# ENVIRONMENTAL CORRESPONDENCE

## **REVIEW AND APPROVAL VERIFICATION**

--- For Internal VY Use Only!---

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May 11, 2005

Ms. Ashley J. Lucht Environmental Analyst Agency of Natural Resources Department of Environmental Conservation The Old Pantry Building 103 South Main Street Waterbury, VT 05671-0403

Dear Ms. Lucht,

Enclosed are the Source Water Protection Plans for Entergy Nuclear Northeast, Vermont Yankee's three systems located in Vernon, VT. These systems are: the Main System WSID #8332, the COB System WSID# 20559 and the NEOB System WSID #20738. In addition to the plans, please find a check in the amount of \$70.00, for each of the three systems, totaling to \$210.00.

These plans were prepared by Entergy Nuclear Northeast, Vermont Yankee utilizing the Protecting the Public Water Source in Vermont, A Guidance Document in Reference to Section 1428 of the Federal Safe Drinking Water Act; 10 VSA, Chapter 56; and Vermont's Water Supply Rule.

If you have any questions concerning the information contained in this submittal, please contact me at <u>isciuto@entergy.com</u> or (802) 258-5525.

Sincerely

J.L. Sciuto Environmental Specialist

Sam Wender Chemistry Superintendant

State of Vermont Agency of Natural Resources Department of Environmental Conservation Water Supply Division INVOICE FOR PERMIT TO OPERATE FEE

April 1, 2005

JULIE HAYWARD NEOB-VERMONT YANKEE PO BOX 157 320 GOVERNOR HUNT RD VERNON VT 05354

INVOICE # 0020654

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WSID : 20738 NEOB-Vermont Yankee Billing Period : 1/01/05 To 12/31/05

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Amount Due = Minimum Fee of: \$70.00

Payment Due Within 30 Days.

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Please Make Check Payable To Treasurer, State of Vermont, And Remit To :

Water Supply Division ATTN: Laura LaFleur The Old Pantry Building 103 South Main Street Waterbury, VT-05671-0403

If you have any questions, please call us at (800) 823-6500.

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### State of Vermont Agency of Natural Resources Department of Environmental Conservation Water Supply Division INVOICE FOR PERMIT TO OPERATE FEE April 1, 2005

JULIE HAYWARD VERMONT YANKEE PLANT - MAIN PO BOX 157 320 GOVERNOR HUNT RD VERNON VT 05354

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WSID : 8332 Vermont Yankee Plant - Main ... Billing Period : 1/01/05 To 12/31/05 INVOICE # 0020582

Amount Due = Minimum Fee of: \$70.00

Payment Due Within 30 Days.

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Please Make Check Payable To Treasurer, State of Vermont, And Remit To : Water Supply Division ATTN: Laura LaFlevr The Old Pantry Building 103 South Main Street Waterbury, VT 05671-0403

If you have any questions, please call us at (800) 823-6500.

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### State of Vermont Agency of Natural Resources Department of Environmental Conservation Water Supply Division INVOICE FOR PERMIT TO OPERATE FEE

April 1, 2005

JULIE HAYWARD VERMONT YANKEE COB SYSTEM PO BOX 157 320 GOVERNOR HUNT RD VERNON VT 05354

WSID : 20559 Vermont Yankee Cob System

Billing Period : 1/01/05 To 12/31/05

INVOICE # 0020636

Amount Due = Minimum Fee of: \$70.00

\_\_\_\_\_ Payment Due Within 30 Days.

Please Make Check Payable To Treasurer, State of Vermont, And Remit To : Water Supply Division ATTN: Laura LaFleur The Old Pantry Building 103 South Main Street Waterbury, VT 05671-0403

If you have any questions, please call us at (800) 823-6500.

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Status Update for Milestones Due for Required Public Water System Improvements Water System Name: Vermont Yankee Plant - Main WSID #: 8332

The following milestones are listed as past due:

None

Milestones coming due:

05/23/2005 Source protection plan - update and subm Completed?: Yes/No Date:\_\_\_\_\_ Comments: Will Be Rourded WIT 5/33/05

I hereby certify, to the best of my knowledge that the information provided above is true and accurate.

ENVIRONMONTAL SPOCIALIST

Te

ature (owner or legally designated Responsible person) ENTERCY VERMANT YANKEE

JOSEPH L. SCIUTO

Print Name

Title

5/5/05

Ashley. Pilease frivard their to Ellen E. Par Doesing per her request, Thank your

# **Source Water Protection Plan**

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

**Revision 2** 

## Table of Contents

- 1.0 Introduction
- 2.0 Potential Sources of Contamination
  - 2.1 Existing Land Uses and Potential Sources for Contamination
  - 2.2 Potential Sources of Contamination
- 3.0 Assessment of Threats
- 4.0 Management of Risks
- 5.0 Contingency Plan
  - 5.1 Emergency Response
  - 5.2 Short Term Contingency Options
  - 5.3 Long Term Contingency Options
  - 5.4 Water System Shut Down and Start up Procedures

### List of Tables

Table 1Potential Sources of Contamination – Risk Evaluation

### List of Figures

- Figure 1 Source Protection Area
- Figure 2 Detailed Source Protection Area including Potential Sources of Contamination
- Figure 3\* Vermont Yankee Site Map
- Figure 4\* Vermont Yankee Groundwater Contour Map-May 2001

## List of Appendices

Appendix A Well Completion Reports

\* Figures 3 & 4 are on the same map.

### 1.0 Introduction

This Source Water Protection Plan (SPP) was prepared for the COB well system (WSID #20559) at Entergy Nuclear Northeast, Vermont Yankee in Vernon, Vermont. This system consists of one drilled bedrock well. The purpose of this SPP is to protect the water quality of this well by identifying and managing the potential sources of contamination and threatening activities that occur within the source protection area. This document has been prepared in accordance with the Vermont Water Supply Rule, Chapter 21, and follows the outline prepared in the publication entitled "Protecting Public Water Sources in Vermont" dated February 24, 1997.

The COB well is located on the southeast side of Vermont Yankee's property off of Governor Hunt Road in Vernon Vermont. (See Figures 1 & 2). According to the well completion report (WR # 214), the well was drilled in December 1984 by Morrison-Knudson Inc. The well is 362 feet deep and has 80 feet of steel casing. The well yield is 12 gallons per minute. Copies of the well completion reports are in Appendix A.

The source protection area (SPA) for the COB well consists of a circular area within a 500-foot radius of the well (Figure 1). The SPA was determined to be 500-feet based on the maximum average daily demand for the well system, as listed in the Water Supply Division Guidance Document. The SPA consists of two "zones". Zone 1 consists of an isolation zone consisting of a circular area within a 200-foot radius around the well where impacts are likely to be immediate and certain. Zone 2 consists of the remaining areas of the SPA, and is considered the primary area of contribution to the well. In this area there will be probable impacts from potential sources of contamination.

### 2.0 Potential Sources of Contamination

### 2.1 Existing Land Uses and Potential Sources of Contamination

The current land uses observed within the SPA consist of air conditioning units, office building, reactor and turbine buildings, chemical storage tanks, site access roads, transformers, a former UST site SMS #99-2617, fuel oil storage tanks, leachfields and industrial water storage tanks. There are railroad tracks within the SPA for this well. These paved railroad tracks are infrequently used and require no herbicide treatment. Vermont Yankee owns all of the land within the zones of the COB system well. See Figure #2.

## 2.2 **Potential Sources of Contamination**

An inventory of the potential sources of contamination (PSOC) is presented in Table 1. The locations of these PSOCs are presented on Figure 2. Due to the scale of the map, in cases where more than one PSOC exists on a parcel they will be grouped under one designation.

Land Use/PSOC	Contamin	Zon	e 1	Zone	2	Risk	Evalua	tion
	-ation ID #	Yes	No	Yes	No	High	Med	Low
A/C Units	. 1	X		X		X		
Office Building	2	X		X		X		
Reactor & Turbine Buildings	3	X		X		X		
Chemical Storage Tanks	.4	X		X		X		
Roads & Railroad tracks	5	X		X		X		
Transformers*	6	X		X		X	_	
SMS Site 99-2617	7		X	X				X
Fuel Oil Tanks	8		Х	X				Х
Leachfields	9	X		X		X		
Water Storage Tanks	10			X				X

## Table 1 Potential Sources on Contamination- Risk Evaluation

\* Refer to Section 3.0 for an Explanation of Contamination item #6.

## 3.0 Assessment of Threats

## Air Conditioning Units-(Contamination ID #1)

The air conditioning units are well maintained per the plant preventive maintenance program. Due to this and the depth of the well the risk associated with these is considered to be low, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

## Office Building, Reactor and Turbine Buildings-(Contamination ID #2,3)

Due to the chemical control and hazardous waste programs which control chemical storage and disposal these structures and the activities occurring

within them are not considered a significant risk to the well, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### Chemical Storage Tanks-(Contamination ID #4):

Chemical tanks at the intake structure are bermed tanks downgradient of the drinking water well and pose a low risk for contamination. There also exits a bermed liquid nitrogen tank, which is on the same gradient as the drinking water well. This tank also poses a low risk for well contamination. However, in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### Site Access Roads & Railroad Tracks-(Contamination ID #5)

There are plant maintained roads and railroad tracks within the 200-foot radius zone 1 areas of the COB well. The paved railroad tracks are infrequently used and require no herbicide treatment. The roadways are considered a potential source of contamination due to the application of road salt, which could cause elevated levels of sodium and chloride in the well. In addition, there is also a potential for a spill or leaks of petroleum products from vehicles in the parking areas or as they transverse the roadways. Due to an extensive storm drain system the threat to the well is deemed to be low risk. However, the road salt, which is typically mixed with sand prior to application represents a moderate risk to the wells, this again is due to depth of the well being 362 feet deep, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### Transformer-(Contamination ID #6)

There are currently two spare transformers stored on-site. The GE transformer is located on a concrete pad north of the main septic system (see figure #2). The Peebles transformer is located north of the PSB building. All transformers on site have non-PCB dielectric fluid. Neither are staged within the proximity of this well.

### SMS Site #99-2617-(Contamination ID #7)

Vermont Yankee SMS Site 99-2617 contains petroleum by-products and chlorinated solvents, (tetrachloroethene [PCE] and its breakdown products). Aggressive groundwater remediation is not being performed on these wells due to the concentrations of contaminants being at a low level. Thus this site poses a low risk to the drinking water wells due to the low levels of contaminants, being downgradient from the wells and the depth of the drinking water wells.

### Fuel Oil Tanks-(Contamination ID #8)

All fuel oil tanks on site have a double walled construction, with leak and overfill protection systems. Therefore these are characterized as low risk to the water supplies.

#### On-Site Septic Systems-(Contamination ID #9):

Septic systems represent potential sources of nitrates, chlorides, other inorganic compounds, bacteria, viruses and radionuclide contamination. In addition, if improperly used, such as for the disposal of paints, solvents, petroleum products and other hazardous wastes, they could also be a source of organic compounds as well. At Vermont Yankee the chemical control and hazardous waste programs prohibits the disposal of chemical in a manner inconsistent with the manufacturers Material Safety Data Sheet (MSDS).

The wells at Vermont Yankee are topographically upgradient from the septic systems. The well depths are also very deep in the groundwater table. Groundwater flow is in the direction of the river. Therefore this is considered as a low risk to contaminate the water supplies, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### Industrial Water Storage Tanks-(Contamination ID #10):

Plant industrial water storage tanks are bermed tanks that are adequately maintained. These pose a low risk for contamination, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### 4.0 Management of Risk

In order to reduce the potential risk of contamination to the drinking water supply wells at Vermont Yankee, Vermont Yankee will perform an annual inspection of the SPA to confirm that the company is following the best management practices and identify any changes in and uses or property owners. Once every three years updates indicating any changes in land uses/PSOC's will be submitted to the Water Supply Division. The updates may simply consist of a letter, which describes any changes to the original SPP, or a letter stating there have been no changes.

## 5.0 Contingency Plan

. . .

This contingency plan outlines the steps that may be taken by Vermont Yankee in the event a well becomes contaminated, or there is a significant reduction in yield, or if there are mechanical problems.

### 5.1 Emergency Response

If an emergency exists such as a spill or other contamination event occurs within the SPA, or if a regulated compound is found above the acceptable levels during a routine sampling event, Vermont Yankee may notify the following people/agencies:

Water System Operators Lynn DeWald Richard Gerdus	(802) 258-5526 (802) 258-5501
Chemistry Superintendent Samuel A. Wender IV	(802) 258-5650

Vermont Yankee Shift Supervisor (802) 258-5270 The Shift Supervisor is responsible for 24-hour plant operations and would be able to contact appropriate maintenance personnel.

Vermont Yankee Hazardous Materials Coordinator	
Peter Prince	(802) 258-5476
Vermont DEC, Water Supply Division	(800) 823-6500 or (802) 241-3400
Vermont DEC, Hazardous Materials Spill Hotline	(800) 641-5005
Spin Hounte	(000) 04 1-0000
Vermont Department of Health	(800) 439-8550

Notification of Water System Users

If the Vermont Yankee water supply should become contaminated, one or more of the following methods will notify water system users:

- Bulletin board notice
- E-mail notification
- Memo distributed to all employees
- Posting on faucets

## 5.2 Short Term Contingency Options

In the event that the water from the system is determined to be unsuitable. to drink, or if there is a mechanical problem, the following options are available:

- Determine which well is the source of contamination, if applicable disinfect the supply system and utilize alternate well.
- Utilize water from other existing well on site.
- Issue a boil water notice and/or recommend that bottled water be utilized for drinking purposes. Bottled water is available from Vermont Natural Water, 1566 Putney Rd, Bratleboro, VT 254r6093
- Request that the water system users conserve available water.

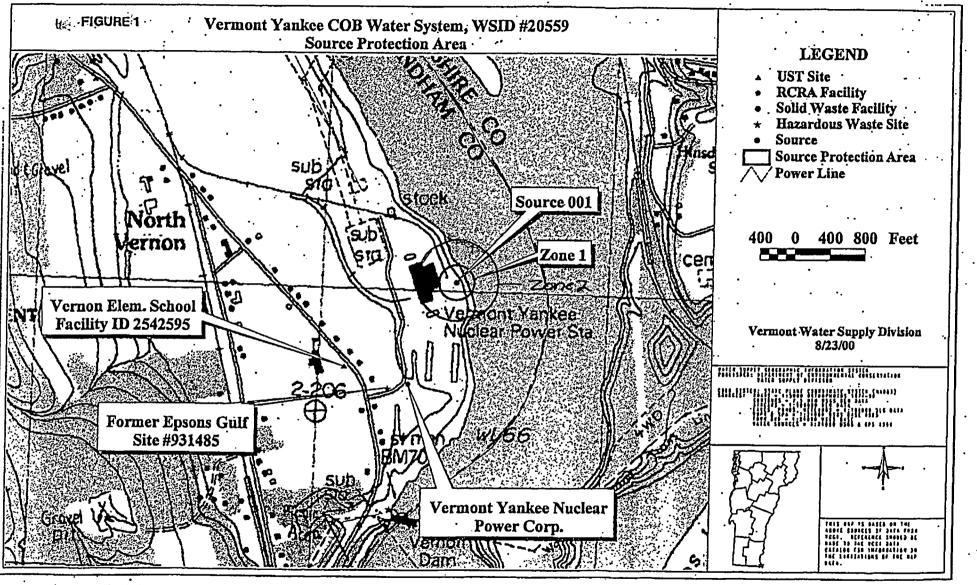
## 5.3 Long Term Contingency Options

If the contamination requires that the existing source be abandoned or permanently modified. Long term contingency options include:

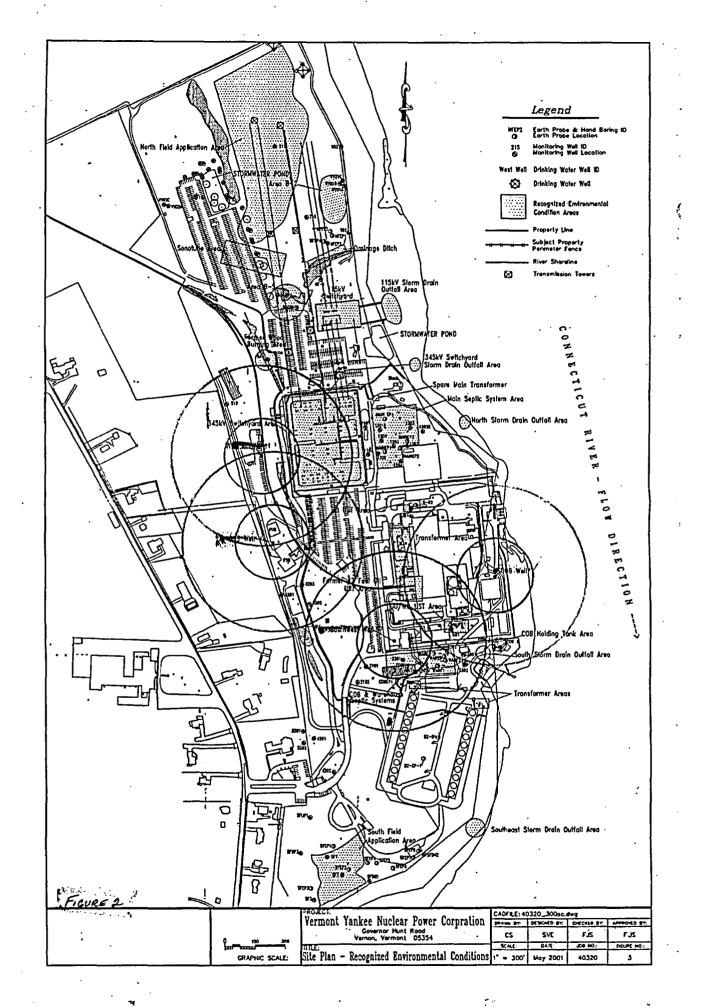
- Drilling one or more new wells.
- Installing suitable water treatment system.

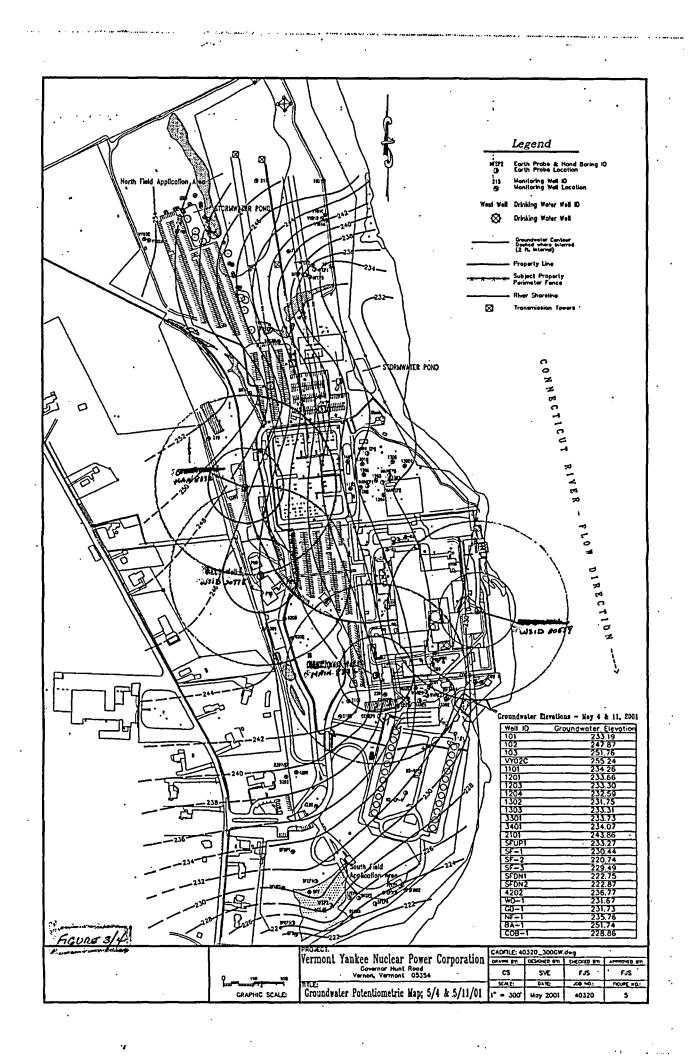
## 5.4 Water System Shut Down/Start Up Procedures

In the event that the Vermont Yankee wells must be shut down for an emergency situation, personnel should follow the Vermont Yankee Switching and Tagging procedure, AP 0140.



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## APPENDIX A Well Completion Reports

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	WELL MUBER	State of Vermont		
•	. G	DEPARTMENT OF WATER RESO		WATER RESOURCE USE ONLY
	(Far Driller's Use)	AND ENVIRONMENTAL ENGINE		Field Location D Map area 39d 9
	This report must be completed and submitted to the Department of Water Resources and	146		Latitude Elev
	Environmental Engineering, State Office	HELL COMPLETION KE	PORT	Longliude Topo
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•	WELL PURCHASER _7	ORRISON -KNVS.SON	BRATTLE	Boro VT.
2.	LOCATION OF WELL: TO	ile a i	Permanent i	Aaring Address
	DATE WELL WAS COMPL		/N	LOT NO
3.	DATE WELL WAS COMPL	ETED	•	•
4.		L: 1 Domestic, 1 Other CFFich		
5.	REASON FOR DRILLING	WELL: Of New Supply, D Replace Ealering Supply, D D Provide Additional Supply, D Other		
6.	DRILLING EQUIPMENT:	Cable Tool, ARolary with A-P, COlher		
7.	TYPE OF WELL	e in Bedrock, 🗆 Open End Casing, 🔲 Screened or Statisti 🗍	Other	
8.		362 feet below land surface.		• •
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#### TABLE I

	VERMONT YANKEE	POTABLE WATER	WELLS	
Well Designation	COB ·	Southwest	West	New Engineering Office Building
Date of Installation	August, 1986	JUNE, 1986	July, 1987	July, 1998
Well Depth	362 feet	500 feet	555 feet	· 500 feet
Amount of Casing	80 feet	67 feet	51 feet	38 feet
Diameter of Casing	6 inches	6 inches	6 inches	6 inches
Static Water Level	31.4 feet	24.5 feet	*	4 feet
Pump Size	1 HP	1.5 HP	15 HP	1.5 HP
Pump Depth	350 feet	497.feet	400 feet	480 feet
Well Rating	9 gpm	10.5 gpm	73.7 gpm	30 gpm
. WSID	20559 (1/96)	8332	(9/96)	20738 (4/99)

Data is currently not available. \*

NOTES:

The COB and Southwest wells were approved by the State on 12/10/86. The West well was approved by the State on 11/19/87. The New Engineering Office Building well was approved by the State on 4/22/98.

Change Approva	1				1
	Chemistry	Manager	or	Designee	Date

Table I RP 2616 Rev. 2 Page 1 of 1

# **Source Water Protection Plan**

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

> Revision 2 Prepared April 2005

## Table of Contents

### 1.0 Introduction

- 2.0 Potential Sources of Contamination
  - 2.1 Existing Land Uses and Potential Sources for Contamination
  - 2.2 Potential Sources of Contamination
- 3.0 Assessment of Threats
- 4.0 Management of Risks
- 5.0 Contingency Plan
  - 5.1 Emergency Response
  - 5.2 Short Term Contingency Options
  - 5.3 Long Term Contingency Options
  - 5.4 Water System Shut Down and Start up Procedures

### List of Tables

 Table 1
 Potential Sources of Contamination – Risk Evaluation

## List of Figures

- Figure 1 Source Protection Area
- Figure 2 Detailed Source Protection Area including Potential Sources of Contamination
- Figure 3\* Vermont Yankee Site Map
- Figure 4\* Vermont Yankee Groundwater Contour Map-May 2001

## List of Appendices

Appendix A Well Completion Reports

\* Figures 3 & 4 are on the same Map.

### 1.0 Introduction

This updated Source Water Protection Plan (SPP) was prepared for the Main well system (WSID #8332) at Entergy Nuclear Northeast, Vermont Yankee in Vernon, Vermont. This system consists of two drilled bedrock wells the West well and the Southwest well. The purpose of this SPP is to protect the water quality of these wells by identifying and managing the potential sources of contamination and threatening activities that may occur within the source protection area. This document has been prepared in accordance with the Vermont Water Supply Rule, Chapter 21, and follows the outline prepared in the publication entitled "Protecting Public Water Sources in Vermont" dated February 24, 1997.

The Main southwest well is located on the southwest side of Vermont Yankee's property off of Governor Hunt Road in Vernon Vermont. (See Figures 1 & 2). According to the well completion report (WR # 253), the well was drilled in June 1986 by Green Mountain Well Company Inc. The well is 500 feet deep and has 67 feet of steel casing. The well yield is 10.5 gallons per minute. The Main west well is located on the west side of Vermont Yankee's property off of Governor Hunt Road in Vernon, Vermont. (See Figures 1 & 2). According to the well completion report (WR # 283), the well was drilled in July 1987 by Green Mountain Well Company Inc. The well is 555 feet deep and has 50.1 feet of steel casing. The well yield is 73.7 gallons per minute. Copies of the well completion reports are included in Appendix A.

The source protection area (SPA) for the southwest and west wells consists of a circular area within a 500-foot radius of each well (Figure 1). The SPA was determined to be 500-feet based on the maximum average daily demand for the well system, as listed in the Water Supply Division Guidance Document. The SPA consists of two "zones". Zone 1 is consists of an isolation zone consisting of a circular area within a 200-foot radius around the well where impacts are likely to be immediate and certain. Zone 2 consists of the remaining areas of the SPA, and is considered the primary area of contribution to the well. In this area there will be probable impacts from potential sources of contamination.

## 2.0 **Potential Sources of Contamination**

## 2.1 Existing Land Uses and Potential Sources of Contamination

The current land uses observed within the SPA consist of fields, office buildings, warehouse, parking lots, fences, roads, railroad tracks, switchyards, a former UST site SMS #99-2617, fuel oil storage tanks and leachfields. Vermont Yankee owns all of the land within the zones of the Main system wells. See Figure #2.

## 2.2 Potential Sources of Contamination

An inventory of the potential sources of contamination (PSOC) is presented in Table 1. The locations of these PSOCs are presented on Figure 2. Due to the scale of the map, in cases where more than one PSOC exists on a parcel they will be grouped under one designation.

Land Use/PSOC	Contamin-	ontamin- Zone 1		Zone	2	<b>Risk Evaluation</b>		
	ation ID #	Yes	No	Yes	No	High	Med	Low
Fields/Fence	1	X		X		X		
Office Building	2	X		X		X		
Warehouse	3	X		X		X		
Parking Lots	4	X		X		X		
Roads & Railroad	5	X		X		X		
Tracks								
Switchyards	6	X		X_		X		
SMS Site 99-2617	7		X	X				Х
Fuel Oil Tanks	8		X	X				X
Leachfields	9	X		X		X		
Transformers*	10	#2		#1			#2	#1
Water Storage	11		Х	X				Х
Tanks	[							

### Table 1 Potential Sources on Contamination- Risk Evaluation

\* Refer to Section 3.0 for an Explanation of Contamination item #10.

## 3.0 Assessment of Threats

## Fields/Fence-(Contamination ID #1)

The fields, which are closest to the West well, are on Vermont Yankee property. Along the field edge is a security fence. Roundup, a systemic

weed killer, was historically applied to the fence line area. This activity has been replaced by weed whacking inside the SPA. The activities occurring in the field and along the fence around the west well are considered low risk activities, but in accordance with the Vermont Water Supply Rule, Section 16, these are considered a high risk due to their... importance and potential.

### Office Building and Warehouse-(Contamination ID #2,3)

Due to the chemical control and hazardous waste programs which control chemical storage and disposal these structures and the activities occurring within them are not considered a significant risk to the well, but in accordance with the Vermont Water Supply Rule, Section 16, these are considered a high risk due to their importance and potential.

# Parking Lots, Site Access Roads and Railroad Tracks-(Contamination ID #4,5)

There are plant maintained roads and parking areas within the 200-foot radius zone 1 areas of both the West well and the Southwest well. The road and parking areas are considered a potential source of contamination due to the application of road salt, which could cause elevated levels of sodium and chloride in the well. In addition, there is also a potential for a spill or leaks of petroleum products from vehicles in the parking areas or as the vehicles transverse the roadways. Due to an extensive storm drain system the threat to the wells is believed to be low risk. However, the road salt which is typically mixed with sand prior to application represents a moderate risk to the wells. This is due to a result of the depth of the well being 400 to 500 feet deep. There are railroad tracks in this area and they are rarely used. Maintenance of vegetation within these tracks, in the SPA's, is via weed whacking. In accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

### 345 kV Switchyard-(Contamination ID #6)

The switchyard has a separate storm drain system and outfall area therefore activities in this area would not cause contamination into the plant wells. In accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential. Additionally, the switchyard is downgradient from the well. See Figure 4.

### SMS Site #99-2617-(Contamination ID #7)

Vermont Yankee SMS Site 99-2617 contains petroleum by-products and chlorinated solvents, (tetrachloroethene [PCE] and its breakdown products). Aggressive groundwater remediation is not being performed on

these wells due to the concentrations of contaminants being at a low level. Thus this site poses a low risk to the drinking water wells due to the low levels of contaminants, being downgradient from the wells, and the depth of the drinking water wells.

### Fuel Oil Tanks-(Contamination ID #8)

All fuel oil tanks on site have either a double walled construction, with leak and overfill protection systems or are surrounded by secondary containment structures. Therefore these are characterized as low risk to the water supplies.

### On-Site Septic Systems-(Contamination ID #9):

Septic systems represent potential sources of nitrates, chlorides, other inorganic compounds, bacteria, viruses and radionuclide contamination. In addition, if improperly used, such as for the disposal of paints, solvents, petroleum products and other hazardous wastes, they could also be a source of organic compounds as well. At Vermont Yankee the chemical control and hazardous waste programs prohibits the disposal of chemical in a manner inconsistent with the manufacturers Material Safety Data Sheet (MSDS).

The wells at Vermont Yankee are topographically upgradient from the septic systems. The well depths are also very deep in the groundwater table. Groundwater flow is in the direction of the river. Therefore this is considered as a low risk toward contaminate contamination of the water supplies, but in accordance with the Vermont Water Supply Rule, Section 16 these units are considered a high risk due to the importance and potential.

### Transformers-(Contamination ID #10):

There are currently two spare transformers stored on site. One (identified as #1 in Table 1), manufactured by General Electric, is located north of the Main septic system (see figure 2). The second (identified as #2 in Table 1), manufactured by Peebles of the United Kingdom, is located north of the NEOB building, near the west well. Two additional transformers were recently replaced during the Station's required cooling tower upgrades. These two transformers will be stored temporarily in a full containment berm near the cooling towers and down gradient of all drinking water wells. The oil contained in the transformers is all PCB free transformers is all pcb-free. Each transformer either contains a vault where any oils released would be captured or are stored within a containment structure capable of holding the entire contents of the transformers. Thus, these are considered to be a medium to low risk relative to contaminating the

Main water supply. Plans are being developed to remove the Peebles transformer (#2) from on-site in the near future. Spill prevention control and countermeasure plans are currently being updated for both transformers so they will continue to comply with updates to the federal regulations (40CFR112.7).

### Industrial Water Storage Tanks-(Contamination ID #11):

Plant industrial water storage tanks are bermed tanks downgradient of the drinking water well and pose a low risk for contamination.

### 4.0 Management of Risk

In order to reduce the potential risk of contamination to the drinking water supply wells at Vermont Yankee, Vermont Yankee will perform an annual inspection of the SPA to confirm that the company is following the best management practices and to identify any changes in and use or property owners. Once every three years updates indicating any changes in land use/PSOC's will be submitted to the Water Supply Division. The updates may simply consist of a letter, which describes any changes to the original SPP, or a letter stating that there have been no changes.

### 5.0 **Contingency Plan**

This contingency plan outlines the steps that may be taken by Vermont Yankee in the event a well becomes contaminated, or there is a significant reduction in yield, or if there are mechanical problems.

### 5.1 Emergency Response

If an emergency exists such as a spill or other contamination event occurs within the SPA, or if a regulated compound is found above the acceptable levels during a routine sampling event, Vermont Yankee may notify the following people/agencies:

Water System Operators Lynn DeWald Richard Gerdus	(802) 258-5526 (802) 258-5501
Chemistry Superintendent Samuel A. Wender IV	(802) 258-5650

Vermont Yankee Shift Supervisor (802) 258-5270 .... The Shift Supervisor is responsible for 24-hour plant operations and would be able to contact appropriate maintenance personnel.

Vermont Yankee Hazardous Materials Coordinator Peter Prince	(802) 258-5476
Vermont DEC, Water Supply Division	(800) 823-6500 or (802) 241-3400
Vermont DEC, Hazardous Materials Spill Hotline	(800) 641-5005
Vermont Department of Health	(800) 439-8550

### Notification of Water System Users

If the Vermont Yankee water supply should become contaminated, one or more of the following methods will notify water system users:

- Bulletin board notice
- E-mail notification
- Memo distributed to all employees
- Posting on faucets

### 5.2 Short Term Contingency Options

In the event that the water from the system is determined to be unsuitable to drink, or if there is a mechanical problem, the following options are available:

- Determine which well is contains the source of contamination, if applicable disinfect the supply system and utilize alternate well.
- Utilize water from other existing well on site.
- Issue a boil water notice and/or recommend that bottled water be utilized for drinking purposes. Bottled water is available from Vermont Natural Water, 1566 Putney Rd, Bratleboro, VT 254-6093
- Request that the water system users conserve available water.

## 5.3 Long Term Contingency Options

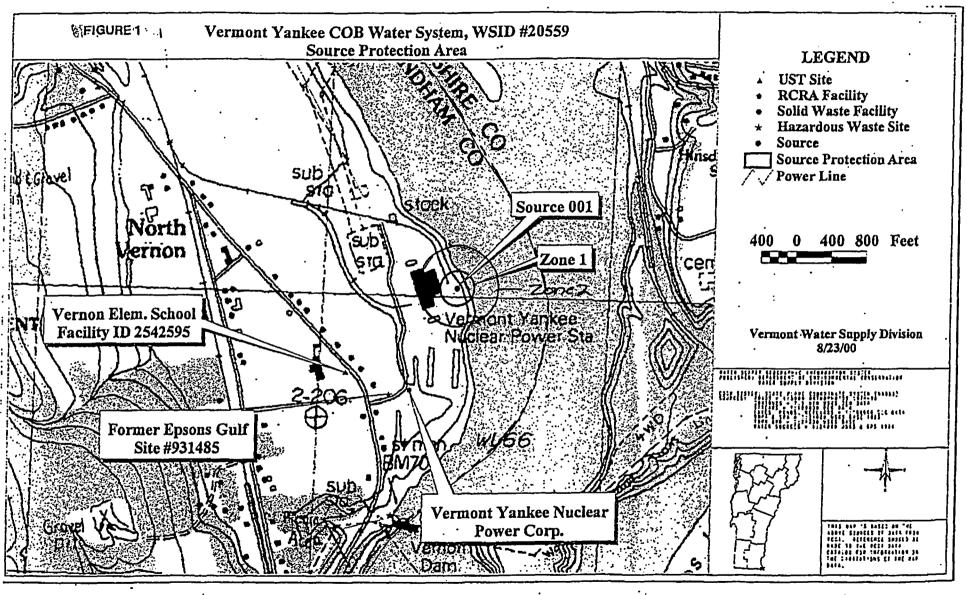
If the contamination requires that the existing source be abandoned or \_\_\_\_\_\_ permanently modified. Long term contingency options include:

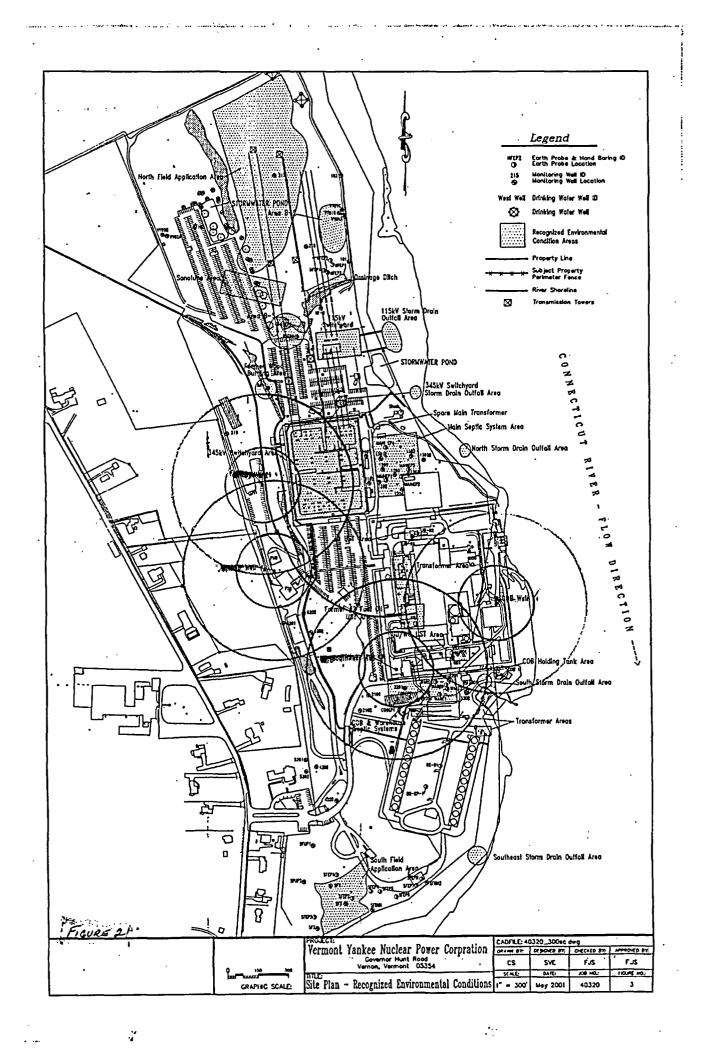
- Drilling one or more new wells.
- Installing suitable water treatment system.

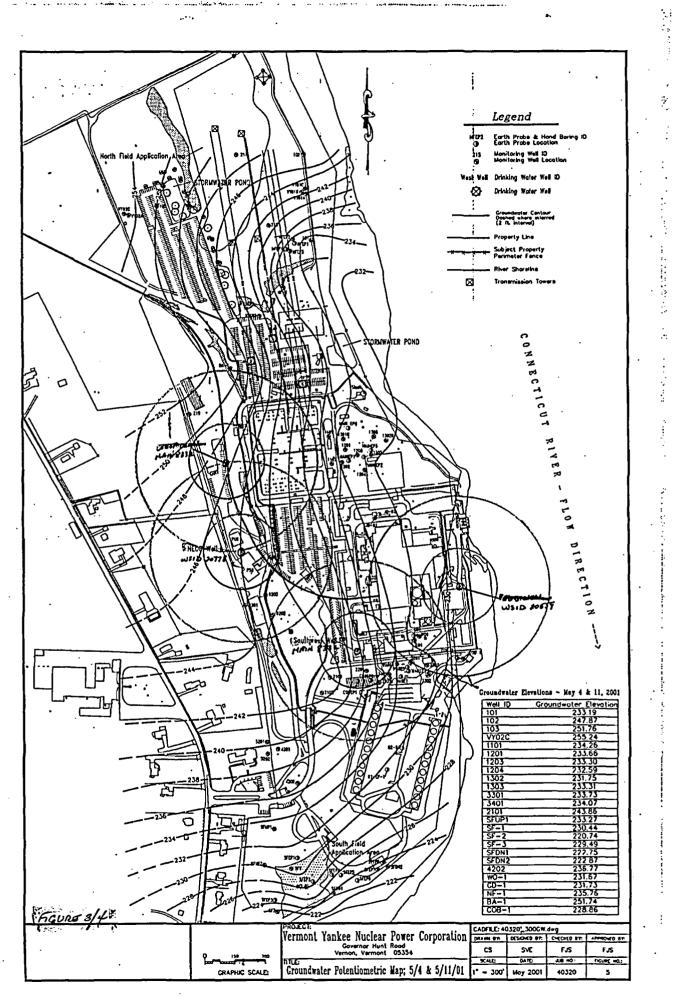
## 5.4 Water System Shut Down/Start Up Procedures

In the event that the Vermont Yankee wells must be shut down for an emergency situation, personnel should follow the Vermont Yankee Switching and Tagging procedure, AP 0140.

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APPENDIX A Well Completion Reports

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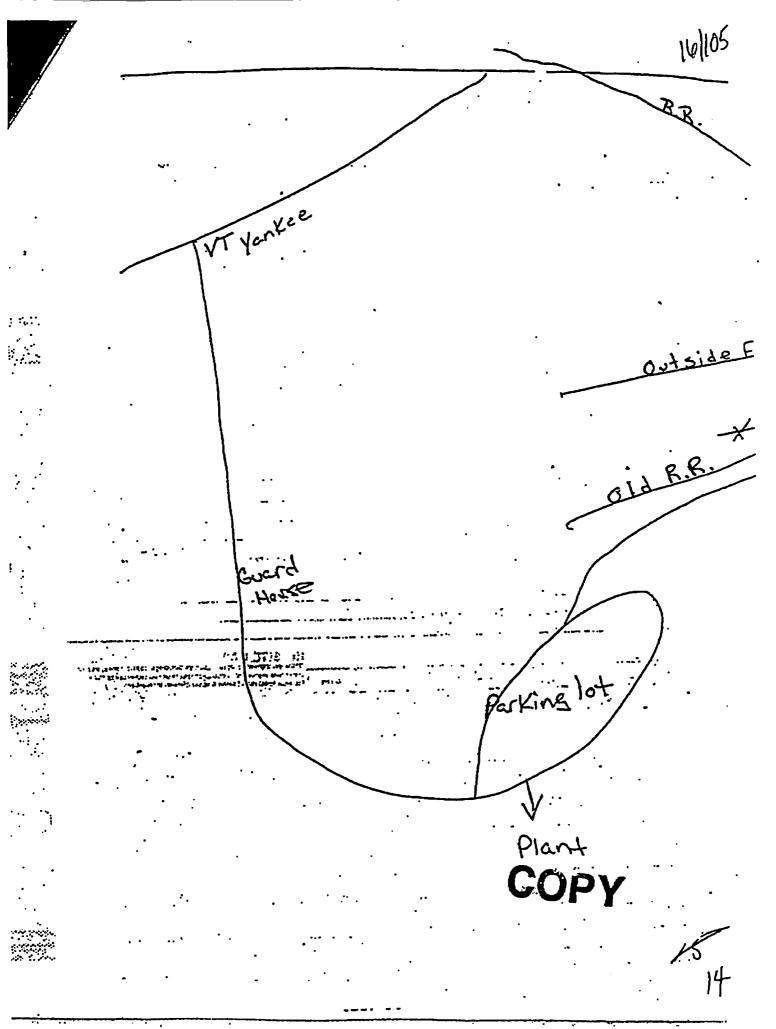
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## **Source Water Protection Plan**

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

> Revision 2 Prepared April 2005

## **Table of Contents**

- 1.0 Introduction
- 2.0 Potential Sources of Contamination
  - 2.1 Existing Land Uses and Potential Sources for Contamination

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- 2.2 Potential Sources of Contamination
- 3.0 Assessment of Threats
- 4.0 Management of Risks
- 5.0 Contingency Plan
  - 5.1 Emergency Response
  - 5.2 Short Term Contingency Options
  - 5.3 Long Term Contingency Options
  - 5.4 Water System Shut Down and Start up Procedures

## List of Tables

 Table 1
 Potential Sources of Contamination – Risk Evaluation

#### List of Figures

- Figure 1 Source Protection Area
- Figure 2 Detailed Source Protection Area including Potential Sources of Contamination
- Figure 3\* Vermont Yankee Site Map
- Figure 4\* Vermont Yankee Groundwater Contour Map-May 2001

#### List of Appendices

Appendix A Well Completion Reports

\* Figures 3 & 4 are on the same map.

#### 1.0 Introduction

This Source Water Protection Plan (SPP) was prepared for the NEOB well system (WSID #20738) at Entergy Nuclear Northeast, Vermont Yankee in Vernon, Vermont. This system consists of one drilled bedrock well. The purpose of this SPP is to protect the water quality of this well by identifying and managing the potential sources of contamination and threatening activities that occur within the source protection area. This document has been prepared in accordance with the Vermont Water Supply Rule, Chapter 21, and follows the outline prepared in the publication entitled "Protecting Public Water Sources in Vermont" dated February 24, 1997.

The NEOB well is located on the west side of Vermont Yankee's property off of Governor Hunt Road in Vernon Vermont. (See Figures 1 & 2). According to the well completion report (WR # 6642), the well was drilled in July 1998 by Green Mountain Well Company Inc. The well is 500 feet deep and has 38 feet of steel casing. The well yield is 30 gallons per minute. Copies of the well completion reports are in Appendix A.

The source protection area (SPA) for the COB well consists of a circular area within a 500-foot radius of the well (Figure 1). The SPA was determined to be 500-feet based on the maximum average daily demand for the well system, as listed in the Water Supply Division Guidance Document. The SPA consists of two "zones". Zone 1 consists of an isolation zone consisting of a circular area within a 200-foot radius around the well where impacts are likely to be immediate and certain. Zone 2 consists of the remaining areas of the SPA, and is considered the primary area of contribution to the well. In this area there will be probable impacts from potential sources of contamination.

#### 2.0 **Potential Sources of Contamination**

## 2.1 Existing Land Uses and Potential Sources of Contamination (SPOC)

The current land uses observed within the SPA consist of fields, office buildings, parking lots, roads, railroad tracks, switchyards, fuel oil storage tank and leachfields. Vermont Yankee owns all of the land within the zones of the NEOB system well.

## 2.2 Potential Sources of Contamination

An inventory of the potential sources of contamination (PSOC) is presented in Table 1. The locations of these PSOCs are presented on Figure 2. Due to the scale of the map, in cases ... where more than one PSOC exists on a parcel they will be grouped under one designation.

Land Use/PSOC	Contamin	Zon	e 1	Zone	2	Risk	Evalua	tion
	-ation ID #	Yes	No	Yes	No	High	Med	Low
Fields/Fence	1	X		X		X		
Office Building	2	X		X		X		
Parking Lots	3	X	~	X		X		
Roads and Railroad	4	X		X		Х		
Tracks								
Switchyards	5		<u>X</u>	<u> </u>				X
Fuel Oil Tank	6		X					X
Septic System & Leachfields	7	X		X		X		
Transformers*	8	X		X		X		
Residential Land Formally Owned by Ms. Thomas	9		X	X				X

#### Table 1 Potential Sources on Contamination- Risk Evaluation

\* Refer to Section 3.0 for an Explanation of Contamination item #8.

## 3.0 Assessment of Threats

## Fields/Fence-(Contamination ID #1)

The fields, closest to the West well, are on Vermont Yankee property. Along the field edge is a security fence. Roundup, a systemic weed killer, was historically applied to the fence line area. It has been replaced by weed whacking within the SPA. The activities regarding field and fence around the well is considered a low risk activity, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

#### Office Building -(Contamination ID #2)

Due to the chemical control and hazardous waste programs which control chemical storage and disposal these structures and the activities occurring within them are not considered a significant risk to the well, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

# Parking Lots, Site Access Roads and Railroad Tracks - (Contamination ID #3.4)

There are plant maintained roads and parking areas within the 200-foot radius zone 1 areas of both the NEOB well. The road and parking areas are considered a potential source of contamination due to the application of road salt, which could cause elevated levels of sodium and chloride in the well. In addition, there is also a potential for a spill or leaks of petroleum products from vehicles in the parking areas or as they transverse the roadways. Due to an extensive storm drain system the threat to the wells is believed to be low risk. However, the road salt which is typically mixed with sand prior to application represents a moderate risk to the wells. There are railroad tracks in the vicinity of this well but they are rarely used. Maintenance of vegetation along the tracks within the SPA's is via weed whacking. In accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

#### 345 kV Switchyard- (Contamination ID #5)

The switchyard has a separate storm drain system and outfall area therefore activities in this area would not cause contamination into the plant wells. Additionally, the switchyard is downgradient from the well. See Figure 4.

#### Fuel Oil Tanks- (Contamination ID #6)

All fuel oil tanks on site have a either double walled construction, with leak and overfill protection systems or are surrounded by a full containment structure. Therefore these are characterized as low risk to the water supplies.

#### On-Site Septic Systems- (Contamination ID #7):

Septic systems represent potential sources of nitrates, chlorides, other inorganic compounds, bacteria, viruses and radionuclide contamination. In addition, if improperly used, such as for the disposal of paints, solvents, petroleum products and other hazardous wastes, they could also be a source of organic compounds as well. At Vermont Yankee the chemical control and hazardous waste programs prohibits the disposal of chemical in a manner inconsistent with the manufacturers Material Safety Data Sheet (MSDS).

The wells at Vermont Yankee are topographically upgradient from the septic systems. The well depths are also very deep in the groundwater table. Groundwater flow is in the direction of the river. Therefore this is considered as a low risk to contaminate the water supplies, but in accordance with the Vermont Water Supply Rule, Section 16 these are considered a high risk due to the importance and potential.

#### Transformers- (Contamination ID #8):

There are currently two spare transformers stored on-site. The Peebles transformer is currently stored north of the PSB building. The GE transformer is located north of the Main septic system (see figure #2). The oil contained in the transformer is all pcb-free. The Peebles transformer has approved spill prevention control and countermeasures in place in fulfillment of the 40CFR112 requirement. It is considered to be a low risk to contaminate the water supply, but in accordance with the Vermont Water Supply Rule, Section 16 it is considered a high risk due to the importance and potential.

#### Residential Land Formally Owned by Ms. Thomas (Contamination ID #9):

The Thomas house was purchased, by Entergy Nuclear Northeast, from Ms. Thomas in 2002. It has a #2 fuel oil tank and is equipped with an onsite septic system. Septic systems can serve as potential subsurface pathways of contaminant migration. Contaminant migration via groundwater in the area is not considered to pose a risk to the NEOB well based on the residential land usage and the presence of septic systems well above the groundwater table combined with the depth of the well being 500 feet. This is considered low risk to contaminate the water supply.

#### 4.0 Management of Risk

In order to reduce the potential risk of contamination to the drinking water supply wells at Vermont Yankee, Vermont Yankee will perform an annual inspection of the SPA to confirm that the company is following the best management practices and to identify any changes in use or property owners. Once every three years updates indicating any changes in land use/PSOC's will be submitted to the Water Supply Division. The updates may simply consist of a letter, which describes any changes to the original SPP, or a letter stating that there have been no changes.

#### 5.0 Contingency Plan

This contingency plan outlines the steps that may be taken by Vermont Yankee in the event a well becomes contaminated, or there is a significant reduction in yield, or if there are mechanical problems.

#### 5.1 Emergency Response

If an emergency exists such as a spill or other contamination event occurs within the SPA, or if a regulated compound is found above the acceptable levels during a routine sampling event, Vermont Yankee may notify the following people agencies.

Water System Operators Lynn DeWald Richard Gerdus	(802) 258-5526 (802) 258-5501				
Chemistry Superintendent Samuel A. Wender IV	(802) 258-5650				
Vermont Yankee Shift Supervisor (802) 258-5270 The Shift Supervisor is responsible for 24-hour plant operations and would be able to contact appropriate maintenance personnel.					
Vermont Yankee Hazardous Materials Coordinator					
Peter Prince	(802) 258-5476				
Vermont DEC, Water Supply Division	(800) 823-6500 or (802) 241-3400				
Vermont DEC, Hazardous Materials Spill Hotline	(800) 641-5005				
Vermont Department of Health	(800) 439-8550				

Notification of Water System Users

If the Vermont Yankee water supply should become contaminated, one or more of the following methods will notify water system users:

- Bulletin board notice
- E-mail notification

- Memo distributed to all employees
- Posting on faucets

## 5.2 Short Term Contingency Options

In the event that the water from the system is determined to be unsuitable to drink, or if there is a mechanical problem, the following options are available:

- Determine which well is the source of contamination, if applicable disinfect the supply system and utilize alternate well.
- Utilize water from other existing well on site.
- Issue a boil water notice and/or recommend that bottled water be utilized for drinking purposes. Bottled water is available from Vermont Natural Water, 1566 Putney Rd, Bratleboro, VT 254-6093
- Request that the water system users conserve available water.

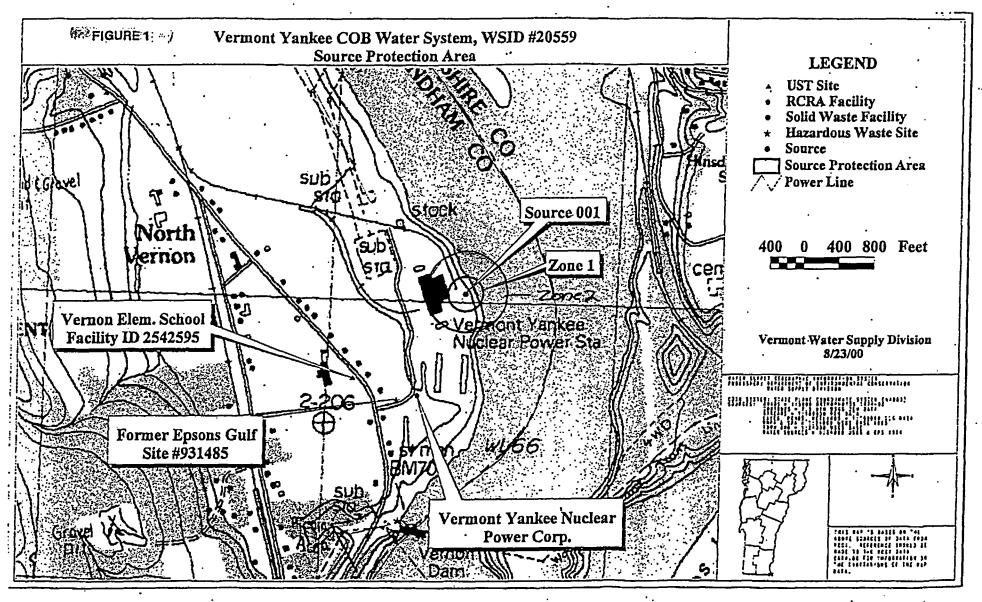
## 5.3 Long Term Contingency Options

If the contamination requires that the existing source be abandoned or permanently modified. Long term contingency options include:

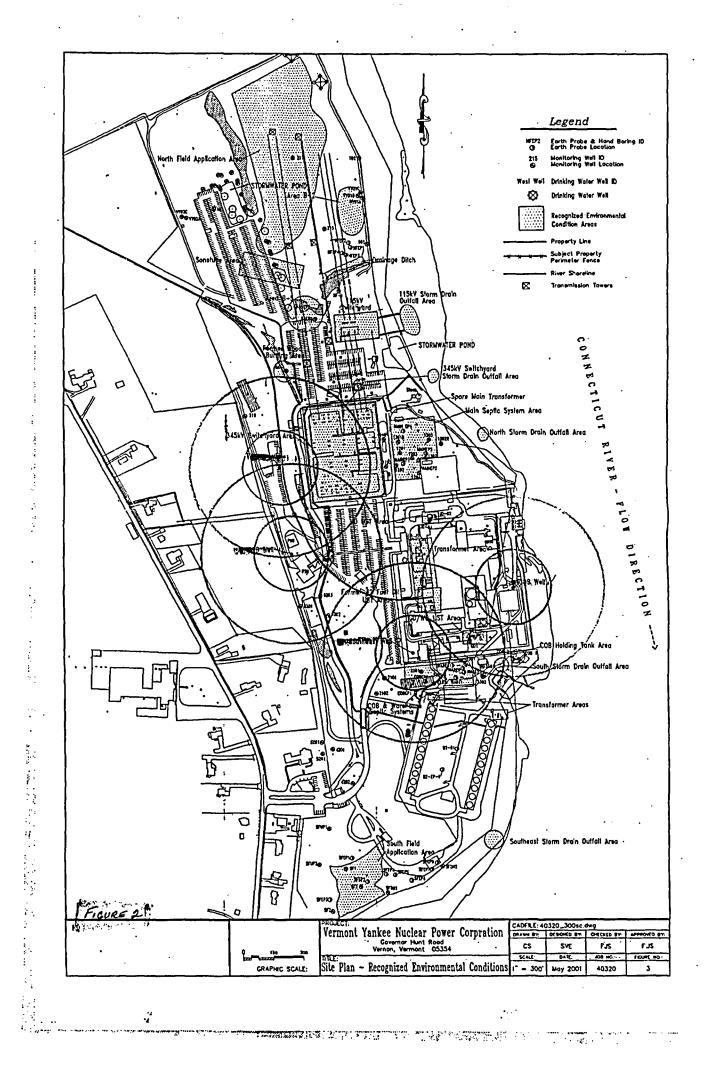
- Drilling one or more new wells.
- Installing suitable water treatment system.

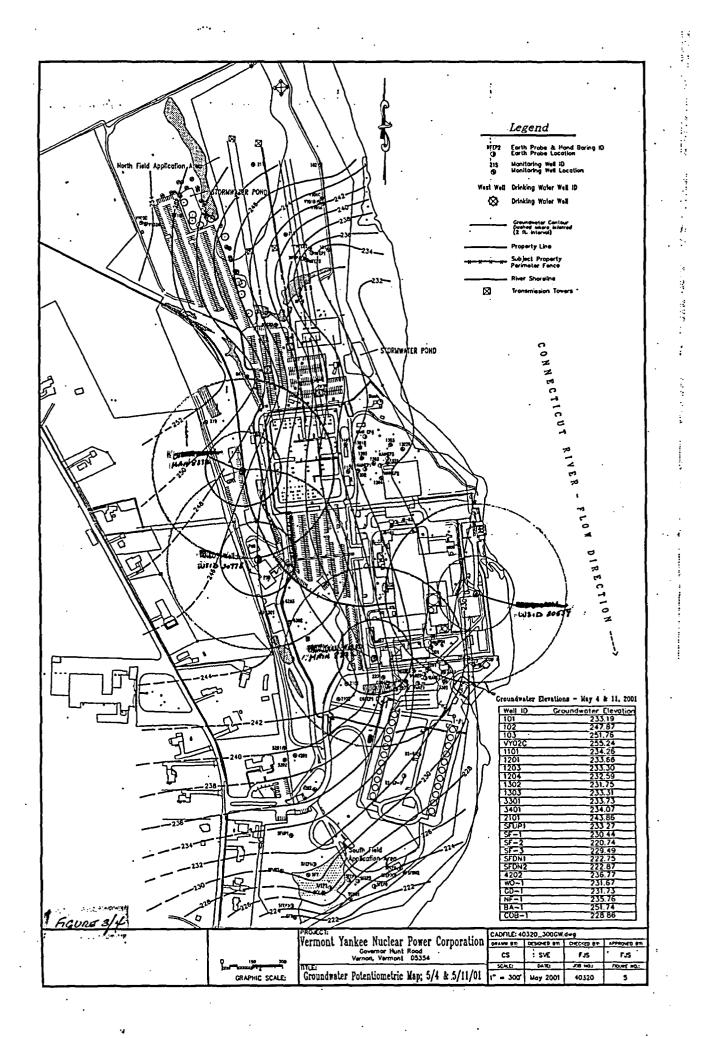
## 5.4 Water System Shut Down/Start Up Procedures

In the event that the Vermont Yankee wells must be shut down for an emergency situation, personnel should follow the Vermont Yankee Switching and Tagging procedure, AP 0140.



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#### APPENDIX A Well Completion Reports

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#### APPENDIX A Well Completion Reports

Well Statistics Well Tag Number: 8/98 Date Report Received; Well Report Number: 6,642 Map Cell: 3909 Owner's Name: Vt Yankee Purchaser's Name: Town Name: Vernon Date Well Was Completed: Purposed Use of Weil: Industrial Reason for Drilling Well: New Supply Drilling Equipment: Rotary (AP) Well Has Scre 500.00 Total Depth of Well (in feet): Casing Finish: Above ground, unfinished Total Casing Length (in feet): 38.00 Casing Diameter: 6.00

Water Supply Division Well Report

Printed: 10/30/2001

8/24/98

7/14/98

Not Steel Casi Method of Sealing Casing: Grout bottom only Yield Test Method: Compressed air Yield Tested At (Gallons per Minute): 30.00 Static Water Level (In feet): 4.00 ! Well is OverFlow! Has Water been Analyz Comments: water at 260,330,380,410

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#### Reason for Well Development:

Weil Driller:	Well Driller: Richard Stromberg Tax Map:		
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Over	burden Thickness (in feet):	27	
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Water Supply Division Well Report Printed: 10/30/2001 Well Statistics Well Tag Number: 8/98 Date Report Received: Well Report Number: 6.642 Map Cell: 3909 Owner's Name: Vt Yankee Purchaser's Name: Town Name: Vernon Date Well Was Completed: Purposed Use of Well: Industrial Reason for Drilling Well: New Supply Drilling Equipment: Rotary (AP) : Well Has Scre Total Depth of Well (in feet): 500.00 Casing Finish: Above ground, unfinished . Total Casing Length (In feet): 38.00 Casing Diameter: 6.00 Not Steel Cast

Method of Sealing Casing: Grout bottom only Yield Test Method: Compressed air Yield Tested At (Gallons per Minute): 30.00 Static Water Level (in feet): 4.00 ! Well is Overflowi Has Water been Analyz Comments: water at 260,330,380,410

Reason for Well Development:

Well Driller: Richard Stromberg Tax Map: Overburden Thickness (In feet): 27

1 8/24/98 7/14/98

Water Supply Division Well Report Printed: 10/30/2001 Well Lithology Town: Vernon Well Report Number: 5.642 Starting Depth Ending Depth Lithology 0.00 27.00 . Dirt, soil, topșoil, loam Driller's Description: topsol/day/gravel 27.00 240.00 Rock, bedrock, ledge, etc. Driller's Description: redish gray 240.00 320.00 Rock, bedrock, jedge, etc. Driller's Description: gray 320.00 358.00 Rock, bedrock, ledge, etc. Driller's Description: pinkish gray 358.00 500.00 Rock, bedrock, ledge, etc. Driller's Description: gray

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#### TABLE I

#### PLANT WELL INFORMATION

	VERMONT YANKEE	POTABLE WATER	WELLS	
Well Designation	COB '	Southwest	West	New Engineering Office Building
Date of Installation	August, 1986	June, 1986	July, 1987	July, 1998
Nell Depth	362 feet	500 feet	555 feet	500 feet
Amount of Casing	80 feet	67 feet	'51 fect	38 feet
Diameter of Casing	6 inches	6 inches	6 inches	6 inches
Static Water Level	31.4 feet	24.5 feet	•	4 feet
Pump Size	1 HP	1.5 KP	15 HP	1.5 HP
Pump Depth	350 feet	497 feet	400 feet	480 feet
Well Rating	9 gpm	10.5 gpm	73.7 gpm	30 gpm
WSID	20559 (1/96)		(9/96)	20738 (4/99)

Data is currently not available. \*

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The COB and Southwest wells were approved by the State on 12/10/86. The West well was approved by the State on 11/19/87. The New Engineering Office Building well was approved by the State on 4/21/98. .

Change Approval

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Table I RP 2616 Rev. 2 Page 1 of 1

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APPENDIX A Well Completion Reports

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Water Supply Division Well Report . Printed: 10/30/2001 Well Statistics

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Well Tag Number:	8/98	Date Report Received:	8/24/98
Well Report Number:	6,642	Map Cell: 39D9	•
Owner's Name: Vt	Yankee		
Purchaser's Name:			
Town Name: Vemon		Date Well Was Completed:	7/14/98
Purposed Use of We	ll: Industrial		
Reason for Drilling We	II: New Supply	· ·	
Drilling Equipme	nt: Rotary (AP)		
	🗄 📜 Well Has S	Scre	
Total Depth of Well (in fe	et): 500.00		
Casing Fini	sh: Above ground,	unfinished .	
Total Casing Length (in fee	et): 38.00		
Casing Diame	ter: 6.00		
-	Not Steel	Casi	
Method of Sealing Casir	ig: Grout bottom o	niv	
Yield Test Meth		•	•
Yield Tested At (Gallons	•		
Static Water Level (in fe	•	•	
	i : Well is Ov		
		er been Analyz	
· Commenter unstar at 7			
Comments: water at 2	60,330,380,410		

Reason for Well Development:

Well Driller: Richard Stromberg Tax Map:

Overburden Thickness (in feet):

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•	Water Cumbu	Division Well Repo		Printed: 10/3	20/2001	
	water Suppry		Well Lithology	Fintea, 10/5	0/2001	•
	Town: Vernon Starting Depth 0.00	Ending Depth	Well Report Number: Lithology Dirt, soil, topsoil, loam	6,	,642	
	Driller's Descripti 27.00 Driller's Descripti	240.00 юл: redish gray	Rock, bedrock, ledge, etc.			
	240.00 Driller's Descripti 320.00	320.00 ion: gray 358.00	Rock, bedrock, ledge, etc. Rock, bedrock, ledge, etc.			
	Driller's Descripti 358.00 Driller's Descripti	500.00	ay Rock, bedrock, ledge, etc.			
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•	• •	OREEN MI. WELL CU.	PAGE 02
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-			In Town Files Q
L	۱	WELL OWNER VT YANKEE, GOVERNOR HUNT RA VERNON	
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	٩	WELL PURCHASER	
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3.	:	DATE WELL WAS CONPLETED 7/14/98	
4.		PROPOSED USE OF WELL: DI	·····
•5.		REASON FOR DRILLING WELL : A vir sines, D same times tones, D same tours we, D	Test or Esstereited,
•••		Cationale Melitares Trapes, D Baster	······································
۴.		DRILLING EOUPMENT; CI Calle Tort, E anny tore and, Claim	
7		TYPE OF WELL Descarry a parties a des to server a sound a statue. a sin	
8	•	TOTAL DEPTH OF WELL: 500	•
9.		CASING FINISH: Q and grand, I wash & iter grand, to and . C to M. C synder. C by	
ю		CASING DETAILS: Tousing 38 " LINA MARCH 36 " HE b Star St	201 v1 19 11/11
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12		METHOD OF SEALING CASING TO BEDROCK: E and Han & Init- 100 Laures form	4
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		TESTED TIELD WELL ORILLED BY. Michael	Lenna
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#### TABLE I

PLANT	WELL	INFORMATION
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VERMONT YANKEE POTABLE WATER WELLS								
Well Designation	сов .	Southwest	West	New Engineering Office Building				
Date of Installation	August, 1986	June, 1986	July, 1987	July, 1998				
Well Depth	362 feet	500 feet	555 feet	500 feet				
Amount of Casing	80 feet	67 feet	51 feet	38 feet				
Diameter of Casing	6 inches	6 inches	6 inches	6 inches				
Static Water Level	31.4 feet	24.5 feet	*	4 feet				
Pump Size	<u>1 HP</u>	1.5 HP	15 HP	1.5 HP				
Pump Depth	350 feet	497 feet	400 feet	480 feet				
Well Rating	9 gpm	10.5 gpm	73.7 gpm	30 gpm				
WSID	20559 (1/96)	8332	20738 (4/99)					

Data is currently not favailable. \*

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NOTES:

The COB and Southwest wells were approved by the State on 12/10/86. The West well was approved by the State on 11/19/87. The New Engineering Office Building well was approved by the State on 4/22/98.

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Change Approval					/
j <u>-</u>	Chemistry	Manager	or	Designee	Date
	•••••••			20023.00	2420
	Chemistry	Manager	or	Designee	Date

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Table I RP 2616 Rev. 2 Page 1 of 1

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