CONNECTICUT YANKEE ATOMIC POWER COMPANY

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

July 17, 2002
CY-02-110

Mr. Juan A. Pérez
U. S. Environmental Protection Agency
Office of Site Remediation and Restoration
1 Congress St.
Suite 1100 (HBT)
Boston, MA 02114-2023

Haddam Neck Plant
Human Exposure
Environmental Indicator

Dear Mr. Pérez:

On June 5, 2002[1], Connecticut Yankee Atomic Power Company submitted additional soil characterization information resulting from the removal of two underground storage tanks on the site, as well as information regarding security measures in place at the Haddam Neck Plant (HNP) that would prevent unmonitored, uncontrolled public access to the site, and limit visitor and employee access to work areas.

Based upon the information provided in the June 5, 2002 letter, and previous Environmental Indicator (EI) submittals of October 8, 1999[2] and August 8, 2000[3], CYAPCO requests that the EI for Human Exposure be upgraded to "under control" status code, "YE". The soil data and security measures provided in the June 5, 2002 letter adequately demonstrates, based upon the physical and institutional controls in place, that there are no unacceptable human exposures from contamination that can be expected under existing land/groundwater uses.

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[1] Mr. Mathew R. Hoagland from Noah W. Fetherston, "RCRA Corrective Action Plan and Environmental Indicators", CY-02-080, dated June 5, 2002.
[2] Mr. Juan. A. Pérez from Russell A. Mellor, "Response to EPA's RCRA CAP Questionnaire", CY-99-064, dated October 8, 1999.
[3] Mr. Juan Pérez from Noah W. Fetherston, "Supplemental Information for the RCRA CAP Questionnaire", CY-00-048, dated August 8, 2000.

Attached for your information and consideration is the completed EPA form for "Documentation of Environmental Indicator Determination, Current Human Exposure Under Control." If you have any questions regarding this submittal, please contact Frostie A. White at (860) 267-3952.

Sincerely,

Noah W. Fetherston
Site Manager

Attachment

"Documentation of Environmental Indicator Determination, Current Human Exposure Under Control"

CC: Mr. Marv Rosenstein, EPA Region 1
Ms. Elizabeth Mason, EPA Region 1
Mr. James Cherniak, EPA Region 1
Mr. Oswald Inglese, CTDEP
Mr. Peter Hill, CTDEP
Mr. Michael Firsick, CTDEP
Mr. David Ringquist, CTDEP
Mr. John England, CTDEP

Attachment

Documentation of Environmental Indicator Determination, Current Human Exposure Under Control

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: Connecticut Yankee Atomic Power Company, Haddam Neck Plant
Facility Address: 362 Injun Hollow Road, East Hampton, CT 06424
Facility EPA ID #: CTD042306720

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

__√__ If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future. _

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	___	√	___	_____
Air (indoors)[2]	___	√	___	_____
Surface Soil (e.g., <2 ft)	___	√	___	_____
Surface Water	___	√	___	_____
Sediment	___	√	___	_____
Subsurf. Soil (e.g., >2 ft)	___	√	___	_____
Air (outdoors)	___	√	___	_____

√ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

_____ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s): *Security Measures* – CYAPCO has extensive security measures in place at the HNP site that would prevent public access to the HNP. Specifically, this federally licensed facility, which includes a radiologically controlled area within the industrial area is surrounded by fences with barbed wire topped fence and constantly patrolled by armed guards. Cameras, intrusion detection devices, and other security measures aid in controlling public access to the facility. Multiple "No Trespassing" postings on the Connecticut River and the discharge canal warn the general public not to enter the property. A boom traverses the discharge canal that further prevents watercraft entry.

Multiple guards are stationed at the vehicle entrance to the facility. Vehicular access is limited to approved visitors and employees at the site. To gain permanent unescorted access to the Protected Area of the site, a complete federal background and criminal investigation is performed, and the individual must successfully pass a "Fitness for Duty" test. Local law enforcement is the primary responder in times of emergency at the site, and is routinely in contact with CYAPCO Security. Since September 11, 2001, enhanced security measures have been initiated with additional enhancements expected.

The existing security measures are adequate to prevent public access to the HNP site. HNP worker exposure is limited to those individuals qualified by education, training and/or experience to perform their assigned duties and responsibilities.

Physical and Institutional Exposure Controls: In addition to the security measure discussed above, the property is bounded to the west by the Connecticut River and to the east by extensive rock outcrops and hills with limited vehicular access pathways.

Soil (Surface and Subsurface) - For those Underground Storage Tanks removed to date, the soil sample results were negative for any volatile organics, metals or MTBE that could have been associated with leakage. As expected, lead and other metals have been identified at the former shooting range. These constituents can be remediated to

concentrations below the Federal standard for metals. To date, there is no evidence of any significant hazardous constituents at the HNP site. The available data supports that there are no known hazardous constituents contamination of groundwater, soil, surface water, sediment, or air media above appropriately protective risk-based levels at the site. This evaluation is supported by analytical data, where available, and by extensive records maintained at the site form the stringent spill, tank, transformer, hazardous waste storage and wastewater management programs that were in-place during plant operations and continue to be in-place at the plant during decommissioning.

Groundwater - Groundwater has been monitored for hazardous constituents at selected locations based upon activities performed or systems, equipment, laboratories in specified areas. This includes the demolition debris landfill area to the east of the plant and the peninsula area to the southeast where the water supply wells are located. Groundwater is not used for drinking at the site.

Indoor Air - Although the facility had no regular indoor air monitoring program for chemicals, project-specific health and safety air monitoring is and has been conducted for occupational exposure evaluation using Draeger tubes, lapel monitors, and other monitoring devices. There is currently no known air "contamination" above risk-based levels.

Outdoor Air - The facility has several Title V permitted sources. All emission from these sources is within permit limits. There are no indications in present or past operating records that wound indicate the potential for ambient air concentration above risk-based levels. Similarly as with the soil media, supporting records include no violations indicative of potentials for release to the environment in past RCRA inspections, documentation of response actions for all past spills, most of which had not impacted environmental media, and tank inspections and integrity testing datum which indicate no environmental releases. The only other potential sources of air release of hazardous constituents on site would be exhaust from internal combustion vehicles and equipment, and volatilization of chemicals or wastes in storage or use. There are no indications that such sources have had any impact above appropriate risk-based levels.

Surface Water – There have been documented unplanned petroleum and sodium hypochloride releases to the pond, discharge canal and the Connecticut River. Appropriate response actions were taken for each of these incidents. Booms and absorbent pads were deployed for petroleum spills to the pond or canal. When possible, the spills were cleaned up to applicable standards. There is no evidence that these spills have impacted the current surface water quality.

Sediment – One spill response action recorded in 1998 indicated the presence of oil in sediment at the cooling water intake structure in the Connecticut River. Investigation during series of events concluded that the oil was coal tar residue from the remnants of treated wood pilings in the river sediment and not a release form the site. This finding explained sheens detected during the series of events at the intake and corresponding sheens at the cooling water discharge canal. With the conclusion of this event and the absence of any other indications of potential impacts to the sediment, there are no known or reasonable suspicions of hazardous constituents above risk-based levels.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	___	___	___	___	___	___	___
Air (indoors)	___	___	___	___	___	___	___
Soil (surface, e.g., <2 ft)	___	___	___	___	___	___	___
Surface Water	___	___	___	___	___	___	___
Sediment	___	___	___	___	___	___	___
Soil (subsurface e.g., >2 ft)	___	___	___	___	___	___	___
Air (outdoors)	___	___	___	___	___	___	___

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

_____ If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination) - continue after providing supporting explanation.

_____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):_____
_____
_____
_____
_____
_____

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_____ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):_____

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

√ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Connecticut Yankee Atomic Power Company Haddam Neck Plant facility, EPA ID #CT 042306720, located at 362 Injun Hollow Road, East Hampton, CT 06424 under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

JUAN A. Perez
Environmental Scientist
7/26/02

Completed by (signature) [signature], P.E., PhD Date 7/17/02
(print) Frostie A. White, P.E. PhD
(title) Env. Reg. Affairs Engineer

Supervisor (signature) [signature] Date 8/14/02
(print) Matthew R. Haagland
(title) Section Chief
(EPA Region or State) Reg. I

Locations where References may be found:

Connecticut Yankee Atomic Power Company
Haddam Neck Plant
362 Injun Hollow Road
East Hampton, CT 06424

Contact telephone and e-mail numbers

(name)	Frostie A. White, PE, Environmental Regulatory Affairs
(phone #)	(860) 267-3952
(e-mail)	whitefa@connyankee.com

FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.