



CONNECTICUT YANKEE ATOMIC POWER COMPANY

HADDAM NECK PLANT
362 INJUN HOLLOW ROAD • EAST HAMPTON, CT 06424-3099

OCT 5 2005

CY-05-194
Docket No. 50-213

Re: 10 CFR 50.82

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D. C. 20555-0001

Haddam Neck Plant
Letter of Intent Concerning the Phased Release (Phase II Release Area) from
the Part 50 License

The purpose of this letter is to provide written notification to the Nuclear Regulatory Commission (NRC) of Connecticut Yankee Atomic Power Company's (CYAPCO's) intent to release a portion of the Haddam Neck Plant (HNP) site from the 10 CFR 50 License (DPR-61). Specifically, CYAPCO intends to release the Phase II Release Area that consists of fourteen (14) land area Survey Units and one (1) subsurface soil Survey Unit (except the Independent Spent Fuel Storage Installation (ISFSI) land and the haul road between the Industrial Area of the HNP and the ISFSI) within the east mountainous and low land survey areas of the HNP site from its Part 50 License.

The requirements of 10 CFR 50.83, "Release of part of a power reactor facility or site for unrestricted use", are not applicable in cases where there is an approved License Termination Plan (LTP). In the Statements of Consideration for Section 50.83, the Commission stated that "[p]artial releases following LTP approval would be governed by the LTP or changes thereto" provided that the "LTP contained a sufficient change process or describes staged releases of the property prior to license termination." In a letter dated November 25, 2002, the NRC approved the HNP LTP via a License Amendment. The Safety Evaluation that supports the License Amendment indicates that the NRC accepted the process for releasing the land area(s) from the Part 50 License. Section 1.4.2 of the HNP LTP specifies the scope of the review and process for removing land areas from the license.

As stated earlier, CYAPCO intends to release fourteen (14) land area Survey Units and one (1) subsurface soil Survey Unit (except the Independent Spent Fuel Storage Installation (ISFSI) land and the haul road between the Industrial Area of the HNP and the ISFSI) within the east mountainous and low land survey areas of the HNP site from its Part 50 License. Table 1 provides a listing of all

NMSSD/

Survey Units included in this release of land from the Part 50 License. In accordance with Section 1.4.2 of the HNP LTP and NRC Safety Evaluation dated November 25, 2002,¹ CYAPCO has reviewed and assessed the subject Survey Units (See Table 1 of this letter and Figure 1-1 of Attachment 1) to ensure that this proposed action will have no adverse impact on the ability of the site in aggregate to meet 10 CFR 20, Subpart E, criteria for unrestricted release.

Attachment 1 contains a summary of the assessment performed. It is noted that Attachment 1 does not contain the Final Status Survey (FSS) report for the Phase II Release Area (15 Survey Units) because the FSS report for the subject Survey Units was submitted to the NRC via letter dated March 8, 2005.²

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) performed confirmatory survey activities on selected open land survey units at the HNP site during the period of September 29 through October 1, 2003 and March 16 through 17, 2004. The Survey Units included in the scope of the Independent Verification Team (IVT) survey are identified on Table 1 of this submittal. The results of the survey are documented in the "ORISE Revised Final Report-Confirmatory of Open Land Survey Units at the Connecticut Yankee Haddam Neck Plant, Haddam, Connecticut", dated July 27, 2004³ and the NRC Integrated Inspection Report dated September 20, 2004⁴. The results of the survey activities confirmed that the radiological conditions of open land area Survey Units that are part of these confirmatory survey activities met the approved site-specific Derived Concentration Guideline Levels (DCGLs). These results also confirmed that the Survey Units had been classified correctly.

CYAPCO plans to begin undertaking activities associated with the release of the subject Survey Units from the HNP Part 50 License on or before January 30, 2006. Therefore, we request that the NRC approve the acceptability of the release of the subject Survey Units from the HNP Part 50 License by January 16, 2006. Additionally, we would like to know if the NRC plans to conduct any further confirmatory surveys, and if so, please provide your proposed schedule.

¹ J. D. Donahue (USNRC) to K. Heider (CYAPCO), "Haddam Neck Plant – Issuance of Amendment RE: Approval of License Termination Plan", dated November 25, 2002.

² J. F. Bourassa (CYAPCO) letter to US NRC, "Haddam Neck Plant, Final Status Survey (FSS) Final Report - Phase II", dated March 8, 2005.

³ ORISE Revised Final Report - Confirmatory of Open Land Survey Units at the Connecticut Yankee Haddam Neck Plant, Haddam, Connecticut (Docket No. 50-213, RFTA No. 03-008), dated July 27, 2004.

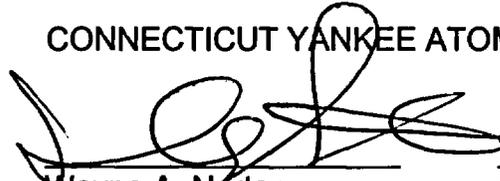
⁴ C. Gordon (NRC) letter to W. Norton (CYAPCO), NRC Integrated Inspection Report 05000213/2004001, dated September 20, 2004.

There are no regulatory commitments contained in this letter.

If you should have any questions regarding this submittal, please contact Mr. G. P. van Noordennen at (860) 267-3938.

Sincerely,

CONNECTICUT YANKEE ATOMIC POWER COMPANY


Wayne A. Norton
President

Date 10/5/05

Attachments

cc: Mr. S. J. Collins, NRC Region 1 Administrator
Ms. M. T. Miller, Chief, Decommissioning Branch, NRC Region 1
Mr. T. B. Smith, NRC Project Manager
Dr. E. L. Wilds Jr., CT DEP, Director, Radiation Division
Mr. M. Rosenstein, US Environmental Protection Agency, Region 1

TABLE 1
Phase II Survey Unit Classification and Description List

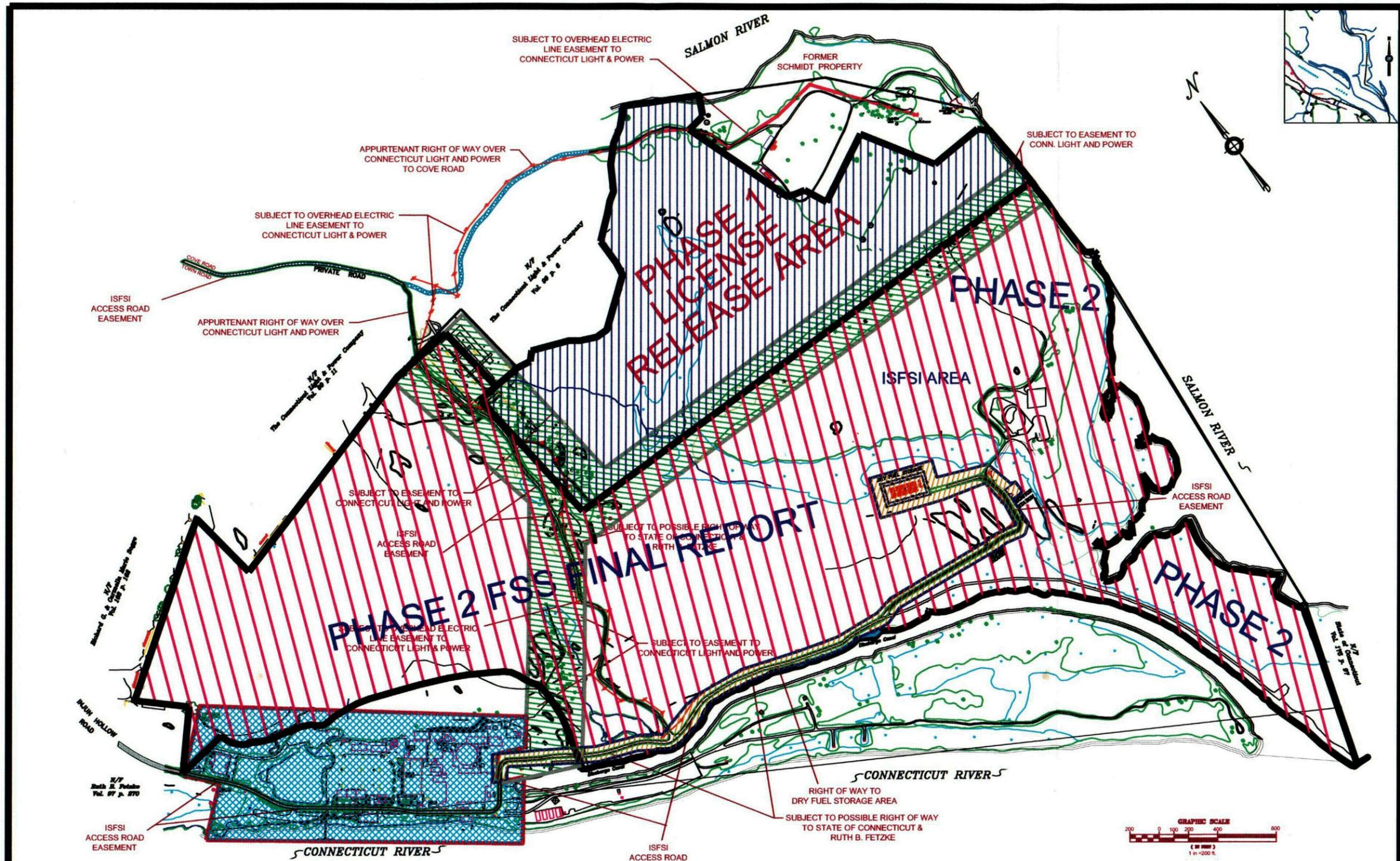
Survey Area	Survey Unit	Class	General Description of the Survey Unit
9523 ¹	0000	3	Southeast Wetland Area; land area (151,364 m ²)
9524	0000	3	South Site Grounds; land area (61,975 m ²)
9525	0000	3	Southeast Site Road; land area (28,000 m ²)
9526 ¹	0000	3	Northeast Mountain Side; land area (444,700 m ²)
9526 ¹	0001	2	Northeast Mountain Side; land area (6,504 m ²)
9526 ¹	0002	2	Northeast Mountain Side; land area (6,6068 m ²)
9528 ¹	0000	3	Southeast Mountain side; land area (508,000 m ²)
9528 ¹	0003	2	Southeast Mountain Side; land area (10,000 m ²)
9528	0004	2	Southeast Mountain Side; land area (3,100 m ²)
9535	0001	1	Southeast Landfill Area; land area (1860 m ²)
9535	0002	2	Southeast Landfill Area; land area (3,320 m ²)
9536 ¹	0000	2	Construction Piles Near Rifle Range; land area (1,536 m ²)
9537 ¹	0000	2	Permitted Landfill Area; land area (850 m ²)
9538 ¹	0000	2	Material Storage Area; land area (1,500 m ²)
9806	0000	A	Southeast Landfill – 9535; subsurface soils (5,180 m ²)

¹ The Survey Units were included in scope of the ORISE IVT Survey.

CY-05-194
Docket No. 50-213

Attachment 1
Haddam Neck Plant
Letter of Intent Concerning the Phased Release (Phase II Release Area) from the
Part 50 License

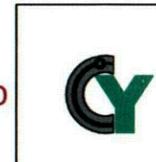
October 2005



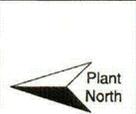
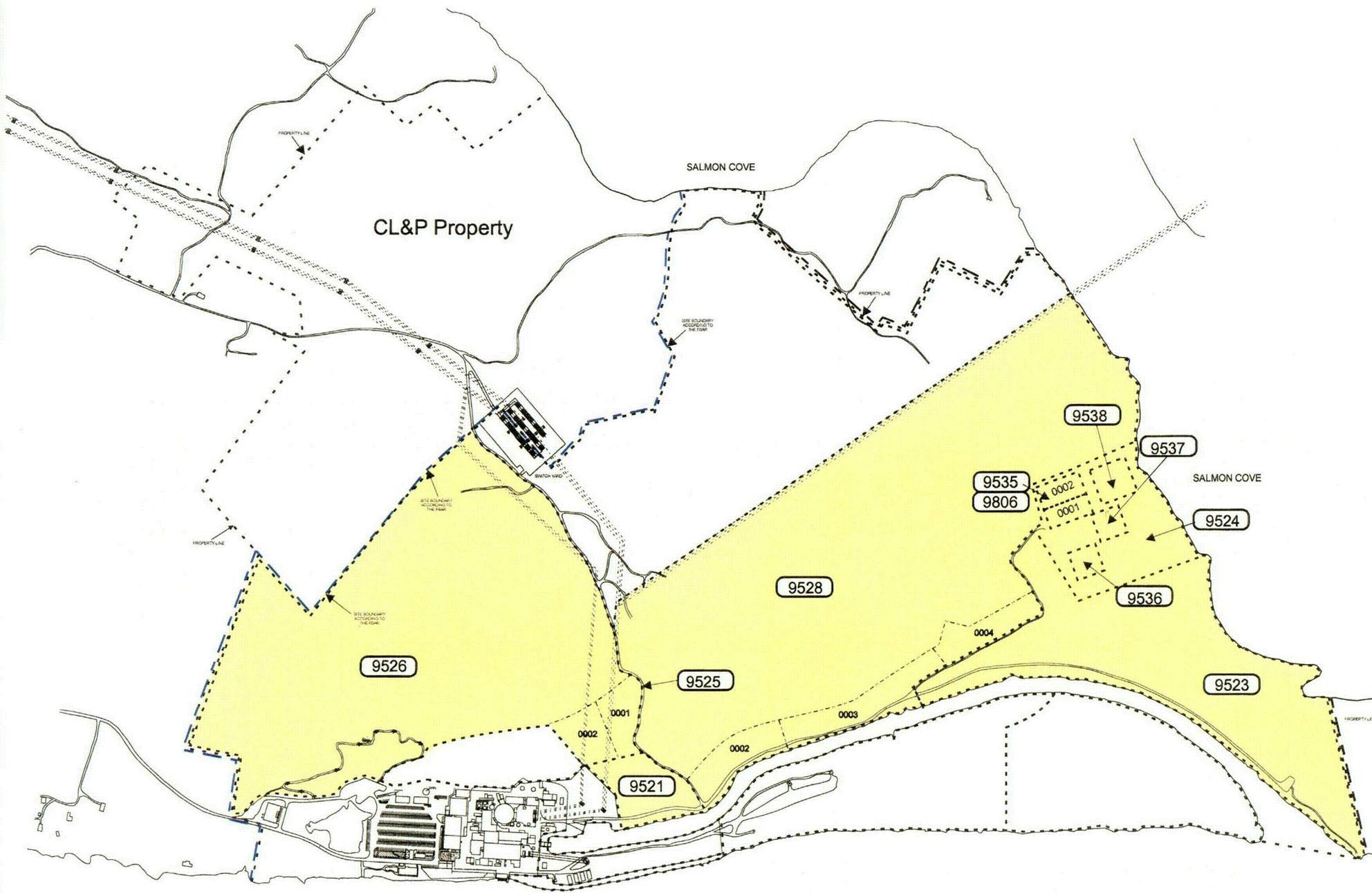
- AREA TO BE RETAINED IN NRC LICENSE
- PHASE 1 LICENSE RELEASE AREA
- PHASE 2 FSS FINAL REPORT
- TRANSMISSION LINE EASEMENT
- INDUSTRIALLY ZONED

NOTE:
 ISFSI SITE AREA IS APPROX 4.6 ACRES
 AND THE ISFSI HAUL ROAD IS APPROX.
 9.5 ACRES (ROAD /SHOULDER WIDTH 100 FT.)

NOTE:
 ALL REMAINING AREAS
 ARE BACK LANDS



REV	DATE	DESCRIPTION	DRAWN	CKD	PFE
0	10/03/05	ISSUE	GWL		
CONNECTICUT YANKEE DECOMMISSIONING PROJECT			CY SITE DEFINED AREAS		
JOB NO.			SCALE		
FIG. 1-1			FSAR FIG. 1-1		SHEET 1 OF 1

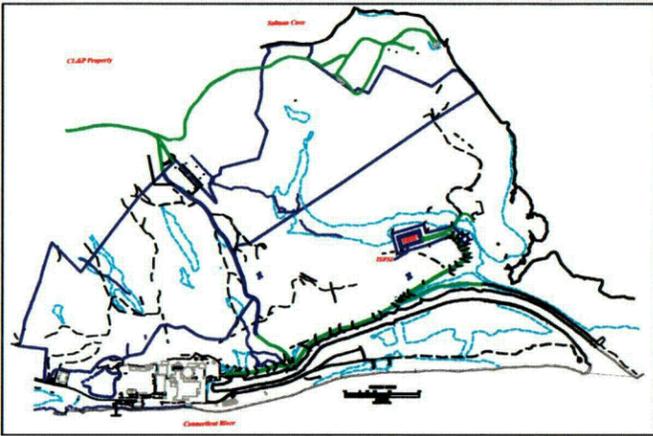


CONNECTICUT YANKEE ATOMIC POWER COMPANY
 GENERAL ARRANGEMENT DRAWING
Phase II FSS Final Report
Open Land Areas



INITIAL CREATION DATE:	11/15/04
CREATED BY:	de Charleroy
REVISION DATE:	N/A
REVISION #:	0
MAP #:	Fig 1-2

LEGEND:	
SITE PROPERTY LINE	---
SITE BOUNDARY	----
SURVEY AREA BOUNDARY	-.-.-
SURVEY AREA	#
SURVEY UNIT BOUNDARY
SURVEY UNIT NUMBER	####

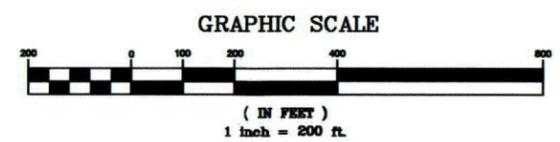
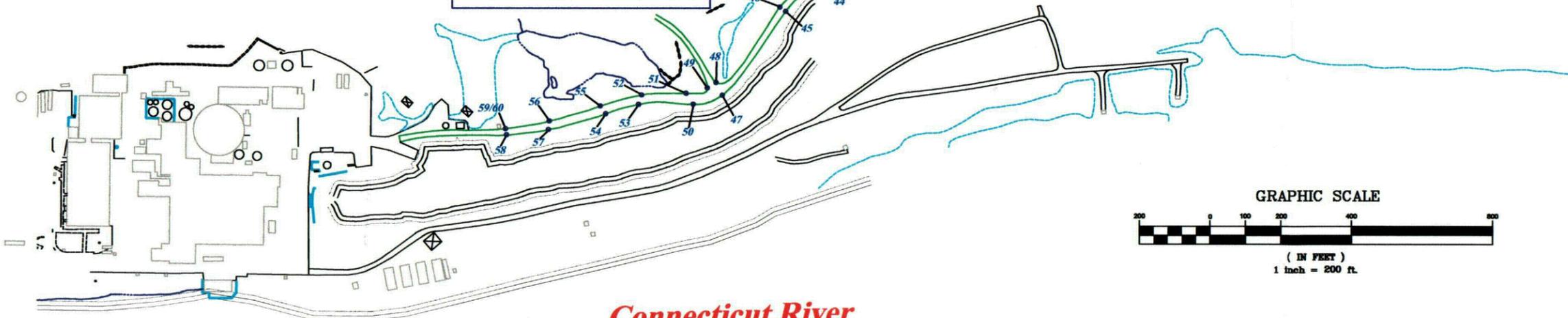
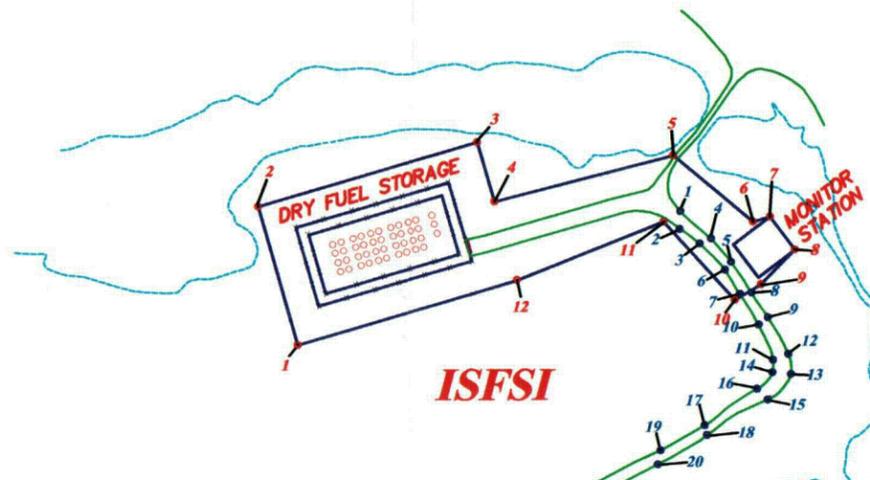


GPS COORDINATES, ISFSI PAD AREA

POINT	NORTHING	EASTING
1	236157.1	671961.0
2	236417.8	672060.4
3	236259.7	672475.3
4	236147.6	672432.6
5	236009.0	672763.5
6	235812.7	672809.2
7	235801.0	672841.0
8	235721.0	672841.0
9	235706.8	672748.3
10	235713.3	672690.2
11	235918.9	672671.8
12	235999.0	672375.9

GPS COORDINATES, ISFSI HAUL ROAD

POINT	NORTHING	EASTING	POINT	NORTHING	EASTING
1	235914.6	672709.1	36	235669.0	671184.2
2	235887.9	672687	37	235758.9	670893.1
3	235841.7	672700.7	38	235740.8	670882.0
4	235836.0	672724.4	39	235808.8	670722.3
5	235776.4	672728.1	40	235832.2	670725.1
6	235771.9	672709.1	41	235868.5	670601.3
7	235716.9	672704.4	42	235845.2	670594.0
8	235705.1	672724.3	43	235913.6	670382.0
9	235648.4	672720.4	44	235891.1	670375.2
10	235647.7	672697.3	45	235886.2	670222.4
11	235576.6	672678.2	46	235906.2	670216.2
12	235567.5	672709.6	47	235806.5	669937.5
13	235533.8	672689.4	48	235845.5	669945.0
14	235557.3	672663.3	49	235848.1	669915.7
15	235521.9	672624.3	50	235835.3	669856.4
16	235550.8	672620.9	51	235872.2	669859.2
17	235555.4	672497.7	52	235944.7	669756.2
18	235537.3	672489.4	53	235928.5	669733.4
19	235568.9	672399.1	54	235964.1	669643.0
20	235550.2	672379.0	55	235990.4	669644.9
21	235621.4	671994.2	56	236044.1	669504.2
22	235648.5	671753.0	57	236026.2	669487.4
23	235623.2	671748.8	58	236086.3	669384.3
24	235624.7	671698.3	59	236102.3	669392.4
25	235648.1	671684.6	60	236102.3	669392.4
26	235641.9	671643.7			
27	235614.7	671632.5			
28	235605.9	671603.2			
29	235605.7	671603.3			
30	235630.9	671589.2			
31	235635.0	671511.2			
32	235612.2	671504.5			
33	235653.8	671292.8			
34	235631.0	671286.3			
35	235644.1	671190.6			



NOTES:

- 1. COORDINATES ARE IN NAD27
- 2. STATION AREA IS APPROX. 4.6 ACRES
- HAUL ROAD AREA IS APPROX. 9.5 ACRES

0	10/03/05	ISSUE	GWL		
REV	DATE	DESCRIPTION	DRAWN	CKD	PFE
		ISFSI AREA AND HAUL ROAD SITING COORDINATES			
		JOB NO.	SCALE		
FIG. 1-3		FSAR FIGURE 1-3 SHEET 1 OF 1			



**Release Report for
Phase II Survey Areas**

Background:

The Haddam Neck Plant (HNP) is located on the east bank of the Connecticut River, approximately 21 miles south-east of Hartford, at 362 Injun Hollow Road, Haddam, Middlesex County, Connecticut. The HNP is owned by Connecticut Yankee Atomic Power Company (CYAPCO). The HNP, Docket No. 50-213 (License No. DPR-61) began commercial operation in January 1968. On December 4, 1996, the HNP permanently shut down after approximately 28 years of operation. On December 5, 1996, CYAPCO notified the Nuclear Regulatory Commission (NRC) of the permanent cessation of operations at the HNP and the permanent removal of all fuel assemblies from the Reactor Pressure Vessel and their placement into the Spent Fuel Pool. Following the cessation of operations, CYAPCO began to decommission the HNP. The Post Shutdown Decommissioning Activities Report (PSDAR) was submitted, in accordance with 10 CFR 50.82(a)(4), on August 22, 1997 and Revision 1 and 2 of the PSDAR were submitted on October 22, 2002 and April 28, 2004. On January 26, 1998, CYAPCO transmitted an Updated Final Safety Analysis Report (UFSAR) to reflect the plant's permanent shutdown status and on June 30, 1998, the NRC amended the HNP Facility Operating License to reflect this plant condition. On October 19, 1999, the Operating License was amended to reflect the decommissioning status of the plant and long-term storage of the spent fuel in the spent fuel pool. Additional licensing basis documents were also revised and submitted to reflect long-term fuel storage in the spent fuel pool (i.e., Defueled Emergency Plan, Security Plan, QA Program, and Operator Training Program).

By letter dated July,7, 2000, as supplemented by letters dated June 14, July 31, August 15, August 22, September 6, and September 7, 2001, and May 9, June 26, August 15, August 20, and October 10, 2002, CYAPCO requested a change to the Operating License for the HNP. The proposed change would add a License Condition which would approve the License Termination Plan (LTP) for the HNP and provide the criteria by which the licensee (CYAPCO) may change the LTP without prior NRC approval. In addition, CYAPCO indicated in Section 1.4.2 of the LTP that it may want to remove areas from the license once decommissioning and remediation tasks are complete and the licensee can demonstrate that the area and any associated buildings will have no adverse impact on the site in the aggregate to meet the 10 CFR Part 20, Subpart E, criteria for unrestricted release. Section 1.4.2 of the LTP specifies the scope of the review and process for removing the land(s) from the license. In a letter dated November 25, 2002, the NRC issued Amendment No. 197 to the HNP Facility Operating License (No. DPR-61). The amendment adds a license condition which approves the LTP for the

HNP. The Safety Evaluation that supports the license amendment indicates that the NRC accepted the proposed process for releasing the land area(s) from the license (Part 50 license).

Purpose:

The purpose of this report is to provide written notification to the NRC of CYAPCO's intent to release a portion of the HNP site from the 10 CFR 50 License (DPR-61). Specifically, CYAPCO intends to release the Phase II Release Area that consists of fourteen (14) land area Survey Units and one (1) subsurface soil Survey Unit (except the Independent Spent Fuel Storage Installation (ISFSI) land and the haul road between the Industrial Area of the HNP and the ISFSI) within the east mountainous and low land survey areas of the HNP site from its Part 50 License. In accordance with Section 1.4.2 of the HNP LTP and NRC Safety Evaluation dated November 25, 2002, CYAPCO has reviewed and assessed the subject land area (See Figure 1-1 of this Attachment) to ensure that this proposed action will have no adverse impact on the ability of the site in aggregate to meet 10 CFR 20, Subpart E, criteria for unrestricted release.

1.0 Site Information (Related to Survey Units Covered under This Request)

1.1 Physical description of the Survey Units to be release

The Haddam Neck Plant, owned by Connecticut Yankee Atomic Power Company, is located on the east bank of the Connecticut River, approximately 21 miles south-southeast of Hartford.

The site consists of approximately 525 acres, with a minimum distance overland from the reactor containment to the site boundary of 1,740 ft and the distance to the nearest residence is over 2,000 ft. The land (Phase II Release Area) to be released (Figure 1-1) consists of fourteen (14) land area Survey Units and one (1) subsurface soil Survey Unit within the east mountainous and low land survey areas of the HNP site (with the exception of the ISFSI land and the haul road between the Industrial Area of the HNP and the ISFSI). See Figure 1-2 for Phase II Survey Unit locations and Figure 1-3 for ISFSI boundary map. The HNP ISFSI is located near the south end of the HNP site and just north of the ridge that parallels the discharge canal. The ISFSI occupies a land area of approximately 4.6 acres (See Figure 1-1). This land will remain under the jurisdiction of the HNP Part 50 License until termination. At this time the haul road is not included in this request and will remain under the jurisdiction of the HNP Part 50 License. However, this road will be included in future release requests. The ISFSI land consists of the NAC-MPC Storage System and concrete storage pad, a Protected Area (PA) for spent fuel storage and the ISFSI Support Facility. A boundary description of the ISFSI land and the haul road is provided on Figures 1-1 and 1-3.

In 1997, in accordance with NUREG/CR-5849, initial site characterization was implemented. In 1999, following the guidelines of MARSSIM, initial

characterization was completed. The information developed during the initial HNP characterization program represented a radiological assessment based on the knowledge and information available at the end of 1999.

1.2 Survey Area/Unit Description

The following information is a description of each Survey Unit at the time of FSS from November 2001 until August 2004. During this period, fifteen (15) final status surveys covering approximately 313 surface acres were completed on the outlying lands surrounding the Haddam Neck Plant. The areas are mostly wooded in locations to the north and east of the plant, that consist of hilly, rocky uplands that drain to wetland areas.

Survey Unit 9523-0000

Survey Unit 9523-0000, (Southeast Wetlands Area) is designated Class 3, and consists of approximately 151,363.19 m² (37.4 acres) of uninhabited, undeveloped land located about 0.75 miles from the center of the Haddam Neck Plant Containment Building.

Survey Unit 9524-0000

Survey Unit 9524-0000 (the South Site Grounds area) is designated Class 3, and is located approximately 0.85 miles from the Haddam Neck Plant Industrial Area. The Survey Unit is located south of the southeast mountainside and has a land area of 61,974.8 m² (15.3 acres).

Survey Unit 9525-0000

The Southeast Site Road Survey Unit 9525-0000 is a Class 3 section of asphalt-paved road with a steep grade located east of Haddam Neck Plant site industrial area. The road area selected for the Survey Unit is approximately 1,400 meters in length, 2.5 meters wide (0.86 acres), and runs in a north-south direction.

Survey Unit 9526-0000

Survey Unit 9526-0000, (Northeast Mountainside Area), is designated Class 3, and consists of approximately 444,700m² (110 acres) of uninhabited and undeveloped land located about a tenth of a mile (0.09 miles) from the center of the Containment Building.

Survey Unit 9526-0001

Survey Unit 9526-0001 (Northeast Mountainside Area) is designated Class 2, and consists of approximately 6,503.5m² (1.6 acres) of uninhabited, undeveloped land located about a tenth of a mile (0.09 miles) from the center of the Containment Building.

Survey Unit 9526-0002

Survey Unit 9526-0002 (Northeast Mountainside Area) is designated Class 2, and consists of approximately 6,068 m² (1.5 acres) of uninhabited,

undeveloped land located about a tenth of a mile (0.09 miles) from the center of the Haddam Neck Plant Containment Building.

Survey Unit 9528-0000

Survey Unit 9528-0000 (Southeast Mountainside Area) is a Class 3 area and consists of approximately 508,000 m² (125.5 acres) of uninhabited, undeveloped land located about a quarter of a mile (0.23 miles) from the centerline of the containment building.

Survey Unit 9528-0003

Survey Unit 9528-0003 (Southeast Mountainside Area) Haul Road Section 2 is a Class 2 area that comprises an open land area of approximately 10,000m² (2.5 acres) located between the Discharge Canal on the south and approximately 15 meters into the interior of area 9528-0000 on the north.

Survey Unit 9528-0004

Survey Unit 9528-0004 (Southeast Mountainside Area) Haul Road Section 3, is Class 3 open land area of approximately 3,100 m² (0.8 acre) located outside of the Industrial Area. It includes the access road to the Southeast Landfill Area and 15 meters north of the road.

Survey Unit 9535-0001

Survey Unit 9535-0001 (Southeast Landfill) is a Class 1 area located approximately 0.85 miles from the Industrial Area and has a land area of 1,860 m² (0.45 acres).

Survey Unit 9535-0002

Survey Unit 9535-0002 (Southeast Landfill) is a Class 2 area located approximately 0.85 miles from the Industrial Area. Survey Unit 9535-0002 is located north of the pistol range and has a land area of 3,320 m² (0.82 acres).

Survey Unit 9536-0000

Survey Unit 9536-0000 (Construction Piles near the Rifle Range) is a Class 3 open land area of 1,536 m² (0.38 acres). The Survey Unit is at the south end of an excavated sandpit approximately 0.85 miles from the Industrial Area, west of the former pistol range and adjacent to the Permitted Landfill.

Survey Unit 9537-0000

Survey Unit 9537-0000 (Permitted Landfill) is a Class 2 open land area of 850 m² (0.21 acres). The Permitted Landfill is at the south end of an excavated sandpit approximately 0.85 miles from the Industrial Area and west of the former pistol range.

Survey Unit 9538-0000

Survey Unit 9538-0000 (Material Storage Area) is designated Class 2 and consists of approximately 1,500 m² (0.36 acres) of uninhabited, undeveloped, open land located about 0.85 miles from the center of the Haddam Neck Plant Containment Building.

Survey Unit 9806-0000

Survey Unit 9806-0000 (Southeast Landfill Area) is a Class A area located approximately 0.85 miles from the Industrial Area and has a land area of 5,180 m² (1.27 acres). Survey Unit 9806 is the subsurface FSS evaluation of Survey Unit 9535.

2.0 Impact of Release of the Area

2.1 Statement of Dismantling Activities

No dismantlement activities are required in these Survey Units for CYAPCO to release these Survey Units. The FSS Report for Phase II Release Area (15 Survey Units) was submitted to the NRC via letter dated March 8, 2005 (Reference 3.1).

2.2 Potential for Cross-Contamination from Subsequent Activities

The HNP LTP Section 5.4.6 describes isolation and control measures that are used to protect areas where FSS is being performed or has been completed. These isolation and control measures have been implemented in these Survey Units through approved procedures and will remain in force throughout site final survey activities until there is no undue risk of recontamination from decommissioning activities. In the event that isolation and control measures established for these survey Units are compromised, evaluations will be performed and documented to confirm that no radioactive material was introduced into the area that would affect the results of the FSS.

Prior to FSS, areas ready for survey were isolated and controlled under Procedure RPM 5.1-16. This includes posting of the area as well as notifications to site personnel. Permission to enter and work in these areas must be obtained from FSS Staff. Since the commencement of decommissioning, more restrictive controls have been placed on the release of material from radiological controlled areas and the industrial area which further decreases the probability that these Survey Units will be impacted from decommissioning activities. These control measures include contamination containment, dust control measures, storm water runoff measures, building demolition controls, and additional evaluations and surveys of material leaving the industrial area. These stringent requirements for decommissioning activities, as well as the additional protections afforded from FSS isolation and control measures, provide strong assurance that the

potential for cross-contamination of the subject Survey Units is diminutive. Attachment 2 contains additional discussion on this matter.

2.3 Impact of Releasing the Specific Area on Part 50 License Basis

The license basis for the HNP includes the maintenance of certain programs to fulfill regulatory requirements and functional responsibilities. Throughout decommissioning, these programs are modified as necessary and terminated when the applicable concern is no longer relevant. These program changes are implemented using the change processes specified for each type of program. The phased release approach is described in Section 1.4.2 of the HNP LTP. The methodology for releasing land requires a review and assessment of the impact on license programs for the site lands remaining within the domain of the Part 50 License. The NRC accepted this approach included in the HNP LTP via License Amendment 197 on November 25, 2002. The impact of releasing the subject Survey Units from the Part 50 License on each of the licensing programs included in Section 1.4.2 of the LTP is described below. With this submittal, CYAPCO is not requesting NRC concurrence/approval of any potential changes described herein.

2.3.1 Technical Specifications

The HNP Technical Specifications are not impacted by the release of the subject Phase II Release Area (15 Survey Units).

2.3.2 FINAL SAFETY ANALYSIS REPORT (FSAR) and Environmental Report

The decommissioning Updated Final Safety Analysis Report will require minor changes to Section 2.1.1, "Site Location and Description", Section 2.1.2, "Exclusion Area Authority and Control" and to Figure 2.1.5, "Restricted/Controlled /Unrestricted Areas" to describe the reduced site area resulting from the removal of the subject Phase II Release Area, from the Part 50 License and to identify the new site boundary on Figure 2.1.5. The HNP Environmental Report is not impacted by the release of the subject Phase II Release Area (15 Survey Units).

2.3.3 Defueled Emergency Plan

This Plan will not be affected by the release of the subject Phase II Release Area (15 Survey Units).

2.3.4 Security Plan

This plan will not be affected by the release of the subject Phase II Release Area (15 Survey Units).

2.3.5 Off-site Dose Calculation Manual (ODCM)

The ODCM will be revised, as necessary, consistent with the alteration of the site boundary on which the offsite dose calculations X/Qs are based.

2.3.6 Environmental Monitoring Program

The Environmental Monitoring Program will not be affected by release of the subject Phase II Release Area (15 Survey Units).

2.3.7 Ground Water Monitoring Program

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. Certain Survey Units in the HNP site need to be evaluated for potential dose to a hypothetical future resident of the site due to existing groundwater. An assessment of existing groundwater dose for the Phase II Release Area (15 Survey Units) is documented in a report (Reference 3.2). Of the FSS Phase II Release Area Survey Units adjacent to the middle portion of the Discharge Canal, only Survey Units 9528-0000 and 9528-0003 are within the capture zone of a monitoring well (MW-2) and a supply well B exhibiting detectable groundwater contamination. Sampling results for MW-2 and supply Well B were reviewed for potential existing groundwater dose impact. It was concluded that for all the survey Units in the FSS Phase II Release Area; there is no 'existing groundwater contamination' dose that needs to be included in showing compliance with site unrestricted release criteria as required by the HNP LTP. There are a number of monitoring wells located near the Southwest Landfill Area. The Report also provides a discussion of groundwater monitoring results in the area of the Southwest Landfill. A review of the data (Table 6 of Reference 3.2) indicates that none of the sample results are considered detectable groundwater contamination per the definition in the HNP LTP. Therefore, there is no existing groundwater contamination dose that needs to be included in showing compliance with site unrestricted release criteria as required by the HNP LTP.

2.3.8 Fire Protection Program

This program will not be affected by the release of the subject Phase II Release Area (15 Survey Units).

2.3.9 Training Program

The training program for the ISFSI SSCs that are important to safety will not be affected by the release of the subject Phase II Release (15 Survey Units).

2.3.10 Post Shutdown Decommissioning Activities Report (PSDAR)

Revision 2 of the PSDAR was submitted to the NRC on April 28, 2004. The release of the subject Survey Units will not impact Revision 2 of the PSDAR.

2.3.11 License Termination Plan (LTP)

The HNP LTP will be revised to describe the reduced site area resulting from the release of the subject Phase II Release Area (15 Survey Units).

2.4 Consideration of Interaction between the Proposed Partial Site Release and the Previously Released Site and between the Proposed Partial Site Release and Remaining License Site

Prior to this proposed release of these Survey Units, CYAPCO proposed and the NRC approved the release of the East Site Grounds (Survey Unit 9532), a non-impacted area from its part 50 License (Reference 3.3).

Appendix L to NUREG 1757, Volume 2, provides guidance (i.e., worksheet) to the licensee to identify and analyze the potential interaction between the potential site release and any on-site or offsite sources. Attachment 2 to this submittal contains such information for the proposed Phased Release (Phase II Survey Units).

The following sections describe effects of interaction between the proposed site release and previously released site and interaction between the proposed site release and the remaining license site (which is undergoing decommissioning).

Dose Effects on the Proposed Site Release from Previous Land Release

The previously released land, the East Site Grounds (Survey Unit 9532), was classified a non-impacted area. Non-impacted areas are defined in NUREG-

1575(MARSSIM) as areas that "have no reasonable potential for residual contamination, no radiological impact from site operations and are typically identified during the Historic Site Assessment (HSA)". To date, CYAPCO has found no evidence of using, storing, or burying radioactive material in the non-impacted area (Survey Unit 9532). None of the event records in the HSA indicate the uncontrolled release of radioactive material to Survey Unit 9532. Therefore, there cannot be any dose effect on the proposed site release from the previously released Survey Unit 9532.

Dose Effects on ISFSI Land (i.e., land that will remain under Jurisdiction of Part 50 License)

The HNP ISFSI is located within the site boundary of the existing HNP site. The Controlled Area for an ISFSI as defined in 10 CFR 72.3 as the area immediately surrounding an ISFSI for which the Licensee exercises authority regulating its use and within which ISFSI operations are performed. The 300 meter radius ISFSI Controlled Area will encompass some of the land being requested by this submittal for release from jurisdiction of the license and will be an area which CYAPCO will continue to maintain authority and control over until the spent fuel has been transferred offsite.

As stated previously, certain land around the ISFSI is not the subject of the proposed site release and will remain in CYAPCO's Part 50 License (Figure 1-3). CYAPCO performed a radiological evaluation for the ISFSI (Reference 3.4) in accordance with 10 CFR 72.212 (b)(2)(i)(C) to establish that the requirements of 10 CFR 72.104 have been met. These requirements specify that the annual dose equivalent from normal operation or any anticipated occurrences at the ISFSI to any real individual who is located beyond the controlled area would not exceed 25 mrem to the whole body, 75 mrem to the thyroid and 25 mrem to any other critical organ as a result of exposure to: (1) planned discharges of radioactive materials, (2) direct radiation from the ISFSI or (3) any other radiation from uranium fuel cycle operations within the region. The HNP spent fuel is stored in the NAC-MPC System. The NAC-MPC System is a sealed and leak tight spent fuel storage system. In addition, CYAPCO has 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 11 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. Assuming the basis for occupancy is 8760 hours/year, the maximum dose rate at the Controlled Area boundary from direct radiation in the area is 2.8 mrem/year. Dose due to uranium fuel cycle operations (i.e., dose contribution of the HNP to the ISFSI above background) is ≤ 0.2 mrem/year (See discussion in Attachment 2 Section L 2.1). Therefore, the total maximum

annual dose to an individual at Controlled Area boundary would be approximately 3.0 mrem/year. This satisfies, with considerable margin, the limit of 25 mrem/year stipulated in 10 CFR 72.104 and 40 CFR 190.

Concrete Cask (NAC-MPC storage system) average surface dose rates limits specified in the NAC-MPC Technical Specifications are selected to minimize radiation exposure to the public and to maintain occupational dose ALARA to personnel working in the vicinity of the ISFSI. These limits apply during storage operation. The radiation doses are monitored by the Radiation Protection Program. The dose rates in the vicinity of the ISFSI were calculated (Reference 3.5). The calculated dose rates at the ISFSI fence line were less than 2 mrem/hr. CYACPO will limit access to the ISFSI Controlled Area so that no member of the public will receive dose greater than 25 mrem/yr. As discussed in Page K-8 of Appendix K to NUREG-1757, Volume 2, if the access to an area that has been released from license is being restricted, as will be the case within the ISFSI Controlled Area, the Subpart E compliance calculation is not applicable. Instead, the maximum dose to a member of the public using the area, as calculated to show compliance with 40 CFR 190, must be met. As discussed above access will be controlled so as to assure compliance with 40 CFR 190.

Dose Effect on the Proposed Site Release from the remaining decommissioning activities at the remaining HNP Site

Please refer to Attachment 2 of this submittal for further discussion.

2.5 Additional Areas to be addressed to Support the Release of the Subject Survey Units

The exclusion area for the HNP is equivalent to the area within the site boundary identified on Figure 2.1-3 of the Updated Final Safety Analysis Report (UFSAR). Along the Connecticut River bank, the exclusion area extends to the opposite shore (Western side) of the river. The minimum distance to the boundary of the exclusion area, as defined in 10 CFR 100.3, shall be 1740 feet from the reactor containment.

On August 28, 1998, CYAPCO received an exemption from certain offsite emergency planning requirements based, in part, upon assertion that the calculated maximum offsite dose from postulated releases to an individual at the exclusion area boundary is less than the U. S. Environmental Protection Agency (EPA) Protective Action Guide (PAG) exposure levels. The dose criterion prescribed in the EPA PAG's is 1 rem total effective dose equivalent and 5 rem to the thyroid. Since this criterion is more restrictive than 10 CFR 100 criteria, CYAPCO has used the EPA PAG's as the standard for acceptable accident doses at the exclusion area boundary.

The definition of the exclusion area is based upon the existence of a reactor. Upon submittal of the 10 CFR 50.82(a) certifications to permanently shutdown the reactor and permanent removal of fuel from the reactor, the HNP no longer had a reactor. However, since the HNP Updated Safety Analysis Report (UFSAR) contained accident analyses where offsite dose consequences were calculated at the exclusion area boundary, the exclusion area boundary has been maintained as a point of reference with the appropriate radiological criteria.

Throughout decommissioning, the only area boundary related UFSAR accident analyses that were applicable to the HNP are Fuel Handling Accidents and Radioactive Waste System Failures. As decommissioning has proceeded, the requisite initial conditions for these accidents have progressively ceased to exist. All of the spent fuel and GTCC waste have been transferred from the spent fuel pool to the ISFSI at the HNP site. Therefore, the spent fuel handling accident in the spent fuel building is no longer credible. All resin used at the HNP site for the remainder of the decommissioning will be contained in the vessels and dewatered for disposal at an offsite radioactive waste processing facility. Resin waste will no longer be collected or stored in a poly HIC for final dewatering. Therefore, there is no longer the potential for a resin fire caused by the potential exothermic reaction associated with this type of dewatering activity.

The less limiting dry active waste fire and unplanned radioactive liquid release events are still applicable at this time. As decommissioning proceeds, these events will also no longer be credible. The accident analyses that will continue to be applicable to dry cask storage at the ISFSI are described and evaluated in the associated dry casks Safety Analysis Report (NAC-MPC-FSAR) and the HNP ISFSI 10 CFR 72.212 Evaluation Report (Reference 3.4). The primary boundary of concern for the ISFSI design basis accident dose evaluation is the "controlled area" established pursuant to 10 CFR 72.106. The ISFSI controlled area is independent of the plant exclusion area boundary. Remediation associated with decommissioning activities to meet NRC and State of Connecticut release criteria will remove any other radiological source term of significance for non-ISFSI site land. As this removal proceeds, the plant exclusion area boundary will no longer be a meaningful point of reference and its use will be discontinued. Meanwhile, CYAPCO will maintain authority, in accordance with 10 CFR 100.3, over all activities conducted within the exclusion area boundary.

CYAPCO will maintain the following records through license termination: 1) a map of the site identifying the facility and site as defined in the original license; 2) a record of the Phase II Survey Units released under this action; and 3) documentation of the radiological conditions of the lands released under this action.

2.6 Site-Release Criteria

The site release criteria for the HNP site correspond to the 10 CFR 20.1402, criteria for unrestricted use. The residual radioactivity, including that from ground water sources, that is distinguishable from background, must not cause the total effective dose equivalent (TEDE) to an average member of the critical group to exceed 25 mrem/yr. The residual radioactivity must also be reduced to levels that are ALARA.

In the HNP LTP Section 5.4.7.1, Equation 5-1 expresses the total dose contribution from three components; soil contribution, existing ground water contribution and future ground water contribution. The survey data results for all Phase II Survey Units address the dose component due to soil as provided in the HNP LTP compliance Equation 5-1. As demonstrated in the Survey Unit Release Records, the fifteen (15) Survey Units (Phase II Release Area) met the conservatively designed Operational DCGL of 10 mrem/yr criteria, thereby achieving ALARA. The second component of Equation 5-1 (Existing ground water contribution) is addressed in a report submitted to the NRC on March 8, 2005. It was concluded that for all the Survey Units in the FSS Phase II Release Area, there is no 'existing groundwater contamination' dose that needs to be included in showing compliance with site unrestricted release criteria as required by HNP LTP. The dose contribution from the third component of Equation 5-1, future groundwater, is zero because there are no structures, systems or components containing residual radioactivity as noted in the Phase II Report. Therefore, it can be concluded that the release of the subject Survey Units (Phase II Release Area) will have no adverse impact on the ability of the HNP site in aggregate to meet the Part 20, Subpart E, for unrestricted release.

2.7 Final Status Survey

The HNP LTP Section 5.2 states the Final Status Survey Plan encompasses the radiological assessment of all affected structures, systems and land areas for the purpose of quantifying the concentrations of any residual activity that exists following all decontamination activities. A Final Status Survey was performed in the subject Survey Units and the FSS Report was submitted to the NRC via letter dated March 8, 2005.

This Phase II FSS Final Report addresses fourteen (14) land area Survey Units and one (1) subsurface soil Survey Unit within the east mountainous and low land survey areas of the HNP site (Figure 1-2 of Attachment 1). This report contains a compilation of all fifteen (15) Survey Unit Release Records that are within the Phase II Release Area scope. Table 1 of the Cover Letter provides a listing of all Survey Units addressed in this report including the classification and general description for each unit.

The report documents the results and conclusions of the survey unit and was prepared in accordance with guidance and requirements contained in the following:

- Haddam Neck Plant License Termination Plan,
- NUREG-1575, Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM), Section 8.6 and
- NUREG-1757, Volume 2, Consolidated NMSS Decommissioning Guidance – Characterization, Survey, and Determination of Radiological Criteria, (Although not referenced in the HNP LTP, guidance contained in many sections of this NUREG have been utilized).

In the HNP LTP Section 5.4.7.1, Equation 5-1 expresses the total dose contribution from three components; soil contribution, existing ground water contribution and future ground water contribution. The survey data results for all Phase II Survey Units address the dose component due to soil as provided in the HNP LTP compliance Equation 5-1. The second component of Equation 5-1 is addressed in a report submitted to the NRC on March 8, 2005. The dose contribution from the third component of Equation 5-1, future groundwater, is zero because there are no structures, systems or components containing residual radioactivity as noted in the Phase II Report.

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) performed confirmatory survey activities on selected open land survey units at the HNP site during the period of September 29 through October 1, 2003 and March 16 through 17, 2004. The survey units included in the scope of Independent Verification Team (IVT) survey are identified on Table 1 of this submittal. The results of the survey are documented in the "ORISE Revised Final Report-Confirmatory of Open Land Survey Units at the Connecticut Yankee Haddam Neck Plant, Haddam, Connecticut", dated July 27, 2004 and the NRC Integrated Inspection Report dated September 20, 2004. The results of the survey activities confirmed that the radiological conditions of open land area survey units that are part of these confirmatory survey activities met the approved site-specific Derived Concentration Guideline Levels (DCGLs). These results also confirmed that the survey units had been classified correctly.

2.8 Conclusion

The release of the subject Survey Units (Phase II Release Area) is part of CYAPCO's overall effort to terminate license DPR-61 and to achieve unrestricted release of the entire site in accordance with the criteria in Subpart E of 10 CFR 20. This action is also consistent with the approach described in Section 1.4.2 of the HNP LTP and is consistent with the

approach endorsed by the NRC in their Safety Evaluation that supported approval of the HNP LTP.

In addition, 10 CFR 50.82(a)(11) establishes the criteria to be used by the NRC for terminating the license of a power reactor facility. These criteria include (1) dismantlement has been performed in accordance with the approved license termination plan, and (2) the final radiation survey and associated documentation demonstrate that the facility and site have met the criteria for decommissioning in 10 CFR 20, Subpart E. Although no dismantling activities are required for the subject Survey Units, the release of the subject Survey Units supports the process of license termination by demonstrating that this portion of the site land can be released from HNP license. This report along with future reports provides documentation that demolition activities have been performed in accordance with the LTP and the final status survey confirms the residual radioactivity in each Survey Unit meets the criteria established in the LTP. Thus, this action of the release of the subject land supports the overall license termination process in accordance with NRC regulations.

3.0 References

- 3.1 J. F. Bourassa (CYAPCO) letter to US NRC, "Haddam neck Plant, Final Status Survey (FSS) Final Report – Phase II," dated March 8, 2005.
- 3.2 CYAPCO Health Physics Department Technical Support Document, CY-HP-0193 Revision# 0, "Assessment of Existing Groundwater Dose for Phase II Release Areas of the Final Status Survey Report," dated February 15, 2005.
- 3.3 T. Smith (NRC) letter to W. Norton (CYAPCO), "Haddam Neck Plant – Release of East Site Grounds from Part 50 License," dated September 1, 2004.
- 3.4 CYAPCO HNP ISFSI 10 CFR 72.212 Evaluation Report.
- 3.5 NAC Calculation for the HNP ISFSI, "Connecticut Yankee Dry Cask Storage Array Sky Shine analysis," Number 12414-5054.
- 3.6 W. A. Norton (CYAPCO) letter to U. S. NRC, "Haddam Neck Plant, License Amendment Request, Use of a Basement Fill Model (Revising the Buried Debris Model), and a Revision to Surface Contamination Release Limits for Various Piping Sizes", dated December 1, 2004.
- 3.7 D. M. Gillen (NRC) letter to W. Norton (CYAPCO), "Issuance of Amendment No. 202 to Haddam Neck Plant", dated August 19, 2005.

CY-05-194
Docket No. 50-213

Attachment 2
Haddam Neck Plant
Completed Worksheet (APPENDIX L to NUREG-1757, Volume 2) for
Identifying Potential Pathways for the Phased Release (Phase II Release Area)

October 2005

Haddam Neck Plant
Completed Worksheet (APPENDIX L to NUREG-1757, Volume 2) for
Identifying Potential Pathways for the Phased Release (Phase II Release Area)

All of the responses and information contained in the following applies to the potential for impact from other areas of the site on survey areas which are included in the Phase II Release Area of the Haddam Neck Plant site. CYAPCO additions/responses to the checklist are shown in bold type.

L.1 Screening Sources (Yes/No)

Do the following section that is appropriate for each possible source of residual radioactivity.

L.1.1 Existing/Historical Residual Radioactivity (Yes/No)

Is there residual radioactivity present in media? (Yes/no)

— Surface soil [less than 30 cm (1 ft)]? **Yes**

— Deep soil [greater than 30 cm (1 ft)]? **Yes**

— Ground water? **Yes**

— Surface water? **N/A The Connecticut Yankee License Termination Plan (CY LTP) does not require the sampling or otherwise assessing surface water at the Haddam Neck Plant site. The dose from the surface water pathways is included in the development of the soil DCGLs using the RESRAD code as described in the CY LTP. CYAPCO has sampled surface water in Survey Area 9521 per an agreement with the Connecticut Department of Environmental Protection (CT DEP) and has found it to contain no detectable plant related radioactivity.**

— Structures? **Yes**

— Other? **No. There are no other types of media that contain plant related radioactivity at the Haddam Neck Plant site.**

Evaluate, for each media type: is there a sufficient amount of residual radioactivity to include in dose calculations? (Yes/no)

— Surface soil [less than 30 cm (1 ft)]? **Yes: go to Section L.2.2.**

— Deep soil [greater than 30 cm (1 ft)]? **Yes: go to Section L.2.3.**

- Ground water? **Yes:** go to Section L.2.4.
- Surface water? **No, See Section L.1.1 above**
- Structures? **Yes:** go to Section L.2.6.
- Other? **No, See Section L.1.1 above**

L.1.2 Current Operational Releases (Yes/No)

Are there current effluents or 10 CFR 20.2002 ongoing disposals from the operating facility in the media? **N/A. As the plant is not operating, the questions in this section are not applicable. See the equivalent questions for a decommissioning site below.**

- Gaseous or particulate release? **N/A**
- Surface soil [less than 30 cm (1 ft)]? **N/A**
- Deep soil [greater than 30 cm (1 ft)]? **N/A**
- Ground water? **N/A**
- Surface water? **N/A**
- Other? **N/A**

Are there ongoing or planned decommissioning activities involved with media containing residual radioactivity? **Yes**

- Gaseous or particulate release? **Yes:** go to Section L.2.1.
- Surface soil [less than 30 cm (1 ft)]? **Yes:** go to Section L.2.2.
- Deep soil [greater than 30 cm (1 ft)]? **Yes:** go to Section L.2.3.
- Ground water? **Yes:** go to Section L.2.4.
- Surface water? **No, See Section L.1.1**
- Other? **No, See Section L.1.1**

L.2 Screening Transport Processes (Yes/No)

Do the following appropriate section(s) for the media type/source combination.

L.2.1 Air Transport (Yes/No)

— Does the wind travel a significant portion of the year from the source to the critical group location? **Yes**

— Is the source location near enough to the critical group location to avoid significant dilution of suspended or gaseous residual radioactivity? **No. The nearest Survey Unit (9526) is approximately 0.09 miles from the gaseous release locations (fuel building ventilation outlet and other ground level release points) of the Haddam Neck Plant site. This distance is over 150 yards and would provide significant dilution of gaseous releases. The other Survey Units of the Phase II Release Area are much further from the release point than Survey Unit 9526.**

— Do the structures, topography, and vegetation between the source and critical group locations provide only small amounts of dispersion? **No. The area between the plant release locations and the Survey Units in the Phase II Release Area is mostly woodland and uphill and therefore would provide significant dispersion.**

If the answer to any one of the above questions in this section is "no," answer the following question. If all are "yes," go to Section L.3.1.

— Is there the potential for this source's air-transported residual radioactivity to accumulate with other source/air transport combinations that have been screened out, so that the combined effect of all sources would result in a significant source of exposure? **No. Per the 2004 and the first half of the 2005 gaseous effluent data for the Haddam Neck Plant, radioactive gaseous effluents have been insignificant for the last year and a half of the decommissioning. For those two periods, the maximum organ dose on an annual basis at the site boundary due to gaseous effluents have been 0.231 millirad per year and 0.14 millirem per year respectively. Also these very low level effluents would be diluted further by the distance and topography between the release points and the nearest Survey Unit of the Phase II Release Area.**

If the answer is "yes," air transport for this source and for any other sources identified by this question are not screened out. Go to Section

L.3.1. If “no,” air transport for the source is screened out. **CYPACO Conclusion: Air Transport is screened out.**

L.2.2 Surface Soil Transport (Yes/No)

Each source should go through all subsections. Screening out one subsection does not mean all subsections are screened out, necessarily. To screen out the entire surface soil transport mechanism for a source, Subsections L.2.2.1–L.2.2.5 all need to be screened out individually.

L.2.2.1 Erosion (Yes/No)

—Is the residual radioactivity chemical/structural form erodible within analysis time frame? **No. The residual radioactivity in the soils within the area of the Haddam Neck Plant site that will remain in the license after release of the Phase II Release Area is, with the exception of tritium, tightly adherent to the soils. Tritium will move through soil as would water but is of very low dose consequence at the concentrations in which it is present. The migration of tritium is also being monitored through the Groundwater Monitoring Program at the Haddam Neck Plant.**

For the other plant related radionuclides at the Haddam Neck Plant, erosion of the soil in the work areas is being minimized through the use of a gravel layer on top of loose material to reduce erosion where soil excavations have occurred and hay bale barriers to filter soils from storm runoff thereby eliminating any potential for erosion to transport residual radioactivity from the work areas to the Phase II Release Area.

For the other Survey Units that will remain in the license after the release of the Phase II Survey Units, these units are highly vegetated and thereby, erosion will not occur.

— Is the rainfall, runoff, or wind speed sufficient to erode source contaminants? **No. In addition to the controls discussed in response to the last question above to preclude any effects of runoff; the CYPACO performs daily rounds with a water sprinkler truck to minimize any wind related erosion. Also, during decommissioning activities, dust suspension spraying is performed when needed.**

— Is the proximity of the source location to the critical group location sufficient for erosion to transport contaminants to the critical group location? **No. The shortest distance between decommissioning activities where erosion could occur and a survey unit within the Phase II Release Area is approximately 100 yards. The closest survey unit is 9526 which is at a much higher elevation than the decommissioning work area making impact by erosion impossible. The distance to the closest survey unit (9528) that is at a lower elevation than the decommissioning work area is over 200 yards. This distance along with the storm runoff controls employed eliminate any significant erosion related dose effect on the Phase II Release Area.**

— Do the structures, topography, and vegetation between the source location and the critical group favor transport of material to the critical group location? **No. The area between ongoing decommissioning activities and the nearby survey units in the Phase II Release Area is mostly woodland and uphill and therefore would eliminate erosion impact.**

If the answer to any one of the above questions in this section is “no,” answer the following question. If all are “yes,” skip the next question, and then answer the last question of this subsection.

— Is there the potential for this source’s eroded residual radioactivity to accumulate with other source/erosion transport combinations that have been screened out so that the combined effect of all sources would result in a significant source of exposure? **No, per the discussion given above.**

If the answer is “yes,” the erosion subsection for this source and any other sources identified by this question are not screened out. Answer the following question. If “no,” the erosion subsection is screened out. **CYAPCO Conclusion: Erosion is screened out.**

— If erosion were to occur, where would the material end up so that it can be transported to the critical group location? **N/A**

— Direct overland flow? **N/A** If “yes,” go to Section L.2.5 and answer surface water.

Questions for potential overland flow.

- Surface water body? **N/A** If “yes,” go to Section L.2.5.
- Other? **N/A** If “yes,” go to the appropriate similar transport mechanism.

If the answer to any one of these questions is “yes,” the erosion subsection for this source is not screened out. Proceed as directed by the specific question. When complete with that pathway, return, and proceed through Section L.2.2.2. If “no,” the erosion subsection is screened out.
CYAPCO Conclusion: Erosion is screened out.

L.2.2.2 Leaching (Yes/No)

— Is the rainfall or infiltration amount sufficient for leaching of residual radioactivity to occur to a significant degree? **No.** The residual radioactivity in the soils within the area of the Haddam Neck Plant site that will remain in the license after release of the Phase II Release area is, with the exception of tritium, tightly adherent to the soils. Tritium will move through soil as would water but is of very low dose consequence at the concentrations in which it is present. The migration of tritium is also being monitored through the Groundwater Monitoring Program at the Haddam Neck Plant. As discussed in Reference 3.2 of Attachment 1, the groundwater monitoring program results show no dose from groundwater that needs to be included in showing compliance with the unconditional release criteria defined in the CY LTP for the Phase II Release Area. This evaluation includes any dose impact that would result from water drawn into the well of a hypothetical future resident after transfer of the property. The appropriate capture zone of this future well is also discussed in reference 3.2 and determined to be 100 meters.

— Will the residual radioactivity leach within the analysis time frame? **No.** Table G-1 of the CY LTP shows the dose fractions that are due to the various dose pathways for the radionuclides of concern in soil at the Haddam Neck Plant site. Table G-1 shows that the only radionuclide for which the water pathway (pathway driven by leaching of radionuclides from soil) is significant is tritium at approximately 15 % of the dose due to tritium from all

pathways. It should also be noted that the soil DCGL for tritium is 411.5 pCi/g. There are no locations on the HNP site where tritium concentrations in soil are more than 10 % of the tritium DCGL. Therefore the dose effect of tritium leaching from soil is less than 0.4 mrem/yr ($0.15 \times 0.1 \times 25$ mrem/yr) in the survey unit where the highest contaminated soil is located. These survey units are within the locations of ongoing decommissioning activities and are at least 100 yards from any survey area of the Phase II Release Area. The dose effect of leaching of this tritium from soil would be even lower in the Phase II Release Areas and therefore insignificant. It should be noted that the timeframe of the dose analysis used in the CY LTP is 1000 years and that the highest dose that occurs at any time in that 1000 year span for each radionuclide independently is used in the dose calculation.

— Does the geochemistry of the soil and radionuclides [e.g., distribution coefficients (Kd)] allow leached residual radioactivity to reach the ultimate transport mechanism within the analysis time frame (e.g., will the residual radioactivity be able to move through the unsaturated zone and enter into the ground water aquifer)? **No. As discussed in the answer to the last question, the dose effect of leaching of radionuclides from soil into groundwater is insignificant at the Haddam Neck Plant site.**

If the answer to any one of the above questions in this section is “no,” answer the following question. If all are “yes,” skip the next question, and then answer the last question of this subsection.

— Is there the potential for this source’s leached residual radioactivity to accumulate with other source/leach transport combinations that have been screened out so that the combined effect of all sources would result in a significant source of exposure? **No, as per the discussion given above.**

If the answer is “yes,” the leaching subsection for this source and for any other sources identified by this question are not screened out. Answer the following question. If “no,” the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened out.**

- If leaching were to occur, where would the material end up so that it can be transported to the critical group location? **N/A**
- Ground water aquifer? **N/A** If “yes,” go to Section L.2.4.
- Surface water body? **N/A** If “yes,” go to Section L.2.5.
- Other? **N/A** If “yes,” go to the appropriate similar transport mechanism.

If the answer to any one of these above questions is “yes,” the leaching subsection for this source is not screened out. Proceed as directed by the specific question. When complete with that pathway, return, and proceed through Section L.2.2.3. If the answers to all of these empty bullets are “no,” the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened out Go to Section L.2.2.3.**

L.2.2.3 Resuspension (Yes/No)

— Does the wind travel a significant portion of the year from the source to the critical group location? **Yes**

— Is the source location near enough to the critical group location to avoid significant dilution of suspended or gaseous residual radioactivity? **No. Gaseous residual radioactivity is not significant as the only radionuclide of concern at the HNP that can be in a gaseous form is tritium as water vapor. Table G-1 of the CY LTP indicates that inhalation of tritium accounts for less than 1 percent of the dose from all pathways for tritium.**

The nearest Survey Unit (9526) is at least 100 yards from locations where decommissioning work is proceeding and the potential for suspended residual radioactivity exists. This distance would provide significant dilution of gaseous releases. The other survey units of the Phase II Release Area are much further from the work area than Survey Unit 9526.

— Do the structures, topography, and vegetation between the source location and the critical group favor transport of material to the critical group location? **No. The area between the work area locations and the survey units in the Phase**

II Release Area is mostly woodland and uphill and therefore would not favor transport.

— Can enough of the residual radioactivity be resuspended to affect the dose to the critical group? **No. Per the discussion above, resuspension of material from the decommissioning work area to the Phase II Release Area is expected to be insignificant. It should also be noted from Table G-1 of the LTP that the dose fraction due to inhalation for all of the radionuclides of concern at the Haddam Neck Plant is less than 1 % of the dose from all pathways for each radionuclide and therefore any inhalation dose is expected to be negligible.**

If the answer to any one of the above questions in this section is “no,” answer the following question. If all are “yes,” skip the next question and go to Section L.3.1. When complete with that pathway, return and proceed through Section L.2.2.4.

— Is there the potential for this source's resuspended residual radioactivity to accumulate with other source/resuspension or air-transport combinations that have been screened out so that the combined effect of all sources would result in a significant source of exposure? **No. As per the discussion above.**

If the answer is “yes,” the resuspension subsection for this source and for any other sources identified by this question are not screened out. Go to Section L.3.1. When complete with that pathway, return, and proceed through Section L.2.2.4. If “no,” the resuspension subsection is screened out. **CYAPCO Conclusion: Resuspension is screened out. Go to Section L.2.2.4.**

L.2.2.4 Manual Redistribution: Excavation and Fill (Yes/No)

— Do source area characteristics allow future excavation and reuse? **Yes. During the decommissioning period, there are no surface soils that contained detectable plant related radioactivity that are being moved from the portion of the plant where decommissioning activities are being performed into the Phase II Release Area. This is ensured by the isolation and controls that are maintained on all of the Survey Units in the Phase II Release Area by the Site Closure Group. These controls require permission prior to any work or other activities being conducted in an area**

under the control of the Site Closure Group. Permission would not be granted for the movement of soils containing plant related radioactivity unless resurvey of the area is planned. As discussed below, after completion of decommissioning and transfer of the property to a different owner reuse of the source would be very unlikely.

— Would reuse be reasonable for use on or near the partial site? **No. The media at the Haddam Neck Plant site that contains residual radioactivity and could be redistributed is the sand/soil backfill that has been used in the area near to the reactor building. Redistribution of this material is unlikely as it has no special future value and it will not support the growing of crops or use as grazing land. Its use as fill is also unlikely as the presence of buried foundations and footings will make its removal difficult. A future need for fill would more likely use new fill from an offsite location. In the unlikely event that soil would be relocated from the current decommissioning area to the Phase II Release Area after transfer of the property, there would be no increase to the dose to critical group as the relocated material has to meet the same or more stringent release limits as have been applied to the Phase II Release Area. A “no” on this question does not screen this subsection out.**

— Would the source be able to become airborne as part of fugitive dust emissions? **No, as discussed in Section L.2.2.3, resuspension of the soil material would be unlikely and of insignificant dose consequence. If “yes,” go to Section L.2.2.3. A “no” on this question does not screen this subsection out.**

If the answer to the first bullet is “no,” or the second and third bullets are “no,” the manual redistribution subsection is screened out. **CYAPCO Conclusion: Manual Redistribution is screened out** Go to Section L.2.2.5. If manual redistribution is not screened out, go to Section L.3.2. When complete with that pathway, return, and proceed through Section L.2.2.5.

L.2.2.5 Direct Radiation (Yes/No)

— Are the radionuclides significant external hazards? (yes/no)

Yes, if present in sufficient quantities. As discussed below, the quantities of radionuclides have been greatly reduced and the distance to the Phase II Release Area is sufficient to eliminate significant external hazards.

— Is the source location close enough to the critical group location to avoid significant reduction in dose rate? **No. The nearest survey unit to the Phase II Release Area is approximately 100 yards from the location of decommissioning activities. As the radiation source term at the Haddam Neck Plant site has been essentially removed, this distance is enough to preclude any significant external hazard.**

— Do the structures, topography, and vegetation between the source and critical group locations provide inadequate shielding to minimize the external exposure? **No. For the Survey Unit in the Phase II Release Area that is closest to the remaining source term (9526), the hillside along with the distance previously mentioned provide significant source reduction.**

If the answer to any one of the above questions in this section is "no," the direct radiation subsection is screened out.

CYAPCO Conclusion: Direct Radiation is screened out if all are "yes," go to Section L.3.2.

L.2.3 Deep Soil Transport (Yes/No)

Each source should go through both subsections. Screening out one subsection does not mean both subsections are screened out, necessarily. To screen out the entire deep soil transport mechanism for a source, Subsections L.2.3.1 and L.2.3.2 need to be each screened out individually.

L.2.3.1 Leaching (Yes/No)

— Is the rainfall or infiltration amount sufficient for leaching of residual radioactivity to occur to a significant degree? **No. The residual radioactivity in the soils within the area of the Haddam Neck Plant site that will remain in the license after release of the Phase II Release Area is, with the exception of tritium, tightly adherent to the soils. Tritium will move through soil as would water but is of very low dose consequence at the concentrations in which it is present. The migration of tritium is also being monitored**

through the Groundwater Monitoring Program at the Haddam Neck Plant. As discussed in Reference 3.2, the groundwater monitoring program results show no dose from groundwater that needs to be included in showing compliance with the unconditional release criteria defined in the CY LTP for the Phase II Release Area. This evaluation includes any dose impact that would result from water drawn into the well of a hypothetical future resident after transfer of the property. The appropriate capture zone of this future well is also discussed in reference 3.2 and determined to be 100 meters.

— Will the residual radioactivity leach within the analysis time frame? No. Table G-1 of the CY LTP shows the dose fractions that are due to the various dose pathways for the radionuclides of concern in soil at the Haddam Neck Plant site. Table G-1 shows that the only radionuclide for which the water pathway (pathway driven by leaching of radionuclides from soil) is significant is tritium at approximately 15 % of the dose due to tritium from all pathways. It should also be noted that the soil DCGL for tritium is 411.5 pCi/g. There are no locations on the HNP site where tritium concentrations in soil are more than 10 % of the tritium DCGL. The dose effect of tritium leaching from soil in the survey unit where the highest contaminated soil is located is less than 0.4 mrem/yr ($0.15 \times 0.1 \times 25$ mrem/yr). These survey units are within the locations of ongoing decommissioning activities and are at least 100 yards from any survey unit of the Phase II Release Area. The dose effect of leaching of this tritium from soil would be even lower in the Phase II Release Area and therefore insignificant. It should be noted that the timeframe of the dose analysis used in the CY LTP is 1000 years and that the highest dose that occurs at any time in that 1000 year span for each radionuclide independently is used in the dose calculation.

— Does the geochemistry of the soil and radionuclides (e.g., Kd) allow leached residual radioactivity to reach the ultimate transport mechanism within the analysis time frame (e.g., will the residual radioactivity be able to move through the unsaturated zone and enter into the ground water aquifer)?)? No. As discussed in the answer to the last question, the dose effect of leaching of radionuclides from soil into groundwater is insignificant at the Haddam Neck Plant site.

If the answer to any one of the above questions in this section is "no," answer the following question. If all are "yes," skip the next question, and then answer the last question of this subsection.

— Is there the potential for this source's leached residual radioactivity to accumulate with other source/leach transport combinations that have been screened out so that the combined effect of all sources would result in a significant source of exposure? **No, as per the discussion above.**

If the answer is "yes," the leaching subsection for this source and for any other sources identified by this question are not screened out. Answer the following question. If "no," the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened Out Go to Section L.2.3.2.**

— If leaching were to occur, where would the material end up so that it can be transported to the critical group location?

— Ground water aquifer? **N/A** If "yes," go to Section L.2.4.

— Surface water body? **N/A** If "yes," go to Section L.2.5.

— Other? **N/A** If "yes," go to the appropriate similar transport mechanism.

If the answer to anyone of these is "yes," the leaching subsection for this source is not screened out. Proceed as directed by the specific question. When complete with that pathway, return, and proceed through Section L.2.3.2. If the answers to all these empty bullets are "no," the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened out Go to Section L.2.3.2.**

L.2.3.2 Manual Redistribution: Excavation and Fill (Yes/No)

— Do source area characteristics allow future excavation and reuse? **Yes. During the decommissioning period, there are no deep soils that contained detectable plant related radioactivity that are being moved from the portion of the plant where decommissioning activities are being performed into the Phase II Release Area. This is ensured by the isolation and controls that are maintained on all of the Survey Units in the Phase II Release Area by the Site**

Closure Group. These controls require permission prior to any work or other activities being conducted in an area under the control of the Site Closure Group. Permission would not be granted for the movement of soils containing plant related radioactivity. As discussed below, after completion of decommissioning and transfer of the property to a different owner, reuse of the source would be very unlikely.

— Would reuse be reasonable for use on or near the partial site? **No.** The media at the Haddam Neck Plant site that contains residual radioactivity and could be redistributed is the sand/soil backfill that has been used in the area near to the reactor building. Redistribution of this material is unlikely as it has no special future value as it will not support the growing of crops or use as grazing land. Its use as fill is also unlikely. The presence of buried foundations and footings will make its removal even more difficult than discussed previously for surface soil. A future need for fill would more likely use new fill from an offsite location. In the unlikely event that soil would be relocated from the current decommissioning area to the Phase II Release Area, there would be no increase to the dose to the critical group as the relocated material have to meet the same or more stringent release limits as have been applied to the Phase II Release Area. A “no” on this question does not screen this subsection out.

— Would the source be able to become airborne as part of fugitive dust emissions? **No, as discussed in Section L 2.2.3, resuspension of the soil material would be unlikely and of insignificant dose consequence.** If “yes,” go to L.2.2.3. A “no” on this question does not screen this subsection out.

If the answer to the first bullet is “no,” or all bullets are “no,” the manual redistribution subsection is screened out.

CYAPCO Conclusion: Manual redistribution is screened out. If manual redistribution is not screened out, go to Section L.3.2.

L.2.4 Ground Water Transport (Yes/No)

— Does saturated ground water exist that is in hydraulic connection with the radioactive source? **Yes**

— Does the ground water (including unconfined or confined aquifers, as necessary) flow from the source to the location of the critical group? **No. The flow of groundwater through the source area (the Radiological Control Area) at the HNP site has been determined by the groundwater monitoring program to be in the southerly direction toward the Connecticut River with a partial component into the discharge canal. As all the survey units of the Phase II Release Area are to the north and east of the source area, groundwater flow is not from the source area toward the location of the critical group which would be in the Phase II Release Area. Also, as none of the Phase II Survey Units are in contact with the discharge canal, the canal is not a potential impact to the Phase II Release Area.**

— Is the aquifer fit for use? **Yes. It will depend on the location of the hypothetical future residents' well.**

— Potable? **Yes. It will depend on the location of the hypothetical future residents' well.**

— Irrigation? **Yes**

— Can the residual radioactivity enter the ground water aquifer in significant amounts [e.g., is the aquifer not protected from all potential migrating contaminants by low-permeability geologic strata (e.g., clay layer)]? **Yes**

— Is the yield rate of the aquifer sufficient? **Yes. It will depend on the location and depth of the hypothetical future residents' well.**

— Household and drinking water? **Yes. It will Depend on the location of the hypothetical future residents' well.**

— Irrigation? **Yes**

— Is the distance traveled from source to the critical group location close enough to avoid significant dilution and sorption of migrating radionuclides? **No. As discussed above, none of the Survey Units of the Phase II Release Area is downgradient of the source areas so that groundwater borne contamination cannot impact the Phase II Release Area.**

If the answer to any one of the above questions in this section is "no," the ground water transport mechanism is screened out. **CYAPCO Conclusion: Groundwater Transport Mechanism is screened out.** If all are "yes," go to Section L.3.3

L.2.5 Surface Water Transport (Yes/No)

— Does surface water flow from the source of residual radioactivity (or from zones of mobilized radionuclides) to the critical group location? **No. The flow of groundwater through the source area (the Radiological Control Area) at the HNP site has been determined by the groundwater monitoring program to be in the southerly direction toward the Connecticut River with a partial component into the discharge canal. As all the Survey Units of the Phase II Release Area are to the north and east of the source area, groundwater flow is not from the source area toward the location of the critical group which would be in the Phase II Release Area. Also, as none of the Phase II Survey Units are in contact with the discharge canal, the canal is not a potential impact to the Phase II Release Area. These characteristics of the HNP site would prevent surface water impact on the Phase II Release Area.**

— Does the volume of surface water allow transport of significant concentrations of either dissolved or suspended radioactive solids? **N/A. Although the surface water flow in the discharge canal is sufficient to transport.**

If the answer to either of the above questions in this section is “no,” the surface water transport mechanism is screened out. **CYAPCO Conclusion: Surface Water Transport Mechanism is screened out.** If both are “yes,” answer the following question.

— Is significant sediment buildup possible at the critical group location? **N/A. As per the above discussion. (Yes/no)**

If the answer is “yes,” go to Section L.3.5. When complete with that pathway, return and go to 3.4. If the answer is “no,” go to Section L.3.4.

L.2.6 Structures (Yes/No)

L.2.6.1 Direct Radiation (Yes/No)

— Are the radionuclides significant external hazards?

Yes, if present in sufficient quantities. As discussed below, the quantities of radionuclides have been greatly reduced and the distance to the Phase II Release Area is sufficient to eliminate significant external hazards.

— Is the source location close enough to the critical group location to avoid significant reduction in dose rate? **No.** The nearest Survey Unit to the Phase II Release Area is at least 100 yards from the nearest structure. As the radiation source term at the Haddam Neck Plant site has been essentially removed, this distance is enough to preclude any significant external hazard.

— Do the structures, topography, and vegetation between the source and critical group locations provide inadequate shielding to minimize the external exposure? (yes/no) **No.** For the Survey Unit in the Phase II Release Area that is closest to the remaining source term (9526), the hillside along with the distance previously mentioned provide significant source reduction.

If the answer to any one of the above questions in this section is “no,” the direct radiation subsection is screened out. **Conclusion: Direct Radiation is screened out** Go to Section L.2.6.2. If all are “yes,” go to Section L.3.2. When complete with that pathway, return and proceed through Section L.2.6.2.

L.2.6.2 Leaching (Yes/No)

— Is the rainfall or infiltration amount sufficient for leaching of residual radioactivity to occur to a significant degree? (yes/no) **No.** The residual radioactivity in the concrete basements, footings and foundations within the area of the Haddam Neck Plant site that will remain in the license after release of the Phase II Release Area has generally entered the matrix of the concrete through diffusion into the concrete either from groundwater or leakage events. As can be seen from Table F-4 of the CY LTP, with the exception of tritium, all of the radionuclides of concern have relatively high distribution coefficients (Kds) indicating significant adherence to the concrete. Tritium has a low Kd but as has been shown in Reference 3.6 of Attachment 1 (CYAPCO License Amendment Request dated December 1, 2004) will diffuse relatively slowly out of concrete. This indicates that the dose impacts of concrete to the survey unit where residual levels are present in structures will be very small (Estimated maximum value of 1 mrem/yr per References 3.6 and 3.7 of Attachment 1). The migration of tritium is also being monitored through the Groundwater Monitoring Program at the

Haddam Neck Plant. As discussed in Reference 3.2, the groundwater monitoring program results show no dose from groundwater that needs to be included in showing compliance with the unconditional release criteria defined in the CY LTP for the Phase II Release area. This evaluation includes any dose impact that would result from water drawn into the well of a hypothetical future resident after transfer of the property. The appropriate capture zone of this future well is also discussed in reference 3.2 and determined to be 100 meters.

— Will the residual radioactivity leach from the structure within the analysis time frame? (yes/no) **Yes. Although leaching will occur, as is discussed in the last question response, the dose effect of this leaching is very low.**

— Does the geochemistry of the soil and radionuclides (e.g., Kd) allow leached residual radioactivity to reach the ultimate transport mechanism within the analysis time frame (e.g., will the residual radioactivity be able to move through the unsaturated zone and enter into the ground water aquifer)? (yes/no) **Yes, although some radioactivity will reach groundwater within the analysis time frame, as discussed above, the dose effect of that pathway is very low.**

If the answer to any one of the above questions in this section is “no,” answer the following question. If all are “yes,” skip the next question, and then answer the last question of this subsection.

— Is there the potential for this source’s leached residual radioactivity to accumulate with other source/leach transport combinations that have been screened out so that the combined effect of all sources would result in a significant source of exposure? (yes/no) **No, per the discussion given above.**

If the answer is “yes,” the leaching subsection for this source and for any other sources identified by this question are not screened out. Answer the next question. If “no,” the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened out.**

— If leaching were to occur, where would the material end up so that it can be transported to the critical group location?

— Ground water aquifer? *N/A* (yes/no) If “yes,” go to Section L.2.4.

— Surface water body? *N/A* (yes/no) If “yes,” go to Section L.2.5.

— Other? *N/A* (yes/no) If “yes,” go to the appropriate similar transport mechanism.

If the answer to any one of these questions is “yes,” the leaching subsection for this source is not screened out. Proceed as directed by the specific question. If the answers to all these empty bullets are “no,” the leaching subsection is screened out. **CYAPCO Conclusion: Leaching is screened out per the above discussion.**

L.3 Exposure Pathways Note that per the above discussion, all exposure pathway affects on the survey Units of the Phase II Release Area have been screened out. The following questions are therefore Not Applicable.

“No” on the black bullets will not eliminate the entire section.

L.3.1 Air Pathways (Yes/No) All N/A

— Based on the critical group habits and activities, are the following viable? (yes/no)

— Inhalation? (yes/no)

— Submersion External Dose? (yes/no)

— Is significant deposition viable? (yes/no) If “yes,” go to Section L.3.2 and consider the potential soil pathways at the deposition area.

L.3.2 Soil Pathways (Yes/No) All N/A

— Is external exposure viable? (yes/no)

— Is exposure through ingestion viable? (yes/no)

— Direct soil ingestion? (yes/no)

— Garden or crops? (yes/no)

- Leafy vegetables? (yes/no)
- Non-leafy vegetables? (yes/no)
- Fruits? (Yes/no)
- Grain? (Yes/no)
- Animal husbandry? (Yes/no)
- Meat? (Yes/no)
- Milk? (Yes/no)
- Eggs? (Yes/no)
- Is exposure through inhalation viable? (yes/no)
- Indoors? (Yes/no)
- Outdoors? (Yes/no)

L.3.3 Ground Water Pathways (Yes/No) All N/A

- Is exposure via drinking water viable? (yes/no)
- Is exposure via irrigation viable? (yes/no)
- Garden or crops? (yes/no)
- Animal husbandry? (yes/no)
- Fish farming? (yes/no)

If irrigation is viable, go to Section L.3.2. Consider the soil pathways appropriate for the soil impacted by the irrigation.

— Is water used for purposes other than household uses (including drinking water) or irrigation? Examples would include evaporative coolers, dust suppression, etc. (yes/no)

If “yes,” go to Section L.3.2. Consider the soil pathways appropriate for the impacts of the activity.

L.3.4 Surface Water Pathways (Yes/No) All N/A

- Is internal exposure viable? (yes/no)
- Fish? (yes/no)
- Drinking water? (yes/no)
- Inadvertent intakes? (yes/no)
- Is exposure via irrigation viable? (yes/no)
- Garden or crops? (yes/no)
- Animal husbandry? (yes/no)

If irrigation is viable, go to Section L.3.2. Consider the soil pathways appropriate for the soil impacted by the irrigation.

- Is water used for purposes other than household uses (including drinking water) or irrigation? Examples include evaporative coolers, dust suppression, etc. (yes/no)

If “yes,” go to Section L.3.2. Consider the soil pathways appropriate for the impacts of the activity.

- Are recreational activities viable? (yes/no)

If recreational activities are viable, go to Section L.3.2. Consider the exposure pathways appropriate for recreational activities in the water (e.g., incidental ingestion during swimming)

L.3.5 Sediments (Yes/No) All N/A

- Are recreational activities viable? (yes/no)

If recreational activities are viable, go to Section L.3.2. Consider the exposure pathways appropriate for recreational activities on the shore, or involving sediments (e.g., incidental ingestion from making sand castles).

- Is use of sediments for land-based activities viable (e.g., fill or crops, etc)?

If use of sediments is viable, go to Section L.3.2. Consider the soil pathways appropriate for the impacts of the activity. No

DOCUMENTATION

The information from the worksheet should be summarized in tables. The tables should summarize (1) the source, (2) whether it is included or excluded, (3) the FEPs screened, (4) the screening argument, and (5) the reference for the screening argument. For example, one format is below, and it uses the example in Section 3.1 of Appendix K as a basis. The level of detail is only needed for the question being used to screen out the source, transport mechanism, or pathway. Common pathways using the same or similar screening arguments can be grouped (e.g., fourth row of example table).

Table L.1

Summary of Assessment of Dose Impact of Other Site Areas on Phase II Release Area

Source	Status	Screening Pathway	Screening Argument	Reference
Surface Soil in areas to remain after release of Phase II Release Areas	Excluded	Air Transport (2.1)	Adequate Distance and Topography	Attachment 2 of this letter
Surface Soil	Excluded	Erosion (2.2.1)	Adequate Distance and Erosion Controls	Attachment 2 of this letter
Surface Soil	Excluded	Leaching (2.2.2)	Low Leach Rate for all except tritium and low dose significance of tritium	HNP LTP
Surface Soil	Excluded	Resuspension (2.2.3)	Adequate Distance and Topography	Attachment 2 of this letter
Surface Soil	Excluded	Manual Redistribution (2.2.4)	Isolation and Controls and same release limits of remaining areas	HNP LTP
Surface Soil	Excluded	Direct Radiation (2.2.5)	Adequate Distance and Topography	Attachment 2 of this letter
Deep Soil	Excluded	Leaching (2.3.1)	Low Leach Rate for all except tritium and low dose significance of tritium	HNP LTP
Deep Soil	Excluded	Manual Redistribution (2.3.2)	Isolation and Controls and same release limits of remaining areas	HNP LTP
Groundwater	Excluded	Groundwater Transport (2.4)	None of the groundwater source areas are upgradient of the Phase II Release Areas	HNP Groundwater Monitoring Program
Surface Water	Excluded	Surface Water Transport (2.5)	None of the survey areas of the Phase II Release Areas are downgradient of the groundwater source areas or in contact with surface waters that are downgradient of the groundwater source areas	HNP LTP and HNP Groundwater Monitoring Program

Source	Status	Screening Pathway	Screening Argument	Reference
Structures	Excluded	Direct Radiation (2.6.1)	Adequate Distance and Topography	Attachment 2 of this letter
Structures	Excluded	Leaching (2.6.2)	Low leach rate and or low diffusion rate for all radionuclides of concern	HNP LTP
Other	N/A	N/A	No other Sources	N/A