



State of Vermont

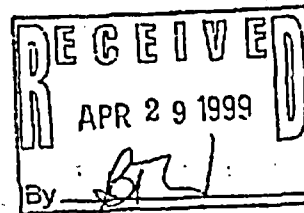
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AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
WATER SUPPLY DIVISION
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403
TELEPHONE (802) 241-3400
FACSIMILE (802) 241-3284

April 27, 1999

Ms. Barbara Williams
Vermont Yankee Nuclear Power Corporation
P.O. Box 157
Vernon, VT 05354

Re: Permit to Operate
Vermont Yankee NEOB Water System



Dear Barbara:

Enclosed is the Permit to Operate for Vermont Yankee's New Engineering Office Building (NEOB) water system. Please read the permit carefully as you will be expected to be familiar with all terms and conditions. Condition 5 under the Special Conditions section pertains to Microscopic Particulate Analysis (MPA) testing for the new well. The two other Vermont Yankee system's obtained exemptions from this testing last year. I have enclosed the exemption application for your use.

The adjusted gross alpha (gross alpha - uranium 234, 238) result from the sampling conducted on March 8, 1999 was below the MCL of 15 pCi/L. You should be aware that EPA may propose a MCL for uranium in the near future. I do not know what this level will be, but in the past they have considered 30 pCi/L.

If you have any questions regarding the permit, please call me at (802) 241-2599.

Sincerely,

David H. Webb
Assistant Regional Manager

c: WSID 20738
Jean Nicolai, Compliance and Certification
Tim Raymond, Regional Manager



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April 26, 1999

Public Water System Permit to Operate

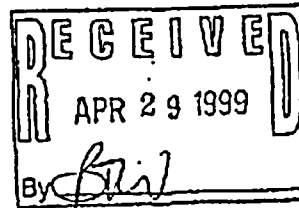
WATER SYSTEM IDENTIFICATION NUMBER: 20738

PIN #: NS95-0006.06

WATER SYSTEM: Vermont Yankee Nuclear Power Corporation
New Engineering Office Building (NEOB) Water System

TOWN: Vernon

RESPONSIBLE PERSON: Barbara Williams
ADDRESS: P.O. Box 157
Vernon, VT 05354



I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for Vermont Yankee's 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 sanitary survey physical conditions:

A. Date of most recent information: 4/23/99

B. Major Findings:

1. Facility Use: Office Building

2. Classification: 2

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3. Source: 500' deep bedrock well

4. Number of Connections: 1

5. Population Served: 160 employees, maximum

2. Summary of most recent water quality sample results:

Contaminant(s)	Date	Results
A. Bacteriological	past twelve months	met standards
B. Inorganics (IOCs)	-	met standards
C. VOCs	-	met standards
D. Radionuclides	3/8/99	met standards
E. SOCs	-	met standards
F. Cyanide	-	met standards
G. Lead/Copper	-	met standards
H. Nitrate	3/30/99	met standards
I. Nitrite	-	met standards

3. Groundwater Under The Direct Influence Determination:

MPA testing or exemption determination is required by this permit.

4. Isolation Zone:

The zone of isolation is controlled by the Vermont Yankee Corporation. A well head protection area has been delineated.

5. Operating Status:

This is a new Non-Transient, Non-Community water system serving an engineering office building. Water is pumped from a bedrock well to hydropneumatic storage and then into the distribution system.

Permit to Operate

Vermont Yankee - New Engineering Office Building

Page 3

April 26, 1999

6. Certified System Operator(s):

The Class 3 certified operators for this water system are Barbara Williams and Richard Gerdus. Their current certifications expire June 30, 2001.

7. 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 is valid for five (5) years from the date of issuance.
2. Reapplication: The permittee shall submit a complete application for reissuance of this permit 90 days before this permit expires. The reapplication deadline is December 31, 2003.
3. 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.
4. Reporting Requirements:
 - A. The water system shall submit the following monitoring results to the Water Supply Division:

- (1) Bacteriological testing is required quarterly.
- (2) Lead and Copper sampling is required for 2 consecutive 6 month periods yearly for 3 years, then every three years. The next required sampling period is July 31 - December 31, 1999.
- (3) Sampling as required by the Phase II/V individualized monitoring schedule for this water system.

5. Groundwater Under the Direct Influence of Surface Water Determination

- A. Microscopic Particulate Analysis (MPA) testing shall be conducted on the supply well to determine if the well is under the direct influence of surface water unless an exemption is granted by this Division. Two rounds of testing are required; one in the Spring (April 1 - June 30, 1999) and one in the Fall (September 1 - November 1, 1999), if an exemption is not obtained.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Canute E. Dalmasse, Commissioner

by: Rodney I. Pingree
Rodney I. Pingree, Chief
Water Systems Section
Water Supply Division

As of this 26th day of April, 1999 in Waterbury, Vermont.

cc: WSID #20738
Jean Nicolai, Compliance and Certification Chief
Tim Raymond, Regional Manager

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State of Vermont

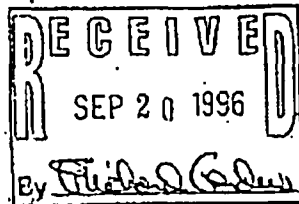
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AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

WATER SUPPLY DIVISION

The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403

TELEPHONE (802) 241-3400
FACSIMILE (802) 241-3284



September 10, 1996

Public Water System Permit to Operate

WATER SYSTEM IDENTIFICATION NUMBER: 8332

PIN #: NS75-006

WATER SYSTEM: Vermont Yankee Main Plant

TOWN: Vernon

RESPONSIBLE PERSON: Robert J. Wanczyk
ADDRESS: Vermont Yankee Nuclear Power Corp.
Governor Hunt Road
Vernon, VT 05354

I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for the Vermont Yankee 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 sanitary survey physical conditions:

A. Date of most recent survey: July 23, 1996

B. Major Findings:

- (1) The July 23, 1996 sanitary survey identified the need to install a screened vent on the southwest well and to regrade around the west well for surface drainage as the only minor deficiencies.

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(2) Water system specifics include:

A. Source:

The system has two rock wells for water sources. The west well is 555 feet deep with a drillers estimated yield of 50 gpm, and the southwest well is 500 feet deep with an estimated yield of 6 gpm.

B. Treatment capacity:

Treatment consists of 25 micron cartridge filters.

C. Storage:

The only storage is a 1,000 gallon steel hydropneumatic tank.

D. Population served:

The system serves an estimated 200 employees.

E. System demand:

There is no information available on daily water use. Design flow is 3,000 gallons per day based on 15 gallons per person per day.

F. System reserve:

The pump capacity of the west well is estimated at 74 gpm. There is no information available on the capacity of the pump in the southwest well.

(3) Summary of the most recent monitoring results:

A. A sampling plan for bacteriological monitoring has been submitted and approved by the Water Supply Division.

B. Bacteriological results (past 12 months) met standards.

- C. Nitrate testing results (05/95) met standards.
 - D. Nitrite testing results (05/95) met standards.
 - E. Inorganic testing results (08/95) met standards.
 - F. Volatile organic chemical compound results (04/96) met standards.
 - G. Synthetic organic chemical results (03/95) met standards.
 - H. Lead and copper sample results (1995) did not exceed action levels.
 - I. A determination has not been made by the Secretary of the Agency of Natural Resources as to whether the two groundwater sources are under the direct influence of surface water.
- (4) Isolation zone control/watershed control status:
- A source protection plan has not been prepared for the water sources. Potential sources of contamination within 200 feet of the wells include septic systems, gas station, roads, and parking areas.
- (5) Operator certification:
- Richard Gerdus is the certified operator for this system.
- (6) 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

Permit to Operate
Vermont Yankee Main Plant
Page 4
September 10, 1996

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 is valid for five (5) years from the date of this issuance or renewal.
2. 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.
3. A determination on whether the two groundwater sources are under the direct influence of surface water must be obtained from the Secretary of the Agency of Natural Resources by June 29, 1999.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
William C. Brierley, Commissioner

by: Rodney I. Ringree
Rodney I. Ringree, Chief
Water Systems Section
Water Supply Division

As of this 10th day of September, 1996 in Waterbury, Vermont.

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cc: WSID #8332

Jean Nicolai, Compliance and Certification Chief
Tim Raymond, Regional Manager

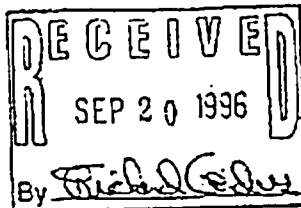
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Department of Environmental Conservation
WATER SUPPLY DIVISION
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403

TELEPHONE (802) 241-3400
FACSIMILE (802) 241-3284

September 10, 1996

Public Water System Permit to Operate

WATER SYSTEM IDENTIFICATION NUMBER: 20559

PIN #: NS75-0006

WATER SYSTEM: Vermont Yankee, C.O.B. System

TOWN: Vernon

RESPONSIBLE PERSON: Robert J. Wanczyk

ADDRESS: Vermont Yankee Nuclear Power Corp.
Governor Hunt Road
Vernon, VT 05354

I. Authority

In accordance with 10 VSA, §1671 et seq., the following findings and conclusions have been made for the Vermont Yankee C.O.B. 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 sanitary survey physical conditions:

A. Date of most recent survey: July 23, 1996

B. Major Findings:

(1) The July 23, 1996 sanitary survey did not identify any deficiencies.

(2) Water system specifics include:

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A. Source:

The water source is a rock well 350 feet in depth with a driller's estimated yield of 12 gpm.

B. Treatment Capacity:

Treatment consists of carbon filters and cartridge filters. The carbon filters were installed because of low levels of volatile organic compound contamination of the source.

C. Storage:

The only storage is four pressure tanks with a total capacity of 344 gallons (86 gallons each).

D. Population Served:

The system serves one building with approximately 100 employees.

E. System Demand:

There is no information available on daily water use. Design flow is 1,500 gallons per day based on 15 gallons per day per employee.

F. System Reserve:

Information on the well pump capacity is not available.

(3) Summary of most recent monitoring results:

- A. A sampling plan for bacteriological monitoring has been submitted and approved by the Water Supply Division.
- B. Bacteriological results (past 12 months) met standards.
- C. Nitrate testing results (05/95) met standards.

- D. Nitrite testing results (05/95) met standards.
- E. Inorganic chemical testing results (08/95) met standards.
- F. Volatile organic chemical compound results (04/96) met standards.
- G. Synthetic organic compound chemical results (03/95) met standards.
- H. Lead and copper sample results (1995) did not exceed action levels.
- I. A determination has not been made by the Secretary of the Agency of Natural Resources as to whether the groundwater source is under the direct influence of surface water.

(4) Isolation zone control/watershed control status:

A source protection plan has not been prepared for the water source. Potential sources of contamination within 200 feet of the well include roads, buildings, and the Connecticut River.

(5) Operator certification:

Richard Gerdus is the certified operator for this system.

(6) 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.

Permit to Operate
Vermont Yankee, C.O.B. System
Page 4
September 10, 1996

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 is valid for five (5) years from the date of this issuance or renewal.
2. 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.
3. A determination on whether the groundwater source is under the direct influence of surface water must be obtained from the Secretary of the Agency of Natural Resources by June 29, 1999.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
William C. Brierley, Commissioner

by: Rodney I. Pingree
Rodney I. Pingree, Chief
Water Systems Section
Water Supply Division

As of this 10th day of September, 1996 in Waterbury, Vermont.

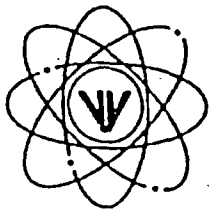
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cc: WSID #20559
Jean Nicolai, Compliance and Certification Chief
Tim Raymond, Regional Manager

253-1630.96

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VERMONT YANKEE NUCLEAR POWER CORPORATION



Governor Hunt Road, Vernon, VT 05354

February 25, 2000

Mr. David Webb
Assistant Regional Manager
Agency of Natural Resources
Department of Environmental Conservation
The Old Pantry Building
103 South Main Street
Waterbury, VT 05671-0403

Dear Mr. Webb:

Enclosed is the Exemption Application from MPA testing on Vermont Yankee's NEOB water supply system located in Vernon, VT. This letter and the attached materials include the supplemental information on the drilled bedrock water supply as outlined in the Exemption Application Guidance Document. Attached materials include a USGS map showing the water supply well locations, a detailed site map, soil survey map of Vernon with a table showing the flooding frequency, the Well Completion Report for the NEOB and West wells at Vermont Yankee and summarized coliform monitoring results for this system. The information provided is given with the Application question number and guidance response.

NEOB WELL:

- 2 (II. A.) See attached Well Completion Report showing that the source is drilled bedrock well.
- 3 (III. B.) See attached Site Map showing the well located ~ 1000 feet from the Connecticut River.
- 5 (II. C.) See the attached Well Completion Report showing that the well has 38 feet of casing with drive shoe and cement grout used to seal the casing into bedrock.
- 6 (II. D.) See the attached Well Completion Report showing that the well has a confining layer: the 0-27 feet lithology shows a layer of clay before bedrock was found, this layer was confirmed by telephone conversation with Green Mountain Well. The clay-confining layer with the drive shoe and cement grout sealing the casing to bedrock prevents the well from being under the direct influence of surface water. Due to stream and site elevation, groundwater flows down towards the river. The surface water elevation typically controlled by the downstream Vernon Dam is 220' above mean sea level. The plant buildings are at an elevation of 250' above mean sea level, which is above the 100-year flood elevation. The information, which supports this is included and is found in the map and table from the Soil Survey of Windham County. The NEOB Well is at an elevation slightly above the 250' and therefore not under direct influence of surface water of the Connecticut River. Additionally, the West Well at Vermont Yankee was approved for a MPA exemption, and the distance from the NEOB well is approximately 400'. The lithology of this well also aids in defining the clay-confining layer of the NEOB well. The results of the one-year of coliform data are summarized with no positive results found. This well appears not to be in a karst terrain.

If you have any questions concerning the information contained in this submittal, please call me at 802-258-5663.

Sincerely,

Barbara Williams
Environmental Program Lead

David Tkatch
Chemistry Manager

VERMONT YANKEE NUCLEAR POWER CORPORATION

NEOB Well Coliform Monitoring Results

SAMPLE DATE	Test/Method	1 st Floor Cafeteria	2 nd Floor Kitchen	3 rd Floor Kitchen
3/8/99 1 st Quarter	Total Coliform SM9223	Absent	Absent	Absent
	E. coli SM9223	Absent	Absent	Absent
4/26/99 2 nd Quarter	Total Coliform SM9223	N/S	Absent	N/S
	E. coli SM9223	N/S	Absent	N/S
8/12/99 3 rd Quarter	Total Coliform SM9223	Absent	N/S	N/S
	E. coli SM9223	Absent	N/S	N/S
10/1/99 4 th Quarter	Total Coliform SM9223	N/S	N/S	Absent
	E. coli SM9223	N/S	N/S	Absent

Where N/S means No sample was required.



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VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATER SUPPLY DIVISION
GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER

EXEMPTION APPLICATION

For The Determination Of Exemption From Microscopic Particulate
Analysis (MPA) Testing

The water system may use this form to request an exemption from the requirement to test its groundwater source(s) by Microscopic Particulate Analysis testing. The MPA testing shall provide evidence to be used for the determination of the direct influence of surface water on a groundwater source. If the groundwater source does not qualify for an exemption from MPA testing, then those sources will be tested for the presence of surface water indicators and a corresponding Risk of Contamination level assigned to them.

In filling out this Application please follow the numbered line-by-line instructions, progressing to the indicated sections as directed in Bold Type. Please place an [X] in the appropriate boxes and supply all supporting documentation. Refer to the Guidance Document (Sections referenced) for further explanation of the required documentation. When the line-by-line instructions indicate that the Application has been finished, send the Application along with all requested supporting documentation to the Water Supply Division.

Town: Vernon

Public Water System name: Vermont Yankee NDB Well

Water System I. D. # (WSID): 20738

(Please make additional copies of this application and complete one form for each groundwater source which is to be considered for an exemption.)

Please be sure to complete and include the attached Inventory Of Water System Sources with your submittal.

1. Source Name: New Engineering Office Building (NEOB) Well

Source Identification Number or letter: 6642
(Include a USGS Topographic Map showing the location of each groundwater source which contributes to the water system.)

Source Type:

- ☒ A. Drilled Bedrock Well.
☐ B. Drilled Gravel Well,
☐ C. Well Point, or Dug Well.
☐ D. Infiltration Gallery, or Spring.

Current Source Status:

- ☒ New Source.
☒ Permanent,
☐ Seasonal Standby (Planned use).
☐ Emergency, or Back-up (Unplanned use).

Is this source currently filtered?-----Yes ☒ No ☐

If yes, describe method and type of filtration _____

50micron cartridge filter

(Advance to line 2.)

2. Is the source a Spring or Infiltration Gallery?--Yes ☐ No ☒

If No, Advance to line 3. See Guidance Doc. Section II, A.

If Yes, Advance to Line 11. See Guidance Doc. Section III-VI.

3. Is the source located 150 feet or more from surface water?----
-----Yes ☒ No ☐

If Yes, Advance to line 4. See Guidance Doc. Section. II, B.

If No, Advance to line 7. See Guidance Doc. Section. II, B.

4. Is the source a drilled bedrock well?-----Yes ☒ No ☐

If Yes, Advance to line 5.

If No, Advance to Line 11.

5. Does the source have greater than 50 feet of watertight casing below grade?-----Yes ☐ No ☒

If Yes, Advance to line 11. See Guidance Doc. Section II, C.

If No, Advance to line 6.

6. Is there a confining layer present between the surface water and the source aquifer?-----Yes ☒ -No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, D.
If No, Advance to line 11. See Guidance Doc. Section III-VI.

7. Please complete all of the following:

- A. Does the source have a historical association with water-borne disease outbreaks?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, E.

- B. Has the source, within the last three year period, had one or more violations of total coliform MCL, or repeatedly failed to meet coliform monitoring requirements?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, F.

- C. Is the source subject to surface water influence by annual flooding?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, G.

- D. Are there construction defects or deficiencies which could allow surface water to directly enter the source?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, H.

- E. Does the source have a tested capability to yield more than 500 gallons per minute?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, I.

- F. Does the source have any other evidence of being under the direct influence of surface water?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, J.

If any of the above items in line 7 were answered Yes, Advance to line 11. See Guidance Doc. Section III-VI.

If all of the above items in line 7 were answered No, Advance to line 8.

8. Is the top of the well screen, bottom of the well casing, or the bedrock surface greater than 50 feet below ground surface?-----Yes ☐ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, K.
If No, Advance to line 9.

9. Is there a confining layer present between the source aquifer and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section II, D.
If No, Advance to line 10.

10. Is there a direct hydraulic connection between the source and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section III-VI.
If No, Advance to line 11. See Guidance Doc. Section II, L.

11. If this Application was completed with the help of an environmental consultant, engineer, or well driller, please have them sign below. (Then advance to line 12.)

Signature

Profession

Affiliation

Phone #

Date

12. I hereby certify that my answers to these questions are accurate and the attachments meet the requirements of the Guidance Document.

Barbara Williams

(802) 258-5663

2/25/2000

Signature; Owner, Responsible Person

Phone #

Date

STOP. The application procedure for this source is finished.
Please read the following:

Please submit all completed Exemption Application forms AND SUPPORTING DOCUMENTATION, including the Inventory of Water System Sources form, to the following address.

Water Supply Division
The Old Pantry Building
103 South Main Street
Waterbury, VT. 05671-0403
(802) 241-3400

Please contact this office if you have any questions regarding the completion of this Application. Please address your submittals or inquires to either the Regional Manager or Assistant Regional Manager for the region within which your water system is located. (See enclosed map).

rip\7.19.93

INVENTORY OF WATER SYSTEM SOURCES

Water System Name: Vermont Yankee NEOB Well

WSID # 20738

Please list each source (permanent, seasonal, emergency, or other) which provides water to your water system in the spaces provided below. The source ID. should correspond with the source identification used to locate the source on the topographic map accompanying this Application. Also indicate which source construction type you have by using the designated letter below (A, B, C, D, or E).

Source Type

- A. Drilled Bedrock Well
B. Drilled Gravel Well
C. Well Point, or Dug Well
D. Infiltration Gallery or Spring
E. Surface Water
F. Purchased from another water system, WSID #

[illegible]

Area Map for Vermont Yankee Nuclear Power Corporation in Vernon (from USGS 1984 Brattleboro VT-NH 1:25000, 7.5 x 15').

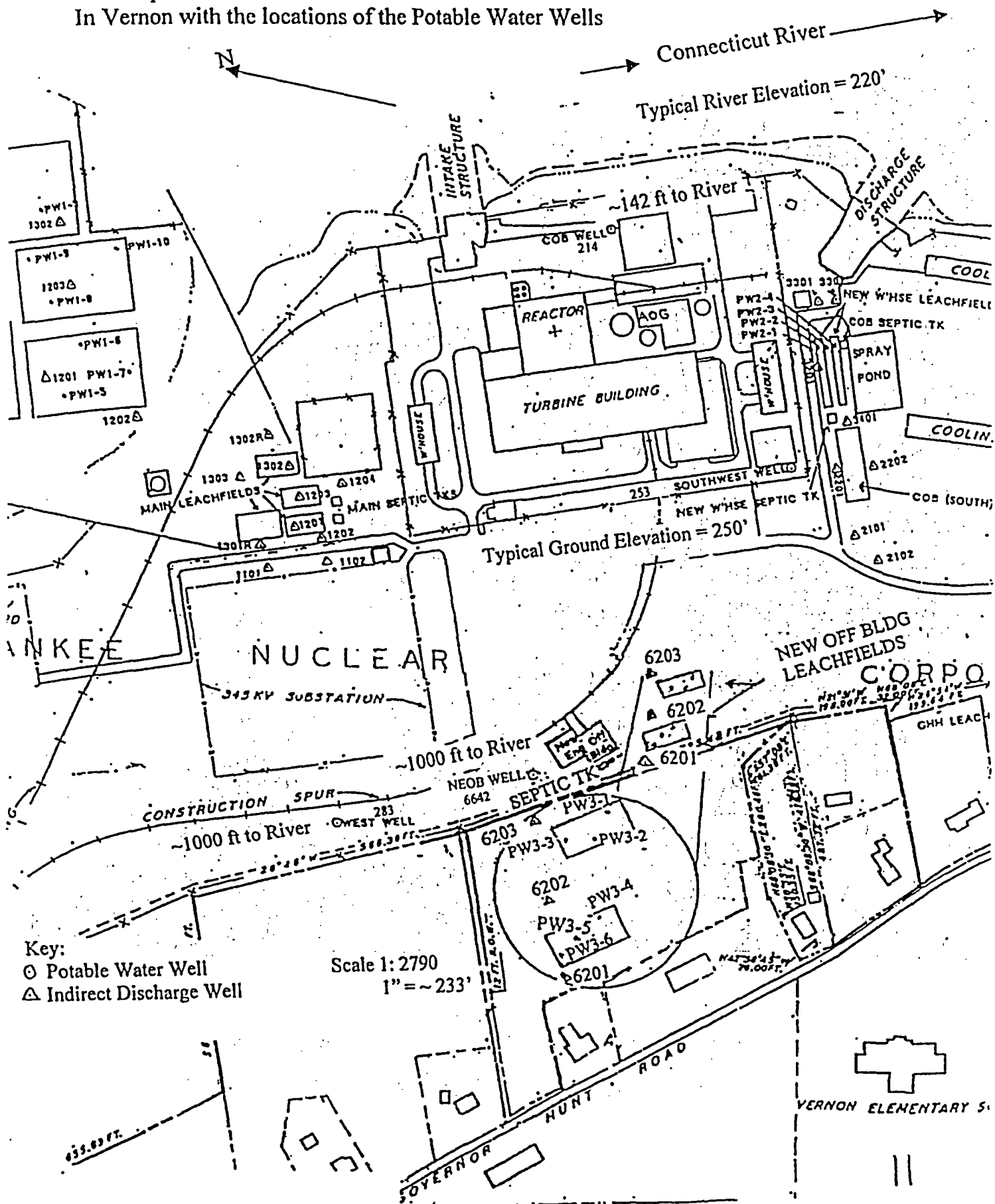
Key features and labels on the map include:

- Geographic Features:** Roaring Brook Wildlife Management Area, Sand Island Pit, Gravel Pit, Central Park Sta, Vernon Dam, Stebbins I.
- Infrastructure:** Vermont Yankee Nuclear Power Sta, New Eng Office Bldg, West Well 283, NEQB Well 6642, Southwest Well 253, COB Well 214, Sub 510, Sub 511, Sub 512, Sub 513, Sub 514, Sub 515, Sub 516, Sub 517, Sub 518, Sub 519, Sub 520, Sub 521, Sub 522, Sub 523, Sub 524, Sub 525, Sub 526, Sub 527, Sub 528, Sub 529, Sub 530, Sub 531, Sub 532, Sub 533, Sub 534, Sub 535, Sub 536, Sub 537, Sub 538, Sub 539, Sub 540, Sub 541, Sub 542, Sub 543, Sub 544, Sub 545, Sub 546, Sub 547, Sub 548, Sub 549, Sub 550, Sub 551, Sub 552, Sub 553, Sub 554, Sub 555, Sub 556, Sub 557, Sub 558, Sub 559, Sub 560, Sub 561, Sub 562, Sub 563, Sub 564, Sub 565, Sub 566, Sub 567, Sub 568, Sub 569, Sub 570, Sub 571, Sub 572, Sub 573, Sub 574, Sub 575, Sub 576, Sub 577, Sub 578, Sub 579, Sub 580, Sub 581, Sub 582, Sub 583, Sub 584, Sub 585, Sub 586, Sub 587, Sub 588, Sub 589, Sub 590, Sub 591, Sub 592, Sub 593, Sub 594, Sub 595, Sub 596, Sub 597, Sub 598, Sub 599, Sub 600, Sub 601, Sub 602, Sub 603, Sub 604, Sub 605, Sub 606, Sub 607, Sub 608, Sub 609, Sub 610, Sub 611, Sub 612, Sub 613, Sub 614, Sub 615, Sub 616, Sub 617, Sub 618, Sub 619, Sub 620, Sub 621, Sub 622, Sub 623, Sub 624, Sub 625, Sub 626, Sub 627, Sub 628, Sub 629, Sub 630, Sub 631, Sub 632, Sub 633, Sub 634, Sub 635, Sub 636, Sub 637, Sub 638, Sub 639, Sub 640, Sub 641, Sub 642, Sub 643, Sub 644, Sub 645, Sub 646, Sub 647, Sub 648, Sub 649, Sub 650, Sub 651, Sub 652, Sub 653, Sub 654, Sub 655, Sub 656, Sub 657, Sub 658, Sub 659, Sub 660, Sub 661, Sub 662, Sub 663, Sub 664, Sub 665, Sub 666, Sub 667, Sub 668, Sub 669, Sub 670, Sub 671, Sub 672, Sub 673, Sub 674, Sub 675, Sub 676, Sub 677, Sub 678, Sub 679, Sub 680, Sub 681, Sub 682, Sub 683, Sub 684, Sub 685, Sub 686, Sub 687, Sub 688, Sub 689, Sub 690, Sub 691, Sub 692, Sub 693, Sub 694, Sub 695, Sub 696, Sub 697, Sub 698, Sub 699, Sub 700, Sub 701, Sub 702, Sub 703, Sub 704, Sub 705, Sub 706, Sub 707, Sub 708, Sub 709, Sub 710, Sub 711, Sub 712, Sub 713, Sub 714, Sub 715, Sub 716, Sub 717, Sub 718, Sub 719, Sub 720, Sub 721, Sub 722, Sub 723, Sub 724, Sub 725, Sub 726, Sub 727, Sub 728, Sub 729, Sub 730, Sub 731, Sub 732, Sub 733, Sub 734, Sub 735, Sub 736, Sub 737, Sub 738, Sub 739, Sub 740, Sub 741, Sub 742, Sub 743, Sub 744, Sub 745, Sub 746, Sub 747, Sub 748, Sub 749, Sub 750, Sub 751, Sub 752, Sub 753, Sub 754, Sub 755, Sub 756, Sub 757, Sub 758, Sub 759, Sub 760, Sub 761, Sub 762, Sub 763, Sub 764, Sub 765, Sub 766, Sub 767, Sub 768, Sub 769, Sub 770, Sub 771, Sub 772, Sub 773, Sub 774, Sub 775, Sub 776, Sub 777, Sub 778, Sub 779, Sub 780, Sub 781, Sub 782, Sub 783, Sub 784, Sub 785, Sub 786, Sub 787, Sub 788, Sub 789, Sub 790, Sub 791, Sub 792, Sub 793, Sub 794, Sub 795, Sub 796, Sub 797, Sub 798, Sub 799, Sub 800, Sub 801, Sub 802, Sub 803, Sub 804, Sub 805, Sub 806, Sub 807, Sub 808, Sub 809, Sub 810, Sub 811, Sub 812, Sub 813, Sub 814, Sub 815, Sub 816, Sub 817, Sub 818, Sub 819, Sub 820, Sub 821, Sub 822, Sub 823, Sub 824, Sub 825, Sub 826, Sub 827, Sub 828, Sub 829, Sub 830, Sub 831, Sub 832, Sub 833, Sub 834, Sub 835, Sub 836, Sub 837, Sub 838, Sub 839, Sub 840, Sub 841, Sub 842, Sub 843, Sub 844, Sub 845, Sub 846, Sub 847, Sub 848, Sub 849, Sub 850, Sub 851, Sub 852, Sub 853, Sub 854, Sub 855, Sub 856, Sub 857, Sub 858, Sub 859, Sub 860, Sub 861, Sub 862, Sub 863, Sub 864, Sub 865, Sub 866, Sub 867, Sub 868, Sub 869, Sub 870, Sub 871, Sub 872, Sub 873, Sub 874, Sub 875, Sub 876, Sub 877, Sub 878, Sub 879, Sub 880, Sub 881, Sub 882, Sub 883, Sub 884, Sub 885, Sub 886, Sub 887, Sub 888, Sub 889, Sub 890, Sub 891, Sub 892, Sub 893, Sub 894, Sub 895, Sub 896, Sub 897, Sub 898, Sub 899, Sub 900, Sub 901, Sub 902, Sub 903, Sub 904, Sub 905, Sub 906, Sub 907, Sub 908, Sub 909, Sub 910, Sub 911, Sub 912, Sub 913, Sub 914, Sub 915, Sub 916, Sub 917, Sub 918, Sub 919, Sub 920, Sub 921, Sub 922, Sub 923, Sub 924, Sub 925, Sub 926, Sub 927, Sub 928, Sub 929, Sub 930, Sub 931, Sub 932, Sub 933, Sub 934, Sub 935, Sub 936, Sub 937, Sub 938, Sub 939, Sub 940, Sub 941, Sub 942, Sub 943, Sub 944, Sub 945, Sub 946, Sub 947, Sub 948, Sub 949, Sub 950, Sub 951, Sub 952, Sub 953, Sub 954, Sub 955, Sub 956, Sub 957, Sub 958, Sub 959, Sub 960, Sub 961, Sub 962, Sub 963, Sub 964, Sub 965, Sub 966, Sub 967, Sub 968, Sub 969, Sub 970, Sub 971, Sub 972, Sub 973, Sub 974, Sub 975, Sub 976, Sub 977, Sub 978, Sub 979, Sub 980, Sub 981, Sub 982, Sub 983, Sub 984, Sub 985, Sub 986, Sub 987, Sub 988, Sub 989, Sub 990, Sub 991, Sub 992, Sub 993, Sub 994, Sub 995, Sub 996, Sub 997, Sub 998, Sub 999, Sub 1000, Sub 1001, Sub 1002, Sub 1003, Sub 1004, Sub 1005, Sub 1006, Sub 1007, Sub 1008, Sub 1009, Sub 1010, Sub 1011, Sub 1012, Sub 1013, Sub 1014, Sub 1015, Sub 1016, Sub 1017, Sub 1018, Sub 1019, Sub 1020, Sub 1021, Sub 1022, Sub 1023, Sub 1024, Sub 1025, Sub 1026, Sub 1027, Sub 1028, Sub 1029, Sub 1030, Sub 1031, Sub 1032, Sub 1033, Sub 1034, Sub 1035, Sub 1036, Sub 1037, Sub 1038, Sub 1039, Sub 1040, Sub 1041, Sub 1042, Sub 1043, Sub 1044, Sub 1045, Sub 1046, Sub 1047, Sub 1048, Sub 1049, Sub 1050, Sub 1051, Sub 1052, Sub 1053, Sub 1054, Sub 1055, Sub 1056, Sub 1057, Sub 1058, Sub 1059, Sub 1060, Sub 1061, Sub 1062, Sub 1063, Sub 1064, Sub 1065, Sub 1066, Sub 1067, Sub 1068, Sub 1069, Sub 1070, Sub 1071, Sub 1072, Sub 1073, Sub 1074, Sub 1075, Sub 1076, Sub 1077, Sub 1078, Sub 1079, Sub 1080, Sub 1081, Sub 1082, Sub 1083, Sub 1084, Sub 1085, Sub 1086, Sub 1087, Sub 1088, Sub 1089, Sub 1090, Sub 1091, Sub 1092, Sub 1093, Sub 1094, Sub 1095, Sub 1096, Sub 1097, Sub 1098, Sub 1099, Sub 1100, Sub 1101, Sub 1102, Sub 1103, Sub 1104, Sub 1105, Sub 1106, Sub 1107, Sub 1108, Sub 1109, Sub 1110, Sub 1111, Sub 1112, Sub 1113, Sub 1114, Sub 1115, Sub 1116, Sub 1117, Sub 1118, Sub 1119, Sub 1120, Sub

10

42072-G5-TM-025

N



SOIL SURVEY OF WINDHAM COUNTY, VERMONT



TABLE 17.--SOIL AND WATER FEATURES

("Flooding" and "water table" and terms such as "brief," "occasional," "apparent," and "perched" are explained in the text. The symbol < means less than; > means more than. Absence of an entry indicates that the feature is not a concern or that data were not estimated)

Soil name and map symbol	Hydrologic group	Flooding			High water table			Bedrock	Potential frost action	Risk of corrosion	
		Frequency	Duration	Months	Depth	Kind	Months			Uncoated steel	Concrete
					<u>Ft</u>			<u>In</u>			
1A, 1E, 1C, 1D--- Unadilla	B	None-----	---	---	>6.0	---	---	>60	High-----	Low-----	Moderate.
1E----- Udorthents	B	None-----	---	---	>6.0	---	---	>60	High-----	Low-----	Moderate.
2A----- Belgrade	B	None-----	---	---	1.5-3.5	Apparent	Nov-Apr	>60	High-----	Moderate	Moderate.
3B*, 3C*, 3D*, 3E*: Quonset	A	None-----	---	---	>6.0	---	---	>60	Low-----	Low-----	High.
Warwick	A	None-----	---	---	>6.0	---	---	>60	Low-----	Low-----	High.
5B, 5C, 5D, 5E--- Windsor	A	None-----	---	---	>6.0	---	---	>60	Low-----	Low-----	High.
9B----- Deerfield	B	None-----	---	---	1.5-3.0	Apparent	Dec-Apr	>60	Moderate---	Low-----	High.
10A, 10B----- Agawan	B	None-----	---	---	>6.0	---	---	>60	Low-----	Low-----	High.
11B*, 11C*, 11D*: Berkshire	B	None-----	---	---	>6.0	---	---	>60	Moderate---	Low-----	High.
Monadnock	B	None-----	---	---	>6.0	---	---	>60	Low-----	Low-----	High.
12C*, 12D*, 12E*: Stratton	C	None-----	---	---	>6.0	---	---	10-20	High-----	High-----	High.
Glebe	C	None-----	---	---	>6.0	---	---	20-40	High-----	High-----	High.

See footnote at end of table.

Water Supply Division Well Report
Well Statistics

Printed: 2/23/00

Well Tag Number: 8/98 Date Report Received: 8/24/98 Well Report Number: 6,642 Map Cell: 39D9
Owner's Name: Vt Yankee Unique Location Name For GIS: VN6642
Purchaser's Name:
E-911 Address:
Town Name: Vernon Sub Division: Lot Number:
Date Well Was Completed: 7/14/98
Purposed Use of Well: Industrial Reason for Drilling Well: New Supply
Well Type:
Drilling Equipment: Rotary (AP) ☐ Well Has Screen Total Depth of Well (in feet): 500.00
Casing Finish: Above ground, unfinished
Total Casing Length (in feet): 33.00 Casing Length below Land Surface (in feet): 36.00 Casing Length Exposed: 0.00
Casing Diameter (in inches): 6.00 Casing Material: Steel Casing Weight (in lbs/foot): 19.00
Length of Liner Used (in feet): 0.00 Liner Diameter (in inches): 0.00 Liner Material:
Liner Weight (in lbs/foot): 0.00 Depth To Liner Top: 0.00
Method of Sealing Casing: Grout bottom only ☐ Not Steel Casing
Grout Type:
Diameter Drilled in Bedrock (in inches): 0.00 Depth Drilled in Bedrock: 0.00
Screen Make and Type: Screen Material:
Screen Length (in feet): 0.00 Screen Diameter (in inches): 0.00
Screen Slot Size (in inches): 0.000 Depth to top of screen below land surface (in feet): 0.00
Gravel Size or Type:
Yield Test Method: Compressed air Yield Tested At (Gallons per Minute): 30.00
☐ Hydro Fracture Resulting Flow if HydroFractured: 0.00
Static Water Level (in feet): 4.00 ☐ Well is OverFlowing ☐ Has Water been Analyzed
Comments: water at 260,330,380,410

Reason for Well Development:

Well Driller: Richard Stromberg

Tax Map:

Depth To Bedrock (in feet): 27

☐ Gravel We

Items in *ITALICS* are recent additions to the computer databases. Information for these fields MAY exist in the paper files that is not entered here.

Water Supply Division Well Report

Printed: 2/23/00

Town: Vernon		Well Lithology		Well Report Number:	6,642
Starting Depth	Ending Depth	GPM	Lithology	Driller's Description	
0	27		topsoil/clay/gravel	Dirt, soil, topsoil, loam	
27	240		redish gray	Rock, bedrock, ledge, etc.	
240	320		gray	Rock, bedrock, ledge, etc.	
320	358		pinkish gray	Rock, bedrock, ledge, etc.	
358	500		gray	Rock, bedrock, ledge, etc.	

Items in *ITALICS* are recent additions to the computer databases. Information for these fields MAY exist in the paper files that is not entered here

WELL NO. / TAG NO.

8 / 98

(If no owner's name)

This report must be completed and submitted to the Department of Environmental Conservation, 103 South Main Street (10M), Waterbury, VT 05676, no later than 60 days of the completion of the well.

State of Vermont
Dept. of Environmental Conservation
103 South Main Street (10M)
Waterbury, VT 05676
WELL COMPLETION REPORT

DEPARTMENT USE ONLY

E.C. _____ U.S.G.S. _____
Field Location ☐ Map coord. _____
Latitude _____ Elev. _____
Longitude _____ Topo. _____
Scale: 62,500 ☐ 25,000 ☐ 24,000 ☐
Data in Town Files ☐

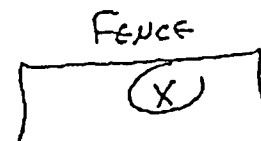
Location map attached to WOR

1. WELL OWNER VT YANKEE, Governor Hunt Rd, VERNON, VT 05354
OR
WELL PURCHASER _____
2. LOCATION OF WELL TOWN VERNON SUBDIVISION Gov. Hunt Rd LOT NO. _____
3. DATE WELL WAS COMPLETED 7/16/98
4. PROPOSED USE OF WELL: ☐ Domestic, ☒ Other COMMERCIAL
5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Season Existing Well, ☐ Test or Exploration,
☐ Replace Additional Supply, ☐ Other _____
6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary, ☐ Air-P, ☐ Other _____
7. TYPE OF WELL: ☒ Bedrock, ☐ Open Hole, ☐ Open End Casing, ☐ Borehole or Slotted, ☐ Other _____
8. TOTAL DEPTH OF WELL: 500 Feet below land surface
9. CASING FINISH: ☐ Heavy galvanized, ☒ Light galvanized, ☐ Unfinished, ☐ Buried, ☐ In Pit, ☐ Cemented, ☐ Vinyl lined, ☐ Other _____
10. CASING DETAILS: Form 38 Below surface 36 in dia. 6 in. Material Steel WT 19 lb./ft.
11. LINER OR INNER CASING DETAILS: Length _____ ft. Diameter _____ in. Material _____ WT _____ lb./ft.
12. METHOD OF SEALING CASING TO BEDROCK: ☒ Grout Seal, ☒ Grout - 1500 Bausch, ☐ Grout - 1000, ☐ Grout - 500, ☐ Grout - 250, ☐ Grout - 125, ☐ Grout - 62.5, ☐ Other _____
13. SCREEN DETAILS: Hole size _____, Depth to top of screen _____ ft. Screen material _____, Screen size or type _____
14. YIELD TEST: ☐ Static, ☐ Pumped, ☒ Constant draw, 1/2 gpm at 30 gal/min. ☐ Permittable draw rate _____
15. STATIC WATER LEVEL: 4 feet below land surface, Date of Test 7/15/98, Conditions of _____
16. WATER ANALYSIS: Was the water tested? ☒ Yes, if Yes, Where _____
17. SPECIAL NOTES: _____
18. WELL LOG

Depth from Land Surface	Feet	Feet	Remarks	Notes
Ground Surface	27		Topsoil, clay, GRAVEL	
	27	240	reddish gray	
	240	320	GRAY	
	320	358	Pinkish gray	
	358	500	GRAY -	
			260, 330, 320, 410	

19. SITE MAP

Show permanent structures such as buildings, sheds, ponds, etc. for other well marked and indicate not less than 1 inch per foot and give to the north. Indicate large water bodies and topographic features.



20. TESTED YIELD

Feet	Duration and Remarks

WELL DRILLED BY: Michael JennaDOING BUSINESS AS: Green Mt Well Co IncREPORT FILED BY: P. StronbergDATE OF REPORT: 7/16/98TEL. DRILL. EPS. NO. 53

WATER WELLS

GRAVEL DEVELOPED WELLS

GREEN MOUNTAIN WELL CO. INC.

EDWARD J. STROMBERG, Pres.

BOX 13

PUTNEY, VERMONT

802-387-5529

05346

July 15, 1998

Vermont Yankee Corp
Att: Theresa Darting
Governor Hunt Road
Vernon, Vt. 05345
P.O. 97-57901-02

500	Feet Drilling	\$8.25	\$ 4125.00
38	Feet 6" casing, 19#	\$8.00	304.00
	Contamination prevention package		95.00
30	Feet Benseal Grout	\$10.00	300.00
5	Bags Benseal (picked up)	\$18.00	90.00
1	Drilling Mud		15.00
			\$ 4929.00
	5% Vt. Sales Tax		40.20
			\$ 4969.20
	Recovery Rate: 30 GPM		
	"SATISFIED CUSTOMERS ARE OUR RECOMMENDATION"		

Well report

Ed 4929.20 = 246.45

17

WELL NO. / TAG NO.

109 / 53187

(For Driller's Use)

This report must be completed and submitted to the Department of Environmental Conservation, 103 South Main Street (10N), Waterbury, VT 05676 no later than 60 days after completion of the well.

State of Vermont
Dept. of Environmental Conservation
103 South Main Street (10N)
Waterbury, VT. 05676

WELL COMPLETION REPORT

FEB 11 1989

Location map attached to WCR

DEPARTMENT USE ONLY

E.C. 283 U.S.G.S.
Field Location ☐ Map area 39d9
Latitude _____ Elev. _____
Longitude _____ Twp. _____
Scale: 62,500 ☐ 25,000 ☐ 24,000 ☐
Data in Town Files ☐

1. WELL OWNER VT Yankee, Governor of Hunt Rd Vernon VT 05345
OR
WELL PURCHASER _____

2. LOCATION OF WELL: TOWN Vernon SUBDIVISION Governor Hunt Rd no. 2

3. DATE WELL WAS COMPLETED 7/23/87

4. PROPOSED USE OF WELL: ☒ Domestic, ☐ Other _____

5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration,
☐ Provide Additional Supply, ☐ Other _____

6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary with A-P, ☐ Other _____

7. TYPE OF WELL: ☒ Open Hole in Bedrock, ☐ Open End Casing, ☐ Screened or Slotted; ☐ Other _____

8. TOTAL DEPTH OF WELL: 555 feet below land surface.

9. CASING FINISH: ☐ Above ground, Finished, ☒ Above ground, Unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other _____

10. CASING DETAILS: Total length 5011 ft. Length below L.S. 48 ft. Dia. 6 in. Material Steel WT. 19 lb./ft.

11. LINER OR INNER CASING DETAILS: Length used _____ ft. Diameter _____ in. Material _____ Weight _____ lb./ft.

12. METHOD OF SEALING CASING TO BEDROCK: ☒ Drive Shoe, ☒ Grout - type Cement Grouted 6 in. hole 10 ft. in bedrock
☐ Other _____

13. SCREEN DETAILS: Make and Type _____, Material _____, Length _____ ft., Diameter _____ in.,
Slot Size _____, Depth to top of screen in feet below land surface _____ ft., Gravel pack if used: Gravel Size or Type _____

14. YIELD TEST: ☐ Sealed, ☐ Pumped, ☒ Compressed Air, for 1/2 hours at 50 Gallons per minute

Measured by ☒ Bucket, ☐ Orifice pipe, ☐ Weir, ☐ Meter

☐ Permanent Airline installed

15. STATIC WATER LEVEL: _____ feet below land surface, Date or Time measured _____, Overflows at _____ G.P.M.

16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☒ No, If the, Where _____

17. SPECIAL NOTES: _____

18. WELL LOG

19. SITE MAP

Show permanent structures such as buildings, septic tanks, and, for other land marks and indicate not less than five distances to the well. Indicate local street names and subdivisions lot number.

Depth from Land Surface Feet	Feet	Water Bearing	Formation Description	Sketch
Ground Surface	20		Red sand	
20	39		Brown sand	
39	153		Gray some pink Bars	
153	190		Pink	
190	340		Gray	
340	351		Tan	
351	458		Gray	
458	555		Green	

Fence
* well
old RR
20

20. TESTED YIELD

If the yield was tested at different depths during drilling, list below.

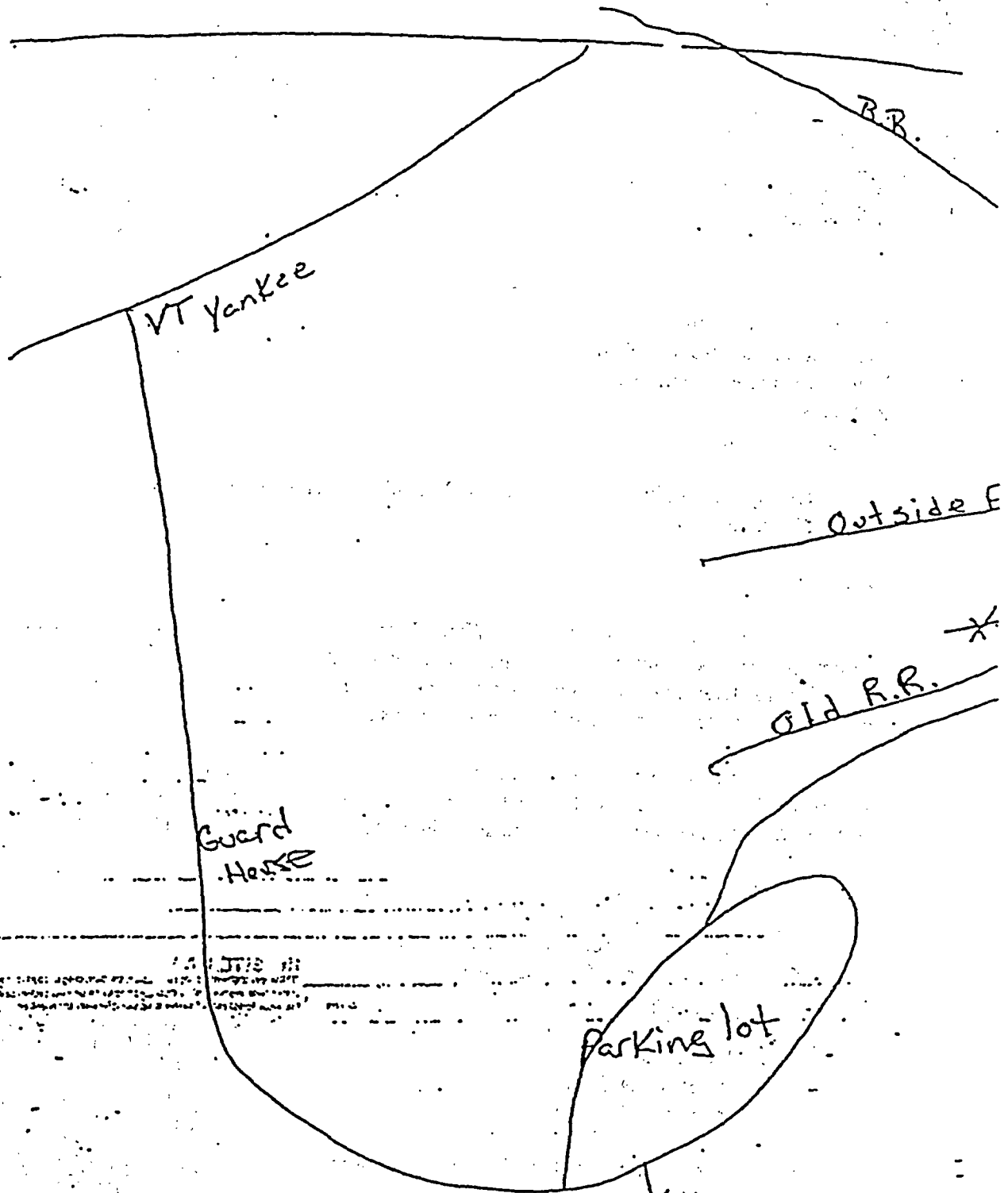
Feet	Gallons Per Minute
230-231	8
350	25

WELL DRILLED BY: Edward Stromberg

DOING BUSINESS AS: Green Mtn. Well Co
Company or Business Name

REPORT FILED BY: Nancy Falcetti
Authorized Signature

18



Outside F

Old R.R. *

Plant
COPY

19

~~18~~



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
FACSIMILE (802) 241-3284

March 2, 2000

Ms. Barbara Williams
Vermont Yankee Nuclear Power Corporation
Environmental Program Lead
P.O. Box 157
Vernon, VT 05354

Re: Exemption Application, Microscopic Particulate Analysis (MPA) testing,
NEOB Bedrock Well

Dear Barbara:

As a requirement of the Vermont Water Supply Rule, Chapter 21, all non-transient non-community water systems using a groundwater source and any new proposed groundwater source(s) must obtain a determination by the Secretary of the Agency of Natural Resources as to whether the groundwater source is under the direct influence of surface water.

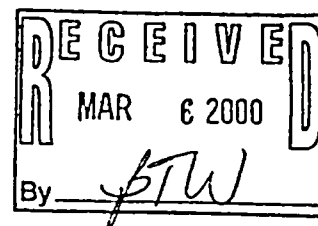
Based on a review of the MPA exemption application dated February 25, 2000 and the attached supporting documentation, we find that the Bedrock Well that serves Vermont Yankee's NEOB Water System (WSID 20738) is not under the direct influence of surface water and is exempt from testing.

The State of Vermont
Agency of Natural Resources
Department of Environmental Conservation
Canute E. Dalmasse, Commissioner

by: Rodney I. Pingree
Rodney I. Pingree
Water Systems Chief
Water Supply Division

as of this 2nd day of March, 2000 in Waterbury, Vermont

cc: Jean Nicolai, Chief, Certification and Compliance Section
Tim Raymond, Region 4 Manager
WSID #20738





Aquaterra
39 Pinnacle Drive
South Burlington, Vermont 05403
Tel/fax: (802) 860-5016

10 August 1998

Mr. Tim Raymond
ANR DEC Water Supply Division
103 South Main Street The Old Pantry
Waterbury, Vermont 05671-0403

Re: MPA exemption application for Vermont Yankee's WSID 8332 and 20559

Dear Mr. Raymond

On behalf of Vermont Yankee, enclosed are Exemption Applications from MPA testing of Vermont Yankee's two (2) potable water supply systems in Vernon. This letter and attached materials includes supplemental information on drilled bedrock water supply wells for the above referenced systems as outlined in the Exemption Application Guidance Document. Attached materials include a USGS map showing the water supply wells, a Site Map showing more detail, a Well Driller Reports for each well, and coliform monitoring data for one of the systems. The information provided below is given with the Application question number and the Guidance response number.

WSID 8332 Vermont Yankee Main Plant

Southwest Well:

2 (II.A.) See attached Well Driller Report showing that the source is a drilled bedrock well.

3 (II.B.) See attached Site Map showing that the well is 660 feet from Connecticut River.

5 (II.C.) See attached Well Driller Report showing that well has 66 feet of casing, with drive shoe used to seal casing to bedrock.

West Well:

2 (II.A.) See attached Well Driller Report showing that the source is a drilled bedrock well.

3 (II.B.) See attached Site Map showing that the well is ~ 1000 feet from Connecticut River.

5 (II.C.) See attached Well Driller Report showing that well has 51 feet of casing, with drive shoe and cement grout used to seal casing 10' into bedrock. Ground surface has been brought up to provide 50 feet of casing below ground surface.

COPY

WSID 20559 Vermont Yankee, C.O.B. System

2 (II.A.) See attached Well Driller Report showing that the source is a drilled bedrock well.

3 (II.B.) See attached Site Map showing that the source is 142 feet from Connecticut River.

7.A. (II.E.) Review of ANR files and conversations with chief operator indicate that the source does not have an historical association with waterborne disease outbreaks.

7.B. (II.F.) See attached tabulation of coliform monitoring. The only times when coliform bacteria were detected in monitoring (1993 to date) were in June 1994 (no fecal coliform present and follow-up sampling showed no presence of coliform bacteria), and April 1996 (samples from COB and Main Plant system believed to be contaminated in laboratory during analysis with wastewater samples; follow-up sampling showed no presence of coliform bacteria in either system).

C. (II.G.) Surface water elevation typically controlled by downstream dam at 220', compared to typical site elevation of 250'. Site is located above 100 year flood elevation.

D. (II.H.) Well casing extends above impermeable asphalt, with local drainage away from casing.

E. (II.I.) Associated wastewater disposal system is permitted for 4607 gallons per day (gpd). Review of 1996 through July 1998 daily water meter readings show that this limit was exceeded less than three percent of the time during this period, typically during outage conditions, when many contractors are present on site. The maximum daily water use during this period was 5800 gpd. This well contains a 1 horsepower submersible pump.

F. (II.J.) No evidence of surface water influence has been observed. The consistent presence of 1,1-Dichloroethene and 1,1-Dichloroethane in this well (each at about 5 micrograms per liter) indicates that this well is drawing water from a limited radius in the surrounding bedrock, as opposed to infiltrating surface water, which would not contain any of these contaminants.

Please contact me or Richard Gerdus (system operator) at Vermont Yankee (258-5501) if you have any questions regarding the information contained in this submittal.

Sincerely

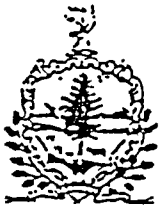


Roland Luxenberg, P.E.

cc: Mr. Richard Gerdus, Vermont Yankee (Vernon, VT)

COPY

3



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council
Telephone 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) 241-5400
FACSIMILE (802) 244-5141

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATER SUPPLY DIVISION
GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER
EXEMPTION APPLICATION

COPY

For The Determination Of Exemption From Microscopic Particulate
Analysis (MPA) Testing

The water system may use this form to request an exemption from the requirement to test its groundwater source(s) by Microscopic Particulate Analysis testing. The MPA testing shall provide evidence to be used for the determination of the direct influence of surface water on a groundwater source. If the groundwater source does not qualify for an exemption from MPA testing, then those sources will be tested for the presence of surface water indicators and a corresponding Risk of Contamination level assigned to them.

In filling out this Application please follow the numbered line-by-line instructions, progressing to the indicated sections as directed in Bold Type. Please place an [X] in the appropriate boxes and supply all supporting documentation. Refer to the Guidance Document (Sections referenced) for further explanation of the required documentation. When the line-by-line instructions indicate that the Application has been finished, send the Application along with all requested supporting documentation to the Water Supply Division.

Town: VERNON

Public Water System name: VERMONT YANKEE MAIN PLANT

Water System I. D. # (WSID): 8332

(Please make additional copies of this application and complete one form for each groundwater source which is to be considered for an exemption.)

Please be sure to complete and include the attached Inventory Of Water System Sources with your submittal.

34

1. Source Name: SOUTHWEST WELL

Source Identification Number or letter: 253
(Include a USGS Topographic Map showing the location of groundwater source which contributes to the water syst:

Source Type:

- ☒ A. Drilled Bedrock Well.
☐ B. Drilled Gravel Well,
☐ C. Well Point, or Dug Well.
☐ D. Infiltration Gallery, or Spring.

Current Source Status:

- ☐ New Source.
☒ Permanent,
☐ Seasonal Standby (Planned use).
☐ Emergency, or Back-up (Unplanned use).

Is this source currently filtered?-----Yes ☒ No ☐

If yes, describe method and type of filtration _____
25 MILRON CARTRIDGE FILTER

(Advance to line 2.)

2. Is the source a Spring or Infiltration Gallery?--Yes ☐ No ☐

If No, Advance to line 3. See Guidance Doc. Section II, A
If Yes, Advance to Line 11. See Guidance Doc. Section III-V.

3. Is the source located 150 feet or more from surface water?--
-----Yes ☒ No ☐

If Yes, Advance to line 4. See Guidance Doc. Section. II, B
If No, Advance to line 7. See Guidance Doc. Section. II, B.

4. Is the source a drilled bedrock well?-----Yes ☒ No ☐

If Yes, Advance to line 5.
If No, Advance to Line 11.

5. Does the source have greater than 50 feet of watertight casin
below grade?-----Yes ☒ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, C
If No, Advance to line 6.

6. Is there a confining layer present between the surface water and the source aquifer?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section II, D.
If No, Advance to line 11. See Guidance Doc. Section III-VI.

7. Please complete all of the following:

- A. Does the source have a historical association with water-borne disease outbreaks?-----Yes [] No []
If No, See Guidance Doc. Section II, E.

- B. Has the source, within the last three year period, had one or more violations of total coliform MCL, or repeatedly failed to meet coliform monitoring requirements?-----Yes [] No []
If No, See Guidance Doc. Section II, F.

- C. Is the source subject to surface water influence by annual flooding?-----Yes [] No []
If No, See Guidance Doc. Section II, G.

- D. Are there construction defects or deficiencies which could allow surface water to directly enter the source?-----Yes [] No []
If No, See Guidance Doc. Section II, H.

- E. Does the source have a tested capability to yield more than 500 gallons per minute?-----Yes [] No []
If No, See Guidance Doc. Section II, I.

- F. Does the source have any other evidence of being under the direct influence of surface water?-----Yes [] No []
If No, See Guidance Doc. Section II, J.

If any of the above items in line 7 were answered Yes, Advance to line 11. See Guidance Doc. Section III-VI.

If all of the above items in line 7 were answered No, Advance to line 8.

8. Is the top of the well screen, bottom of the well casing, or the bedrock surface greater than 50 feet below ground surface?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section II, K.
If No, Advance to line 9.

9. Is there a confining layer present between the source aquifer and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section II, I
If No, Advance to line 10.

10. Is there a direct hydraulic connection between the source and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section III-VI
If No, Advance to line 11. See Guidance Doc. Section II, I.

11. If this Application was completed with the help of an environmental consultant, engineer, or well driller, please have them sign below. (Then advance to line 12.)

<u>R. Lawrence J. Luperberg</u>	<u>CIVIL ENGINEER</u>
Signature	Profession
<u>AQUAFERRA</u>	<u>(802) 241-3400</u>
Affiliation	Phone #
	<u>10 AUGUST 1977</u>
	Date

12. I hereby certify that my answers to these questions are accurate and the attachments meet the requirements of the Guidance Document.

Signature; Owner, Responsible Person Phone # Date

STOP. The application procedure for this source is finished.
Please read the following:

Please submit all completed Exemption Application forms AND SUPPORTING DOCUMENTATION, including the Inventory of Water System Sources form, to the following address.

Water Supply Division
The Old Pantry Building
103 South Main Street
Waterbury, VT. 05671-0403
(802) 241-3400

Please contact this office if you have any questions regarding the completion of this Application. Please address your submittals inquires to either the Regional Manager or Assistant Regional Manager for the region within which your water system is located (See enclosed map).

rip\7.19.9

WELL NUMBER

46-53-86

(For Driller's Use)

This report must be completed and submitted to the Department of Water Resources and Environmental Engineering, State Office Building, Montpelier, Vermont 05602, no later than 60 days after completion of the well.

State of Vermont

DEPARTMENT OF WATER RESOURCES AND ENVIRONMENTAL ENGINEERING WELL COMPLETION REPORT

JAN 27 1987

Location info attached to WCR

WATER RESOURCE USE ONLY

W.R. 253 U.S.G.S.

Field Location Map area 39d9

Latitude _____ " Elev. _____

Longitude _____ " Topo. _____

Scale: 62,500 ☐ 25,000 ☐ 24,000 ☐

Data in Town Files 11

1. WELL OWNER VT. Yankee Nuclear Power Corp. RD 5 Box 169 Brattleboro
OR _____
WELL PURCHASER _____

2. LOCATION OF WELL: TOWN Uelmon SUBDIVISION Ferry Rd. LOT NO. _____

3. DATE WELL WAS COMPLETED 6-16-86

4. PROPOSED USE OF WELL: ☐ Domestic, ☒ Commercial (May be Potable water use with)

5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration,
☐ Provide Additional Supply, ☐ Other _____

6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary with L-P, ☐ Other _____

7. TYPE OF WELL: ☒ WPA ☐ Open Hole in Bedrock, ☐ Screen End Casing, ☐ Screened or Slotted, ☐ Other _____

8. TOTAL DEPTH OF WELL: 500 feet below land surface

9. CASING FINISH: ☐ Above ground, finished, ☒ Above ground, unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other _____

10. CASING DETAILS: Perforation length 67 ft. Length below S 66 ft. Dia 6 in. Material Steel wt 19 lb./ft.

11. LINER OR INNER CASING DETAILS: Length used _____ ft. Diameter _____ in. Material _____ Weight _____ lb./ft.

12. METHOD OF SEALING CASING TO BEDROCK: ☒ Grout Shoe, ☐ Grout - type _____, Drilled _____ in hole _____ ft. in Bedrock

☐ Other _____

13. SCREEN DETAILS: Make and Type _____, Material _____, Length _____ ft., Diameter _____ in., Slot Size _____, Depth to top of screen in feet below land surface _____ ft., Gravel Screen used Gravel Size or Type _____

14. YIELD TEST: ☐ Bailed, ☐ Pumped, ☒ Compressed Air, for 1/2 hours at 6 Gallons per minute

Measured By ☒ Bucket, ☐ Inflow pipe, ☐ Meter, ☐ Other _____

☐ Permanent Airline installed

15. STATIC WATER LEVEL: _____ feet below land surface, Date or time measured _____, Overflows at _____ GPM

16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☐ No, if Yes, Where _____

17. SPECIAL NOTES: grouted

18. WELL LOG

Depth from Land Surface - Feet -	Water - Feet -	Boring	Formation Description	Sketch
Ground Surface	35		Sand - brown	
35	56		" gray	
56	75		Bed rock - lt. gray	
75	85		" Soft (pink)	
85	90		" lt. gray	
90	95		" Soft - tan	
95	145		" lt. gray Bed rock	
145	144		" pink	

(over)

20. TESTED YIELD

If the well was tested at different depths during drilling, list below

Feet	Gallons Per Minute
500	6

WELL DRILLED BY: Edward Stronberg

DOING BUSINESS AS: Green Mt. Well Co. Inc.

Company Business Name

REPORT FILED BY: Arthur E. Stronberg

Authorized Signature

DATE OF REPORT: 9/17/86

WELL DRILLERS LIC. NO. 53

19. SITE MAP

Show permanent structures such as buildings, septic tanks, and/or other land marks and indicate not less than two directions to the well indicate local street name and address on lot number

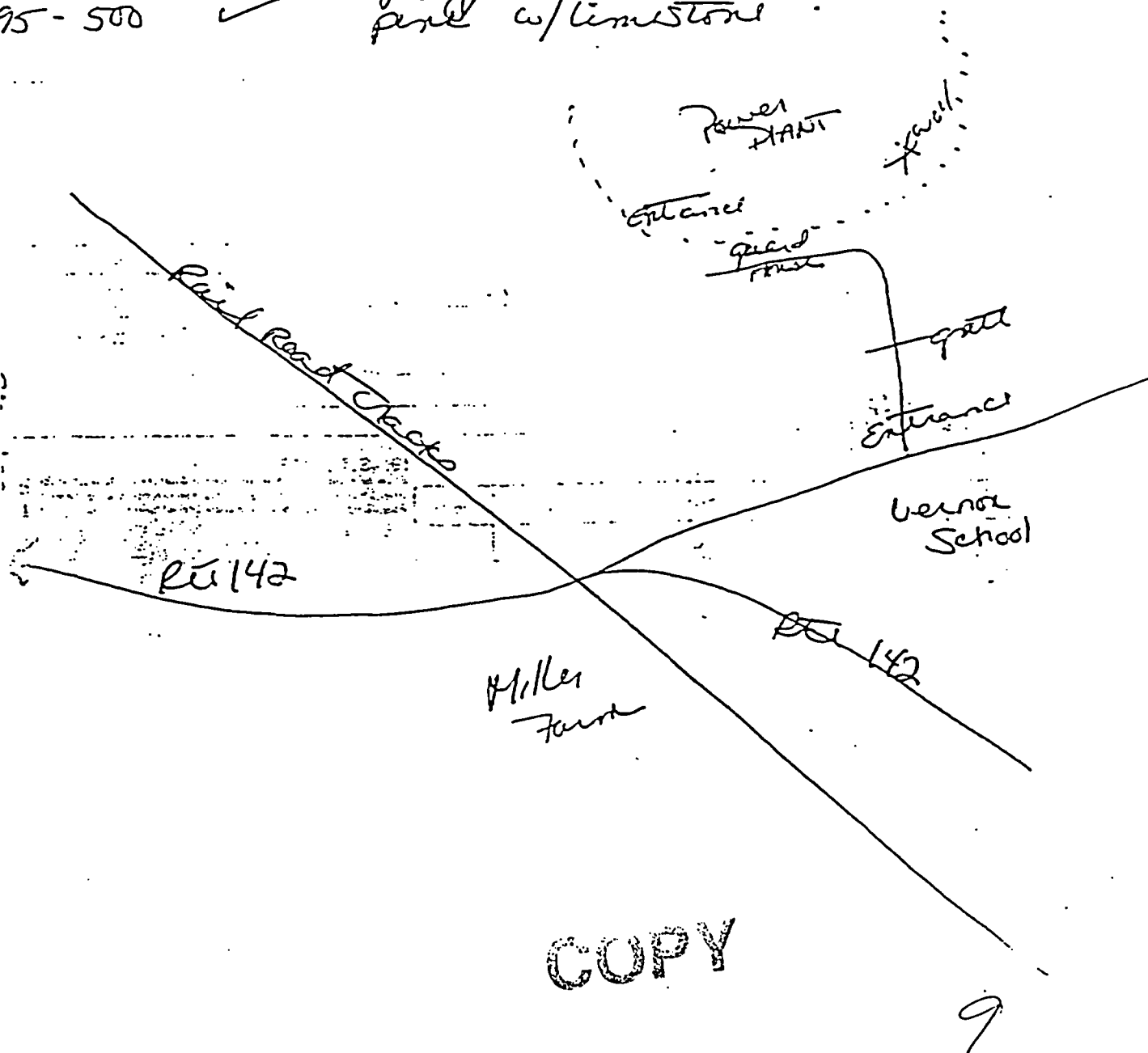
N
↑

see over

COPY

Apix water

64-195	✓	Bedrock or gray
95-196		Soft Spot.
96-225	✓	Soft Little water
25-253		Soft Quarts
53-355		granite-gray
55-360		Pink rock
60-370		gray
70-405		Pink
25-450		gray
50-472		Pink
72-473		Soft gray w/ limestone
73-480		gray w/ limestone
2-495		gray/tan
95-500	✓	fine w/ limestone





State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

Telephone 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
FACSIMILE (802) 244-5141

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATER SUPPLY DIVISION
GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER

EXEMPTION APPLICATION

For The Determination Of Exemption From Microscopic Particulate
Analysis (MPA) Testing

The water system may use this form to request an exemption from the requirement to test its groundwater source(s) by Microscopic Particulate Analysis testing. The MPA testing shall provide evidence to be used for the determination of the direct influence of surface water on a groundwater source. If the groundwater source does not qualify for an exemption from MPA testing, then those sources will be tested for the presence of surface water indicators and a corresponding Risk of Contamination level assigned to them.

In filling out this Application please follow the numbered line-by-line instructions, progressing to the indicated sections as directed in Bold Type. Please place an [X] in the appropriate boxes and supply all supporting documentation. Refer to the Guidance Document (Sections referenced) for further explanation of the required documentation. When the line-by-line instructions indicate that the Application has been finished, send the Application along with all requested supporting documentation to the Water Supply Division.

Town: VERNON

Public Water System name: VERMONT YANKEE MAIN PLANT

Water System I. D. # (WSID): 8332

(Please make additional copies of this application and complete one form for each groundwater source which is to be considered for an exemption.)

Please be sure to complete and include the attached Inventory Of Water System Sources with your submittal.

COPY

1. Source Name: WEST WELL
Source Identification Number or letter: 283
(Include a USGS Topographic Map showing the location of the groundwater source which contributes to the water system.)

Source Type:

- ☒ A. Drilled Bedrock Well.
☐ B. Drilled Gravel Well,
☐ C. Well Point, or Dug Well.
☐ D. Infiltration Gallery, or Spring.

Current Source Status:

- ☐ New Source.
☒ Permanent,
☐ Seasonal Standby (Planned use).
☐ Emergency, or Back-up (Unplanned use).

Is this source currently filtered?-----Yes ☒ No

If yes, describe method and type of filtration

25 MICRON CARTRIDGE FILTER

(Advance to line 2.)

2. Is the source a Spring or Infiltration Gallery?--Yes ☐ No
If No, Advance to line 3. See Guidance Doc. Section II, A.
If Yes, Advance to Line 11. See Guidance Doc. Section III-V.

3. Is the source located 150 feet or more from surface water?-----Yes ☒ No

If Yes, Advance to line 4. See Guidance Doc. Section II, B.
If No, Advance to line 7. See Guidance Doc. Section II, F.

4. Is the source a drilled bedrock well?-----Yes ☒ No
If Yes, Advance to line 5.
If No, Advance to Line 11.

5. Does the source have greater than 50 feet of watertight casing below grade?-----Yes ☒ No

If Yes, Advance to line 11. See Guidance Doc. Section II,
If No, Advance to line 6.

6. Is there a confining layer present between the surface water and the source aquifer?-----Yes ☐ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, D.
If No, Advance to line 11. See Guidance Doc. Section III-VI.

7. Please complete all of the following:

A. Does the source have a historical association with water-borne disease outbreaks?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, E.

B. Has the source, within the last three year period, had one or more violations of total coliform MCL, or repeatedly failed to meet coliform monitoring requirements?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, F.

C. Is the source subject to surface water influence by annual flooding?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, G.

D. Are there construction defects or deficiencies which could allow surface water to directly enter the source?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, H.

E. Does the source have a tested capability to yield more than 500 gallons per minute?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, I.

F. Does the source have any other evidence of being under the direct influence of surface water?-----Yes ☐ No ☐
If No, See Guidance Doc. Section II, J.

If any of the above items in line 7 were answered Yes, Advance to line 11. See Guidance Doc. Section III-VI.

If all of the above items in line 7 were answered No, Advance to line 8.

8. Is the top of the well screen, bottom of the well casing, or the bedrock surface greater than 50 feet below ground surface?-----Yes ☐ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, K.
If No, Advance to line 9.

COPY

COPY

12

- If Yes, Advance to line 11. See Guidance Doc. Section II,
If No, Advance to line 10.

- If Yes, Advance to line 11. See Guidance Doc. Section III-
If No, Advance to line 11. See Guidance Doc. Section II, I

- Robert J. Superberg CIVIL ENGINEER
Signature Profession

12. I hereby certify that my answers to these questions are accurate and the attachments meet the requirements of Guidance Document.

13

WELL NO. / TAG NO.

109 / 53 / 87

(For Driller's Use)

This report must be completed and submitted to the Department of Environmental Conservation, 103 South Main Street (10N), Waterbury, VT 05676 no later than 60 days after completion of the well.

State of Vermont
Dept. of Environmental Conservation
103 South Main Street (10N)
Waterbury, Vt. 05676
WELL COMPLETION REPORT

FEB 11 1988

Location map attached to WCR

DEPARTMENT USE ONLY

E.C. 283 U.S.G.S.
Field Location ☐ Map area 39d9
Latitude _____ Elev. _____
Longitude _____ Topo. _____
Scale: 62,500 ☐ 25,000 ☐ 24,000 ☐
Data in Town Files ☐

1. WELL OWNER VT Yankee, Governor of Hunt Rd Vernon VT 05345
OR
WELL PURCHASER _____

2. LOCATION OF WELL: TOWN Vernon SUBDIVISION Governor Hunt Rd no. 2

3. DATE WELL WAS COMPLETED 7/23/87

4. PROPOSED USE OF WELL: ☒ Domestic, ☐ Other _____

5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration,
☐ Provide Additional Supply, ☐ Other _____

6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary with A-P, ☐ Other _____

7. TYPE OF WELL: ☒ Open Hole in Bedrock, ☐ Open End Casing, ☐ Screened or Slotted; ☐ Other _____

8. TOTAL DEPTH OF WELL: 555 feet below land surface.

9. CASING FINISH: ☐ Above ground, Finished, ☒ Above ground, Unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other _____

10. CASING DETAILS: Total length 5011 ft. Length below L.S. 48 ft. Dia. 6 in. Material Steel Wt. 19 lb./ft.

11. LINER OR INNER CASING DETAILS: Length used _____ ft. Diameter _____ in. Material _____ Weight _____ lb./ft.

12. METHOD OF SEALING CASING TO BEDROCK: ☒ Drive Shoe, ☒ Grout - type Cement Drilled 6 in. hole 10 ft. in Bedrock
☐ Other _____

13. SCREEN DETAILS: Make and Type _____, Material _____, Length _____ ft., Diameter _____ in.,
Slot Size _____, Depth to top of screen in feet below land surface _____ ft., Gravel pack if used: Gravel Size or Type _____

14. YIELD TEST: ☐ Bailed, ☐ Pumped, ☒ Compressed Air, for 1/2 Hours at 50 Gallons per minute

Measured by ☒ Bucket, ☐ Orifice pipe, ☐ Wier, ☐ Meter

☐ Permanent Arline installed

15. STATIC WATER LEVEL: _____ feet below land surface, Date or Time measured _____, Overflows at _____ G.P.M.

16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☒ No, if Yes, Where _____

17. SPECIAL NOTES: _____

18. WELL LOG

19. SITE MAP

Show permanent structure such as buildings, septic tanks, and/or other land marks and indicate not less than two distances to the well. Indicate local street name and subdivision lot number.

Depth from Land Surface Feet	Water Bearing	Formation Description	Sketch
Ground Surface			
20		Red sand	
39		Brown sand	
153		Gray some pink Bars	
155		Pink	
190		Gray	
240		Tan	
351		Gray	
458		green	

Fence
* well
old RR
Rd

20. TESTED YIELD

If the yield was tested at different depths during drilling, list below.

Feet	Gallons Per Minute
230-231	8
350	25
408-410	42

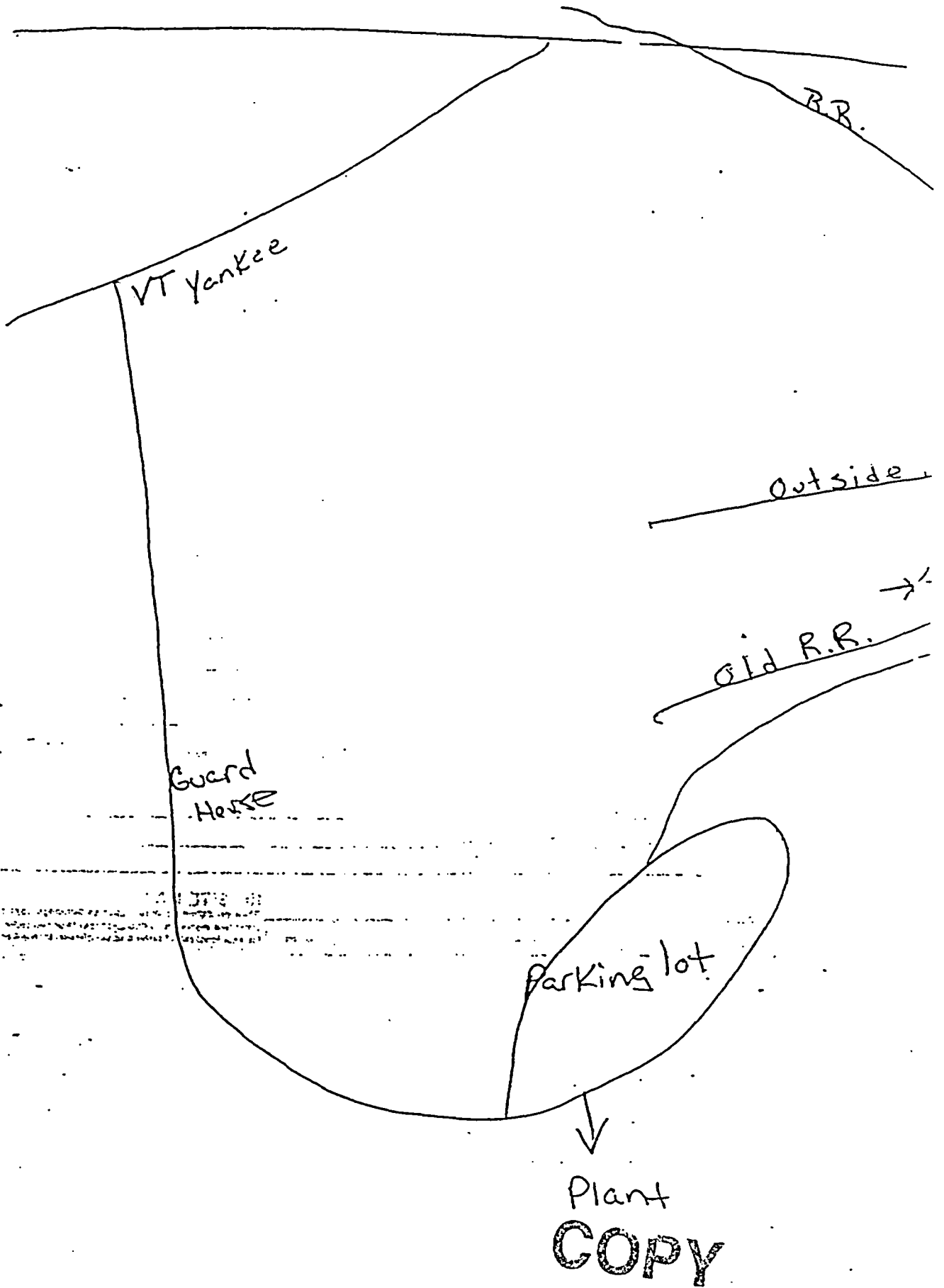
WELL DRILLED BY: Edward Stromberg

DOING BUSINESS AS: Green Mtn. Well Co
Company or Business Name

REPORT FILED BY: Nancy Fohr
Authorized Signature

11.10

14



INVENTORY OF WATER SYSTEM SOURCES

Water System Name: VERMONT YANKEE MAIN PLANT WSID # E332

Please list each source (permanent, seasonal, emergency, or other) which provides water to your water system in the spaces provided below. The source ID. should correspond with the source identification used to locate the source on the topographic map accompanying this Application. Also indicate which source construction type you have by using the designated letter below (A, B, C, D, or E).

Source Type

COPY

- A. Drilled Bedrock Well
B. Drilled Gravel Well
C. Well Point, or Dug Well
D. Infiltration Gallery or Spring
E. Surface Water
F. Purchased from another water system, WSID #

[illegible]



State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
Natural Resources Conservation Council

Telephone 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
FACSIMILE (802) 244-5141

COPY

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATER SUPPLY DIVISION
GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER

EXEMPTION APPLICATION

For The Determination Of Exemption From Microscopic Particulate
Analysis (MPA) Testing

The water system may use this form to request an exemption from the requirement to test its groundwater source(s) by Microscopic Particulate Analysis testing. The MPA testing shall provide evidence to be used for the determination of the direct influence of surface water on a groundwater source. If the groundwater source does not qualify for an exemption from MPA testing, then those sources will be tested for the presence of surface water indicators and a corresponding Risk of Contamination level assigned to them.

In filling out this Application please follow the numbered line-by-line instructions, progressing to the indicated sections as directed in Bold Type. Please place an [X] in the appropriate boxes and supply all supporting documentation. Refer to the Guidance Document (Sections referenced) for further explanation of the required documentation. When the line-by-line instructions indicate that the Application has been finished, send the Application along with all requested supporting documentation to the Water Supply Division.

Town: VERNON

Public Water System name: VERMONT TANKS, C.O.B. SYSTEM

Water System I. D. # (WSID): 20559

(Please make additional copies of this application and complete one form for each groundwater source which is to be considered for an exemption.)

Please be sure to complete and include the attached Inventory Of Water System Sources with your submittal.

18

1. Source Name: COB Well

Source Identification Number or letter: 214
(Include a USGS Topographic Map showing the location of groundwater source which contributes to the water system.)

Source Type:

- ☒ A. Drilled Bedrock Well.
☐ B. Drilled Gravel Well,
☐ C. Well Point, or Dug Well.
☐ D. Infiltration Gallery, or Spring.

COPY

Current Source Status:

- ☐ New Source.
☒ Permanent,
☐ Seasonal Standby (Planned use).
☐ Emergency, or Back-up (Unplanned use).

Is this source currently filtered?-----Yes ☒ No

If yes, describe method and type of filtration
10 MICRON CARTRIDGE FILTERS AND GRANULAR ACTIVATED CARBON

(Advance to line 2.)

2. Is the source a Spring or Infiltration Gallery?--Yes ☐ No

If No, Advance to line 3. See Guidance Doc. Section II, A.
If Yes, Advance to Line 11. See Guidance Doc. Section III--

3. Is the source located 150 feet or more from surface water?-----Yes ☐ No

If Yes, Advance to line 4. See Guidance Doc. Section. II, B
If No, Advance to line 7. See Guidance Doc. Section. II, 1

4. Is the source a drilled bedrock well?-----Yes ☐ No

If Yes, Advance to line 5.
If No, Advance to Line 11.

5. Does the source have greater than 50 feet of watertight casing below grade?-----Yes ☐ No

If Yes, Advance to line 11. See Guidance Doc. Section II,
If No, Advance to line 6.

6. Is there a confining layer present between the surface water and the source aquifer?-----Yes ☐ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, D.

If No, Advance to line 11. See Guidance Doc. Section III-VI.

- 7.. Please complete all of the following:

- A. Does the source have a historical association with water-borne disease outbreaks?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, E.

- B. Has the source, within the last three year period, had one or more violations of total coliform MCL, or repeatedly failed to meet coliform monitoring requirements?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, F.

- C. Is the source subject to surface water influence by annual flooding?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, G.

- D. Are there construction defects or deficiencies which could allow surface water to directly enter the source?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, H.

- E. Does the source have a tested capability to yield more than 500 gallons per minute?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, I.

- F. Does the source have any other evidence of being under the direct influence of surface water?-----Yes ☐ No ☒

If No, See Guidance Doc. Section II, J.

If any of the above items in line 7 were answered Yes, Advance to line 11. See Guidance Doc. Section III-VI.

If all of the above items in line 7 were answered No, Advance to line 8.

8. Is the top of the well screen, bottom of the well casing, or the bedrock surface greater than 50 feet below ground surface?-----Yes ☒ No ☐

If Yes, Advance to line 11. See Guidance Doc. Section II, K.

If No, Advance to line 9.

COPY

20

9. Is there a confining layer present between the source aquifer and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section II
If No, Advance to line 10.

10. Is there a direct hydraulic connection between the source aquifer and surface water?-----Yes [] No []

If Yes, Advance to line 11. See Guidance Doc. Section III
If No, Advance to line 11. See Guidance Doc. Section II,

11. If this Application was completed with the help of an environmental consultant, engineer, or well driller, please have them sign below. (Then advance to line 12.)

R. Paul L. Luperberg CIVIL ENGINEER
Signature Profession
AQUAFER, INC. (802) 241-3400 10 AUGUST 1991
Affiliation Phone # Date

12. I hereby certify that my answers to these questions are accurate and the attachments meet the requirements of the Guidance Document.

Signature; Owner, Responsible Person Phone # Date

STOP. The application procedure for this source is finished.
Please read the following:

Please submit all completed Exemption Application forms and SUPPORTING DOCUMENTATION, including the Inventory of Water Supply Sources form, to the following address.

Water Supply Division
The Old Pantry Building
103 South Main Street
Waterbury, VT. 05671-0403
(802) 241-3400

Please contact this office if you have any questions regarding completion of this Application. Please address your submittals to either the Regional Manager or Assistant Regional Manager for the region within which your water system is located (See enclosed map).

rip\7.19

COPY

21

INVENTORY OF WATER SYSTEM SOURCES

Water System Name: VERMONT YANKEE C.O.D. SYSTEM WSID #: 20559

Please list each source (permanent, seasonal, emergency, or other) which provides water to your water system in the spaces provided below. The source ID. should correspond with the source identification used to locate the source on the topographic map accompanying this Application. Also indicate which source construction type you have by using the designated letter below (A, B, C, D, or E).

Source Type

- A. Drilled Bedrock Well
B. Drilled Gravel Well
C. Well Point, or Dug Well
D. Infiltration Gallery or Spring
E. Surface Water
F. Purchased from another water system, WSID #

COPY

[illegible]

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(For Office's Use)

This report must be completed and submitted to the Department of Water Resources and Environmental Engineering, State Office Building, Montpelier, Vermont 05602, no later than 60 days after completion of the well.

DEPARTMENT OF WATER RESOURCES
AND ENVIRONMENTAL ENGINEERING

WELL COMPLETION REPORT

FEB 29 1985

Location map attached to WCR

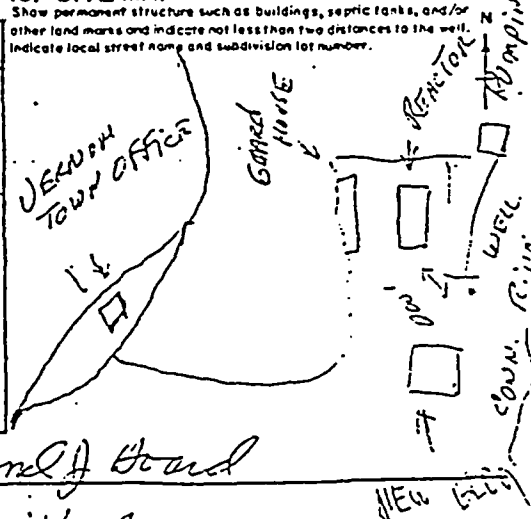
W.R. 214 U.S.G.S. _____
Field Location ☐ Map area 39d9
Latitude _____ "Elev. _____
Longitude _____ "Topo. _____
Scale: 62,500 ☐ 25,000 ☐ 24,000 ☐
Data in Town Files ☐

1. WELL OWNER VERMONT HANKEE ATOMIC
OR
WELL PURCHASER MORRISON-KNUDSON
Name _____ Permanent Mailing Address BRATTLEBORO VT.
Name _____ Permanent Mailing Address _____
2. LOCATION OF WELL: TOWN VERNON SUBDIVISION _____ LOT NO. _____
3. DATE WELL WAS COMPLETED 12-12-84
4. PROPOSED USE OF WELL: ☐ Domestic, ☐ Other OFFICES
5. REASON FOR DRILLING WELL: ☒ New Supply, ☐ Replace Existing Supply, ☐ Deepen Existing Well, ☐ Test or Exploration,
☐ Provide Additional Supply, ☐ Other _____
6. DRILLING EQUIPMENT: ☐ Cable Tool, ☒ Rotary with A-P, ☐ Other _____
7. TYPE OF WELL: ☒ Open Hole in Bedrock, ☐ Open End Casing, ☐ Screened or Slotted, ☐ Other _____
8. TOTAL DEPTH OF WELL: 362 feet below land surface.
9. CASING FINISH: ☒ Above ground, Finished, ☐ Above ground, Unfinished, ☐ Buried, ☐ In Pit, ☐ Removed, ☐ None used, ☐ Other _____
10. CASING DETAILS: Total length 80 ft. Length below L.S. 78 ft. Dia. 1 1/2 in. Material STEEL Wt. 17 lb./ft.
11. LINER OR INNER CASING DETAILS: Length used _____ ft. Diameter _____ in. Material _____ Weight _____ lb./ft.
12. METHOD OF SEALING CASING TO BEDROCK: ☒ Drive Shoe, ☐ Grout - type 8 3/4, Drilled _____ in. hole 10 ft. in Bedrock
☐ Other _____
13. SCREEN DETAILS: Make and Type _____, Material _____, Length _____ ft., Diameter _____ in.,
Slot Size _____, Depth to top of screen in feet below land surface _____ ft., Gravel pack if used: Gravel Size or Type _____
14. YIELD TEST: ☐ Bailed, ☐ Pumped, ☒ Compressed Air, for 30 min Hours at 12 Gallons per minute
Measured by ☒ Bucket, ☐ Orifice pipe, ☐ Wier, ☐ Meter ☐ Permanent Airline installed
15. STATIC WATER LEVEL: 30' feet below land surface, Date or Time measured _____, Overflows at _____ G.P.M.
16. WATER ANALYSIS: Has the water been analyzed? ☐ Yes ☒ No, If Yes, Where _____
17. SPECIAL NOTES: _____
18. WELL LOG: _____

Depth from Land Surface	Water Bearing	Formation Description	Sketch
Feet -	Feet -		
Ground Surface		SAND To 30'	
		CLAY To 60'	
		BOULDERS To 70' To 70'	
		HARD SCHIST To 362'	

19. SITE MAP

Show permanent structure such as buildings, septic tanks, and/or other land marks and indicate not less than two distances to the well. Indicate local street name and subdivision lot number.



20. TESTED YIELD

If the yield was tested at different depths during drilling, list below.

Feet	Gallons Per Minute

WELL DRILLED BY: Raymond J. BoardDOING BUSINESS AS: CANDRILL CORPREPORT FILED BY: Raymond J. BoardDATE OF REPORT: 1-29-85WELL DRILLERS LIC. NO. 201

**Coliform monitoring data for Vermont Yankee's C.O.B. System
WSID 20559 in Vernon, VT**

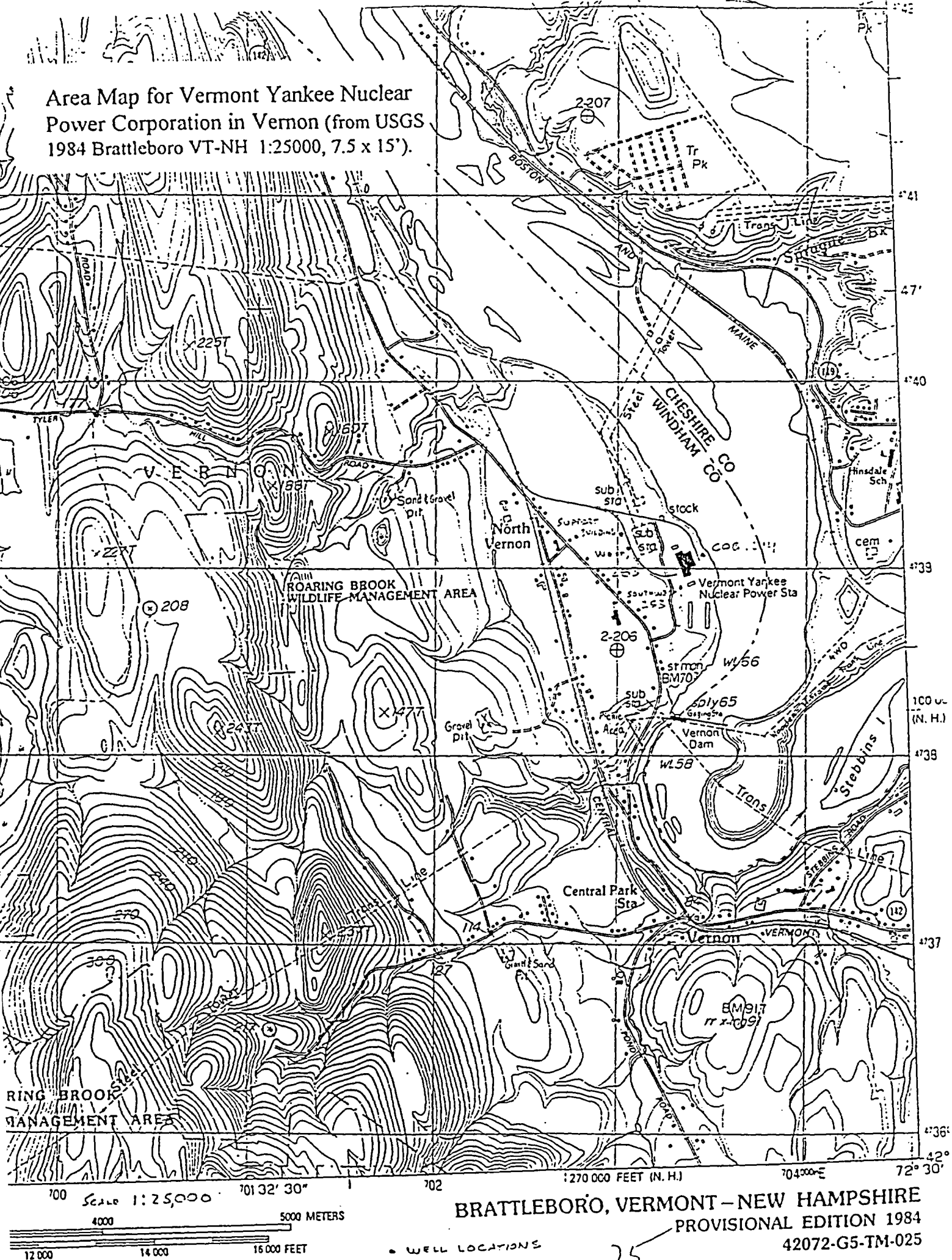
Sample Date	Presence (P) Absence (A)		Notes
	Total Coliform	Fecal Coliform	
09-Feb-93	A	A	
19-Jun-93	A	A	
08-Oct-93	A	A	
29-Dec-93	A	A	
18-Mar-94	A	A	
17-Jun-94	P	A	
22-Jun-94	A	A	3 samples
23-Jun-94	A	A	4 samples
28-Jul-94	A	A	
13-Oct-94	A	A	
07-Mar-95	A	A	
17-May-95	A	A	
12-Oct-95	A	A	
11-Apr-96	P	P	also present in Main System*
15-Apr-96	A	A	
13-May-96	A	A	
10-Jun-96	A	A	
14-Aug-96	A	A	
13-Nov-96	A	A	
13-Feb-97	A	A	
13-May-97	A	A	
03-Jul-97	A	A	
13-Nov-97	A	A	
20-Feb-98	A	A	
04-Jun-98	A	A	

Notes:

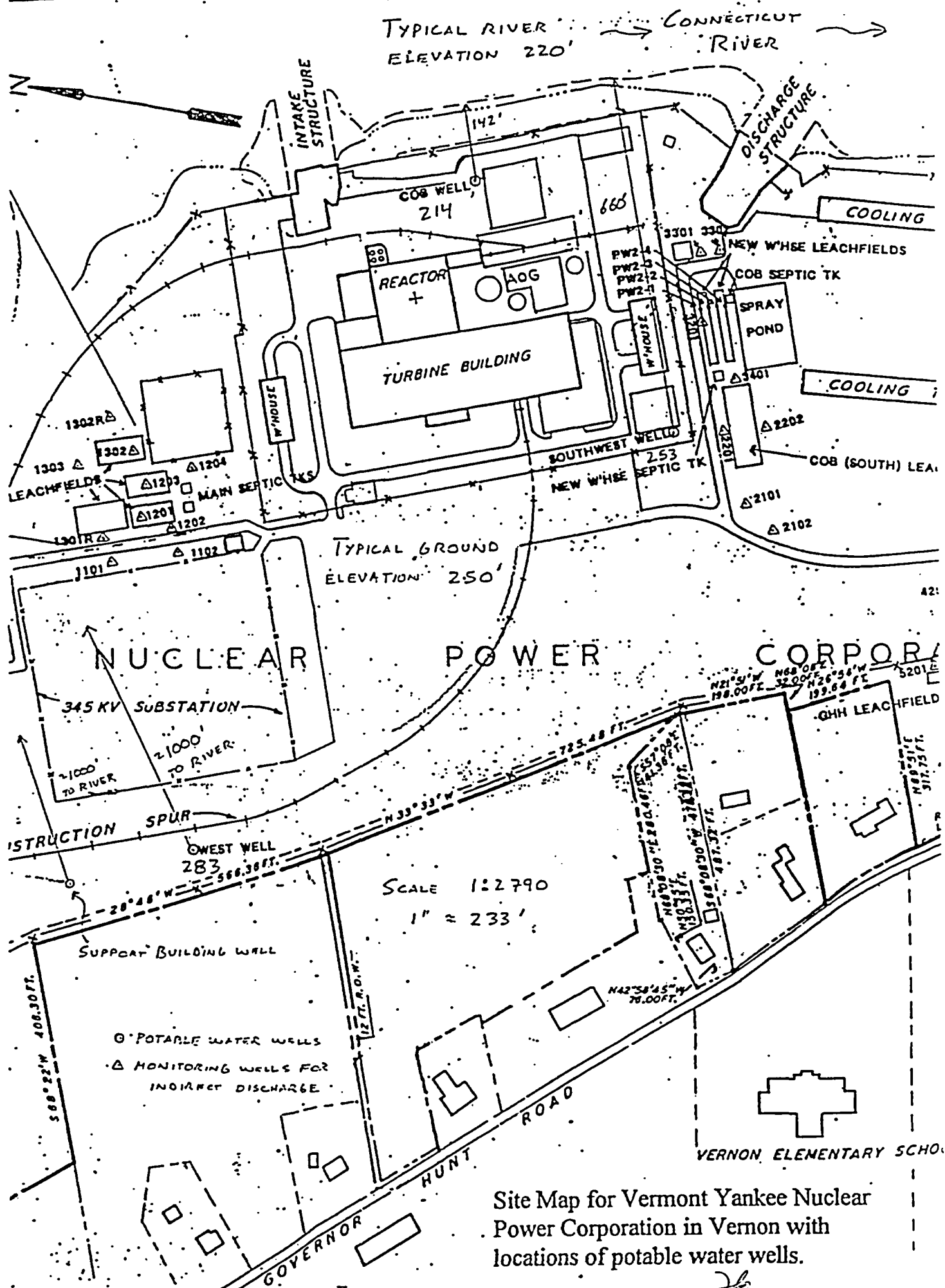
* Believed to be contaminated in laboratory during concurrent analysis with wastewater samples

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Area Map for Vermont Yankee Nuclear
Power Corporation in Vernon (from USGS
1984 Brattleboro VT-NH 1:25000, 7.5 x 15').



BRATTLEBORO, VERMONT - NEW HAMPSHIRE
PROVISIONAL EDITION 1984
42072-G5-TM-025



Site Map for Vermont Yankee Nuclear
Power Corporation in Vernon with
locations of potable water wells.