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REMEDIAL EFFECTIVENESS EVALUATION REPORT

for
Bressett Site, Randolph, Vermont
VT Site #77-0019

May 2002

Prepared for:

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1.0 INTRODUCTION AND OBJECTIVE

This document presents the results of a Remedial Effectiveness Evaluation (REE) for the Bressett Site (Site) conducted in accordance with paragraph 39 of the Stipulation and Consent Decree (the Consent Decree) entered on March 23, 1997, between and among the State of Vermont (State); UniFirst Corporation of Wilmington, Massachusetts (UniFirst); and the Town of Williamstown, Vermont (Town). A site location map is included as Figure 1 in Attachment 1. (Due to the number of figures referenced, all are presented in Attachment 1 to maintain clarity for the reader of the text.) The "Area of Remedial Action" as used in this document, includes a 200 foot by 150 foot polygonal area as shown in Figure 2. The "Site", as used in this document, encompasses a portion of the Ayers Brook valley, and generally includes that area in Randolph and Braintree, Vermont shown in Figure 3 in Attachment 1.

Paragraph 39 calls for an REE to be conducted within five years of the date of the Consent Decree for each site at which "Work" is performed. Work performed at the Bressett Site since entry of the Consent Decree includes capping soils containing volatile organic compounds (VOC), institution of deed restrictions that prevent excavation, construction, and installation of water supplies in and around the Area of Remedial Action, and completion of a Class IV Groundwater Reclassification Package for the Vermont Groundwater Coordinating Committee. Additional deed restrictions prohibiting development (which were not required by the Consent Decree) also have been imposed on the former Shields property west of Route 12 and south of Town Road #23 (see Figure 3).

The primary remedial actions at this Site were selected and implemented based upon work performed by the State of Vermont Sites Management Section (VT SMS) under a Consent Decree entered by and among UniFirst, the State, and the Town effective April 21, 1986. Under a provision in the 1986 Decree, the State agreed to conduct an investigation to delineate contamination on the Site. The VT SMS hired Wagner, Heindel and Noyes of Burlington, Vermont to conduct this comprehensive investigation, which resulted in a Site Investigation Report dated December 7, 1988. In July 1995, the VT SMS completed a Final Site Inspection Prioritization Report for the Bressett Site; and based on this work by the State, VT SMS

approved a remedial action scope that was included in the Management Plan in the 1997 Consent Decree.

The Scope of Work in the Management Plan included covering the VOC containing materials, installation of bedrock and overburden monitoring wells, providing support for the groundwater reclassification process, and monitoring of groundwater, surface water, water supplies, and indoor air quality.

Monitoring data have been collected through the course of twenty years at the Site, most recently under the Monitoring Program specified in the Management Plan and approved by the VT SMS. All potentially affected environmental media (including water supplies, groundwater, surface water, and air) have been repeatedly sampled and analyzed.

The aerial and vertical extent and the magnitude of PCE concentrations in soils and groundwater are well documented through these successive rounds of monitoring and studies. Collectively, the data are consistent with the presence of residual dense nonaqueous phase liquid (DNAPL) tetrachloroethene (also known as perchloroethylene or PCE), existing as disconnected ganglia and/or pooled in bedrock fractures beyond the practicable limits of remediation, acting as slowly depleting sources of dissolved PCE in groundwater at the Site. The extent of contamination has been fully delineated and is not increasing. The long-term downgradient monitoring wells show generally declining, steady or non-detect PCE concentrations. Clean wells or springs without VOC concentrations above Vermont Groundwater Enforcement Standards are present in both the bedrock and overburden all around the Area of Remedial Action.

The long-term remedial objectives at this Site were developed by the State of Vermont based on the above data and conceptual model. As stated in Section I:1.2 of the Management Plan, which is incorporated in the Consent Decree, the remedial objectives are: (1) mitigate or prevent exposure to PCE at identified receptors; (2) maintain existing land uses to prevent activities that could disturb Site conditions and/or cause additional exposure to contaminated

environmental media; and (3) institute a monitoring program to measure the continuing effectiveness of remedial actions and institutional controls in meeting these objectives.

Paragraph 39 of the Consent Decree states the objectives of this Remedial Effectiveness Evaluation Report ("REER"). They are: (1) to summarize and evaluate all relevant monitoring data collected at the Site; (2) to make recommendations for continuing or modifying the Monitoring Program; and (3) to assess the effectiveness of remedial actions undertaken at the Site, including any recommended modifications appropriate to meet the objectives of the previously selected remedy.

The remainder of this report presents a description of the remedial actions and remedial systems implemented at the Site, a description of the REE methodology, a summary of all monitoring results, and resulting recommendations.

2.0 DESCRIPTION OF REMEDIAL ACTION

Remedial actions undertaken at the Site have been selected, approved, and documented through a long series of reports and correspondence on file with the State, and in the 1986 and 1997 Consent Decrees. In summary, these actions have included:

1. In 1981, alternate water supplies were connected to the Bressett and Bowen residences to replace the existing water supply wells impacted by PCE.
2. A two to three-foot thick soil cap cover was installed over the area where buried sludge had been identified during past investigations. Construction was completed on August 13, 1998.
3. The former Bressett bedrock water supply well, which was determined to contain chlorinated solvents, was permanently closed and sealed in 1998, and the well piping and vent removed. The former Bressett bedrock water supply well, which is approximately 25 feet east of the former Bressett residence, is shown in Figure 3.

4. The property on which the PCE containing materials were buried was purchased by UniFirst, and deed restrictions were implemented. These restrictions prevent groundwater use, excavation, drilling, and other activities on the property in "restricted" areas (see Figure 4).

Development on the Hammond/Kepes property (formerly Shields) south of Town Road #23 and west of Route 12 is also prohibited by deed restrictions.

5. A Class IV Groundwater Reclassification Package was prepared between 1999 and 2001 in support of a petition by the State of Vermont Agency of Natural Resources, Hazardous Materials Management Division, Sites Management Section (SMS) to reclassify groundwater at and near the Site to Class IV in accordance with the Vermont Groundwater Protection Rule and Strategy (GPRS). A Class IV groundwater designation is an institutional control that will preclude the future installation of water supply wells in and around the Site. The groundwater reclassification process is on-going at the time of this report. The area proposed for groundwater reclassification is shown on Figure 3.

These measures comprise the corrective actions and continuing remedy undertaken at the Site in accordance with the Consent Decree.

3.0 OVERVIEW

This Remedial Effectiveness Evaluation (REE) was conducted between March and April of 2002. The remedial action was evaluated to determine the effectiveness of the corrective actions in reducing the potential for exposure of known potential receptors to PCE in environmental media in the vicinity of the Site. Existing data were used as available. Where appropriate based on the data, statistical methods required and previously employed in preparing the Groundwater Reclassification Report were extended and applied to evaluate the results of sampling and analysis conducted at specific monitoring points in successive monitoring events. Following are brief descriptions of the parameters that were examined during the REE.

3.1 EXPOSURE PATHWAYS

The Consent Decree identified potential receptors to be monitored in accordance with a monitoring work plan approved by the Vermont Sites Management Section. The purpose of the

monitoring was to document any apparent changes in exposure, and to allow development of appropriate responses to those changes.

The following section provides summaries of available historical chemical quality data for PCE and its degradation products in drinking water, groundwater, surface water, and air quality. When sufficient data were available (more than eight reported instances of samples with non-detect results for a specific chemical), a natural log, least squares regression, best-fit approximation of the data was prepared. It should be noted that statistical analysis alone does not provide sufficient information to warrant development of additional remedial actions. In many cases relatively high detection limits adversely affect the reliability of the best-fit regression equation. In other cases, changes in the sampling methods may have caused significant variations in the reported concentrations. Furthermore, apparent increases in chemicals in individual monitoring wells do not necessarily correlate with increases at sensitive receptors. In summary, the statistical analysis provides information to allow differentiation between seasonal, sampling method, or analytical method variations from long-term trends. However, this analysis must be used as one piece of a weight-of-evidence evaluation in order to determine if changes in the exposure assumptions and the VT SMS approved remedial actions are warranted.

3.2 EXISTING DATA

Water quality monitoring of groundwater, surface water, water supplies, and indoor air is on-going under the direction of the SMS as specified in the Management Plan. At present, monitoring locations include:

1. Three bedrock monitoring wells monitored semi-annually: BRW-1, BRW-2, and BRW-3.
2. Six pairs of nested overburden monitoring wells tested semi-annually: MW-3, MW-4, MW-101, MW-102, MW-103 and MW-104.

3. Two annual surface water monitoring locations: SW-1 (un-named tributary) and SW-2 (Howard Hill Brook).
4. Three water supplies monitored semi-annually: the Bowen Spring, the Bressett Spring, and the Hammond/Kepes (formerly Shields) well.
5. Indoor air is monitored in the cellar and first floor of the former Bressett Residence during January and July of each year.

Private water supplies in the area have been monitored since 1981 to provide information on the potential for exposure to PCE. The Vermont Department of Health (DOH) tested nearby water supply wells in the area intermittently from 1981 through 1987 using laboratory analysis for volatile organic compounds (VOC), including PCE. Only two water supply wells (Bowen and Bressett which were replaced with water supply springs) were reported to contain PCE concentrations in excess of Vermont Maximum Contaminant Levels (MCLs). Two additional water supply wells were drilled recently, one for the new Bressett residence south of Howard Hill Road, and the second for the Illsley farm west of Route 12. The VT SMS tested the water quality in both of these wells, and no VOCs were detected.

An investigation was conducted at the Site by Wagner, Heindell and Noyes (WH&N) for the SMS during 1988. The results of the investigation indicated the presence in the subsurface of sludge material containing a mixture of volatile organic compounds. The sludge material was found to be located in a series of trenches oriented parallel to the contours of the slope in a field approximately 200 feet northeast of the house located on the former Bressett property. The trenches are located within the area of Remedial Action as shown in Figure 2. In addition, WH&N installed and tested monitoring wells, tested water supply wells, conducted two pumping tests of the Bressett bedrock well and performed a fracture trace analysis of the area. Seven overburden monitoring wells were installed during the investigation: MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D (see Figure 3). The SMS continued to test water supplies and groundwater monitoring wells from 1988 to 1997.

In 1997 and 1998, UniFirst installed three bedrock and four nested pairs of overburden monitoring wells. The new monitoring wells included BRW-1, BRW-2, and BRW-3 completed in the bedrock. These wells are located north, south, and west of the Area of Remedial Action. They have been monitored on a semi-annual basis nine times, and no VOCs have ever been reported in any of them. These data show that the extent of PCE in the bedrock aquifer has been accurately delineated, and is not increasing.

The new overburden monitoring wells included MW-101S, MW-101D, MW-102S, MW-102D, MW-103S, MW-103D, MW-104S, and MW-104D (see Figure 3). The surface water monitoring locations included SW-1 (unnamed tributary) and SW-2 (Howard Hill Brook) (see Figure 3).

4.0 SUMMARY OF MONITORING RESULTS BY ENVIRONMENTAL MEDIA

4.1 GROUNDWATER

4.1.1 *Drinking Water Supplies*

The drinking water supplies that were initially determined to be contaminated (the Bressett and Bowen bedrock wells) were replaced in 1981 with springs located upgradient and more than 500 feet from the residences. Three private water supplies located within 1,000 feet of the Site that were not initially reported to be contaminated have been monitored since 1981 (the Shields bedrock well, the Bowen spring, and the Bressett spring as shown on Figure 3). These water supplies are still being monitored on a semi-annual basis. The following water supplies have been sampled and analyzed since 1981 (available information on these water supplies is listed, along with the number of times sampled):

- former Bressett well (drilled bedrock well, depth greater than 100 feet) (19 times);
- Bressett spring (dug well) (16 times);
- new Bressett well (drilled bedrock well) (once);
- new Illsley well (drilled bedrock well) (once);

- Hammond/Kepes well (formerly Shields and Hurd) (drilled bedrock well) (16 times);
- Mitchell well (drilled bedrock well approximately 0.5 miles south of the Site) (5 times);
- Maxwell well (130 foot deep, 20 gpm, drilled bedrock well ~3/4 miles south of the Site) (4 times);
- Anderson well (WSID #5490, now Greenes Mobil Home Park, drilled bedrock well approximately one mile south of the Site) (4 times);
- Bowen well (drilled bedrock well, 85 feet to rock, unknown depth (16 times); and
- the Bowen spring (dug well) (11 times).

No VOCs in excess of drinking water Maximum Contaminant Levels (MCL) have been reported in these water supplies (except the un-used Bowen and former Bressett bedrock wells) since 1983. The MCL for PCE and TCE is 5 ug/L. The MCL for DCE is 70 ug/L for the *cis* isomer, and 100 ug/L for the *trans* isomer. Graphs of historical water quality data for the Bressett Spring, the former Bressett well, and the Bowen well are provided in Figures 5 through 9. (Note that for these compounds, the MCL equals the Vermont Groundwater Enforcement Standards (VGES), which is what is shown on the graphs.) Attachment 2 includes a table of available water quality data for all water supplies sampled and analyzed to date.

Some data from the early rounds of water supply sampling by the Vermont Department of Health may be suspect. For example, a sample collected on September 14, 1981 from the Hammond/Kepes (formerly Shields) well had reported detections of chlorinated solvents near the detection limits. However, samples collected from the same well on the next day, September 15, 1981, had no detections of contaminants. No detectable PCE has been reported in this well since (14 additional samples between 1981 and 2002). On the same two dates the former Bressett well was sampled, and the reported concentration of PCE was 4,800 ppb on September 14, whereas on September 15, it was 543 ppb.

The groundwater in an area of approximately 90 acres is proposed to be reclassified from Class III (potable) to Class IV (non-potable) based upon the criteria for groundwater reclassification in the GPRS, and data collected at the Site. Class IV designation will preclude the installation of new water supply wells in this area for use as future sources of potable water.

This classification does not preclude the use of groundwater in this area for non-potable uses such as agricultural, industrial and commercial. The proposed Class IV groundwater reclassification area is shown on Figure 3. Deed restrictions limiting development and groundwater use also have been implemented on the UniFirst (formerly Bressett) property.

4.1.2 Bedrock Groundwater

In addition to the bedrock water supply wells being monitored, three bedrock monitoring wells were installed in 1997, and have been monitored on a semi-annual basis since then (BRW-1, BRW-2 and BRW-3, see Figure 3). No VOCs have been detected in any of these three wells. These data show that the extent of PCE in bedrock has been delineated, and is limited in extent. The sampling dates and detection limits are provided in the Tables in Attachment 2.

As discussed in Section 4.1.1, water quality data also were collected periodically from the un-used Bressett and Bowen water supply wells. The data for the former Bressett and Bowen bedrock wells were evaluated for the contaminants of concern at this Site: PCE, TCE, and total 1,2-DCE. Reports of DCE in groundwater samples were not differentiated by the laboratory between the *cis* and *trans* isomers for most of the available data. Therefore, in order to evaluate changes in concentrations over time, total 1,2 DCE concentrations were considered, and undifferentiated reports of 1,2-DCE concentrations were assumed to represent total concentrations.

The evaluation of the trends in bedrock groundwater quality over time was performed using historical data and a least squares regression best fit equation (see Figures 5 through 9). A natural log transformation was used prior to calculating a best-fit linear regression equation. The transformed data generally provided a better fit than the untransformed data, probably due to the natural attenuation of the contaminants over time. For statistical purposes, one-half of the detection limit was used for samples where the compound was not detected. The detection limit was not provided for EPA Method 524.2 analyses during the 1980's, and for purposes of this

evaluation the detection limit was assumed to be 1 ug/L for those samples. Similarly, the detection limit was not provided for EPA Method 8240 analyses during the 1980's, and the detection limit was assumed to be 5 ug/L for those samples. As shown on Figures 5 through 9, concentrations generally have decreased over time, presumably due to continuing natural attenuation of the contaminants.

Variability of the data collected from the former Bressett water supply well between 1981 and 1987 has not been observed in more recent sampling events. It is possible that this variability was due to sampling methods. The rate and duration of purging prior to sampling is not available for the earlier sampling events which may have caused the variability in the data. The monitoring events since 1997 were all collected in accordance with the same sampling protocols, each with similar purge rates and volumes, and the results from this monitoring period exhibit much less variability than the earlier data.

4.1.3 Overburden Groundwater

Water quality monitoring of overburden groundwater at the Site is on-going under the direction of the SMS in accordance with the Consent Decree and the Monitoring Workplan developed under the Consent Decree. Overburden groundwater semi-annual monitoring locations include MW-3, MW-4, MW-101, MW-102, MW-103 and MW-104 (see Figure 3). Historical water quality data also are available for monitoring wells MW-1 and MW-2. Tables of all historical water quality data for overburden groundwater are provided in Attachment 2.

Of 14 monitoring events at well MW-1 between 1988 and 1995, TCE and DCE were never detected, and PCE was detected once, at a reported concentration of 5 ug/L (equal to the detection limit and the VGES). PCE, TCE and DCE have never been reported present in any of the samples collected from wells MW-103S, MW-103D, MW-104S and MW-104D. Graphs of historical water quality in the remaining wells are provided in Figures 10 through 24.

It is worth noting that, as with the bedrock groundwater monitoring data, quite a few of the older data points exhibit unusual variability. For instance, duplicate samples were collected from MW-3D on numerous dates. On some dates the variation between the duplicates was 100 ppb PCE or more (October 19, 1993; June 6, 1994). Similar variation between duplicate samples was also reported for well MW-4D (a difference of 135 ppb PCE on October 30, 1990).

As described for bedrock groundwater (Section 4.1.2), the trends of overburden groundwater quality over time were evaluated from historical data (when sufficient data were available) using a best-fit equation. The long and extensive history of groundwater monitoring at many sampling locations at the Site shows overall concentrations in downgradient overburden groundwater monitoring wells generally steady or declining, with the exception of deep overburden monitoring well MW-3D. Concentrations in MW-3D initially increased between 1989 and 1995. However, the concentrations generally have been relatively stable over the last three years (since 1999).

The depth to groundwater in the area of dissolved PCE is greater than three feet, so incidental direct contact with contaminated groundwater is unlikely. A map showing typical overburden groundwater elevations is provided as Figure 25. Figure 26 shows the minimum historical depth to groundwater in overburden monitoring wells. Recent reported concentrations of VOCs in monitoring wells are shown in Figures 27 through 29.

4.2 SURFACE WATER

Surface water samples have been collected from the vicinity of the Site since 1981, including two locations that are currently monitored. Water quality monitoring of surface water at the Site is on-going under the direction of the SMS in accordance with the Consent Decree and the Monitoring Workplan developed under the Consent Decree. Annual surface water monitoring locations include SW-1 (un-named tributary) and SW-2 (Howard Hill Brook) (see Figure 3).

Location SW-1 has been sampled twice (in July of 1997 and 1998), and no PCE, TCE or DCE were detected. (This sampling location has been dry during the other sampling events.) Location SW-2 has been sampled five times in July of each year since 1997. In the majority of SW-2 sample analyses PCE, TCE and DCE have been reported as undetected above the method detection limits. The only reported detections of TCE and cis-DCE were from the 1997 samples, where estimated concentrations of 0.53-0.98 ug/L and 2.4-2.7 ug/L, respectively, were reported. PCE was only detected once at SW-2 in 1998 at an estimated concentration of 0.34-0.36 ug/L. No PCE, TCE or DCE have been reported in samples collected from SW-2 in the last three years (1999, 2000, or 2001).

4.3 INDOOR AIR QUALITY

Indoor air quality has been periodically measured at the first floor and basement of the former Bressett residence since 1997. Monitoring was performed when the residence was occupied. Figure 3 shows indoor air sampling locations in the Bressett residence. Figures 30 and 31 are time-series graphs of indoor air quality for the Bressett residence. A summary table of the indoor air quality data is included in Attachment 2. Best-fit equations were not developed for the air quality data, because less than eight instances of reported detections of PCE are available, and therefore the extrapolation would not be statistically valid.

5.0 CONCLUSIONS

The remedy in place at the Site was designed to control the potential for exposure to PCE and its breakdown products at known receptors. The remedy included the replacement of contaminated water supplies, abandonment of the former Bressett well and its associated plumbing, installation of a soil cover over the contaminated sludge area, and implementation of institutional controls on excavation and land and groundwater use. The previously approved actions have been effective in meeting the stated remedial objectives established in the Consent Decree. Based on the data collected, the potential for exposure to contaminated surface water,

groundwater, soils, and indoor air is decreasing over time. Following is a brief discussion summarizing conclusions on a media-specific basis.

5.1 DRINKING WATER

- The replacement of the water supplies as a corrective action has been effective in minimizing the exposure of potential receptors to PCE due to ingestion of drinking water.
- None of the water supplies in the vicinity of the Site that are still in use and have been monitored since the initial investigations have had concentrations of PCE, TCE or DCE above Vermont Groundwater Enforcement Standards since 1983.
- Existing deed restrictions and the proposed Class IV groundwater reclassification currently in progress will prevent the installation of new water supply wells in areas with contaminated groundwater.

5.2 GROUNDWATER

- Depth to groundwater in the area of contamination is greater than 3 feet. Therefore, the risk of incidental direct physical contact with contaminated groundwater is minimal.
- Contaminant transport is primarily via dissolved constituents in groundwater. Extensive historical groundwater quality data and hydrogeological studies demonstrate that the extent of dissolved contamination in the groundwater is limited. The limits of contamination have been verified by clean monitoring points to the north, south, east, and west. Available data further indicate that a combination of natural hydrogeologic boundaries and continuing attenuation of the contaminant source (i.e., the non-aqueous phase liquid or sludge) have resulted in conditions that are preventing increases in the extent of dissolved contamination. Further, overall concentrations in most downgradient groundwater monitoring wells are declining over time.
- The observed decline in the PCE concentrations in groundwater at the Site over the past 20 years indicates that, absent any unforeseen changes in hydrogeologic conditions, the potential for the exposure of receptors proximate to the Site to PCE will continue to diminish over time.

5.3 SURFACE WATER

- Five years of monitoring surface water quality indicate that direct contact with contaminated surface water is not a risk.

5.4 AIR QUALITY

- Indoor air quality at the first floor living quarters of the former Bressett residence has reported concentrations of PCE below 1 ppbV during the last three monitoring events.

5.5 REMEDIAL ACTION

Contaminated soils were capped with two to three feet of clean soil. The capped area has been successfully re-vegetated, thereby eliminating any significant risk of human exposure by direct contact. In addition, deed restrictions have been emplaced to prevent uses that could potentially expose humans to direct contact with the contaminated soils.

6.0 RECOMMENDATIONS

Following are recommendations regarding the remedial actions at this site:

- Semi-annual monitoring of water supplies and indoor air, and annual monitoring of surface water, should continue in accordance with the Consent Decree and the June 1997 Work Plan as amended.
- Nine rounds of groundwater quality monitoring since 1997 indicate that there is no seasonal variation which would be significant in evaluating the potential impact to receptors. Therefore, it is recommended that the frequency of groundwater quality monitoring be reduced to once annually each autumn.
- The State should complete the groundwater reclassification process as soon as possible.
- The un-used and contaminated Bowen bedrock well should be abandoned in accordance with Vermont Environmental Protection Rules, Chapter 21, Appendix A, Part 12.3.5.

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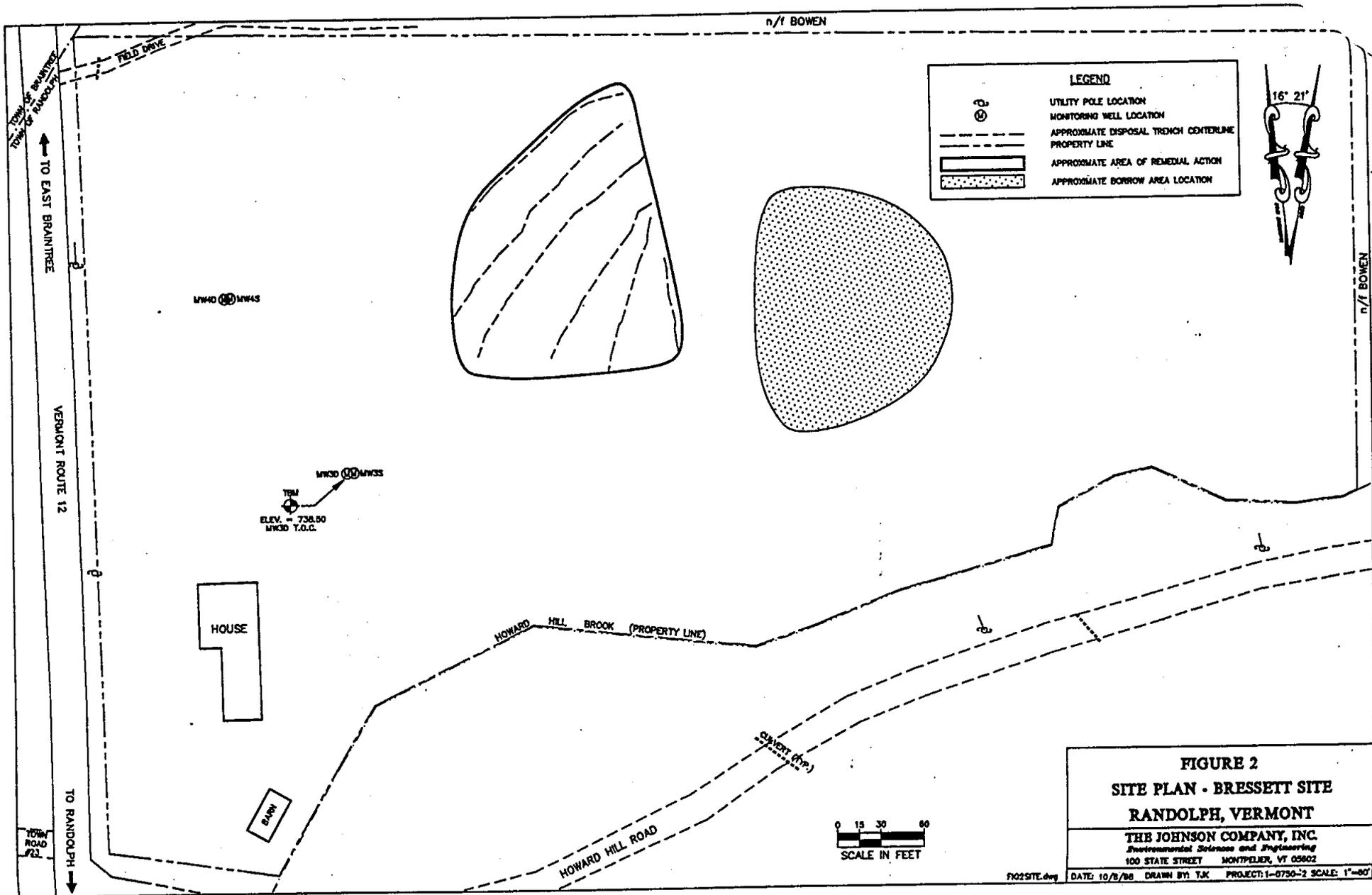
Tighe & Bond, Inc., 2002; Monitoring Report for October 2001, Bressett Site, Randolph, Vermont, March 4, 2002.

- The Johnson Company, Inc., 2001; Class IV Groundwater Reclassification Package, Bressett Site, Randolph, Vermont; November 2001.
- The Johnson Company, Inc., 1999; Monitoring Report for October 1998 Groundwater and Water Supply Monitoring Event, Bressett Site, Randolph, Vermont; February 1, 1999.
- The Johnson Company, Inc., 1998D; Remedial Action Completion Report, The Bressett Site, Randolph, Vermont; October 14, 1998.
- The Johnson Company, Inc., 1998C; Monitoring Report for July 1998 Indoor Air and Surface Water Monitoring Event, Bressett Site, Randolph, Vermont; September 1, 1998.
- The Johnson Company, Inc., 1998B; Monitoring Report for April 1998 Groundwater and Water Supply Monitoring Event, Bressett Site, Randolph, Vermont; July 17, 1998.
- The Johnson Company, Inc., 1998A; Report of Groundwater and Water Supply Monitoring performed in the Autumn 1997 at The Bressett Site, Randolph, Vermont; March 2, 1998.
- The Johnson Company, Inc., 1997C; Monitoring Report for the July 1997 Monitoring Event Bressett Site, Randolph, Vermont; November 14, 1997.
- The Johnson Company, Inc., 1997B; Work Plan, June 1997, Monitoring and Reporting Bressett Site, Randolph, Vermont; June 6, 1997.
- The Johnson Company, Inc., 1997A; MANAGEMENT PLAN for the UniFirst Plant Site Williamstown, Vermont; Wheatley Farm Site Brookfield, Vermont; and Bressett Site Randolph, Vermont FINAL DRAFT As Submitted and Approved on February 13, 1997.
- Wagner, Heindel, and Noyes, Inc., 1988; State of Vermont/Randolph Site Investigation; August 18, 1988, revised December 7, 1988.

Reviewed By: CMC

I:\PROJECTS\11-0750-2\Bressett REER 5-20-02.DOC

ATTACHMENT 1
Figures



LEGEND	
	UTILITY POLE LOCATION
	MONITORING WELL LOCATION
	APPROXIMATE DISPOSAL TRENCH CENTERLINE
	PROPERTY LINE
	APPROXIMATE AREA OF REMEDIAL ACTION
	APPROXIMATE BORROW AREA LOCATION

FIGURE 2
SITE PLAN - BRESSETT SITE
RANDOLPH, VERMONT

THE JOHNSON COMPANY, INC.
Environmental Science and Engineering
 100 STATE STREET MONPELIER, VT 05602

DATE: 10/6/88 DRAWN BY: T.K. PROJECT: 1-0750-2 SCALE: 1"=80'

FIG2SITE.dwg

1-0750-2\AREAMAP.dwg
 REVISED 5/19/97 TJK
 REVISED 1/23/98 TJK
 REVISED 4/7/98 TJK
 REVISED 7/22/98 TJK
 REVISED 11/2/98 TJK
 REVISED 11/12/98 TJK
 REVISED 1/29/99 TJK
 REVISED 2/25/99 TJK
 REVISED 5/12/99 TJK
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 REVISED 3/27/00 TJK
 REVISED 5/18/01 LBM
 REVISED 11/30/01 TJK

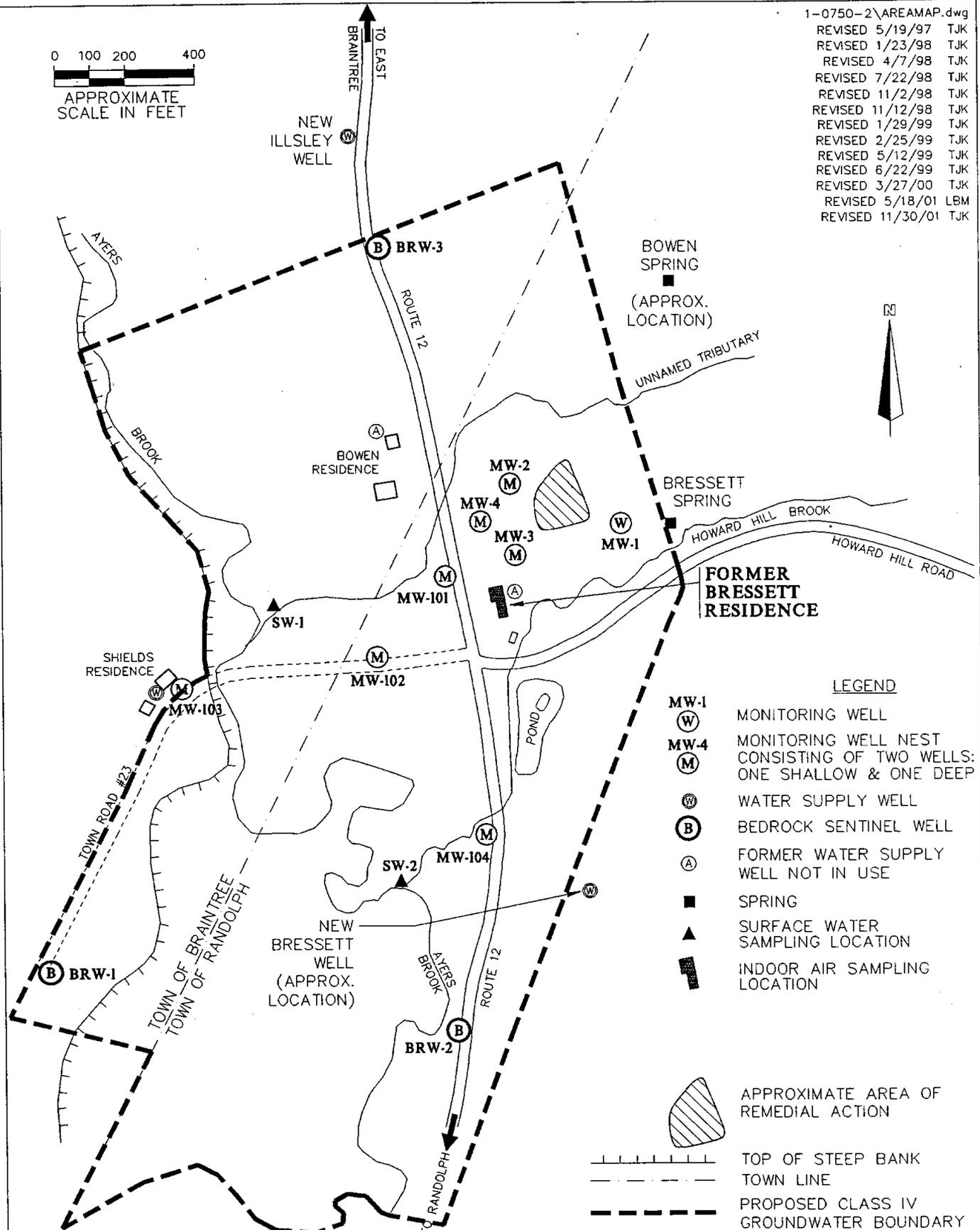
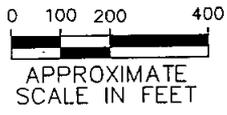
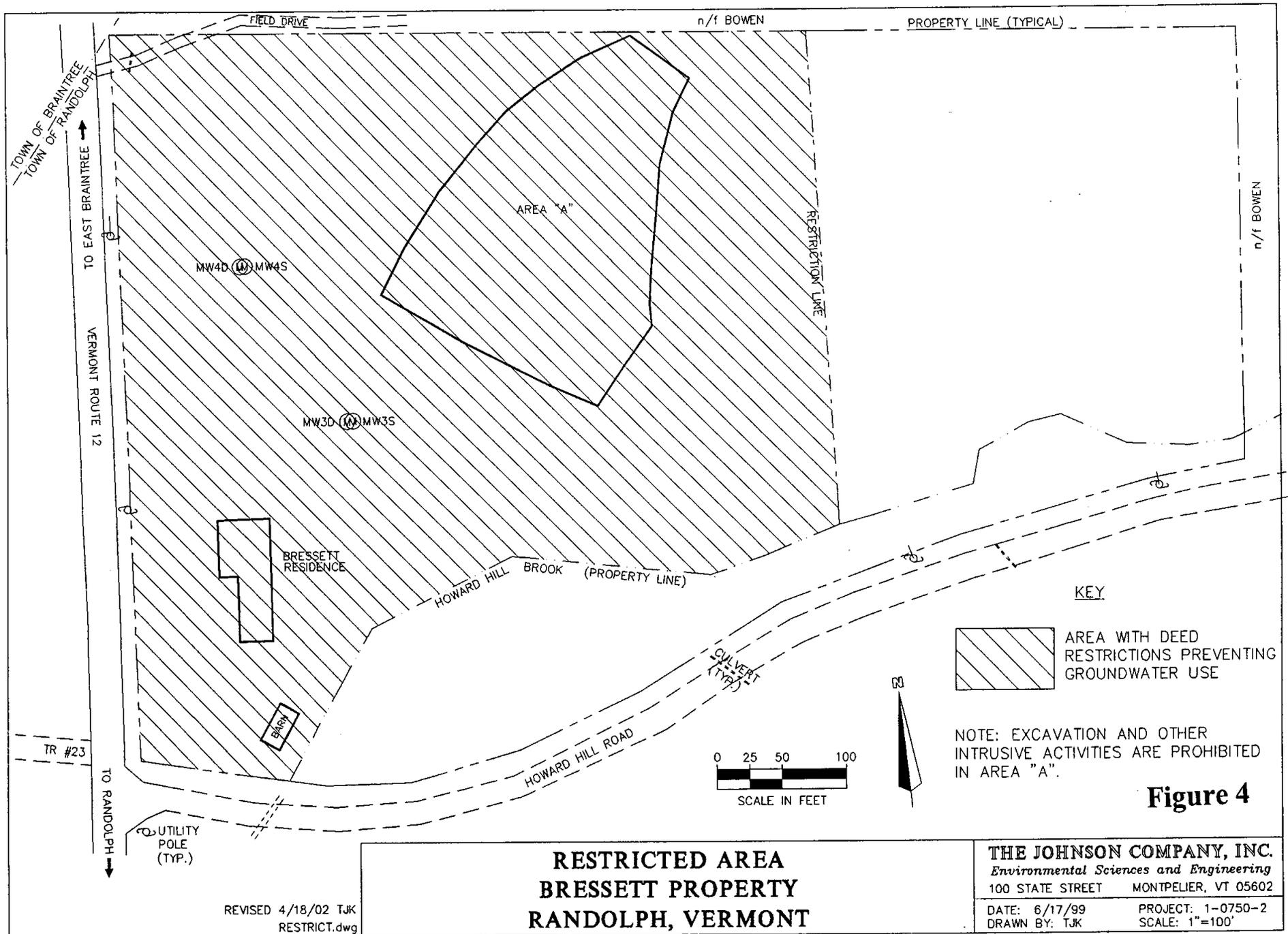


Figure 3: Sampling Locations
 Bressett Site, Randolph, Vermont

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REVISED 4/18/02 TJK
 RESTRICT.dwg

**RESTRICTED AREA
 BRESSETT PROPERTY
 RANDOLPH, VERMONT**

THE JOHNSON COMPANY, INC.
Environmental Sciences and Engineering
 100 STATE STREET MONTPELIER, VT 05602
 DATE: 6/17/99 PROJECT: 1-0750-2
 DRAWN BY: TJK SCALE: 1"=100'

Figure 4

**Bressett Water Supply Spring,
Randolph, Vermont
Tetrachloroethene Concentrations**
(Trichloroethene and 1,2-Dichloroethene not detected, and not included on graphj)

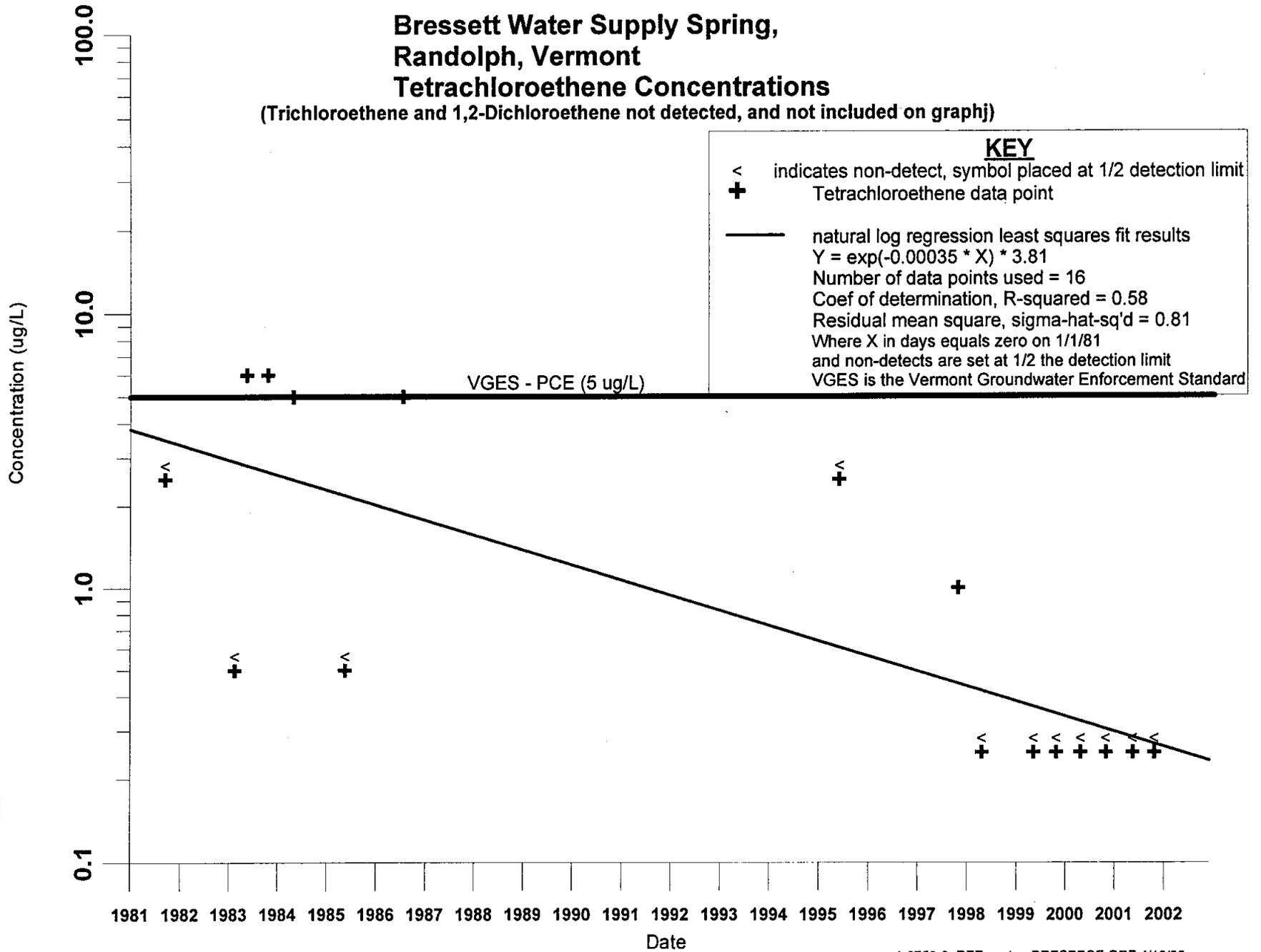


Figure 5

**Former Bressett Bedrock Water Supply Well (closed),
Randolph, Vermont
Tetrachloroethene and Trichloroethene Concentrations**

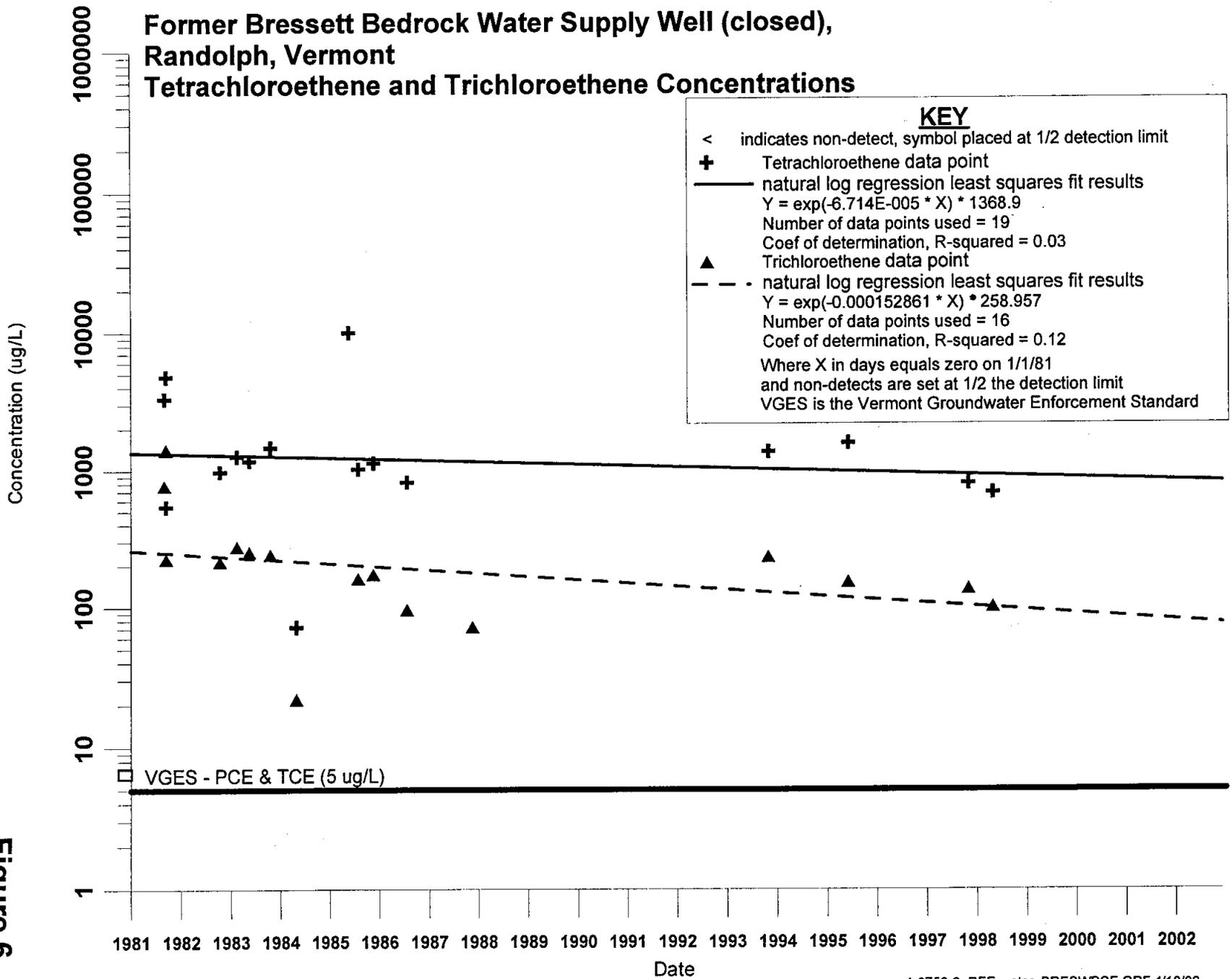


Figure 6

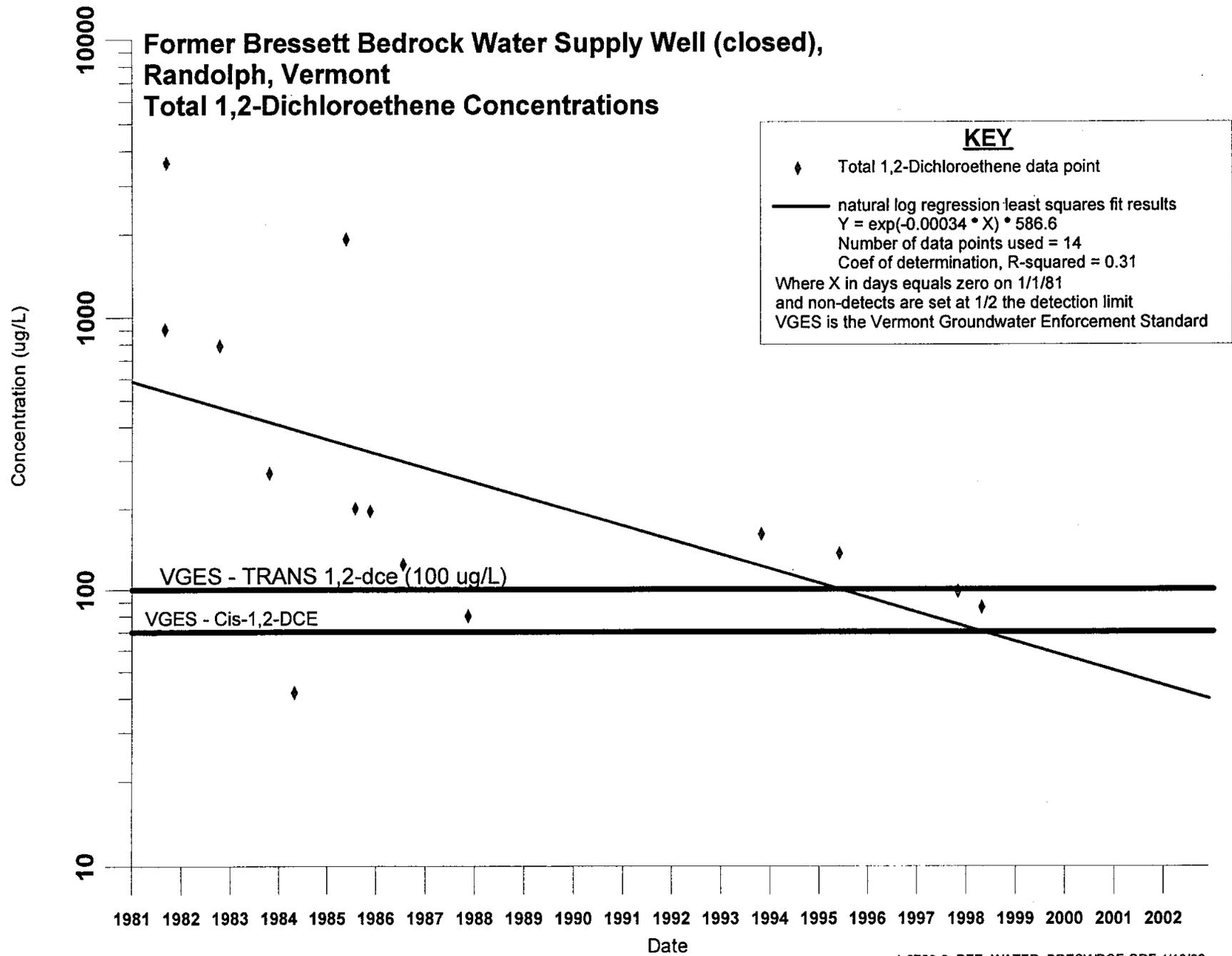


Figure 7

**Bowen Bedrock Water Supply Well (unused),
Randolph, Vermont
Tetrachloroethene and Trichloroethene Concentrations**

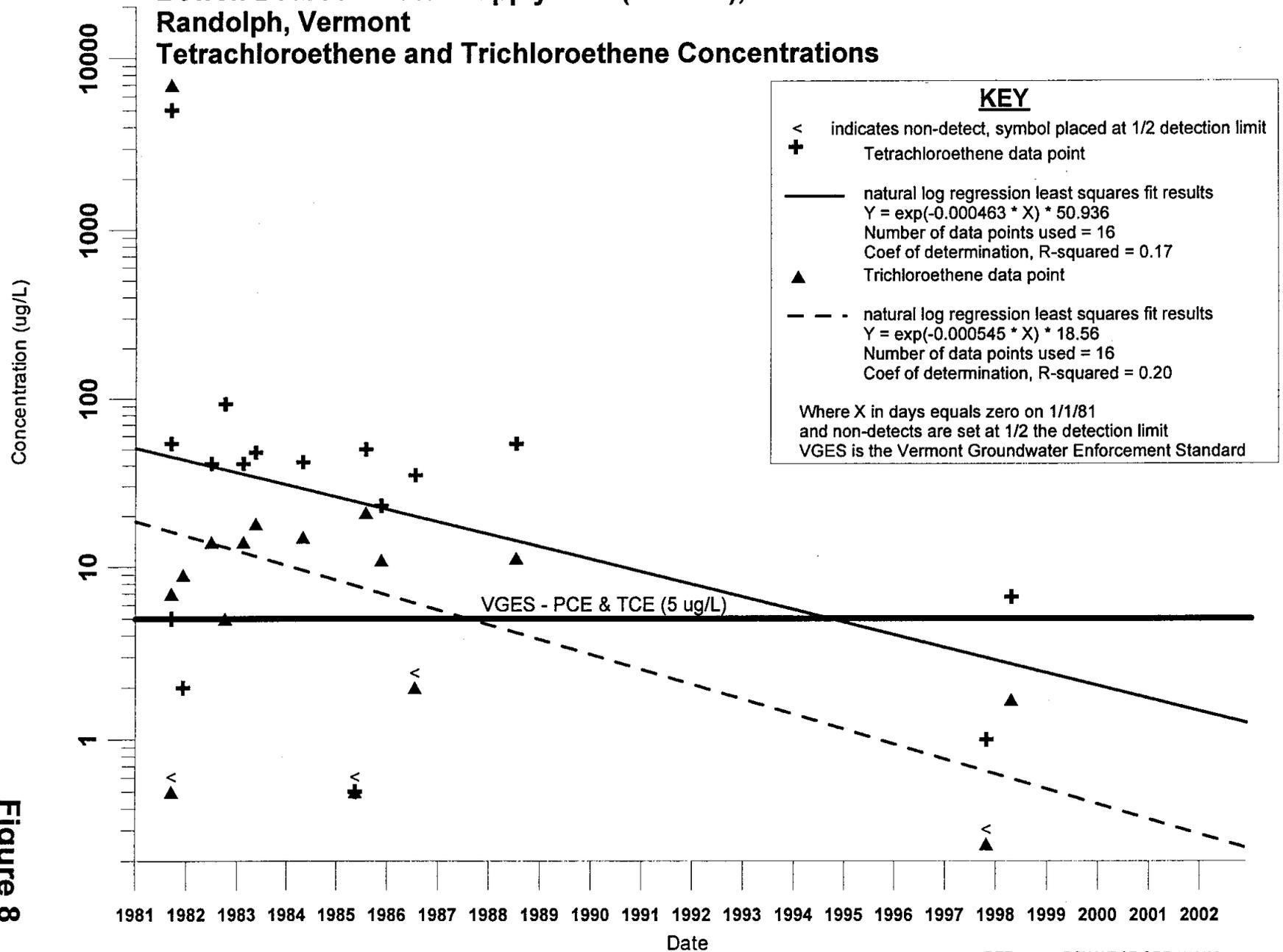


Figure 8

**Bowen Bedrock Water Supply Well (unused),
Randolph, Vermont
Total 1,2-Dichloroethene Concentrations**

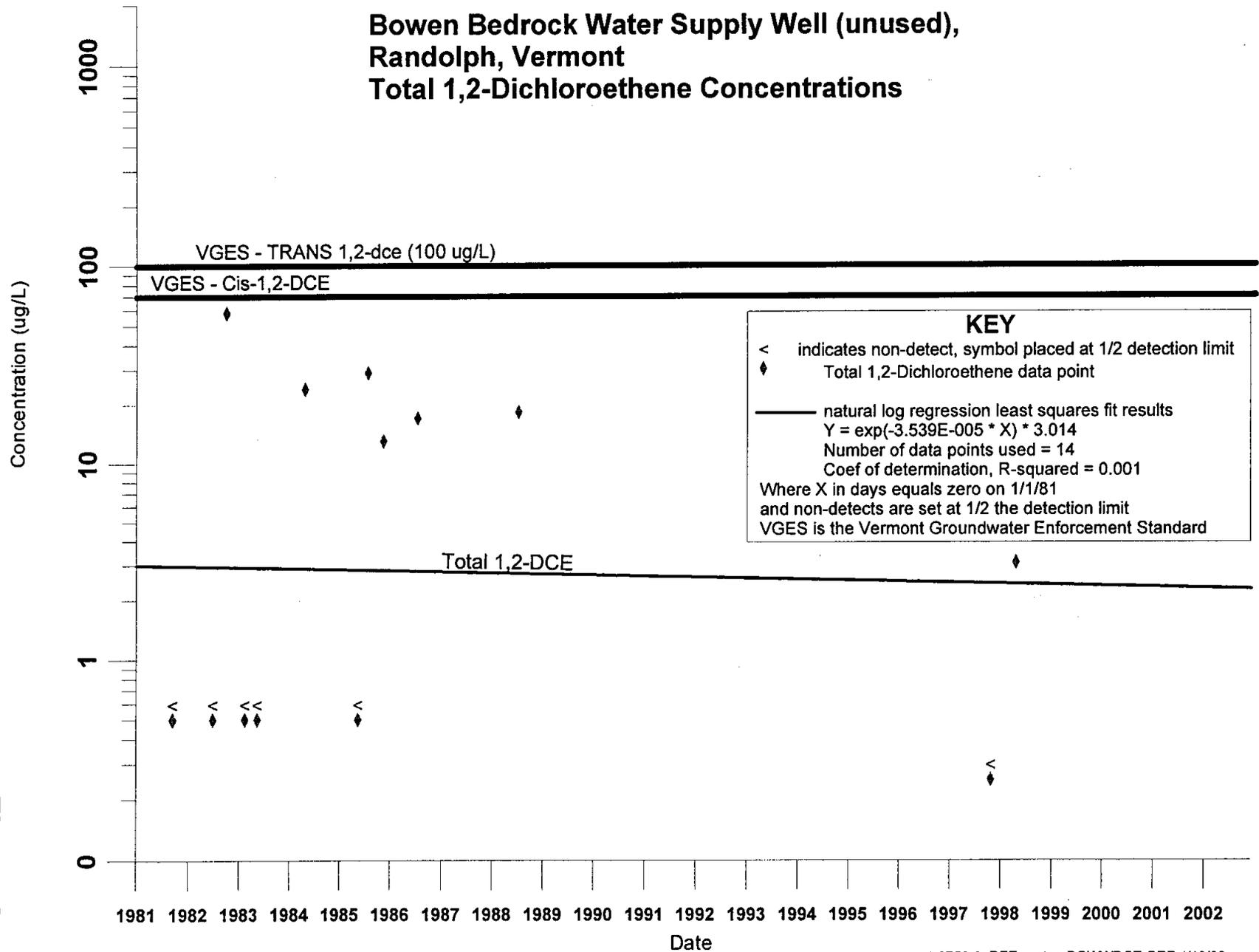


Figure 9

**Overburden Monitoring Well MW-2D,
Bressett Site, Randolph, Vermont
Tetrachloroethene, Trichloroethene, and Total Dichloroethene Concentrations**

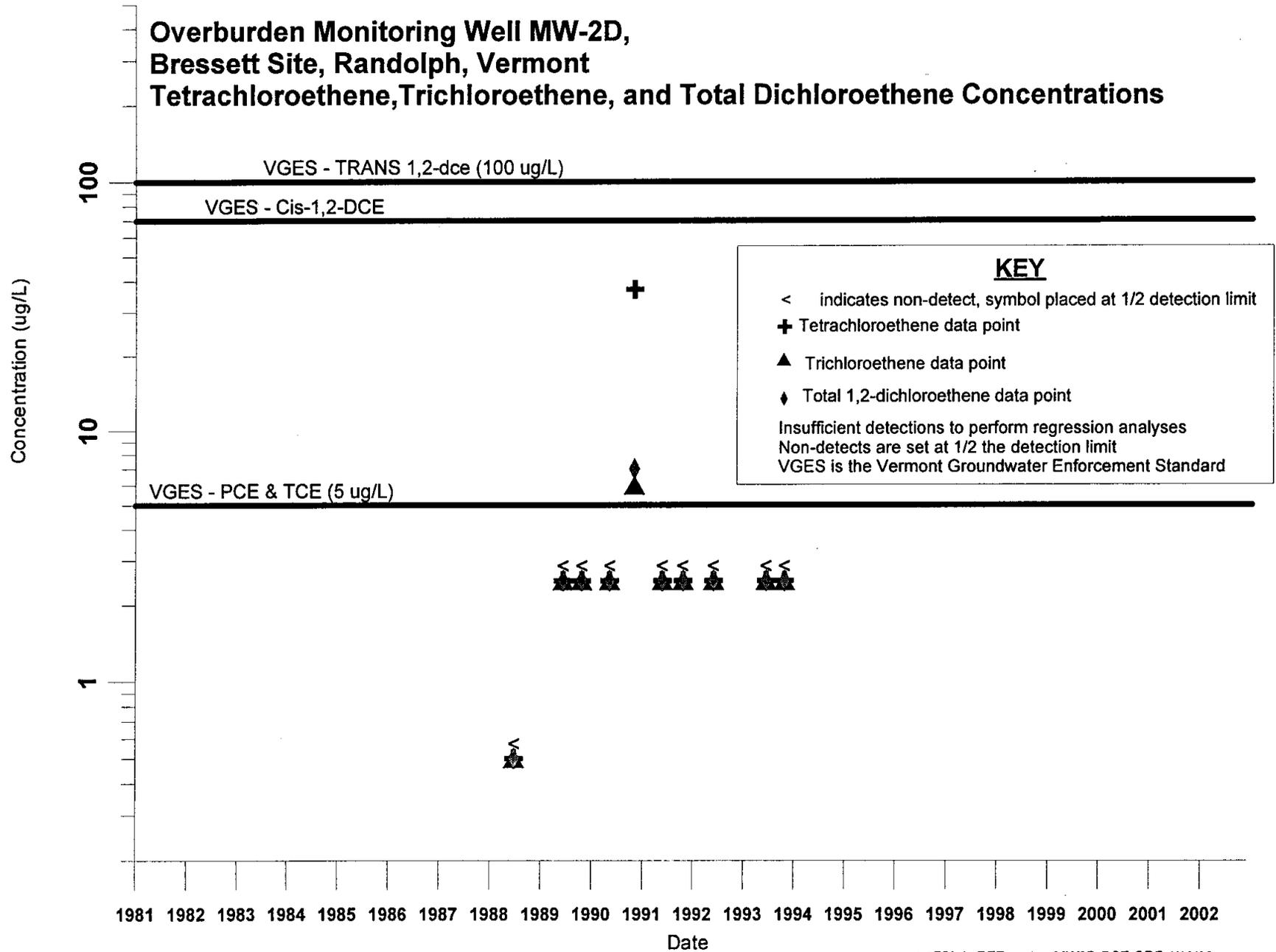


Figure 10

**Overburden Monitoring Well MW-2S,
Bressett Site, Randolph, Vermont
Tetrachloroethene Concentrations**
(Trichloroethene and 1,2-Dichloroethene
not detected above VGES, and not included on graph)

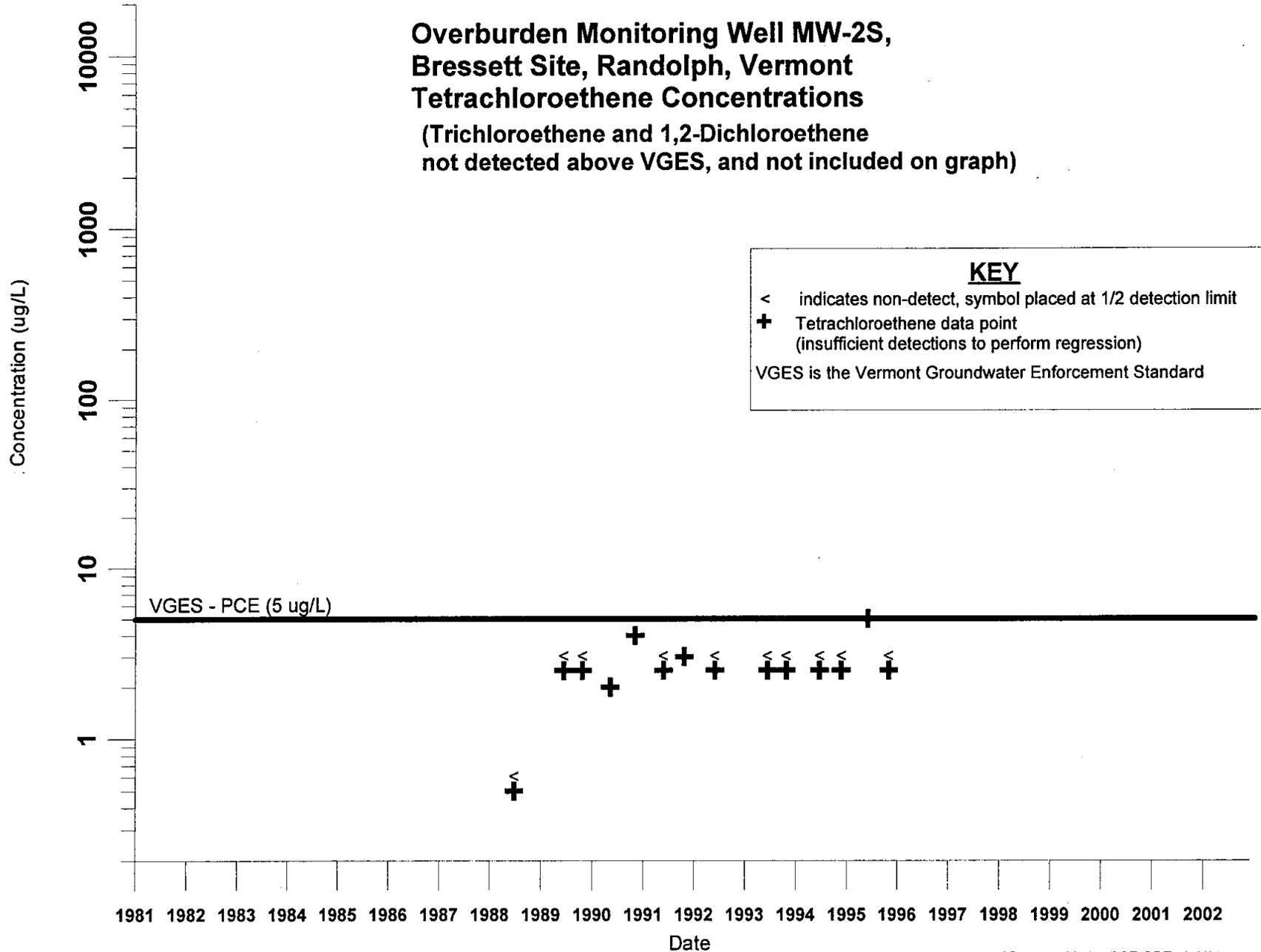


Figure 11

Overburden Monitoring Well MW-3D, Bressett Site, Randolph, Vermont Tetrachloroethene and Trichloroethene Concentrations

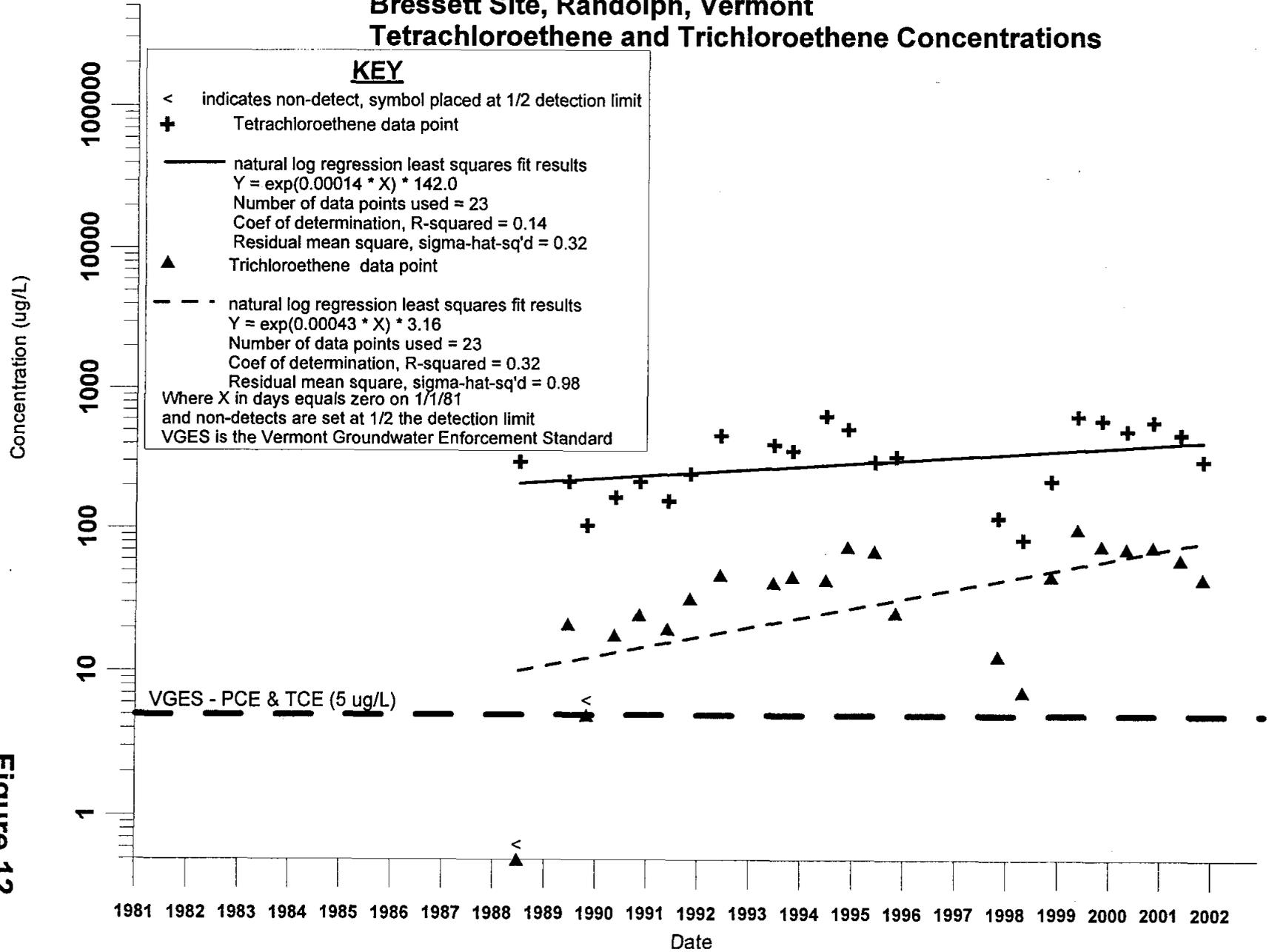


Figure 12

**Overburden Monitoring Well MW-3D,
Bressett Site, Randolph, Vermont
Total 1,2-Dichloroethene Concentrations**

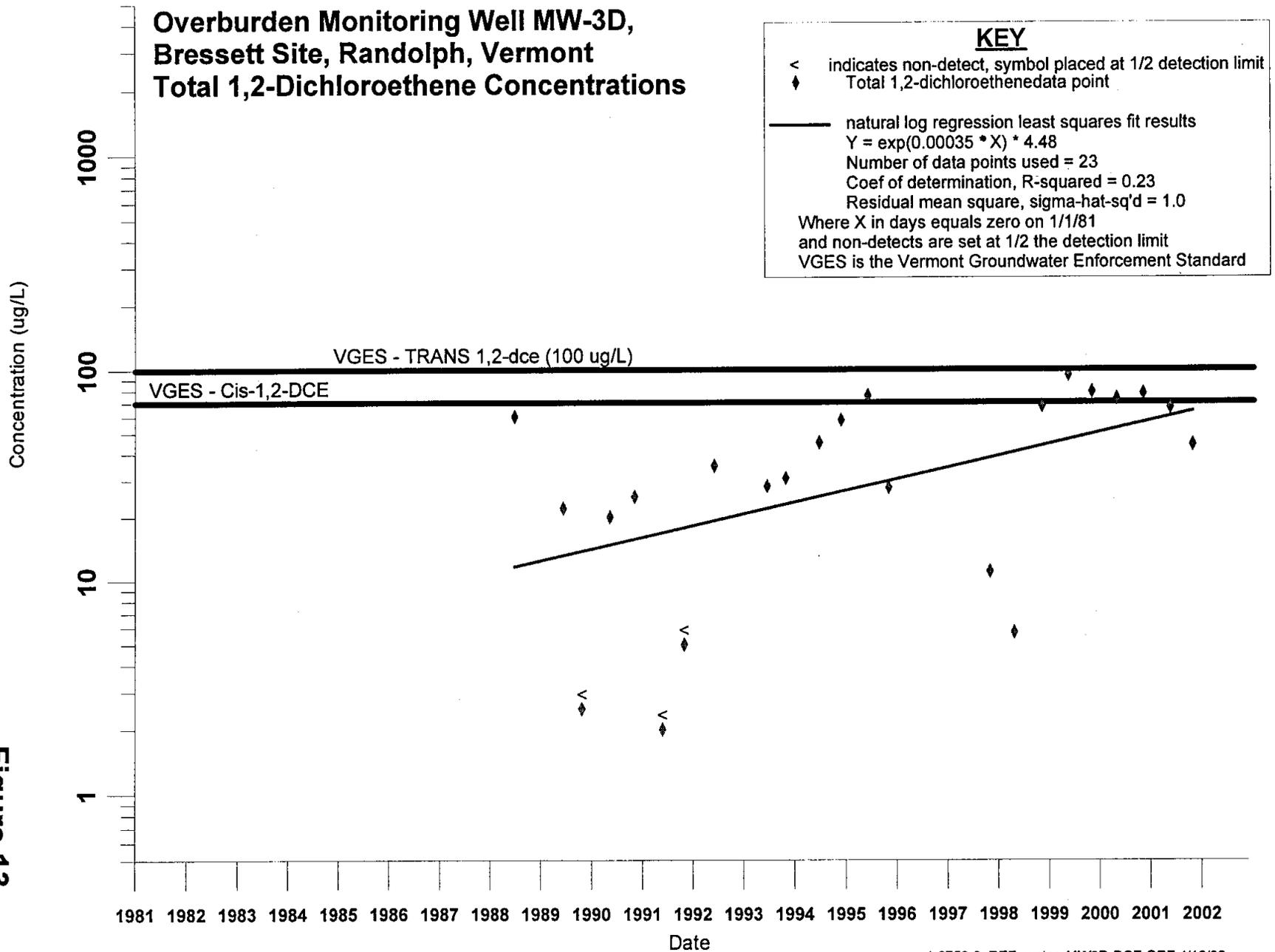


Figure 13

Overburden Monitoring Well MW-3S, Bressett Site, Randolph, Vermont Tetrachloroethene and Trichloroethene Concentrations

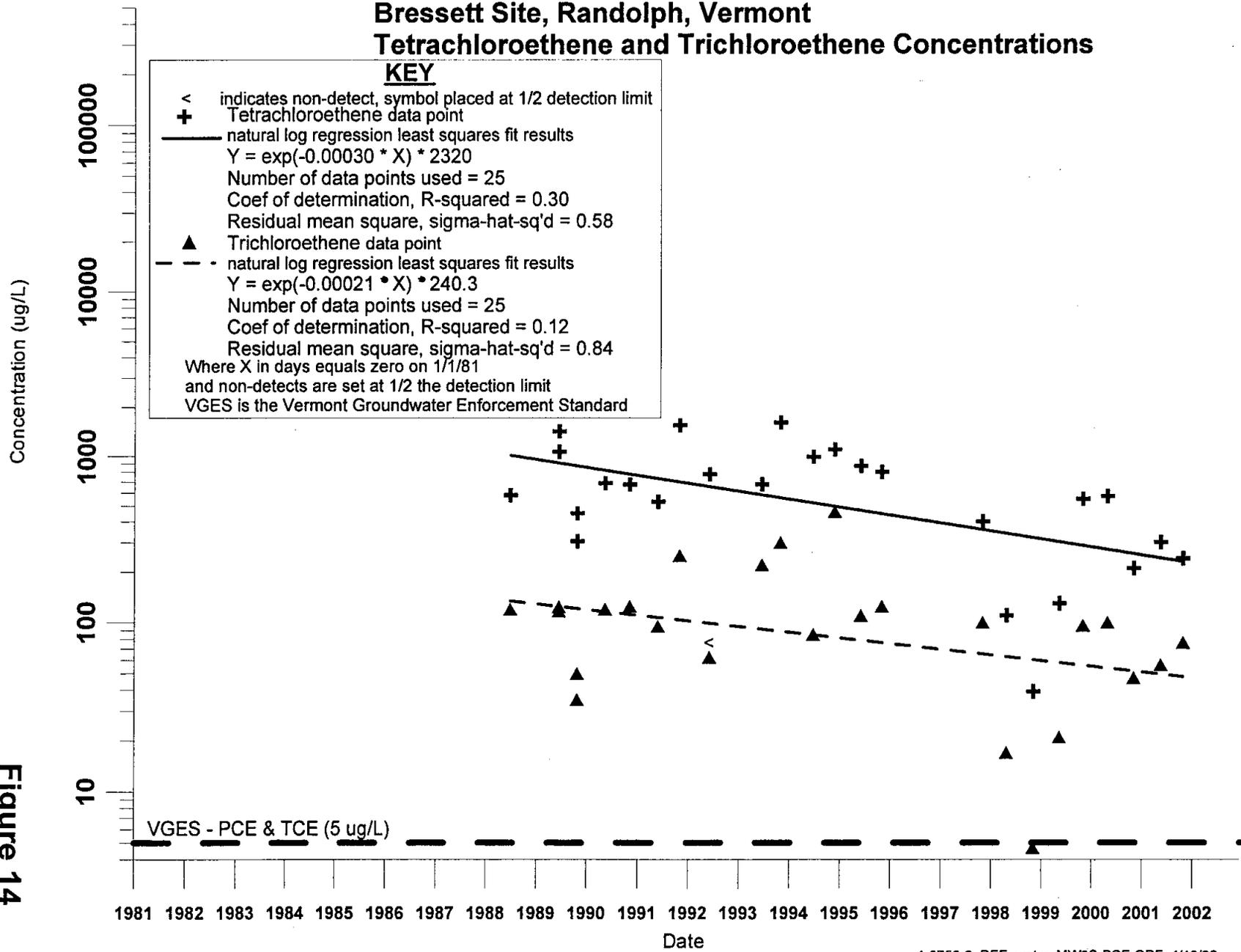


Figure 14

**Overburden Monitoring Well MW-3S,
Bressett Site, Randolph, Vermont
Total 1,2-Dichloroethene Concentrations**

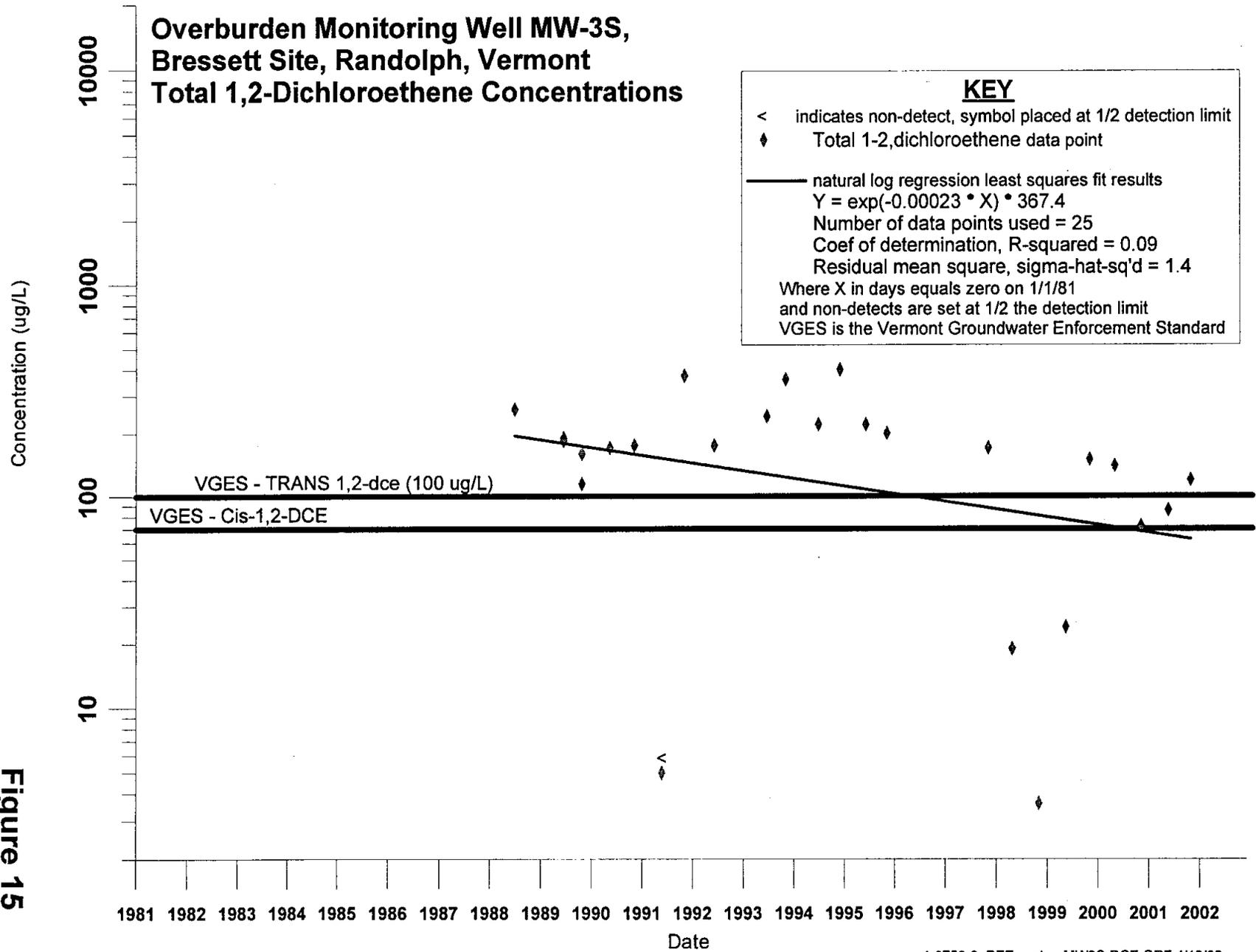


Figure 15

**Overburden Monitoring Well MW-4D,
Bressett Site, Randolph, Vermont
Tetrachloroethene and Trichloroethene Concentrations**
(Total 1,2-Dichloroethene not detected,
and not included on graph)

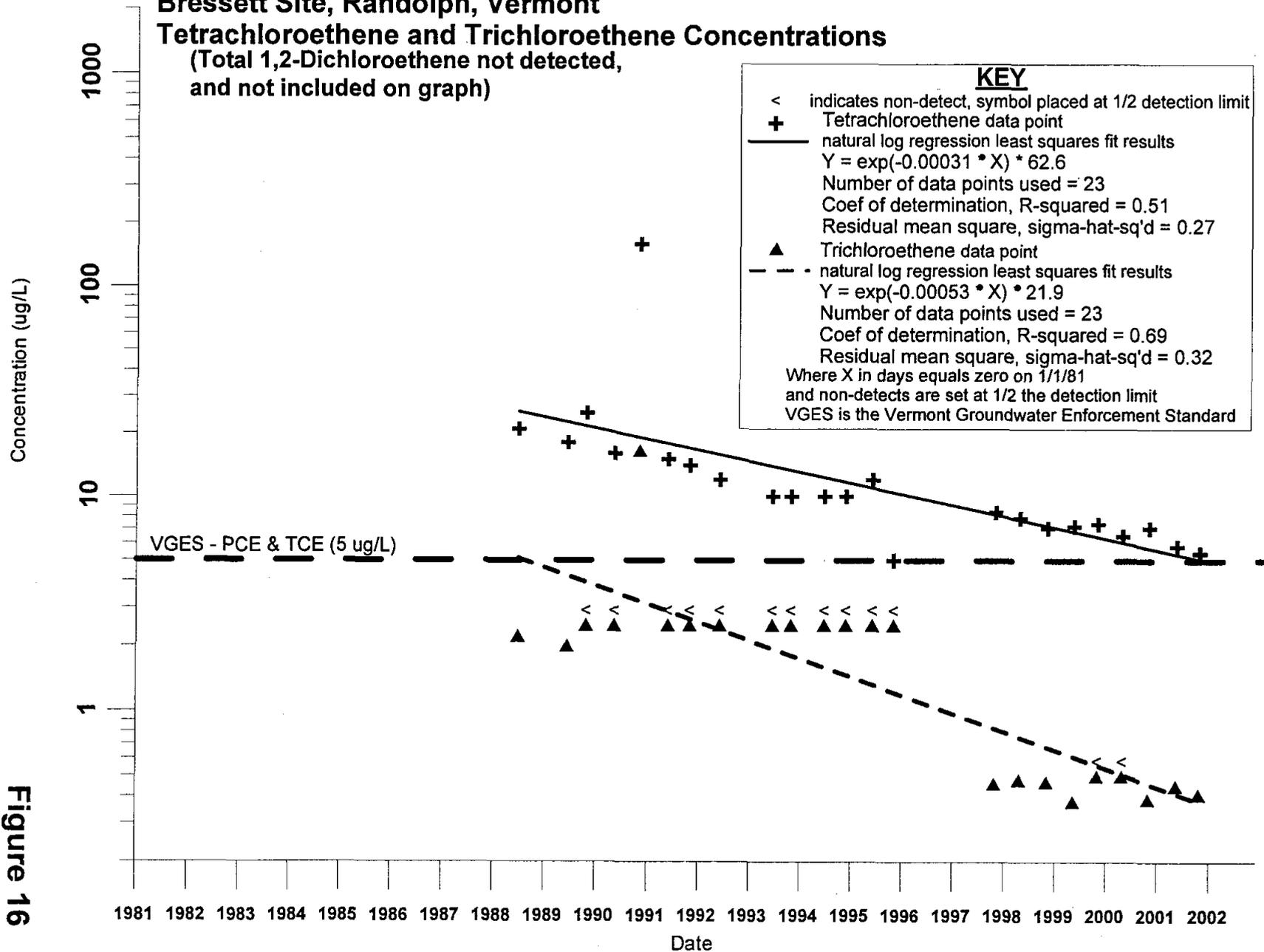


Figure 16

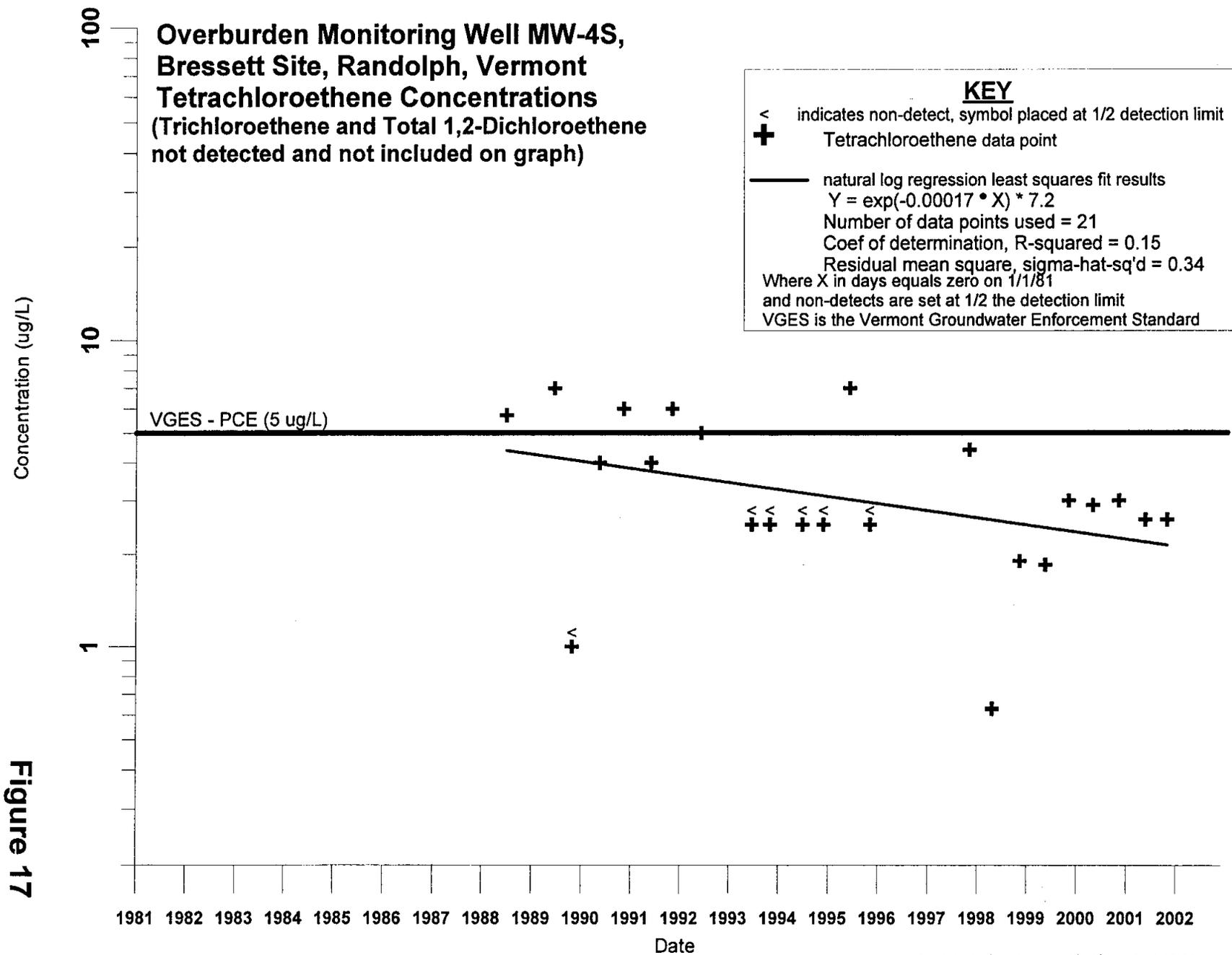


Figure 17

**Overburden Monitoring Well MW-101D,
Bressett Site, Randolph, Vermont
Tetrachloroethene and Trichloroethene Concentrations**

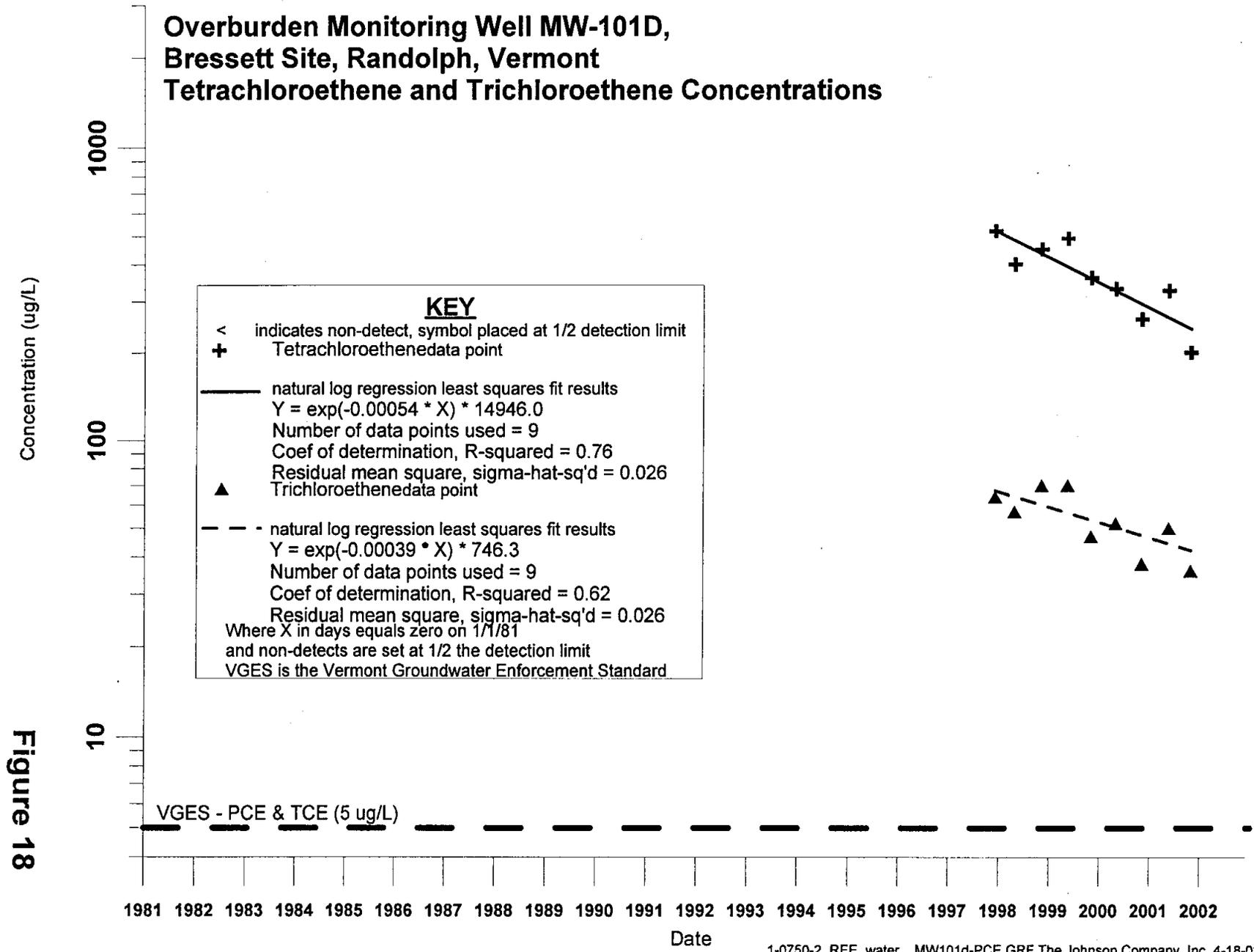


Figure 18

**Overburden Monitoring Well MW-101D,
Bressett Site, Randolph, Vermont
Total 1,2 Dichloroethene Concentrations**

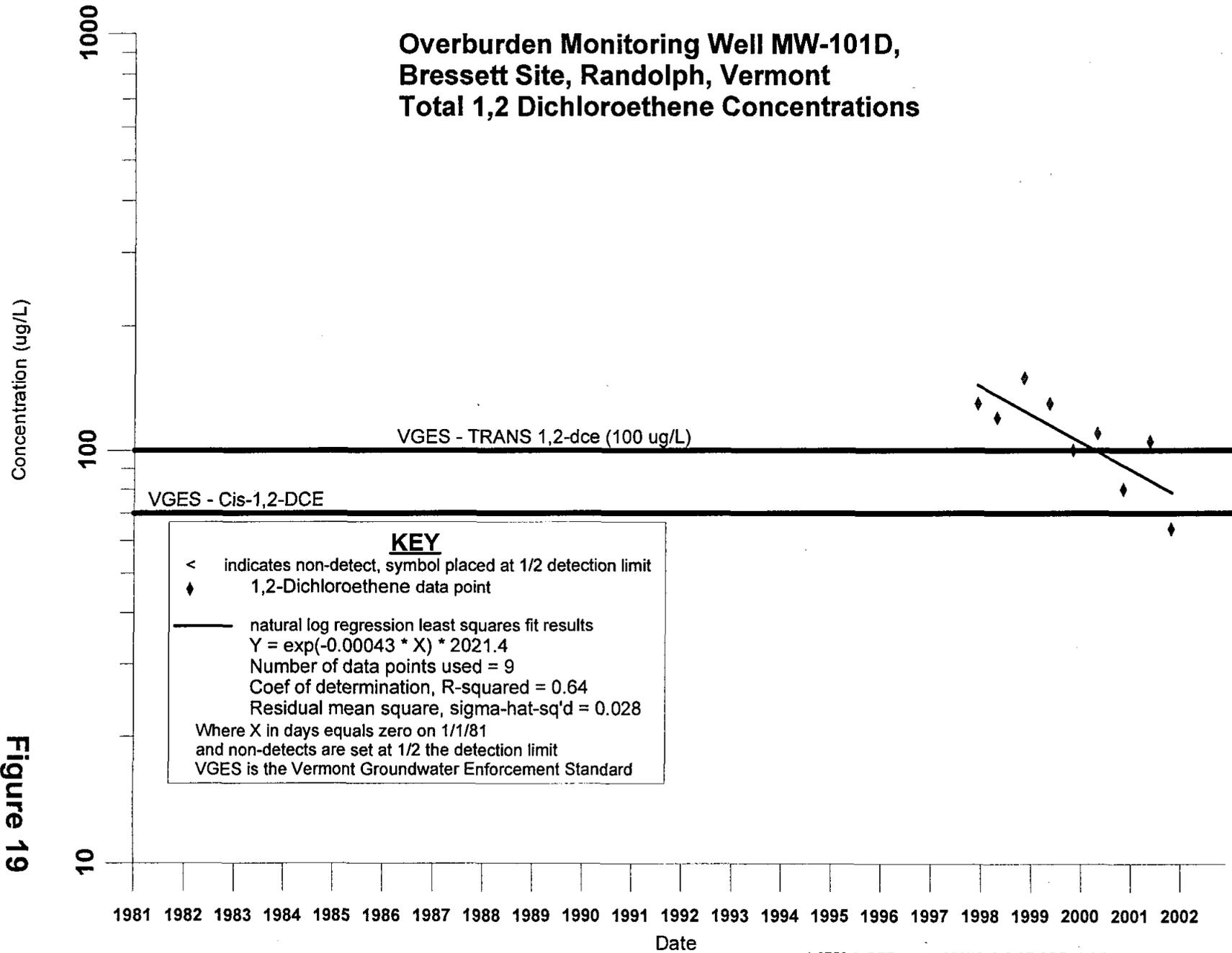


Figure 19

Overburden Monitoring Well MW-101S, Bressett Site, Randolph, Vermont Tetrachloroethene and Trichloroethene Concentrations

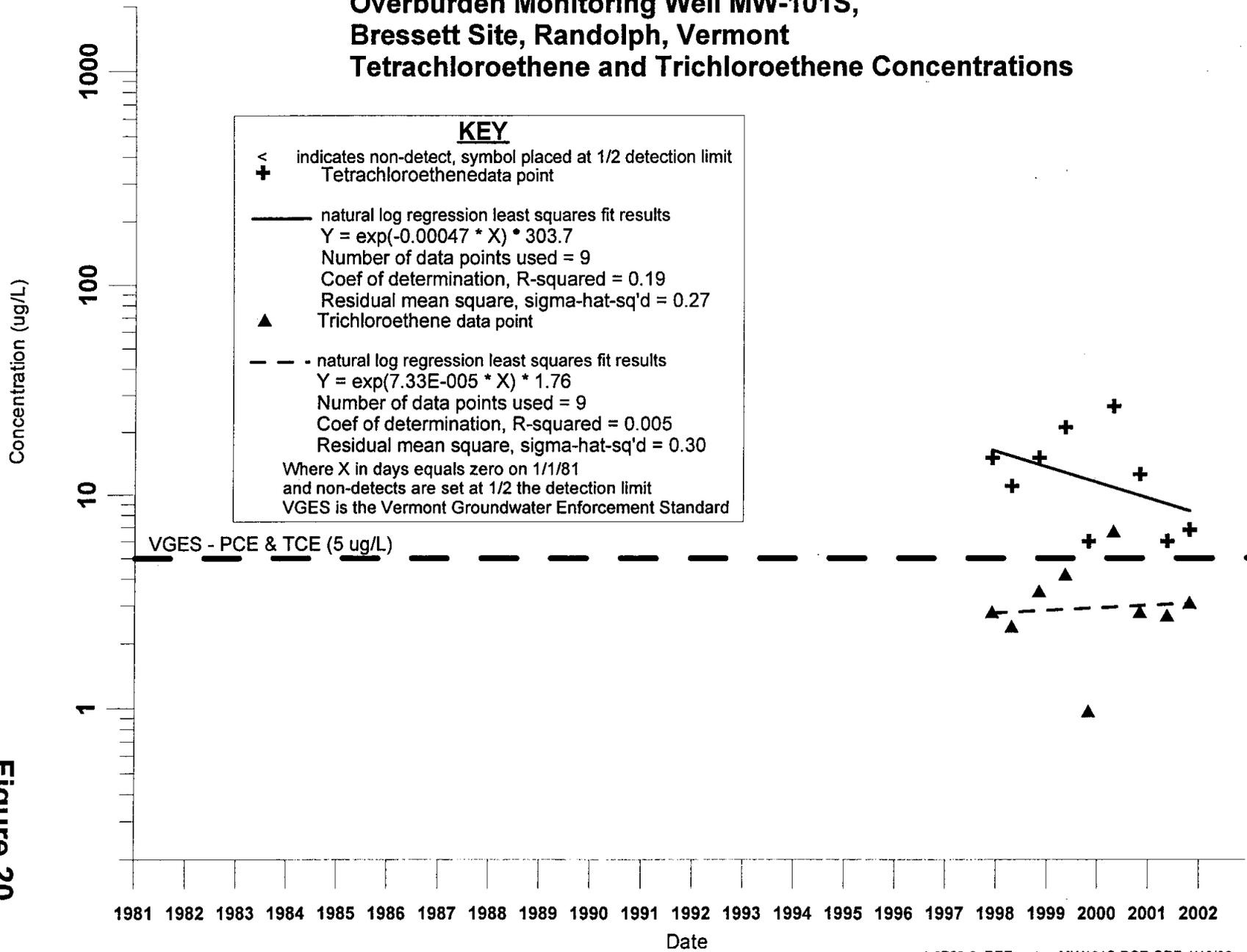


Figure 20

**Overburden Monitoring Well MW-101S,
Bressett Site, Randolph, Vermont
Total 1,2 Dichloroethene Concentrations**

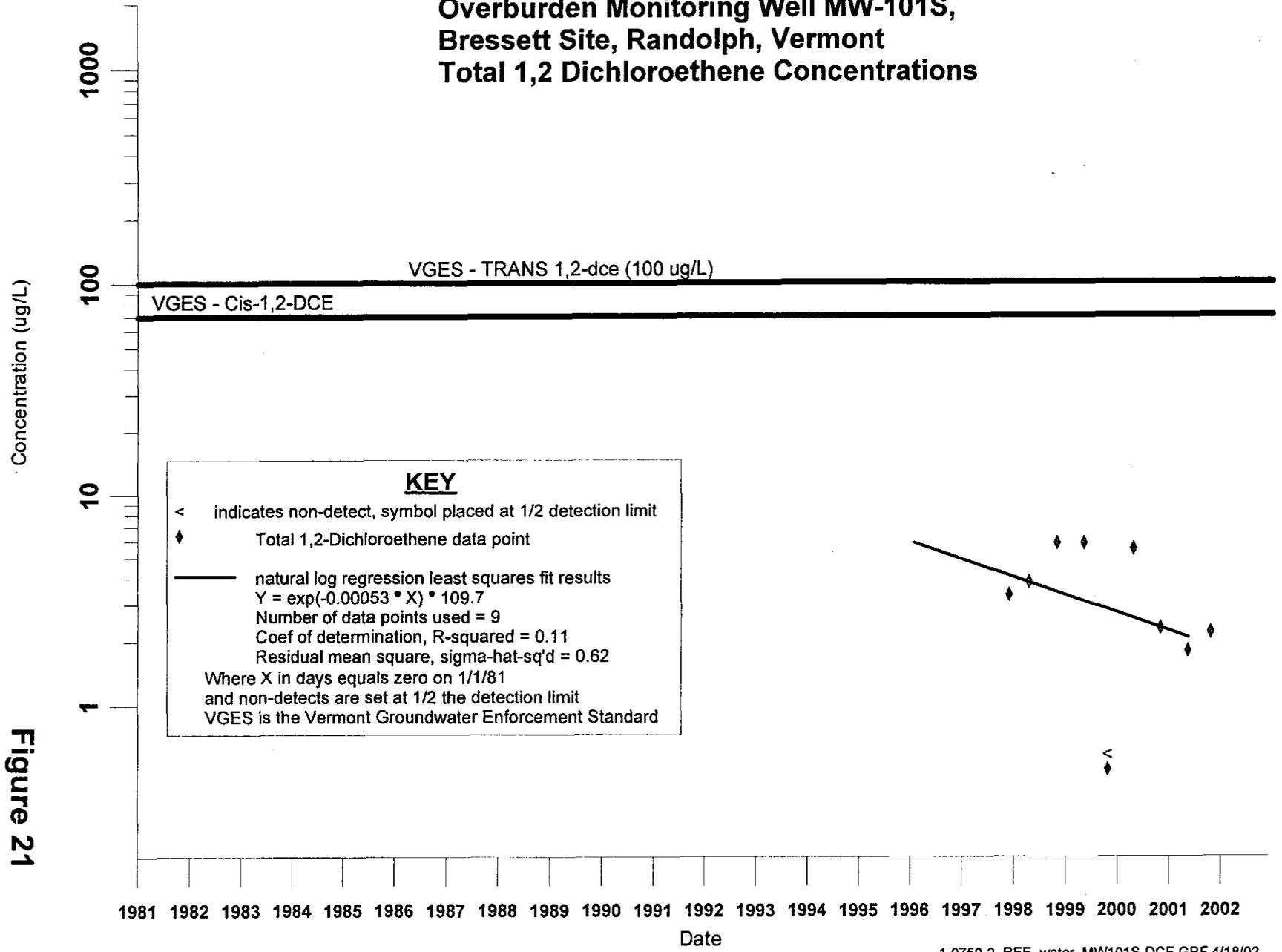


Figure 21

**Overburden Monitoring Well MW-102D,
Bressett Site, Randolph, Vermont
Tetrachloroethene Concentrations**
(Trichloroethene and 1,2-dichloroethene
not detected and not included on graph)

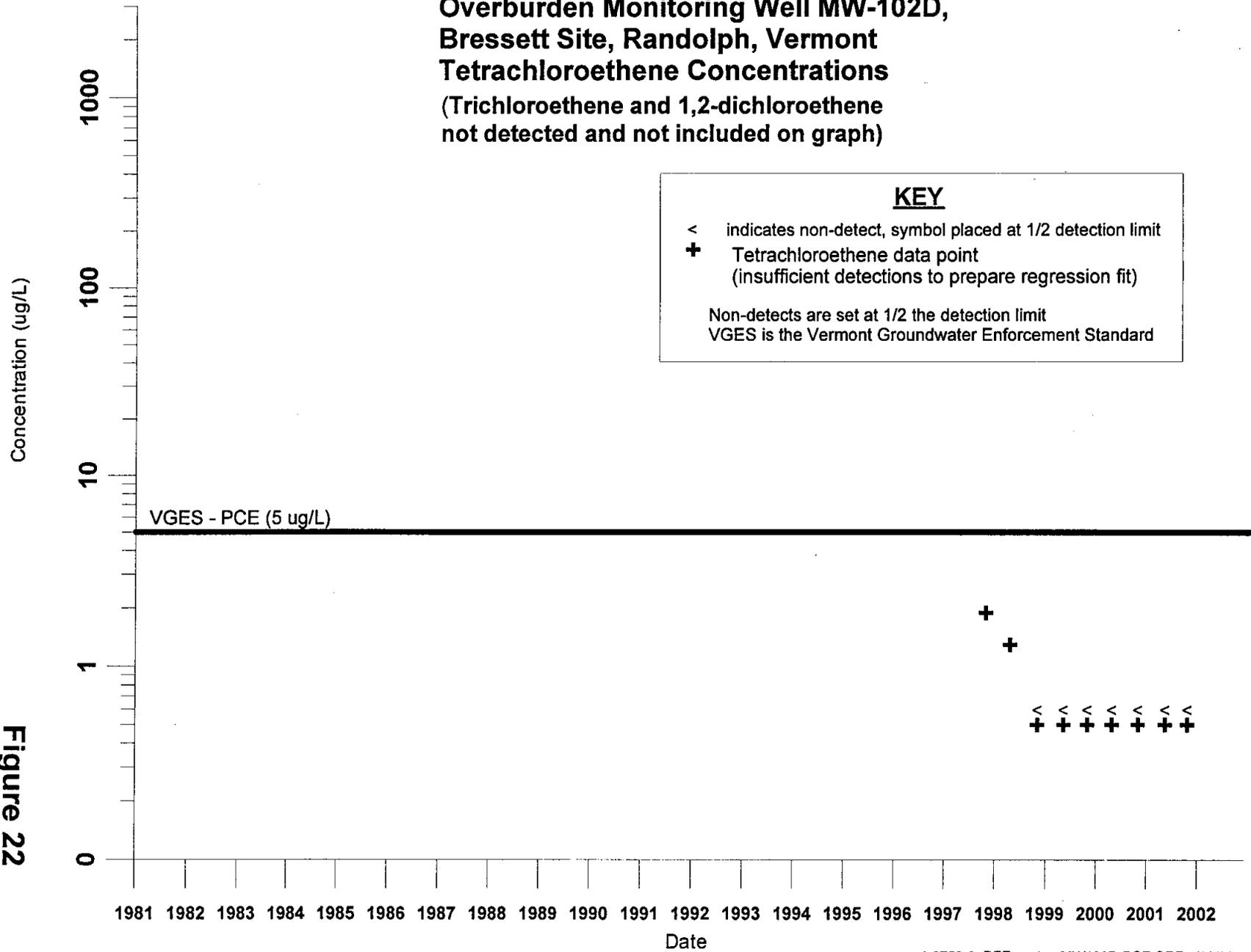


Figure 22

Overburden Monitoring Well MW-102S, Bressett Site, Randolph, Vermont Tetrachloroethene and Trichloroethene Concentrations

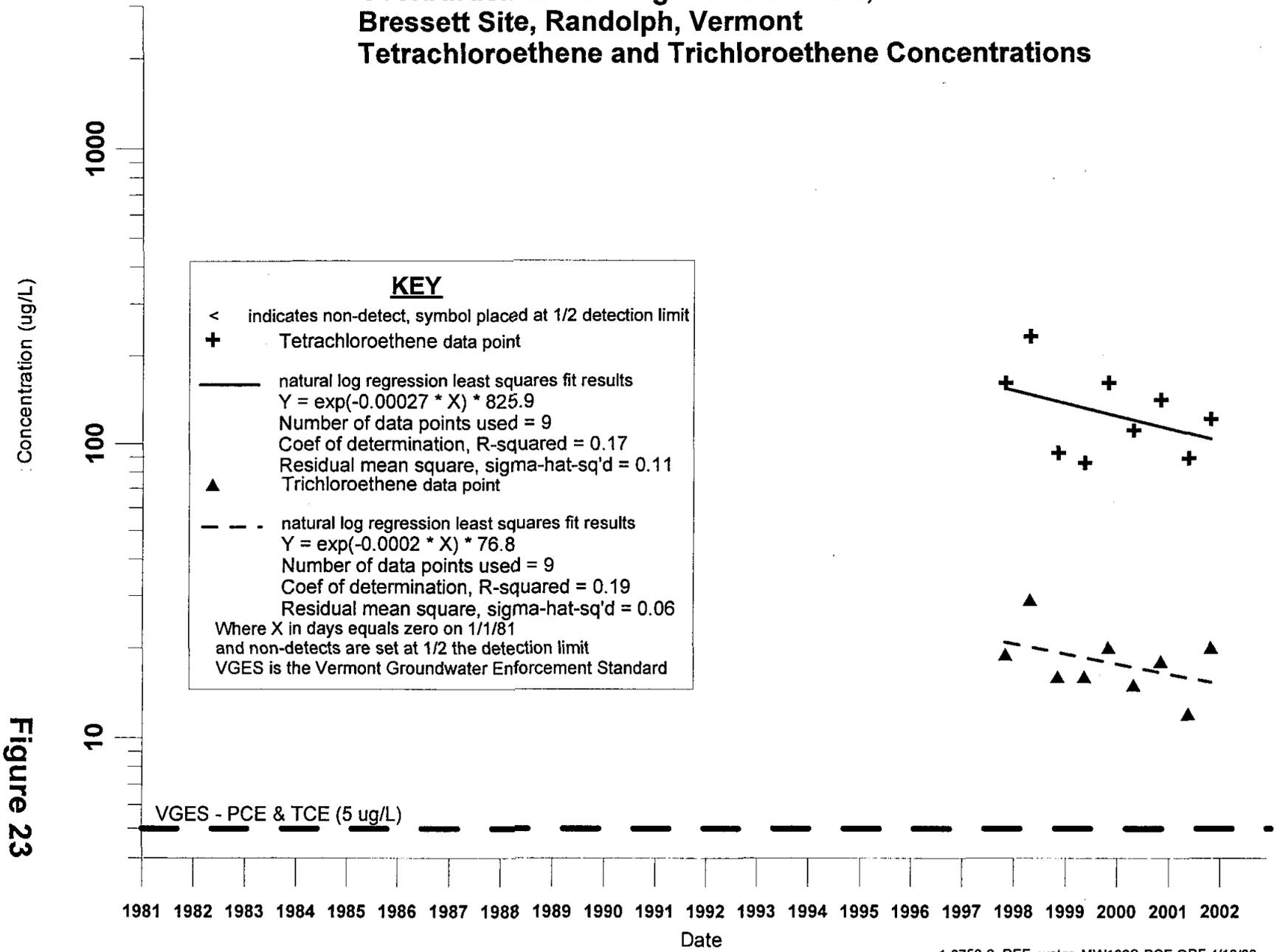


Figure 23

**Overburden Monitoring Well MW-102S,
Bressett Site, Randolph, Vermont
Total 1,2 Dichloroethene Concentrations**

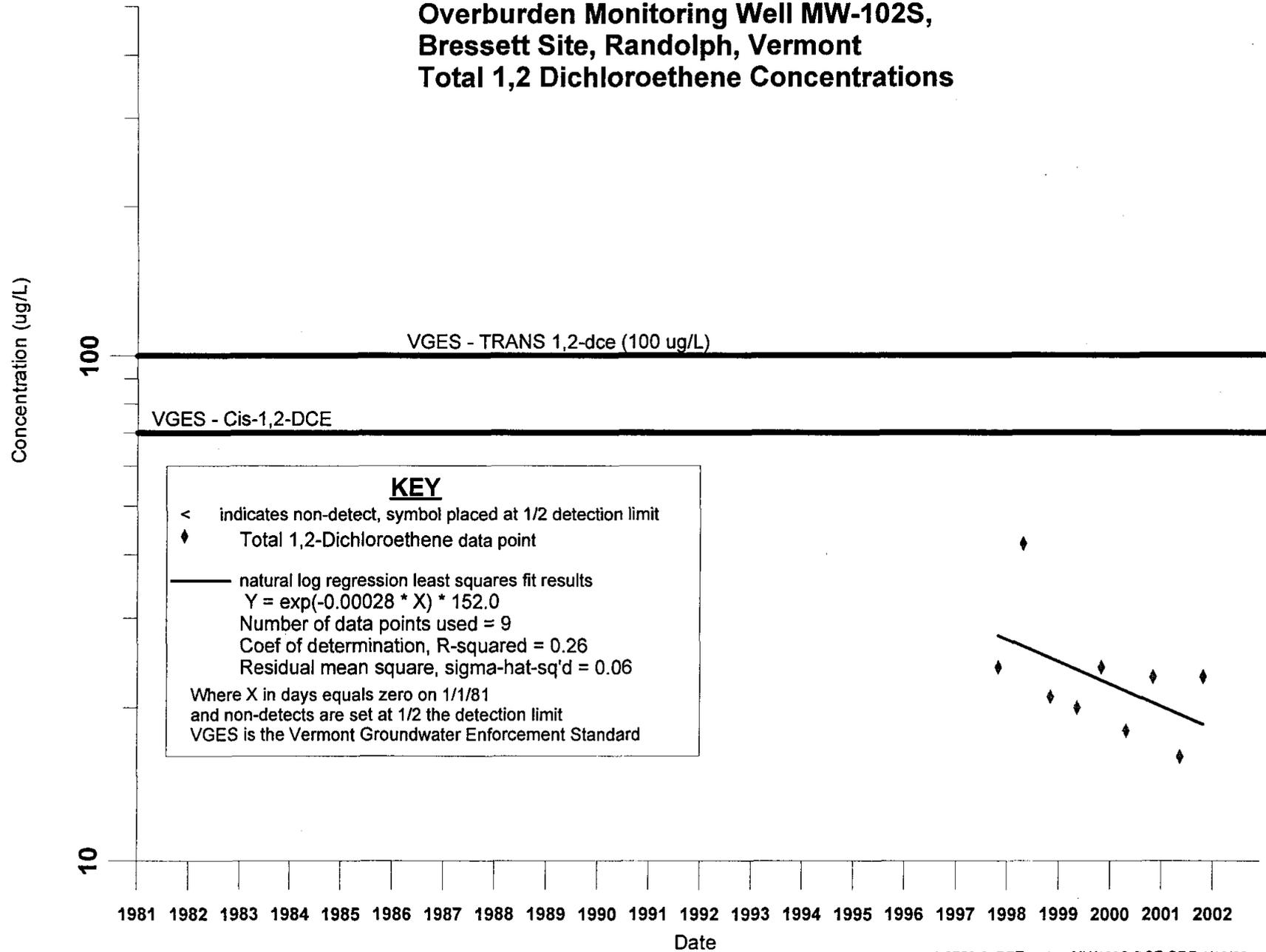
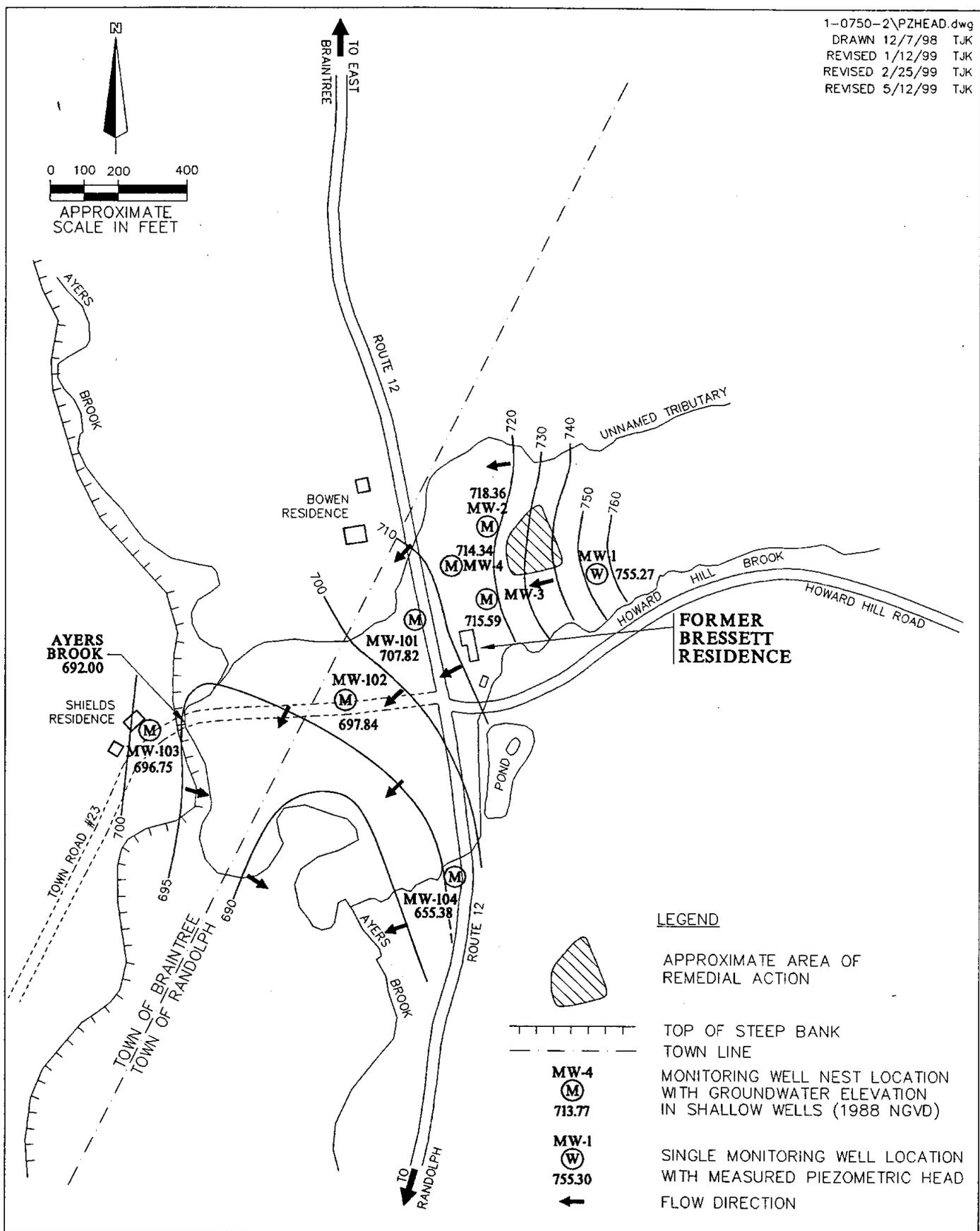
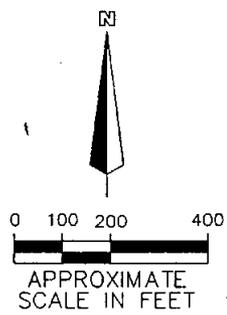


Figure 24

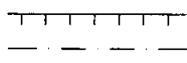
1-0750-2\PZHEAD.dwg
 DRAWN 12/7/98 TJK
 REVISED 1/12/99 TJK
 REVISED 2/25/99 TJK
 REVISED 5/12/99 TJK



LEGEND



APPROXIMATE AREA OF REMEDIAL ACTION



TOP OF STEEP BANK
TOWN LINE



MONITORING WELL NEST LOCATION WITH GROUNDWATER ELEVATION IN SHALLOW WELLS (1988 NGVD)



SINGLE MONITORING WELL LOCATION WITH MEASURED PIEZOMETRIC HEAD
FLOW DIRECTION

Figure 25: Map of Piezometric Head on August 26, 1998 in the Overburden Bressett Site, Randolph, Vermont

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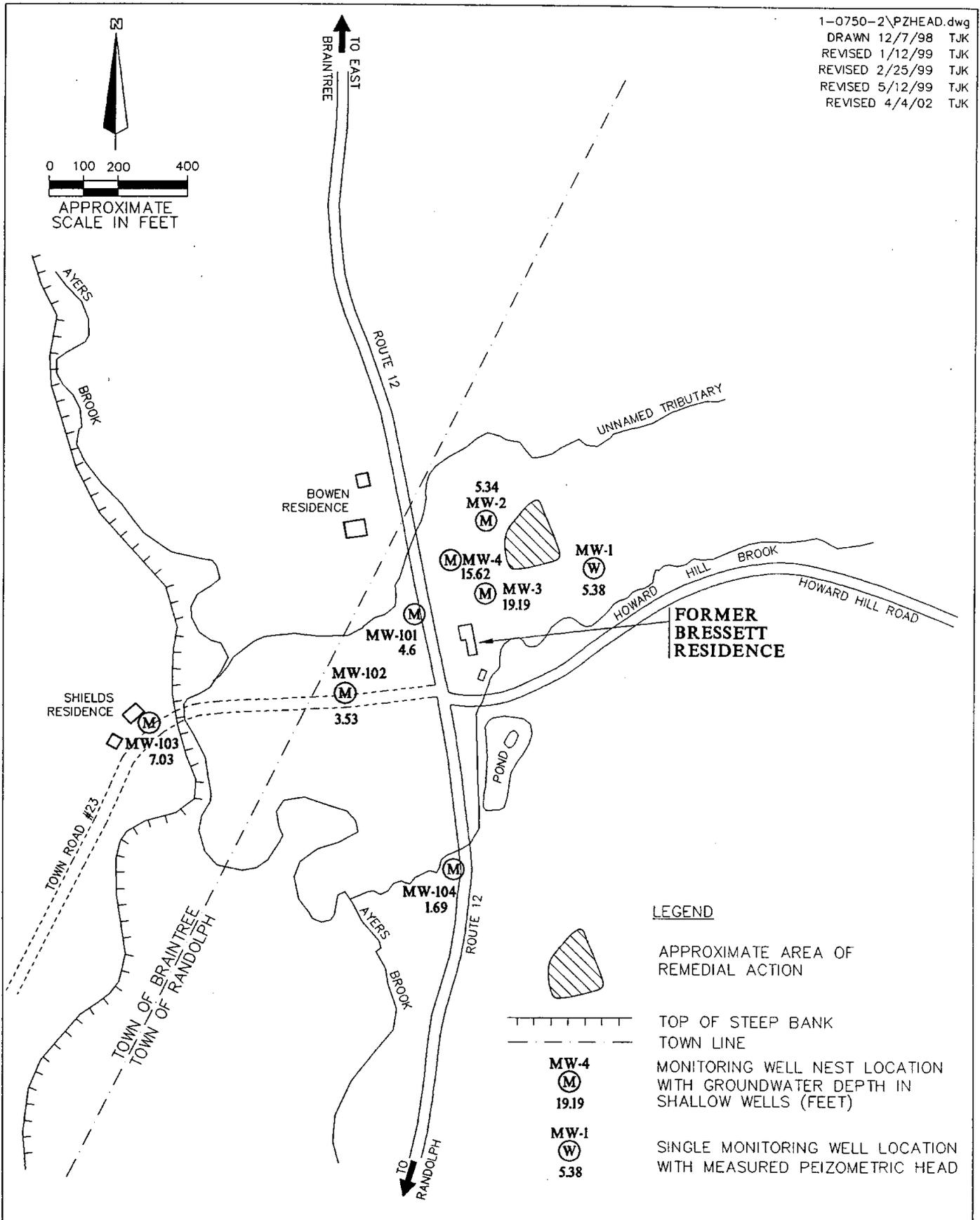
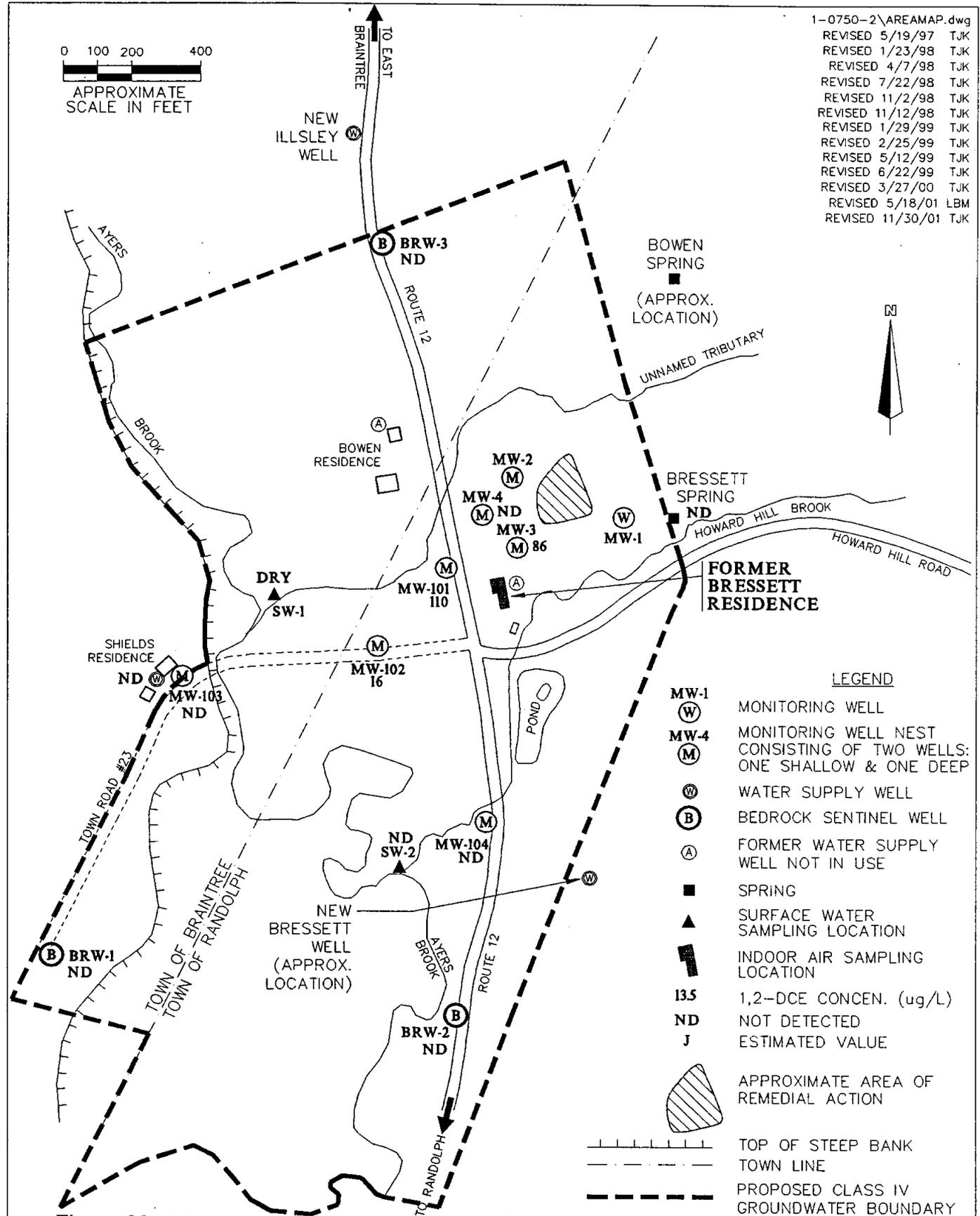
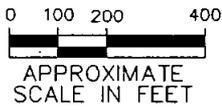


FIGURE 26: MINIMUM DEPTH TO GROUNDWATER IN THE OVERBURDEN BRESSETT SITE, RANDOLPH, VERMONT

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1-0750-2\AREAMAP.dwg
 REVISED 5/19/97 TJK
 REVISED 1/23/98 TJK
 REVISED 4/7/98 TJK
 REVISED 7/22/98 TJK
 REVISED 11/2/98 TJK
 REVISED 11/12/98 TJK
 REVISED 1/29/99 TJK
 REVISED 2/25/99 TJK
 REVISED 5/12/99 TJK
 REVISED 6/22/99 TJK
 REVISED 3/27/00 TJK
 REVISED 5/18/01 LBM
 REVISED 11/30/01 TJK



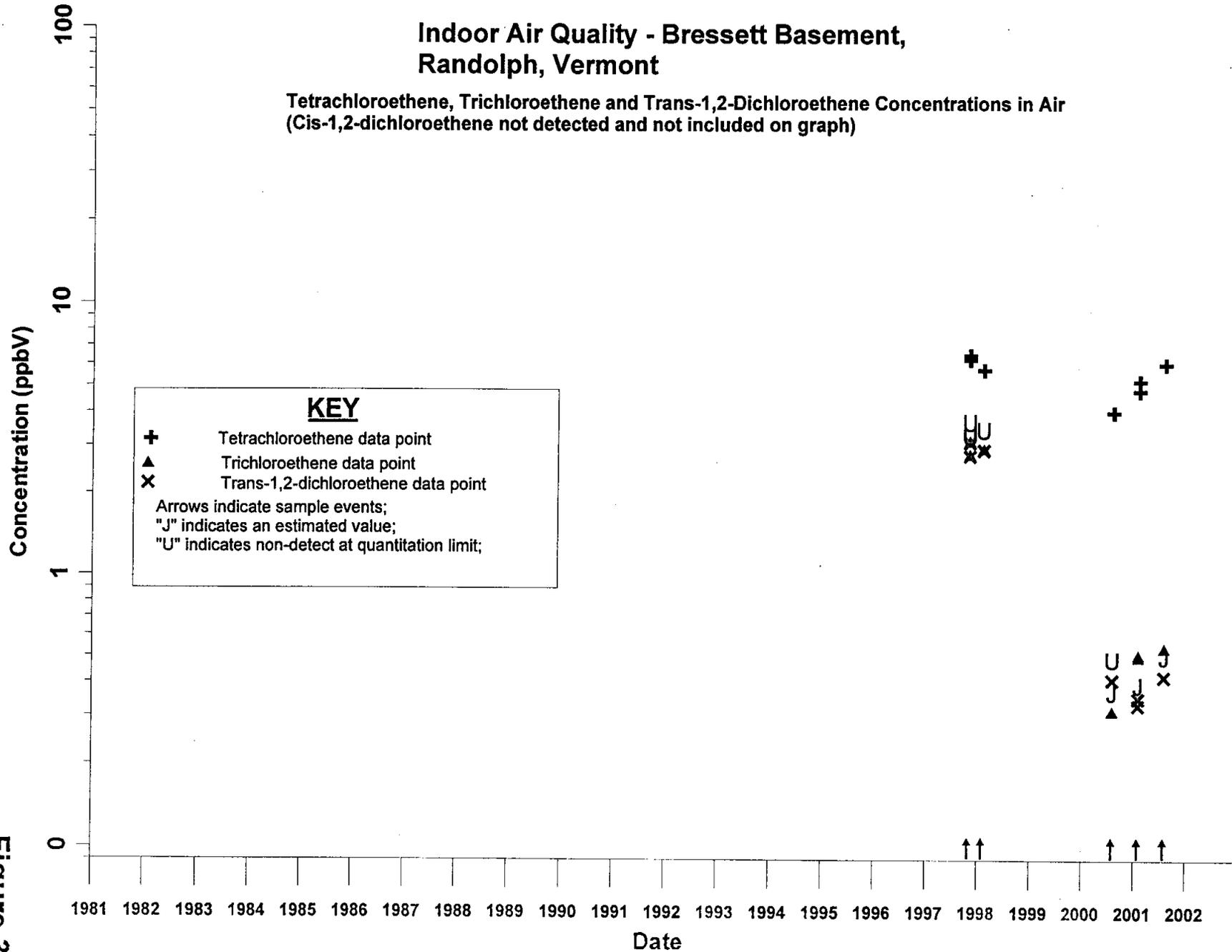
- LEGEND**
- MW-1 (W) MONITORING WELL
 - MW-4 (M) MONITORING WELL NEST CONSISTING OF TWO WELLS: ONE SHALLOW & ONE DEEP
 - (W) WATER SUPPLY WELL
 - (B) BEDROCK SENTINEL WELL
 - (A) FORMER WATER SUPPLY WELL NOT IN USE
 - (■) SPRING
 - (▲) SURFACE WATER SAMPLING LOCATION
 - (⌚) INDOOR AIR SAMPLING LOCATION
 - 135 1,2-DCE CONCEN. (ug/L)
 - ND NOT DETECTED
 - J ESTIMATED VALUE
 - (Hatched Area) APPROXIMATE AREA OF REMEDIAL ACTION
 - (---) TOP OF STEEP BANK
 - (- - -) TOWN LINE
 - (- - - - -) PROPOSED CLASS IV GROUNDWATER BOUNDARY

Figure 29: July 2000 and May 2001
 1,2-Dichloroethene Concentrations (ug/L)
 in Groundwater and Surface Water
 Bressett Site, Randolph, Vermont

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Indoor Air Quality - Bressett Basement, Randolph, Vermont

Tetrachloroethene, Trichloroethene and Trans-1,2-Dichloroethene Concentrations in Air
(Cis-1,2-dichloroethene not detected and not included on graph)



**Indoor Air Quality - Bressett First Floor,
Randolph, Vermont
Tetrachloroethene Concentrations in Air**
Trichloroethene, Trans and Cis-1,2-dichloroethene not detected

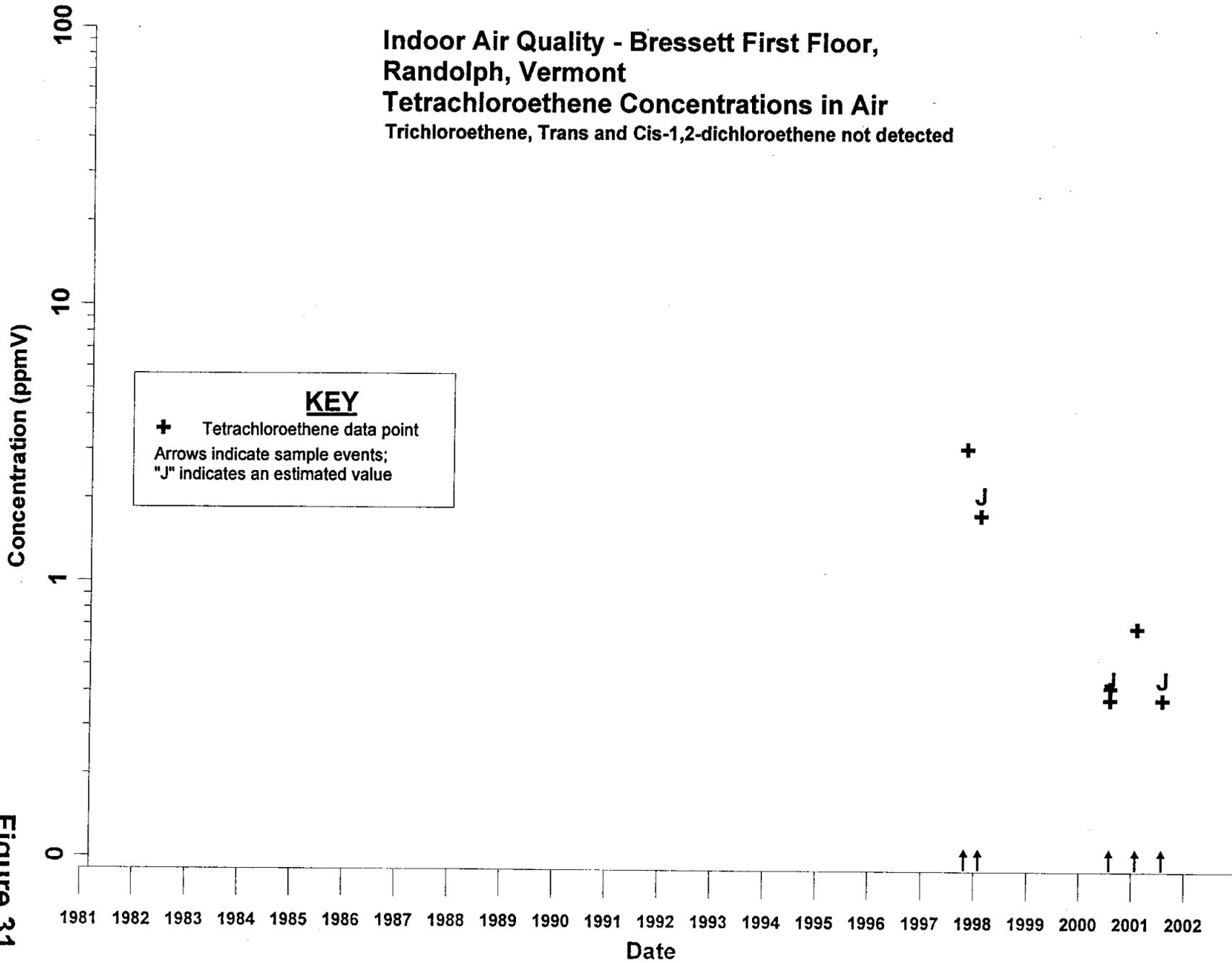


Figure 31

ATTACHMENT 2
Data

Water Supply Analyses for the Bressette Site, Randolph, Vermont

Detection Limits (DL) are provided in comments column when available

Compiled by The Johnson Company, Inc. Quality symbols "ND" means not detected

PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Blanks indicate that no value or qualifier was reported for the compound

Reported Concentrations ug/L						
Well ID	Date	PCE	TCE	1,2 DCE	Comments	Lab
<u>Bressett Spring</u> (currently owned by UniFirst)	09/14/81	ND	ND	ND	ND's reported as 0's	D&K
	02/16/83	ND	ND	ND	ND's reported as 0's	VDH
	05/16/83	6	ND	ND		VDH
	10/18/83	6	ND	ND		VDH
	04/26/84	5	ND	ND		VDH
	05/14/85	ND	ND	ND		VDH
	07/16/86	5	ND	ND		VDH
	05/26/95	ND	ND	ND	DL = 5	DEC
	10/22/97	1	ND	ND	DL = .5	ITS
	04/16/98	ND	ND	ND	DL=0.5	ITS
	05/03/99	ND	ND	ND	DL=0.5, at Spring	Sev.Trent
	05/03/99	ND	ND	ND	DL=0.5, duplicate	Sev.Trent
	10/20/99	ND	ND	ND	DL=0.5, at Spring	Sev.Trent
	10/20/99	ND	ND	ND	DL=0.5, duplicate	Sev.Trent
	04/17/00	ND	ND	ND	DL=0.5, at Spring	Sev.Trent
	10/23/00	ND	ND	ND	DL=0.5, at Spring	Sev.Trent
	05/08/01	ND	ND	ND	DL=0.5, at Spring	Sev.Trent
10/15/01	ND	ND	ND	DL=0.5, at Spring	Sev.Trent	
<u>Bowen Spring</u>	10/07/82	ND	ND	ND		VDH
	02/16/83	ND	ND	ND	ND's reported as 0's	VDH
	04/26/84	ND	ND	ND		VDH
	04/16/98	ND	ND	ND	DL=0.5	ITS
	05/03/99	ND	ND	ND	DL=0.5	Sev.Trent
	10/20/99	ND	ND	ND	DL=0.5	Sev.Trent
	04/17/00	ND	ND	ND	DL=0.5	Sev.Trent
	10/24/00	ND	ND	ND	DL=0.5	Sev. Trent
	10/24/00	ND	ND	ND	DL=0.5, duplicate	Sev.Trent
	05/08/01	ND	ND	ND	DL=0.5	Sev. Trent
10/15/01	ND	ND	ND	DL=0.5	Sev. Trent	
<u>Hurd/Shields</u> (currently owned by Hammond&Kepes)	09/14/81	1.1				D&K
	09/15/81	ND	ND	ND	ND's reported as 0's	VDH
	05/16/83	ND	ND	ND	ND's reported as 0's	VDH
	10/18/83	ND	ND	ND	ND's reported as 0's	VDH
	04/26/84	ND	ND	ND		VDH
	07/16/86	ND	ND	ND		VDH
	05/26/95	ND	ND	ND	DL=5	DEC
	10/22/97	ND	ND	ND	DL=0.5	ITS
	04/16/98	ND	ND	ND	DL=0.5	ITS
	10/27/98	ND	ND	ND	DL=0.5	Sev.Trent
	05/03/99	ND	ND	ND	DL=0.5	Sev.Trent
	10/20/99	ND	ND	ND	DL=0.5	Sev.Trent
	04/17/00	ND	ND	ND	DL=0.5	Sev.Trent
	10/24/00	ND	ND	ND	DL=0.5	Sev.Trent
	05/08/01	ND	ND	ND	DL=0.5	Sev.Trent
10/15/01	ND	ND	ND	DL=0.5	Sev.Trent	

Water Supply Analyses for the Bressette Site, Randolph, Vermont
 Detection Limits (DL) are provided in comments column when available
 Compiled by The Johnson Company, Inc. Quality symbols "ND" means not detected
 PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene
 Blanks indicate that no value or qualifier was reported for the compound

Well ID	Reported Concentrations ug/L				Comments	Lab
	Date	PCE	TCE	1,2 DCE		
<u>Illsley New Well</u>						
	10/15/01	ND	ND	ND	DL=0.5	Sev.Trent
<u>Bressett New Well, southeast of Howard Hill/Route 12 intersection</u>						
	02/02/00	ND	ND	ND	MQL=0.5	DEC
<u>Mitchell</u>						
	09/14/81	0.8				D&K
	09/16/81	ND	ND		ND's reported as 0's	VDH
	10/18/83	ND	ND	ND	ND's reported as 0's	VDH
	05/10/84	ND	ND	ND		VDH
	05/14/85	ND	ND	ND		VDH
<u>Maxwell</u>						
	10/18/83	ND	ND	ND	ND's reported as 0's	VDH
	05/10/84	ND	ND	ND		VDH
	05/22/85	ND	ND	ND		VDH
	07/16/86	ND	ND	ND		VDH
<u>Anderson</u>						
	02/16/83	ND	ND	2		VDH
	05/16/83	ND	ND	ND	ND's reported as 0's	VDH
	04/26/84	ND	ND	ND		VDH
	05/14/85	ND	ND			VDH

Groundwater Analyses for the Bressette Site, Randolph, Vermont

Detection Limits assumed 5ug/L for DEC 8240 and 1ug/L for VDH analyses when not provided

Compiled by The Johnson Company, Inc. Blank records indicate data is unavailable

PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Quality symbols "J" means "estimated", and "<" means "less than"

Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
MW-4S	06/21/88	ENDYNE	5.72	< 1	< 1	trans1,2-DCE
MW-4S	06/07/89	DEC	7	< 5	< 5	
MW-4S	10/18/89	DEC	< 2	< 5	< 5	
MW-4S	05/07/90	DEC	4	< 5	< 5	
MW-4S	10/30/90	DEC	6	< 5	< 5	
MW-4S	05/21/91	DEC	4	< 5	< 5	
MW-4S	10/23/91	DEC	6	< 5	< 5	
MW-4S	05/25/92	DEC	5	< 5	< 5	OVER HOLD TIME
MW-4S	06/07/93	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-4S	10/19/93	DEC	< 5	< 5	< 5	
MW-4S	06/15/94	DEC	< 5	< 5	< 5	
MW-4S	11/17/94	DEC	< 5	< 5	< 5	
MW-4S	05/26/95	DEC	7	< 5	< 5	
MW-4S	10/24/95	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-4S	10/22/97	ITS	4.4	< 1	< 1	
MW-4S	04/15/98	ITS	J 0.63	< 1	< 1	
MW-4S	10/28/98	SEV.TRENT	1.9	< 1	< 1	
MW-4S DP	10/28/98	SEV.TRENT	1.9	< 1	< 1	labeled MW-100S
MW-4S	05/04/99	SEV.TRENT	1.8	< 1	< 1	
MW-4S	10/21/99	SEV.TRENT	3	< 1	< 1	
MW-4S	04/17/00	SEV.TRENT	2.9	< 1	< 1	
MW-4S	10/23/00	SEV.TRENT	3	< 1	< 1	
MW-4S	05/08/01	SEV.TRENT	2.6	< 1	< 1	
MW-4S	10/15/01	STL	J 2.6	< 1	< 1	
MW-4D	06/21/88	ENDYNE	20.9	2.22	13.5	trans1,2-DCE
MW-4D	06/07/89	DEC	18	2	5	
MW-4D	10/18/89	DEC	J 25	< 5	< 5	
MW-4D	05/07/90	DEC	16	< 5	< 5	
MW-4D	10/30/90	DEC	90	8	5	
MW-4D DP	10/30/90	DEC	225	25	< 10	
MW-4D	05/21/91	DEC	15	< 5	< 5	
MW-4D	10/23/91	DEC	14	< 5	< 5	
MW-4D	05/25/92	DEC	12	< 5	< 5	OVER HOLD TIME
MW-4D	06/07/93	DEC	10	< 5	< 5	OVER HOLD TIME
MW-4D	10/19/93	DEC	10	< 5	< 5	
MW-4D	06/15/94	DEC	10	< 5	< 5	
MW-4D	11/17/94	DEC	10	< 5	< 5	
MW-4D	05/26/95	DEC	12	< 5	< 5	
MW-4D	10/24/95	DEC	5	< 5	< 5	OVER HOLD TIME
MW-4D	10/22/97	ITS	8.4	J 0.46	< 1	
MW-4D	04/15/98	ITS	7.9	J 0.48	< 1	
MW-4D	10/28/98	SEV.TRENT	J 7.1	J 0.47	< 1	
MW-4D	05/04/99	SEV.TRENT	7.2	J 0.38	< 1	
MW-4D	10/21/99	SEV.TRENT	7.4	< 1	< 1	
MW-4D	04/17/00	SEV.TRENT	6.5	< 1	< 1	
MW-4D	10/23/00	SEV.TRENT	7.1	J 0.39	< 1	
MW-4D	05/08/01	SEV.TRENT	5.8	J 0.45	< 1	
MW-4D	10/15/01	STL	J 5.4	J 0.41	< 1	

Groundwater Analyses for the Bressette Site, Randolph, Vermont						
Detection Limits assumed 5ug/L for DEC 8240 and 1ug/L for VDH analyses when not provided						
Compiled by The Johnson Company, Inc.			Blank records indicate data is unavailable			
PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene						
Quality symbols "J" means "estimated", and "<" means "less than"						
Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
MW-3S	06/21/88	ENDYNE	580	120	260	trans1,2-DCE
MW-3S	06/07/89	DEC	1422	124	190	
MW-3S DP	06/07/89	DEC	1065	117	184	
MW-3S	10/18/89	DEC	450	50	160	
MW-3S DP	10/18/89	DEC	305	35	115	
MW-3S	05/07/90	DEC	685	120	170	
MW-3S	10/30/90	DEC	675	125	175	
MW-3S	05/21/91	DEC	530	95	< 10	
MW-3S	10/23/91	DEC	1550	250	375	
MW-3S	05/25/92	DEC	775	< 125	175	OVER HOLD TIME
MW-3S	06/07/93	DEC	675	220	240	OVER HOLD TIME
MW-3S	10/19/93	DEC	J 1610	300	360	
MW-3S	06/15/94	DEC	990	85	220	
MW-3S	11/17/94	DEC	1100	460	400	
MW-3S	05/26/95	DEC	870	110	220	
MW-3S	10/24/95	DEC	800	125	200	OVER HOLD TIME
MW-3S	10/22/97	ITS	400	100	170	(160 ppb cis-1,2-dce)
MW-3S	04/15/98	ITS	110	17	19	(19 ppb cis-1,2-dce)
MW-3S	10/28/98	SEV.TRENT	39	4.7	3.6	(3.5 ppb cis-1,2-dce)
MW-3S	05/04/99	SEV.TRENT	130	J 21	24	(25 ppb cis-1,2-dce)
MW-3S	10/21/99	SEV.TRENT	550	96	150	(140 ppb cis-1,2-dce)
MW-3S	04/17/00	SEV.TRENT	570	J 100	140	(140 ppb cis-1,2-dce)
MW-3S	10/23/00	SEV.TRENT	210	47	72	(69 ppb cis-1, 2-DCE)
MW-3S	05/08/01	SEV.TRENT	300	56	86	(80 ppb cis-1, 2-DCE)
MW-3S	10/15/01	STL	240	76	120	(120 ppb cis-1, 2-DCE)
MW-3D	06/21/88	ENDYNE	298	< 1	60	trans1,2-DCE
MW-3D	06/07/89	DEC	236	23	23	
MW-3D DP	06/07/89	DEC	196	20	21	
MW-3D	10/18/89	DEC	105	< 10	< 5	
MW-3D	05/07/90	DEC	166	18	20	
MW-3D	10/30/90	DEC	215	25	25	
MW-3D	05/21/91	DEC	152	20	< 4	
MW-3D DP?	05/21/91	DEC	162	20	< 4	Rptd as Wright Dup
MW-3D	10/23/91	DEC	220	30	< 10	
MW-3D DP	10/23/91	DEC	270	35	< 10	
MW-3D	05/25/92	DEC	480	50	35	OVER HOLD TIME
MW-3D DP	05/25/92	DEC	440	45	35	OVER HOLD TIME
MW-3D	06/07/93	DEC	445	40	30	OVER HOLD TIME
MW-3D DP	06/07/93	DEC	350	44	26	OVER HOLD TIME
MW-3D	10/19/93	DEC	430	43	29	
MW-3D DP	10/19/93	DEC	290	50	32	
MW-3D	06/15/94	DEC	690	40	44	
MW-3D DP	06/15/94	DEC	590	48	46	
MW-3D	11/17/94	DEC	520	90	55	
MW-3D DP	11/17/94	DEC	510	60	60	
MW-3D	05/26/95	DEC	300	70	75	
MW-3D	10/24/95	DEC	330	22	21	OVER HOLD TIME
MW-3D DP	10/24/95	DEC	326	34	34	OVER HOLD TIME
MW-3D	10/22/97	ITS	120	13	11	(11 ppb cis-1,2-dce)
MW-3D	04/15/98	ITS	84	7.3	5.7	(5.0 ppb cis-1,2-dce)
MW-3D	10/28/98	SEV.TRENT	220	47	67	(64 ppb cis-1,2-dce)
MW-3D	05/04/99	SEV.TRENT	650	J 100	90	(91 ppb cis-1,2-DCE)

Groundwater Analyses for the Bressette Site, Randolph, Vermont

Detection Limits assumed 5ug/L for DEC 8240 and 1ug/L for VDH analyses when not provided

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PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Quality symbols "J" means "estimated", and "<" means "less than"

Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
MW-3D DP	05/04/99	SEV.TRENT	620	J 100	98	(99 ppb cis-1,2-DCE)
MW-3D	10/21/99	SEV.TRENT	580	75	77	(72 ppb cis-1,2-DCE)
MW-3D DP	10/21/99	SEV.TRENT	610	78	80	(75 ppb cis-1,2-DCE)
MW-3D	04/17/00	SEV.TRENT	500	J 73	73	(70 ppb cis-1,2-DCE)
MW-3D	10/23/00	SEV.TRENT	590	76	78	(75 ppb cis-1, 2-DCE)
MW-3D DP	10/23/00	SEV.TRENT	570	75	77	(74 ppb cis-1, 2-dce)
MW-3D	05/08/01	SEV.TRENT	470	62	68	(63 ppb cis-1, 2-DCE)
MW-3D DP	05/08/01	SEV.TRENT	470	60	64	(60 ppb cis-1, 2-dce)Label MW-X
MW-3D	10/15/01	STL	300	46	43	(44 ppb cis-1, 2-DCE)
MW-3D DP	10/15/01	STL	310	45	44	(44 ppb cis-1, 2-dce)Label MW-X
MW-101S	11/25/97	ITS	15	2.8	3.3	(3.3 ppb cis-1,2-dce)
MW-101S	04/15/98	ITS	11	2.4	3.8	(3.8 ppb cis-1,2-dce)
MW-101S	10/28/98	SEV.TRENT	15	3.5	5.8	(5.6 ppb cis-1,2-dce)
MW-101S	05/04/99	SEV.TRENT	21	J 4.2	5.8	(5.9 ppb cis-1,2, -DCE)
MW-101S	10/21/99	SEV.TRENT	6	J 0.97	< 1	
MW-101S	04/17/00	STL	27	J 6.8	5.6	(5.3 ppb cis-1, 2-dce)
MW-101S DP	04/17/00	SEV.TRENT	26	J 6.6	5.3	(5 ppb cis-1, 2-dce)
MW-101S	10/23/00	SEV.TRENT	12	2.8	2.3	(2.2 ppb cis-1,2-DCE)
MW-101S DP	10/23/00	SEV.TRENT	13	2.8	2.3	(2.2 ppb cis-1,2-dce)
MW-101S	05/08/01	SEV.TRENT	6	2.7	1.8	(1.7 ppb cis-1,2-DCE)
MW-101S	10/15/01	STL	J 6.8	3.1	2.2	(2.3 ppb cis-1,2-DCE)
MW-101S DP	10/15/01	STL	J 6.3	3.1	2.2	(2.3 ppb cis-1,2-dce)
MW-101D	11/25/97	ITS	520	64	130	(120 ppb cis-1,2-dce)
MW-101D	04/15/98	ITS	400	57	120	(120 ppb cis-1,2-dce)
MW-101D	10/28/98	SEV.TRENT	450	70	150	(150 ppb cis-1,2-dce)
MW-101D	05/04/99	SEV.TRENT	490	J 70	130	(130 ppb cis-1,2-DCE)
MW-101D	10/21/99	SEV.TRENT	360	47	100	(97 ppb cis-1,2-DCE)
MW-101D	04/17/00	SEV.TRENT	330	52	110	(100 ppb cis-1,2-dce)
MW-101D	10/23/00	SEV.TRENT	260	38	80	(78 ppb cis-1,2-dce)
MW-101D	05/08/01	SEV.TRENT	340	52	110	(99 ppb cis-1,2-dce)
MW-101D DP	05/08/01	SEV.TRENT	310	48	100	(94 ppb cis-1,2-dce)Label MW-100D
MW-101D	10/15/01	DEC	200	36	64	(65 ppb cis-1,2-dce)
MW-102S	10/22/97	ITS	160	19	24	(23 ppb cis-1,2-dce)
MW-102S	04/15/98	ITS	230	29	42	(41 ppb cis-1,2-dce)
MW-102S	10/28/98	SEV.TRENT	92	16	21	(20 ppb cis-1,2-dce)
MW-102S	05/04/99	SEV.TRENT	85	J 16	20	(20 ppb cis-1,2-DCE)
MW-102S	10/21/99	SEV.TRENT	160	20	24	(22ppb cis-1,2-DCE)
MW-102S	04/17/00	SEV.TRENT	110	J 15	18	(17 ppb cis-1, 2-DCE)
MW-102S	10/23/00	SEV.TRENT	140	18	23	(22ppb cis-1,2-DCE)
MW-102S	05/08/01	SEV.TRENT	88	12	16	(14ppb cis-1,2-DCE)
MW-102S	10/15/01	STL	J 120	20	23	(23 ppb cis-1,2-DCE)
MW-102D	10/22/97	ITS	1.9	< 1	< 1	
MW-102D	04/15/98	ITS	1.3	< 1	< 1	
MW-102D	10/28/98	SEV.TRENT	< 1	< 1	< 1	
MW-102D	05/04/99	SEV.TRENT	< 1	< 1	< 1	
MW-102D	10/21/99	SEV.TRENT	< 1	< 1	< 1	
MW-102D	04/17/00	SEV.TRENT	< 1	< 1	< 1	
MW-102D	10/23/00	SEV.TRENT	< 1	< 1	< 1	
MW-102D	05/08/01	SEV.TRENT	< 1	< 1	< 1	

Groundwater Analyses for the Bressette Site, Randolph, Vermont

Detection Limits assumed 5ug/L for DEC 8240 and 1ug/L for VDH analyses when not provided

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PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Quality symbols "J" means "estimated", and "<" means "less than"

Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
MW-102D	10/15/01	STL	< 1	< 1	< 1	
MW-103D	08/26/98	SEV.TRENT	< 1	< 1	< 1	
MW-103D	05/04/99	SEV.TRENT	< 1	< 1	< 1	
MW-103D	10/21/99	SEV.TRENT	< 1	< 1	< 1	
MW-103D	04/17/00	SEV.TRENT	< 1	< 1	< 1	
MW-103D	10/23/00	SEV.TRENT	< 1	< 1	< 1	
MW-103D	05/08/01	SEV.TRENT	< 1	< 1	< 1	
MW-103D	10/15/01	STL	< 1	< 1	< 1	
MW-103S	08/26/98	SEV.TRENT	< 1	< 1	< 1	
MW-103S DP	08/26/98	SEV.TRENT	< 1	< 1	< 1	Labeled MW-206
MW-103S	05/04/99	SEV.TRENT	< 1	< 1	< 1	
MW-103S	04/17/00	SEV.TRENT	< 1	< 1	< 1	
MW-103S	10/23/00	SEV.TRENT	DRY	DRY	DRY	
MW-103S	05/08/01	SEV.TRENT	< 1	< 1	< 1	
MW-103S	10/15/01	STL	DRY	DRY	DRY	
MW-104D	08/26/98	SEV.TRENT	< 1	< 1	< 1	
MW-104D	05/04/99	SEV.TRENT	< 1	< 1	< 1	
MW-104D DP	05/04/99	SEV.TRENT	< 1	< 1	< 1	Labeled MW-5
MW-104D	10/21/99	SEV.TRENT	< 1	< 1	< 1	
MW-104D DP	10/21/99	SEV.TRENT	< 1	< 1	< 1	Labeled MW-10D
MW-104D	04/17/00	SEV.TRENT	< 1	< 1	< 1	
MW-104D	10/23/00	SEV.TRENT	< 1	< 1	< 1	
MW-104D DP	10/23/00	SEV.TRENT	< 1	< 1	< 1	Labeled MW-105S
MW-104D	05/08/01	SEV.TRENT	< 1	< 1	< 1	
MW-104D	10/15/01	STL	< 1	< 1	< 1	
MW-104S	08/26/98	SEV.TRENT	< 1	< 1	< 1	
MW-104S	05/04/99	SEV.TRENT	< 1	< 1	< 1	
MW-104S	10/21/99	SEV.TRENT	< 1	< 1	< 1	
MW-104S	04/17/00	SEV.TRENT	< 1	< 1	< 1	
MW-104S DP	04/17/00	SEV.TRENT	< 1	< 1	< 1	labeled MW-7D
MW-104S	10/23/00	SEV.TRENT	< 1	< 1	< 1	
MW-104S	05/08/01	SEV.TRENT	< 1	< 1	< 1	
MW-104S	10/15/01	STL	< 1	< 1	< 1	
MW-104S DP	10/15/01	STL	< 1	< 1	< 1	labeled MW-X
MW-2S	06/21/88	ENDYNE	< 1	< 1	< 1	trans1,2-DCE
MW-2S	06/07/89	DEC	< 5	< 5	< 5	
MW-2S	10/18/89	DEC	< 5	< 5	< 5	
MW-2S	05/07/90	DEC	2	< 5	< 5	
MW-2S	10/30/90	DEC	4	< 5	< 5	
MW-2S	05/21/91	DEC	< 5	< 5	< 5	
MW-2S	10/18/91	DEC	3	< 5	< 5	
MW-2S	05/25/92	DEC	< 5	< 5	< 5	
MW-2S	06/07/93	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-2S	10/19/93	DEC	< 5	< 5	< 5	
MW-2S	06/15/94	DEC	< 5	< 5	< 5	
MW-2S	11/17/94	DEC	< 5	< 5	< 5	
MW-2S	05/26/95	DEC	5	< 5	< 5	
MW-2S	10/24/95	DEC	< 5	< 5	< 5	OVER HOLD TIME

Groundwater Analyses for the Bressette Site, Randolph, Vermont

Detection Limits assumed 5ug/L for DEC 8240 and 1ug/L for VDH analyses when not provided

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PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Quality symbols "J" means "estimated", and "<" means "less than"

Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
MW-2D	06/21/88	ENDYNE	< 1	< 1	< 1	trans1,2-DCE
MW-2D	06/07/89	DEC	< 5	< 5	< 5	
MW-2D	10/18/89	DEC	< 5	< 5	< 5	
MW-2D	05/07/90	DEC	< 5	< 5	< 5	
MW-2D	10/30/90	DEC	37	6	7	
MW-2D	05/21/91	DEC	< 5	< 5	< 5	
MW-2D	10/18/91	DEC	< 5	< 5	< 5	
MW-2D	05/25/92	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-2D	06/07/93	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-2D	10/19/93	DEC	< 5	< 5	< 5	
MW-1	06/21/88	ENDYNE	< 1	< 1	< 1	trans1,2-DCE
MW-1	06/07/89	DEC	< 5	< 5	< 5	
MW-1	10/18/89	DEC	< 5	< 5	< 5	
MW-1	05/07/90	DEC	< 5	< 5	< 5	
MW-1	10/30/90	DEC	< 5	< 5	< 5	
MW-1	05/21/91	DEC	< 5	< 5	< 5	
MW-1	10/18/91	DEC	< 5	< 5	< 5	
MW-1	05/25/92	DEC	< 5	< 5	< 5	
MW-1	06/07/93	DEC	< 5	< 5	< 5	OVER HOLD TIME
MW-1	10/19/93	DEC	< 5	< 5	< 5	
MW-1	06/15/94	DEC	< 5	< 5	< 5	
MW-1	11/17/94	DEC	< 5	< 5	< 5	
MW-1	05/26/95	DEC	5	< 5	< 5	
MW-1	10/24/95	DEC	< 5	< 5	< 5	OVER HOLD TIME
BRW-1	10/22/97	ITS	< 1	< 1	< 1	
BRW-1	04/15/98	ITS	< 1	< 1	< 1	
BRW-1	10/28/98	SEV.TRENT	< 1	< 1	< 1	
BRW-1	05/04/99	SEV.TRENT	< 1	< 1	< 1	
BRW-1	10/21/99	SEV.TRENT	< 1	< 1	< 1	
BRW-1	04/17/00	SEV.TRENT	< 1	< 1	< 1	
BRW-1	10/23/00	SEV.TRENT	< 1	< 1	< 1	
BRW-1	05/08/01	SEV.TRENT	< 1	< 1	< 1	
BRW-1	10/15/01	STL	< 1	< 1	< 1	
BRW-2	10/22/97	ITS	< 1	< 1	< 1	
BRW-2	04/15/98	ITS	< 1	< 1	< 1	
BRW-2	10/28/98	SEV.TRENT	< 1	< 1	< 1	
BRW-2	05/04/99	SEV.TRENT	< 1	< 1	< 1	
BRW-2	10/21/99	SEV.TRENT	< 1	< 1	< 1	
BRW-2	04/17/00	SEV.TRENT	< 1	< 1	< 1	
BRW-2	10/23/00	SEV.TRENT	< 1	< 1	< 1	
BRW-2	05/08/01	SEV.TRENT	< 1	< 1	< 1	
BRW-2	10/15/01	STL	< 1	< 1	< 1	
BRW-3	10/22/97	ITS	< 1	< 1	< 1	
BRW-3	04/15/98	ITS	< 1	< 1	< 1	
BRW-3	10/28/98	SEV.TRENT	< 1	< 1	< 1	
BRW-3	05/04/99	SEV.TRENT	< 1	< 1	< 1	
BRW-3	10/21/99	SEV.TRENT	< 1	< 1	< 1	
BRW-3	04/17/00	SEV.TRENT	< 1	< 1	< 1	

Groundwater Analyses for the Bressette Site, Randolph, Vermont

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PCE = Tetrachloroethene TCE = Trichloroethene 1,2-DCE = Total or reported 1,2-Dichloroethene

Quality symbols "J" means "estimated", and "<" means "less than"

Location	Date	LAB	Reported Concentration ug/L			Comments
			PCE	TCE	1,2 DCE	
BRW-3 DP	04/17/00	SEV.TRENT	< 1	< 1	< 1	labeled BRW-4
BRW-3	10/23/00	SEV.TRENT	< 1	< 1	< 1	
BRW-3	05/08/01	SEV.TRENT	< 1	< 1	< 1	
BRW-3	10/15/01	STL	< 1	< 1	< 1	
Bowen Well	09/14/81	D&K	54.2	7	< 1	
Bowen Well	09/15/81	VDH	5	< 1	< 1	
Bowen Well	09/16/81	VDH	5000			
Bowen Well	09/16/81	D&K		7000		
Bowen Well	12/08/81	VDH	2	9		
Bowen Well	06/30/82	VDH	41	14	< 1	
Bowen Well	10/07/82	VDH	93	5	58	
Bowen Well	02/16/83	VDH	41	14	< 1	
Bowen Well	05/16/83	VDH	48	18	< 1	
Bowen Well	04/26/84	VDH	42	15	24	
Bowen Well	05/14/85	VDH	< 1	< 1	< 1	
Bowen Well	07/24/85	VDH	50	21	29	
Bowen Well	11/13/85	VDH	23	11	13	
Bowen Well	07/16/86	VDH	35	< 4	17	outside faucet
Bowen Well	07/07/88	ENDYNE	54	11.3	18.3	
Bowen Well	10/22/97	ITS	1	< 0.5	< 0.5	
Bowen Well	04/15/98	ITS	6.7	1.7	3.1	(3.1 ppb cis-1,2-dce)
Bressett Well	09/02/81	VDH	3329.4	772	903.9	
Bressett Well	09/14/81	VDH	4799.7	1418	3614	
Bressett Well	09/15/81	VDH	543	225		
Bressett Well	10/14/82	VDH	982	215	788	
Bressett Well	02/16/83	VDH	1261	276	<	
Bressett Well	05/16/83	VDH	1175	252	<	
Bressett Well	10/18/83	VDH	1468	241	269	
Bressett Well	04/26/84	VDH	72	22	42	
Bressett Well	05/14/85	VDH	9950	<	1914	
Bressett Well	07/24/85	VDH	1021	161	200	
Bressett Well	11/13/85	VDH	1126	172	195	
Bressett Well	07/16/86	VDH	814	96	124	
Bressett Well	11/10/87	VDH	<	72	80	
Bressett Well	10/19/93	DEC	O 1350	230	160	
Bressett Well	05/26/95	DEC	J 1580	153	133	
Bressett Well	05/26/95	DEC	J 1530	150	138	
Bressett Well	10/22/97	ITS	780	130	97	(97 ppb cis-1,2-dce)
Bressett Well	10/22/97	ITS	800	140	100	(100 ppb cis-1,2-dce)
Bressett Well	04/16/98	ITS	660	100	84	(84 ppb cis-1,2-dce)
Bressett Well	04/16/98	ITS	690	100	88	(88 ppb cis-1,2-dce)

Summary of Groundwater Level Measurements

Elevation is in feet above the 1988 National Geodetic Vertical Datum

and is based upon a 1997 survey by Little River Survey, Stowe, Vermont.

MP indicates the survey and water level measuring point of reference (the top of PVC casing for wells)

Negative Vertical Components of Hydraulic Gradient are downwards, positive are upwards

MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D center screen; and

MP elevations for MW-1, MW-2S, MW-2D and Bressett well are based upon WH&N 12/7/88

The measuring point for Ayers Brook is a painted spot on the south side of the Town Highway 23 bridge

Well ID	Ground Surface Elev.	Center Screen MP Elev.	Total Pipe Elev.	Date	Water Level Below TOC (ft)	Water Elev.	Vertical Component of Hydraulic Gradient (ft/ft)	Water Elevation normalized to 690 ft.
Ayers Brook	NA	700.93	NA	08/26/98	8.93	692.00	Not Applicable	
Ayers Brook	NA	700.93	NA	05/09/01	8.86	692.07	Not Applicable	
BRW-1	717.99	717.58	659.58	80.50	11/25/97	13.04	704.54	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	04/16/98	9.90	707.68	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	10/29/98	13.74	703.84	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	05/04/99	12.09	705.49	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	10/21/99	14.65	702.93	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	04/17/00	7.71	709.87	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	10/23/00	14.83	702.75	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	05/08/01	10.64	706.94	Not Applicable
BRW-1	717.99	717.58	659.58	80.50	10/15/01	21.69	695.89	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	11/25/97	8.91	696.99	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	04/16/98	6.83	699.07	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	10/29/98	9.35	696.55	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	05/04/99	8.65	697.25	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	10/21/99	6.87	699.03	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	04/17/00	6.07	699.83	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	10/23/00	9.53	696.37	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	05/08/01	7.56	698.34	Not Applicable
BRW-2	705.99	705.90	639.40	101.50	10/15/01	12.71	693.19	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	11/25/97	10.27	721.06	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	04/16/98	7.95	723.38	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	10/29/98	10.30	721.03	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	05/04/99	8.05	723.28	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	10/21/99	11.29	720.04	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	04/17/00	5.50	725.83	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	10/23/00	12.96	718.37	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	05/08/01	8.09	723.24	Not Applicable
BRW-3	731.53	731.33	678.03	80.80	10/15/01	23.05	708.28	Not Applicable
Bowen	728.83	730.56	NA	50.4*	10/22/97	26.40	704.16	Not Applicable
Bowen	728.83	730.56	NA	50.4*	04/16/98	23.32	707.24	Not Applicable
Bowen	728.83	730.56	NA	50.4*	07/06/88	25.73	704.83	Not Applicable
Bowen	728.83	730.56	NA	50.4*	06/29/88	25.67	704.89	Not Applicable
Bressett	721.70	722.21	NA	150*	06/29/88	6.64	715.57	Not Applicable

Summary of Groundwater Level Measurements

Elevation is in feet above the 1988 National Geodetic Vertical Datum

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Negative Vertical Components of Hydraulic Gradient are downwards, positive are upwards

MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D center screen; and

MP elevations for MW-1, MW-2S, MW-2D and Bressett well are based upon WH&N 12/7/88

The measuring point for Ayers Brook is a painted spot on the south side of the Town Highway 23 bridge

Well ID	Ground Surface Elev.	Center Screen MP Elev.	Total Pipe Elev.	Date	Water Level Below TOC (ft)	Water Elev.	Vertical Component of Hydraulic Gradient (ft/ft)	Water Elevation normalized to 690 ft.	
MW-1	761.60	763.60	755.60	15.6	08/26/98	8.33	755.27	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	07/20/88	8.21	755.39	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	06/21/88	9.23	754.37	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	05/04/99	8.21	755.39	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	10/21/99	8.29	755.31	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	04/17/00	8.52	755.08	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	10/23/00	8.43	755.17	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	05/08/01	7.38	756.22	Not Applicable	
MW-1	761.60	763.60	755.60	15.6	10/15/01	8.27	755.33	Not Applicable	
MW-101D	712.68	712.97	690.52	24.52	11/25/97	7.14	705.83	-0.134	705.76
MW-101D	712.68	712.97	690.52	24.52	04/15/98	5.76	707.21	-0.072	707.17
MW-101D	712.68	712.97	690.52	24.52	08/26/98	6.38	706.59	-0.12	706.53
MW-101D	712.68	712.97	690.52	24.52	10/28/98	7.28	705.69	-0.082	705.65
MW-101D	712.68	712.97	690.52	24.52	05/04/99	6.35	706.62	-0.096	706.57
MW-101D	712.68	712.97	690.52	24.52	10/21/99	7.30	705.67	-0.081	705.63
MW-101D	712.68	712.97	690.52	24.52	04/17/00	6.25	706.72	-0.082	706.68
MW-101D	712.68	712.97	690.52	24.52	10/23/00	7.76	705.21	-0.091	705.16
MW-101D	712.68	712.97	690.52	24.52	05/08/01	6.62	706.35	0.024	706.36
MW-101D	712.68	712.97	690.52	24.52	10/15/01	9.25	703.72	-0.097	703.67
MW-101S	712.57	712.88	701.03	14.40	09/24/97	7.53	705.35	Not Applicable	
MW-101S	712.57	712.88	701.03	14.40	10/22/97	7.70	705.18	Not Applicable	
MW-101S	712.57	712.88	701.03	14.40	11/25/97	5.64	707.24	-0.134	705.76
MW-101S	712.57	712.88	701.03	14.40	04/15/98	4.91	707.97	-0.072	707.17
MW-101S	712.57	712.88	701.03	14.40	08/26/98	5.06	707.82	-0.12	706.53
MW-101S	712.57	712.88	701.03	14.40	10/28/98	6.33	706.55	-0.082	705.65
MW-101S	712.57	712.88	701.03	14.40	05/04/99	5.25	707.63	-0.096	706.57
MW-101S	712.57	712.88	701.03	14.40	10/21/99	6.36	706.52	-0.081	705.63
MW-101S	712.57	712.88	701.03	14.40	04/17/00	5.30	707.58	-0.082	706.68
MW-101S	712.57	712.88	701.03	14.40	10/23/00	6.71	706.17	-0.091	705.16
MW-101S	712.57	712.88	701.03	14.40	05/08/01	6.78	706.10	0.024	706.36
MW-101S	712.57	712.88	701.03	14.40	10/15/01	8.14	704.74	-0.097	703.67
MW-102D	702.57	705.91	674.76	33.65	09/24/97	6.43	699.48	0.007	697.83
MW-102D	702.57	705.91	674.76	33.65	10/22/97	9.51	696.40	0.002	696.38
MW-102D	702.57	705.91	674.76	33.65	04/15/98	7.05	698.86	0.011	698.69
MW-102D	702.57	705.91	674.76	33.65	08/26/98	7.97	697.94	0.002	696.38
MW-102D	702.57	705.91	674.76	33.65	10/28/98	8.78	697.13	0.008	697.01
MW-102D	702.57	705.91	674.76	33.65	05/04/99	7.80	698.11	0.014	697.90
MW-102D	702.57	705.91	674.76	33.65	10/21/99	8.25	697.66	0.014	697.45
MW-102D	702.57	705.91	674.76	33.65	04/17/00	7.84	698.07	0.013	697.87
MW-102D	702.57	705.91	674.76	33.65	10/23/00	8.36	697.55	0.031	697.08
MW-102D	702.57	705.91	674.76	33.65	05/08/01	7.98	697.93	0.014	697.72
MW-102D	702.57	705.91	674.76	33.65	10/15/01	9.90	696.01	-0.074	697.14

Summary of Groundwater Level Measurements

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Negative Vertical Components of Hydraulic Gradient are downwards, positive are upwards

MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D center screen; and

MP elevations for MW-1, MW-2S, MW-2D and Bressett well are based upon WH&N 12/7/88

The measuring point for Ayers Brook is a painted spot on the south side of the Town Highway 23 bridge

Well ID	Ground Surface Elev.	Center Screen MP Elev.	Center Screen Elev.	Total Pipe	Date	Water Level Below TOC (ft)	Water Elev.	Vertical Component of Hydraulic Gradient (ft/ft)	Water Elevation normalized to 690 ft.
MW-102S	702.92	705.71	689.46	18.62	09/24/97	6.32	699.39	0.007	697.83
MW-102S	702.92	705.71	689.46	18.62	10/22/97	9.33	696.38	0.002	696.38
MW-102S	702.92	705.71	689.46	18.62	04/15/98	7.01	698.70	0.011	698.69
MW-102S	702.92	705.71	689.46	18.62	08/26/98	7.87	697.84	0.002	696.38
MW-102S	702.92	705.71	689.46	18.62	10/28/98	8.69	697.02	0.008	697.01
MW-102S	702.92	705.71	689.46	18.62	05/04/99	7.80	697.91	0.014	697.90
MW-102S	702.92	705.71	689.46	18.62	10/21/99	8.25	697.46	0.014	697.45
MW-102S	702.92	705.71	689.46	18.62	04/17/00	7.83	697.88	0.013	697.87
MW-102S	702.92	705.71	689.46	18.62	10/23/00	8.61	697.10	0.031	697.08
MW-102S	702.92	705.71	689.46	18.62	05/08/01	7.98	697.73	0.014	697.72
MW-102S	702.92	705.71	689.46	18.62	10/15/01	8.61	697.10	-0.074	697.14
MW-103D	704.66	704.06	685.48	20.4	08/26/98	5.36	698.70	0.164	697.96
MW-103D	704.66	704.06	685.48	20.4	05/04/99	4.69	699.37	Not Applicable	
MW-103D	704.66	704.06	685.48	20.4	10/21/99	6.43	697.63	Not Applicable	
MW-103D	704.66	704.06	685.48	20.4	04/17/00	3.06	701.00	Not Applicable	
MW-103D	704.66	704.06	685.48	20.4	10/23/00	6.78	697.28	Not Applicable	
MW-103D	704.66	704.06	685.48	20.4	10/15/01	7.55	696.51	Not Applicable	
MW-103S	704.60	703.97	697.39	8.3	08/26/98	7.22	696.75	0.164	
MW-103S	704.60	703.97	697.39	8.3	05/04/99	6.40	697.57	Not Applicable	
MW-103S	704.60	703.97	697.39	8.3	10/21/99	>8.3	<695.7	Not Applicable	
MW-103S	704.60	703.97	697.39	8.3	04/17/00	>8.3	<695.7	Not Applicable	
MW-103S	704.60	703.97	697.39	8.3	10/23/00	>8.3	<695.7	Not Applicable	
MW-103S	704.60	703.97	697.39	8.3	10/15/01	>8.3	<695.7	Not Applicable	
MW-104D	697.58	697.34	676.26	23.8	08/26/98	1.76	695.58	0.014	695.39
MW-104D	697.58	697.34	676.26	23.8	05/04/99	1.81	695.53	0.005	695.46
MW-104D	697.58	697.34	676.26	23.8	10/21/99	2.03	695.31	-0.001	695.33
MW-104D	697.58	697.34	676.26	23.8	04/17/00	1.42	695.92	0.002	695.89
MW-104D	697.58	697.34	676.26	23.8	10/23/00	2.53	694.81	-0.019	695.07
MW-104D	697.58	697.34	676.26	23.8	05/08/01	1.35	695.99	0.025	695.64
MW-104D	697.58	697.34	676.26	23.8	10/15/01	4.35	692.99	0.015	692.78
MW-104S	697.58	697.31	690.98	8.6	08/26/98	1.93	695.38	0.014	695.39
MW-104S	697.58	697.31	690.98	8.6	05/04/99	1.85	695.46	0.005	695.46
MW-104S	697.58	697.31	690.98	8.6	10/21/99	1.98	695.33	-0.001	695.33
MW-104S	697.58	697.31	690.98	8.6	04/17/00	1.42	695.89	0.002	695.89
MW-104S	697.58	697.31	690.98	8.6	10/23/00	2.22	695.09	-0.019	695.07
MW-104S	697.58	697.31	690.98	8.6	05/08/01	1.69	695.62	0.025	695.64
MW-104S	697.58	697.31	690.98	8.6	10/15/01	4.54	692.77	0.015	692.78

Summary of Groundwater Level Measurements

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MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D center screen; and

MP elevations for MW-1, MW-2S, MW-2D and Bressett well are based upon WH&N 12/7/88

The measuring point for Ayers Brook is a painted spot on the south side of the Town Highway 23 bridge

Well ID	Ground Surface Elev.	MP Elev.	Center Screen Elev.	Total Pipe	Date	Water Level Below TOC (ft)	Water Elev.	Vertical Component of Hydraulic Gradient (ft/ft)	Water Elevation normalized to 690 ft.
MW-2D	702.57	737.60	683.40	53	08/26/98	21.07	716.53	-0.059	716.92
MW-2D	702.57	737.60	683.40	53	07/22/88	22.53	715.07	Not Applicable	
MW-2D	702.57	737.60	683.40	53	07/20/88	22.54	715.06	-0.074	715.55
MW-2D	702.57	737.60	683.40	53	07/06/88	22.10	715.50	Not Applicable	
MW-2D	702.57	737.60	683.40	53	06/21/88	23.55	714.05	-0.080	714.58
MW-2D	702.57	737.60	683.40	53	10/15/01	23.99	713.61	-0.016	713.72
MW-2S	735.20	737.50	714.50	28	08/26/98	19.14	718.36	-0.059	716.92
MW-2S	735.20	737.50	714.50	28	07/20/88	20.13	717.37	-0.074	715.55
MW-2S	735.20	737.50	714.50	28	06/21/88	20.96	716.54	-0.080	714.58
MW-2S	735.20	737.50	714.50	28	05/04/99	17.59	719.91	Not Applicable	
MW-2S	735.20	737.50	714.50	28	10/21/99	21.63	715.87	Not Applicable	
MW-2S	735.20	737.50	714.50	28	04/17/00	19.05	718.45	Not Applicable	
MW-2S	735.20	737.50	714.50	28	10/23/00	21.09	716.41	Not Applicable	
MW-2S	735.20	737.50	714.50	28	05/08/01	7.64	729.86	Not Applicable	
MW-2S	735.20	737.50	714.50	28	10/15/01	23.38	714.12	-0.016	TOC Elev. assumed
MW-3D	736.60	738.50	664.55	~75	10/22/97	23.82	714.68	0.027	713.99
MW-3D	736.60	738.50	664.55	~75	04/15/98	19.06	719.44	0.021	718.90
MW-3D	736.60	738.50	664.55	~75	08/26/98	22.25	716.25	0.013	715.91
MW-3D	736.60	738.50	664.55	~75	10/28/98	22.43	716.07	0.033	715.24
MW-3D	736.60	738.50	664.55	~75	07/22/88	23.78	714.72	Not Applicable	
MW-3D	736.60	738.50	664.55	~75	07/20/88	23.78	714.72	0.009	714.50
MW-3D	736.60	738.50	664.55	~75	07/06/88	23.42	715.08	Not Applicable	
MW-3D	736.60	738.50	664.55	~75	06/21/88	24.61	713.89	0.005	713.76
MW-3D	736.60	738.50	664.55	~75	05/04/99	21.08	717.42	0.009	717.20
MW-3D	736.60	738.50	664.55	~75	10/21/99	21.63	716.87	0.057	715.41
MW-3D	736.60	738.50	664.55	~75	04/17/00	18.74	719.76	0.075	717.84
MW-3D	736.60	738.50	664.55	~75	10/23/00	22.84	715.66	0.036	714.76
MW-3D	736.60	738.50	664.55	~75	05/08/01	19.29	719.21	0.064	717.58
MW-3D	736.60	738.50	664.55	~75	10/15/01	23.87	714.63	0.045	713.48
MW-3S	737.58	739.34	714.09	30.40	10/22/97	26.01	713.33	0.027	713.99
MW-3S	737.58	739.34	714.09	30.40	04/15/98	20.95	718.39	0.021	718.90
MW-3S	737.58	739.34	714.09	30.40	08/26/98	23.75	715.59	0.013	715.91
MW-3S	737.58	739.34	714.09	30.40	10/28/98	24.88	714.46	0.033	715.24
MW-3S	737.58	739.34	714.09	30.40	07/20/88	25.05	714.29	0.009	714.50
MW-3S	737.58	739.34	714.09	30.40	06/21/88	25.70	713.64	0.005	713.76
MW-3S	737.58	739.34	714.09	30.40	05/04/99	22.35	716.99	0.009	717.20
MW-3S	737.58	739.34	714.09	30.40	10/21/99	25.31	714.03	0.057	715.41
MW-3S	737.58	739.34	714.09	30.40	04/17/00	23.31	716.03	0.075	717.84
MW-3S	737.58	739.34	714.09	30.40	10/23/00	25.44	713.90	0.036	714.76
MW-3S	737.58	739.34	714.09	30.40	05/08/01	23.30	716.04	0.064	717.58
MW-3S	737.58	739.34	714.09	30.40	10/15/01	26.94	712.40	0.045	713.48

Summary of Groundwater Level Measurements

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MW-1, MW-2S, MW-2D, MW-3S, MW-3D, MW-4S, and MW-4D center screen; and

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The measuring point for Ayers Brook is a painted spot on the south side of the Town Highway 23 bridge

Well ID	Ground	Center	Total	Date	Water		Vertical	Water Elevation	
	Surface				MP Elev	Screen			Pipe
	Elev	Elev	Elev		Below	Elev	Hydraulic	normalized to 690 ft.	
					TOC (ft)		Gradient (ft/ft)		
MW-4D	732.22	734.27	689.82	47.00	10/22/97	22.57	711.70	-0.017	711.71
MW-4D	732.22	734.27	689.82	47.00	04/15/98	18.39	715.88	-0.037	715.89
MW-4D	732.22	734.27	689.82	47.00	08/26/98	20.51	713.76	-0.027	713.77
MW-4D	732.22	734.27	689.82	47.00	10/28/98	21.25	713.02	-0.016	713.03
MW-4D	732.22	734.27	689.82	47.00	07/20/88	21.70	712.57	-0.030	712.58
MW-4D	732.22	734.27	689.82	47.00	07/06/88	21.27	713.00	Not Applicable	
MW-4D	732.22	734.27	689.82	47.00	06/21/88	22.61	711.66	-0.031	711.67
MW-4D	732.22	734.27	689.82	47.00	05/04/99	19.61	714.66	-0.032	714.67
MW-4D	732.22	734.27	689.82	47.00	10/21/99	21.60	712.67	0.010	712.67
MW-4D	732.22	734.27	689.82	47.00	04/17/00	19.45	714.82	0.006	714.82
MW-4D	732.22	734.27	689.82	47.00	10/23/00	21.94	712.33	-0.011	712.33
MW-4D	732.22	734.27	689.82	47.00	05/08/01	19.67	714.60	0.005	714.60
MW-4D	732.22	734.27	689.82	47.00	10/15/01	23.57	710.70	-0.003	710.70
MW-4S	732.3	734.19	711.44	27.70	10/22/97	22.12	712.07	-0.017	711.71
MW-4S	732.30	734.19	711.44	27.70	04/15/98	17.59	716.68	-0.037	715.89
MW-4S	732.30	734.19	711.44	27.70	08/26/98	19.85	714.34	-0.027	713.77
MW-4S	732.30	734.19	711.44	27.70	10/28/98	20.82	713.37	-0.016	713.03
MW-4S	732.30	734.19	711.44	27.70	07/22/88	20.97	713.22	Not Applicable	
MW-4S	732.30	734.19	711.44	27.70	07/20/88	20.97	713.22	-0.030	712.58
MW-4S	732.30	734.19	711.44	27.70	06/21/88	21.85	712.34	-0.031	711.67
MW-4S	732.30	734.19	711.44	27.70	05/04/99	18.84	715.35	-0.032	714.67
MW-4S	732.30	734.19	711.44	27.70	10/21/99	21.74	712.45	0.010	712.67
MW-4S	732.30	734.19	711.44	27.70	04/17/00	19.50	714.69	0.006	714.82
MW-4S	732.30	734.19	711.44	27.70	10/23/00	21.63	712.56	-0.011	712.33
MW-4S	732.30	734.19	711.44	27.70	05/08/01	19.70	714.49	0.005	714.60
MW-4S	732.30	734.19	711.44	27.70	10/15/01	23.42	710.77	-0.003	710.70

Database of Indoor Air Sample Analyses
 Bressett Residence, Randolph, Vermont
 All Concentrations presented in ppbv

Location date	QA/QC 4/4/02 DMM Basement		Basement		Basement		Basement		Basement	
	10/22/97	Limit	01/28/98	Limit	07/25/00	Limit	01/23/01	Limit	07/24/01	Limit
Tetrachloroethene	6.47	3.1	5.72	2.9	4	0.41	4.8	0.35	6	0.42
Trichloroethene	ND	3.1	ND	2.9	0.31 J	0.41	0.5	0.35	0.53	0.42
Cis-1,2-Dichloroethene	ND	3.1	ND	2.9	ND	0.41	ND	0.35	ND	0.42
Trans-1,2-Dichloroethene	ND	3.1	ND	2.9	ND	0.41	0.33 J	0.35	ND	0.42

Notes:

Laboratory/Method	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14
Laboratory Sample designation	Bressett BSMT	BRSTBSMT	BRSTBSMT-300	BRSTBSMT101	BRSTBSMT-301

Location date	1st Floor									
	10/22/97	Limit	01/28/98	Limit	07/25/00	Limit	01/23/01	Limit	07/24/01	Limit
Tetrachloroethene	3.07	2.8	1.76 J	3	0.42	0.42	0.69	0.47	ND	2
Trichloroethene	ND	2.8	ND	3	ND	0.42	ND	0.47	ND	2
Cis-1,2-Dichloroethene	ND	2.8	ND	3	ND	0.42	ND	0.47	ND	2
Trans-1,2-Dichloroethene	ND	2.8	ND	3	ND	0.42	ND	0.47	ND	2

Notes:

Laboratory/Method	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14
Laboratory Sample designation	Bressett 1FLR	BRST1FLR	BRST1FLR-300	BRST1FLR101	BRST1FLR-301

Location date	Basement		1st Floor		1st Floor		Basement		1st Floor	
	10/22/97	Limit	01/28/98	Limit	07/25/00	Limit	01/23/01	Limit	07/24/01	Limit
Tetrachloroethene	6.24	2.76	1.97 J	3.3	0.38 J	0.46	5.2	0.28	0.38 J	0.28
Trichloroethene	ND	2.76	ND	3.3	ND	0.46	0.49	0.28	ND	0.28
Cis-1,2-Dichloroethene	ND	2.76	ND	3.3	ND	0.46	ND	0.28	ND	0.28
Trans-1,2-Dichloroethene	ND	2.76	ND	3.3	ND	0.46	0.35	0.28	ND	0.28

Notes:

Laboratory/Method	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14	ITS/TO-14
Laboratory Sample designation	Duplicate	DUP2	FDS4-300	FDS3-101	FDS1-301

ND = Not detected above the quantification limit. Results with this qualifier should be considered estimated.

J = Concentration is estimated and was below the value in the lowest calibration standard.