



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PA 19406**

July 3, 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 50-213/2003-001

Dear Mr. Heider:

On June 11, 2003, the NRC completed an inspection at the Haddam Neck Plant, which began on February 18, 2003. The findings of the inspection were discussed with Mr. Noah Fetherston, and others by telephone on June 30, 2003. The enclosed report presents the results of that inspection.

During this approximately four-month period, we inspected your decommissioning operations relative to spent fuel safety, maintenance and surveillance, facility design changes and safety reviews, self assessment and auditing. We also inspected decommissioning performance and facility support activities including radiation protection, final status survey (FSS), radioactive waste management, security and emergency preparedness. The inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors. These programs were appropriately implemented. With respect to your FSS activities, on July 2, 2003, we received your Technical Support Document regarding the operational characteristics of the E-600 count rate scaler. We will continue our evaluation of your use of this instrument for land area scanning.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred, a failure to collect a void space sample to monitor spent fuel pool liner leakage, which is part of the spent fuel pool integrity monitoring required by Technical Specification 6.6.6, Spent Fuel Pool Cooling and Makeup Monitoring Program. However, because this violation was of low safety significance, was entered into your corrective action program, and effectively corrected, it is being treated as a Non-Cited Violation (NCV), consistent with Section VI.A of the NRC Enforcement Policy. The NCV is described in the subject inspection report. If you contest the violation or severity level of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region I; and the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

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.

Mr. K. Heider

2

Sincerely,

/RA/

Ronald R. Bellamy, Chief
Decommissioning and Laboratory Branch
Division of Nuclear Material Safety

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

Enclosure:
NRC Inspection Report No. 50-213/2003-001

cc w/encl:
B. Kenyon, Interim Chief Executive Officer
J. Crowe, Interim President
T. Bennet, Vice President and Chief Financial Officer
N. Fetherston, Site Manager
R. M. Mitchell, Unit Manager
K. Smith, Communications Manager
G. van Noordennen, Regulatory Affairs Manager
R. K. Gad, III, CYAPCO Counsel
R. Bassilakis, Citizens Awareness Network
J. Brooks, CT Attorney General Office
T. Bondi, Town of Haddam
E. Woollacott, NEAC
H. Curley, CDAC
State of Connecticut SLO

Mr. K. Heider

3

Distribution w/encl:

H. Miller, RA /J. Wiggins, DRA

D. Holody, ORA

R. Bellamy, DNMS

M. Miller, DNMS

J. Wray, DNMS

L. Peluso, DNMS

J. Shea, OEDO

J. Donohew, NRR

R. Correia, NRR

F. Talbot, NRR

T. Madden, OCA

D. Screnci, PAO, ORA

S. O'Conner, SFPO, NMSS

C. Craig, NMSS

S. Brown, PM NMSS

DOCDESK

Inspection Program Branch, NRR (IPAS)

DOCUMENT NAME: G:\D&LB\HN\Inspection Reports\2003\HN2003-001

After declaring this document "An Official Agency Record" it **will** be released to the Public.

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	RI:DNMS	RI:DNMS	NSIR	RI:DNMS	
NAME	Mmiller MTM1	Rbellamy RRB1	Gtracy MTM per email from Ralph Wray	GPangburn FMC	
DATE	07/01/03	07/03/03	07/02/03	07/03/03	

OFFICIAL RECORD COPY

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Docket No.: 50-213

License No.: DPR-61

Report No.: 50-213/2003-001

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

Facility: Haddam Neck Station

Location: Haddam, Connecticut

Dates: February 18, 2003 through June 11, 2003

Inspectors: L. Peluso, Health Physicist, DNMS
R. Prince, Health Physicist, DNMS
J. Wray, Health Physicist, DNMS
M. Miller, Senior Health Physicist, DNMS
J. Dehmel, Health Physicist, NMSS
T. Smith, Project Manager, NMSS

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. 50-213/2003-001

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 a four month period. It includes reviews and assessments of spent fuel safety, maintenance and surveillance, facility design changes and safety reviews, self-assessments and auditing, decommissioning performance, and facility support activities related to radiation protection, radioactive waste management, final status survey, security and emergency preparedness.

Decommissioning Operations and Spent Fuel Safety

Licensee procedures for tracking, trending, and monitoring spent fuel pool (SFP) inventory and makeup were adequate, personnel were knowledgeable of their responsibilities and trending data was adequately assessed. However, the licensee failed to meet Technical Specification 6.6.6 with respect to leakage monitoring of the SFP liner and this is considered a non-cited violation of NRC requirements.

The licensee and their contractor safely completed ultrasonic testing and reconstitution of the spent fuel assemblies, as necessary. Special Nuclear Material accountability was maintained.

The licensee effectively maintained the structures, systems and components associated with safe storage of spent fuel. Key system performance indicators were adequately monitored to provide reasonable assurance that the systems and components were capable of fulfilling intended functions. The licensee adequately managed the preventive maintenance and spare parts programs, including the backlog and emergent work. The licensee's corrective maintenance for the "B" SFP pump was not completed, and will be reviewed during a subsequent inspection.

The licensee implemented the requirements of 10 CFR 50.59 for facility changes. Decommissioning activities were being conducted safely and generally in accordance with project schedules and procedural controls. The licensee was making good progress towards removal of the reactor pressure vessel.

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

Plant Support and Radiological Controls

Licensee controls for high radiation area and actual and potential airborne work activities were adequate. Doses were within regulatory and licensee administrative limits.

The licensee was implementing its License Termination Plan and related procedures with respect to the use of Data Quality Objectives, survey unit identification, classification, characterization, and the installation of temporary wells for groundwater monitoring

characterization. An issue regarding the operating characteristics of the E-600 count rate scaler for field scanning was discussed, and will be reviewed during a subsequent inspection. Licensee characterization activities regarding the subsurface soil and groundwater characterization study have not been completed. Final status survey (FSS) reports were being drafted, but the licensee has yet to formally submit any FSS reports to the NRC.

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

The licensee's emergency preparedness (EP) exercise with Local Law Enforcement Agencies provided a challenging scenario and an opportunity to improve the understanding of the responder roles and responsibilities. The EP program had been revised to address the security interface requirements associated with the EP related Interim Compensatory Measures contained in the NRC Order Issued to Decommissioning Licensees on May 23, 2002.

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ii
TABLE OF CONTENTS	iv
REPORT DETAILS	1
I. Decommissioning Operations and Maintenance	1
O1 Conduct of Operations	1
O1.1 Spent Fuel Pool Safety	1
O1.2 Spent Fuel Handling Activities	2
O.1.3 Maintenance and Surveillance Program	3
O2 Decommissioning Status of Facilities and Equipment	4
O2.1 Engineering Support of Facilities and Equipment	4
O2.2 Facility Changes and Equipment Dismantlement	5
O7 Quality Assurance Audits and Self Assessments	5
II. Plant Support	6
R1 Radiological Protection and Chemistry Controls	6
R1.1 External and Internal Exposure Controls	6
R1.2 Characterization and Final Status Survey (FSS) Activities	7
R3 Radioactive Waste Management and Transportation	9
P1 Conduct of Emergency Preparedness (EP) Activities	9
P1.1 Local Law Enforcement Agency Table Top Exercise	9
III. Management Meetings	10
X1 Exit Meeting Summary	10
X2 Other Meetings	11
PARTIAL LIST OF PERSONS CONTACTED	12
INSPECTION PROCEDURES USED	13
ITEMS OPEN, CLOSED, AND DISCUSSED	13
LIST OF ACRONYMS USED	14

REPORT DETAILS

Summary of Facility Activities

The spent fuel remains safely in storage in the spent fuel pool (SFP) while the licensee plans for long-term storage of the spent fuel in dry casks onsite. Spent fuel reconstitution activities were completed in preparation for movement to dry cask storage. The reactor cavity and transfer canal were decontaminated and drained. The reactor pressure vessel (RPV) was grouted with concrete in preparations for shipping, and work began on the cutting of the RPV nozzles. Dismantlement of the waste tank farm and removal of commodities in the loop areas were in progress. Characterization and final status surveys were ongoing.

I. Decommissioning Operations and Maintenance

O1 Conduct of Operations

O1.1 Spent Fuel Pool Safety

a. Inspection Scope (60801)

The inspector toured the SFP building and observed the material condition of plant areas, equipment and components. The inspector also observed SFP water level, and inventory and leakage monitoring equipment. The inspector reviewed operator logs for selected time periods from February through May 2003, which recorded operational data associated with SFP cooling safety parameters. The inspector interviewed licensee personnel and reviewed licensee procedures and reports related to the monitoring, trending and tracking of SFP makeup, inventory and leakage.

b. Observations and Findings

Structures, systems and components were in good material condition including the backup diesel generator building, and areas of the SFP purification loop necessary to support a stand alone spent fuel storage island. Appropriate security and fire protection measures were in place and housekeeping was adequate. On two separate occasions the performance of security personnel was observed and assessed relating to control of access to the spent fuel storage building. Security checks were comprehensive and security officers demonstrated good command of security screening procedures.

Operator logs were reviewed to verify that the SFP water level and makeup were monitored in accordance with procedural requirements and that no adverse trends were identified. The inspector noted that licensee personnel adequately reviewed associated data, operator logs, and applicable instrument readings. Licensee personnel were knowledgeable of procedural requirements and trending reports were adequate.

The inspector reviewed the process and procedures relating to the SFP leakage monitoring program. On May 19, 2003, the licensee discovered that the sample pump utilized to pump leakage from the SFP collection void space was not capable of providing sufficient head to pump any leakage that may be present to the collection/measuring device. SFP liner leakage is routed to a void space located at the bottom of a 35' high standpipe. Leakage is pumped from the bottom of the standpipe to a collection/measuring device. It was determined by the licensee

that the sample pump was only capable of pumping water several feet up the standpipe versus the required 35 feet. Additional investigation by the licensee discovered the presence of water in the void space indicative of liner leakage. On May 28, 2003, the licensee determined the accumulation of approximately 3 liters of water in the void space.

The inspector reviewed related Work Order 4977 to repair the sample pump and the modification package developed to install the sample pump in December, 1998, and discussed the leak detection procedure and history of obtaining samples from the void space with licensee personnel. The inspector observed the location in the Spent Fuel Building where the sample is obtained from the top of the void space standpipe. Discussions with licensee personnel indicated that the sample pump was initially tested prior to installation to confirm that the pump could deliver a sufficient head to obtain a sample from the bottom of the standpipe.

Licensee procedure UMDI 2.02, Master Spent Fuel Island Tracking Program, implements Technical Specification (TS) 6.6.6, FP Cooling and Makeup Monitoring Program. This procedure relies on the collection of the void space sample to monitor spent fuel pool liner leakage. This procedural requirement was not met due to the inoperable sample pump. As discussed above, the sample pump was incapable of performing its required function for an undetermined time period, and is therefore considered a Severity Level IV Violation. The inspector noted that the licensee revised its program to collect weekly void space samples based on sounding for water level, procured a submersible pump as a backup method, and is trending the void space sample results. Therefore, the issue is being treated as a Non-Cited Violation in accordance with Section VI. A.8 of the NRC Enforcement Policy. This violation is recorded in the licensee's corrective action program as Condition Report (CR) 03-0283. **(NCV 03-01-01)**

c. Conclusions

Licensee procedures for tracking, trending and monitoring SFP inventory and makeup were adequate, personnel were knowledgeable of their responsibilities and trending data was adequately assessed. However, the licensee failed to meet TS 6.6.6 with respect to leakage monitoring of the SFP liner, and this is considered a non-cited violation of NRC requirements.

O1.2 Spent Fuel Handling Activities

a. Inspection Scope (60710)

The inspector reviewed the results of ultrasonic inspection of spent fuel assemblies and reconstitution of damaged fuel assemblies that was conducted from April through mid-May, 2003. The reconstitution activity involved movement of damaged fuel rods into assemblies with pre-existing damaged rods that will be handled separately in the NAC dry cask storage system.

b. Observations

The licensee and their contractor completed reconstitution activities consolidating failed rods into 108 assemblies. The reconstituted damaged fuel assemblies will be packaged into fuel canisters before being placed into the NAC-MPC transportable storage canister (TSC). The reconstitution eliminated the need to fabricate more TSCs. During this SFP activity, water temperature, level and clarity were maintained. Also, two mispositioned fuel rods were identified, and records were corrected in accordance with the licensee's Special Nuclear Material (SNM) accountability procedures. No safety concerns were identified.

c. Conclusions

The licensee and their contractor safely completed ultrasonic testing and reconstitution of the spent fuel assemblies, as necessary. SNM accountability was maintained.

O.1.3 Maintenance and Surveillance Program

a. Inspection Scope (62801)

The inspector reviewed the licensee's planned and completed maintenance and surveillance activities of structures, systems, and components that are important to the safe storage of spent fuel and proper operation of related radiation monitoring equipment. The inspector reviewed the preventive maintenance (PM) program, maintenance backlog and scheduled maintenance activities, and spare parts inventory control program. The inspector also assessed SFP cooling pump maintenance, in particular the maintenance records associated with "B" SFP cooling pump that seized on March 19, 2003.

b. Observations and Findings

On March 19, 2003, the licensee entered Abnormal Operating Procedure 3.2-59 due to the loss of the "B" SFP cooling pump and restored flow by switching to the "A" SFP cooling pump. Follow-up evaluations determined that the inner shaft of the pump disintegrated at the coupling between the pump and motor. The motor was not affected.

During a subsequent inspection observation in May, the inspector assessed recent and ongoing maintenance work for the "B" SFP cooling pump, including visual inspections and post-maintenance testing. The inspector reviewed Work Orders 4731 and 4732, for the "B" pump motor and pump, respectively. The inspector reviewed operator logs to confirm that appropriate limits on spent fuel pool temperature and water level were maintained during the maintenance period. No operational parameters were impacted during the performance of maintenance activities on the failed pump. Post-maintenance testing was performed to verify pump operability. No operational concerns relating to the availability of spare parts were identified. The inspectors were informed during a June 12, 2003 routine weekly call, that following a post maintenance run, an oil leak was detected because of a nick in the oil seal, requiring the "B" SFP pump to be taken out of service. Even though the licensee allocated considerable time and effort regarding corrective maintenance to return the "B" SFP to non-degraded operability, the corrective maintenance had not been completed by the end of this inspection period. The inspector will review the ongoing licensee efforts to minimize out-of-service time for this safety related pump during a subsequent inspection.

The inspector reviewed the PM program, including work prioritization, backlog, and the work order tracking system. The inspector noted that there were seven work orders in backlog and six open work orders relating to the SFP building, although none were safety related. The inspector interviewed licensee personnel responsible for the PM program and spare parts program relating to equipment necessary for the safe storage of spent fuel. Maintenance personnel were knowledgeable of their responsibilities, and understood and followed applicable procedures.

c. Conclusions

The licensee effectively maintained the structures, systems and components associated with safe storage of spent fuel. Key system performance indicators were adequately monitored to provide reasonable assurance that the systems and components were capable of fulfilling intended functions. The licensee adequately managed the PM and spare parts programs, including the backlog and emergent work. The licensee's corrective maintenance for the "B" SFP pump was not completed, and will be reviewed during a subsequent inspection.

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 summary report for safety evaluations in support of system changes for the period of January 1, 2001 through December 31, 2002. The inspector reviewed the licensee's safety evaluation log and related regulatory affairs department instructions for preparation of the biennial report. The inspector also attended the licensee's oversight review meeting that discussed the 50.59 safety evaluation screening for the spent fuel reconstitution.

b. Observations and Findings

The inspector compared the safety evaluation log against the submitted biennial report and noted that all safety evaluation summaries had been submitted to NRC. The inspector also noted that the licensee's instruction had been revised recently to include 10 CFR Part 72.48 evaluations for the next 24 month reporting period. The safety evaluation summaries adequately supported the conclusions that the margin of safety as defined in the basis for any technical specification has not been reduced. The inspector also noted that most changes to the facility only required a safety evaluation screening. No safety concerns were identified.

c. Conclusions

The licensee adequately implemented the requirements of 10 CFR 50.59 for facility changes.

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.

b. Observations and Findings

Dismantlement activities during this inspection period included removal of tanks and equipment in the tank farm and commodities from the loop areas in the lower elevations of Containment. The reactor cavity and transfer canal were decontaminated and drained. The RPV was grouted with concrete, and cutting of the concrete walls and floor continues to prepare for removal and shipping of the RPV. RPV nozzle cutting and installation of the RPV lifting system were also started. Overall, the work was conducted safely. Because of above average precipitation, groundwater infiltration into contaminated areas, such as the siphon heater cavities, and residual heat removal pit has postponed further work in these areas. The licensee resumed containment mat pumping and has applied to the State to process water from these other areas. No safety concerns were identified.

c. Conclusions

Decommissioning activities were being conducted safely and generally in accordance with project schedules and procedural controls. The licensee was making good progress towards removal of the RPV.

O7 Quality Assurance Audits and Self Assessments

a. Inspection Scope (40801)

The inspector evaluated the effectiveness of the licensee's self assessment process through discussions with personnel, reviews of Surveillance Reports and associated CRs, and performance observations of Connecticut Yankee (CY) Oversight personnel. The inspector reviewed selected CRs from January through March 2003 to determine the timeliness and appropriateness of the assigned significance level of the CRs. The inspector conducted performance observations of certain CY Oversight personnel to assess surveillance and oversight techniques. Discussions were held with cognizant licensee managers responsible for nuclear safety and oversight.

b. Observations

The inspector reviewed the Bechtel (as Decommissioning Operations Contractor) Quality Assurance (QA) and CY Oversight surveillance of NAC International. Configuration control discrepancies regarding implementation of procedures for the 10 CFR Part 71 Quality Assurance Program were identified during a follow up surveillance, and CR (CR-03-0103) was generated. The significance level assigned to the CR was appropriate. Immediate corrective actions were adequate, and long range corrective actions have not been completed. The inspector will review the final results during a subsequent inspection.

The inspector assessed the status of corrective actions for two findings regarding configuration management and document control that were identified during Nuclear Safety Audit 02-A10-01. An Apparent Cause CR (CR-02-0532) was generated and CY QA is following the corrective actions. The significance level assigned to the CR and Apparent Cause CR were appropriate. The inspector will review the results of the closed Apparent Cause CR during a subsequent inspection.

The inspector conducted performance observations of a member of CY Oversight conducting surveillance audits. Two activities were observed, the loading of a shipping cask and the final de-watering verification for the "B" Spent Fuel Purification Ion Exchanger. The CY oversight personnel were prepared for the surveillances and were knowledgeable in each area observed.

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. Scope (IP 83750)

The inspector reviewed Haddam Neck's program for controlling and monitoring personnel access to high radiation areas and radiation control areas. Information was gathered through a review of radiation work permits and air sampling records for 2003, internal dosimetry assessment log for 2003, personnel monitoring records, and procedural guidance. The inspector also conducted plant walkdowns and interviews with cognizant personnel.

b. Observations and Findings

The inspector verified on several occasions that controls were in place for locked high radiation areas. Gates were locked or a qualified individual was posted to control access. Keys to high radiation areas were controlled, issued, and inventoried according to procedural guidance. However, the locking mechanism controlling access to a high radiation area in containment either failed or was not sufficiently engaged in the lock barrel on two occasions, when challenged by a health physics (HP) technician. The licensee evaluated these conditions and confirmed that personnel did not access these areas through the unsecured gates. The licensee entered these incidents into their CR system and replaced the locks. The inspector confirmed that the licensee had implemented appropriate procedural guidance for posting and access control to high radiation areas. In addition, radiologically controlled areas (RCAs) were appropriately posted and labeled as radiation areas or radioactive material areas.

The inspector observed ongoing work activities within the tank farm, the charging floor and loop areas in the containment building, and field characterization activities. Appropriate health physics coverage, radiation safety reviews and support surveys were completed. Dosimetry

placement met established criteria and the licensee was conducting follow-up and random whole body counts in accordance with procedural guidance. The inspector noted the licensee's timely review of exposure results when two workers appeared to be receiving more radiation dose than other co-workers. There were no unplanned or over-exposures of workers, and no assignment of internal doses for 2003. No safety concerns were identified.

c. Conclusions

Licensee controls for high radiation area and potential airborne work activities were adequate. Worker doses were within regulatory and licensee administrative limits.

R1.2 Characterization and Final Status Survey (FSS) Activities

a. Inspection Scope (83801)

The inspector reviewed licensee activities associated with decommissioning activities, and the planning and design of FSS for the purpose of determining compliance with the requirements of the License Termination Plan (LTP), Revision 1, dated October 2002. Site tours and three observations of survey and sampling teams were conducted by the inspector. These site tours were conducted to assess the scope and extent of remediation activities being conducted in open land areas located south and east of the industrial area, and selected buildings and grounds within the industrial area. The inspector reviewed the FSS Plan and FSS Draft Report for survey unit 9526, relative to Data Quality Objectives (DQOs), application of Derived Concentration Guideline Levels (DCGLs), survey unit identification and classification, and instrumentation used for scanning for elevated areas of radioactivity. Survey/Sampling Work Plans (SSWP) were reviewed for characterization of the discharge canal (survey units 9106-0001, 0002 and 0008), and sub-surface characterization sampling near the footprint of the former boron waste storage tanks and refueling water storage tank (survey units 9112, 9110 and 9801) and Primary Auxiliary Building (PAB) (survey units 2210, 2212, 2214, 2224, 2226, and 2228-0001). In addition, the inspector conducted performance observations of the installation of a temporary well (#53) in the turbine building.

b. Observations

The open land area included the survey units located east of the industrial area and site roads leading to the Independent Spent Fuel Storage Installation (ISFSI), southeast landfill, construction debris piles, radioactive material storage area, permitted landfill area, rifle range and peninsula storage areas. The buildings that were inspected included the containment building, radwaste reduction facility, the PAB, tent structure erected over the tank farm, and interior locations where drilling is ongoing for characterization purposes. Regarding the building characterization surveys, the licensee indicated that in many areas, there is still a need to define radionuclide distributions and fractions for the purpose of planning the design of final status surveys and assigning survey unit classifications. The basis of radionuclide fractions and associated surrogate ratios for easy and hard-to-measure radionuclides will be reviewed in future NRC inspections once all related documents have been developed.

The inspector determined through observations that the surveying and sampling protocols were being followed as described in the LTP. The SSWPs included appropriate DQOs, instructions, and sampling location information. Select SSWPs were also reviewed by NRC's contractor,

Oak Ridge Institute for Science and Education (ORISE), for the purpose of planning independent radiological confirmatory surveys. On June 11, 2003, NRC staff and ORISE discussed with cognizant licensee and licensee contractor personnel a concern with regard to the use of the Eberline E-600 count rate scalar for field scanning, regarding the ability to distinguish changes in audible signal and meet the required minimum detectable activity. On July 2, 2003, the licensee provided the basis for the use of the E-600 for land areas in a Technical Support Document, "Evaluation of the Effects of the Divide-by-Circuit on Scan MDC for the Eberline E-600." This information is currently under review.

Extensive characterization efforts were being conducted to assess the presence of radioactive contaminants in subsurface soils and ground water within the industrial area. The objective is to determine the outer boundary and locations of highest concentrations of strontium 90 (Sr-90) and tritium in ground water and subsurface soils. The presence of Sr-90 is thought to be confined in the backfill (sand) contained around building foundation footings and bedrock excavations in which concrete foundations were poured at the time of construction. The licensee installed temporary wells at specific locations along the foundation of the discharge tunnel to conduct groundwater monitoring for characterization and FSS. The inspector observed the installation of one of these temporary wells (#53 in the turbine building at the location specified in SSWP). The well was installed by experienced contractor personnel. The method for temporary well installation was appropriate and effective to core through concrete.

For the open land areas outside the industrial area along the northeast and southeast mountain sides, the licensee had completed FSS in two class 3 survey areas (9526 and 9528), and three class 2 survey areas (9526-0001, 0002 and 9527-0003). Class 3 survey areas are impacted areas not expected to contain any residual radioactivity or a small fraction of the DGCLs, and the Class 2 areas are areas that have or had prior remediation, a potential for radioactive contamination or known contamination, but are not expected to exceed the DGCLs. The inspector reviewed the draft FSS Report for area 9526 and noted that the focus should be on specific design considerations for the survey unit as opposed to broad generalization of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) guidance, and presentation of specific information (e.g., characterization summary, survey data, field observations) that would provide a better justification and interpretation of survey results and conclusions reached by the licensee. These issues will be reviewed when the reports are formally submitted to the NRC.

c. Conclusions

The licensee was appropriately implementing its LTP and related procedures with respect to use of DQOs, survey unit identification, classification and characterization and the installation of temporary wells for groundwater monitoring characterization. An issue regarding the operating characteristics of the E-600 for field scanning was discussed, and will be reviewed during a subsequent inspection. Licensee characterization activities regarding the subsurface soil and groundwater characterization study have not been completed. FSS reports were being drafted, but the licensee has yet to formally submit any FSS reports to the NRC.

R3 Radioactive Waste Management and Transportation

a. Inspection Scope (86750)

The inspector reviewed the licensee's radioactive waste management program to ensure that low-level radioactive wastes are properly classified and characterized for disposal according to 10 CFR Part 61. The inspector also reviewed shipments to determine if radiation surveys and U.S. Department of Transportation (DOT) requirements were completed as required by 10 CFR Parts 20 and 71.

b. Observations

The inspector reviewed the licensee's program for determining hard-to-measure radionuclides against 10 CFR 61.55. The licensee periodically submitted waste stream specific samples to a vendor laboratory for total isotopic analysis and derived waste stream specific scaling factors. The inspector noted that the licensee's program periodically verified the applicability of the scaling factors. The inspector reviewed the analysis results for various systems and associated procedures and noted that the licensee's procedures were effective for the required waste form classification and characterizations when changes to the waste stream occur. The selected systems were properly characterized for disposal. No safety concerns were identified.

The inspector conducted performance observations of the handling and loading of a Transport Cask. The ALARA pre-job brief was clearly communicated and understood by the workers. The licensee's ALARA practices were appropriate. The licensee loaded the cask per procedure TR-OP-032, conducted required inspections, applied appropriate labels, markings, and placards, and ensured the shipping papers were correct. No safety concerns or violations were identified.

c. Conclusions

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

P1 Conduct of Emergency Preparedness (EP) Activities

P1.1 Local Law Enforcement Agency Table Top Exercise

a. Scope (IP 37801 & TI2561/004)

The inspector observed Haddam Neck's Local Law Enforcement Agency (LLEA) Table Top Exercise on May 22, 2003. Information was gathered by a review of documents including the exercise objectives, observations made during the exercise, attendance at the exercise critique, and through interviews with cognizant personnel. The inspector also verified that the licensee's defueled EP program had been revised to address the security interface requirements associated with the Interim Compensatory Measures (ICMs) contained in the NRC Order issued to Decommissioning Licensees on May 23, 2002.

b. Observations and Findings

On May 22, 2003, a security table-top exercise was held at the Haddam Neck site. The exercise objectives were to understand the command and control structure of an event at CY requiring response by a diverse number of external agencies, and to understand the functions

and capabilities of the various LLEAs and external agencies that could possibly respond to a hostile force event involving spent nuclear fuel. About thirty people participated in the exercise that included representatives from several LLEA, federal agencies, and representatives from the State Connecticut Department of Environmental Protection.

Good command and control was exercised by the State Police. The exercise demonstrated the transfer of command within the State and the integration of resources available within the state and from federal agencies. This exercise also demonstrated the use of the licensee's emergency event classification procedure, and the ability of the licensee to support notifications from an alternate offsite command location. The exercise critique allowed offsite responders to identify areas of concern and opportunities for improvement. No findings of significance were identified.

Revisions to the licensee's defueled EP program addressed actions to assure staffing, procedures and facilities are adequate to accomplish actions for response to a hostile threat. Emergency Action Levels for site specific threats were added for the Unusual Event and Alert levels. A letter of agreement had been secured for an alternate nearby offsite communication center. Security instructions detail implementing the call-out of the licensee's response organization. Reporting and notification requirements were added for timely notifications to NRC and LLEAs related to hostile threats.

c. Conclusions

The licensee's EP exercise with LLEAs provided a challenging scenario and an opportunity to improve the understanding of the responder roles and responsibilities. The EP program had been revised to address the security interface requirements associated with the ICMs contained in the NRC Order issued to Decommissioning Licensees on May 23, 2002.

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 June 30, 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 February 19 and May 20, 2003, NRC inspectors attended the Community Decommissioning Advisory Committee meetings. During the February meeting, NRC discussed the results of inspections 2002-004. These meetings were open for public participation.

PARTIAL LIST OF PERSONS CONTACTED

S. Berger, Technical Support, Duratek
*J. Bourassa, Safety Oversight Manager
*D. Calsyn, Quality Assurance Manager
*P. Clark, Regulatory Affairs
*E. Darois, Integrated Site Closure Manager, Bechtel
S. Day, Regulatory Affairs
H. Farr, Radiological Engineer, Bechtel
*N. Fetherston, Site Manager
M. Firsick, Connecticut DEP
R. Gault, Health Physics Oversight
J. Goergen, Health Physics Oversight
K. Gavin, Project Field Engineer, Bechtel
*J. Houff, Operations and Maintenance
W. Lienick, Site Manager, Bechtel
J. McCarthy, Site Radiation Release Supervisor, Bechtel
*R. McGrath, HP and Waste Oversight Manager
R. Mitchell, Unit Manager
*T. Nericcio, Information Center
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 June 30, 2003

INSPECTION PROCEDURES USED

IP 37801 Safety Reviews and Design Changes
IP 40801 Self Assessment
IP 60710 Fuel Handling Activities
IP 60801: Spent Fuel Pool Safety
IP 62801 Maintenance and Surveillance
IP 71801: Decommissioning Performance and Status Review at Permanently Shutdown Reactors
IP 83750: Occupational Radiological Exposure
IP 83801 Inspection of Final Surveys at Permanently Shutdown Reactor Facilities
IP 86750: Solid Radioactive Waste Management and Transportation
TI2561/004 Safeguards and Emergency Preparedness Inspection of ICMs at Decommissioning Power Reactors, Appendix C (only)

ITEMS OPEN, CLOSED, AND DISCUSSED

Open

2003-001-01 NCV Failure to Monitor SFP Void Space per TS 6.6.6

Closed

2003-001-01 NCV Failure to Monitor SFP Void Space per TS 6.6.6

Discussed

None

LIST OF ACRONYMS USED

CR	Condition Report
CY	Connecticut Yankee
CYAPCO	Connecticut Yankee Atomic Power Company
D&LB	Decommissioning and Laboratory Branch
DCGL	Derived Concentration Guidance Levels
DNMS	Division of Nuclear Materials and Safety
DOC	Decommissioning Operations Contractor
DOT	Department of Transportation
DQO	Data Quality Objectives
EP	Emergency Preparedness
FSS	Final Safety Survey
HP	Health Physics
ICM	Interim Compensatory Measures
ISFSI	Independent Spent Fuel Storage Installation
LLEA	Local Law Enforcement Agency
LTP	License Termination Plan
MARSSIM	Multi-Agency Radiological Survey and Site Investigation Manual
NAC-MPC	NAC Multi-Purpose Canister
NCV	Non-Cited Violation
ORISE	Oak Ridge Institute for Science and Education
PAB	Primary Auxiliary Building
PDR	Public Document Room
PM	Preventive Maintenance
QA	Quality Assurance
RCA	Radiologically Controlled Area
RPV	Reactor Pressure Vessel
RWP	Radiation Work Permit
SFP	Spent Fuel Pool
SNM	Special Nuclear Material
SSWP	Survey/Sampling Work Plans
TS	Technical Specifications