Dose Calculation Manual (REMDCM).

The licensee's radiological evaluations resulted in implementation of effective corrective actions that mitigated the radiological consequences of the CST contamination event. Additional planned corrective actions, such as the self-assessment relating to the release of materials from the industrial area, appear to be adequate to prevent recurrence of a similar event.

The maintenance and surveillance program was sufficient to maintain systems and components important to the proper operation of radiation monitoring and effluent control equipment. The corrective actions and evaluation regarding radioactive liquid effluent being discharged to the ground rather to the canal water were appropriate.

Radioactive waste was properly processed, packaged, stored, and shipped in accordance with NRC and DOT regulations.

The licensee maintained an active emergency preparedness program and conducted emergency preparedness drills and exercises with challenging scenarios. No findings of significance were identified.

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REPORT DETAILS

Summary of Facility Activities

The plant was maintained in a permanently shutdown condition during this inspection period. The spent fuel remains in storage in the spent fuel pool (SFP) while the licensee plans for long-term storage of the spent fuel in dry casks onsite. Preparations for spent fuel handling were in progress. Dismantlement of the waste tank farm and decontamination of the reactor cavity and transfer canal were in progress. Polar crane modifications were completed, the reactor cavity was drained, and liquid effluents processed.

I. Decommissioning Operations and Spent Fuel Pool Safety

O1 Conduct of Operations

O1.1 Spent Fuel Building Modifications

a. Inspection Scope (60705)

The inspector reviewed the licensee's planned and current modifications to the SFB in preparation to transfer spent fuel to the Independent Spent Fuel Storage Installation (ISFSI) utilizing the NAC-Multi-Purpose Canister (NAC-MPC) dry cask storage system. The SFB is being modified to support the specialized operations of fuel transfer.

b. Observations

The inspector observed construction activities on the SFB, which was being modified for the transfer of spent fuel to the on-site ISFSI using the NAC-MPC dry cask storage system. Concrete blocks on the outside of the building next to the roll-up door had been cut to gain access to the wall. A hole in the wall will be cut next to the roll-up door so that an enlarged door, capable of handling a Vertical Concrete Cask (VCC), Transfer Cask (TFR), and Transportable Storage Canister (TSC), can be installed. Building modifications will include widening of the equipment access doorway, removal of internal walls, installation of a new concrete docking slab, and the fabrication of a TFR pool platform.

The inspector reviewed the security plan and compensatory measures that will be implemented when the SFB walls are demolished and before the new roll-up door is in place. Direct access into the SFB is possible during this time. Adequate compensatory actions are planned. The inspector discussed the ventilation controls during this time and reviewed the licensee's 50.59 evaluation which determined that negative pressure will be maintained in the SFB at all times. The inspector reviewed the procedural controls and routine surveillance program established to ensure that unmonitored and uncontrolled releases of radioactive material do not occur while the SFB is open to the outside. No safety concerns were identified.

c. Conclusions

SFB modifications have been planned and conducted safely. Security and effluent concerns have been adequately addressed.

O1.2 Spent Fuel Pool Activities

a. Inspection Scope (60710)

The inspector reviewed procedures developed to test suspect fuel assemblies for leaks and other potential damage. Licensee plans for reconstitution of any damaged fuel assemblies identified during this process were also reviewed.

b. Observations

During 1999 and 2000, the licensee completed visual inspection of all 1019 spent fuel assemblies stored in the SFB. Forty-two assemblies were determined to be damaged and will be handled and packaged separately in the NAC-MPC dry cask storage system. Subsequently, the licensee determined that all Babcock and Wilcox stainless steel fuel (174 assemblies) required additional inspection for leaks. The proposed additional inspection will consist of ultrasonic examination of the specified spent fuel assemblies. The inspector reviewed the operations procedures for Fuel Assembly Ultrasonic Testing and in-Plant Transfer of Fuel Assemblies in the SFP. The licensee's 10 CFR 50.59 evaluation to determine licensing implications of this activity was also reviewed. No safety concerns were identified.

The licensee does not expect additional damaged assemblies to be identified during this inspection. However, plans have been devised to handle potentially damaged assemblies. Since the number of available spaces in a TSC for damaged fuel is limited, the licensee will consolidate fuel pins as much as possible into separate designated assemblies. The inspector discussed with cognizant licensee representatives the controls planned to account for all fuel pins and determined that the controls appear to be adequate for Special Nuclear Material (SNM) accountability.

c. Conclusions

Plans and procedures to ultrasonically test spent fuel assemblies for leaks and other potential damage were adequate. Proposed plans to ensure total Special Nuclear Material (SNM) accountability were adequate.

O2 Decommissioning Status of Facilities and Equipment

O2.1 Engineering Support of Facilities and Equipment

a. Inspection Scope (37801)

The inspector reviewed the licensee's 10 CFR 50.59 process by examining the following safety evaluations:

24265-000-DCP-00067-000, Feedwater and Condensate, dated August 10, 2000
24265-000-DCP-00072-001, Water Processing - Phase Two, dated August 8, 2001
24265-000-DCP-00074-000, Water Processing - Phase Three, dated May 14, 2002.

The three safety evaluations (SEs) were reviewed and a discussion was held on January 15, 2003, with the licensee and Decommissioning Operations Contractor (DOC) engineering representatives. The systems changes were also reviewed against field system drawings to compare installed versus design change packages.

b. Observations and Findings

Based on the SEs and the clarifying information provided by the licensee, which included the SE SY-EV-97-0048, "System Category Determination in a Decommissioned Plant - Feedwater & Condensate System," the inspector concluded that the SEs were adequate. The three plant changes were not unreviewed safety questions, and could be made without prior NRC staff review and approval. However, additional clarifying information, such as procedural references and status of system availability was not included in the SEs and required further discussion to determine the completeness of the SE.

The inspector also walked-down the modified liquid waste processing system, which was being used to process liquid wastes. The system was installed as designed.

c. Conclusions

The conclusions by the licensee in the three Safety Evaluations (SE) related to liquid waste processing were correct. Modifications to the liquid waste processing system were made in accordance with design change packages

O2.2 Facility Changes and Equipment Dismantlement

a. Inspection Scope (71801)

The inspector evaluated the licensee's status of decommissioning work through discussions with cognizant licensee personnel, routine weekly telephone conference calls, observations from tours of the facility, and review of changes to the facility. The inspector also reviewed modifications to the containment building polar crane necessary to upgrade the load capacity so that the RPV can be removed.

b. Observations and Findings

Dismantlement activities during this inspection period included removal of tanks and equipment in the tank farm and lower elevations of the Primary Auxiliary Building (PAB). The inspector observed significant debris was generated in the tented tank farm during the removal of the Refueling Water Storage Tank. Licensee safety personnel were observed making frequent oversight tours to observe radiation protection and occupational worker safety practices given the hazardous work environment. Condition Reports (CRs) were generated to address concerns from working in this hazardous environment and isolated worker performance concerns. Overall, the work was conducted safely and on schedule.

The inspector reviewed licensee work on reactor cavity and transfer canal decontamination, and drain down. Decontamination of the cavity and transfer canal liner (walls and floor) will reduce personnel exposures during liner dismantlement, packaging, and shipment. The remote cavity decontamination was effective with the use of vacuum and hydrolazing attachments to the

Louis A. Grant GMM-1400 Machine. A few minor system hose leaks with the underwater filtration system did not result in any significant personnel contamination, and low dose-rates were being maintained on the charging floor. While doses from this work were well managed, during December 2002, around 35 - 50 gallons of reactor water was siphoned through the high-pressure hydrolazing wand to the Condensate Storage Tank (CST). Water is supplied to the hydrolazer from the CST. The DOC temporarily ceased decontamination activities for five days to access the cause of this event, take corrective actions and address continued operation as a contaminated system. For details regarding the radiological assessment from this event, see sections R1.2 and R1.3. The inspectors observed the drain down of the reactor cavity at the close of the inspector period. No safety concerns were identified during the cavity drain down.

The upgraded containment polar crane in conjunction with a supplemental polar crane girder support system and girder hydraulic lift system will be used to lift the RPV. Modifications to the polar crane were required to handle the 800-ton lift of the RPV. The modifications included welding support beams to the polar crane girders. The two main hooks on the original polar crane had a 125-ton capacity while the auxiliary hook had a capacity of 15-tons. The crane is a non-QA piece of equipment and is maintained in accordance with ASME B30.2, Overhead and Gantry Cranes. The inspector reviewed Design Change Package (DCP) 24265-000-DCP-00065, Polar Crane Modifications which covers the girder modifications. The inspector verified that the modifications were completed in accordance with design and approved procedures. Welds were performed by qualified personnel and reviewed by Level 2 inspectors. The inspector verified that the modified polar crane will be tested to 110% of the maximum lift load (907.5 tons). No safety concerns were identified.

c. Conclusions

Decommissioning activities were being conducted in accordance with the licensee's technical specifications and related procedures. Containment polar crane modifications had been made to upgrade the lift capacity so that the RPV can be safely removed. An adequate lift test of 110% of maximum load has been developed.

O6 Decommissioning Organization and Planning

a. Inspection Scope (36801)

The inspector reviewed the licensee's organization changes and staffing. The inspector also reviewed planning activities through attendance at licensee scheduling and planning meetings regarding ongoing decommissioning activities, and through discussions with onsite DOC management.

b. Observations and Findings

The licensee had announced interim changes in senior management during this inspection period. Site organization and staffing had not been changed. The inspector reviewed the staffing for Certified Fuel Handlers and noted that there was adequate staffing. Licensee oversight personnel were observed in the field monitoring decommissioning activities performed by the DOC.

The DOC increased its onsite staff in January 2003 to address decommissioning activities, ISFSI activities, and commercial management issues. This resulted in a new senior DOC management position of Project Director and modified Senior Project Manager position. Additional craft, engineering and management personnel were also added to the organization to manage the increasing activities, including adding a second shift. During this inspection period, the inspector also noted that the DOC was conducting a self-assessment of its health physics program.

The decontamination and drain down of the reactor cavity was on schedule. The RPV and neutron shield tank removal were moved up from October to March 2003. SFB modifications were also scheduled to be completed in March, and the ISFSI was now scheduled to be completed in August 2003. Status of ongoing or recently completed work is discussed below.

c. Conclusions

The licensee's operations, oversight, and DOC organizations and staffing were sufficient to support ongoing decontamination, decommissioning and independent spent fuel storage activities.

07 Quality Assurance Audits and Self Assessments

a. Inspection Scope (40801)

The inspector reviewed selected audits and departmental risk area evaluation reports to assess the effectiveness of the licensee's quality assurance audit program and self-assessment process. The review included surveillances conducted during 2002 and two audit reports regarding radiological controls and the construction of the ISFSI. The inspector also discussed the licensee's revised oversight self-assessment instructions that were issued on October 31, 2002. Discussions were also held with cognizant licensee managers responsible for nuclear safety and oversight responsibilities.

b. Observations

The inspector determined that the licensee's nuclear safety audits were comprehensive and conducted by knowledgeable staff. Findings were assigned and tracked. In addition, surveillances were conducted to review the adequacy of the closure of the quality assurance findings and the closure of significant CRs.. Configuration management and document control were two nuclear safety audit findings that will be reviewed during subsequent inspections.

Because of transitions into a new phase of decommissioning and organizational changes in the licensee's oversight organization, the licensee re-evaluated its self-assessment process. Changes included identifying new risk areas, such as implementation of the License Termination Plan and two-site integration activities, developing a standard format for risk area evaluation reports, and changing risk area assignments. The inspector observed licensee personnel performing risk area evaluations with respect to industrial safety, health physics, and decommissioning activities. The inspector also noted that the licensee changed its risk area report time period from quarterly to every two months. No safety concerns were identified.

c. Conclusions

The licensee maintained an effective quality assurance audit and self assessment program to identify strengths, programmatic weaknesses, and areas of declining performance.

II. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 External and Internal Exposure Controls

a. Inspection Scope (83750)

The inspector toured the radiological controlled areas (RCAs) and reviewed current radiological surveys of various work activities to determine the adequacy of the licensee's program to monitor and control occupational radiation exposures to employees. The inspector interviewed selected radiation protection managers and staff. The inspector also reviewed the licensee's radiological controls established in support of reactor cavity decontamination work activities.

b. Observations

During tours of the facility, the inspector observed that all areas in the RCAs were appropriately posted and labeled for radioactive materials. Radiation Work Permits (RWP) had been reviewed and updated for 2003. The inspector observed ongoing work activities within the tank farm and on the charging floor in the containment building. With respect to the tank farm, large machinery was used to demolish the tanks and shear the debris. High external dose rates and low gamma to alpha ratios required constant health physics (HP) coverage, and periodic as low as reasonably achievable (ALARA) reviews. Regarding the charging floor activities, decontamination was accomplished utilizing a high-pressure and lower-pressure hydrolazer mounted to an automated manipulator machine. Cavity wall sections were decontaminated underwater. The work sequence consisted of decontaminating portions of the reactor cavity and subsequent lowering of the cavity water level. Radiological surveys were of the cavity walls were performed as decontamination work progressed. Shielding around the cavity filtration units located on the charging floor was adequate.

The inspector observed radiological work controls that were established while decontamination work was in progress. The inspector observed radiological controls associated with entries into high radiation areas, worker compliance with RWP requirements, and industrial safety practices. The inspector discussed the issuance and use of lapel air samplers, and

coordination of work activities between work groups and HP personnel assigned to the control point. The inspector verified the adequacy of high radiation area postings and confirmed that locked high radiation areas were properly secured throughout the containment building. No safety concerns were identified.

c. Conclusions

The waste tank farm dismantlement and reactor cavity decontamination work activities were conducted safely. Controls for high radiation area and potential airborne work activities were adequate.

R1.2 Unplanned Release From Cross-Contamination Event

a. Inspection Scope (84750)

The inspector evaluated the contamination of a non-contaminated system, the CST, and the subsequent unplanned, uncontrolled release of radioactive water to the environment. The inspection included a tour of the CST and yard drain area, interviews with Bechtel and CY Oversight personnel, and an assessment of the licensee's program concerning IE Bulletin No. 80-10, "Contamination of Nonradioactive Systems and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to Environment". The inspection also included a review of the Condition Report (CR-02-05450), the 10 CFR Part 50.59 Applicability Review and Safety Evaluation (SY-EV-98-0069 "System Review in Response to NRC IE Bulletin 80-10"), Technical Support Document (BCY-HP-0127 "Condensate Storage Tank 80-10 Evaluation and Actions"), documentation of the spill required by 10 CFR Part 75(g), analytical results of water and soil samples, and the projected dose to members of the public as result of the release.

b. Observations

On December 31, 2002, the licensee discovered low level concentrations of radioactive water, tritium (H-3) and cobalt-60 (C0-60), in a yard drain #6 water sample, the chemistry trailer laboratory water, hydrolazer pump, and the CST. The CST supplied water to principle connections throughout the plant and was sampled quarterly as part of the implementation of the IE Bulletin 80-10 sampling, monitoring, and trending program. The preliminary cause of this contamination was stated to be the unanticipated shutdown of the hydrolazer hi-pressure pump on three occasions in December, when seal packing material had to be replaced. This resulted in back flow of some reactor cavity water to the CST. The hydrolazer was used during the decontamination of the reactor cavity and transfer cavity walls and floor, and water was supplied by the CST. CST water also supplied cooling water to the hi-pressure pump. The cooling water, by design, spilled from a drip container to the ground, and flowed into nearby yard drain #6.

Because yard drain #6, located in the RCA is part of the licensee's effluent sampling program, the run-off from the cooling water was monitored, but considered an uncontrolled and unplanned release to the environment. The inspector reviewed and independently verified the licensee's estimated projected dose to a hypothetical member of the public. The calculated whole body dose from the release to the environment was about 0.0005 millirem/year, which is much less than the 10 CFR 50 Appendix I total whole body dose limit of five millirem/year.

In addition, the licensee collected and analyzed six soil samples around the CST, hydrolazer, and yard drain area, and opened a file to document the spill, as required by 10 CFR 50.75(g). The inspector reviewed the documentation in the file and noted that the licensee has not yet completed and approved the file. This file will be reviewed during a subsequent inspection.

The inspector also reviewed the Technical Support Document (TSD) and the previous 10 CFR 50.59 Applicability Review and Safety Evaluation (Safety Evaluation) to assess the licensee's evaluation of continued operation of the CST after cross contamination occurred. The TSD included a reevaluation of the Safety Evaluation, which was conducted in 1999 and determined that the continued use of the Feedwater and Condensate System as a contaminated system was valid. Based on this reevaluation, the licensee verified the continued use of the CST as a contaminated system to supply water to the hydrolazer was valid. The event and the calculated dose will be documented in the Annual Dose Assessment Report and the Annual Effluent Release Report.

c. Conclusions

Controls were not established to prevent an unplanned liquid release at concentrations above I detectable environmental levels from the high pressure hydrolazer pump used to provide pressurizer water to decontaminate reactor cavity walls. The pump's cooling water was not contained, because it was not expected to be contaminated. The release was monitored and the calculated whole body dose to the hypothetical member of the public was well below NRC regulatory limits. The licensee's evaluation was conducted in accordance with the Radiological Effluent Manual Offsite Dose Calculation Manual (REMODOCM).

R1.3 Follow-up to Contamination of Condensate Storage System

a. Inspection Scope (83750)

The inspector reviewed licensee corrective actions associated with the contamination of the CST, and the hydrolazer pumps, which were located outside the radiologically controlled area. The review included discussions with the licensee regarding their incident report, corrective action meeting reports, and verifying the implementation of the corrective actions.

b. Observations

The inspectors observed that systems that received the contaminated water from the CST, such as the chemistry trailer laboratory, personnel decontamination trailer and respirator cleaning system were surveyed and flushed until concentrations were below detectable environmental levels. A new RCA boundary and related controls and investigation of the impact of the potential for release of material with low levels of contamination were initiated. A check-valve was installed to eliminate a potential for back-flow from the reactor cavity water to the CST. The immediate corrective actions were appropriate and timely. The licensee also planned to perform a self-assessment to confirm the effectiveness of radiological monitoring controls relating to the release of items from the industrial area.

The inspector verified the status of completed corrective actions including the incorporation of the hydrolazer pumps within the radiologically controlled area, the erection of a protective

enclosure over the pumps, and the placement of a catch basin under the pumps to collect any leakage in a controlled manner. No safety concerns were identified.

The inspector reviewed radiological surveys and corrective actions relating to the control of materials that may have been impacted by the event. The licensee's actions included the implementation of radiological monitoring controls, confiscation of potentially contaminated materials, investigations with involved parties, and confirmatory radiological surveys. The inspectors review of the radiation surveys found that very low levels of discreet contamination were identified. There was no evidence of contamination in paved areas outside the immediate vicinity of the hydrolazer pump enclosures. Because the cross-contamination was discovered through implementation of the licensee's programs for contamination control and prompt actions taken, there were no radiological impacts to workers in the area or to workers who used systems supplied with contaminated CST water

c. Conclusions

The licensee made adequate radiological evaluations and implemented effective corrective actions that mitigated the radiological consequences of the CST contamination event. Additional planned corrective actions, such as the self-assessment relating to the release of materials from the industrial area, appear to be adequate to prevent recurrence of a similar event.

R2 Status of RP & C Facilities and Equipment

R2.1 Maintenance and Surveillance Program

a. Inspection Scope (62801)

The inspector reviewed the licensee's maintenance and surveillance program, including planned and completed maintenance and surveillance activities, systems and components that are important to the proper operation of radiation monitoring and effluent control equipment.

b. Observations and Findings

The inspector reviewed the procedures and most recent maintenance and calibration records for the Waste and Recycle Test Tank Radiation Monitor (R-22). The licensee conducted the routine calibration, channel check, and source check according to the frequencies required by the REMODCM. The calibration and channel check results were within the procedure's acceptance criteria. No safety concerns were identified.

c. Conclusions

The maintenance and surveillance program was sufficient to maintain systems and components important to the proper operation of radiation monitoring and effluent control equipment.

R2.2 Yard Drain System Discharge Pipe

a. Inspection Scope (84750)

The inspector assessed the impact of radioactive liquid effluent discharged to the ground instead of the canal because the Yard Drain System Discharge Pipe no longer reached the canal water. The inspector reviewed Condition Report CR-02-0399, conducted interviews with Radiological Environmental personnel, and conducted a tour of the canal discharge area. The inspector assessed this condition against the technical specifications (TS), the REMODCM, and the License Termination Plan.

b. Observations

In September 2002, the licensee discovered that the RCA yard drain system discharge pipe did not reach the discharge canal water. When decommissioning started, the Circulating and Service Water Pumps were no longer operated on a continuous basis and the canal water level decreased over time. The licensee installed PVC piping to directly discharge radioactive liquid effluent to the canal water. The licensee had documented in the Historical Site Assessment Supplement, dated June 30, 2000, that the discharge canal area was a radiologically impacted area. Because there was no significant contamination, no additional remediation was required at this time. The licensee plans to remediate the area according to the Licence Termination Plan (LTP). No safety concerns were identified. The licensee will document this matter in the Annual Effluent Release Report.

c. Conclusion

The licensee's corrective actions and evaluation regarding radioactive liquid effluent being discharged to the ground rather to the canal water were appropriate..

R3 Radioactive Waste Management and Transportation

a. Inspection Scope (86750)

The inspector reviewed the licensee's radioactive waste management program through tours of the facility, interviews with personnel, and reviews of radioactive waste shipping papers, documented waste characterization determinations, and associated procedures. The inspector also reviewed shipments to determine if radiation surveys and U.S. Department of Transportation (DOT) requirements were completed as required by 10CFR Parts 20 and 71.

b. Observations

The inspector selected and reviewed documents for six radioactive waste shipments from June 2002 through January 2003 to determine compliance with regulatory requirements. The selected shipments consisted of Aerated Drain and Primary Drain Tanks, reactor cavity filters, garnet dross, dry active waste, and miscellaneous radioactive waste. The inspector reviewed radionuclide distributions, hazardous waste classification, 10 CFR Part 61 documentation, total activity, manifests, package dose rate survey data, radioactive material labeling, final truck surveys, emergency response information, and receipt of package documentation. The licensee used the MicroShield computer code and 10 CFR Part 61 sampling data to determine waste packages and utilized the RADMAN computer program in shipping package preparations. Type B packages were used in accordance with the appropriate Certificate of Compliance and the licensee's Process Control Program.

The inspector toured the radiological controlled yard area and parking lot where packages and vehicles were staged before transport. Packages were labeled and placarded as required. The licensee maintains an inventory to determine location and contents of each package. No violations or safety concerns were identified.

c. Conclusions

Radioactive waste and material was properly processed, packaged, stored, and shipped in accordance with NRC and DOT regulations.

P1 Conduct of Emergency Preparedness (EP) Activities

P1.1 Emergency Preparedness Drills and Exercises

a. Scope (IP 37801)

The inspectors reviewed the annual Haddam Neck EP exercise report dated December 29, 2002. Information discussed with the Emergency Response Coordinator included a review of the scenario, maintenance of the program procedures, and training of the Certified Fuel Handlers and equipment operators.

b. Observations and Findings

The Haddam Neck Defueled Emergency Plan (DEP) requires an annual exercise and specific training drills. The Annual Exercise had a set of established objectives and performance was critiqued by participants and evaluators. The exercise was conducted on December 19, 2002 and quarterly drills were conducted with Operations staff and other personnel who would function in the emergency response organization. The State of Connecticut also participated in the exercise. The scenario appropriately addressed potential damage to the SFP system during crane operations, and resulting loss of SFP water. There were no significant findings identified by the licensee. The emergency plan implementing procedures were reviewed during a two year cycle. During this year, one of the Operations Shift Manager was assigned as the

Emergency Response Coordinator. The person had knowledge of the 10 CFR Part 50.47 (b) and Appendix E requirements.

c. Conclusions

The licensee maintained an active emergency preparedness program and conducted emergency preparedness drills and exercises with challenging scenarios. No findings of significance were identified.

III. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management periodically during the inspection, and during a teleconference with the site manager and others on February 13, 2003. The licensee acknowledged the findings presented by the inspectors. The inspectors reviewed with the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

X2 Other Meetings

On November 19, 2002, Ronald Bellamy, Chief, Decommissioning and Laboratory Branch and an NRC inspector attended the Community Decommissioning Advisory Committee meeting. The meeting was open for public participation, with an audience of approximately ten people. During the meeting, NRC discussed the results of inspections 2002-002 and 2002-003, and security for spent fuel storage facilities.

PARTIAL LIST OF PERSONS CONTACTED

J. Allen, Project Manager, Duratek
S. Berger, Technical Support, Duratek
* J. Bourassa, Safety Oversight Manager
* D. Calsyn, Quality Assurance Manager
B. Campbell, Operations Shift Manager
*P. Clark, Regulatory Affairs
E. Darois, Integrated Site Closure Manager, Bechtel
S. Day, Regulatory Affairs
M. DeWitt, Construction Manager, NAC International
H. Farr, Radiological Engineer, Bechtel
* N. Fetherston, Site Manager
* M. Firsick, Connecticut DEP
R. Gault, Radiation Protection Specialist
K. Gavin, Project Field Engineer, Bechtel
W. Lienick, Site Manager, Bechtel
*R. McGrath, HP and Waste Oversight Manager
* R. Mitchell, Unit Manager
B. Peacock, Quality Assurance Manager
* M. Powers, Construction Oversight
* R. Prunty, Licensing, Bechtel
D. Roberson, Health Physics Supervisor, Bechtel
E. Sergent, Nuclear Safety
*J. Tarzia, Radiation Protection and Chemistry Manager, Bechtel
R. Vallem, Waste Management Supervisor, Bechtel
G. van Noordennen, Regulatory Affairs Manager
S. Webster, Licensing, Bechtel
A. Yates, Chemistry Supervisor

*Denotes attendance at the telephonic exit meeting held on February 13, 2003

INSPECTION PROCEDURES USED

IP 36801 Organization, Management and Cost Controls
IP 37801 Safety Reviews and Design Changes
IP 40801 Self Assessment
IP 60705 Preparations for Fuel Handling Activities
IP 60710 Fuel Handling Activities
IP 60801: Spent Fuel Pool Safety
IP 71801: Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83750: Occupational Radiological Exposure
IP 84750: Radioactive Waste Treatment and Effluent and Environmental Monitoring

ITEMS OPEN, CLOSED, AND DISCUSSED

Open

None

Closed

2002-001-01 URI Apparent Failure to Follow Radiation Protection Procedures
Closed by NRC Letter dated December 22, 2002

Discussed

None

LIST OF ACRONYMS USED

| | |
|---------|--|
| ALARA | As Low As Reasonably Achievable |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| CST | Condensate Storage Tank |
| CYAPCO | Connecticut Yankee Atomic Power Company |
| DCP | Design Change Package |
| D&LB | Decommissioning and Laboratory Branch |
| DEP | Defueled Emergency Plan |
| DNMS | Division of Nuclear Materials and Safety |
| DOC | Decommissioning Operations Contractor |
| DOT | Department of Transportation |
| EP | Emergency Preparedness |
| HP | Health Physics |
| ISFSI | Independent Spent Fuel Storage Installation |
| LTP | License Termination Plan |
| MARSSIM | Multi-Agency Radiological Survey and Site Investigation Manual |
| NAC-MPC | NAC Multi-Purpose Canister |
| NCV | Non-Cited Violation |
| PAB | Primary Auxiliary Building |
| PDR | Public Document Room |
| QA | Quality Assurance |
| QC | Quality Control |
| REMDCM | Radiological Effluent Monitoring and Offsite Dose Calculation Manual |
| RCA | Radiologically Controlled Area |
| RPV | Reactor Pressure Vessel |
| RWP | Radiation Work Permit |
| SE | Safety Evaluations |
| SFB | Spent Fuel Building |
| SFH | Shift Fuel Handler |
| SFP | Spent Fuel Pool |
| SFPI | Spent Fuel Pool Island |
| SNM | Special Nuclear Material |
| TFR | Transfer Cask |
| TLD | Thermoluminescent Dosimetry |
| TS | Technical Specifications |
| TSC | Transportable Storage Canister |
| TSD | Technical Support Document |