

November 26, 2007

Mr. Wayne Norton, President
362 Injun Hollow Road
East Hampton, CT 06424-3099

SUBJECT: HADDAM NECK PLANT - RELEASE OF LAND FROM PART 50 LICENSE

Dear Mr. Norton:

I am responding to your letter dated July 31, 2007 as supplemented on October 11, 2007, in which you requested the U.S. Nuclear Regulatory Commission's (NRC) release a portion of the Connecticut Yankee Atomic Power Company's (CYAPCO's) Haddam Neck Plant (HNP) site from CYAPCO's 10 CFR Part 50 license (DPR-61). The area to be released consists of sixty-four (64) open land survey areas, one (1) structure that has been free released under CYAPCO's Operational Radiation Program, and six (6) subsurface soil survey areas. The areas proposed for release encompass approximately 40% of the site, leaving only the areas associated with the Independent Spent Fuel Storage Installation, portions of Survey units 9523-0000, 9528-0000, and 9528-0004 within the Part 50 License. Your letter indicated that you have reviewed and assessed the subject survey areas in accordance with Section 1.4.2 of the HNP License Termination Plan (LTP) and the NRC Safety Evaluation of the LTP dated November 25, 2002, to ensure that this proposed action will not have an adverse impact on the ability of the site in aggregate to meet 10 CFR 20, Subpart E, criteria for unrestricted release.

The NRC staff has reviewed your proposed phased site release from the license, as specified in your July 31, 2007 and October 11, 2007 letters, and finds the proposed release to be acceptable subject to the following conditions:

Following removal from the license, if any released areas become radiologically contaminated as a result of later decommissioning activities at the HNP Independent Spent Fuel Storage Installation, the contamination would be considered an off-site release, and subject to 10 CFR Part 20.

CYAPCO is required to maintain \$100 million in nuclear liability insurance coverage, as described in Indemnity Agreement B-32, until all the radioactive material has been removed from the location and transportation of the radioactive material from the location has ended or until the Commission authorizes the termination or modification of such financial protection. Approval of this phased site release request has no impact on the terms of the indemnity agreement. In particular, it should be noted that the site location described in Item 4 to the indemnity agreement means the "original" 10 CFR Part 50 license site boundaries. The liability insurance coverage level shall not be reduced below the minimum \$100 million amount without prior NRC approval.

A copy of the staff's safety evaluation is enclosed.

W. Norton

-2-

The NRC staff reviewed the Final Status Survey Reports and compared the residual contamination levels to the trigger values for soil and groundwater in the "Memorandum of Understanding (MOU) between the U.S. Environmental Protection Agency and the NRC on Consultation and Finality on Decommissioning and Decontamination of Contaminated Sites." The staff concluded that the trigger levels for soil and/or groundwater were not met or exceeded. Thus, in accordance with Section V.C.2 of the MOU, consultation is not required.

In accordance with 10 CFR Part 2.390 of NRC's "Rules of Practice," a copy of letter will be available electronically for public inspection in NRC Public Document Room, or from the Publicly Available Records component of NRC's Agencywide Document Access Management System (ADAMS). ADAMS is accessible from NRC Web site: <http://www.nrc.gov/reading-rm/adams.html>.

If you have any questions concerning this evaluation, please contact Ted Smith at (301) 415-6721, or by e-mail at tbs1@nrc.gov.

Sincerely,

/RA/

Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery
Licensing Directorate
Division of Waste Management
and Environmental Protection
Office of Federal and State Materials and
Environmental Management Programs

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

Enclosure: Safety Evaluation

cc: Connecticut Yankee Service List

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SAFETY EVALUATION BY OFFICE OF FEDERAL AND STATE MATERIALS

AND ENVIRONMENTAL MANAGEMENT PROGRAMS

RELATED TO THE RELEASE OF LAND FROM FACILITY OPERATING LICENSE NO. DPR-61

CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT

DOCKET NO. 50-213

1.0 INTRODUCTION

1.1 Background

The Haddam Neck Plant (HNP) was permanently shutdown on December 4, 1996. The Post Shutdown Decommissioning Activities Report was submitted on August 22, 1997, describing planned decommissioning activities. An Updated Final Safety Analysis Report was submitted on January 26, 1998, to reflect the plant's permanent shutdown status. The licensee completed construction of an on-site Independent Spent Fuel Storage Installation (ISFSI) under a general license. The ISFSI became fully operational with the transfer of the last canister containing Greater Than Class C (GTCC) material in March, 2005. The ISFSI contains forty canisters of spent fuel and three canisters of GTCC material.

1.2 Request for Action

By letter dated July 31, 2007, (ADAMS Accession No. ML072200349) Connecticut Yankee Atomic Power Company (CYAPCO, the licensee) requested U.S. Nuclear Regulatory Commission (NRC) to release a portion of the HNP site from CYAPCO's 10 CFR Part 50 license (DPR-61). The area to be released consists of sixty-four (64) open land survey areas, one (1) structure that has been free released under CYAPCO's Operational Radiation Program, and six (6) subsurface soil survey areas. The areas proposed for release encompass approximately 40% of the site, leaving only the areas associated with the ISFSI, portions of Survey units 9523-0000, 9528-0000, and 9528-0004 within the Part 50 License. CYAPCO indicated that they have reviewed and assessed the subject survey areas in accordance with Section 1.5 of the HNP License Termination Plan (LTP) (ADAMS Accession Nos. ML072060059, ML070650478, and ML063310075) and the NRC Safety Evaluation (SE) (ADAMS Accession No. ML033090052) of the LTP dated November 25, 2002, to ensure that this proposed action will not have an adverse impact on the ability of the site in aggregate to meet 10 CFR 20, Subpart E, criteria for unrestricted release.

Enclosure

2.0 EVALUATION

2.1 Applicable Requirements

Chapter 1 of the LTP describes the process for phased site releases prior to license termination. Section 1.4.2 of the LTP requires CYAPCO to complete the following:

1. Following completion of decommissioning activities and final status survey of a survey unit, CYAPCO will compile a final status survey (FSS) report to address the area or building, where decommissioning and remediation tasks are complete and the criteria of 10 CFR20.1402 have been met. The results of these surveys will be documented in a report, which is provided to the NRC for its review. The report will contain a compilation of release records of the areas surveyed. A release record documents the as-left radiological condition of a survey area or survey unit.
2. Prior to a request to release a survey area from the license, the licensee will perform a Capture Zone Analysis and will assure that the ground water dose contribution is included for all applicable survey areas per the process described in Section 5.4.7.1 of the LTP.
3. CYAPCO will review and assess the impacts to the following documents in preparation of removing a land area (and any associated buildings) from the license:
 - Updated Final Safety Analysis Report (FSAR) and Technical Specifications;
 - Environmental Monitoring Program;
 - Offsite Dose Calculation Manual;
 - Defueled Emergency Plan;
 - Security Plan;
 - Post Shutdown Decommissioning Activities Report;
 - License Termination Plan;
 - Ground Water Monitoring Program;
 - 10 CFR100 Siting Criteria; and,
 - Environmental Report.

The reviews will include an assessment to ensure that the land area(s), and any associated building(s), to be released will have no adverse impact on the ability of the site in aggregate to meet the Part 20, Subpart E, criteria for unrestricted release. The reviews will also include the impacts of the discharge of effluents and the limits of 10 CFR 30, as they pertain to the public.

4. A letter of intent to remove a portion of the property from the Part 50 license will be sent to the NRC, at least sixty (60) days before the anticipated date for release of the subject survey area(s). This letter will contain a summary of the assessments performed, as described above, and, for areas designated as "impacted," will include the FSS report for the subject survey unit(s) or area(s).

5. Once the land area(s), and any associated building(s), have been verified ready for release, no additional surveys or decontamination of the subject building or area will be required (beyond those outlined in Section 5.4.6 intended for isolation and control) unless administrative controls to prevent re-contamination are known or suspected to have been compromised. Following completion of the final status survey and submittal of the associated report, the NRC will review the report and conduct the applicable NRC confirmatory inspections.
6. Once the area(s), and any associated building(s), have been released from the license, remaining material can be dispositioned in accordance with state and federal requirements.
7. Upon completion of the HNP Decommissioning Project, a final report will be prepared, summarizing the release of areas of the HNP site from the 10 CFR 50 license.

Accordingly, because the approved LTP includes the phased site release process set forth above, the 10 CFR § 50.83 partial site release requirements are not applicable here as set forth in § 50.83 (a).

2.2 Area to be Released and FSS Results

The area the licensee intends to release consists of sixty-four (64) open land survey areas, one (1) structure that has been free released under CYAPCO's Operational Radiation Program, and six (6) subsurface soil survey areas. These areas proposed for release encompass approximately 40% of the site, leaving only the areas associated with the ISFSI, portions of Survey units 9523-0000, 9528-0000, and 9528-0004, within the Part 50 License.

The specific survey areas to be released are described below in phases, consistent with the FSS reporting, and depicted in Figure 1.

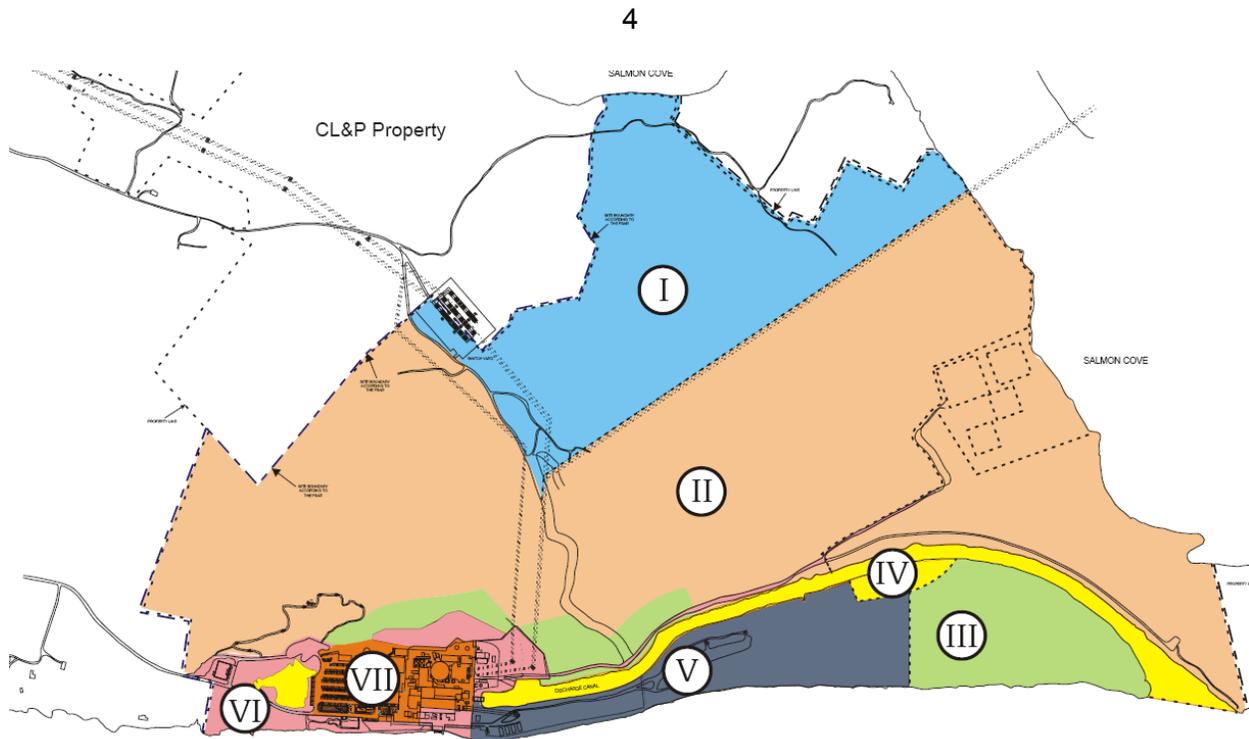


Figure 1. Overview of Connecticut Yankee Land Area Phases

Phase I

Phase I was comprised of survey unit (SU) 9532, the east side grounds of the site which were determined to be unimpacted by site operations. This SU encompassed 375,600 square meters (m²), and was released from the site in September 2004 (ADAMS Accession Number ML042510091).

Phase II

Phase II was comprised of fifteen (15) SU's: 9523-0000, 9524-0000, 9525-0000, 9526-0000, 9526-0001, 9526-0002, 9528-0000, 9528-0003, 9528-0004, 9535-0001, 9535-0002, 9536-0000, 9537-0000, 9538-0000, and 9806-0000. Phase II included SU's of various contamination classifications, as defined in the HNP LTP, but did not include areas with potential future groundwater contamination. These SU's encompassed 907,648 m² of site land and were released from the site on February 27, 2006 (ADAMS Accession Number ML060530075).

Phase III

Phase III is comprised of seven (7) SU's: the southeast pond, 9521-0000; the east mountainside, 9527-0001 through -0004; the southeast mountainside, 9528-0002; and the south end of the peninsula, 9531-0000. These SU's total 173,470 m² and are HNP LTP class 2 and 3 areas, with existing groundwater contamination in all but the south end of the peninsula. Groundwater contamination dose contributions are discussed in the Groundwater section below.

The FSS reports for Phase III SU's were submitted on May 4, 2006, (ADAMS Accession Numbers ML061360080, ML061360082, ML061360121, ML061360339, ML061360374, ML061360384, ML061360394, ML061360399, and ML061360405) and revised on September

21, 2006 (ADAMS Accession Numbers ML070120538, ML070120541, ML070120543, ML070120545, ML070120546, and ML070120547). The NRC has reviewed the FSS reports, and the licensee's revisions based on discussions with NRC staff on the FSS reports, for the areas to be released and determined that the FSS reports are acceptable.

Phase IV

Phase IV is comprised of sixteen (16) SU's in the discharge canal (SU's 9106-0001 through 9106-0011, 9106-14, and 9106-15), permanent wetlands (SU's 9106-0012 and 9106-0013), and the pond (9508-0000). The SU's are sediment bearing HNP LTP class 1, 2, and 3 areas, and five SU's have existing groundwater contamination. Groundwater contamination dose contributions are discussed in the Groundwater section below.

The FSS reports for Phase IV SU's were submitted on November 30, 2006 (ADAMS Accession Numbers ML063400421, ML063400425, ML063400429, ML063400431, ML063400434, ML063400437, ML063400438, ML063400440, ML063400442, ML063400445, ML063400488, ML063400494, ML063400497, ML063400499, ML063410141, ML063410430, ML063410432, and ML063410435). The NRC has reviewed the FSS reports, and the licensee's revisions based on discussions with NRC staff on the FSS reports, for the areas to be released and determined that the FSS reports are acceptable.

Phase V

Phase V is comprised of twelve (12) SU's in the southwest site storage area (SU's 9520-0001 through 9520-0006, and 9805-0000), the central peninsula (SU's 9530-0001 through 9530-0004, and 9807-0000). The SU's are HNP LTP class 1, 2 and 3 areas. Two of the SU's are subsurface (9805-0000 and 9807-0000) and all have existing groundwater contamination. Groundwater contamination dose contributions are discussed in the Groundwater section below.

The FSS reports for Phase V SU's were submitted on December 7, 2006, and revised on July 12, 2007 (ADAMS Accession Numbers ML063540219 ML063540228, ML072080396, ML072890730, ML072890733, ML072890735, ML072890737, ML072890740, ML072900149, ML072900161, ML072900164, ML072900171, ML072900174, ML072080377, ML072080391, ML072080400, ML072890728). The NRC has reviewed the FSS reports, and the licensee's revisions based on discussions with NRC staff on the FSS reports, for the areas to be released and determined that the FSS reports are acceptable.

Phase VI

Phase VI is comprised of seventeen (17) SU's in the southwest protected area (SU's 9304-0001 and -0002), the bypass road and secondary parking lot (SU 9504-0000), the north site grounds (SU 9506-0000), the northwest site grounds (SU's 9512-0000, 9522-0001 through -0007, the east mountain side (SU 9527-0005 and -0006), the Independent Spent Fuel Storage Installation (ISFSI) haul road (SU 9539-0001 and -0002), and the subsurface area associated with the southeast grounds (SU 9804-0000). The SU's are HNP LTP class 1, 2, 3, and C areas. One of the SU's is subsurface (9804-0000), all but the north site grounds (SU 9506-0000) have existing groundwater contamination, and seven have future groundwater dose contributions (SU 9304-0001, 9304-0002, 9522-0005, 9522-0006, 9522-0007, 9539-0002, and 9804-0000). Groundwater contamination dose contributions are discussed in the Groundwater section below.

The FSS reports for Phase VI SU's were submitted on February 20, 2006, and revised on July 12, 2007 (ADAMS Accession Numbers ML070740543, ML070740559, ML070740575, ML070740589, ML070740598, ML070740610, ML070740623, ML070740648, ML070740658, ML070740660, ML070740663, ML070740664, ML070740668, ML070740672, ML070740675, ML070740678, ML070740680, ML070740682, and ML073130469). The NRC has reviewed the FSS reports, and the licensee's revisions based on discussions with NRC staff on the FSS reports, for the areas to be released and determined that the FSS reports are acceptable.

Phase VII

Phase VII is comprised of eighteen (18) SU's in the northwest protected grounds (SU 9302-0000); the southwest protected grounds (SU 9306-0000); grounds (SU 9312-0001) and areas within the former containment radiologically controlled area (RCA), including the footprint of the spent fuel building footprint (SU 9312-0002), the former southwest 115 kilovolt (kV) switchyard (SU 9312-0003), the area north of the former Primary Auxiliary Building (PAB) (SU 9312-0004), the former tank farm (SU 9312-0005), the PAB footprint (SU 9312-0006), the Radwaste Reduction Facility (RRF) footprint (9312-0007); the groundwater treatment facility footprint (9312-0008), the east trench (9312-0009 and 0010), the central site grounds (9313-0000), the primary parking lot (9514-0000 and 9514-0001), and the subsurface areas of the industrial grounds and RCA (9801-0000, 9802-0000, and 9803-0000).

The SU's are HNP LTP class 1, 2, 3, A, B, and C areas. All eighteen SU's have existing groundwater contamination, and all except the primary parking lot and north area subsurface (9514-0000, 9514-0001, and 9803-0000), have future groundwater dose contributions. Groundwater contamination dose contributions are discussed in the Groundwater section below.

The FSS reports for Phase VII SU's were submitted in May 2007, and revised on July 12, 2007 (ADAMS Accession Numbers ML071730427, ML071730431, ML071730436, ML071730441, ML071730449, ML071730452, ML071730440, ML071730442, ML071730444, ML071730447, ML071550108, ML071730480, ML071730481, ML071730485, ML071730488, ML071730490, ML071730456, ML071730464, ML071730471, ML071730478, and ML073130469). The NRC has reviewed the FSS reports, and the licensee's revisions based on discussions with NRC staff on the FSS reports, for the areas to be released and determined that the FSS reports are acceptable.

2.3 Remaining Dismantlement / Decommissioning Activities

With the exception of decommissioning activities at the ISFSI to be undertaken when all fuel has been removed, all decommissioning and dismantlement activities have been completed at this site. Thus, no dismantlement activities are required in the survey areas to be released. The ISFSI and immediately surrounding areas are to be retained under the Part 50 license.

2.4 Controls to Prevent Recontamination

The only remaining source of potential recontamination of the area to be released is the ISFSI. The HNP spent fuel at the ISFSI is stored in the NAC-MPC System. The NAC-MPC System is a sealed and leak-tight spent fuel storage system. CYAPCO completed in-process inspections and tests during fabrication and sealing of the canisters. Consequently, there is no release of radioactive material during normal conditions of storage. The structural analysis of the canister

for off-normal and accident conditions of storage, which is presented in Chapter 10 of the NAC-MPC FSAR, shows that the canister is not breached in any of the evaluated events. Consequently, there is no release of radioactive material during off-normal and accident conditions of storage that could impact the areas proposed for release.

Following removal from the license, if any released areas become radiologically contaminated as a result of later decommissioning activities at the HNP ISFSI, the contamination would be considered an off-site release, and subject to 10 CFR Part 20.

2.5 Impact of Proposed Phased Site Release on Programs and Documents

2.5.1 FSAR

The proposed release will require minor changes to Section 2.1, "Site Characteristics: Geography and Demography" and to Figure 2-1, "Site Boundary" of the Decommissioning FSAR. The changes need to (1) describe the reduced site area resulting from the removal of the subject survey area from the Part 50 License; and (2) identify the new site boundary on Figure 2-1. The licensee has stated that this revision will be performed.

2.5.2 Technical Specifications

The HNP Defueled Technical Specifications are not impacted by the release of the subject survey areas, as a size and description of the site are not included in the Technical Specifications. The survey and release processes are consistent with the LTP and associated License Condition. The ISFSI Technical Specifications, associated with allowable surface contamination on the cask after loading, were based upon limiting the dose at 100 meters (m) due to a total mechanistic release of the surface contamination. The phased site release will not affect the basis for this Technical Specification, as the assumed 100 m dose point is within the 300 m owner controlled boundary that will continue to be maintained for the ISFSI after phased site release has been implemented.

2.5.3 Radiological Environmental Monitoring Program

Gaseous, liquid, and solid radwaste systems associated with the operation of HNP have been removed and disposed. Site decommissioning activities have been concluded for the site (except those required in the future for the ISFSI), and discharges of radioactive material (gaseous or liquid) are no longer made. Accordingly, the Radiological Environmental Monitoring Program has been revised to address monitoring associated only with the ISFSI which is to be retained under the Part 50 license. Therefore, the Radiological Environmental Monitoring Program will not be affected by the release of the proposed areas.

2.5.4 Offsite Dose Calculation Manual (ODCM)

Gaseous, liquid, and solid radwaste systems associated with the operation of HNP have been removed and disposed. Site decommissioning activities have been concluded for the site (except those required in the future for the ISFSI), and discharges of radioactive material (gaseous or liquid) are no longer made. Recently, the National Pollutant Discharge Elimination System (NPDES) permit for the site was terminated. Accordingly, the ODCM was revised to

address the ISFSI only. Monitoring in accordance with the ODCM continues and will not be impacted by the proposed phased site release. Therefore, the ODCM will not be affected by release of the proposed areas.

2.5.5 Defueled Emergency Plan

As the former nuclear plant has been dismantled and decommissioned, the Emergency Plan for the site has been reduced to address the ISFSI only. The ISFSI Emergency Plan describes the location of the ISFSI, the Radiologically Controlled and Protected Areas, and the 300 m Owner Controlled Area. None of these locations/areas will be affected by the proposed phased site release. Although portions of the owner controlled area are included in the area proposed for phased site release, CYAPCO will continue to maintain control of this area. Therefore, the emergency Plan will not be affected by release of the proposed areas.

2.5.6 Security Plan

The security plan addresses the materials stored at the ISFSI and will not be affected by the release of the proposed areas.

2.5.7 License Termination Plan

The licensee has committed to make a revision to the LTP to revise the area of the site still under the Part 50 license. Otherwise the proposed release does not impact the LTP.

2.5.8 Groundwater

The Groundwater Monitoring Program is intended to integrate all aspects of groundwater characterization, monitoring and remediation required to support unrestricted release of the HNP site.

The staff reviewed CYAPCO's confirmation of groundwater compliance dated July 31, 2007, (ADAMS Accession Numbers ML072060467 and ML072060517) for the HNP. In that document, CYAPCO demonstrated license termination compliance for the groundwater at the HNP site as specified in its Revised Groundwater Monitoring Plan dated March 21, 2007 (ADAMS Accession Number ML070860743). CYAPCO's LTP allocates 0.08 milliSieverts per year (mSv/yr) (8 millirem per year (mrem/yr)), for groundwater dose.

This demonstration included the following items:

The performance of six quarters of radiological sampling data for 60 monitoring wells (December 2005 - June 2007),

The cumulative dose from existing groundwater at each of the monitoring wells does not exceed 0.08mSv/yr (8 mrem/yr), and

The substances of concern (H-3, Sr-90, and Cs-137) have concentrations in the groundwater that are usually stable or decreasing. Variations are further discussed below.

Results from the quarterly radiological sampling indicate that no groundwater from the 60 monitoring wells at the end of the 18 month sampling period exceeded a cumulative dose of 0.08 mSv/yr (8 mrem/yr). The largest cumulative dose from the substances of concern (SOCs) during the June 2007 sampling event was 0.0198 mSv/yr (1.98 mrem/yr) at monitoring well MW-137. The majority of this dose comes from Cs-137, which is very immobile in the saturated zone. This dose is approximately 25 percent of the 0.08 mSv/yr (8 mrem/yr) allocation.

NRC staff agrees with CYAPCO's assessment that the current H-3 and Sr-90 plumes are related to the remediation activities at the Fuel Building during the summer and fall of 2006. The Sr-90 peaks occur later than the H-3 peaks because H-3 is more mobile (lower distribution coefficient K_d) in the groundwater than Sr-90. Also, these plumes are currently down gradient from the remediated source area and they will be likely discharged into the Connecticut River by late 2007. Finally, there is no information to support any increase in dose from Cs-137 at monitoring well MW-137 or any other well. Therefore, the cumulative dose from the SOCs should not exceed the 0.08 mSv/yr (8 mrem/yr) dose allocation for any monitoring well in the future.

CYAPCO did not achieve a stable or downward trend in the SOCs at all the monitoring wells by the end of the 18 month sampling period. However, NRC staff determined that the upward trends that were statistically significant (5 monitoring wells for H-3 and 4 monitoring wells for Sr-90) do not represent a dose or risk concern, since the dose was well below the 0.08 mSv/yr (8 mrem/yr) dose allocation.

The NRC has reviewed the licensee's groundwater sampling documents and analysis and agrees that the 0.08 mSv/yr (8 mrem/yr) LTP dose allocation has been met and therefore, compliance with the release criteria for groundwater has been achieved.

2.5.8.1 Future Groundwater Dose

CYAPCO's LTP allocated 0.02 mSv/yr (2 mrem/yr) in dose contribution from two activated subsurface concrete structure areas as future groundwater dose. By letter dated May 30, 2007, CYAPCO provided dose contribution calculations from the two subsurface concrete areas (ADAMS Accession Numbers ML071870492, ML071870494, ML071870497, ML071870499, ML071870503, ML071870504, and ML071870507). The resulting dose was 0.0158 mSv/yr (1.58 mrem/yr) for the former radiologically controlled area and 0.0023 mSv/yr (0.23 mrem/yr) for the river intake and discharge area. NRC staff reviewed CYAPCO's calculations and agrees that the 0.02 mSv/yr (2 mrem/yr) LTP dose allocation has been met.

2.5.9 10 CFR 100 Siting Criteria

10 CFR Part 100 addresses design and environmental aspects to be considered in siting a power reactor. Decommissioning of the HNP power reactor portion of the site has been completed. Only the ISFSI and a 300 m boundary will remain after this proposed phased site release. Therefore, the criteria of 10 CFR Part 100 no longer apply to this site and need not be addressed.

2.5.10 Decommissioning Environmental Report

The licensee evaluated the environmental impacts as documented in Supplement 1 to NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities" during preparation of the LTP. The information contained in the LTP was determined to be consistent or bounded by the information in the Decommissioning Environmental Report and Supplement 1 to NUREG-0586. The phased site release process was included in the LTP, and the phased site release being proposed is consistent with the process in the LTP. Therefore, the Decommissioning Environmental Report and conclusions in Section 8 of the LTP concerning Supplement 1 to NUREG-0586 are not impacted by the proposed phased site release.

2.6 NRC Inspections and Confirmatory Surveys

NRC survey contractors from the Oak Ridge Institute for Science and Education (ORISE) performed multiple in-process and confirmatory surveys of the radiological conditions at HNP during decommissioning. ORISE also performed confirmatory analysis of samples from HNP. Samples were tested by gamma spectroscopy for Co-60, Cs-137, and other gamma-emitting radionuclides associated with the HNP. Reports of ORISE surveys and sample analyses were provided on July 27, 2004, August 31, 2004, September 29, 2005, December 5, 2005, January 27, 2006, July 18, 2006, September 25, 2006, April 3, 2007, July 3, 2007, and September 12, 2007 (ADAMS Accession Numbers ML042170277, ML042670472, ML053040022, ML060320124, ML060310028, ML070320448, ML070320450, ML073120571, ML073120613, and ML073120392).

NRC inspections of CYAPCO decommissioning activities are documented in inspection reports dated July 3, 2003, January 7, 2004, November 10, 2005, February 7, 2006, July 14, 2006, April 11, 2007 and November 20, 2007 (ADAMS Accession Numbers ML031840631, ML040070466, ML053180283, ML060390475, ML061980469, ML071010460, and ML073250040).

The NRC staff reviewed the licensee's survey results, the licensee's survey methodology, and the licensee's plans for demonstrating that the survey results would demonstrate that structures and areas met acceptable radiological levels for release. NRC staff also reviewed confirmatory and in-process radiation and contamination surveys conducted by ORISE. Confirmatory surveys provide confidence that the licensee's survey results are representative of the conditions for that survey unit. In-process surveys provide confidence that the licensee's survey results are accurate. Based on the data review, discussions and observations, the inspector observed that the licensee had in place methods for demonstrating compliance with the release criteria. The inspector found that the licensee had in place a methodology in which the survey results were used to assess the radiological condition of the structures in order to determine whether further remediation was required, or the structures were suitable for demolition.

In summary, NRC Inspections and ORISE Confirmatory Surveys, corroborated that the radiological conditions of the open land areas survey units that are proposed to be released, met the approved site-specific DCGLs, and that HNP's laboratory data were consistent and in agreement with the ORISE's analytical results.

2.6.1. Groundwater Monitoring

The NRC staff split groundwater samples collected from monitoring wells in early December 2006, at the HNP. ORISE, the NRC's independent laboratory, performed the following analytical analyses on these samples: gross alpha, gross beta, tritium, total radiostrontium, and gamma spectrometry for Co-58, Co-60, Cs-134, and Cs-137. The results were reported to NRC on February 9, 2007 (ADAMS Accession Number ML073120602). The analysis did identify an anomaly in one of the water samples. ORISE performed alpha spectroscopy on a 10 milliliter fraction, followed by analysis for isotopic uranium. The results indicated that the water sample contained naturally occurring uranium. NRC staff agrees with this finding.

A comparison of the analytical results for the split groundwater samples (i.e., the NRC and CYAPCO groundwater samples for the above wells) indicates a close correspondence. The NRC staff has concluded that the licensee's laboratory analyses and field sampling procedures are adequate. Therefore, the NRC staff has concluded that CYAPCO's radiological analytical program was adequately measuring the occurrence of site-generated radionuclides in the groundwater.

2.7 Summary of Results

The average residual radioactivity at the site is less than 15% of CYAPCO's LTP Derived Concentration Guideline Levels (DCGLs).

3.0 State Consultation

During site decontamination and decommissioning, NRC staff and the State of Connecticut communicated frequently on technical issues associated with radiological measurements and results. The State of Connecticut and NRC inspectors routinely corroborated independent confirmatory survey data from site radiological surveys. The State of Connecticut was notified of this proposed release of land from CYAPCO's license.

4.0 Conclusions

NRC's review of the licensee LTP determined that the proposed DCGLs would ensure that the 10 CFR 20, Subpart E, release criteria would be met. NRC review of the FSS reports determined that the reports were consistent with and demonstrated compliance with the LTP and the FSS results demonstrate that the survey areas to be released meet the radiological criteria for unrestricted release. Review of the licensee's submittal requesting the release adequately addressed the criteria as provided in the LTP. NRC inspections and confirmatory measurements substantiated that the licensee's decommissioning and FSS programs adequately assessed the radiological conditions at the site. Therefore, the NRC approves releasing the subject survey areas from the license, as specified in CYAPCO's July 31, 2007, and October 11, 2007, request.

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Date: November 6, 2007