KLCK

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. _____

Petition of Entergy Nuclear Vermont Yankee, LLC	)
and Entergy Nuclear Operations, Inc., pursuant to	)
30 V.S.A. §248, for a Certificate of Public Good	)
to modify certain generation facilities	)

PETITION AND PREFILED TESTIMONY ON BEHALF OF ENTERGY NUCLEAR VERMONT YANKEE, LLC AND ENTERGY NUCLEAR OPERATIONS, INC.

February 21, 2003

Volume 2 of 2

EGGLESTON & CRAMER, LTD.
Victoria J. Brown
Gary L. Franklin
P.O. Box 1489
150 South Champlain Street
Burlington, VT 05402-1489
(802) 864-0880

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. _____

Petition of Entergy Nuclear Vermont Yankee, LLC)
and Entergy Nuclear Operations, Inc. pursuant to)
30 V.S.A. §248, for a Certificate of Public Good)
to modify certain generation facilities)

PREFILED TESTIMONY OF SONJA A. SCHUYLER ON BEHALF OF ENTERGY NUCLEAR VERMONT YANKEE, LLC AND ENTERGY NUCLEAR OPERATIONS, INC.

February 21, 2003

Summary: Ms. Schuyler's testimony addresses the impacts of the proposed uprate on the environmental criteria contained in 30 V.S.A. 248(b)(5), i.e., the impact on esthetics, historic sites, air and water purity, the natural environment and the public health and safety, taking into consideration criteria in 10 V.S.A. § 1424a and § 6086(a) 1 through 8 and 9 (K). Her testimony also addresses §248 (b)(8) -- impact on outstanding resource waters -- as well as compliance with Executive Order 80-52 regarding Agricultural Resources.

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. _____

Petition of Entergy Nuclear Vermont Yankee, LLC)
and Entergy Nuclear Operations, Inc., pursuant to)
30 V.S.A. §248, for a Certificate of Public Good)
to modify certain generation facilities)

PRE-FILED TESTIMONY OF SONJA A. SCHUYLER

I. INTRODUCTION 2
II. 248 (B)(5): THE ACT 250 CRITERIA [10 V.S.A. §6086(A)(1) THROUGH 8 AND 9(K) AND §1424a(d)] 6
A. Criterion 1 Air and Water Pollution 6
1. Air Pollution 6
2. Water Pollution 10
a. Criterion 1 (A) Headwaters 10
b. Criterion 1 (B) Waste Disposal 10
(1) Wastewater 11
(2) Solid Waste 15
(3) Radioactive Waste 17
(4) Hazardous Waste 17
c. Criterion 1(C) Water Conservation 19
d. Criterion 1(D) Floodways and § 1424a(d)(3) 21
e. Criterion 1(E) Streams [10 V.S.A. §1424 a(d)(1)] 21
f. Criterion 1(F) Shorelines [10 V.S.A. §1424 a(d)(8)(12)] 23
g. Criterion 1(G) Wetlands 23
B. Criterion 2 Sufficient water available 24
C. Criterion 3 Burden on existing water supply [10 V.S.A. §1424 a(d)(12)] 25
D. Criterion 4 Soil Erosion and runoff characteristics of site 26
E. Criterion 5 Highway congestion and traffic safety 26
F. Criterion 6 Educational Services 28
G. Criterion 7 Municipal Services 29
H. Criterion 8 Scenic or natural beauty, aesthetics, historic sites, or rare and irreplaceable natural areas [10 V.S.A. §1424 a(d)(7)(8)(9)(10)(11)] 29
I. Criterion 8 (A) Necessary wildlife habitat and endangered species [10 V.S.A. §1424 a(d)(4)(5)(6)] 33
J. Criterion 9(K) Impact on Public Investments [10 V.S.A. §1424 a(d)(12)] 34
III. 248 (B)(8) EFFECT ON OUTSTANDING RESOURCE WATERS [10 V.S.A. §1424 a(d)(13)] 34
IV. EXECUTIVE ORDER 80-52: AGRICULTURAL RESOURCES 35

STATE OF VERMONT
PUBLIC SERVICE BOARD

Docket No. _____

Petition of Entergy Nuclear Vermont Yankee, LLC)
and Entergy Nuclear Operations, Inc., pursuant to)
30 V.S.A. §248, for a Certificate of Public Good)
to modify certain generation facilities)

I. INTRODUCTION

Q1. Please state your name and business address.

Response: My name is Sonja A. Schuyler and my business address is The Johnson Company, Inc., 100 State Street, Suite 600, Montpelier, VT 05602.

Q2. What is your occupation?

Response: I am a Senior Scientist at The Johnson Company, Inc., an environmental science and engineering consulting firm in Montpelier, Vermont. In this capacity, I have prepared pre-filed testimony for Section 248 Certificate of Public Good filings. I have also prepared Act 250 Land Use Permit applications. A copy of my resume is attached as Exhibit EN-SAS-1.

Q3. Have you previously testified before the Vermont Public Service Board or other state or federal agencies?

Response: Yes. I have testified before the Vermont Public Service Board in Docket 5330, Application of 24 Electric Utilities for a Certificate of Public Good authorizing execution and performance of a firm power and energy contract with Hydro Quebec, and in the dockets for

several independent power purchase contracts with Vermont Power Exchange in the 1980s. I have also testified before the Vermont Environmental Board and Vermont Water Resources Board on the appeal of an Act 250 Permit Amendment and NPDES permit for the UniFirst facility in Williamstown, Vermont, and in Act 250 Land Use Permit Hearings before District Environmental Commissions in Vermont.

Q4. What is the purpose of your testimony?

Response: The purpose of my testimony is to address the requirements related to environmental impacts for a Certificate of Public Good ("CPG") under Title 30 Section 248, (b)(5). Entergy Nuclear VY seeks a CPG to implement a "power uprate" at the Vermont Yankee Nuclear Power Station (the "VY Station") at Vernon, Vermont. Specifically I will address §248 subcriteria (b)(5) – impact on esthetics, historic sites, air and water purity, the natural environment and the public health and safety, taking into consideration criteria in 10 V.S.A. § 1424a and § 6086(a) 1 through 8 and 9 (K). My testimony will also address §248 (b)(8) – impact on outstanding resource waters, as well as compliance of the project with Executive Order 80-52 regarding Agricultural Resources.

Q5. Please summarize your understanding of the VY Station and the uprate project.

Response: The VY Station is located in Vernon, Vermont, on the Connecticut River 0.75 miles upstream of the Vernon Dam, and is shown on the Site Location Map (Exhibit EN-SAS-2). The surface water intake and cooling water and stormwater discharge points for the VY

Station are located on the impoundment of the Connecticut River upstream of Vernon Dam known as Vernon Pool. Vernon Pool is a 25-mile long impoundment that extends from Vernon Dam north to the foot of the Bellows Falls Dam in Bellows Falls, Vermont. At full-pond elevation of 22.13 ft , Vernon Pool encompasses a 2,550-acre area.

Entergy Nuclear VY proposes a power uprate that will result in an approximate 20% increase in electrical generating capacity at the Vermont Yankee plant. This process can increase the power output at the plant by up to 110 MW from current net generation of approximately 510 MW. Power uprate increases the output of the plant through the increase in reactor core power and the resulting increase in the amount of steam that passes to the turbine/generator. The modifications to the VY Station necessary to implement the uprate involve the replacement or upgrade of selected plant equipment with new equipment capable of handling the increased power output. The existing cooling towers will also be modified to increase their cooling capability. Importantly, from an environmental impact perspective, none of the proposed modifications will significantly affect the physical layout of the plant, nor will any permanent structures be built outside of existing building footprints, although a temporary office space addition will be required for the project. The only outside work in connection with the uprate was the replacement of the main transformer in the transformer area west of the turbine building. (See the Site Plan, Exhibit EN-SAS-3.) The power uprate project is more completely described in the testimony of Mr. Thayer.

The power uprate will not require any increase in the size of the diesel generators used for emergency electrical power for the facility, or any modifications to water intake or discharge structures on the bank of the Connecticut River. The power uprate will increase the thermal output of the VY Station reactor which may slightly increase the temperature of cooling water discharged to the Connecticut River and may require more frequent operation of the plant cooling towers.

Independent of this application to the Board, Entergy Nuclear VY is seeking an amendment to the plant's National Pollutant Discharge Elimination System ("NPDES") permit to allow the discharge of more heat to the Connecticut River. As I explain below, achieving the power uprate is not contingent on receiving this permit amendment.

Q6. How does the NPDES permit for the Entergy Nuclear VY station relate to these proceedings?

Response: The VY Station operates subject to and with the benefit of an NPDES permit (#VT0000264, VT DEC Permit No. 3-1199) to discharge to waters of the United States. The permit was issued by the State of Vermont, Agency of Natural Resources, under authority delegated to it by the United States Environmental Protection Agency (U.S.EPA), under §402 of the federal Clean Water Act, and Vermont law, 10 V.S.A.§ 1259 and §1263. A copy of this permit is attached as Exhibit EN-SAS-4. Operation of the facility in compliance with this permit as now issued or as subsequently amended creates a rebuttable presumption in this proceeding

that the power uprate will not have an adverse impact on water quality in the Connecticut River as judged by the Act 250 criteria.

II. 248 (B)(5): THE ACT 250 CRITERIA [10 V.S.A. §6086(A)(1) THROUGH 8 AND 9(K) AND §1424a(d)]

Q7. Will this project have an undue adverse effect on esthetics, historic sites, air and water purity, the natural environment and the public health and safety?

Response: No. This project will not have an undue adverse effect as judged by the criteria specified in 10 V.S.A. Sec. 1424 a(d) and Sec. 6086(a)(1) through (8) and (9)(K). My testimony below will address each criterion. The testimony has been organized to address the Act 250 criteria in order. Where the analysis of those criteria also overlap with the criteria under 10 V.S.A. Sec. 1424 a(d), I will discuss them together and note the relevant criterion in parentheses after the question.

A. Criterion 1 Air and Water Pollution

1. Air Pollution

Q8. Is the VY Station considered a Source for the purpose of the Vermont Air Pollution Control Regulations?

Response: Yes. The VY Station is a Registered Source as defined by 5-801 of the Vermont Air Pollution Control Regulations, which means that it emits or has the potential to emit air contaminants that, in total, amount to more than five (5) tons per year. As discussed below, VY Station is also an Indirect Source as defined by 5-101 of the Regulations, but it does

not require a New Source Construction and Operating Permit or an Indirect Source Permit.

Q9. Will this project result in undue air pollution?

Response: No. The VY Station is in full compliance with Vermont Air Pollution Control regulations as reported in its annual renewal of Air Source Registration that demonstrates that VY Station's air emissions are less than 10 tons per year. Entergy Nuclear VY makes the required reports and payment of fees for the annual renewal of its Air Source Registration. The 2002 Air Pollutant Emissions Inventory Report is presented in Exhibit EN-SAS-5. The proposed changes will not affect the facility's status as a Registered Source. No changes are proposed for the power uprate that would significantly increase its air emissions, so no undue air pollution, as judged by Vermont's Air Pollution Control Regulations, will occur.

Q10. Does the VY Station hold an Air Source Construction and Operating Permit?

Response: No. The total of allowable air contaminant emissions from the VY Station is less than 10 tons per year so it is not subject to the permit requirement under Subchapter X, Operating Permits, of the Vermont Air Pollution Control Regulations. The reported emissions come from fuel burning in furnaces and emergency generators. The threshold for treatment as a Major Stationary Source which would require a permit for construction or modification is allowable emissions of one or more criteria air contaminant greater than 50 tons per year, well above the less than 10 tons produced by Entergy Nuclear VY. Thus, the VY Station is not required to obtain a New Source Construction permit. The proposed power uprate will not result in a physical modification or operational change that would cause the quantity of allowable

emissions from the VY Station to increase. Accordingly, a New Source Construction or Operating Permit would not be required.

Q11. Is the VY Station an Indirect Source as defined by Section 5-101 of the Vermont Air Pollution Control Regulations?

Response: Yes. The VY Station is a facility "...that leads to associated mobile source activity as a result of which any air contaminant is or may be emitted." The VY Station employees travel to and from the facility daily by car, deliveries of supplies and materials are made by truck, and solid waste is removed by truck.

Q12. Would the power uprate be a modification to an Indirect Source that would require Entergy Nuclear VY to obtain an air permit?

Response: No. The parking area at the site has 433 spaces which is fewer than the 1,000 spaces that would make the VY Station subject to permit requirements. The power uprate will not increase the number of permanent employees at the facility; and therefore, will not require the addition of parking spaces that would make the project subject to permit requirements. (Vermont Environmental Protection Regulations Section 5-503 (a)). Arrangements for temporary parking during the uprate construction are discussed in Q59 below under the traffic criterion.

Q13. Are there any process emissions or noxious odors which will result from this project, and, if so, how will they be controlled?

Response: Entergy Nuclear VY does not produce typical greenhouse gases as part of the electricity production process. There are no noxious odors produced as part of the electricity generating process.

The operations and maintenance activities required after the uprate will be essentially the same as at present, so no increases in emissions or noxious odors are anticipated from them. The current reportable emissions from plant operations are presented in Exhibit EN-SAS-5.

Q14. Are there any sources of noise which will result from this project?

Response: No. As presented in Mr. Yasi's testimony, Entergy Nuclear VY had a noise analysis of the proposed changes to the cooling towers performed that showed that the change in sound levels from cooling tower operation after the upgrade compared to current operation should not be noticeable.

Q15. How will dust be controlled during construction of this project?

Response: The only outside construction required for the power uprate will be the installation of the temporary office space. Since mobile units are planned, outside construction will be minimal, so dust control will not be required. Parking areas are existing paved or gravel surfaces, so parking will not be a source of dust.

2. *Water Pollution* .

a. Criterion 1 (A) Headwaters

Q16. Does the project site qualify as a headwaters area as defined in 10 V.S.A. Sec. 6086(a)(1)(A)?

Response: No. The site is located on the Connecticut River in Vernon, Vermont, at an elevation of 260 feet. (See Site Location Map EN-SAS-2). The facility is in the developed area of the Town of Vernon and the site itself has been extensively developed for the nuclear power plant. At this point the watershed is not characterized by steep slopes, or shallow soils. The drainage area is greater than 20 square miles, and the elevation is less than 1,500 feet. It is not in the watershed for a surface water designated public water supply, and is not in a significant aquifer recharge area.

b. Criterion 1 (B) Waste Disposal

Q17. Will the project meet any applicable Department of Environmental Conservation Department regulations regarding the disposal of wastes?

Response: Yes. As detailed in the following testimony, the power uprate project will meet the applicable regulations regarding the disposal of wastes. The VY Station holds several permits and certifications for disposal of wastes that the State of Vermont uses to protect groundwater and surface water resources and public health. Some aspects of the project may change waste volumes that must be managed. The potential impact of these changes on the facility's permits and certifications is discussed below.

Q18. Are there any aquifer protection areas on the Entergy Nuclear VY property in Vernon, Vermont? [10 V.S.A. §1424a(d)(2)]

Response: No. There are no aquifer protection areas on the property (See Site Plan, Exhibit EN-SAS-3). Therefore, waste disposal will not affect aquifer recharge areas.

(1) Wastewater

Q19. What are the sources of wastewater discharge from the VY Station?

Response: There are four sources of wastewater discharge from the VY Station. Wastewater that is discharged to the Connecticut River consists of three waste streams: 1) the main condenser cooling water discharge; 2) the service water system discharge; and 3) stormwater discharge. The fourth source is domestic sewerage from the facility that is discharged to septic systems.

Q20. What is the existing water quality and current water quality classification of the Connecticut River at Vernon, Vermont? [10 V.S.A. §1424a(d)(1)]

Response: The water quality classification for the Connecticut River in this segment is Class B. (Vermont Water Quality Standards, Section 4-13). The Connecticut River meets the criteria for Class B waters in this reach.

Q21. How will the project affect surface water quality?

Response: The project will not have an undue adverse effect on surface water quality because the facility will be operated in full compliance with the requirements of its existing NPDES permit (Exhibit EN-SAS-4), or any subsequent amendment to that permit. In order for

the Vermont Agency of Natural Resources to issue an NPDES permit, it must find "that the discharge: (1) will not significantly alter the aquatic biota in the receiving waters, (2) will not pose more than a negligible risk to public health, (3) will be consistent with existing and potential beneficial uses of the waters, and (4) will not cause a violation of water quality standards." [10 V.S.A. § 1259(e)]

Q22. How would you characterize cooling water discharge from the VY station?

Response: The VY Station produces non-contact cooling water as a by-product from the generation of electricity. Non-contact means that the water discharged to the Connecticut River is never in direct contact with the reactor or any radioactive water. The VY Station withdraws water from the Connecticut River to condense the steam used to drive the turbine generator. Heat produced during the cooling of steam in the main condenser is discharged as heated water. The discharge of heated water is governed by the NPDES permit. Biocides are added to the circulating water to prevent fouling of the condenser tubes. The biocide application is also governed by the NPDES permit.

Q23. How would you characterize service water discharge from the VY station?

Response: The service water system is used to cool internal plant equipment other than the main condenser and for other maintenance work that does not require potable water. River water is used to backwash the intake screens, strainers, and water treatment sand filter, and this backwash is discharged to the river. Boiler blowdown from the heating boilers is discharged with the service water, but the heating boiler water comes from on-site wells. These discharges

are subject to the NPDES permit. No appreciable change to the service water discharge volume is anticipated as a result of the power uprate.

Q24. How would you characterize stormwater discharge from the VY station?

Response: The developed area of the VY Station is served by a storm sewer system that discharges to the Connecticut River and is permitted by the NPDES permit. The north storm drain system and the southeast storm drain system have separate discharge points. The south storm drain system discharges through the discharge structure that also handles the cooling water and service water discharges. These discharge points are shown on the Site Plan, Exhibit EN-SAS-2.

Q25. Does the project require amendment of the NPDES permit for changes to the stormwater discharge system?

Response: No. However, I am aware that an NPDES permit amendment application is pending that solely addresses modifications to the stormwater management system, and thus is unrelated to the power uprate project.

Q26. Does the project require a Construction Site Runoff General Permit?

Response: No. The area disturbed during the exterior project construction will be less than one acre and will consist of minor work required to install the temporary office space. The threshold for coverage under the Construction Site Runoff General Permit is now two acres of disturbance, but a change to a one-acre threshold is pending. In either case, application for coverage under the General Permit will not be required for this project.

Q27. How would you characterize wastewater discharge to the septic systems?

Response: Sanitary wastewater and laboratory wastewater from the facility are discharged to on-site septic systems. There are six septic systems: Main (North) System; Construction Office Building (COB) (South) System; New Office Building System; New Warehouse System; Governor Hunt House System; and Gatehouse #1 System. The on-site systems are covered by Vermont Indirect Discharge Permit ID-9-0036-1A (Exhibit EN-SAS-6), which permits a discharge of up to 26,297 gallons per day (gpd) of wastewater during maintenance outages. This total capacity is sufficient to accommodate the temporary increase in workers required during plant shutdowns; however, the use of some of the individual systems may need to be regulated during the power uprate construction period so that the individual systems are not over taxed. (The maximum water usage rate anticipated is presented in a Memorandum from Southern Vermont Engineering Associates, Exhibit EN-SAS-7). The septage from these septic systems is a solid waste that is managed on-site, as discussed below.

Q28. Will a temporary Pollution or Discharge permit be required by this project?

Response: No. No construction will occur in or adjacent to surface waters "...that may result in unavoidable short term non-compliance with the turbidity or aquatic biota, wildlife, and aquatic habitat criteria." (Vermont Water Quality Standards, Section 2-03, B. 1.) Therefore, a temporary pollution or discharge permit will not be required.

(2) Solid Waste

Q29. How is septage from the on-site wastewater treatment system handled?

Response: The solids from the septic system are managed by land application on-site according to the conditions in the Indirect Discharge permit referenced above; the Vermont Solid Waste Management Facility Certification #F9906-A1 (Exhibit EN-SAS-8); and VY NRC Offsite Dose Calculation Manual, Appendix I, (Exhibit EN-SAS-9). Two areas have been approved for land application, the North Field and the South Field. (See the Sludge and Silt Disposal Areas, Exhibit EN-SAS-10). An extensive monitoring program is in place for the land application areas.

Q30. What other wastes are managed by land application on-site and would the quantity of waste increase?

Response: Silt from the cooling towers accumulates in a basin under the west cooling tower. The basin is cleaned out once per operating cycle, and the silt is spread on the same fields that are used for the septic systems. The source of the silt is suspended solids in the cooling water taken from the river and solids from the cooling towers that wash into the basin. The amount of silt deposited in the basin may increase if more river water passes through the cooling towers.

Q31. Does the VY Station have the capacity to continue land application of septage and cooling tower silt?

Response: Yes. The facility has been operating using only the 1.9-acre south field for land application of all of the VY Station's septage, cooling tower silt and other waste soils. This field is certified to receive 55,100 gallons of solids per year. The 7.4-acre north field, is certified for 214,600 gallons per year. (See the Sludge and Silt Disposal Areas, Exhibit EN-SAS-10, and the Solid Waste Management Facility Certification, Exhibit EN-SAS-8). The septage volumes per refueling cycle would remain essentially the same because no increase in the work force is expected except for the short duration of the uprate construction. As discussed in the testimony and exhibits of Mr. Yasi, the amount of the cooling tower silt could increase after power uprate from approximately 16,000 gallons per year up to approximately 47,000 gallons per year if the plant operates under the existing NPDES permit. The cooling tower silt volume would increase up to approximately 56,000 gallons if the NPDES permit amendment is granted for the summer period only. If the winter limits are also amended, the cooling tower silt volume would only increase to 23,400 gallons because the cooling towers would not need to operate in the winter. VY station also has NRC approval to land spread up to 28.3 m^3 (7,477 gallons) per year of soils from miscellaneous construction and maintenance activities (See Exhibit EN-SAS-9). In any case, sufficient capacity for land application of waste is available.

Q32. What methods will be used for the disposal of stumps and construction debris?

Response: No stumps will be generated by the uprate. The construction debris from the cooling tower upgrade will be taken to the Brattleboro transfer station and disposed of at a licensed solid waste landfill.

(3) Radioactive Waste

Q33. Will the power uprate result in an increase in radioactive waste generation?

Response: Yes. An increase in low level and high level radioactive waste generation will result from the power uprate. The quantification of this increase and the management of these wastes are discussed in Mr. Thayer's testimony.

(4) Hazardous Waste

Q34. Will hazardous waste generation increase significantly as a result of the power uprate?

Response: No. Hazardous waste generation will not increase significantly due to the power uprate. Typical components of the hazardous waste stream are paints and solvents used for facility maintenance. The Vermont Yankee facility maintains registration as a Large Quantity Generator under the Vermont Hazardous Waste Management Regulations, Section 7-308, and the VY Station status as a Large Quantity Generator will be maintained.

Q35. How does Entergy Nuclear VY dispose of hazardous waste?

Response: Hazardous waste may be stored temporarily on-site up to 90 days, as permitted by Vermont Hazardous Waste Regulations. Entergy Nuclear VY contracts with a licensed hazardous waste disposal firm, such as Clean Harbors, Inc., to have the wastes disposed of at a certified hazardous waste disposal facility.

Q36. Will any asbestos or lead-based paint waste be generated during the power uprate construction?

Response: Yes. Asbestos removal will be required during the power uprate. The asbestos covered stator bars in the Main Generator will be removed and replaced. Four asbestos-insulated feedwater heaters that are painted with lead-based paint will be replaced during the power uprate project. These heaters will be encapsulated and removed. All asbestos and lead abatement will be completed by certified asbestos and lead-based paint abatement contractors. All asbestos containing wastes will be disposed of at a landfill licensed for asbestos waste. The estimated quantity of asbestos to be removed is 600 cubic feet. (See Exhibit EN-SAS-11).

Q37. A new main transformer was installed during re-fueling outage (RFO) 23. Is the existing spill containment system design capable of containing a release of dielectric fluid from the main transformer?

Response: Yes. The spill containment system was modified to accommodate the increased volume of dielectric fluid in the new transformer. The Spill Prevention Control and

Countermeasure (SPCC) Plan for the facility has been revised to include the new main transformer. The revised SPCC Plan is presented in Exhibit EN-SAS-12.

c. Criterion 1(C) Water Conservation

Q38. How is water used at the VY Station?

Response: As noted above, water is used to produce steam, to condense steam, and to cool process equipment during the generation of electricity. It is also used in the heating systems for some buildings, and to provide potable water and domestic wastewater disposal for plant employees. Water sources for the VY Station are the Connecticut River and on-site groundwater wells.

Q39. Will more water be consumed as a result of the power uprate and, if so, what steps could be taken to minimize the increase? [10 V.S.A. 1424 a(d)(14)]

Response: Use of the cooling towers results in evaporative loss of water taken from the Connecticut River. If the facility operates under the thermal discharge conditions of its existing NPDES permit (Exhibit EN-SAS-4), the evaporative water loss due to cooling tower operation is expected to increase slightly after uprate. If an NPDES permit amendment is granted to change the thermal discharge conditions as requested, the potential increase in evaporative loss would be reduced. Mr. Yasi's testimony and studies compare the potential evaporative losses from power uprate for plant operation under the conditions of the existing NPDES permit and under the conditions requested in the NPDES permit amendment application.

The worst case for evaporative loss under either set of permit conditions would occur if the weather conditions for the highest evaporation rate coincided with river flow at 1250 cfs, the minimum flow requirement for the Vernon Dam. In that case, the loss would be less than 1.5% of stream flow. The Vermont Water Quality Standards require that all uses of water be supported by the streamflow, and they use a streamflow protection guideline of no more than 5 percent diminished flow at the 7Q10[2] stream flow rate (Vermont Water Quality Standards Section 3-01, B. 1.). Thus, the additional evaporative loss due to power uprate would not be significant based on this guideline. If the requested amendment to the NPDES permit is granted, the evaporative losses after power uprate will be less than if the plant operates under the existing NPDES permit because the cooling towers would operate less.

Q40. Would the use of groundwater increase as a result of the power uprate?

Response: No. The normal use of water from groundwater wells will not increase as a result of the power uprate. During the 2004 planned outage period of about one month, when more workers will be on-site, there will be an increase in groundwater use. (See Memorandum from Southern Vermont Engineering Associates, Exhibit EN-SAS-7). The amount of well water used for make-up water for the reactor water system will not increase after the power uprate. The reactor water system is a closed system with no discharge of cooling water, so the system is as conservative of water use as is possible.

---

[2] 7Q10 (Seven day low flow, ten year return period) means a drought flow equal to the lowest mean flow for seven consecutive days, adjusted to nullify any effects of artificial flow regulation, that has a 10% chance of occurring in any given year.

d. Criterion 1(D) Floodways and § 1424a(d)(3)

Q41. Is this project located near a stream or watercourse?

Response: Yes. The VY Station is located on the Connecticut River on the west side of the impoundment formed by the Vernon Dam (see Exhibit EN-SAS-2, Site Location Map).

Q42. Are any changes to the facility proposed to take place within the floodway or floodway fringe?

Response: No changes will take place to facilities in the floodway or floodway fringe (See Exhibit EN-SAS-13).

Q43. Has the project been designed so that it will not divert the flow of floodwaters thereby endangering the health, safety and welfare of the public or of riparian owners during flooding?

Response: Yes. Entergy Nuclear VY has proposed no changes that would divert the flow of floodwaters.

e. Criterion 1(E) Streams [10 V.S.A. §1424 a(d)(1)]

Q44. Please describe any streams or waterways in the vicinity of the project.

Response: The VY Station is located on the Connecticut River, and a small unnamed stream crosses the Entergy Nuclear VY property to the north of the VY Station. (See the Site Location Map, Exhibit EN-SAS-2).

Q45. Will any construction affect the unnamed stream or the Connecticut River?

Response: No. No construction will be required adjacent to the unnamed stream or the Connecticut River for the power uprate.

Q46. Will the project maintain the existing condition of the Connecticut River, so as to provide full support of uses consistent with its water quality classification?

Response: Yes. Under the existing NPDES permit, Entergy Nuclear VY conducts continuous monitoring of river temperature and flow upstream and downstream of the facility, water quality sampling, and ecological studies of macroinvertebrates, larval fish, and fish in the river. The purpose of this monitoring is to assure that the discharges from the VY Station authorized by the NPDES permit do not have an adverse impact on the fish and other wildlife communities in the river, and that the biological integrity of the aquatic community in the river is maintained.

The annual monitoring reports are reviewed by the Environmental Advisory Committee (EAC) that has been established by the NPDES permit. The EAC members represent the Vermont Department of Environmental Conservation, the Vermont Department of Fish and Wildlife, the New Hampshire Department of Environmental Services, the New Hampshire Department of Fish and Game, the Massachusetts Department of Environmental Protection, the Massachusetts Division of Fish and Wildlife, and the United States Fish and Wildlife Service Coordinator of the Connecticut River Anadromous Fish Program. The reports are also reviewed by the Vermont Agency of Natural Resources which has the regulatory authority for enforcement

of the NPDES permit. As monitoring is a component of the current NPDES permit, it is expected to continue during subsequent renewals or amendments.

f. Criterion 1(F) Shorelines [10 V.S.A. §1424 a(d)(8)(12)]

Q47. Does the project involve the development of any shorelines?

Response: No. No changes will be made to intake or outlet structures on the shoreline.

Q48. Describe how continued access to water and recreational activities will be maintained.

Response: The VY Station is a secured site, so no access to the water for recreation is provided from the Entergy Nuclear VY property.

Q49. How will vegetation be utilized to screen project from the water and stabilize the banks?

Response: There will be no change to the exterior appearance of the facility as viewed from the Connecticut River.

g. Criterion 1(G) Wetlands

Q50. Are there any wetlands shown on the National Wetland Inventory (NWI) maps on the project site?

Response: Yes. National Wetland Inventory (NWI) mapped wetlands are present on the Entergy Nuclear VY property north of the VY Station. (See the Vermont Significant Habitat Map for the Town of Vernon, Exhibit EN-SAS-14). Such wetlands and any wetlands

hydraulically connected to NWI wetlands would be considered significant wetlands under the Rules of the Vermont Water Resources Board. These wetlands would be considered Class 2 wetlands under the Vermont Wetland Rules.

Q51. Will the project comply with the Rules of the Water Resources Board relating to significant wetlands?

Response: Yes. The project will not require any new construction outside of the VY Station complex, so no significant wetlands will be impacted.

B. <u>Criterion 2 Sufficient water available</u>

Q52. Is sufficient water supply available to meet the needs of the power uprate?

Response: Yes. Sufficient water supply is available for the power uprate. Three water systems provide the potable water, water for heating boilers, and make-up water for the reactor water system: the Main Plant Water System, served by the West Well and the Southwest Well; the Construction Office Building System, served by the COB well; and the New Engineering Office Building System, served by the PSB well. The locations of these wells are shown on the Site Plan, Exhibit EN-SAS-3. Source Water Protection Plans have been established for the Main Well System, the COB Well System, and the NEOB Well, and are shown in Exhibit EN-SAS-15. The three systems have been granted Public Water System Permits to Operate (Exhibit EN-SAS-16).

The temporary office building for the power uprate will be connected to the water and wastewater systems for the Plant Support Building. A Water Supply/Wastewater Disposal

Permit (WW-2-1035-1) was issued for this connection by The Vermont Department of Environmental Conservation (DEC) on February 3, 2003. A copy of this permit is attached as Exhibit EN-SAS-17.

Potable water demand after the power uprate is not expected to increase, and heating demand is expected to be the same. The amount of make-up water required for the reactor water system will not increase. The existing wells have enough capacity to serve the needs of the temporary workers who will be on-site for the power uprate construction. (See Exhibit EN-SAS-7).

C. <u>Criterion 3 Burden on existing water supply [10 V.S.A. §1424 a(d)(12)]</u>

Q53. Will the uprate place an additional burden on the water supply for the facility or other users?

Response: No. There will only be a temporary increase in the workforce during the time period when the uprate construction is being performed, and as shown in Exhibit EN-SAS-7 sufficient water is available for domestic use during this period. Vernon Dam is located downstream of the VY Station and uses river flow downstream of the VY Station to generate electricity. Entergy Nuclear VY reimburses the owner of the Vernon Dam, for water lost to evaporation using a negotiated formula. This practice would continue, so there would not be an undue burden on the next down-stream user.

D. Criterion 4 Soil Erosion and runoff characteristics of site

Q54. Will the uprate cause any changes to the site that would have the potential to cause soil erosion or to alter the runoff characteristics of the site?

Response: No. The only exterior construction anticipated for the power uprate is the installation of temporary office space using mobile modular units. Soil disturbance would be minor and limited to any trenching, setting of foundation columns, hook-up of water, sewer, telephone, and electricity. The runoff characteristics of the site would not change, and the area is already served by storm drains as shown on the Site Plan, Exhibit EN-SAS-3.

E. Criterion 5 Highway congestion and traffic safety

Q55. Describe the access to the project.

Response: The site has one controlled access point on Governor Hunt Road. (See the Site Location Map, Exhibit EN-SAS-2, and the Site Plan, Exhibit EN-SAS-3.)

Q56. What impact will this project have on average daily traffic and the peak hours?

Response: There will be no increase in the number of regular employees after the uprate, so the uprate will have no additional long-term impact on daily traffic or peak hours from employee traffic. A traffic study has been prepared by Southern Vermont Engineering Associates and is attached as Exhibit EN-SAS-18.

Q57. Will there be any temporary impacts during construction?

Response: Yes. During the 2004 outage, 1,500 employees are expected to be on-site at some time during the outage, which is expected to be less than 30 days. This number includes regular employees, employees hired for the usual maintenance outage tasks, and employees required for uprate construction. Sixty percent of the employees are expected to work 12-hour shifts starting between 5:30 AM and 7:30 AM, and 40% of the employees are expected to work 12-hour shifts starting between 5 PM and 7 PM.

The traffic study showed that the level of service at the facility entrance on Governor Hunt Road would go temporarily from "C" to "D" north of the intersection during the planned power outage in 2004. (See Exhibit EN-SAS-18). The American Association of State Highway Transportation Officials (AASHTO) uses a letter rating from A to F to describe traffic conditions, with "A" representing no delay and "F" representing maximum delay and congestion. AASHTO recommends designing intersections such as the VY Station access to Governor Hunt Road for level-of-service from "C" to "D". The Vermont Agency of Transportation uses the AASHTO guidelines.

Thus, although the traffic delay at the intersection will increase during the outage, the outage will not cause unacceptable congestion. The traffic study concluded that the temporary traffic conditions on Route 142 would be acceptable during the outage.

Q58. Will the power uprate generate any additional truck trips at the facility?

Response: Yes. The increase in truck traffic as a result of the upgrade will be three additional low-level radioactive waste shipments per year and one additional nuclear fuel delivery per 18 months. These increases will not change the rating of the Governor Hunt Road intersection as shown in the traffic study, Exhibit EN-SAS-18.

Q59. Does the facility have adequate parking available?

Response: Yes. No additional parking will be required for this project. The VY Station has 455 parking spaces which is more than adequate for the normal workforce. During maintenance outages a temporary parking area is set-up near the cooling towers and switchyard. These areas have sufficient capacity to handle the additional workers that will be required during the uprate construction. (See the Site Plan, Exhibit EN-SAS-3).

Q60. Will operation of the cooling towers during the winter create icing on nearby roads?

Response: No. As presented in Mr. Yasi's Cooling Tower Plume Study, icing due to cooling tower operation is not anticipated. The modeling did not indicate icing on roadways during fall, winter or spring cooling tower operation.

F. <u>Criterion 6 Educational Services</u>

Q61. Will the uprate result in an increase in full time employees at the facility?

Response: No. The number of permanent employees will not change due to the uprate, so this project will not result in an increase in the school population.

G. Criterion 7 Municipal Services

Q62. What municipal services will be utilized by this project?

Response: The VY Station receives supplemental police protection, fire protection, and rescue service from the Town of Vernon.

Q63. Will these services be available to the project and not place an unreasonable burden on the municipality?

Response: Yes. Mr. Thayer's testimony documents the discussions with town officials concerning this project and their reactions to the proposal.

H. Criterion 8 Scenic or natural beauty, aesthetics, historic sites, or rare and irreplaceable natural areas [10 V.S.A. §1424 a(d)(7)(8)(9)(10)(11)]

Q64. Describe the site as it exists now and as it will be after the project is completed.

Response: The site is located on the west shore of the impoundment of the Connecticut River that is formed by the Vernon Dam. To the north of the generating station, the property is largely undeveloped except for the power lines that run north from the generating station. (See the Site Location Map, Exhibit EN-SAS-2). To the west, the property is bordered by residential lots that front on Governor Hunt Road. An interpretive center, the Governor Hunt House, is located on the property with frontage on Governor Hunt Road. This interpretive center is open to the public. The generating station itself is fenced and access is limited to persons who work at the facility or have approved business at the facility. The perimeter fence around the

generating station is shown on the Site Plan, Exhibit EN-SAS-3. The entrance to the generating station is controlled by a security guard house. To the south, the property is bordered by the Vernon Dam Hydroelectric Station.

Q65. Will exterior signs and lighting be installed?

Response: No. The project will not require any additional exterior lighting or signage.

Q66. Has an aesthetic analysis of potential changes due to the power uprate been performed?

Response: Yes. Dodson Associates, Ltd. performed a visual analysis of the cooling tower plume and evaluated the visual impacts using the Quechee Analysis that is used for Act 250 applications. This analysis is presented in the testimony of Mr. Dodson.

Q67. What did Mr. Dodson conclude?

Response: Mr. Dodson concluded that the project would not have an unduly adverse aesthetic impact.

Q68. Will this project affect any known archaeological or historic sites?

Response: No. The site was reviewed by the Vermont Division for Historic Preservation, which found no impact on archeological or historic sites. The Division's response is presented in Exhibit EN-SAS-19.

Q69. Will this project have an adverse impact on unique or valuable natural areas or rare and endangered species?

Response: No. Although mapped occurrences of rare and threatened species and unique natural areas are shown on the Vermont Significant Habitat map (Exhibit EN-SAS-14), the Vermont Nongame and Natural Heritage Program (VNNHP) reviewed the project and did not find that any undue adverse impacts would occur to nongame resources or significant natural areas. The letter from the VNNHP is presented in Exhibit EN-SAS-20.

Q70. Several points are shown on the Significant Habitat Map on or very near the Entergy Nuclear VY property. Can you elaborate on the findings of the VNNHP?

Response: Yes. The VNNHP prepares Vermont Significant Habitat Maps for each Town. Symbols on these maps indicate the locations of mapped deer wintering areas, wetlands shown on the NWI maps, and dark polygons for areas where rare, threatened or endangered species or significant natural areas have been recorded. Vermont extends statutory protection to species that have been placed on the state or federal lists of threatened or endangered species. It also regulates impacts to wetlands. The other items shown on the maps are monitored for management purposes. I met with Everett Marshall, Database Manager for the VNNHP, and he provided a listing of the occurrences for each mapped point that is attached as Exhibit EN-SAS-21. Because access to the Entergy Nuclear VY property is limited, natural communities have been left relatively undisturbed compared to the natural communities below the dam. Rare plant species that have been recorded on the Entergy Nuclear VY property include: giant Solomon's

seal, tapering rush, and trailing stitchwort. Giant Solomon's seal occurs both above and below Vernon Dam, but a larger concentration of plants has been recorded on the Entergy Nuclear VY property. The giant Solomon seal community is being monitored by the VNNHP.

The only Vermont-protected species indicated on the Significant Habitat Map is the threatened great St. John's-wort. It has been recorded immediately above the Vernon Dam near the Entergy Nuclear VY property boundary, so it is possible that individuals could spread onto the Vermont Yankee property. Since no development is planned for this part of the property, the project would have no effect on this threatened species if it were to occur on the Entergy Nuclear VY property. The other rare species documented at this map location immediately above the Vernon Dam include three aquatic plants, horned pond weed, small water-wort, and pygmy weed; and a grass, Frank's love-grass, which is rare because Vermont is at the northern limit of its range. These species were identified along the canoe portage and on mudflats in the river, so not on Entergy Nuclear VY property.

Q71. Will this project have an adverse impact on wetland communities?

Response: No. As noted in the responses to Questions 50 and 51, the project will not affect significant wetlands, the Class 2 wetlands shown on the NWI map. Since there will not be any construction outside of the already developed VY Station complex, no impacts will occur to other wetland communities that may occur on the Entergy Nuclear VY property.

I.. Criterion 8 (A) Necessary wildlife habitat and endangered species [10 V.S.A. §1424 a(d)(4)(5)(6)]

Q72. Will this project have an adverse impact on wildlife habitat?

Response: No. There will be no impact on terrestrial wildlife habitat because no changes will be made to the facility footprint. Compliance with the conditions of the current NPDES permit or any subsequent amendments will assure the protection of habitat values in and adjacent to the Connecticut River.

Q73. Will this project have an adverse impact on endangered species?

Response: No. As noted above in the response to Question 69, the project has been reviewed by the VNNHP and no concerns about impacts to endangered species have been raised (See Exhibit EN-SAS-20). Although not tracked by the VNNHP, a bald eagle nest has been reported downstream of the VY Station on Stebbins Island, which is in New Hampshire. The uprate project will not impact this federally protected Threatened Species because compliance with the conditions of the current NPDES permit or any subsequent amendments will assure the protection of habitat values important for this species.

Q74. Will this project have an adverse impact on fish habitat?

Response: No. Compliance with the conditions of the current NPDES permit or any subsequent amendments will assure the protection of habitat values in the Connecticut River. Vermont Yankee has monitored fish habitat in the vicinity of the VY Station for more than 30 years. Seven representative important species have been selected for detailed study: Atlantic

salmon, American shad, smallmouth bass, walleye, yellow perch, white perch, and spottail shiner. Monitoring to date confirms that habitat for these species has been adequately protected by the NPDES permit.

J. Criterion 9(K) Impact on Public Investments [10 V.S.A. §1424 a(d)(12)]

Q75. Is this project adjacent to any public facilities?

Response: Yes. A public park is located to the south of the facility by the Vernon Dam fishway and the Vernon Elementary School is located on Governor Hunt Road. (See the Site Location Map, Exhibit EN-SAS-2).

Q76. Will this project have an adverse impact on public facilities?

Response: No. The proposed project will have no impact on these facilities.

III. 248 (B)(8) EFFECT ON OUTSTANDING RESOURCE WATERS [10 V.S.A. §1424 a(d)(13)]

Q77. Is this project located on any segment of the waters of the state that have been designated as outstanding resource waters by the Water Resources Board?

Response: No. The project is located on the Connecticut River, which has not been designated an outstanding resource water by the Vermont Water Resources Board. (See the Letter from the Water Resources Board, Exhibit EN-SAS-22).

IV. EXECUTIVE ORDER 80-52: AGRICULTURAL RESOURCES

Q78. Have any primary or secondary agricultural soils been identified on the site?

Response: Yes. The agricultural soils of statewide importance have been identified on the site.

Q79. Will the potential of these soils for agriculture or forestry be adversely affected by this project?

Response: No. Since the power uprate will not require construction outside of the existing developed area of the VY Station or an increase in paved areas, the proposed project will not have an adverse impact on agricultural activities or productive agricultural soils. (See the letter from the Vermont Department of Agriculture and Markets, Exhibit EN-SAS-23).

Q80. Does this conclude your testimony?

Response: Yes it does.

LIST OF EXHIBITS

EN-SAS Exhibit #	Item
1	Resume of Sonja A. Schuyler
2	Site Location Map
3	Site Plan
4	Discharge Permit - NPDES No. VT0000264, May 14, 2002, Entergy Nuclear Vermont Yankee, LLC
5	2002 Air Pollutant Emissions Inventory Report for Entergy Nuclear Vermont Yankee, LLC, Facility ID# WM 2335
6	Indirect Discharge Permit No: ID-9-0036-1A, Entergy Nuclear Vermont Yankee, LLC
7	Memorandum from John Goodell, Southern Vermont Engineering Associates, to George Thomas, Entergy Nuclear Vermont Yankee, February 12, 2003. *Re:* Water System Capacity
8	Solid Waste Management Facility Full Certification F9906 – A1, July 12, 2002, Entergy Nuclear Vermont Yankee, LLC
9	Vermont Yankee Nuclear Power Station Off-Site Dose Calculation Manual Revision 30, Appendix I, Revision 29, 1/11/02
10	Sludge and Silt Disposal Areas
11	Memorandum from George Thomas, Entergy Nuclear Vermont Yankee, LLC, to Sonja Schuyler, The Johnson Company, February 13, 2003. *Re:* Asbestos and lead-based paint waste.
12	Vermont Yankee Nuclear Power Station Hazardous material Containment and Contingency (HMCC) and Spill Prevention Control and Countermeasure (SPCC) Plan, Revision 5, September 27, 2002
13	Flood Insurance Rate Map, Town of Vernon, Vermont, Panel 5 and Panel 10

14	Town of Vernon Significant Habitat Map, Vermont Nongame and Natural Heritage Program
15	Source Water Protection Plans
16	Public Water Supply Permits, Entergy Nuclear Vermont Yankee, LLC, May 21, 2002
17	Water Supply/Wastewater Disposal Permit WW-2-1035-1, Entergy Nuclear Vermont Yankee, LLC, February 3, 2003
18	A Study of Traffic for Vermont Yankee Nuclear Power Station, Vernon, Vermont, January 2003, SVE Associates
19	Letter from Emily Wadhams, State Historic Preservation Officer, Vermont Division for Historic Preservation, February 4, 2003. *Re:* Proposed Power Uprate.
20	Letter from Jodi Shippee, Vermont Nongame and Natural Heritage Program, January 3, 2003. *Re:* Vermont Yankee Power Uprate
21	Vernon Dam Site Listings, Vermont Nongame and Natural Heritage Program, January 6, 2003
22	Letter from Jon Groveman, Executive Officer, Vermont Water Resources Board, January 7, 2003
23	Letter from Marian White, Vermont Department of Agriculture, Food, and Markets, January 3, 2003

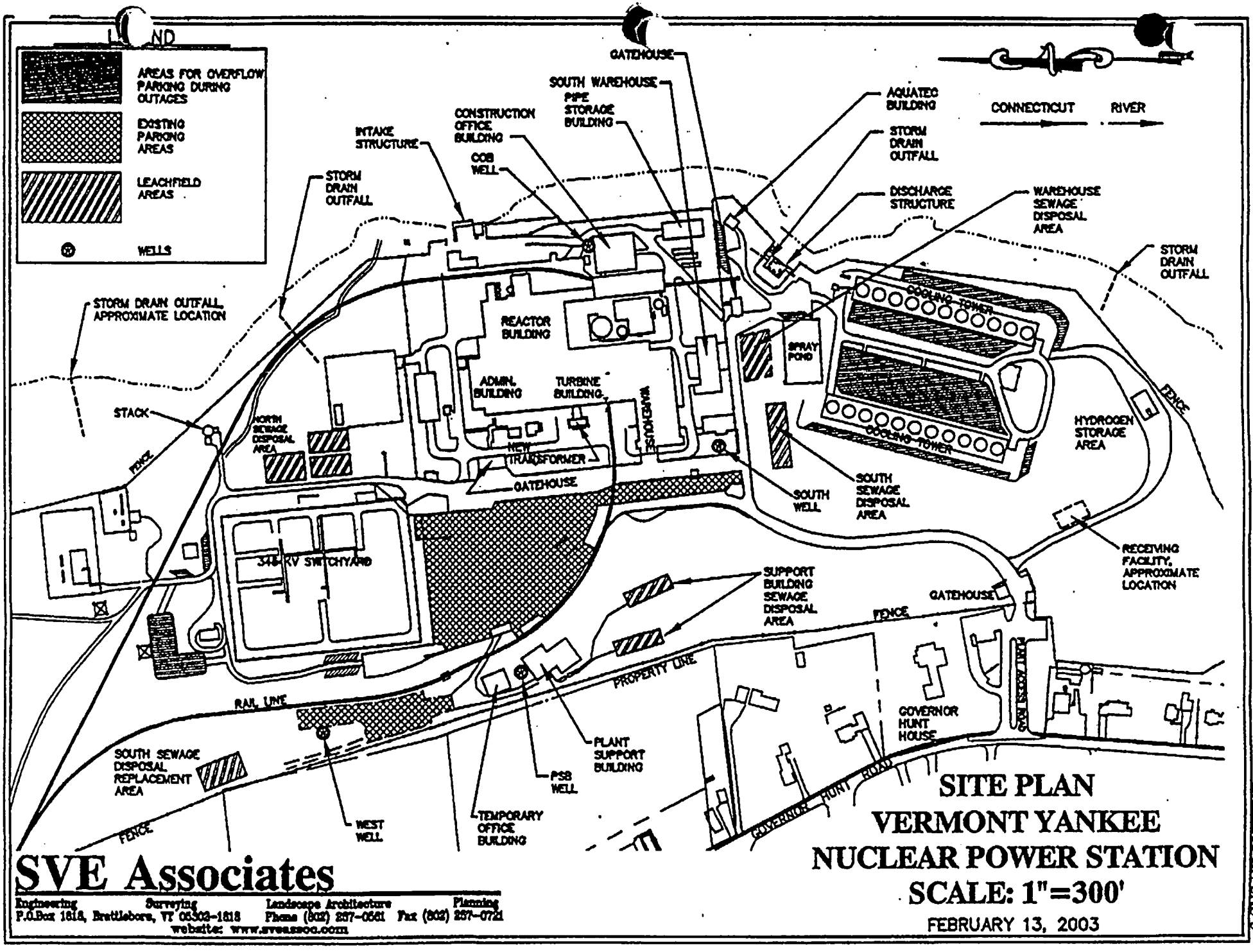
DATE: 12/19/02

1-0561-TCADLOGMAP.apr

BASE MAP: USGS 7.5 Minute Topographic Quadrangle Brattleboro, Vermont-New Hampshire & Winchester, New Hampshire-Vermont PROVISIONAL EDITIONS 1984

SITE LOCATION MAP
ENTERGY NUCLEAR VERMONT YANKEE
VERNON, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
100 STATE STREET MONTPELIER, VT 05602



SITE PLAN
VERMONT YANKEE
NUCLEAR POWER STATION
SCALE: 1"=300'

FEBRUARY 13, 2003

SVE Associates

Engineering Surveying Landscape Architecture Planning
P.O.Box 1818, Brattleboro, VT 05302-1818 Phone (802) 257-0561 Fax (802) 257-0721
website: www.svevt.com

EXHIBIT EN-SAS-3

Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
Vermont Yankee
322 Governor Hunt Rd.
P.O. Box 157
Vernon, VT 05354
Tel 802-257-7711

January 16, 2003

Mr. Daniel Riley, Environmental Engineer
Agency of Natural Resources
Department of Environmental Conservation
Air Pollution Control Division
Building 3 South
103 South Main Street
Waterbury, VT 05671-0402

COPY

RECEIVED
JAN 23 2003
1-0561-1
JOHNSON CO. INC.
MONTPELIER, VT

Subject: 2002 Air Pollutant Emissions Inventory Report for
Entergy Nuclear Vermont Yankee, LLC
Facility ID# WM 2335

Dear Mr. Riley:

Entergy Nuclear Vermont Yankee, LLC (VY) is pleased to present the 2002 Air Pollutant Emissions Inventory for Vermont Yankee Nuclear Power Station in Vernon, Vermont.

For 2002, VY emissions for significant activities (e.g. house heating boiler and waste oil burners) remained below the 10 tons per year (tpy) limit for 2002 per opt-out regulatory requirements. The total emission quantity for 2002 was calculated to be 8.06 tons. Also for 2002, ENVY emissions from insignificant activities (e.g. emergency diesels and John Deere diesel) each remained below the 100 hours maximum run-time limit per opt-out regulatory requirements. A summary table is attached.

During re-fueling outage (RFO) #23 in October 2002, VY utilized a non-stationary temporary 400 kilowatt (KW) diesel generator equipped with a standard filtering device for the main transformer replacement activities. The generator total run-time was 120 hours at 50% capacity at 17.4 gallons per hour. It is the understanding of VY through telephone conversations with Vermont Agency of Natural Resource (VTANR) personnel that non-stationary sources are considered an insignificant source if utilized for their intended purpose but exceeded 100 hours of run-time. As such, releases from the non-stationary temporary generator were not applied to the 10-ton/year limit for opting out of the air operating permit program.

Additionally, this submittal does not contain a hazardous air contaminant emission inventory. All ENVY hazardous air contaminant emissions are related to routine maintenance activities (e.g. painting, cleaning, etc.) thus not subject to reporting requirement.

If you have any questions concerning this submittal, please do not hesitate to telephone me at (802) 258-5525.

Sincerely,
Entergy Nuclear Vermont Yankee, LLC

Julie C. Hayward
Environmental Specialist

Samuel A. Wender IV
Chemistry Superintendent

EXHIBIT EN-SAS-5
PAGE 1 OF 11

Attachment

VY AIR EMISSIONS RECORDKEEPING-2002

Grand Total Tons
8.06

House Heating Boilers

Period	Gallons Used	% Sulfur	lb/kgal, S	lb/kgal, Ott	Total Tons
1/1-1/31/2002*	53303	0.15	21.456	27.29	1.30
2/1-2/29/2002*	43000	0.15	21.456	27.29	1.05
3/1-3/31/2002*	14500	0.15	21.456	27.29	0.35
3/1-3/31/2002**	25700	0.20	28.3104	27.29	0.40
3/1-3/31/2002	6600	0.27	38.592	27.29	0.85
4/1-4/30/2002	24400	0.27	38.592	27.29	0.80
5/1-5/31/2002	18600	0.27	38.88	27.29	0.62
6/1-6/30/2002 (LS)	2600	0.1	14.4	27.29	0.06
7/1-7/31/2002	0		0	27.29	0.00
8/1-8/31/2002	0		0	27.29	0.00
9/1-9/30/2002	0		0	27.29	0.00
10/1-10/31/2002	20979	0.23	33.12	27.29	0.63
11/1-11/30/2002	46124	0.23	33.12	27.29	1.39
12/4/02 & 12/27/02**	12804	0.20	28.8	27.29	0.36
12/1-12/31/2002	43852	0.23	33.12	27.29	1.32
Totals	312662				9.14
Total with average %Sulfur	312662	0.20	23.42	27.29	7.93

HHB Emission factors from EPA AP-42 Section 1.3

	lb/1000 gal
SO2	142*%S
SO3	2*%S
NOx	20
Part.	2
CO	5
VOC	0.252
Trace Metals	0.036

(LS) indicates Low sulfur diesel was delivered
(*) indicates a 50/50 #2/Kerosene mix was delivered
(**) indicates a 70/30 #2/Kerosene mix was delivered

Waste Oil Burner

Period	Gallons Used	% Sulfur	lb/kgal, S	lb/kgal, Ott	Total Tons
01/01/02-01/31/02	325.2	1.31	168.64	60.43	0.04
11/01-11/30/2002	406.2	1.31	140.17	60.43	0.04
12/01-12/31/2002	409.2	1.31	168.64	60.43	0.05
			0	60.43	0.00
			0	60.43	0.00
			0	60.43	0.00
			0	60.43	0.00
Totals	1140.6				0.13

Waste oil Emission factors from EPA AP-42 Section 1.11

	lb/1000 gal
SOx	107*%S
NOx	16
Part.	41.6
CO	2.1
	0.1
Trace Metals	0.63

VYAPF 0150.01 1/1/2002 Emergency Diesel Tank Vol= 52,500 gal

06/04/2002 Delivery of 7500 gallons
06/10/2002 Delivery of 8500 gallons

VYAPF 0150.01 12/31/2002 Emergency Diesel Tank Volume= 49,250

OPT OUT PROVISION DIESEL HOUR METER READINGS

JOHN DEERE	Date	A EDG	Date	B EDG	Date
1205.3	12/13/2001	3835.9	12/26/2001	477	12/26/2001
1206.5	01/16/2002	3840.5	01/21/2002	481.7	01/22/2002
1207.9	02/13/2002	3845.1	02/20/2002	486.4	02/22/2002
1209.2	03/12/2002	3849.5	03/16/2002	491.3	03/22/2002
1211.2	04/10/2002	3852.2	04/18/2002	493.8	04/18/2002
1212.5	05/15/2002	3854.6	05/16/2002	496.4	05/17/2002
1214.4	06/11/2002	3857.2	06/21/2002	498.9	06/21/2002
1217.1	07/10/2002	3861.4	07/25/2002	510.2	07/24/2002
1218.5	08/14/2002	3870.3	08/16/2002	516.9	08/20/2002
1220.3	09/11/2002	3872.8	09/24/2002	523.1	09/23/2002
1221.7	10/31/2002	3881.3	10/21/2002	528.2	10/21/2002
1222.9	11/14/2002	3883.8	11/12/2002	530.8	11/12/2002
1224.2	12/11/2002	3886.3	12/18/2002	533.3	12/18/2002
18.9		50.4		56.3	YR TOT

Total

EXHIBIT EN-SAS-5
PAGE 2 OF 11

CERTIFICATION OF DATA ACCURACY

For Purposes of Emission Calculations

This form must be signed by an individual responsible for the completion and certification of the data contained in the forms attached which are intended to meet both the requirements of State Statute {10 V.S.A. 555 (c) and 3 V.S.A. 2822 (j)(1)(B)} and the requirements for "Emission Statements" contained in the Federal Clean Air Act as amended in 1990. Certification indicates that the signatory takes legal responsibility for the accuracy of the information on the form.

The data presented herein represents the best available information and is true, accurate, and complete to the best of my knowledge.

Julie C. Hayward — Print Full Name

Environmental Specialist — Print Full Title

Entergy Nuclear VY

Julie C Hayward — Signature

01/16/03 — Date of Signature

802-258-5525 — Telephone Number

Vermont Agency of Natural Resources
2002 Air Pollutant Emissions Inventory

Combustion Source
For Criteria Pollutants

The information displayed on this form is that which is currently on file for your facility. It is based on inventory forms completed for calendar year 2001 or the most recent year available. We need to update the information to calendar year 2002. Please review the information contained in the boxes carefully. If there is no value in a box, write in the correct 2002 value. If there is a value, but it is incorrect for 2002, cross out the value and in its place write the correct value.

If you have questions, or desire assistance with completing the inventory, please call Dan Riley at (802)-241-8858.

Facility Name : VERMONT YANKEE

Person Completing Inventory Form : Julie Hayward

Facility ID : WM2335

Source Description: house heating boilers (2)

Stack Number: 1

Source Number: 1

Segment Number: 1

Source Classification Code 1-03-005-01

Operational Data:

Hours Per Day	0	Winter Throughput (%) :	40
Days Per Week	0	Spring Throughput (%) :	30
Weeks Per Year	0	Summer Throughput (%) :	0
Hours Per Year:	2623	Autumn Throughput (%) :	30

(Over)

Combustion Source (continued)

Fuel Type : FUEL OIL (#2)

2002 Fuel Consumption : (supply units) 312,662 gals.

Sulfur Content of Fuel (%) : ~~0.05~~ 0.20 Ash Content of Fuel (%) ~~0~~ 0.005

Maximum Heat Input (million BTU/hr

Burner Rating: 0 Boiler Rating: 16.7

Maximum Actual Firing Rate (million BTU/hr) 16.7

Percent Space Heat 100

Percent Process Heat 0

Stack Parameters:

Stack Number: 1

Stack/Duct Discharge Height (feet) 87.9

Stack/Duct Inner Diameter at Exit (inches) 27.6

Exit Gas Temperature (deg. F). 151

Flow Rate at Exit (actual FT3/min) 119,915

If an air pollution control device for the source exists inspect the following information and correct if necessary :

TSP Control Device:	none	Theoretical Efficiency:	0
SO2 Control Device:	none	Theoretical Efficiency:	0
NOx Control Device:	none	Theoretical Efficiency:	0
VOC Control Device:	none	Theoretical Efficiency:	0
CO Control Device:	none	Theoretical Efficiency:	0

If an estimated emission rate exists, please supply the information below :

Estimated Emission Rate*

Basis of Estimate

* If test data 4 years old or less is available

Vermont Agency of Natural Resources
2002 Air Pollutant Emissions Inventory

Combustion Source
For Criteria Pollutants

The information displayed on this form is that which is currently on file for your facility. It is based on inventory forms completed for calendar year 2001 or the most recent year available. We need to update the information to calendar year 2002. Please review the information contained in the boxes carefully. If there is no value in a box, write in the correct 2002 value. If there is a value, but it is incorrect for 2002, cross out the value and in its place write the correct value.

If you have questions, or desire assistance with completing the inventory, please call Dan Riley at (802)-241-8858.

Facility Name: VERMONT YANKEE

Person Completing Inventory Form: Julie Hayward

Facility ID : WM2335

Source Description: waste oil furnace (2)

Stack Number: 2

Source Number: 2

Segment Number: 1

Source Classification Code 1-02-004-01

Operational Data:

Hours Per Day	0	Winter Throughput (%) :	25
Days Per Week	0	Spring Throughput (%) :	0
Weeks Per Year	0	Summer Throughput (%) :	0
Hours Per Year:	878	Autumn Throughput (%) :	75

(Over)

Combustion Source (continued)

Fuel Type : FUEL OIL (#6)

2002 Fuel Consumption : (supply units) 1140.6 gals

Sulfur Content of Fuel (%) : 1.31 Ash Content of Fuel (%) 151.49

Maximum Heat Input (million BTU/hr

Burner Rating: 0 Boiler Rating: 0.3

Maximum Actual Firing Rate (million BTU/hr) 0.3

Percent Space Heat 100

Percent Process Heat 0

Stack Parameters:

Stack Number: 2

Stack/Duct Discharge Height (feet) 21.0

Stack/Duct Inner Diameter at Exit (inches) 7.9

Exit Gas Temperature (deg. F) 250

Flow Rate at Exit (actual FT3/min) 1,992

If an air pollution control device for the source exists inspect the following information and correct if necessary :

TSP Control Device:	none	Theoretical Efficiency:	0
SO2 Control Device:	none	Theoretical Efficiency:	0
NOx Control Device:	none	Theoretical Efficiency:	0
VOC Control Device:	none	Theoretical Efficiency:	0
CO Control Device:	none	Theoretical Efficiency:	0

If an estimated emission rate exists, please supply the information below :

Estimated Emission Rate*

Basis of Estimate

* If test data 4 years old or less is available

Vermont Agency of Natural Resources
2002 Air Pollutant Emissions Inventory

Combustion Source
For Criteria Pollutants

The information displayed on this form is that which is currently on file for your facility. It is based on inventory forms completed for calendar year 2001 or the most recent year available. We need to update the information to calendar year 2002. Please review the information contained in the boxes carefully. If there is no value in a box, write in the correct 2002 value. If there is a value, but it is incorrect for 2002, cross out the value and in its place write the correct value.

If you have questions, or desire assistance with completing the inventory, please call Dan Riley at (802)-241-3858.

Facility Name : VERMONT YANKEE

Person Completing Inventory Form : Julie Hayward

Facility ID : WM2335

Source Description: Emergency Diesels (2) - 1675 hp

Stack Number: 3

Source Number: 3

Segment Number: 1

Source Classification Code 2-02-004-01

Operational Data:

Hours Per Day	0	Winter Throughput (%) :	25
Days Per Week	0	Spring Throughput (%) :	25
Weeks Per Year	0	Summer Throughput (%) :	25
Hours Per Year:	A = 56.4 B = [illegible] 56.3	Autumn Throughput (%) :	25

(Over)

Combustion Source (continued)

Fuel Type : FUEL OIL (#2)

2002 Fuel Consumption : (supply units) 13,750 gals

Sulfur Content of Fuel (%) : 0.09 0.10 Ash Content of Fuel (%) 0.005

Maximum Heat Input (million BTU/hr

Burner Rating: 0 Boiler Rating: 28.4

Maximum Actual Firing Rate (million BTU/hr) 0

Percent Space Heat 0

Percent Process Heat 100

Stack Parameters:

Stack Number: 3

Stack/Duct Discharge Height (feet) 29.8

Stack/Duct Inner Diameter at Exit (inches) 27.6

Exit Gas Temperature (deg. F). 180

Flow Rate at Exit (actual FT3/min) 63,983

If an air pollution control device for the source exists inspect the following information and correct if necessary :

TSP Control Device:	none	Theoretical Efficiency:	0
SO2 Control Device:	none	Theoretical Efficiency:	0
NOx Control Device:	none	Theoretical Efficiency:	0
VOC Control Device:	none	Theoretical Efficiency:	0
CO Control Device:	none	Theoretical Efficiency:	0

If an estimated emission rate exists, please supply the information below :

Estimated Emission Rate*

Basis of Estimate

* If test data 4 years old or less is available

Combustion Source (continued)

Fuel Type : FUEL OIL (#2)

2002 Fuel Consumption : (supply units) 255.2 gals

Sulfur Content of Fuel (%) : 0.09 0.10 Ash Content of Fuel (%) 0.005

Maximum Heat Input (million BTU/hr

Burner Rating: 0 Boiler Rating: 1.9

Maximum Actual Firing Rate (million BTU/hr) 0

Percent Space Heat 0

Percent Process Heat 100

Stack Parameters:

Stack Number: 4

Stack/Duct Discharge Height (feet) 12.5

Stack/Duct Inner Diameter at Exit (inches) 3.9

Exit Gas Temperature (deg. F) 180

Flow Rate at Exit (actual FT3/min) 4,301

If an air pollution control device for the source exists inspect the following information and correct if necessary :

TSP Control Device:	none	Theoretical Efficiency:	0
SO2 Control Device:	none	Theoretical Efficiency:	0
NOx Control Device:	none	Theoretical Efficiency:	0
VOC Control Device:	none	Theoretical Efficiency:	0
CO Control Device:	none	Theoretical Efficiency:	0

If an estimated emission rate exists, please supply the information below :

Estimated Emission Rate*

Basis of Estimate

* If test data 4 years old or less is available

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD.

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Wastewater Management Division
103 South Main St. - Sewing Bldg.
Waterbury VT 05671-0405
Telephone: (802) 241-3822
FAX: (802) 241-2596
June 10, 2002

Michael Kansler
Senior Vice President and Chief Operating Officer
Entergy Nuclear Vermont Yankee, LLC
440 Hamilton Avenue
White Plains NY 10601

Re: Final ID-9-0036-1A
PIN: NS75-0006
Entergy Nuclear Vermont Yankee, LLC
Vernon, Vermont

Dear Mr Kansler:

Enclosed is your final Indirect Discharge Permit ID-9-0036-1A which has been signed by the Director of the Wastewater Management Division for the Commissioner of the Department of Environmental Conservation.

We received no comments on the draft permit during the comment period so the final permit is essentially the same as the draft which we sent to you for your review. Please read the entire permit carefully and become familiar with all of its terms and conditions. Please feel free to call me at 802-241-3824 if you have any questions.

Finally, enclosed please find a DEC Permit Customer Survey Form. Please complete the form and send it to the Environmental Assistance Division at the address listed on the form. Thank you.

Sincerely,

John J. Akielaszek

John J. Akielaszek, Chief
Indirect Discharge Permit Section

Enclosures: Final ID-9-0036-1A
DEC Customer Survey Form

cc: w/permit:
Barbara Williams, Vermont Yankee Nuclear Power Corporation
Michael Balduzzi, Senior VP, Vermont Yankee Nuclear Power Corporation
Barbara Ripley, Esq., Wilson & White
Elise Zoli, Esq., Goodwin Procter
Permit File ID-9-0036

K:\Indirect\ddrafts\9-0036\9-0036-1A.fl.02.wpd

AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
103 SOUTH MAIN STREET
WATERBURY, VERMONT 05676

ADMINISTRATIVE AMENDMENT OF INDIRECT DISCHARGE PERMIT

File Code: LCT-9-0036

Permit No.: ID-9-0036-1A
PIN : NS75-0006

SECTION A - "ADMINISTRATION"

In compliance with provisions of 10 V.S.A. §1263, and in accordance with the following conditions, the permittee:

Entergy Nuclear Vermont Yankee, LLC
185 Old Ferry Road
Brattleboro, Vermont 05302

is authorized to indirectly discharge treated domestic sewage and other laboratory wastes defined herein from subsurface and mound disposal systems serving the Vermont Yankee Nuclear Power Plant to the ground water and indirectly into the Connecticut River in the Town of Vernon, Vermont. This administrative amendment transfers the permit from the previous permittee, Vermont Yankee Nuclear Power Corporation, to the permittee named above. This administrative amendment shall become effective on the date of sale of the facility from Vermont Yankee Nuclear Power Corporation to Entergy Nuclear Vermont Yankee, LLC (see Condition A4). No other substantive changes have been made to the permit.

A1. Permit Summary:

Expiration Date	September 30, 2005
Type of Waste	Domestic Sewage/Laboratory Waste
Treatment System	Septic Tanks
Disposal System	Leachfields/Mounds
Town	Vernon
Drainage Basin	Lower Connecticut River
Receiving Stream	Connecticut River
Drainage Area	6266 mi^2
Stream Flow:	
Low Median Monthly (LMM)	1,971,129,600 gpd (est)
7Q10	984,918,500 gpd (est)
Total Disposal Capacity	14,347 gpd (normal operation) 26,297 gpd (during plant outages)
Dilution Ratio (stream flow : effluent)	137,390:1 at LMM (normal operation) 68,650:1 at 7Q10 (normal operation) 74,956:1 at LMM (during plant outages) 37,454:1 at 7Q10 (during plant outages)

A2. Compliance Schedule:

The following schedule summarizes the actions and requirements necessary for compliance with the conditions of this permit. The permittee shall complete the requirements in accordance with the dates indicated. See the designated section for specific details.

Condition # and Description		Schedule Date
A3.	Apply for renewal of Indirect Discharge Permit	By June 30, 2005
D2.	Have a Vermont Registered Professional engineer complete an inspection of all sewage collection, treatment and disposal systems.	Annually in April
D2.	Submit Annual Inspection Report	Annually prior to June 1st
D2.	Submit schedule for implementing engineer's recommendations	Annually by July 15th
D3.	Submit tabulation of ponding levels	As specified
D4.	Notify Secretary of pumping of tanks	As Specified
E2(A)	Collect and analyze effluent samples	As Specified
E2(C)	Record water meter readings	As Specified
E3(A)	Collect and analyze groundwater monitor samples	As Specified
E3(B)	Measure and record the depths to groundwater in the monitor wells	As Specified
E4(A)	Collect and analyze receiving stream samples	As Specified

A2. Compliance Schedule (continued):

Condition # and Description	Schedule Date
E2(A), E2(C), E3(A), E3(B), E4(A) Submit results of monitoring	By the 15th of the second month following the date of sampling
E5. Submit evaluation by a water quality specialist of all required effluent, ground, and surface water quality data and biological monitoring data.	June 30, 2005

A3. Expiration Date:

This permit, unless revoked or amended, shall be valid until September 30, 2005 despite any intervening change in Water Quality Standards or the classification of receiving waters. Renewal of this Indirect Discharge permit will be subject to all rules applicable at the time of application for renewal, including biological standards to determine significant alteration of aquatic biota.

The permittee shall apply for an Indirect Discharge Permit renewal by June 30, 2005.

A4. Effective Date:

This administrative amendment shall become effective on the date of sale of the facility from Vermont Yankee Nuclear Power Corporation to Entergy Nuclear Vermont Yankee, LLC, and shall then supercede ID-9-0036 which became effective on October 1, 2000. The permittee shall submit written notification of the sale to the Secretary within 24 hours or on the next business day following the closing date.

A5. Revocation:

The Secretary may revoke this permit in accordance with 10 V.S.A.§1267.

A6. Transfer of Permit:

This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, before any sale, lease or other transfer of ownership of the property from which the permitted discharge originates. The proposed transferee shall make application for a permit to be reissued in their name. Failure to apply shall be considered a violation of this permit. Responsibility for compliance with the conditions of this permit shall be the burden of the permittee until such time as transfer of the permit to the transferee is complete. This permit shall be transferred only upon showing by the permittee or proposed transferee of compliance with the following conditions:

A6. Transfer of Permit (continued):

a. The transferee shall be a legal entity, financially and technically competent to operate, inspect, maintain and replace the system;

b. If the transferee is a corporation or other legal entity, it shall be demonstrated that such legal entity has legal authority to raise revenues for the proper operation, inspection, and maintenance of the system; and

c. The transferee shall provide a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittee(s) to the Secretary.

A7. Minor Modifications of Permits:

The Secretary may modify this permit without requiring a permit application, a public notice, or a public hearing to correct typographical errors, or to increase the monitoring frequency in accordance with Condition E(8) of this permit.

A8. Indirect Discharge Rules:

This indirect discharge was reviewed and originally qualified for an Indirect Discharge Permit in accordance with Section 14-B-201 (F), In Situ, In-Ground Effluent Testing, of the Indirect Discharge Rules.

The New Warehouse sewage treatment and disposal system was approved under Water Supply and Wastewater Disposal Permit WW-2-0339. This indirect discharge permit incorporates by reference all of the terms and conditions of that permit with the exception of Condition #6 of WW-2-0339 which has been superseded by Condition D3 of this permit.

This indirect discharge was reviewed and qualified for an Indirect Discharge Permit in accordance with Section 14-403 (C) of the Indirect Discharge Rules for new indirect discharges of sewage. No increase in sewage volume is allowed without the written approval of the Secretary.

A9. Right of Agency To Inspect:

In accordance with the Vermont Yankee Nuclear Power Corporation's security requirements and standard protocol for site inspections, the permittee shall permit the Secretary or the Secretary's authorized representative upon the presentation of their credentials:

a. To enter upon permittee's premises in which any effluent source treatment or disposal system is located or in which any records are required to be kept under the conditions of the permit;

b. To have access to and copy any records required to be kept under conditions of this permit;

c. To inspect any monitoring equipment or method required in this permit;

d. To sample any discharge of waste, or groundwater or surface water; and

e. To inspect at reasonable times, any collection, treatment, pollution management and disposal facilities required by this permit.

A10. Permit Availability:

A copy of the approved plans and this permit shall remain at the office of the permittee and, upon request, shall be made available for inspection by authorized representatives of the Secretary.

A11. Minor Modifications To System:

Minor modifications of the engineering design which do not reduce the treatment effectiveness or increase the capacity of the system may be approved in writing by the Secretary without permit amendment.

Before making modifications to the treatment and/or disposal system the permittee shall submit plans to the Secretary for review and approval. These plans must be approved before any of the modifications or additions are made.

A12. Correction of Failed Systems:

The Secretary may, upon discretion, issue an Amendment to the Indirect Discharge Permit for the design and reconstruction of a failed wastewater disposal system where the replacement system design was not previously approved.

Before reconstruction of the failed system the permittee shall submit plans to the Secretary for review and approval. These plans must be approved before any reconstruction occurs. Due to the urgency of the need to correct failed disposal systems, the Secretary will process these Amendments as soon as possible.

A13. Operating Fees:

This indirect Discharge is subject to operating fees. The permittee shall submit the operating fees in accordance with procedures provided by the Secretary.

SECTION B "INDIRECT DISCHARGE"

B1. Location of Indirect Discharge:

The indirect discharge is located on the Connecticut River in the Town of Vernon in Windham County, Vermont with a drainage area of 6,266 square miles at the point of compliance. The indirect discharge can be located on the USGS Brattleboro Vermont 15' quadrangle map at Latitude N 42° 46' 54" and Longitude W 72° 30' 49".

B2. Nature of Indirect Discharge:

The discharge consists primarily of treated domestic sewage and may also include small volumes of laboratory waste, primarily pH buffer solutions, acetic acid (5% solution) and potassium iodide (0.3% solution).

The wastewater is discharged from subsurface and mound wastewater disposal systems with the following approved capacities:

B2. Nature of Indirect Discharge (continued):

Disposal System	Normal Operation Design Capacity (gpd)	"Plant Outage" Design Capacity (gpd)
Main (North) System (1)	4,950	14,900
C.O.B. (South) System	4,607	4,607
New Office Building System	2,160	2,160
New Warehouse System (2)	2,000	4,000
Governor Hunt House System	540	540
Gatehouse #1 System	90	90
TOTALS	14,347	26,297

(1) During plant outages, the Main (North) system may be loaded to a maximum of 14,900 gallons per day by loading both existing leachfields (combined 9,900 gpd) and the new 5,000 gpd leachfield. The outage lasts approximately one month and occurs every 18 months. During these outages Vermont Yankee Nuclear Power Corporation adds temporary workers to perform maintenance on the plant

(2) During plant outages, the New Warehouse System may be loaded to a maximum of 4,000 gallons per day by loading both existing leachfields.

The low median monthly flow (LMMF) of the Connecticut River is approximately 1,971,129,600 gpd and the 7Q10 flow is approximately 984,918,500 gpd. During normal operation, the stream flow/effluent dilution ratio is 137,390:1 at LMMF and 68,650:1 at 7Q10. During plant outages the stream flow/effluent dilution ratio is 74,956:1 at LMMF and 37,454:1 at 7Q10.

Also, please see the Fact Sheet for this permit.

SECTION C "SYSTEM CONSTRUCTION"

C1. Approved Plans - Existing Systems:

A listing of the approved plans for construction of the subsurface sewage disposal systems at Vermont Yankee whose discharges are authorized by this permit can be found in the fact sheet previously issued for this permit.

SECTION D "SYSTEM OPERATION"

D1. General Operating Requirements:

The wastewater disposal system shall be operated at all times in a manner that will (1) not permit the discharge of sewage onto the surface of the ground; (2) not result in the surfacing of sewage; (3) not result in the direct discharge of sewage into the waters of the State; (4) not result in a violation of Water Quality Standards; and (5) not cause a significant alteration of the aquatic biota in the receiving waters.

The disposal fields for the Main, New Warehouse, and New Office Building sewage disposal systems shall be alternated on an annual basis. The effluent disposal rate to sewage disposal system shall not exceed the values listed in Condition B(2).

D2. Annual Inspection:

Annually during the month of April, the permittee shall engage a professional engineer registered in the State of Vermont to make a thorough inspection, evaluation, and report of the complete sewage collection, treatment and disposal system. The engineer's inspection shall include, but not be limited to the following:

a. verification of the use of alternate disposal fields (Main, New Warehouse and New Office disposal systems);

b. verification of the proper operation of the lift station pumps and alarms;

c. inspecting the entire collection system, removing manhole covers to observe the condition of the sewers and manholes, and noting any signs of inflow or excess infiltration;

d. evaluating the accumulation of solids and scum in the septic tanks and verifying the date of pumping of the tanks;

e. checking the proper distribution of flow and the levelness of all distribution boxes in the disposal fields;

f. checking the depth of ponding in observation wells for those fields in use during the inspection;

g. checking the calibration of the effluent flow meter (if applicable); and

h. noting any necessary repairs, or maintenance that needs to be performed.

D2. Annual Inspection (continued):

Before June 1st each year the permittee shall have a professional engineer submit an annual report that includes the following items:

a. a complete list of the items inspected and the results of the inspection;

b. a discussion of the recommended repairs and maintenance required;

c. the measured depth of sludge and scum in all septic tanks; and

d. an evaluation of metered water use, depth of ponding and groundwater table levels in the vicinity of the disposal fields (if groundwater depth measurement is required).

Before July 15th each year the permittee shall notify the Secretary in writing stating how the engineer's recommendations are to be implemented and including a schedule for the required repairs and maintenance.

D3. Operation During Plant Outages:

The permittee shall verify that the Main (North) system pump station is properly alternating among all three fields during plant outages. At least every two weeks during outages, the permittee shall measure the depth of ponding in the observation wells in the Main (North) system. The permittee shall verify that the New Warehouse system pump station is properly alternating between both

D3. Operation During Plant Outages (continued):

fields during plant outages. At least every two weeks during outages, the permittee shall measure the depth of ponding in the observation wells in the New Warehouse system. The permittee shall submit a tabulation of the recorded measurements at the end of each outage period, along with the required flow records.

D4. Septage Disposal:

During the system's annual inspection the depth of sludge and scum shall be measured in all septic tanks. The septic tanks shall be pumped if: 1) the sludge is closer than twelve (12) inches to the outlet baffle or; 2) the scum layer is closer than three (3) inches to the septic tank outlet baffle or; 3) if otherwise recommended by the inspecting engineer.

Sampling of the septic tank effluent for radioactivity in accordance with the procedures listed in the approved Quality Assurance/Quality Control Plan must be done each time pumping occurs, prior to pumping the tanks.

D4. Septage Disposal (continued):

Before pumping the septage for land application, the permittee shall notify the Secretary in writing, of the name and address of the pumper and verify that the sludge has been tested for radioactivity and will be disposed of in accordance with the Solid Waste Management Facility Certification.

D5. System Operation and Maintenance:

The sewage collection, treatment, and disposal system shall be operated and maintained at all times in a manner satisfactory to the Secretary and in a manner that will not pose a risk to the public health and safety, or cause contamination of drinking water supplies, groundwater and/or surface water.

D6. Reporting of Failures:

The permittee shall immediately report any failure of the wastewater collection, treatment, or disposal system to the Secretary, first by telephone on the first working day within 24 hours of the failure and then in writing within 5 business days of the failure. The written notice shall include a discussion of the actions taken or to be taken to correct the failure.

Notification shall be to the Indirect Discharge Permit Section of the Department of Environmental Conservation at (802) 241-3822.

Reporting of instances when daily average flow exceeds design flow will be initiated only when:

(a) a flow exceedence is associated with a physical or mechanical condition which compromises the performance of the sewage disposal system; or

(b) a flow exceedence occurs for three or more consecutive days during an outage period; or

(c) a flow exceedence occurs for two or more consecutive days during a non-outage operating period.

Any design flow exceedence shall be investigated to determine if it was associated with a problem in the system's performance.

D7. Discharge Restrictions:

The permittee shall not allow any person to discharge or cause to be discharged anything other than sanitary wastewater and the laboratory wastes authorized herein to this treatment and disposal facility.

SECTION E "MONITORING"

E1. Quality Assurance/Quality Control Plan:

The laboratory identified in the Quality Assurance/Quality Control Plan shall demonstrate successful performance for U.S. EPA check samples for all parameters and shall analyze any check samples provided by the Secretary. Failure to obtain an acceptable result for either samples provided by the Secretary or EPA check samples may be a basis for requiring an alternate analytical laboratory.

E2. Effluent Monitoring:

A. Chemical

The effluent to the disposal fields for the Main, C.O.B., New Warehouse and New Office Building sewage disposal systems shall be sampled and analyzed as follows:

Parameter	Measurement Units	Sample Type	Sample Frequency
Flow [1]	gpd	Daily Total	Continuous
Biochemical Oxygen Demand (5-day)	mg/l	Grab	April and October
Total Suspended Solids	mg/l	Grab	April and October
pH	S.U.	Grab	April and October
Total Kjeldahl Nitrogen	mg/l	Grab	April and October
Ammonia (as N)	mg/l	Grab	April and October
Nitrate/Nitrite Nitrogen (NO_3/NO_2 as N)	mg/l	Grab	April and October
Total Phosphorus	mg/l	Grab	April and October
Total Dissolved Phosphorus	mg/l	Grab	April and October
Chloride (Cl^-)	mg/l	Grab	April and October
[1] The permittee may record daily water use as an alternative to this monitoring requirement (See E(2)(B) below).			
The results of the effluent analysis shall be submitted to the Secretary prior to the 15th day of the second month following the date of sampling.			

E2. Effluent Monitoring (continued):

B. Sewage Volume:

The permittee shall install sewage flow meters on the Main Sewage Disposal system, the C.O.B. sewage disposal system, New Warehouse sewage disposal system and New Office Building system in order to monitor the daily sewage flow to each of these disposal fields. Alternatively, the permittee may record the daily water meter readings for all units connected to these sewage disposal systems, along with any bottled water utilized, to determine the total volume of water used each day. The volume of water used and individual meter readings shall be submitted to the Secretary by the 15th of the month following the recording period.

E3. Groundwater Monitoring:

A. Chemical and Bacteriological Monitoring:

The groundwater in the monitoring wells upgradient and downgradient of the Main, C.O.B., New Warehouse and New Office Building sewage disposal fields, both primary and alternate, as identified in the Quality Assurance/ Quality Control plan, shall be sampled and analyzed for the following parameters:

Parameter	Measurement Units	Sample Type	Sample Frequency
Biochemical Oxygen Demand (5-day)	mg/l	grab	April and October
Total Kjeldahl Nitrogen (as N)	mg/l	grab	April and October
Ammonia (as N)	mg/l	grab	April and October
Nitrite (as N)	mg/l	grab	April and October
Nitrate (as N)	mg/l	grab	April and October
Total Dissolved Phosphorus (as P)	mg/l	grab	April and October
Chloride (Cl-)	mg/l	grab	April and October
pH	S.U.	grab	April and October
Escherichia coli	Colonies/100 ml	grab	April and October
Depth to Groundwater (below ground surface)	inches	---	At time of sampling

Because of changing water table conditions, the samples from the groundwater monitors might not be collected on the same day or in the same week if water is not available. If a monitor has water at any time during the month then a sample is required to be collected and analyzed. For the purpose of this section, therefore, weekly groundwater measurements are required in April and October. Once a well is sampled, no further groundwater level measurements will be required for that well for that month.

The results of these analyses shall be submitted to the Secretary prior to the 15th day of the second month following the date of sampling.

E3. Groundwater Monitoring (continued):

B. Groundwater Levels:

The Quality Control/Quality Assurance plan includes the location of a minimum of six groundwater monitors installed around the Main, C.O.B. and New Warehouse disposal systems each, three groundwater monitors installed around the New Office Building disposal fields, and two groundwater monitors installed around the Governor Hunt and Gatehouse #1 disposal systems each, to monitor the level of the ground water table. Upon request by the Secretary, the depth to groundwater (below ground surface) shall be measured and recorded at a frequency determined by the Secretary above that required in E3(A) above. Any such request would be in the form of a letter to the permittee.

E4. Receiving Stream Monitoring:

Indirect Discharge Permits normally require regular chemical and biological monitoring of the receiving waters. Due to the extremely large stream flow to effluent flow ratio at low median monthly flow (approx. 161,740:1), and the size of the Connecticut River at the point of compliance, stream water quality monitoring is not required for this system. However, if the Secretary determines stream monitoring to be necessary, the permittee shall submit, upon written notice from the Secretary, sampling procedures for chemical and biological sampling of the receiving waters within 90 days of receiving such notice. The requirement for sampling and the frequency of such sampling will be upon written notice from the Secretary.

E5. Summary Water Quality Evaluation:

NOW → By June 30, 2005 the permittee shall have a qualified water quality specialist submit an evaluation to the Secretary of all past effluent and groundwater quality data and determine what, if any, short or long term impacts there have been on groundwater quality. If chemical and biological monitoring of the receiving waters was conducted, the results of that monitoring shall also be evaluated.

E6. Sampling and Testing Procedures:

All wastewater, groundwater and surface water sampling; preservation, handling and test procedures used to comply with the monitoring requirements herein shall conform to procedures specified in the most current edition of Standard Methods for the Examination of Water and Wastewater APHA - AWWA - WPCF, and the Vermont Water Quality Standards unless written approval of an alternate method is received from the Agency.

E7. Miscellaneous:

If the permittee monitors any required parameter set forth in this permit for this treatment and disposal system more frequently than required by this permit, the results of such monitoring shall be included on the Discharge Monitoring Report Form.

All records and information resulting from the monitoring activities required by this permit including all records of analyses performed and calibration and maintenance of instrumentation and recordings from continuous monitoring instrumentation shall be retained for a minimum of three (3) years, or longer if requested by the Secretary. Records shall include laboratory bench sheets showing exact location, time and composites of sample as well as analytical procedures used, interim results obtained and all calculations supporting the reported test results.

E8. Additional Monitoring:

The Secretary reserves the right to require additional monitoring of the system, in accordance with Condition A(7) of this permit, should operation of the system fail to meet the requirements of Conditions D(1) and D(5).

SECTION F - "COMPLIANCE REVIEW"

If the results of monitoring the effluent and groundwater (Section E) show there is a possibility that the aquatic permitting criteria of the Indirect Discharge Rules may be exceeded at the designated stream flow conditions, the Secretary may increase the frequency of, or change the location of monitoring of the ground and surface water. If continued monitoring and analysis indicates that a violation of the effluent disposal rate, or a violation of the Vermont Water Quality Standards, or a significant alteration of the aquatic biota has occurred, is occurring, or is likely to occur the Secretary may require the permittee to take appropriate corrective actions to eliminate or reduce the possibility of a violation.

The issuance of this administrative amendment of Indirect Discharge Permit ID-9-0036, to the Entergy Nuclear Vermont Yankee, LLC., by the Secretary relies upon the data, designs, judgement and other information supplied by the applicant, his consultants and other experts who have participated in the preparation of the application. The Secretary makes no assurance that the systems will meet the performance objectives of the applicant and no warranties or guarantees are given or implied.

SECTION G - "EFFECTIVE DATE"

This Indirect Discharge Permit, ID-9-0036-1A, issued to Entergy Nuclear Vermont Yankee LLC., for the discharge of wastewater from the sewage treatment and disposal systems at the Entergy Nuclear Vermont Yankee LLC., facility in Vernon, Vermont becomes effective as described under Condition A(4).

Christopher Recchia, Commissioner
Department of Environmental Conservation

By Marilyn J. Davis Date: June 10, 2002
Marilyn J. Davis, Director
Wastewater Management Division

K:\Final\Indirect\9-0036-1A.wpd

SVE Associates

Engineering Surveying Landscape Architecture Planning

February 12, 2003

George Thomas
Mail Code1225
Entergy Nuclear Vermont Yankee, L.L.C.
P.O. Box 250
Governor Hunt Road
Vernon, Vermont 05354

Dear George:

In response to your question of whether there is a sufficient water supply at the Vermont Yankee site for the next refueling outage (RFO 24), I have prepared a summary of relevant information:

Existing Water Supply

The permitted well yields listed in Vermont Water Supply and Wastewater Disposal Permit # WW-ID-0002 for the Vermont Yankee Site are as follow:

West Well = 73.3 gpm
(West well supplies: admin bld, reactor bld, south warehouse, gate 1, gov. hunt house)

Plant Support Building (PSB) Well = 30 gpm

Construction Office Building (COB) well = 9.4 gpm

Southwest Well = 10.5 gpm (not used regularly)

Estimated Water Demand During RFO 24

Number of employees expected during next refueling outage: 1500 + 200 (contingency) = 1700
Average water usage per employee (per VT Water Supply Rule): 15
Average Day Demand (ADD): 1700 x 15 = 25,500 gpd
Maximum Day Demand (MDD): 25,500 gpd / 720 minutes (assumes a 12 hour period per state requirement) = 35.4gpm
NOTE: This is a very conservative assumption since it assumes all 1700 employees are at the site at the same time. The actual estimate is for 60% of the employees to work a 12 hour day shift and 40% to work a 12 hour night shift.

The expected distribution of the 35.4 gpm Site MDD can be estimated for each well based on employee space and permit limits:

PO Box 1818, Brattleboro, VT 05302 Phone (802) 257-0561 Fax (802) 257-0721

47 Marlboro Street, Keene, NH 03431 Phone (603) 355-1532 Fax (603) 355-2969
2 Fiske Avenue, PO Box 1079, Greenfield MA 01302 Phone (413) 774-6698 Fax (413) 773-0875
Website: www.sveassoc.com E-mail: info@sveassoc.com

PSB Well

Serving the PSB building with 160 employees and the temporary "Power Uprate Building" with approximately 30 employees.
190 employees x 15 gpd/employee = 2850 gpd
MDD = 2850gpd / 720 min = 4.0 gpm

COB Well

Water usage at the COB building is monitored such that it does not exceed the Indirect Discharge Permit limit of 4607 gpd to its septic system. Assuming all usage is in 12 hours, the MDD for this well would be:
MDD = 4607 gpd / 720 min. = 6.4 gpm.

Please note that there is currently a project underway to add water storage tanks and booster pumps to the COB building water system. The goal of the project is to alleviate problems of low system pressure during periods of peak demand.

West Well

That portion of the site MDD that is not supplied by the other wells would be provided by the West well.
Site MDD = 35.4 gpm - 4.0 gpm (PSB) - 6.4 gpm (COB) = 25.0 gpm
Since the west well has an expected yield of 73.3 gpm, it can be expected to reliably supply the remaining demand of 25.0 gpm

I believe the information above should make a clear case that there is an adequate water supply at the plant for the next outage, however if you do have questions please call or e-mail.

Sincerely,

SVE Associates

John E. Goodell

John E. Goodell, P.E.

Cc: Sonja Schuyler, The Johnson Company
Brian Tietze, Entergy Nuclear Vermont Yankee, L.L.C.

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Wastewater Management Division
103 South Main Street, Sewing Building
Waterbury VT 05671-0405

Phone: 802-241-3837
Fax: 802-241-2596

July 12, 2002

Mr. Michael R. Kansler
Senior Vice President
Entergy Nuclear Vermont Yankee, LLC
440 Hamilton Avenue
White Plains, NY 10601

RE: Entergy Nuclear Vermont Yankee Certification Transfer

Dear Mr. Kansler,

Enclosed please find the original signed copy of Solid Waste Management Facility Certification #F9906-A1, authorizing the transfer of the previously issued certification #F9906, from Vermont Yankee Nuclear Power Corporation to Entergy Nuclear Vermont Yankee, LLC. The certification amendment was issued by the Department of Environmental Conservation on July 12, 2002.

Also enclosed please find the application that Vermont Yankee Nuclear Power Corporation submitted to the Nuclear Regulatory Commission (NRC), and the cover letter dated June 28, 1989, which contains waste standards and sets maximum allowable accumulations of radionuclides in the soil (site life). This application is referenced in item Q of the certification amendment.

Please read this certification amendment carefully. If you have any questions or comments, please feel free to contact me.

Appreciatively,

Patrick J. Lowkes
Environmental Analyst
Residuals Management Section

c: Barbara Ripley, Wilson & White
Samuel Wender, Vermont Yankee
Michael Balduzzi, Vermont Yankee Plant Manager
Elise N. Zoli, Goodwin Proctor, LLP

Enc: Final Certification
VT Yankee application to NRC and associated cover letter

K:\Residual\CERTDEV\Vermont Yankee Transfer\Final Letter.wpd

SOLID WASTE MANAGEMENT FACILITY
FULL CERTIFICATION
10 V.S.A. 6605

****

OPERATOR:	Entergy Nuclear Vermont Yankee, LLC 440 Hamilton Avenue White Plains, NY 10601
AUTHORIZED REPRESENTATIVE:	Michael Kansler, Senior Vice President
RESIDUALS MANAGEMENT FACILITY I.D. NUMBER:	253
CERTIFICATION NUMBER:	F9906 - A1
FIELD DESIGNATIONS:	North Field: FVN0101 South Field: FVN0102
MONITORING WELL DESIGNATIONS:	
	North Field: WVN0101 WVN0102 WVN0103
	South Field: WVN0201 WVN0202 WVN0203 WVN0204
CERTIFICATION PERIOD:	Effective Date per Condition G of the Certification. Expiration Date September 30, 2004.

****

PURPOSE OF CERTIFICATION AMENDMENT: This is a transfer of the previously issued certification, from Vermont Yankee Nuclear Power Corporation to Entergy Nuclear Vermont Yankee, LLC. All conditions of the certification issued on November 17, 1999 remain the same, except for Condition G regarding the Certification transfer.

FACILITY LOCATION: The Solid Waste Management Facility includes two land application sites located on the property of Vermont Yankee Nuclear Power Plant in Vernon, Vermont, one temporary septage storage tank utilized during operations, and any vehicles and equipment necessary for proper operation of the facility, which are identified in this Certification and described in the submitted management plan entitled, "APPLICATION FOR RECERTIFICATION OF VERMONT YANKEE'S SOLID WASTE MANAGEMENT FACILITY IN VERNON, VERMONT", dated March 31, 1999, which was received by the Department of Environmental Conservation on April 1, 1999. The operation of the Facility has been previously authorized under one full certification.

FACILITY OPERATION: Stabilized septage is permitted for use by land application during times of the year when the ground is not frozen or snow covered, and when saturated soil is at a depth greater than thirty-six (36) inches below the bottom of the zone of incorporation. During periods when land application is not permitted, any septage handled by the Permittee will be managed on-site until conditions allow for land application. Septage is required to be stabilized for pathogen and vector attraction reduction prior to land application, according to the Vermont Solid Waste Management Rules and 40 CFR Part 503. Stabilization will be achieved by the addition of hydrated lime [$Ca(OH)_2$], or its equivalent, as provided in this certification.

Land application rates of septage shall be established by the Permittee prior to application based upon crop nutrient requirements, contribution of nutrients from other sources, and the actual nutrient content of septage.

APPLICATION REVIEW: The application for recertification of the facility was reviewed in accordance with the Vermont State Solid Waste Management Act, 10 V.S.A. §§6601 et. seq. and the Solid Waste Management Rules, effective January 15, 1999 (Rules). The application is on file in the office of the Wastewater Management Division, Department of Environmental Conservation, Agency of Natural Resources in Waterbury, Vermont.

****

FINDINGS

1. On April 1, 1999, Michael Balduzzi, Manager of Vermont Yankee Nuclear Power Plant, of Vernon, Vermont (Permittee), submitted an application to the Department for recertification of a Solid Waste Management Facility for a septage management system utilizing land application as the management strategy.

2. The application was certified to be in conformance with the Rules by Roland Luxenberg, P.E., of Aquaterra, South Burlington, Vermont, a professional engineer registered to practice in Vermont.

3. In accordance with 10 V.S.A. § 6605 (f), the Applicant provided notice of the application as required by that statute.

4. The application was reviewed by the Department and determined to be administratively incomplete. Additional information was submitted and the application was determined to be administratively complete on April 22, 1999.

5. The public notice of the application was advertised in the *Brattleboro Reformer* and *The Town Crier* on May 7, 1999, and via direct mail to all parties stipulated by § 6-304 (h) of the Rules.

6. Draft Findings of Fact were developed for the Facility in July, 1999. The Secretary of the Agency of Natural Resources (Secretary) actively solicited comment on the draft findings of fact. The public comment period ran from July 19, 1999 through August 4, 1999. No comments regarding the draft Findings were received by the Department.

7. After the close of public comment, the Department reviewed the application and draft findings of fact for conformance with the Rules.

8. The application was reviewed on its technical merits and was determined to be technically complete.

9. A draft certification and Fact Sheet were developed for the Facility in October, 1999. The Secretary actively solicited comment on the draft certification and Fact Sheet. The public comment period ran from October 22, 1999 to November 15, 1999.

****

CONDITIONS AND REQUIREMENTS FOR OPERATION

A. The Permittee shall perform all actions necessary for the proper management of septage in accordance with the Application and the provisions of this certification.

B. The Permittee shall comply with the provisions, requirements and standards set forth in 10 V.S.A. §§6601 et. seq. and the Rules, except as expressly provided herein.

C. The sites identified in the Application at Vermont Yankee in Vernon, Vermont are the only authorized management facilities. Use of other sites for septage management via land application without prior written approval from the Secretary is expressly prohibited and shall constitute grounds for revocation of this Certification.

D. The Construction Office Building (COB) tank is the only authorized storage and treatment facility. Use of other facilities for treatment or storage without prior written approval from the Secretary shall constitute grounds for revocation of this Certification.

E. Septage generated by the Permittee's on-site wastewater disposal systems is the only waste authorized for management via land application. Management via land application of other regulated solid wastes without prior written approval from the Secretary shall constitute grounds for revocation of this Certification.

F. The Permittee shall comply with all existing federal laws, rules and regulations that apply to septage use and management practices and with the technical standards set forth in Section 405(d) of the federal Clean Water Act and 40 CFR Part 503. If an applicable management practice or numerical limitation for pollutants in septage more stringent than existing federal and state regulations is promulgated under Section 405(d) of the Clean Water Act or 40 CFR Part 503, this certification shall be modified or revoked and reissued to conform to the promulgated regulations. Permittee shall comply with the limitations no later than the compliance date specified in the applicable regulations as required by Section 405(d) of the Clean Water Act or 40 CFR Part 503.

COMPLIANCE SCHEDULE

G. (1) This amended certification shall become effective on the date of sale of the facility from Vermont Yankee Nuclear Power Corporation to Entergy Nuclear Vermont Yankee, LLC and shall then supersede Certification No. F9906, signed November 17, 1999. The Permittee shall submit to the Department written notification of sale within 24 hours of the closing date.

(2) On or before March 31, 2004, the Permittee shall either apply for full certification of the Facility or submit a plan documenting the strategy for closure of the Facility.

MATERIALS AND SITE MANAGEMENT AND MONITORING REQUIREMENTS

H. The Permittee shall comply with all the siting conditions specified for diffuse disposal in Subchapter 5 of the Rules.

I. The Permittee shall comply with all facility operation standards, requirements and

conditions specified in Subchapter 7 of the Rules including, but not limited to, the following:

(1) Application of solid wastes on frozen or snow covered ground is prohibited;

(2) Application of solid wastes is prohibited at times when saturated soil is within three feet of bottom of the zone of incorporation; and

(3) All restrictions set forth in Section 6-702(a)(9) of the Rules.

J. The Permittee shall remove septage from each of the on-site wastewater systems located within the perimeter of the Vermont Yankee Nuclear Power Corporation (the Main, COB, New Office Building, and New Warehouse tanks, Governor Hunt House, Gatehouse 1), and transfer it to the COB tank for storage until the laboratory results confirm the septage is of suitable quality for land spreading.

K. The Permittee shall ensure that septage is treated with lime to reduce pathogen content and vector attraction prior to land application. Treatment will be achieved by adding sufficient hydrated lime, $[Ca(OH)_2]$ or its equivalent, to raise the pH to greater than or equal to 12.0 Standard Units (S.U.) and to maintain the pH at greater than or equal to 12.0 S.U. for a period of two (2) hours without the addition of more lime. Direct monitoring of septage pH, to demonstrate that the pH and hold time requirements are being met, shall be conducted and documented. Documentation of compliance with this requirement shall be submitted with the appropriate quarterly report.

L. Prior to land application, the Permittee shall mark the edge of the usable acreage with temporary stakes or field flagging to identify the boundaries for spreading.

M. The Permittee shall continue the soil liming program to raise and/or maintain the soil pH of all land application sites to within the required range of 6.5 to 8.0 S.U. (aqueous). Use of the fields is specifically prohibited at times when the soil's pH is not in the specified range.

N. The following maximum annual site capacities were determined for the period of the certification. If there is any change in site management, such as the addition of other sources of nutrients, changes in crop rotation, or evidence of environmental impacts, the Permittee shall calculate an appropriate revised application rate for the site.

SITE	CROP	ACREAGE	CAPACITY
South Field	hay/grass	1.9 acres	55,100 gal/yr
North Field	hay/grass	7.4 acres	214,600 gal/yr
Total	—	9.3 acres	269,700 gal/yr

O. All land application of stabilized septage at Vermont Yankee has taken place at the South Field application site. Septage has never been applied to the North Field site, and is considered a contingency management option. If the North Field site requires utilization, pH and other site characterization parameters must be determined prior to septage application.

P. The Permittee shall sample the waste, soils, groundwater, and plant tissues in accordance with the parameters and frequencies set forth in Table 2 of this certification.

Testing for metals in the soil and plant tissues shall be for the available form, and shall be reported in milligrams per kilogram (mg/kg), dry weight basis. Testing for metals in the waste shall be for the total form and shall be reported in units of mg/kg. Testing for metals in the groundwater shall be for the total dissolved form and shall be reported in units of milligrams per liter (mg/l). The results of this testing shall be included with the appropriate quarterly report. The soil radionuclide results shall be reported in microCuries per acre. The septage radionuclide results shall be reported in units of microCuries per kilogram, dry weight basis.

Q. The entire content of the application that the Permittee submitted to the Nuclear Regulatory Commission (NRC), and the cover letter dated June 28, 1989 is referenced and adopted as conditions that must be met. Specifically, the application contains waste standards and sets maximum allowable accumulations of radionuclides in the soil (site life).

To insure the intent of section 4.2.1 in the application to NRC is accommodated, in addition to gamma spectroscopic analyses of the samples, annual analyses shall be conducted for Strontium-89, Strontium-90 and tritium (H-3).

RECORD KEEPING AND REPORTING

R. The Permittee shall submit quarterly reports to the Department by the 15th day of the month following the end of each quarter (April 15, July 15, October 15, and January 15).

S. The results of sampling required for radionuclide concentrations shall be submitted to the Department annually (in a quarterly report), and shall be reported in units of microCuries per acre (soil), and microCuries per kilogram, dry weight basis (septage), as specified in (Q.).

T. All sampling and monitoring results and volumes of lime applied for soil pH control shall be included with the appropriate quarterly report.

U. If the results of any of the required monitoring shows an exceedence of a standard, the Permittee shall notify the Secretary in writing of this fact and reasons for the non-compliance within ten (10) days of when the exceedence is detected, together with a proposed strategy for remediation of conditions resulting in the exceedence.

V. If the results of any of the required groundwater monitoring shows an exceedence of a trigger value specified in Table 1 of this certification, the Permittee shall notify the Secretary in writing of this fact and reasons for the non-compliance within ten (10) days of when the exceedence is detected, together with a proposed strategy for remediation of conditions resulting in the exceedence. If such an exceedence occurs, the Secretary reserves the right to require the Permittee to:

(1) install additional sampling locations and/or expand groundwater quality analyses;

(2) conduct all studies necessary to determine the source of contamination;

(3) take all actions necessary to control or repair the cause of any impacts;

(4) take all actions necessary to remediate any impacts; and

(5) determine and specify the response(s) to be implemented, as authorized in Subchapter 7 of the Ground Water Rules.

W. The Permittee shall, in February or March of each year of the certification, refine cropping and fertilization plans for the upcoming growing season. By April 1 of each year of the certification period, the Permittee shall notify the Department of its intent for septage volumes and times for spreading at the Facility.

X. The Permittee shall keep all records regarding activities, management practices, complaints, and observations in a secure, dry place until field closure has been approved by the Secretary.

Y. In the event of any discharge or emission from the facility which poses a threat to public health and safety, a danger to the environment, or the creation of a nuisance, the event must be reported within twenty-four (24) hours, or on the next working day, to the Secretary, the local health officer, and the selectpersons of the affected municipalities.

Z. Any and all complaints regarding odors from the Facility received by the Permittee shall be reported to the Department within twenty-four (24) hours, or on the next working day, of their receipt, together with a report of the measures taken to resolve the complaint, if any response was necessary.

CLOSURE, OTHER REQUIREMENTS AND CONDITIONS

AA. Upon determination by the Secretary that no further land application will be conducted at the Facility, the Permittee shall comply with the following post-closure requirements:

(1) Provide for control of public access to the facility for a period of twelve (12) months following the last application of septage;

(2) Prohibit grazing of domestic food source animals for a period of six (6) months; and

(3) Prohibit production of crops for direct human consumption for a period of thirty-six (36) months following the last application of septage.

(4) Test the groundwater annually, in the spring after the thaw, for a minimum of two years if the site has received seventy-five percent (75%) of the maximum allowable cumulative level based on soil type for any of the metals monitored, or if the Secretary determines a need. The required parameters are listed in this Certification in Table 2. The results shall be submitted to the Department, and

(5) Test the soils biannually for a minimum of two years if the site has received seventy-five percent (75%) of the maximum allowable cumulative level based on soil type for any of the metals monitored, or if the Secretary determines a need. The required parameters are listed in this Certification in Table 2. The results shall be submitted to the Department.

Vermont Yankee
Solid Waste Management Facility
Certification #F9906 - A1

GENERAL CONDITIONS

BB. This Certification does not convey any property rights of any sort or any exclusive privilege nor does it authorize any injury to private property or any invasion of personal rights.

CC. This Certification is not alienable, transferable, or assignable without prior written approval of the Secretary. The request for such approval shall include an application for reissuance under the new name and a written agreement which specifies the date of transfer and includes the signatures of the authorized representatives.

DD. If the Permittee anticipates that any compliance date or operating condition will not be met, Permittee shall notify the Secretary in writing of this fact and reasons for the anticipated non-compliance at least five (5) days prior to the compliance date or conditions in question.

EE. This Certification may be modified during its term for cause with the written approval of the Secretary. If the Secretary determines that modification is appropriate, only the conditions subject to modifications are reopened. Until a modification is granted, all conditions set forth in this Certification remain in full force and effect, pursuant to Section 6-307(a) of the Rules.

FF. This Certification may be revoked, in whole or in part, during its term in accordance with the Rules.

GG. The Permittee agrees to allow Agency of Natural Resources personnel access to the Facility during normal business hours to perform such inspections or other activities pursuant to 10 V.S.A. §6609 as may be required to ensure compliance with this Certification, with all applicable statutes and with the Rules.

HH. The Secretary retains the right to require the Permittee to perform any other action he or she deems necessary in accordance with 10 V.S.A. §6610a.

Vermont Yankee
Solid Waste Management Facility
Certification #F9906 - A1

Table 1

RESPONSE TRIGGER VALUES FOR CONCENTRATIONS OF COMPOUNDS IN GROUNDWATER

PARAMETER	GROUNDWATER
Arsenic	5.0 µg/l
Barium	1.0 mg/l
Cadmium	2.5 µg/l
Chloride	125.0 mg/l
Chromium	50.0 µg/l
Copper	0.65 mg/l
Lead	5.0 µg/l
Mercury	1.0 µg/l
Molybdenum	20.0 µg/l
Nickel	50.0 µg/l
Selenium	25.0 µg/l
Silver	50.0 µg/l
Sulfate	125.0 mg/l
Zinc	2.5 mg/l
Polychlorinated Biphenyls (PCBs)	0.25 µg/l
Nitrate Nitrogen	5.0 mg/l
Total Dissolved Solids (TDS)	250.0 mg/l

NOTES:

Concentration levels of other parameters are of concern for determining application rates and monitoring impacts upon the sites used for septage management. Levels of the other parameters will be evaluated on a case-by-case basis.

An analysis for Total Organic Halides (TOX) may be conducted in lieu of analyzing for PCB's. However, if TOX is detected in concentrations equal to or greater than 0.25 µg/l, then an analysis specific for PCB's shall be conducted.

Table 2
REQUIRED SAMPLING AND TESTING FREQUENCIES

PARAMETER	SEPTAGE	SOIL	GROUNDWATER	PLANT TISSUE[1]
Arsenic	Annual	EOC	Annual	EOC
Barium	EOC	EOC	Annual	EOC
Cadmium	Annual	EOC	Annual	EOC
Chromium	Annual	EOC	Annual	EOC
Copper	Annual	EOC	Annual	EOC
Lead	Annual	EOC	Annual	EOC
Mercury	Annual	EOC	Annual	EOC
Molybdenum	Annual	EOC	Annual	EOC
Nickel	Annual	EOC	Annual	EOC
Selenium	Annual	EOC	Annual	EOC
Silver	EOC	EOC	Annual	EOC
Zinc	Annual	EOC	Annual	EOC
Total Kjeldahl Nitrogen	Annual	Annual *	Annual *	None
Ammonia Nitrogen	Annual	Annual *	Annual *	None
Nitrate Nitrogen	Annual	Annual *	Annual *	None
Total Phosphorus	Annual	Annual *	Annual *	EOC
Total Potassium	Annual	Annual *	Annual *	EOC
Total Nitrogen	None	None	None	EOC
Conductivity	None	None	Annual	None
Chloride	None	None	Annual *	None
Percent Total Dissolved Solids	None	None	Annual *	None
Polychlorinated Biphenyls (PCBs)	Annual	EOC	EOC	None
Percent Solids	Annual	None	None	None
pH	+++	Annual *	Annual *	None
Liming Requirement	None	Annual *	None	None
Available Potassium	None	Annual *	None	None
Available Magnesium	None	Annual *	None	None
Available Phosphorus	None	Annual *	None	None
Reserve Phosphorus	None	Annual *	None	None
CEC	None	EOC	None	None
Radionuclides	Annual	EOC	None	None
TCLP	***	None	None	None

NOTES:

1: Plant Tissue sampling is required prior to the end of the certification, the results to submitted in the application required in the Compliance Schedule of the certification.
Annual (Septage): Once in the spring, prior to land application.
Annual (Groundwater): Once in the spring after the thaw.
Annual *: Must be sampled biannualy (spring and fall) if biosolids are applied in more than one season per year.
EOC: Sampling prior to the end of the certification, the results to submitted in the application required in the Compliance Schedule.
None: No sampling or testing is required for that parameter in the specific media.
+++: The pH of septage shall be tested in accordance with Condition K of this certification.
***: Sampling at five year intervals, from the date of the last analysis.

Concentration levels of other parameters are of concern for determining application rates and monitoring impacts upon the sites used for septage management. Levels of the other parameters will be evaluated on a case-by-case basis.

An analysis for Total Organic Halides (TOX) may be conducted in lieu of analyzing for PCB's. However, if TOX is detected in concentrations equal to or greater than the applicable regulatory standard, then an analysis specific for PCB's shall be conducted.

The Department issuance of this Solid Waste Management Facility Certification relies upon the data, judgment, and other information supplied by the Permittee, the hired professional consultants and other experts who have participated in the preparation of the Application.

The Department makes no assurances that the system certified herein will meet performance objectives of the operator and no warranties or guarantees are given or implied.

The Department staff has reviewed the above project and application and finds it to conform with current technical standards. It is recommended that the foregoing findings be made and the Solid Waste Management Facility Certification be issued.

I do affirmatively make the findings as recommended by the staff and approve this Certification.

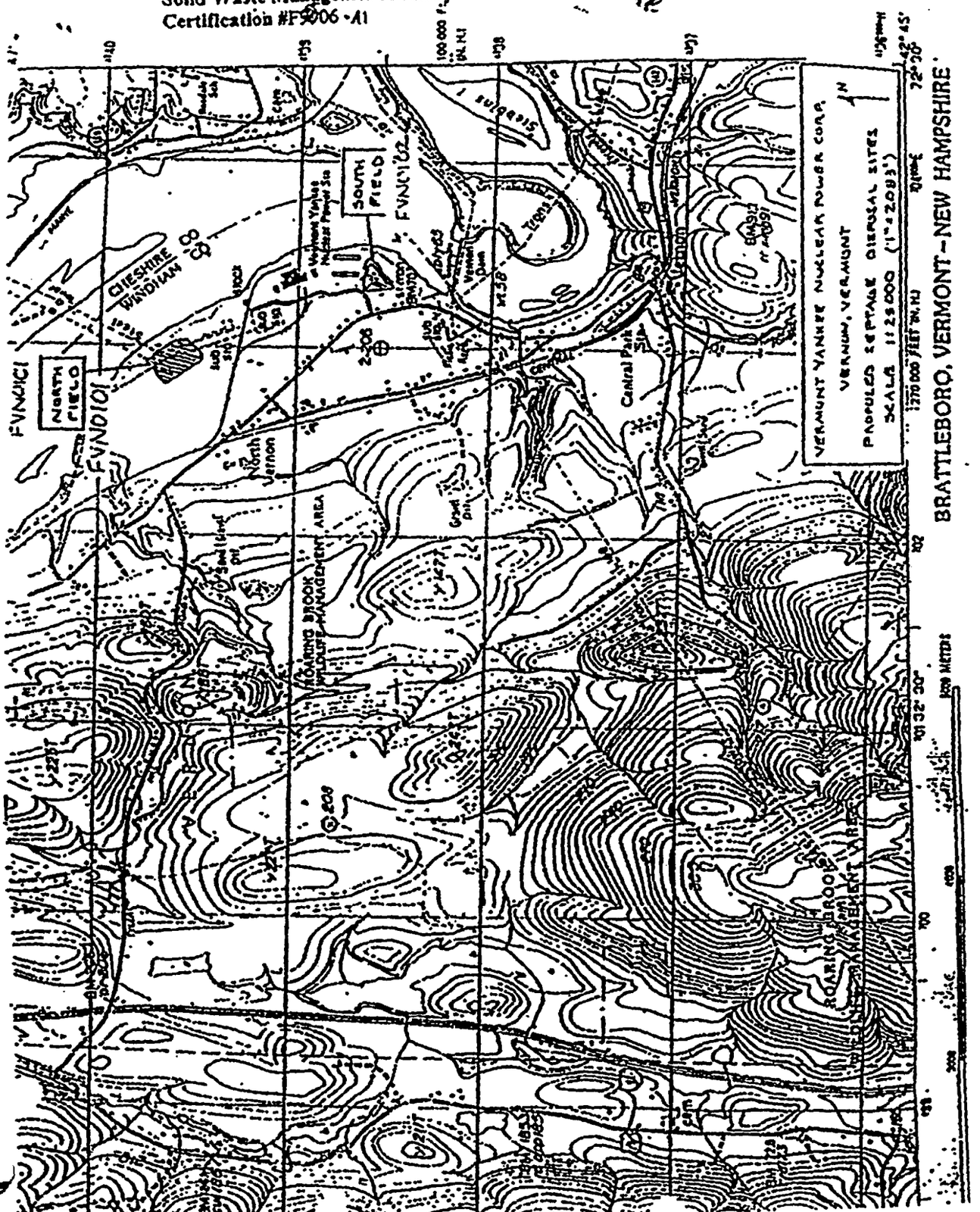
Dated this 12th day of July, 2002, at Waterbury, Vermont.

AGENCY OF NATURAL RESOURCES

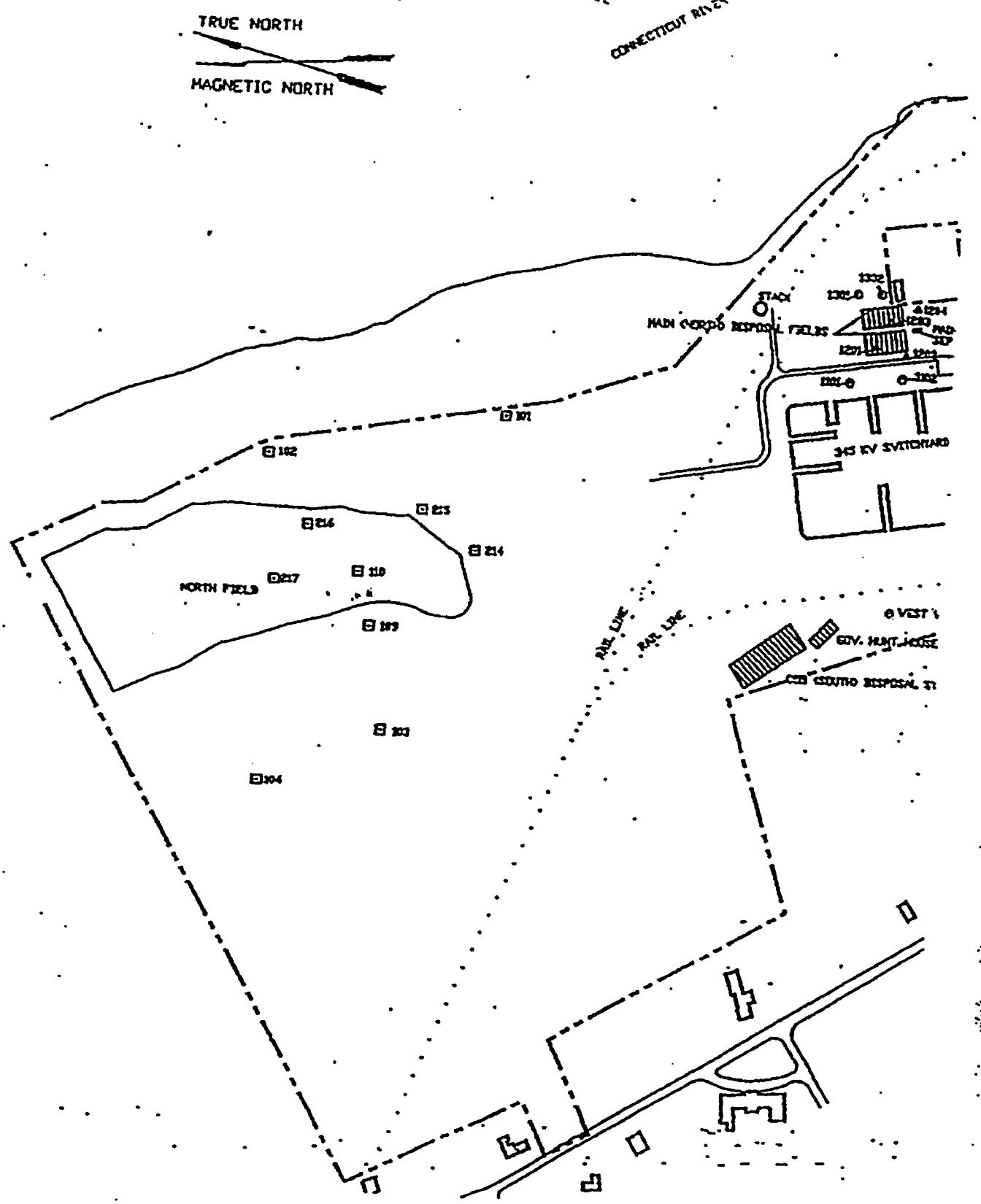
Chris Recchia, Commissioner
Department of Environmental Conservation

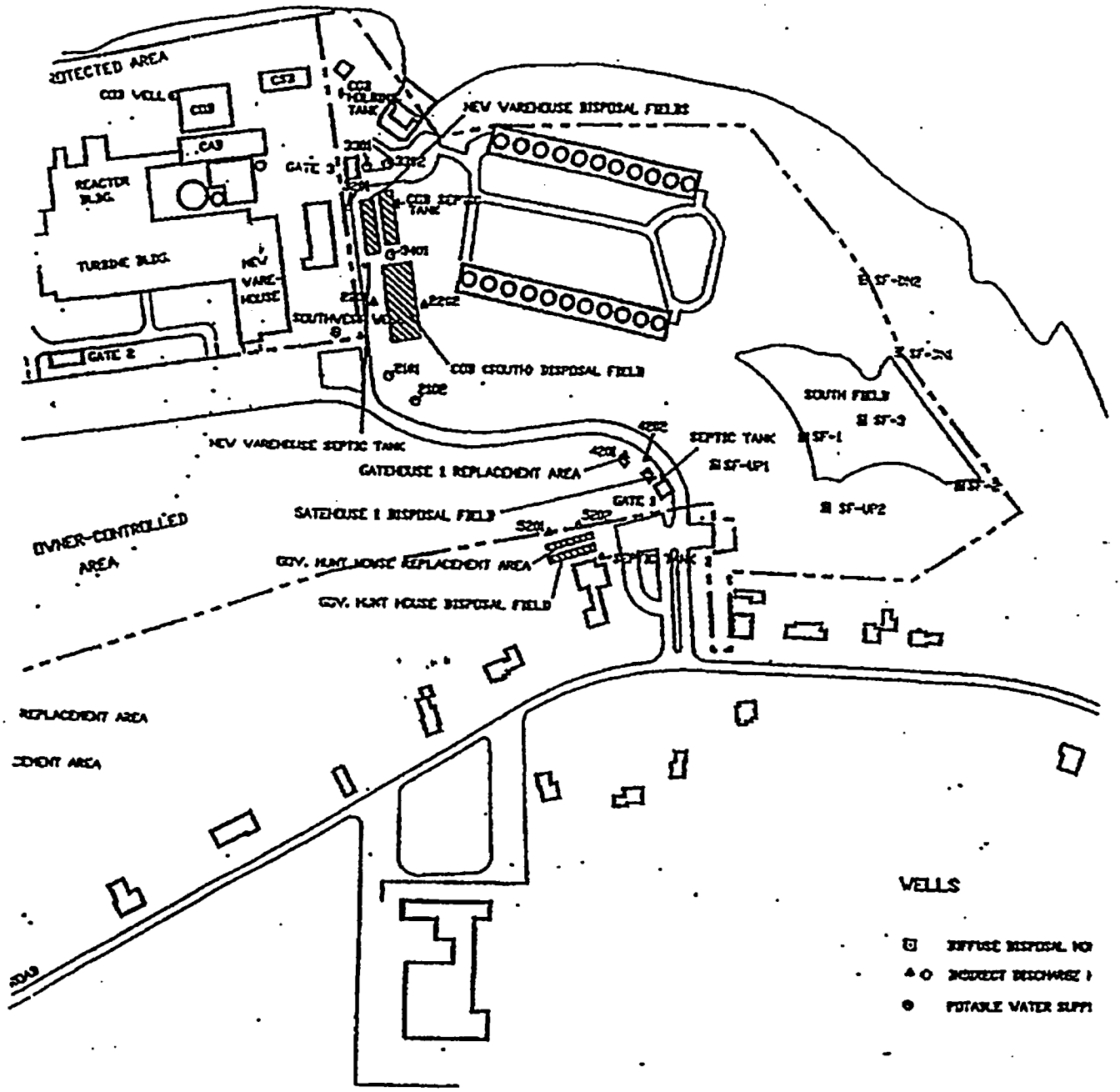
BY: Marilyn J. Davis
Marilyn J. Davis, Director
Wastewater Management Division
Department of Environmental Conservation

Vermont Yan
Solid Waste Management Facility
Certification #F9006-A1



Vermont Yan
Solid Waste Management Facility
Certification #F9906-A1





VERMONT YANKEE SITE MAP

1 ON-SITE WATER, WASTEWATER, AND SEPTAGE FACILITI

Appendix I

1. "Request to Amend Previous Approval Granted Pursuant to 10CFR20.2002 for Disposal of Contaminated Soil", dated September 11th, 2000, BVY 00-71
2. Vermont Yankee Nuclear Power Station – Safety Evaluation for an Amendment to an Approved 10CFR20.2002 Application (TAC No. MA9972)", dated June 26th, 2001, NVY 01-66

VERMONT YANKEE
NUCLEAR POWER CORPORATION
185 OLD FERRY ROAD, PO BOX 7002, BRATTLEBORO, VT 05302-7002
(802) 257-5271

September 11, 2000
BVY 00-71

United States Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

References:

(a) Letter, VYNPC to USNRC, "Request to Amend Previous Approvals Granted under 10 CFR 20.302(a) for Disposal of Contaminated Septic Waste and Cooling Tower Silt to Allow for Disposal of Contaminated Soil," BVY 99-80, dated June 23, 1999.

(b) Letter, VYNPC to USNRC, "Supplement to Request to Amend Previous Approvals Granted under 10 CFR 20.302(a) to Allow for Disposal of Contaminated Soil," BVY 00-02, dated January 4, 2000.

(c) Letter, USNRC to VYNPC, "Vermont Yankee Nuclear Power Station, Request to Amend Previous Approvals Granted under 10 CFR 20.302(a) to Allow for Disposal of Contaminated Soil (TAC No. MA5950)," NVY 00-58, dated June 15, 2000.

(d) Letter, USNRC to VYNPC, "Revised Safety Evaluation – Approval Pursuant to 10 CFR 20.2002 for Onsite Disposal of Cooling Tower Silt – Vermont Yankee Nuclear Power Station (TAC No. M96371)," NVY 97-85, dated June 18, 1997.

Subject: Vermont Yankee Nuclear Power Station
License No. DPR-28 (Docket No. 50-271)
Request to Amend Previous Approval Granted Pursuant to 10 CFR 20.2002 for Disposal of Contaminated Soil

In accordance with 10 CFR 20.2002 (previously 10 CFR 20.302(a)), Vermont Yankee (VY) submits this application to amend the previously granted approval to dispose of slightly contaminated soil. This application expands the allowable waste stream to include slightly contaminated soil generated as a residual by-product of other types of on-site construction activities.

In References (a) and (b), VY requested approval to dispose of approximately 25.5 m^3 of accumulated soil that was generated due to construction activities. In addition, it was requested that VY be allowed to dispose of approximately 28.3 m^3 of soil that is spread annually on station roads and walkways during the winter. NRC acceptance is documented in Reference (c).

This application specifically requests approval to dispose of contaminated soil that is created due to other on-site construction related activities including but not limited to design change implementation and land maintenance.

In addition, VY requests that NRC's review recognize that, although VY indicated in Reference (b) that the south disposal field (approximately 1.9 acres in size) is currently expected to be used for disposal of the subject material, VY is also authorized to use the alternate north disposal field (approximately 10 acres in size). Approval to use both the north and south fields for disposal was granted in Reference (d). VY's radiological impact assessments have conservatively assumed all of the disposal activities occur on the smaller south field to maximize potential calculated doses. These assessments bound the situation where a portion of the land spreading occurs on the north field.

VY will continue to limit the total activity spread, from approximately 28.3 m^3 of soil generated each year, to within the limits assumed in the radiological assessment previously submitted in Reference (b).

A radiological assessment and proposed operational controls for the inclusion of the additional material for on-site disposal was provided in Reference (b). The assessment demonstrates that the dose impact expected from the proposed activity, in total with all past waste spreading operations, will not approach the dose limits already imposed for septic and cooling tower silt disposal. All soil analyses will be to environmental lower limits of detection.

The results of all disposal operations will be reported in the Annual Radioactive Effluent Release Report. The combined radiological impact, for all on-site disposal operations, will continue to be limited to a total body or organ dose of a maximally exposed member of the public of less than one mrem/year during the period of active VY control of the site, or less than five mrem/year to an inadvertent intruder after termination of active site control.

Upon receipt of your approval, this request as well as the basis for approval will be incorporated into the Off-Site Dose Calculation Manual.

We trust that the information contained in the submittal is sufficient. However, should you have any questions or require further information concerning this matter, please contact Mr. Jim DeVincentis at 802-258-4236.

Sincerely,

Vermont Yankee Nuclear Power Corporation

Gautam Sen
Licensing Manager

cc: USNRC Region I Administrator
USNRC Resident Inspector - VYNPS
USNRC Project Manager - VYNPS
VT Department of Public Service

SUMMARY OF VERMONT YANKEE COMMITMENTS

BVY NO.: 00-71

The following table identifies commitments made in this document by Vermont Yankee. Any other actions discussed in the submittal represent intended or planned actions by Vermont Yankee. They are described to the NRC for the NRC's information and are not regulatory commitments. Please notify the Licensing Manager of any questions regarding this document or any associated commitments.

COMMITMENT	COMMITTED DATE OR "OUTAGE"
None	N/A

VYAPF 0058.04
AP 0058, Revision 1
Page 1 of 1

NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 26, 2001

NVY 01-66

Mr. Michael A. Balduzzi
Vice President, Operations
Vermont Yankee Nuclear Power Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

SUBJECT: VERMONT YANKEE NUCLEAR POWER STATION - SAFETY EVALUATION FOR AN AMENDMENT TO AN APPROVED 10 CFR 20.2002 APPLICATION (TAC NO. MA9972)

Dear Mr. Balduzzi:

The U.S. Nuclear Regulatory Commission (NRC) staff has completed its review of the Vermont Yankee Nuclear Power Corporation (VYNPC) request dated September 11, 2000, to amend an approved 10 CFR 20.2002 (previously 10 CFR 20.302) application dated June 23, 1999, as supplemented on January 4, 2000. The licensee requested NRC approval to allow the addition of slightly contaminated soil resulting from on-site construction-related activities, including but not limited to, design change implementation and land maintenance, to the list of already approved materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) for on-site disposal.

Based on our review, we find the proposed changes to be acceptable because the previously approved bounding conditions will continue to be met. The enclosure to this letter provides our safety evaluation of VYNPC's application.

Pursuant to the provisions of 10 CFR Part 51, the NRC has published an Environmental Assessment and finding of No Significant Impact in the *Federal Register* on June 14, 2001 (66 FR 32399).

Sincerely,

John A. Zwolinski, Director
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-271

Enclosure: Safety Evaluation

cc w/encl: See next page

Vermont Yankee Nuclear Power Station

cc:

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. David R. Lewis
Shaw, Pittman, Potts & Trowbridge
2300 N Street, N.W.
Washington, DC 20037-1128

Ms. Christine S. Salembier, Commissioner
Vermont Department of Public Service
112 State Street
Montpelier, VT 05620-2601

Mr. Michael H. Dworkin, Chairman
Public Service Board
State of Vermont
112 State Street
Montpelier, VT 05620-2701

Chairman, Board of Selectmen
Town of Vernon
P.O. Box 116
Vernon, VT 05354-0116

Mr. Richard E. McCullough
Operating Experience Coordinator
Vermont Yankee Nuclear Power Station
P.O. Box 157
Governor Hunt Road
Vernon, VT 05354

G. Dana Bisbee, Esq.
Deputy Attorney General
33 Capitol Street
Concord, NH 03301-6937

Chief, Safety Unit
Office of the Attorney General
One Ashburton Place, 19th Floor
Boston, MA 02108

Ms. Deborah B. Katz
Box 83
Shelburne Falls, MA 01370

Mr. Raymond N. McCandless
Vermont Department of Health
Division of Occupational
and Radiological Health
108 Cherry Street
Burlington, VT 05402

Mr. Gautam Sen
Licensing Manager
Vermont Yankee Nuclear Power
Corporation
185 Old Ferry Road
P.O. Box 7002
Brattleboro, VT 05302-7002

Resident Inspector
Vermont Yankee Nuclear Power Station
U. S. Nuclear Regulatory Commission
P.O. Box 176
Vernon, VT 05354

Director, Massachusetts Emergency
Management Agency
ATTN: James Muckerheide
400 Worcester Rd.
Framingham, MA 01702-5399

Jonathan M. Block, Esq.
Main Street
P. O. Box 566
Putney, VT 05346-0566

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

VERMONT YANKEE NUCLEAR POWER CORPORATION

VERMONT YANKEE NUCLEAR POWER STATION

DOCKET NO. 50-271

1.0 INTRODUCTION

By letter dated September 11, 2000, Vermont Yankee Nuclear Power Corporation (VYNPC/ licensee) submitted a request to amend a Title 10 of the *Code of Federal Regulations* (10 CFR) Section 20.2002 (former 10 CFR 20.302) application, dated June 23, 1999, as supplemented on January 4, 2000, that was approved by the U.S. Nuclear Regulatory Commission (NRC). This amendment will allow the addition of slightly contaminated soil resulting from on-site construction-related activities, including but not limited to, design change implementation and land maintenance, to the list of already approved materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) for on-site disposal via land spreading on designated disposal fields.

In 1989, pursuant to 10 CFR 20.302 (current 10 CFR 20.2002), the licensee received approval from the NRC to routinely dispose of contaminated septic waste in designated on-site areas. In 1997, the NRC amended the approved on-site disposal application to also include contaminated cooling tower silt material. In 2000, the NRC amended the approved on-site disposal application to also include a one-time disposal of slightly contaminated soil and an annual disposal of 28.3 cubic meters of slightly contaminated soil/sand material.

In this 10 CFR 20.2002 amendment application, the licensee requested that slightly contaminated soil resulting from on-site construction-related activities be disposed of on-site on an annual basis until the end of the plant's operating license in 2013. The anticipated annual volume of soil generated by on-site construction, as identified by the licensee, combined with the soil/sand generated from the annual winter spreading of sand on roads and walkways at the plant site will not exceed 28.3 cubic meters. This volume is the same volume that was approved in the January 4, 2000, request. The licensee performed a comprehensive radiological evaluation which included the annual disposal of 28.3 cubic meters of soil and soil/sand materials, and shows that these materials can be managed on-site in the same manner as the septic waste and cooling tower silt (i.e., land spreading on designated fields).

2.0 EVALUATION

The licensee will dispose of the future soil material using a land spreading technique consistent with the current commitments for on-site disposal of septic waste, cooling tower silts and sand/soil material previously approved by the NRC. The licensee will continue to use the

designated and approved areas of their property which include approximately 1.9 acres, which currently receive the septic waste, cooling tower silts and soil/sand material, and approximately 10 acres which have not been previously used for disposal. Determination of the radiological dose impact of the new material has been made based on the same dose assessment models and pathway assumptions used in the previously approved submittals.

The licensee will procedurally control and maintain records of all disposals. The following information will be recorded:

1. The radionuclide concentrations detected in the material (measured to radiation levels consistent with the licensee's radiological environmental monitoring program);

2. The total volume of material disposed;

3. The total radioactivity in the disposal operation as well as the total radioactivity accumulated on each disposal plot at the time of spreading;

4. The plot on which the material was applied;

5. Dose calculations or maximum allowable accumulated activity determinations required to demonstrate that the dose condition values imposed (i.e., imposed by the approved 10 CFR 20.2002 application dated June 23, 1999) on the land spreading operation have not been exceeded.

The bounding dose conditions for the on-site disposals are as follows:

1. The annual dose to the whole body or any organ of a hypothetical maximally exposed individual must be less than 1.0 mrem.

2. Annual doses to the whole body and any organ of an inadvertent intruder from the probable pathways of exposure must be less than 5 mrem.

3. Disposal operations must be at one of the approved on-site locations.

4. Total annual combined volume of soil and soil/sand materials must not exceed 28.3 cubic meters.

To ensure that the addition of new material containing low levels of radioactivity will not exceed the bounding dose conditions, for each new spreading operation the licensee will calculate an estimate of the total radioactivity that includes all past disposals of septic waste, cooling tower silt, and soil/sand and soil material on the designated disposal plots. This will be compared with the bounding dose condition value or equivalent radioactivity value on a per acre basis.

The licensee assessed the dose from soil and soil/sand material that may be received by the maximally exposed individual during the period of plant control over the property, and to an inadvertent intruder after plant access control ends using the same pathway modeling, assumptions, and dose calculation methods that were previously approved by the NRC for the septic waste and cooling tower silt disposals. The dose models are based on the guidance in NRC Regulatory Guide 1.109, Revision 1 (1977).

The licensee's dose assessment is as follows:

1. Total annual doses to the whole body and critical organ of the hypothetically maximally exposed individual were estimated to be 0.115 mrem and 0.403 mrem respectively. These values are less than the prescribed annual dose condition value of 1.0 mrem for the time period of active site control.

2. Total annual doses to the whole body and critical organ of an inadvertent intruder from the probable pathways of exposure were estimated to be 0.757 mrem and 1.17 mrem. These values are less than the prescribed annual dose condition value of 5.0 mrem for the time period after active site control.

3. The dose calculations are based on projecting the maximum potential impact, of all disposals (past and future) on the approved disposal site.

3.0 CONCLUSION

The staff finds the licensee's proposal to dispose of the low-level radioactive soil material, pursuant to 10 CFR 20.2002, in the same manner, location, and within the bounding dose conditions as the materials (i.e., septic waste, cooling tower silt and soil/sand from roads and walkways) previously approved by the NRC to be acceptable.

The licensee has committed to permanently incorporate this modification into their Offsite Dose Calculation Manual.

Principal Contributor: A. Hayes

Date: June 26, 2001

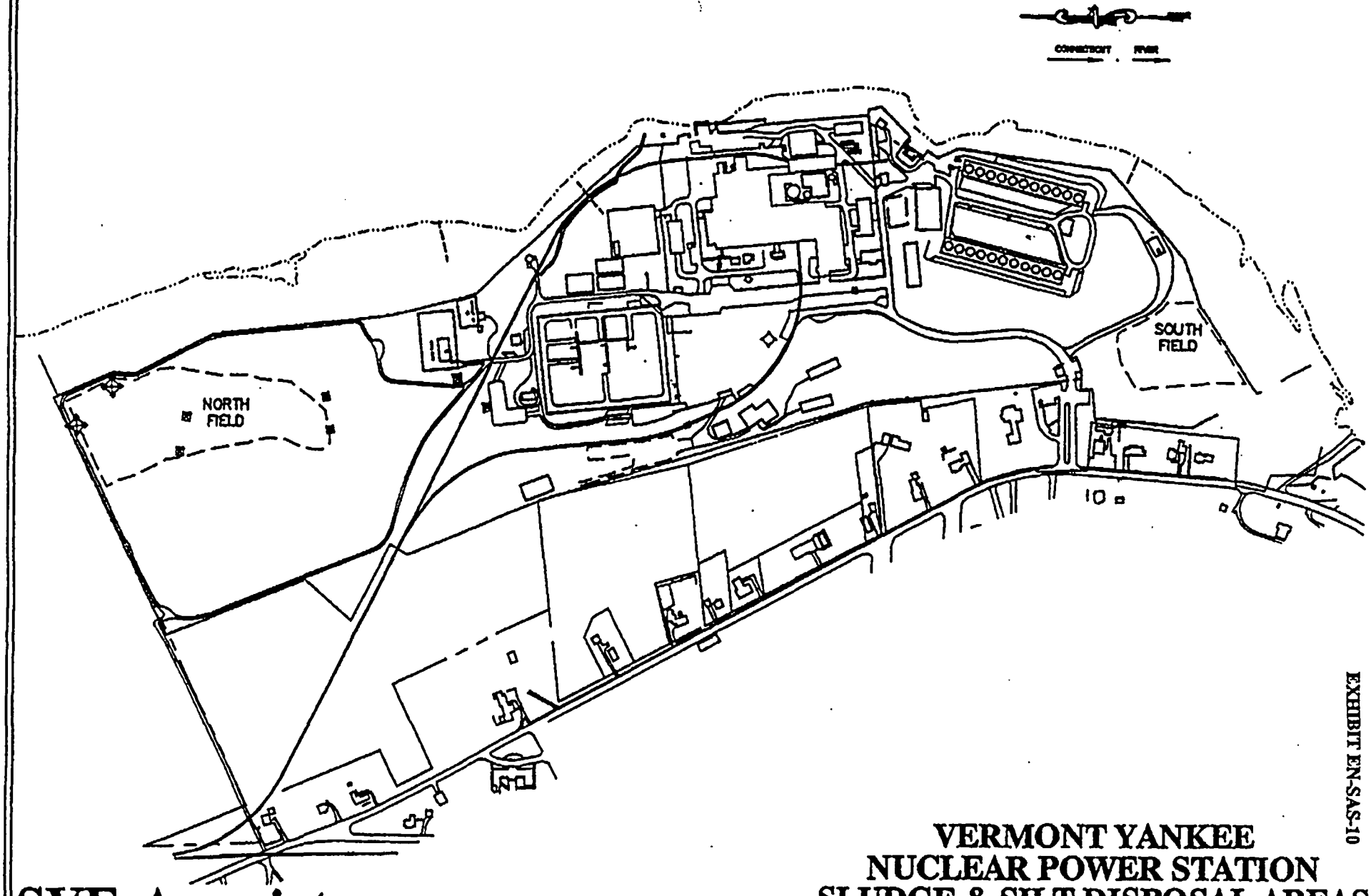


EXHIBIT EN-SAS-10

VERMONT YANKEE NUCLEAR POWER STATION SLUDGE & SILT DISPOSAL AREAS SCALE: 1"=500'

FEBRUARY 13, 2003

SVE Associates

Engineering Surveying Landscape Architecture Planning
P.O.Box 1818, Brattleboro, VT 05302-1818 Phone (802) 257-0561 Fax (802) 257-0721
website: www.sveassoc.com

EXHIBIT EN-SAS-11

Entergy

MEMORANDUM
ENTERGY NUCLEAR NORTHEAST
VERMONT YANKEE

POWER UPRATE PROJECT

02/13/2003

File No.: VY/PUP 03-13

To: File

From: George Thomas

Subject: Power Uprate Related Asbestos Waste Generation

The following estimated quantities of asbestos waste have been developed in support of the Vermont Yankee Power Uprate Project:

High Pressure Feedwater Heater Replacement Project
Approximately 1250 square feet of asbestos from the heaters plus about the same amount from attached piping for a total of 2500 square feet. This will equate to a volume of about 520 cubic feet assuming the asbestos is 2.5 inches thick.
Note: The exterior of the Feedwater Heaters are covered with paint that contains a high concentration of lead. (Source: Jim Calchera, December 16, 2002)

Main Generator Rewind Project
Approximately 75 cubic feet of asbestos removed from the generator stator bars that will be replaced during the rewind. (Source: Bill Wittmer, January 28, 2003)

Therefore, it is estimated that a quantity of approximately 600 cubic feet of asbestos will require disposal following completion of power uprate related projects.

cc: Lynn DeWald
Julie Hayward

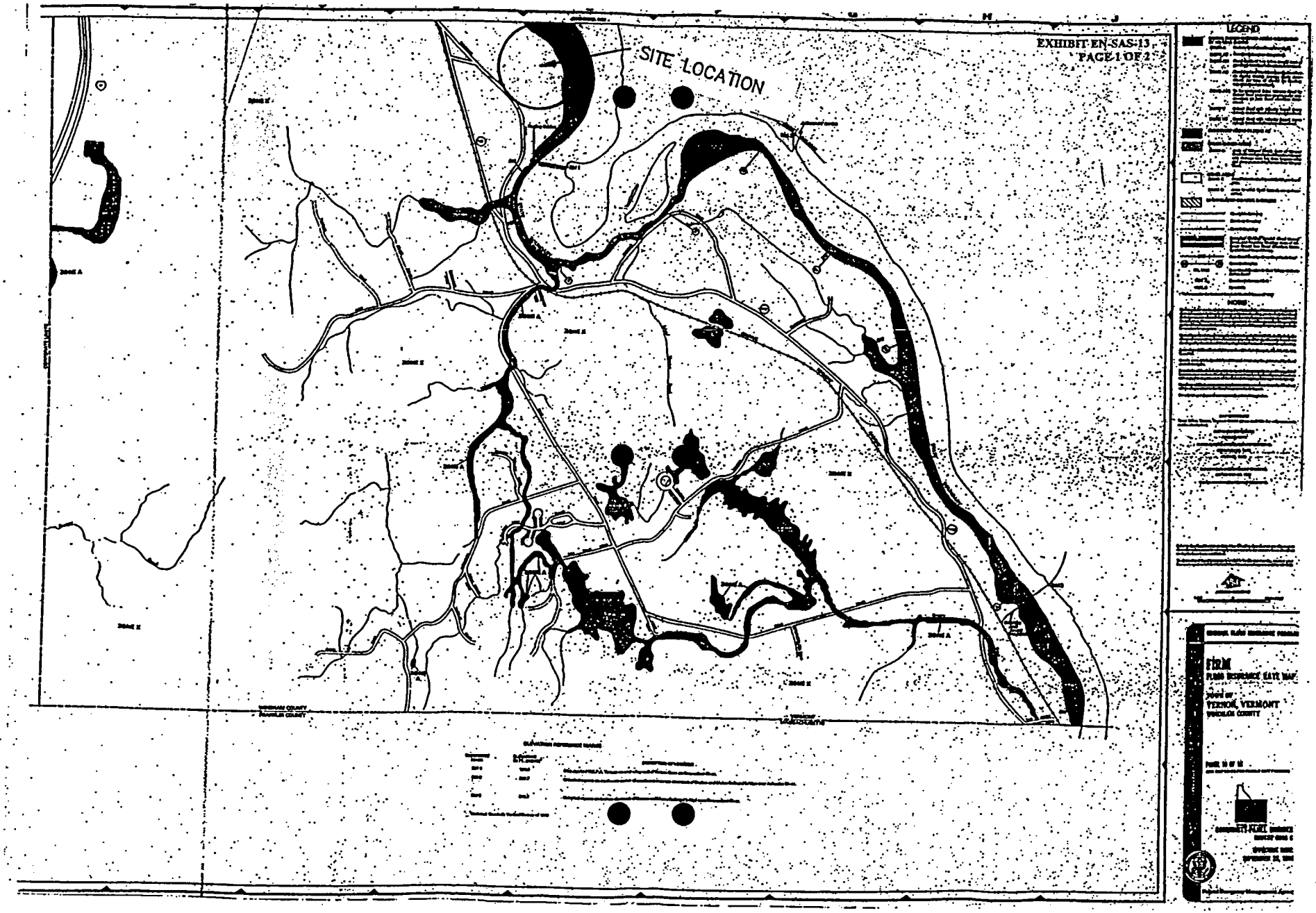
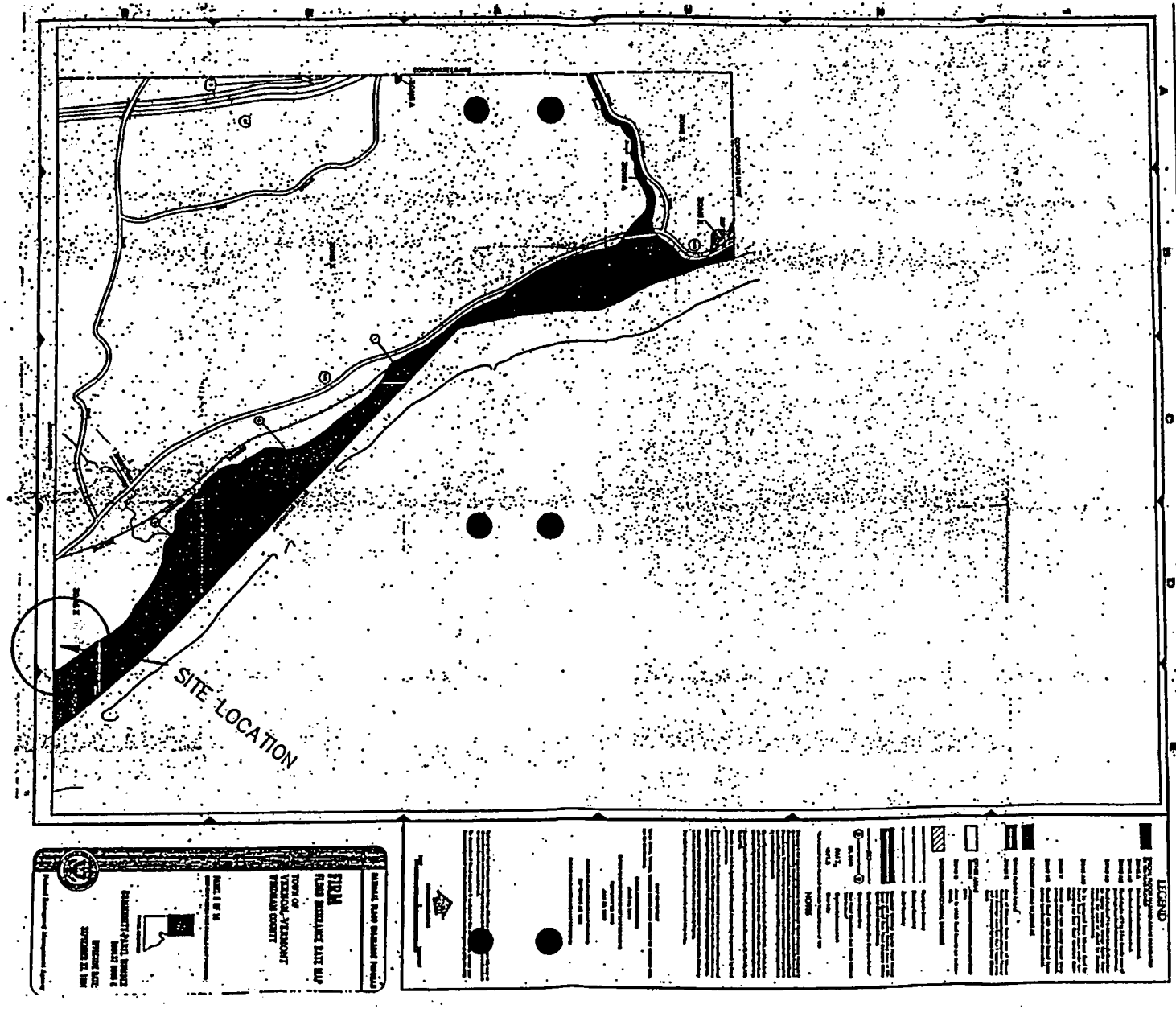


EXHIBIT EN-SAS-13
PAGE 1 OF 2
SITE LOCATION
LEGEND
FIRM
VERNON, VERMONT


SITE LOCATION
LEGEND
NOTES
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF
VERNON-VERMONT
WINDHAM COUNTY

Town of Vernon Significant Habitat Map

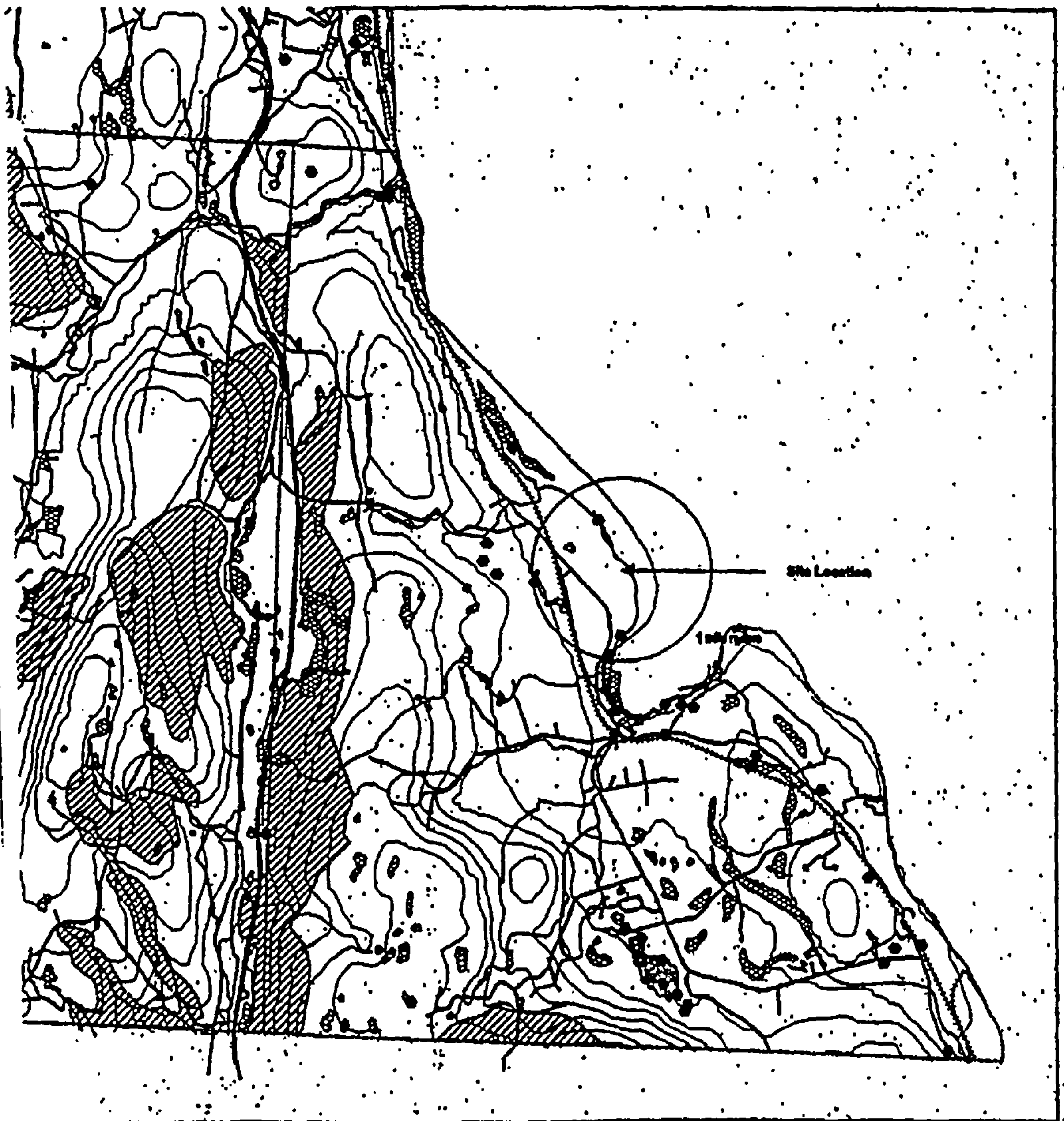
Legend

- Rare, Threatened or Endangered Species or Significant Natural Community
- Deer Wintering Area
- River
- Road
- Railroad
- Town
- Wetland
- 100 Foot Contour
- Lake

N

Scale 1:50,000

3000 0 3000 6000 Feet



1997 Significant Habitat Map • Vermont Department of Fish and Wildlife

Notes on Deer Wintering Areas

[illegible]

Notes on Rare, Threatened, and Endangered Species and Significant Natural Communities

[illegible]

Data Sources: Rare, Threatened, and Endangered Species and Significant Natural Communities; Deer Wintering Areas; and Wetlands: [illegible] Vermont Center for Geographic Information (VCGI) [illegible]

[illegible]

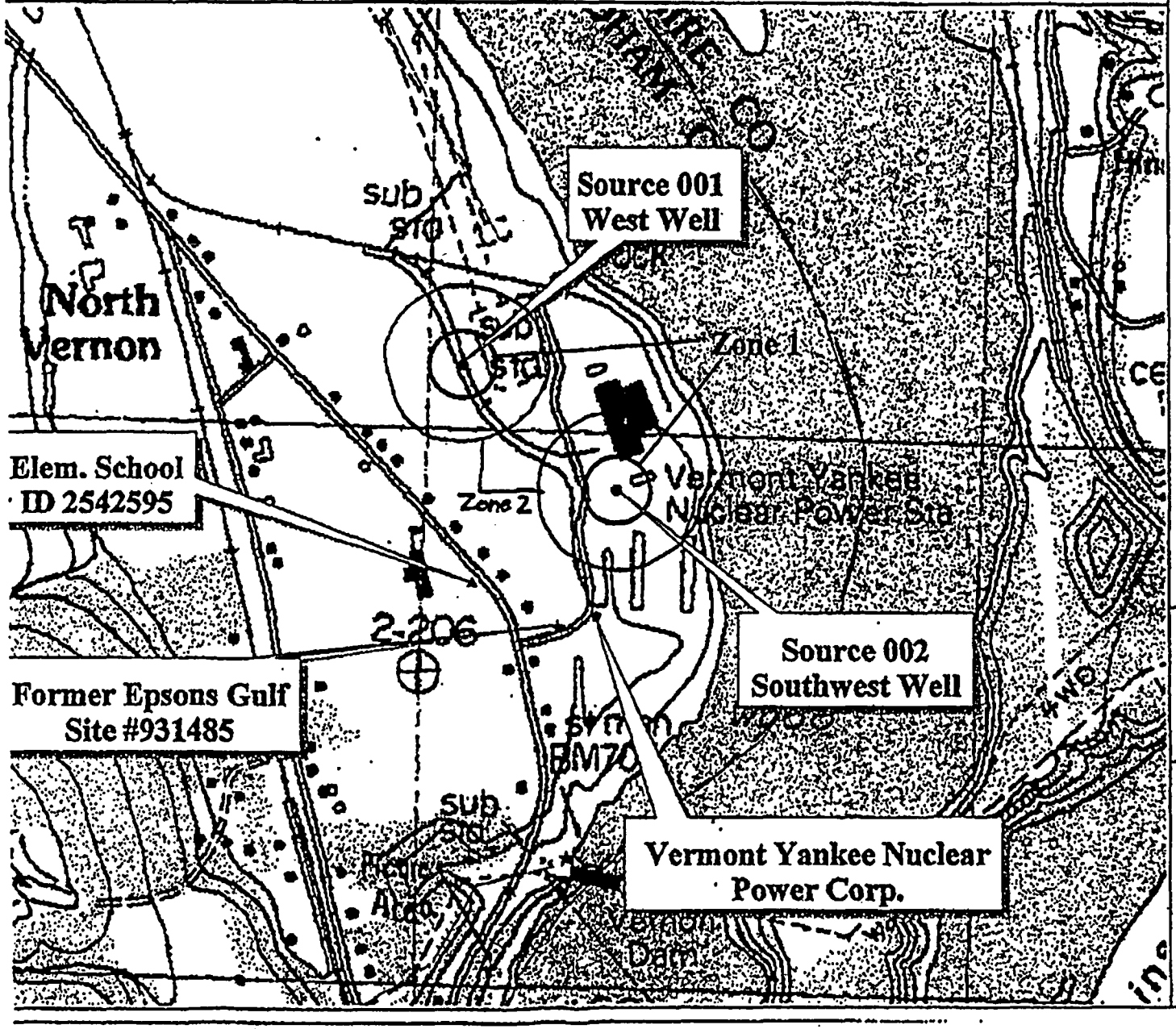
EXHIBIT EN-SAS-14

Source Water Protection Plan

Vermont Yankee Nuclear Power Station
320 Governor Hunt Road
Vernon, Vermont
Main Well System WSID #8332

1

Vermont Yankee Plant Water System, WSID #8332
Source Protection Area



LEGEND

- UST Site
- RCRA Facility
- Solid Waste Facility
- Hazardous Waste Site
- Source
- Source Protection Area
- Power Line

400 0 400 800 Fe

Vermont Water Supply Divis
8/23/00

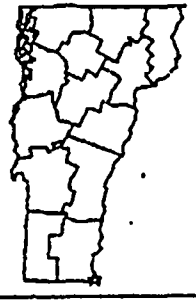


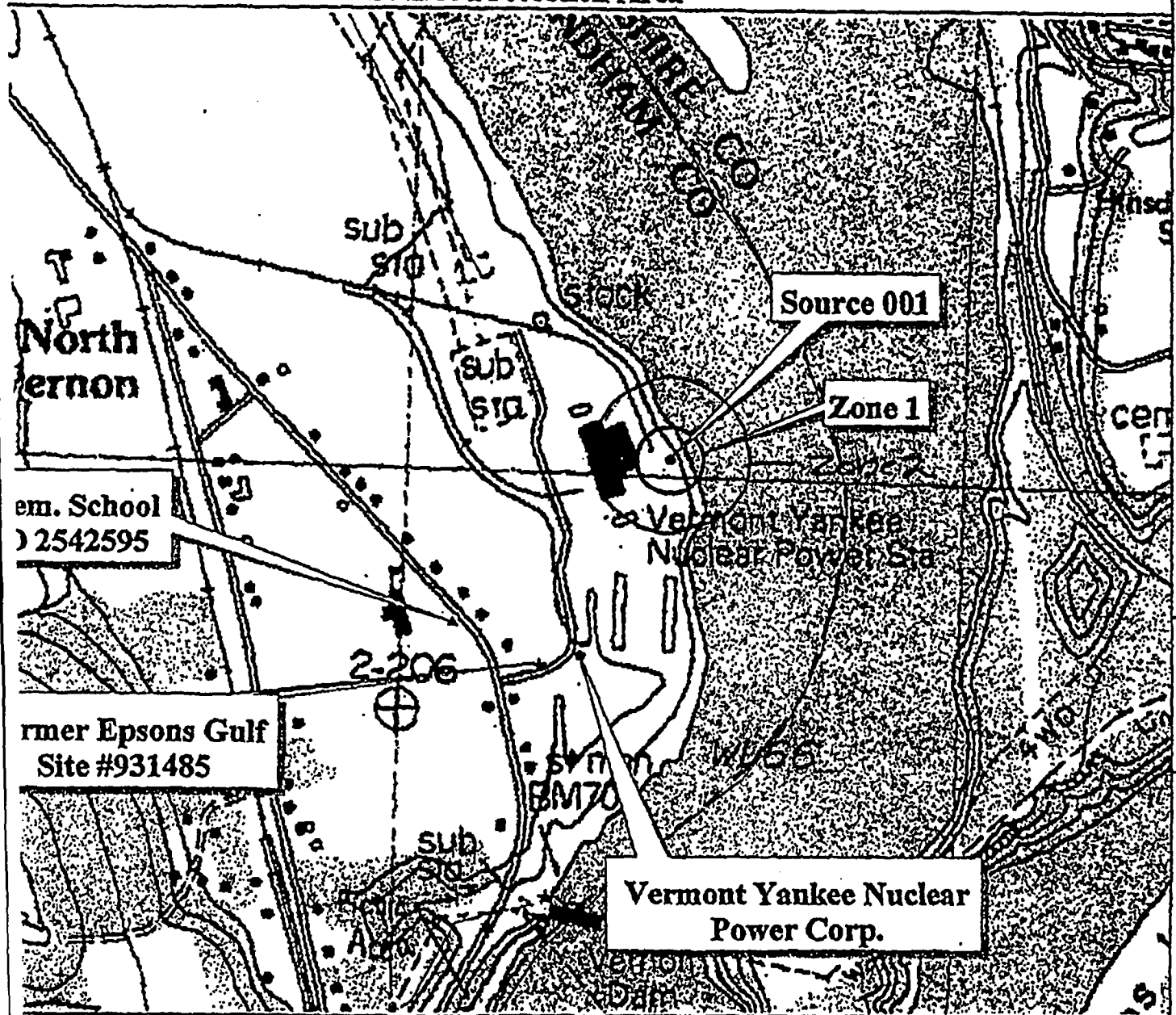
EXHIBIT EN-SAS-15
PAGE 2 OF 6

Source Water Protection Plan

Vermont Yankee Nuclear Power Station
320 Governor Hunt Road
Vernon, Vermont
COB Well System WSID #20559

E 1

Vermont Yankee COB Water System; WSID #20559
Source Protection Area

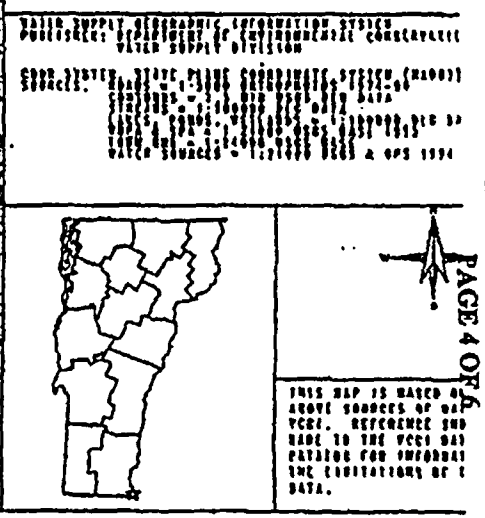


LEGEND

- UST Site
- RCRA Facility
- Solid Waste Facility
- Hazardous Waste Si
- Source
- Source Protection A
- Power Line

400 0 400 800 F

Vermont Water Supply Div
8/23/00



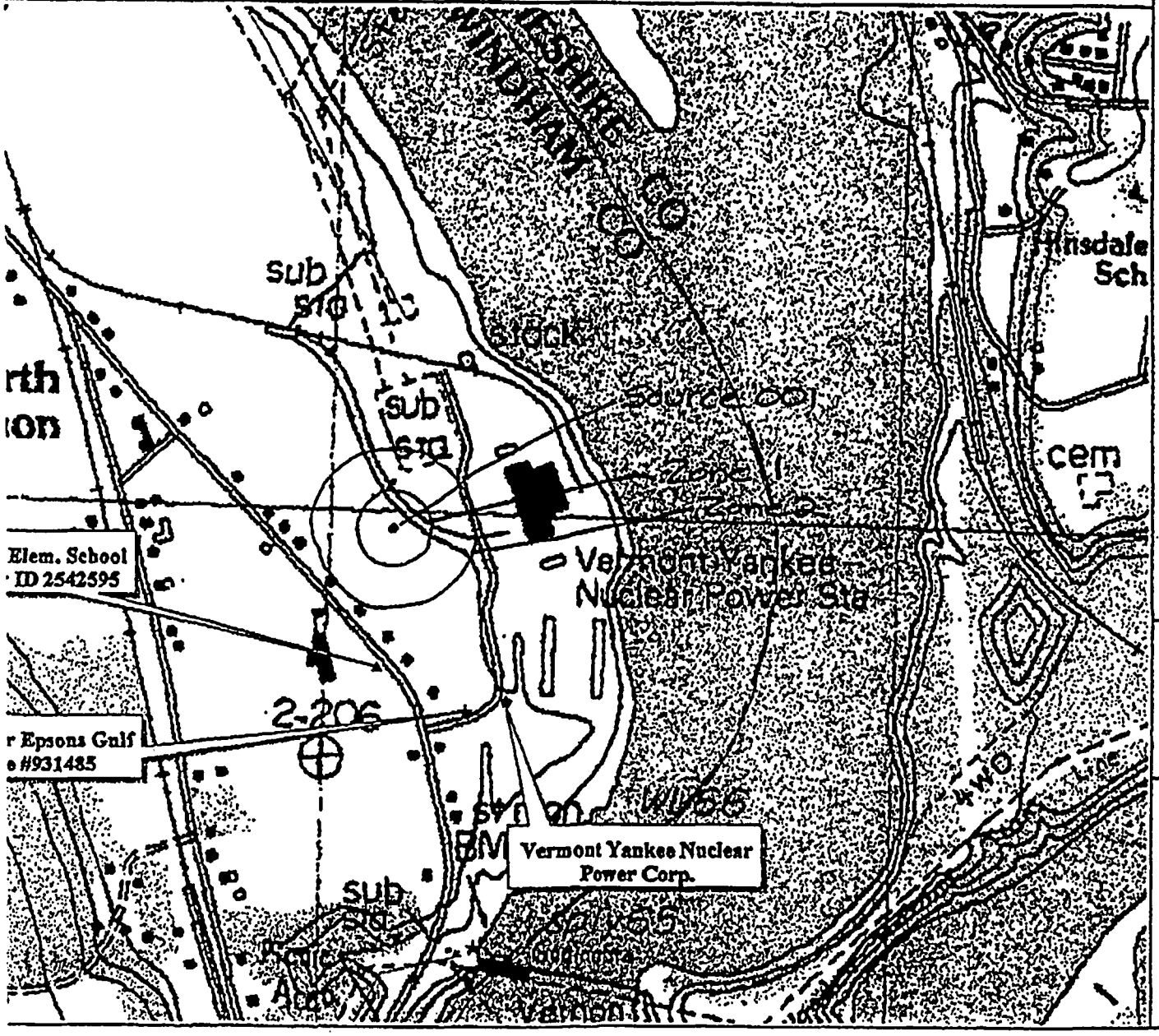
THIS MAP IS BASED ON ... ABOVE SOURCES OF ... VCGI. REFERENCE AND ... MADE TO THE VCGI DATA ... PATRONS FOR INFORMATI... THE LIMITATIONS OF ... DATA.

EXHIBIT EN-SAS-15
PAGE 4 OF 6

Source Water Protection Plan

Vermont Yankee Nuclear Power Station
320 Governor Hunt Road
Vernon, Vermont
NEOB Well System WSID #20778

NEOB - Vermont Yankee Water System, WSID #20738
Source Protection Area

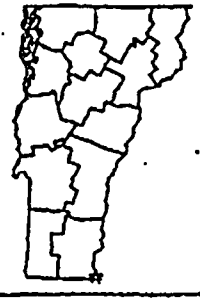


LEGEND

- ▲ UST Site
- ● RCRA Facility
- ● Solid Waste Facility
- ★ Hazardous Waste Site
- ● Source
- Source Protection Area
- Power Line

500 0 500 1000 Fe

Vermont Water Supply Divisio
8/23/00



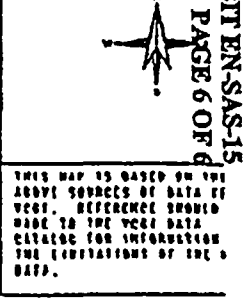


EXHIBIT EN-SAS-15
PAGE 6 OF 6

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD-Voice
1-800-253-0195 Voice-TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER SUPPLY DIVISION
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403
TELEPHONE (802) 241-3400
TOLL FREE in VT (800) 823-6500
FACSIMILE (802) 241-3284

May 21, 2002

Public Water System Permit to Operate

WATER SYSTEM IDENTIFICATION NUMBER: 20559 PIN #: NS75-0006

PERMITTEE: Entergy Nuclear

WATER SYSTEM: Entergy Nuclear Vermont Yankee, LLC - COB System
TOWN: Vernon, Vermont

RESPONSIBLE PERSON: Barbara Williams
ADDRESS: P.O. Box 157
320 Governor Hunt Road
Vernon, Vermont 05354

I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for the Entergy Nuclear Vermont Yankee, LLC - COB Water System. The Department has determined that the operation of this public water system, subject to the following conditions, will not constitute a public health hazard or a significant public health risk; therefore, a permit is hereby issued.

II. Findings and Conclusions

The following findings establish that this system is in compliance with the standards in accordance with 10 VSA, §1675(b), and will not constitute a public health hazard or a significant public health risk:

1. Summary of physical conditions:

   A. Date of most recent sanitary survey: 10/31/01

   B. Major Findings:

   1. Facility Use: Industrial
   2. Classification: 2
   3. Source: Drilled Bedrock Well - COB Well (001)
   4. Number of Connections: 1
   5. Population Served: 100

2. Summary of most recent water quality sample results:

A.	Bacteriological	past twelve months	met standards
B.	IOC	08/06/01	met standards
C.	SOC	02/22/01	met standards
D.	VOC	08/06/01	met standards
E.	Lead/Copper	09/18/01	met standards
F.	Nitrate	02/22/01	met standards
G.	Cyanide	03/22/00	met standards
H.	GWUDISW	08/13/98	exempt by application

3. Source Protection Area: The source protection area for the approved well is a 500 foot radius. The Source Protection Plan was submitted on 12/31/01 and additional information has been requested prior to approval.

4. Operator Status: The COB System Water System is classified as a Class 2 water system. The primary Class 2 certified operators are Richard Gerdus and Barbara Williams. The operator's certifications are valid until 05/30/04.

5. The Department concludes that this water system is operated in compliance with the standards adopted under 10 VSA, §1671 et seq. and does not constitute a public health hazard or a significant public health risk.

III. General Conditions

1. The person to whom this permit is issued must comply in full with all applicable provisions of 10 VSA [illegible] and the Federal Safe Drinking Water [illegible]

2. This permit [illegible] with 10 VSA §1675.

3. This permit [illegible] become invalid upon a [illegible]

IV. Special Conditions

1. This permit shall become effective on the date of sale of the facility from Vermont Yankee Power Corporation to Entergy Nuclear Vermont Yankee, LLC ** and then shall supercede Permit No. NS75-0006, signed January 7, 2002 ** The permittee shall submit to the Department written notification of the sale within 24 hours of the closing date.

2. This permit is valid for Six (6) years from the date of this issuance or renewal.

3. Reapplication: The permittee shall submit a complete application for reissuance of this permit 90 days before this permit expires. The reapplication deadline is March 21, 2008.

4. Source Protection Plan updates are required once every three years from the date the plan is approved.

5 The permittee shall comply with all of the Drinking Water Quality Monitoring Requirements pursuant to the Vermont Water Supply Rule, Chapter 21, Subchapter 21-6 et seq. To the extent that such requirements are not set forth in the aforesaid Rule or corresponding federal regulations, the Water Supply Division of the Vermont Agency of Natural Resources shall notify the permittee by mail of such requirements. Failure to monitor in accordance with the aforesaid requirements shall constitute a violation of this permit.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Christopher Recchia, Commissioner

by: _____
Jay Rutherford, Director
Water Supply Division

As of this 21st day of May, 2002 in Waterbury, Vermont.

JR:RIP:mb

c: WSID 20559
Tim Raymond, WSMS Regional Manager
Jean Nicolai, Compliance and Certification Chief
Dan Wilcox, Regional Engineer, Wastewater Management Division

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER SUPPLY DIVISION
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403
TELEPHONE (802) 241-3400
TOLL FREE in VT (800) 823-6500
FACSIMILE (802) 241-3284

May 21, 2002

Public Water System Permit to Operate

WATER SYSTEM IDENTIFICATION NUMBER: 8332 PIN #: NS75-0006
PERMITTEE: Entergy Nuclear

WATER SYSTEM: Entergy Nuclear Vermont Yankee, LLC - Main Plant
TOWN: Vernon

RESPONSIBLE PERSON: Barbara Williams
ADDRESS: 320 Governor Hunt Rd
PO Box 157
Vernon VT 05354

I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for the Entergy Nuclear Vermont Yankee, LLC - Main Plant Water System. The Department has determined that the operation of this public water system, subject to the following conditions, will not constitute a public health hazard or a significant public health risk; therefore, a permit is hereby issued.

II. Findings and Conclusions

The following findings establish that this system is in compliance with the standards in accordance with 10 VSA, §1675(b), and will not constitute a public health hazard or a significant public health risk:

1. Summary of physical conditions:

A. Date of most recent sanitary survey: 10/31/01

B. Major Findings:

1. Facility Use: Industrial
2. Classification: 2
3. Source: (2) Bedrock Wells - West Well (001)/Southwest Well (002)
4. Number of Connections: 1
5. Population Served: 200

2. Summary of most recent water quality sample results:

A.	Bacteriological	past twelve months	met standards
B.	Cyanide	09/24/98	met standards
C.	IOC	09/04/98	met standards
D.	SOC	02/22/01	met standards
E.	VOC	02/22/01	met standards
F.	Lead/Copper	02/22/01	met standards
G.	Nitrate	02/22/01	met standards
H.	GWUDISW	08/31/98	exempt by application

3. Source Protection Area: The source protection areas for the West and South West Well are 500 foot radius. A source protection plan was submitted on 12/31/01 and additional information has been requested prior to approval.

4. Operator Status: The Main Plant Water System is classified as a Class 2 water system. The primary Class 2 certified operators are Richard Gerdus and Barbara Williams. The operators' certifications are valid until 06/30/04.

5. The Department concludes that this water system is operated in compliance with the standards adopted under 10 VSA, §1671 et seq. and does not constitute a public health hazard or a significant public health risk.

III. General Conditions

1. The person to whom this permit is issued must comply in full with all applicable provisions of 10 VSA, §1671 et seq., the rules adopted thereunder and the Federal Safe Drinking Water Act and subsequent regulations.

2. This permit may be suspended or revoked in accordance with 10 VSA, §1675.

3. This permit is not transferable or assignable and shall automatically become invalid upon a change of ownership of the water system.

IV. Special Conditions

1. This permit shall become effective on the date of sale of the facility from Vermont Yankee Power Corporation to Entergy Nuclear Vermont Yankee, LLC ** and then shall supercede Vermont Yankee - Main System Permit No. NS75-0006, signed January 7, 2002 ** The permittee shall submit to the Department written notification of the sale within 24 hours of the closing date.

2. This permit is valid for Six (6) years from the date of this issuance or renewal.

3. Reapplication: The permittee shall submit a complete application for reissuance of this permit 90 days before this permit expires. The reapplication deadline is March 21, 2008.

4. Source Protection Plan updates are required once every three years from the date the plan is approved.

5. The permittee shall comply with all of the Drinking Water Quality Monitoring Requirements pursuant to the Vermont Water Supply Rule, Chapter 21, Subchapter 21-6 et seq. To the extent that such requirements are not set forth in the aforesaid Rule or corresponding federal regulations, the Water Supply Division of the Vermont Agency of Natural Resources shall notify the permittee by mail of such requirements. Failure to monitor in accordance with the aforesaid requirements shall constitute a violation of this permit.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Christopher Recchia, Commissioner

by: _____
Jay Rutherford, Director
Water Supply Division

As of this 21st day of May, 2002 in Waterbury, Vermont.

JR:RIP:mb

c: WSID 8332
Tim Raymond, WSMS Regional Manager
Jean Nicolai, Compliance and Certification Chief
Dan Wilcox, Regional Engineer, Wastewater Management Division

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER SUPPLY DIVISION
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403
TELEPHONE (802) 241-3400
TOLL FREE in VT (800) 823-6500
FACSIMILE (802) 241-3284

May 21, 2002

Public Water System Permit to Operate

WATER SYSTEM IDENTIFICATION NUMBER: 20738 PIN #: NS75-0006.06

PERMITTEE:	Entergy Nuclear
WATER SYSTEM:	Entergy Nuclear Vermont Yankee, LLC - NEOB
TOWN:	Vernon
RESPONSIBLE PERSON:	Barbara Williams
ADDRESS:	320 Governor Hunt Rd PO Box 157 Vernon VT 05354

I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for the Entergy Nuclear Vermont Yankee, LLC - NEOB Water System. The Department has determined that the operation of this public water system, subject to the following conditions, will not constitute a public health hazard or a significant public health risk; therefore, a permit is hereby issued.

II. Findings and Conclusions

The following findings establish that this system is in compliance with the standards in accordance with 10 VSA, §1675(b), and will not constitute a public health hazard or a significant public health risk:

1. Summary of physical conditions:

A. Date of most recent sanitary survey: 10/31/01

B. Major Findings:

1. Facility Use:	Office Building
2. Classification:	2
3. Source:	(1) Bedrock Well (001)
4. Number of Connections:	1
5. Population Served:	160

2. Summary of most recent water quality sample results:

A.	Bacteriological	past twelve months	met standards
B.	Cyanide	06/17/99	met standards
C.	IOC	04/26/99	met standards
D.	SOC	03/15/00	met standards
E.	VOC	02/26/02	met standards
F.	Lead/Copper	12/18/01	met standards
G.	Nitrate	02/26/02	met standards
H.	GWUDISW	03/02/00	exempt by application

3. Source Protection Area: The source protection areas for the West and South West Well are 500 foot radius. A source protection plan was submitted on 12/31/01 and additional information has been requested prior to approval.

4. Operator Status: The NEOB Water System is classified as a Class 2 water system. The primary Class 2 certified operators are Richard Gerdus and Barbara Williams. The operators' certifications are valid until 06/30/04.

5. The Department concludes that this water system is operated in compliance with the standards adopted under 10 VSA, §1671 et seq. and does not constitute a public health hazard or a significant public health risk.

III. General Conditions

1. The person to whom this permit is issued must comply in full with all applicable provisions of 10 VSA, §1671 et seq., the rules adopted thereunder and the Federal Safe Drinking Water Act and subsequent regulations.

2. This permit may be suspended or revoked in accordance with 10 VSA, §1675.

3. This permit is not transferable or assignable and shall automatically become invalid upon a change of ownership of the water system.

IV. Special Conditions

1. This permit shall become effective on the date of sale of the facility from Vermont Yankee Power Corporation to Entergy Nuclear Vermont Yankee, LLC ** and then shall supercede Vermont Yankee - NEOB Permit No. NS75-0006.06, signed April 26, 1999 ** The permittee shall submit to the Department written notification of the sale within 24 hours of the closing date.

2. This permit is valid for Six (6) years from the date of this issuance or renewal.

3. Reapplication: The permittee shall submit a complete application for reissuance of this permit 90 days before this permit expires. The reapplication deadline is March 21, 2008.

4. Source Protection Plan updates are required once every three years from the date the plan is approved.

5. The permittee shall comply with all of the Drinking Water Quality Monitoring Requirements pursuant to the Vermont Water Supply Rule, Chapter 21, Subchapter 21-6 et seq. To the extent that such requirements are not set forth in the aforesaid Rule or corresponding federal regulations, the Water Supply Division of the Vermont Agency of Natural Resources shall notify the permittee by mail of such requirements. Failure to monitor in accordance with the aforesaid requirements shall constitute a violation of this permit.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Christopher Recchia, Commissioner

by: _____
Jay Rutherford, Director
Water Supply Division

As of this 21st day of May, 2002 in Waterbury, Vermont.

JR:RIP:mb

c: WSID 20738
Tim Raymond, WSMS Regional Manager
Jean Nicolai, Compliance and Certification Chief
Dan Wilcox, Regional Engineer, Wastewater Management Division

State of Vermont

WATER SUPPLY/WASTEWATER DISPOSAL PERMIT
WW-2-1035-1
(PIN#NS95-0006.06)

LAWS/REGULATIONS INVOLVED:
Environmental Protection Rules
Chapter 1 and Chapter 21, Appendix A, Part 11

LANDOWNER: ENTERGY NUCLEAR VERMONT YANKEE, LLC.
ADDRESS: 185 OLD FERRY ROAD
BRATTLEBORO, VT 05301-0500

This project, consisting of the construction of a temporary office building to be connected to the existing water and wastewater systems serving the plant support building, no increase in design flow, located at the Entergy Nuclear Vermont Yankee Power Plant on Governor Hunt Road in Vernon, Vermont is hereby approved under the requirements of the regulations named above subject to the following conditions:

1. The project shall be completed as shown on a plan prepared by John Goodell, P.E., titled: "Temporary Building (sheet 1 of 1)," dated January 22, 2003, latest revision dated January 31, 2003 which has been stamped APPROVED by the Wastewater Management Division. No changes shall be made to the approved plan without prior written approval from the Wastewater Management Division.

2. This project is approved for the following uses and maximum design wastewater flows. No changes to these uses and design sewage flows are allowed without prior written approval from the Division of Wastewater Management.

use	flow (gpd)
Temporary Office Building and existing Public Support Building (PSB) with both buildings having a combined maximum of 160 employees @13.5 gpd/employee	2,160 GPD

3. **This permit shall not be valid for the completed wastewater and water systems until the Secretary receives a signed and dated certification from a Vermont registered professional engineer or the installer that states: "I hereby certify that the installation-related information submitted is true and correct and that in the exercise of my reasonable professional judgment, the wastewater and water systems have been installed in accordance with the permitted design and all permit conditions, were inspected, were properly tested, and have successfully met those performance tests." The wastewater and water systems inspection certification(s) shall be completed prior to occupancy of the project and the inspection certification statement(s) shall be submitted to the Springfield Regional Office and submitted to the municipality for filing within 30 days of the final inspection.**

4. The water system shall be operated at all times in a manner that keeps the water supply free from contamination. Prior to the use of the water system serving the temporary office building, the water shall be sampled and tested by a certified laboratory for biological content and shall be found to meet state drinking water standards. **Results of the water test shall be submitted to the Division of Wastewater Management for review and approval prior to use of the temporary office building water system.**

5. A copy of the approved plans and this permit shall remain on the project during all phases of construction and, upon request, shall be made available for inspection by State or local personnel.

6. All previous permits and Certifications of Compliance issued by Division of Wastewater Management for this project shall remain in full effect except where specifically modified or amended herein.

7. Approval of the wastewater treatment and disposal system to serve this project is given in Indirect Discharge Permit #ID-9-0036-2 signed by Marilyn Davis and dated April 22, 1998. All terms and conditions of that permit shall be complied with.

8. This project has been granted a 10% reduction in design wastewater flow, based on the proposed installation of water saving plumbing fixtures. Accordingly, the plumbing fixtures utilized throughout the project shall comply with the following performance specifications: water closets - 3.5 gallons/flush, maximum; showerheads - 2.0 gpm, maximum; and lavatory/sink faucets (aerators or flow regulators) - 2.0 gpm, maximum. Fixtures complying with such performance standards shall be permanently maintained throughout the project.

9. The Division's issuance of this Permit relies upon the data, designs, judgment and other information supplied by the applicant, his or her professional consultants and other experts who have participated in preparation of the application. The Division makes no assurance that the approved system(s) will meet performance objectives of the applicant and no warranties or guarantees are given or implied.

10. This permit does not relieve you, as applicant, from obtaining all applicable approvals that may be required from the Public Service Board, Indirect Discharge Program, Water Supply Division, Department of Labor and Industry, Department of Health, other State Agencies or the Town prior to construction.

11. This permit shall in no way relieve you of the obligations of Title 10 Chapter 48, Subchapter 4, for the protection of groundwater.

WATER SUPPLY/WASTEWATER DISPOSAL PERMIT #WW-2-1035-1
ENTERGY NUCLEAR VERMONT YANKEE, LLC.
PAGE THREE

12. In the event of a transfer of ownership (partial or whole) of this project, the transferee shall become permittee and subject to compliance with the terms and conditions of this permit.

13. By acceptance of this permit the permittee agrees to allow representatives of the State of Vermont access to the property covered by the permit, at reasonable times, for the purpose of ascertaining compliance with Vermont environmental and health statutes and regulations and with the permit.

14. The conditions of this permit shall run with the land and will be binding upon and enforceable against the permittee and all assigns and successors in interest. The permittee shall be responsible for recording this permit and the NOTICE OF PERMIT RECORDING in the Vernon Land Records within thirty (30) days of receipt of this permit and prior to the conveyance of any lot subject to the jurisdiction of this permit.

CHRISTOPHER RECCHIA, COMMISSIONER
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION

DATE: February 3, 2003

BY Daniel Wilcox
DANIEL WILCOX
REGIONAL ENGINEER

Copies: Vernon Town Planning & Board of Selectmen
John Goodell, P.E.
Susan Hudson, Public Service Board
Department of Labor & Industry
Roger Thompson, Jr., Engineering Manager
John Akielaszek, Indirect Discharge Program
Water Supply Division

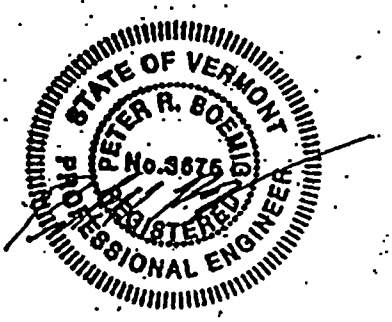
A STUDY OF TRAFFIC

FOR

VERMONT YANKEE NUCLEAR POWER STATION

VERNON, VERMONT

JANUARY 2003



PREPARED BY
SVE ASSOCIATES
PO BOX 1818
BRATTLEBORO, VT 05302-1818

A STUDY OF TRAFFIC
For
VERMONT YANKEE NUCLEAR POWER STATION
VERNON, VT

INTRODUCTION

The purpose of this study is to evaluate the impact to traffic of the proposed modification of generation facilities at the existing site on Governor Hunt Road in Vernon, Vermont. The proposed modifications will increase generating capacity approximately 20% and will not require any changes to the exterior of the plant nor to the general physical layout. No additional permanent employees will be required. Most construction work for this project will take place during a planned refueling outage in the spring of 2004.

The existing access to the Vermont Yankee (VY) facility is through the so-called Gate No. 1 located on Governor Hunt Road. This access is about 0.6 miles south of the north intersection of Governor Hunt Road with Vermont Route No. 142.

METHODOLOGY

Traffic volumes for this study along existing roadways were based upon Vermont Agency of Transportation (VAOT) Automatic Traffic Recorder Station History 1975-2001 and 2000 VAOT (Route Log) annual average daily traffic (AADT). Counts of vehicles at Gate No. 1 in December 2002 and an employee and vehicles count during the last refueling outage were provided. Turning counts conducted at Gate 1 on December 22, 1997 were also utilized.

The project was evaluated for its impact during the refueling outage planned for the spring of 2004. Calculations were based upon "Regression Analysis for Traffic Projection" prepared by VAOT.

Projected traffic generation was based upon the existing counts at VY for an estimated 1700 employees during the next outage. The "Highway Capacity Manual" by Transportation Research Board was used to determine the level of service and capacity.

TRAFFIC VOLUMES

Existing traffic volumes at VY were based upon vehicle counts at Gate No.1 in December 2002 and were found to average 873 average vehicles per day (vpd) Monday through Thursday.

Based upon 2002 VAOT data, traffic volumes along VT Route No.142 are 5,300 vpd north of the facility, and 2600 vpd south of the facility. This includes the current (normal, non-outage) trips to the VY facility.

TRAFFIC VOLUMES (cont.)

The number of employees at the plant is not expected to change as a result of the increased power output. Consequently, traffic to the plant during normal operations (non-outage conditions) is not expected to change significantly. The only expected change in truck traffic will be one additional fuel shipment per 18 months and three additional low-level radioactive waste shipments per year. The outage scheduled for April 2004 will have additional traffic associated with it and therefore an analysis of its impact is conducted.

During the spring 2004 outage at VY there are expected to be 1,500 employees at the site, however for analysis of impacts to local roads during the outage, an estimate of 1,700 employees was used (1500 + 200 contingency). From vehicle and employee counts during the last outage at VY, the trips per day per employee is known and therefore with 1,700 employees, it is calculated that 3,689 vpd will be generated at VY during the next outage. Based on existing counts, this means a total of 2,816 vpd additional over normal operations. Sixty percent of the employees would work a 12 hour shift starting between 5:30 am and 7:30 am and the remaining 40% working a 12 hour shift starting between 5:00 pm and 7:00 pm. During the periods where the two shifts overlap (5:30 am-7:00 am, 5:30 pm-7:00 pm), the peak hourly flow for the additional outage traffic will be 704 vph (vehicles per hour). Based on a turning count conducted Dec 22, 1997 and the morning peak hourly flow (5:30 am-7:00 am), it is expected the additional outage traffic will be distributed as follows: 211 vph leaving VY heading north, 70 vph leaving VY heading south, 317 vph entering VY from the north, and 106 vph entering VY from the south. Similarly, for the evening peak hourly flow (5:30 pm-7:00 pm) it is expected the additional outage traffic will result in 317 vph leaving VY heading north, 106 vph leaving VY heading south, 211 vph entering VY from the north, and 70 vph entering VY from the south.

TRAFFIC PERFORMANCE

Traffic performance, in general, is defined by a qualitative descriptor as level of service (LoS). The level of service describes operational conditions within a traffic stream and their perception by motorists and generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Levels of service range from "A", representing little or no delay, to "F", representing forced or breakdown condition, extreme delay.

The American Association of State Highway and Transportation Officials (AASHTO) states that "collector streets should generally be designed for level-of-service "C" to "D". This is the design standard for VAOT except for urban areas where lower standards may be acceptable in certain cases.

TRAFFIC PERFORMANCE (cont.)

Analysis of Vermont Route No. 142 based upon "Highway Capacity Manual" indicates that the level of service at peak hours during normal condition is at level of service "C". During the outage at peak hour of employee entrance and exit, the traffic south of the facility will be at a "C" LoS. North of the facility LoS would be "D".

SUMMARY

1. The traffic volumes and level of service of the facility during normal operations (non-outage) will not change with the generating capacity upgrade.
2. The level of service would be the same south of VY during the spring 2004 outage. North of VY, at the peak hour of entrance and exit of employees, the level of service would change from "C" to "D".
3. The levels of service are acceptable on Route No. 142 during the outage as well as during normal operations.

APPENDIX I

BACKGROUND DATA

Peter Boemig

From: Thomas, George [gthomas@entergy.com]
Sent: Friday, December 20, 2002 1:14 PM
To: jgoodell@sveassoc.com
Cc: Nichols, Craig; pboemig@sveassoc.com
Subject: VY RFO Traffic Study

Attached is the data for automobiles thru Vermont Yankee Gate #1 and people thru Gate #2 during refueling outage RFO23. Each worker passing through Gate #2 was only counted once during a day. Based upon my analysis, I feel the following parameters are appropriate for the traffic study for RFO24.

Automobiles – 1500 per day (includes 300 additional cars for HP Turbine, Generator Rewind and Feedwater Heater Replacement)
Distribution – 60% days; 40% nights
Time of arrival – 5:30-7:30 am and 5:00-7:00 pm
RFO 24 schedule – April 1-28, 2004

Please review the data; if you agree with the above parameters, authorization is granted to perform the study.

Date	Days	Nights	DAYS	NIGHTS	TOTAL
10-06	442	296	442	296	738
10-07	627	378	627	378	1005
10-08	639	426	639	426	1065
10-09	644	443	644	443	1087
10-10	643	440	643	440	1083
10-11	605	438	605	438	1043
10-12	512	381	512	381	893
10-13	486	411	486	411	897
10-14	594	414	594	414	1008
10-15	559	417	559	417	976
10-16	597	425	597	425	1022
10-17	553	401	553	401	954
10-18	550	398	550	398	948
10-19	487	350	487	350	837
10-20	412	356	412	356	768
10-21	514	357	514	357	871
10-22	486	361	486	361	847
10-23	448	337	448	337	785
10-24	413	304	413	304	717
10-25	365	238	365	238	603
10-26	176	195	176	195	371

Peter Boemig

From: Patrick, John [JPATR90@prod.entergy.com]
Sent: Wednesday, December 18, 2002 4:59 AM
To: Thomas, George
Subject: Vehicles on-site during RFO #23

George

Here is the list of all vehicles that entered Gate # 1 during RFO #23. Let me know if this is what you needed.

Date	Number
10-05	800
10-06	780
10-07	1100
10-08	1100
10-09	800
10-10	1200
10-11	1020
10-12	900
10-13	880
10-14	1080
10-15	1040
10-16	1060
10-17	980
10-18	880
10-19	840
10-20	840
10-21	1000
10-22	1040
10-23	880
10-24	780
10-25	680
10-26	340

Total number for the outage was 20,020
Average number per day was 910

Peter Boemig

From: Patrick, John [JPATR90@prod.entergy.com]
Sent: Monday, December 16, 2002 7:09 AM
To: Thomas, George
Subject: Personnel on site for RFO #23

George

I was able to find the break down between days and nights of people on site during the Outage. If you have any questions please give me a call.

Date	Days	Nights
10-06	442	296
10-07	627	378
10-08	639	426
10-09	644	443
10-10	643	440
10-11	605	438
10-12	512	381
10-13	486	411
10-14	594	414
10-15	559	417
10-16	597	425
10-17	553	401
10-18	550	398
10-19	487	350
10-20	412	356
10-21	514	357
10-22	486	361
10-23	448	337
10-24	413	304
10-25	365	238
10-26	176	195

Peter Boemig

From: Thomas, George [gthomas@entergy.com]
Sent: Tuesday, January 14, 2003 12:23 PM
To: John Goodell
Cc: pboemig@sveassoc.com
Subject: VY Truck Traffic

In response to your request on truck traffic the following is provided:

As a result of Power Uprate, there will be one (1) additional fuel truck shipment per 18 month operating cycle and three additional low level radioactive waste shipments per year. The number of truck deliveries per day during the April 2004 refueling outage (RFO 24) is estimated at fifteen (15).

NON - OUTAGE DATA (DEC 02)

EXHIBIT EN-SAS-18
PAGE 11 OF 27

John Goodell

From: Thomas, George [gthomas@entergy.com]
Sent: Friday, January 03, 2003 11:37 AM
To: jgoodell@sveassoc.com
Subject: FW: vehicles at gate #1

This is in response to your request for vehicles and people.

-----Original Message-----
From: Patrick, John
Sent: Friday, January 03, 2003 10:08 AM
To: Thomas, George
Subject: vehicles at gate #1

George

Total number of ID badges at Gate #2 is 849 as of this date.

See attached for dec 02.

GEORGE THOMAS : 451-3072

VEHICLES TO VERMONT YANKEE SITE DURING DECEMBER.

	1-Dec	80
		400
		420 2
		400 3
		500 4
		320
		80
		80
		440 9
		420 6
		440 7
		420 8
		160
		80
		80
		460 1
		480 10
		420 11
		440 12
		280
		80
		60
		360
		120
		40
		160
		160
		80
		60
		400
	31-Dec	320
total		8240 / 31 = 266

Run Date: 2003/01/09

Vermont Agency of Transportation
Technical Services Division
Traffic Research Unit
Special Count - Volume
2000

Site ID: S6X167 — Town: Brattleboro — Final AADT: 3400
Functional Class: URBAN:MINOR ARTERIAL — Count Type: VOLUME — Route No: VT142
Location: Brattleboro: VT142 Vernon St — Counter Type: Tube

Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	Total	Daily Factor	MADT	ACF	Adj. Vol.
2000/09/16 Fri																242	195	196	148	117	83	60	51	31	1123	0.85	1.01	0.98	970
2000/09/16 Sat	17	19	11	11	15	37	62	87	102	124	132	133	160	110	124	120	127	104	112	85	80	53	60	30	1905	1.09	1.01	0.98	2271
2000/09/17 Sun	20	7	7	5	7	28	43	63	74	94	126	107	122	102	115	121	149	123	128	92	50	37	30	21	1679	1.36	1.01	0.98	2237
2000/09/18 Mon	6	4	9	14	26	118	242	270	331	236	277	282	339	300	318	404	427	200	142	106	75	55	52	19	4254	0.96	1.01	0.98	4009
2000/09/19 Tue	13	7	19	17	27	132	243	373	360	272	248	277	303	282	317	427	287	209	150	120	78	64	37	25	4286	0.97	1.01	0.98	4088
2000/09/20 Wed	16	21	17	11	33	128	252	223	295	279	287	276	329	321	320	405	437	219	184	154	80	57	39	22	4408	0.96	1.01	0.98	4175
2000/09/21 Thu	12	3	17	16	31	129	242	237	331	261	249	289	360	309	359	352	362	190	151	140	85	76	34	26	4260	0.94	1.01	0.98	3918
2000/09/22 Fri	25	13	19	19	21	96	208	248	304	276	274	305	290	237	259										2502	0.89	1.01	0.98	2256
Average:	17	11	14	13	23	96	184	212	257	221	228	239	272	237	259	296	283	184	145	116	78	57	42	25					

	Sun *	Mon *	Tue *	Wed *	Thu *	Fri *	Sat *	Weekday	Weekend	All Days**
Hours Averaged:	24	24	24	24	24	24	24	120	48	168
Average Volume:	1679	4254	4286	4409	4260	3715	1905	4185	1907	3305

Average Peak Volume:
AM Peak***: 333
PM Peak***: 413

Preliminary AADT: 3400
Pell Site: P6X015
Pell Group: Urban

* Averaging by hour(0-23), then by day of week (Sun-Sat)
** Adjusted Average Day equals 5/7 * Avg Weekday + 2/7 * Avg Weekend Day
*** AM, PM Peak Average Volumes are only from the weekday days

Post-it® Fax Note 7671		Date 1/9/03	# of pages ▶ 1
To PETER BOENIG		From Bill Parkhurst	
Co./Dept. SVE		Co. VT Rens	
Phone #		Phone # 828-3667	
Fax # 257-0721		Fax #	

EXHIBIT EN-SAS-18
PAGE 13 OF 27

2000 (ROUTE LOG) AADT
VAOT

ROUTE 142

LOCATION		LOCATION		COUNTER	AADT
0.00	Mass. State Line	0.80	Lily Pond Road	x 147	1,200 A
0.80	Lily Pond Road	3.92	Lily Pond Road	x 376	1,500 E
3.92	Lily Pond Road	4.27	Gov. Hunt Road		2,500 E
4.27	Gov. Hunt Road	5.40	Gov. Hunt Road	x 374	3,200 A
5.40	Gov. Hunt Road	5.67	Tyler Hill Road		5,300 E
5.67	Tyler Hill Road	8.34	Broad Brook Road	x372	4,500 E
8.34	Broad Brook Road	8.70	Brattleboro Town line	x077	4,500 E
0.00	Vernon Town Line	0.69	Cotton Mill Hill		4,500 E
0.69	Cotton Mill Hill	1.78	Morningside Road	x168	2,200A
1.78	Morningside Road	2.16	Bridge Street	x167	3,400A
2.16	Bridge Street	2.17	VT 119 (US 5)		13,600 E

AADT – Average Annual Daily Traffic
VAOT – Vermont Agency of Transportation
Counter – Automatic Traffic Recorder Station
Location – Intersecting roadway, reference point and mile marker
A – Actual tube count conducted
E – Estimated based on traffic data in adjacent traffic sections

APPENDIX II

ANALYSIS

EXISTING TRAFFIC AT VY

Dec 2002

Weekday Average (Mon – Thurs) 5240 Vehicles / 12 Days = 437 Vehicles x 2 trips (entrance + exit) = 873 vpd

Peak Hour of Adjacent Street from ITE (110) General Light Industrial
(ITE – Institute of Transportation Engineers "Trip Generation" 6th Edn)

AM = .44 Peak Hour Adj Street A.M. = .146 = 127 vph (83% enter = 105 vph)
3.02 Average Vehicle Trips (17% Exit = 22 vph)

PM = .42 Peak Hour Adj Street P.M. = .139 = 121 vph (21% enter = 25 vph)
3.02 Average Vehicle Trips (79% exit = 96 vph)

Direction of cars exiting @ Gate No. 1 (Dec 22, 1997)

151 North = 75%
50 South = 25%

EXISTING CONDITIONS – DESIGN HOUR

AM	Enter from North	= 79 vph
	Enter from South	= 26 vph
	Exit to North	= 17 vph
	Exit to South	= 6 vph
PM	Enter from North	= 19 vph
	Enter from South	= 6 vph
	Exit to North	= 72 vph
	Exit to South	= 24 vph

Vph – vehicles per hour

Vpd – Vehicles per day

OUTAGE TRAFFIC

Outage October 2002 (RFO # 23)

Average number of vehicles enter Gate No. 1 = $\frac{19000 \text{ vehicles}}{19 \text{days}}$ = 1000 vehicles x 2 trips each vehicle (entering, exiting) = 2000 vpd

Average number of employees entering Gate No. 2 = $\frac{17544 \text{ employees}}{19 \text{days}}$ = 923 employees/day:

$\frac{2000 \text{ vpd}}{923 \text{ employees/day}}$ = 2.17 vpe

Peak Day (October 10, 2002) = $\frac{1200 \text{ vehicles x 2trips/day}}{1083 \text{employees}}$ = 2.21 vpe

2004 Outage Traffic (RFO #24)

1700 employee x 2.17 vpe = 3689 vpd

Time of Arrival – AM = 5:30 - 7:30 AM (60%)
PM = 5:00 - 7:00 PM (40%)

Note: Time of arrival not during peak AM OR PM hours.

ADDITIONAL TRAFFIC WITH OUTAGE

3689 – 873 = 2816 vpd
60% AM = 1690 vpd; 40% PM = 1126 vpd
- 423 vph (845 vpd) arrive between 5:30 and 7:30 AM
- 423 vph (845 vpd) exit between 5:30 and 7:30 PM
- 281 vph (563 vpd) arrive between 5:00 and 7:00 PM
- 281 vph (563 vpd) exit between 5:00 and 7:00 PM

EXISTING TRAFFIC

Gov. Hunt Rd. to Tyler Hill Rd. = 5300 vpd (North)

Based upon counts @ VAOT x 167
AM Hour 6:30 to 7:30 = 5.6% of daily traffic
= 297 vph existing
(Northbound 60% = 178, southbound 40% = 119)
PM Hour 5:00 to 6:00 = 5.2% of daily traffic
= 276 vph
(Northbound 40% = 110, Southbound 60% = 166)

Gov. Hunt Rd. to Pond Rd. = 2600 vpd (South)
AM Hour 6:30 to 7:30 = 146 vph
Northbound 60% = 88, Southbound 40% = 58)
PM Hour 5:00 to 6:00 = 135 vph
(Northbound 40% = 54, Southbound =60% = 81)

OUTAGE TRAFFIC

Gov. Hunt Rd. to Tyler Hill Rd. (75% of Traffic)

AM Hour 6:30 to 7:30 = 317 vph Southbound
= 211 vph Northbound

PM Hour 5:00 to 6:00 = 211 vph Southbound
= 317 vph Northbound

Gov. Hunt Rd. to Pond Rd.

AM Hour 6:30 to 7:30 = 70 vph Southbound
= 106 vph Northbound

PM Hour 5:00 to 6:00 = 106 vph Southbound
70 vph Northbound

ROUTE 142 – NORTH OF FACILITY @ OUTAGE

AM Traffic – Northbound (178 + 211) = 389 vph (47%)
Southbound (119 + 317) = 436 vph (53%)
825 vph

PM Traffic – Northbound (110 + 317) = 427 vph (53%)
Southbound (166 + 211) = 377 vph (47%)
804 vph

ROUTE 142 – SOUTH OF FACILITY @ OUTAGE

AM Traffic – Northbound (88 + 106) = 194 vph (60%)
Southbound (58 + 70) = 128 vph (40%)
322 vph

PM Traffic – Northbound (54 + 70) = 124 vph (40%)
Southbound (81 + 106) = 187 vph (60%)
311 vph

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... VT. ROUTE 142-NORTH OF VY
ANALYST..... PRB
TIME OF ANALYSIS..... PM
DATE OF ANALYSIS..... 01-16-2003
OTHER INFORMATION.... AM NORTH OF VERMONT YANKEE WITH OUTAGE TRAFFIC

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS	2
PERCENTAGE OF BUSES	0
PERCENTAGE OF RECREATIONAL VEHICLES	0
DESIGN SPEED (MPH)	50
PEAK HOUR FACTOR	1
DIRECTIONAL DISTRIBUTION (UP/DOWN)	53 / 47
LANE WIDTH (FT)	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)	3
PERCENT NO PASSING ZONES	80

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.8	.98	.94
B	5	3.4	3.9	.8	.98	.93
C	5	3.4	3.9	.8	.98	.93
D	5	2.9	3.3	.8	.98	.93
E	5	2.9	3.3	.9	.98	.93

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 825
ACTUAL FLOW RATE: 825

LOS	SERVICE FLOW RATE	V/C
A	83	.04
B	306	.15
C	611	.3
D	937	.46
E	2062	.9

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... VT. ROUTE 142-NORTH OF VY
ANALYST..... PRB
TIME OF ANALYSIS..... PM
DATE OF ANALYSIS..... 01-16-2003
OTHER INFORMATION.... PM NORTH OF VERMONT YANKEE WITH OUTAGE TRAFFIC

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	4
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	53 / 47
LANE WIDTH (FT).....	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	3
PERCENT NO PASSING ZONES.....	80

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.8	.98	.89
B	5	3.4	3.9	.8	.98	.86
C	5	3.4	3.9	.8	.98	.86
D	5	2.9	3.3	.8	.98	.86
E	5	2.9	3.3	.9	.98	.86

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 804
ACTUAL FLOW RATE: 804

LOS	SERVICE FLOW RATE	V/C
A	79	.04
B	284	.15
C	569	.3
D	872	.46
E	1920	.9

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... T. ROUTE 142-SOUTH OF VY
ANALYST..... PRB
TIME OF ANALYSIS..... AM
DATE OF ANALYSIS..... 01-16-2003
OTHER INFORMATION.... AM SOUTH OF VERMONT YANKEE WITH OUTAGE TRAFFIC

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS	2
PERCENTAGE OF BUSES	0
PERCENTAGE OF RECREATIONAL VEHICLES	0
DESIGN SPEED (MPH)	50
PEAK HOUR FACTOR	1
DIRECTIONAL DISTRIBUTION (UP/DOWN)	60 / 40
LANE WIDTH (FT)	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)	3
PERCENT NO PASSING ZONES	90

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.8	.94	.94
B	5	3.4	3.9	.8	.94	.93
C	5	3.4	3.9	.8	.94	.93
D	5	2.9	3.3	.8	.94	.93
E	5	2.9	3.3	.9	.94	.93

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 322
ACTUAL FLOW RATE: 322

LOS	SERVICE FLOW RATE	V/C
A	79	.04
B	292	.15
C	585	.3
D	897	.46
E	1974	.9

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... T. ROUTE 142-SOUTH OF VY
ANALYST..... PRB
TIME OF ANALYSIS..... AM
DATE OF ANALYSIS..... 01-16-2003
OTHER INFORMATION.... PM SOUTH OF VERMONT YANKEE WITH OUTAGE TRAFFIC

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS	4
PERCENTAGE OF BUSES	0
PERCENTAGE OF RECREATIONAL VEHICLES	0
DESIGN SPEED (MPH)	50
PEAK HOUR FACTOR	1
DIRECTIONAL DISTRIBUTION (UP/DOWN)	60 / 40
LANE WIDTH (FT)	11
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)	3
PERCENT NO PASSING ZONES	90

B) CORRECTION FACTORS

ROLLING TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	4	3	3.2	.8	.94	.89
B	5	3.4	3.9	.8	.94	.86
C	5	3.4	3.9	.8	.94	.86
D	5	2.9	3.3	.8	.94	.86
E	5	2.9	3.3	.9	.94	.86

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 311
ACTUAL FLOW RATE: 311

LOS	SERVICE FLOW RATE	V/C
A	75	.04
B	272	.15
C	545	.3
D	835	.46
E	1838	.9

LOS FOR GIVEN CONDITIONS: C

1-0561-1

545

STATE OF VERMONT

AGENCY OF COMMERCE AND COMMUNITY DEVELOPMENT

DEPARTMENT OF HOUSING & COMMUNITY AFFAIRS

Divisions for:
- Community Development
- Historic Preservation
- Housing
- Planning

National Life Office Building
Drawer 20
Montpelier, VT
05620-0501

Telephone:
802-828-3211
800-622-4553

Fax:
802-828-3928

Historic Preservation Fax:
802-828-3206

February 4, 2003

RECEIVED
FEB 10 2003
JOHNSON CO. INC.
MONTPELIER, VT

Sonja A. Schuyler, Senior Scientist
The Johnson Company, Inc.
100 State Street
Montpelier, Vermont 05602

Re: Proposed Power Uprate, Entergy Nuclear Vermont Yankee, Vernon, Vermont. NRC. Act 250.

Dear Ms. Schuyler:

Thank you for the opportunity to comment on the above project having Nuclear Regulatory Commission involvement (DHP #WD03-001). We understand that you are also seeking an amendment to an Act 250 permit. Public Service Board approval based on the Act 250 criteria.

The Division for Historic Preservation has reviewed this proposed undertaking pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of identifying the project's potential impacts to historic buildings and structures, historic districts, historic landscapes and settings, and to known or potential archeological resources. The Division also has reviewed this proposed undertaking for purposes of Criterion 8, 10 V.S.A., Chapter 151 (Act 250). The purpose of the Division's review is to provide the Environmental District Commission with the information necessary for them to make a positive finding under the "historic sites" aspect of Criterion 8. For further information regarding the Division's Act 250 rules, please see our website at www.dhca.state.vt.us/DHP/general/rules.html. While these rules impose no obligation on any Act 250 applicant, providing insufficient information to the District Commission with an initial application may result in the project being delayed if the Commission determines they cannot make a positive finding under Criterion 8 without comments from the Division.

The proposed project involves increasing the power output at the Entergy Nuclear Vermont

area will not likely yield information important to prehistory as the site has been previously disturbed. In addition, because construction of the power plant began in 1967, Vermont Yankee is less than fifty years old and thus not eligible for listing in the National Register of Historic Places. Therefore, it is our opinion that no historic resources will be affected by the proposed project.

If you have any questions or need clarification regarding any of the above, please do not hesitate to contact Judith W. Ehrlich, Environmental Review Coordinator, at (802) 828-3049.

Sincerely,
VERMONT DIVISION FOR HISTORIC PRESERVATION

Judith W. Ehrlich

for Emily Wadhams
State Historic Preservation Officer

1-0561-1

EXHIBIT EN-SAS-20

State of Vermont

AGENCY OF NATURAL RESOURCES

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation

DEPARTMENT OF FISH AND WILDLIFE
103 South Main Street, 10 South
Waterbury, Vermont 05671-0501

Tel.: (802) 241-3700
TDD: 1-800-253-0191
Nongame & Natural Heritage Program

3 January 2003

Sonja Schuyler
The Johnson Company
100 State Street
Montpelier, VT 05602

Re: Vermont Yankee power uprate
JCO # 1-0561-1(058)

Dear Sonja:

Everett Marshall asked that I respond to your request for our review of the above-referenced project. We do not anticipate impacts to the known rare plants downstream as a result of the proposed increase in power output.

Please contact District Fisheries Biologists Ken Cox (885-8828) and Jay McMenemy (885-8829) for consultation on potential fisheries impacts.

Thank you for consulting with the Vermont Department of Fish and Wildlife's Nongame and Natural Heritage Program. Please let us know if we can be of further assistance or for review of changes to the proposal.

Sincerely,

Jodi Shippee
Nongame Wildlife Technician/ Database Assistant
Tel: 802-241-4230
Email: jodi@fwd.anr.state.vt.us

cc: Everett Marshall, Biologist/Data Manager; Ken Cox, Fisheries Biologist; Jay McMenemy, Fisheries Biologist

Vermont Nongame and Natural Heritage Program
Vermont Department of Fish and Wildlife
Vernon Dam Site Listings
Generated by E. Marshall 1-06-03

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status	Last Seen
***** below dam - 1st dot**						
Scirpus purshianus	Pursh's bulrush	G4G5	S2S3			1991
Mimulus moschatus	Musk flower	G4G5	S2S3			1987
***** above dam - 2nd dot north of**						
Juncus acuminatus	Tapering rush	G5	S1			1968
***** below dam - 2nd dot - 0.3 miles south of**						
Eleocharis intermedia	Matted spikerush	G5	S2S3			1984
***** drainage north of dam**						
Stellaria alsine	Trailing stitchwort	G5	S1			1984
***** above dam - 1st dot north of**						
Hypericum ascyron	Great st. john's-wort	G4	S2	T		1987
Zannichellia palustris	Horned pondweed	G5	S1			1982
Elatine minima	Small water-wort	G5	S1			1982
Tillaea aquatica	Pygmyweed	G5	S2			1982
Eragrostis frankii	Frank's love-grass	G5	S2S3			1982
***** below dam**						
Silver maple-ostrich fern riverine floodplain forest			S3			1997
***** above and below the dam**						
Polygonatum biflorum var commutatum	Giant solomon's seal	G5T5	S1			2001

EXHIBIT EN-SAS-22

Mailing Address:
National Life Records Center
Drawer 20
Montpelier, VT 05620-3201

Location:
National Life Records Center Building
Montpelier, Vermont

State of Vermont
Water Resources Board

Tel: (802) 828-3309

January 7, 2003

Sonja A. Schuyler
THE JOHNSON COMPANY
100 State Street
Montpelier, VT 05602

Dear Sonia:

RE: Entergy Nuclear Vermont Yankee - Power Uprate
JCO #1-0561-1(058)

The project described in your letter to me dated January 2, 2003, is not located on or anywhere near a body of water designated as an outstanding resource waters by the Vermont Water Resources Board (10 V.S.A. § 1424a). No portion of the Connecticut River has in fact been so designated by this Board. Please let me know if I can be of any further assistance in this matter.

Sincerely,

Jon Groveman
Executive Officer

cc: Public Service Board
Department of Public Service
Department of Environmental Conservation, c/o Wally McLean

EXHIBIT EN-SAS-23

STATE OF VERMONT

DEPARTMENT OF AGRICULTURE, FOOD & MARKETS

RECEIVED
JAN - 3 2003
JOHNSON CO. INC.
MONTPELIER, VT

Sonja Schuyler
The Johnson Company, Inc.
100 State Street
Montpelier, VT 05602
31 December 2002

Re: Entergy Nuclear Vermont Yankee, Vernon
Act 250- criterion 9(B): Primary agricultural soils assessment

Thank you for your December 30th letter addressed to Chris White. I am responding since I took over this position nearly three years ago.

If, as you indicate, the Power Uprate will have no impact on primary agricultural soils either beyond the existing building footprint or an increased in the paved areas there is so significant impact to the total primary agricultural soils on the site and the Department has no objection.

As you know, any final determination of Act 250 9(B) issues is left to the local commission. However, please feel free to include this letter as an attachment to any filings you make with regard to this specific project. My telephone number, if you have additional questions, is 802-828-5434.

Sincerely,

Marian White
Policy Analyst

Cc: April Hensel, District 2 Coordinator

SEAL OF QUALITY Vermont DEPT. OF AGRICULTURE

116 STATE STREET
DRAWER 20
MONTPELIER, VT 05620-2901