



State of Vermont

Received

Department of Fish and Wildlife  
Department of Forests, Parks and Recreation  
Department of Environmental Conservation  
State Geologist  
RELAY SERVICE FOR THE HEARING IMPAIRED  
1-800-253-0181 TDD>Voice  
1-800-253-0195 Voice>TDD

August 12, 2005

Ms. Lynn Dewald  
Mr. Samuel Wender IV  
Entergy Nuclear Vermont Yankee LLC  
320 Governor Hunt Road  
Vernon VT 05354

By Lynn Dewald

AGENCY OF NATURAL RESOURCES  
Department of Environmental Conservation  
Wastewater Management Division  
103 South Main Street - The Sewing Building  
Waterbury VT 05671-0405  
Phone: 802-241-3822  
Fax: 802-241-2596

Reviewed

AUG 16 2005

By Lynn Dewald

SUBJECT: Permit Renewal Application: ID-9-0036  
PIN: NS75-0006  
Entergy Nuclear Vermont Yankee  
Vernon, Vermont

Dear Ms. Dewald and Mr. Wender:

As part of the review of the application for renewal of ID-9-0036, I have checked the effluent and groundwater data which was submitted. As you know, the groundwater data is used for determining compliance of the indirect discharges with the Aquatic Permitting Criteria. I have found several data entry errors and inconsistencies which should be corrected. While most of the errors are minor, including some data rounding discrepancies, it is important to have an accurate data set prior to subsequent calculations.

**EFFLUENT DATA**

DATE	LOCATION	PARAMETER	REPORTED VALUE	ACTUAL VALUE
1/9/01	Main Septic System	ALL	RESULTS	MISSING
10/5/02	Main Septic System	pH	7.6 S.U.	7.5 S.U.
1/9/01	COB Septic System	ALL	RESULTS	MISSING
4/9/01	COB Septic System	pH	7.0 S.U.	7.8 S.U.
10/2/00	New Warehouse Septic System	TSS	720 mg/L	150 mg/L
1/9/01	New Warehouse Septic System	ALL	RESULTS	MISSING
4/4/00	New Office Bldg. Septic System	BOD <sub>5</sub>	170 mg/L	Could not find lab data sheet

DATE	LOCATION	PARAMETER	REPORTED VALUE	ACTUAL VALUE
1/9/01	New Office Bldg. Septic System	ALL	RESULTS	MISSING
4/10/01	New Office Bldg. Septic System	Cl-	105 mg/L	104 mg/L
4/13/04	New Office Bldg. Septic System	NO <sub>3</sub>	0.042 mg/L	0.50 mg/L

**GROUNDWATER DATA**

8/4/03	MW 1204	TDP	0.01 mg/L	0.007 mg/L
10/3/00	MW 1302	NO <sub>2</sub>	< 0.02 mg/L	0.20 mg/L
10/16/02	MW 1302	TDP	0.07 mg/L	0.074 mg/L
10/3/00	MW 1302R	NO <sub>2</sub>	< 0.02 mg/L	2.0 mg/L
10/16/02	MW 1302R	TDP	0.04 mg/L	0.035 mg/L
10/16/02	MW 1303	TDP	0.02 mg/L	0.016 mg/L
10/16/02	MW 2101	TDP	0.01mg/L	0.012mg/L
10/16/02	MW 3301	TDP	0.02 mg/L	0.022 mg/L
4/16/03	MW 3301	TDP	0.17 mg/L	0.116 mg/L
8/4/03	MW 3302	Cl-	416 mg/L	415 mg/L
10/7/04	MW 3302	Cl-	652 mg/l	352 mg/L
4/16/03	MW 3401	TDP	0.02 mg/L	0.016 mg/L

DATE	LOCATION	PARAMETER	REPORTED VALUE	ACTUAL VALUE
8/4/03	MW 3401	Cl-	1.37 mg/l	137 mg/L
8/4/03	MW 3401	TDP	0.01 mg/L	0.011 mg/L
4/16/03	MW 6201	TDP	0.02 mg/L	0.019 mg/L
8/4/03	MW 6201	TDP	0.02 mg/L	0.019 mg/L
10/16/02	MW 6202	TDP	0.05 mg/L	0.045 mg/L
8/4/03	MW 6202	TDP	0.05 mg/L	0.051 mg/L
4/7/01	MW 6203	TDP	0.08 mg/L	0.077 mg/L
4/11/02	MW 6203	TKN	1.90 mg/L	1.0 mg/L
4/16/03	MW 6203	TDP	0.04 mg/L	0.036 mg/L
8/4/03	MW 6203	TDP	0.12 mg/L	0.116 mg/L

Please have your consultant check their data and make the appropriate corrections. Only the pages of the summary report which need to be changed should be re-submitted. Upon receipt of a complete response to this letter processing of the application for renewal will continue.

I have also reviewed the text of "Summary of Effluent and Groundwater Monitoring Data 2000 – 2004" contained in Attachment 3 of the application.

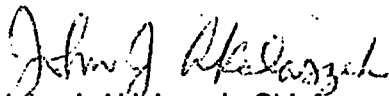
Under Section 2.2 it is stated that Escherichia coli (monitoring) was added to determine the effectiveness of disinfection of the septic tank effluent. There is no disinfection of the septic tank effluent provided. Monitoring for E. coli provides information on the removal of these organisms by passage through the biological mat in the leachfield and through unsaturated soils below.

Under Section 3.2 it is stated that TKN sampling for groundwater was replaced by sampling for NO3/NO2 as N in 2003. Actually, the permit requires sampling only for nitrate nitrogen. See also the discussion for ammonia nitrogen (Section 3.8).

Thank you for pointing out the errors in the current permit under Section 3.14. These will be corrected in the permit renewal.

If you have any questions regarding this letter, please feel free to contact me at 802-241-3824. Please be aware, however, that I will be out of the office until August 25<sup>th</sup>.

Sincerely,



John J. Akielaszek, Chief  
Indirect Discharge Permit Section

cc: Permit File ID-9-0036



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

22 August 2005

John Akielaszek, Chief  
Indirect Discharge Permit Section  
Vermont Department of Environmental Conservation  
Wastewater Management Division  
103 South Main Street – Sewing Building  
Waterbury, VT 05671-0405

**Subject:** Indirect Permit Renewal Application ID-9-0036  
PIN: NS75-0006

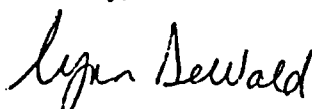
**Re:** Groundwater and Effluent Data Corrections


Dear John,

Thank you for summarizing the inconsistencies and errors you discovered in the five-year data summary tables included in Entergy Nuclear Vermont Yankee's IDP renewal application. In each case, the discrepancy, error, or omission has been reconciled. As you pointed out, many were the result of rounding to fewer decimal places than displayed on the laboratory data sheets while others were typos. In preparing the five-year summary for submission with the renewal application, I was unaware that effluent samples had been atypically collected in January 2001 but the data was readily available and I have included the summary table herein (Table 5). I have expanded your table by adding an additional column titled resolution and, as requested, am including the affected pages. The affected values within these pages are highlighted in purple.

Please call if you have any questions or concerns with this updated information.

Sincerely,

  
Lynn DeWald  
Environmental Specialist

  
Samuel A. Wender IV  
Chemistry Superintendent

# EFFLUENT DATA

DATE	LOCATION	PARAMETER	REPORTED VALUE	ACTUAL VALUE	RESOLUTION
1/9/01	Main septic system	ALL	RESULTS	MISSING	New Table Included
10/5/02	Main septic system	pH	7.6 S.U.	7.5 S.U.	Corrected value to 7.5
1/9/01	COB septic system	ALL	RESULTS	MISSING	New Table Included
4/9/01	COB septic system	pH	7.0 S.U.	7.8 S.U.	Corrected value to 7.8
10/2/00	New Warehouse septic system	TSS	720 mg/L	150 mg/L	Corrected value to 150 mg/L
1/9/01	New Warehouse septic system	ALL	RESULTS	MISSING	New Table Included
4/4/00	New Office Bldg septic system	BOD <sub>5</sub>	170 mg/L	Could not find data sheet	Data sheet included
1/9/01	New Office Bldg septic system	ALL	RESULTS	MISSING	New Table Included
4/10/01	New Office Bldg septic system	Cl-	105 mg/L	104mg/L	Corrected value to 104 mg/L
4/13/04	New Office Bldg septic system	NO <sub>3</sub>	0.042 mg/L	0.50 mg/L	Original value reported is accurate, see attached lab sheet

# GROUNDWATER DATA

DATE	LOCATION	PARAMETER	REPORTED VALUE	ACTUAL VALUE	RESOLUTION
8/4/03	MW 1204	TDP	0.01 mg/L	0.007 mg/L	Changed value to 0.007 mg/L
10/3/00	MW 1302	NO <sub>2</sub>	<0.02 mg/L	0.20 mg/L	Changed to <0.20 mg/L *
10/16/02	MW 1302	TDP	0.07 mg/L	0.074 mg/L	Changed to 0.074 mg/L
10/3/00	MW 1302R	NO <sub>2</sub>	<0.02 mg/L	2.0 mg/L	Changed to <2.0 mg/L *
10/16/02	MW 1302R	TDP	0.04 mg/L	0.035 mg/L	Changed to 0.035 mg/L
10/16/02	MW 1303	TDP	0.02 mg/L	0.016 mg/L	Changed to 0.016 mg/L
10/16/02	MW 2101	TDP	0.01 mg/L	0.012 mg/L	Changed to 0.012 mg/L
10/16/02	MW 3301	TDP	0.02 mg/L	0.022 mg/L	Change to 0.022 mg/L
4/16/03	MW 3301	TDP	0.17 mg/L	0.116 mg/L	Changed to 0.116 mg/L
8/4/03	MW 3302	Cl-	416 mg/L	415 mg/L	Changed to 415 mg/L
10/7/04	MW 3302	Cl-	652 mg/L	352 mg/L	Changed to 352 mg/L
4/16/03	MW 3401	TDP	0.02 mg/L	0.016 mg/L	Changed to 0.016 mg/L
8/4/03	MW 3401	Cl-	1.37 mg/L	137 mg/L	Changed to 1.37 mg/L
8/4/03	MW 3401	TDP	0.01 mg/L	0.011 mg/L	Changed to 0.011 mg/L
4/16/03	MW 6201	TDP	0.02 mg/L	0.019 mg/L	Changed to 0.019 mg/L
8/4/03	MW 6201	TDP	0.02 mg/L	0.019 mg/L	Changed to 0.0196 mg/L
10/16/02	MW 6202	TDP	0.05 mg/L	0.045 mg/L	Changed to 0.045 mg/L
8/4/03	MW 6202	TDP	0.05 mg/L	0.051 mg/L	Changed to 0.051 mg/L
4/7/01	MW 6203	TDP	0.08 mg/L	0.077 mg/L	Changed to 0.077 mg/L
4/11/02	MW 6203	TKN	1.90 mg/L	1.0 mg/L	Changed to 1.0 mg/L
4/16/03	MW 6203	TDP	0.04 mg/L	0.036 mg/L	Changed to 0.036 mg/L
8/4/03	MW 6203	TDP	0.12 mg/L	0.116 mg/L	Changed to 0.116 mg/L

Note: \* Any value reported by Lionville Laboratories that has a lower case u to the right of the result indicates a less than value.

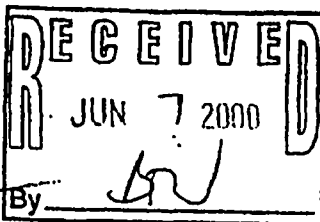
**Recra LabNet Philadelphia  
Analytical Report**

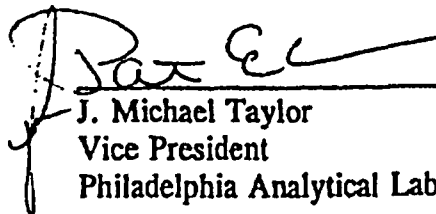
**Client : TELEDYNE-VERMONT YANKEE  
RFW# : 0004L076**

**W.O. # : 00010-010-099-9999-00  
Date Received: 04-26-00**

**INORGANIC CASE NARRATIVE**

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.
3. Sample holding time as required by the method and/or contract was met.
4. The cooler temperature was recorded on the chain-of-custody. .
5. The method blank was within method criteria.
6. The Laboratory Control Sample (LCS) was below the laboratory control limits of 78.4-115.9%.
7. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.



  
J. Michael Taylor  
Vice President  
Philadelphia Analytical Laboratory

6-5-00  
Date

njp\104-076

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 9 pages.

Recra LabNet Philadelphia  
**METHOD REFERENCES AND DATA QUALIFIERS**

**DATA QUALIFIERS**

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

\* = Indicates that the original sample result is greater than 4x the spike amount added.

**ABBREVIATIONS**

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

**ANALYTICAL WET CHEMISTRY METHODS**

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
  - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
  - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
  - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
  - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
  - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
  - f. Code of Federal Regulations.

L-WI-034/D-6/99

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 04/26/04

CLIENT: TELEDYNE-VERMONT YANKEE  
WORK ORDER: 11699-600-005-9999-00

LVL LOT #: 0404L316

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	PSB	BOD 5 Day	371	MG/L	1	1.0
		Chloride	119	MG/L	6.2	25.0
		Nitrate Nitrite	0.042	MG/L	0.020	1.0
		pH	7.5	PH UNIT	0.01	1.0
-002	MAIN	BOD 5 Day	307	MG/L	1	1.0
		Chloride	145	MG/L	6.2	25.0
		Nitrate Nitrite	0.030	MG/L	0.020	1.0
		pH	8.1	PH UNIT	0.01	1.0

8/29/04

John -

Nitrate/Nitrite  
for PSB (New Office Blog)  
is 0.042 mg/L so  
I did not change this  
from that originally  
submitted - Lynn

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/03/00

CLIENT: TELEDYNE-VERMONT YANKEE  
WORK ORDER: 00010-010-099-9999-00

RECRA LOT #: 0004L076

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	SEPTIC EFFLUENT	BOD 5 Day	170	MG/L	1.0	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/03/00

CLIENT: TELEDYNE-VERMONT YANKEE  
WORK ORDER: 00010-010-099-9999-00

RECRA LOT #: 0004L076

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LIB010-MB1	BOD 5 Day	1.0	u MG/L	1.0	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 05/03/00

CLIENT: TELEDYNE-VERMONT YANKEE  
WORK ORDER: 00010-010-099-9999-00

RECRA LOT #: 0004L076

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
BLANK10	00LIB010-MB1	BOD 5 Day	160	1.0 u	200	77.8	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 05/03/00

CLIENT: TELEDYNE-VERMONT YANKEE  
WORK ORDER: 00010-010-099-9999-00

RECRA LOT #: 0004L076

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	SEPTIC EFFLUENT	BOD 5 Day	170	170	0.70	1.0

Recra LabNet - Lionville Laboratory  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TELEDYNE-VERMONT YANKEE

DATE RECEIVED: 04/26/00

RFW LOT # :0004L076

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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SEPTIC EFFLUENT

BIOCHEMICAL OXYGEN D	001	W	00LIB010	04/24/00	04/26/00	05/01/00
BOD 5 DAY	001 REP	W	00LIB010	04/24/00	04/26/00	05/01/00


LAB QC:

BIOCHEMICAL OXYGEN D	MB1	W	00LIB010	N/A	04/26/00	05/01/00
BOD 5 DAY	MB1 BS	W	00LIB010	N/A	04/26/00	05/01/00

Teledyne-Vermont Yankee

[illegible]

**Table 3. Vermont Yankee's Indirect Discharge Permit ID-9-0036**  
**Septic Effluent Quality Data for Samples Collected on 2 & 3 October 2000.**

PARAMETER (mg/l unless noted)	Septic System Effluent			
	03-Oct-00	02-Oct-00	02-Oct-00	03-Oct-00
	Main D. Box	New Warehouse	COB Wet Well	New Office Bldg or PSB
Biological Oxygen Demand - 5	2.6	2.4	2.2	2.6
Chloride	98	146	115	92
Total Suspended Solids	140	 150	70	6100
Total Phosphorus	2.7	3.2	2.4	3.4
Dissolved Phosphorus	2.8	1.8	4.1	2.7
pH (standard units)	7.4	7.2	7.3	7.0
Nitrate Nitrogen (NO3)	<0.020	<0.020	<0.020	<0.020
Nitrite Nitrogen (NO2)	<0.020	<0.020	<0.020	<0.020
Total Kjeldahl Nitrogen	95	300	150	151
Ammonia Nitrogen (NH3-N)	154	130	102	150

Notes: All effluent samples were analyzed by RECRA Environmental, Inc. of Lionville, PA.

 Corrected data subsequent to August 12, 2005 letter from J. Aklaszek to L. DeWald requesting additional information/clarification on original results provided in IDP Renewal application.

Table 4. Vermont Yankee's Indirect Discharge Permit ID-9-0036  
Groundwater Quality Monitoring Data for Well Samples Collected on 3 October 2000.

PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max Acceptable Change	
	Existing Leachfield				New Leachfield				Up-gradient		Down-gradient			Up-gradient		Down-gradient				
	West Well 1201	West Well 1202*	East Well 1203	East Well 1204	Well 1301R**	Well 1302	Well 1302R**	Well 1303												
	Well 2101	Well 2102*	Well 3301	Well 3302	Well 3401	Well 6201	Well 6202	Well 6203												
Biological Oxygen Demand - 5	NS	NS	NS	NS	1.1	8.4	2.1	<1.0	1.4	NS	<1.0	<1.0	1.9	1.6	2.0	1.3			25	
Chloride	NS	NS	NS	NS	33.2	58.7	46.0	16.9	201	NS	123	112	78.5	2.1	2.3	3.1	250	125		
Dissolved Phosphorus	NA	NA	NA	NA	<0.05	0.17	0.11	0.05	<0.05	NA	<0.05	0.069	0.074	<0.05	0.11	0.56				
pH (standard units) <sup>1</sup>	NA	NA	NA	NA	6.5	6.5	4.2	6.6	5.1	NS	6.5	6.6	6.1	7.1	6.4	6.5			1 pH	
Nitrate Nitrogen (NO3)	NS	NS	NS	NS	1.9	5.5	41.0	3.6	1.5	NS	0.055	1.50	1.8	6.3	8.40	0.028	10	5		
Nitrite Nitrogen (NO2)	NS	NS	NS	NS	<0.100	<0.100	<0.100	<0.100	<0.020	NS	<0.100	<0.100	<0.100	<0.200	<0.200	0.023	1	0.5		
Total Kjeldahl Nitrogen	NS	NS	NS	NS	95.20	0.95	0.27	272	4.30	NS	5.8	1.6	0.29	0.62	1.20	0.41				
Ammonia Nitrogen (NH3-N)	NS	NS	NS	NS	<0.100	0.32	0.14	<0.100	5.00	NS	7.0	1.6	<0.100	0.26	0.12	0.31	10	5		
E. Coli (CFU/100ml)	NS	NS	NS	NS	0	26	0	0	34	NS	12	0	0	22	0	32	Absent	Absent		
Depth to groundwater (ft)***	21.85	NS*	22.95	26.90	21.00	21.10	20.05	20.90	12.55	NS*	21.30	21.25	21.25	8.50	10.70	11.30				

Notes: \*Well 2102 was dry throughout October 2000.  
 \*\*Wells 1301R and 1302R replaced former wells 1301 and 1302.  
 \*\*\*Depth to groundwater was from observations taken at the time of sample collection on 3 October 2000.  
<sup>1</sup> pH analyzed past the holding time.  
 NA = Parameter not required for analysis.  
 NS = Parameter not sampled.  
 [Box] = Exceeds the Enforcement Std or Max. Change from the Groundwater Quality Standards listed in Chapter 12 Groundwater Protection Rule and Strategy, dated November 15, 1997  
 [Box] = Exceeds the PAL  
 [Box] Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP renewal application.

**Table 5: Vermont Yankee's Indirect Discharge Permit ID-9-0036**  
**Septic Effluent Quality Data for Samples Collected on 9 & 10 January 2001.**

Date PARAMETER (mg/l unless noted)	Septic System Effluent			
	10-Jan-01	09-Jan-01	09-Jan-01	10-Jan-01
	Main D. Box	New Warehouse	COB Wet Well	New Office Bldg or PSB
Biological Oxygen Demand - 5	248	1030	311	1900
Chloride	NA	NA	NA	NA
Total Suspended Solids	40	24.0	58.3	44
Total Phosphorus	2.4	3.4	3.1	1.9
Dissolved Phosphorus	2.5	3.2	3.6	1.9
pH (standard units)	NA	NA	NA	NA
Nitrate Nitrogen (NO3)	NA	NA	NA	NA
Nitrite Nitrogen (NO2)	NA	NA	NA	NA
Total Kjeldahl Nitrogen	NA	NA	NA	NA
Ammonia Nitrogen (NH3-N)	NA	NA	NA	NA

Notes: All effluent samples were analyzed by Lionville Laboratories, formerly RECRA Environmental, Inc. of Lionville, PA.  
 NA: Resamples were not analyzed for these parameters

 Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP Renewal application.

**Table 6. Vermont Yankee's Indirect Discharge Permit ID-9-0036**  
**Septic Effluent Quality Data for Samples Collected on 9 & 10 April 2001.**

Date PARAMETER (mg/l unless noted)	Septic System Effluent			
	10-Apr-01	09-Apr-01	09-Apr-01	10-Apr-01
	Main D. Box	New Warehouse	COB Wet Well	New Office Bldg or PSB
Biological Oxygen Demand	165	1020	203	1550
Chloride	114	144	157	104
Total Suspended Solids	37	74.4	17.7	46.8
Total Phosphorus	3.2	3.6	3.5	2.9
Dissolved Phosphorus	2.2	3.6	3.3	3.0
pH (standard units)	7.5	7.9	7.8	7.2
Nitrate Nitrogen (NO3)	<0.020	<0.020	<0.020	0.500
Nitrite Nitrogen (NO2)	<0.020	<0.020	<0.020	<0.020
Total Kjeldahl Nitrogen	254	206	184	258
Ammonia Nitrogen (NH3-N)	180	283	189	160

Notes: All effluent samples were analyzed by Lionville Laboratories, formerly RECRA Environmental, Inc. of Lionville, PA.

Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP renewal application.

**Table 7. Vermont Yankee's Indirect Discharge Permit ID-9-0036**  
**Groundwater Quality Monitoring Data for Well Samples Collected on 16 & 17 April 2001.**

PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max. Acceptable Change
	Existing Leachfield				New Leachfield				Up-gradient		Down-gradient			Up-gradient		Down-gradient			
	West Well 1201	West Well 1202*	East Well 1203	East Well 1204	Well 1301R**	Well 1302	Well 1302R**	Well 1303	Well 2101	Well 2102*	Well 3301	Well 3302	Well 3401	Well 6201	Well 6202	Well 6203			
Sample Date	NS	NS	NS	NS	4/17	4/17	4/17	4/17	4/16	NS	4/16	4/16	4/16	4/16	4/16	4/16			
Biological Oxygen Demand - 5	NS	NS	NS	NS	12.0	3.0	3.0	11.0	8.0	NS	17.0	8.0	4.0	5.0	6.0	7.0			25
Chloride	NS	NS	NS	NS	27.1	23.9	36.3	48.6	152	NS	159	189	47.9	1.3	2.2	2.6	250	125	
Dissolved Phosphorus	NA	NA	NA	NA	2.80	2.20	4.20	1.30	<0.05	NA	1.00	0.110	<0.05	2.300	0.45	0.072			
pH (standard units) <sup>1</sup>	NA	NA	NA	NA	6.6	6.6	4.4	6.1	5.2	NS	6.6	6.6	6.0	5.9	6.3	6.2			1 pH
Nitrate Nitrogen (NO3)	NS	NS	NS	NS	4.7	9	40.8	41.6	2.6	NS	0.026	2.40	2.5	5.6	14.20	0.110	10	5	
Nitrite Nitrogen (NO2)	NS	NS	NS	NS	<0.020	<0.020	<0.020	<0.020	0.023	NS	0.040	0.056	0.020	<0.020	<0.020	<0.020	1	0.5	
Total Kjeldahl Nitrogen	NS	NS	NS	NS	0.49	0.82	0.40	0.14	5.60	NS	5.5	1.6	0.46	0.66	0.54	1.20			
Ammonia Nitrogen (NH3-N)	NS	NS	NS	NS	0.12	<0.10	<0.10	<0.10	5.00	NS	4.6	1.2	0.35	0.17	<0.10	0.10	10	5	
E. Coli (CFU/100ml)	NS	NS	NS	NS	<1	<1	<1	<1	<1	NS	<1	<1	<1	<1	<1	<1	Absent	Absent	
Depth to groundwater (ft)***	NS	NS	NS	NS	20.65	20.85	19.90	20.60	9.20	NS*	20.95	20.95	####	6.20	8.70	7.60			

Notes: \*Well 2102 was dry throughout April 2001.

\*\*Wells 1301R and 1302R replaced former wells 1301 and 1302.

\*\*\*Depth to groundwater was from observations taken at the time of sample collection on 3 October 2000.

<sup>1</sup> pH analyzed past the holding time.

NA = Parameter not required for analysis.

NS = Parameter not sampled.

 = Exceeds the Enforcement Std or Max. Change from the Groundwater Quality Standards listed in Chapter 12 Groundwater Protection Rule and Strategy, dated November 15, 1997

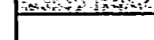
 = Exceeds the PAL

Table 11. Vermont Yankee's Indirect Discharge Permit ID-9-0036, Groundwater Quality Monitoring Data for Well Samples Collected on 10 & 11 April 2002.

PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max Accepta- ble Change
	Existing Leachfield				New Leachfield														
	West Well 1201	West Well 1202*	East Well 1203	East Well 1204	Well 1301R**	Well 1302	Well 1302R**	Well 1303	Up-gradient		Down-gradient			Up-gradient Well 6201	Down-gradient Well 6202      Well 6203				
									Well 2101	Well 2102*	Well 3301	Well 3302	Well 3401		Well 6202	Well 6203			
Sample Date	NS	NS	4/10/02	4/10/02	NS	NS	NS	NS	4/11/02	NS	4/11/02	4/11/02	4/11/02	4/11/02	4/11/02	4/11/02			
Biological Oxygen Demand - 5			1.00	2.00					2.00		4.00	5.00	6.00	2.00	5.00	7.00			25.00
Chloride			51.50	34.20					264.00		237.00	242.00	54.30	1.60	1.70	6.70	250.00	125.00	
Dissolved Phosphorus			0.69	<0.05					<0.05		<0.05	0.12	0.05	<0.05	<0.05	<0.05			
pH (standard units) <sup>1</sup>			6.50	6.50					6.10		6.40	6.40	6.00	6.00	6.20	6.10			1 ph
Nitrate Nitrogen (NO3)			2.10	34.60					1.40		0.02	0.90	2.70	4.60	1.50	0.06	10.00	5.00	
Nitrite Nitrogen (NO2)			<0.020	<0.020					<0.020		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	1.00	0.50	
Total Kjeldahl Nitrogen			0.70	0.19					9.80		8.00	2.50	1.40	0.98	0.54	0.54			
Ammonia Nitrogen (NH3-N)			0.15	0.10					5.10		6.00	0.81	<0.10	<0.10	<0.10	0.32	10.00	5.00	
E. Coli (CFU/100ml)			<1.0	<1.0					<1.0		<1.0	<1.0	<1.0	<1.0	4.0	<1.0	Absent	Absent	
Depth to groundwater (ft)***	22.58	dry	23.77	22.67					11.85	dry	22.30	22.22	22.15	9.50	11.70	10.77			

Notes:

\*Well 2102 was dry throughout April 2001.

\*\*Wells 1301R and 1302R replaced former wells 1301 and 1302.

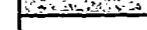
\*\*\*Depth to groundwater was from observations taken at the time of sample collection on 3 October 2000.

<sup>1</sup> pH analyzed past the holding time.

NA = Parameter not required for analysis.

NS = Parameter not sampled.

 = Exceeds the Enforcement Std or Max. Chai from the Groundwater Quality Standards listed in Chapter 12 Groundwater Protection Rule and Strategy, dated November 15, 1997

 = Exceeds the PAL

 Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP renewal application.

**Table 12. Vermont Yankee's Indirect Discharge Permit ID-9-0036**  
**Septic Effluent Quality Data for Samples Collected on October 5, 2002.**

Date PARAMETER (mg/l unless noted)	Septic System Effluent			
	Main D. Box	New Warehouse	COB Wet Well	New Office Bldg or PSB
Biological Oxygen Demand	147	173	169	177
Chloride	133	145	155	114
<i>Total Suspended Solids</i>	101	78.0	140.0	117
<i>Total Phosphorus</i>	24.6	23.6	18.9	23.1
<i>Dissolved Phosphorus</i>	21.6	19.3	15.8	19.5
pH (standard units)	7.5	8.2	7.6	7.2
Nitrate Nitrogen (NO <sub>3</sub> )	<.020	<.020	<.020	<.020
<i>Total Kjeldahl Nitrogen</i>	201	207	156	169
<i>Ammonia Nitrogen (NH<sub>3</sub>-N)</i>	175	194	157	137
Total Zinc (µg)	262	137	144	190

Notes: All parameters in italics were analyzed by Endyne, Inc, all others were analyzed by Lionville Laboratories.

Table 13. Vermont Yankee's Indirect Discharge Permit ID-9-0036, Groundwater Quality Monitoring Data for Well Samples Collected on 16 October 2002.

PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max. Accepta ble Change
	Existing Leachfield				New Leachfield				Up-gradient		Down-gradient			Up-gradient	Down-gradient				
	West Well 1201	West Well 1202	East Well 1203	East Well 1204	Well 1301R	Well 1302	Well 1302R	Well 1303	Well 2101	Well 2102	Well 3301	Well 3302	Well 3401	Well 6201	Well 6202	Well 6203			
Sample Date	10/16/02	NS	10/16/02	10/16/02	10/16/02	10/16/02	10/16/02	10/16/02	10/16/02	NS	10/16/02	10/16/02	10/16/02	NS	10/16/02	NS			
Biological Oxygen Demand - 5	<1.0		<1.0	<1.0	2.00	3.00	<1.0	2.00	4.00		<1.0	3.00	5.00		2.00		250.00	125.00	25.00
Chloride	464.00		31.40	31.10	38.50	30.00	45.50	22.30	25.30		237.00	443.00	57.30		2.30				
Dissolved Phosphorus	1.86		0.04	0.02	0.01	0.07	0.03	0.01	0.02		0.02	0.04	0.07		0.05				
pH (standard units) <sup>1</sup>	4.2		6.5	5.3	6.6	6.4	6.1	6.4	6.4		6.6	6.6	6.0		6.4				1 pH
Nitrate Nitrogen (NO3)	2.50		2.30	7.90	4.00	8.20	5.30	3.20	0.66		<0.020	2.70	6.10		2.70		10.00	5.00	
Nitrite Nitrogen (NO2)	<0.020		<0.020	<0.020	0.07	0.11	<0.020	0.02	<0.020		0.02	<0.020	<0.020		<0.020		1.00	0.50	
Total Kjeldahl Nitrogen	0.11		0.51	<0.040	0.26	0.90	0.23	0.24	5.38		5.33	1.02	<0.040		0.99				
Ammonia Nitrogen (NH3-N)	<0.030		0.08	<0.030	<0.030	0.49	<0.030	<0.030	4.10		4.17	0.70	<0.030		<0.030		10.00	5.00	
E. Coli (MPN/100ml)	1.00		<1.0	<1.0	<1.0	3.00	15.00	<1.0	<1.0		<1.0	<1.0	<1.0		6.0		Absent	Absent	
Depth to groundwater (ft)***	26.10	dry	27.30	26.70	27.50	30.10	31.60	26.60	16.90	dry	31.40	31.60	31.20	dry	13.80	dry			

NOTES: Because groundwater sampling occurred during a Plant outage, sampling of all groundwater wells was attempted, but four wells were dry throughout the month of October 2002 (1202, 2102, 6201, and 6203).

Depth to groundwater was from observations taken at the time of sample collection on 16 October 2002.

NS = Parameter not sampled.

Exceeds the Enforcement Std or Max. Char from the Groundwater Quality Standards listed in Chapter 12 Groundwater Protection Rule and Strategy, dated November 15, 1997

Exceeds the PAL

Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP renewal application.


Table 15. Vermont Yankee's Indirect Discharge Permit ID-9-0036, Groundwater Quality Monitoring Data for Well Samples Collected on April 16, 2003.

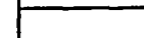
PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max Acceptable Change
	Existing Leachfield				New Leachfield				New Warehouse Leachfield Systems					Building Leachfield System					
	West	West	East	East	Well	Well	Well	Well	Up-gradient		Down-gradient			Up-gradient		Down-gradient			
	Well 1201	Well 1202*	Well 1203	Well 1204	Well 1301R**	Well 1302	Well 1302R**	Well 1303	Well 2101	Well 2102*	Well 3301	Well 3302	Well 3401	Well 6201	Well 6202	Well 6203			
Sample Date      04/16/2003																			
Biological Oxygen Demand - 5	9.00	NS	NS	NS	NS	NS	NS	NS	2.00	NS	8.00	5.00	3.00	3.00	3.00	8.00			25.00
Chloride	90.10								392.00		225.00	300.00	70.30	97.90	1.30	3.90	250.00	125.00	
Dissolved Phosphorus	0.64								<0.002		0.05	0.05	0.016	0.019	0.07	0.036			
pH (standard units) <sup>1</sup>	6.20								4.40		6.70	6.60	6.00	5.80	6.50	6.20			1 pH
Nitrate Nitrogen (NO3)	3.20								2.80		0.04	1.30	7.20	7.50	0.87	0.08	10.00	5.00	
Nitrite Nitrogen (NO2)	<0.020								<0.020		<0.020	0.04	<0.020	<0.020	<0.020	<0.020	1.00	0.50	
Total Kjeldahl Nitrogen	4.69								7.45		5.96	1.10	<0.040	1.62	0.77	1.40			
Ammonia Nitrogen (NH3-N)	0.04								7.35		3.42	0.67	<0.030	0.05	0.03	0.08	10.00	5.00	
E. Coli (MPN/100ml)	<1.0								<1.0		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	Absent	Absent	
Depth to groundwater (ft)*	21.75	DRY	22.80	21.75	20.75	20.90	20.50	20.70	9.65	DRY	21.30	21.30	21.40	7.40	10.10	8.80			

Notes:

\*Depth to groundwater was from observations taken at the time of sample collection on 16 April 2003.

NS = Parameter not sampled.

 = Exceeds the Enforcement Std or Max. Change

 = Exceeds the PAL

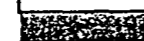
 Corrected data subsequent to August 12, 2005 letter from J. Akielaszek to L. DeWald requesting additional information/clarification on original results provided in IDP renewal application.

Table 17. Vermont Yankee's Indirect Discharge Permit ID-9-0036, Groundwater Quality Monitoring Data for Well Samples Collected on August 4, 2003

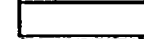
PARAMETER (mg/l unless noted)	Groundwater in the Main (North) Leachfield System								Groundwater in the COB (South) and New Warehouse Leachfield Systems					Groundwater in the New Office Building Leachfield System			Enforcement Std	PAL #1	Max.Acceptable Change	
	Existing Leachfield				New Leachfield				Up-gradient		Down-gradient			Up-gradient		Down-gradient				
	West Well	West Well	East Well	East Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well	Well				
	1201	1202*	1203	1204	1301R**	1302	1302R**	1303	2101	2102*	3301	3302	3401	6201	6202	6203				
Sample Date      08/04/2003																				
Chloride			64.80	51.80					566.00	NS	251.00	215.00	215.00	95.80	1.60	6.00	250.00	125.00		
Dissolved Phosphorus			0.04	0.007					0.01	NS	0.02	0.03	0.09	0.09	0.05	0.15				
pH (standard units) <sup>1</sup>			10.00	8.40					5.90	NS	5.90	7.00	5.90	6.00	6.30	5.90			1 pH	
Nitrate Nitrogen (NO3)			3.60	5.90					0.86	NS	<0.020	1.10	4.50	5.50	1.20	0.29	10.00	5.00		
E. Coli (MPN/100ml)			9.00	<1.00					<1.00	NS	<1.00	<1.00	1.00	>2,420	>2,420	>2,420	Absent	Absent		
Depth to groundwater (ft)*			23.00	22.00					12.15	dry	21.40	21.30	21.20	8.80	11.00	12.70				

Notes:

\*Depth to groundwater was from observations taken at the time of sample collection on 16 April 2003.

NS = Parameter not sampled.

 = Exceeds the Enforcement Std or Max. Change

 = Exceeds the PAL


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Table 23. IDP Groundwater Analyses Summary

Well	depth to gw ft	GW Standards Enforcement PAL:	Cl mg/L	Nitrate as N mg/L	field pH	lab pH	E. coli MPN/100 ml	dissolved P mg/L
<b>Main System</b>								
1101		Date Collected						
1102								
1201								
1202								
1203	22.50	10/07/2004	177	5.1	6	6	1	0.021
1204	21.50	10/07/2004	26.6	5.1	5.8	4.8	<1	0.007
1301R								
1302								
1302R								
1303								
<b>Gov Hunt System</b>								
5201								
5202								
<b>Gate House System</b>								
4201								
4202								
<b>PSB System</b>								
6201	8.20	10/07/2004	26.2	4.9	6.1	5.9	25	0.024
6202	10.40	10/07/2004	2.5	1.5	6.5	6.4	3	0.032
6203	10.75	10/07/2004	11.6	0.047	6.3	6.0	16	0.016
<b>COB/NW System</b>								
2101	10.90	10/07/2004	463	1.8	6.9	4.9	<1	<0.005
2102								
2201								
2202								
3201								
3301	21.00	10/07/2004	410	<0.020	6.7	6.5	<1	<0.005
3302	20.90	10/07/2004	52.4	1.7	6.9	6.8	1	0.013
3401	20.77	10/07/2004	78.1	10.6	6.9	6.1	<1	<0.005
<b>COB Alternate Leachfield</b>								
221A	11.60	10/07/2004	53.3	5.7	6.3	7.3	<1	0.006
221	12.80	10/07/2004	52.4	17.6	6.2	6.0	<1	<0.005

Nitrate: Enforcement Std is 10 mg/L; PAL is 5 (Primary GWQ Std)

Chloride: Enforcement Std is 250 mg/l; PAL is 125 (2ndary GWQ Std.)

Note: groundwater flows to CT River with large dilution, so GW stds have been argued as not applicable

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