

ENGINEERING INVESTIGATIONS AT
INACTIVE HAZARDOUS WASTE SITES IN THE
STATE OF NEW YORK
PHASE II INVESTIGATIONS

BEDFORD VILLAGE WELLS
BEDFORD (T), WESTCHESTER COUNTY, NEW YORK
SITE CODE: 360009¹⁶

Prepared for

DIVISION OF SOLID AND HAZARDOUS WASTE
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 WOLF ROAD
ALBANY, NEW YORK 12233-0001

Prepared by

WEHRAN ENGINEERING, P. C.
666 EAST MAIN STREET
MIDDLETOWN, NEW YORK 10940

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SECTION 1.0
EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

BEDFORD VILLAGE WELLS
Route 22 and Court Road
Bedford (T), Westchester County, New York

In 1978 the Westchester County Health Department began a monitoring program of drinking water wells in the vicinity of present and past dry cleaning establishments. In April of 1979, samples of several wells were collected and analyzed. These wells are located in the business district of Bedford Village where a dry cleaner was alleged to have been located several years ago in the arcade building. The results of this testing program revealed that three wells were contaminated with varying amounts of tetrachloroethylene (8.4 to 600 ppb) and trichloroethylene (2 to 80 ppb). The wells are associated with the Bedford Theatre Building, the Bedford Shopping Arcade, and an Exxon Gasoline Station along Guard Hill Road (Figure 2). Trace amounts were also detected in other wells in the vicinity.

Initially, all three wells were placed under "boil water" notices by the Health Department.

Since the Phase I report was completed (June 1983), additional monitoring has been conducted by the Westchester County Health Department. The results have indicated that halogenated organic contamination is still present in the above-cited wells. (See analytical data contained in Appendix A.) In addition, another contamination problem has developed approximately one-half mile southwest of Guard Hill Road in the vicinity of Lake and Vinton Avenue in the Town of Bedford (Figure 2a). This problem is assumed not to be related to the Bedford Village well contamination situation; however, the analytical data has been included in this report. (See Appendix B.) This data has been included because of the close proximity of the sites; if the problem continues this data may be essential to further assess the extent or potential of contamination.

The HRS Score for the site, following completion of the Phase II investigation, is $S_M = 17.1$

The Theatre has installed four granular activated carbon (GAC) filters in an attempt to remediate the problem. The Westchester County Health Department has ordered the Arcade owner to install a GAC filter, and this is expected to occur in the near future. No additional wells in the vicinity have shown other than trace amounts of these same contaminants. Section 6.0 of this report presents a summary of remedial options available to correct the contamination problem in these private wells. The remedial measures were selected based on their technical feasibility and practicality of implementation. Due to the small flows of the private systems, the only practical treatment system is carbon adsorption. The estimated cost is \$600 to \$1000 per well, plus an estimated \$500 per year for carbon replacement. The Bedford area is not in close proximity to any other municipal system, and therefore new groundwater sources would have to be developed. The cost estimate for the development of such a source is \$16,750.

SECTION 3.0 SCOPE OF WORK

During the Phase I investigation it was determined that the Bedford Village wells, contaminated with halogenated solvents, pose a potential health threat to the community. The following task summary descriptions identify the activities which occurred during the course of this Phase II site investigation.

TASK 1 - COLLECTION AND EVALUATION OF ADDITIONAL DATA

In order to consider the possible cost for future remedial investigations, it was necessary to collect and evaluate any additional information relating to the Bedford Village area well contamination problem. The information, as contained in this report, was obtained from the Westchester County Health Department.

TASK 2 - PRELIMINARY REMEDIAL COST ESTIMATE

This study evaluated the Armonk Village, Bedford Village, and Pineview Road wells in a generic situation in which there is a private well contamination situation requiring an alternate water supply. As such, a range of possible remedial costs was developed using best engineering judgment and previous experience with possible feasible remedial schemes for an alternate water supply. This evaluation was not intended to consider remediation which may be appropriate for actual removal of contamination from the aquifer because adequate investigative information has not been developed regarding the source of the contamination, subsurface hydrogeologic conditions, and the extent of the contaminant plume. This task was not intended to perform a cost-effectiveness analysis of feasible remedial alternatives but rather to provide a cost range estimate adequate for legislative budget reporting purposes.

TASK 3 - PHASE II REPORT PREPARATION

Under this task, a report was compiled for the site containing the following:

- . A summary of Phase II information developed under Tasks 1 and 2
- . Final HRS score and site assessment

4.4 SITE CONTAMINATION ASSESSMENT

In 1978 the Westchester County Health Department became aware of potential drinking water problems in areas in the County where present and past dry cleaning establishments have been located. An investigative program was established where numerous well samples were collected throughout the County. The results of the investigation revealed contaminated wells in Katonah Village located in the Town of Bedford, Armonk Village located in the Town of North Castle, and Bedford Village located in the Town of Bedford. The sources of the contamination, although unidentified, are suspected to be present and past dry cleaning establishments which disposed of wastewaters into septic systems.

The Armonk and Bedford Village situations both involve private well contamination. The wells in question have been issued "boil water" orders and are periodically sampled by the Health Department.

The Bedford Village wells are located in the business district where a dry cleaner was alleged to have been located several years ago in the arcade building. The results of this testing program first revealed that, in April of 1979, three wells were contaminated with varying amounts of tetrachloroethylene (8.4 to 600 ppb) and trichloroethylene (2 to 80 ppb). The wells are located in the Bedford Theatre Building, the Bedford Shopping Arcade, and an Exxon Gasoline Station.

Initially, all three wells were placed under "boil water" notices by the Health Department. However, the monitoring data from the Phase I study had shown that only the Shopping Arcade well has unacceptable levels (Health Department Standard of 50 ppb halogenated organics) of tetrachloroethylene. As a result, only the Shopping Arcade was under a "boil water" notice.

The Westchester County Health Department has performed extensive monitoring to identify this problem. However, due to the complexity and changing nature of such groundwater contamination situations, it is extremely difficult to conduct a cost-effective monitoring program for all potentially affected wells in the area. The most recent analytical data has shown that the levels of halogenated organic chemicals in the three wells continues to fluctuate. The Theatre has installed a granular activated carbon

(GAC) filter in an attempt to remediate the problem. The Health Department has ordered the Arcade owner to install a GAC filter; this is expected to occur in the near future. No additional wells in the vicinity have shown other than trace amounts of these same contaminants. Monitoring of the contamination is still being conducted by the County; however, the possibility exists for contamination above recommended standards to occur between sampling periods.

APPENDIX A

RECORDED BY JIM HEARTY
AT WESTCHESTER DOH
ON 6/29/84

ADDITIONAL SAMPLING RECORDS

NAME: BEDFORD ARCADE BLDG.

BEDFORD (T)

TYPE SUPPLY: NON COMMUNITY PUBLIC WATER SYSTEM

FACILITIES SERVED: 5 SHOPS INCLUDING THE DELI

CORRESPONDENCE:

DATE SUMMARY

8/3/83 BOIL WATER - TETRACHLOROETHYLENE (TCE)

9/14/83 LETTER (BAYBELL) REQUIRED INSTALLATION OF
GAC-UV SYSTEM BY MAY 6, 1984 (IGNORED)

3/6/84 REQ. GAC

5/7/84 MEETING SET-UP

5/24/84 MEETING

SAMPLE RESULTS

<u>LOCATION</u>	<u>DATE</u>	<u>TRICHLOROETHYLENE</u>	<u>TETRACHLOROETHYLENE</u>	<u>CIS 1-2</u>
	7/11/83	22	606	93
	7/15/83	47	77	110
	5/29/84	37	280	55

RECORDED BY JIM HEAL
AT WESTCHESTER DOH
ON 6/29/84

ADDITIONAL SAMPLING RECORDS

NAME : BEDFORD EXXON

ROUTE 22

BEDFORD (T)

TYPE SUPPLY : PRIVATE

FACILITIES SERVED : GAS STATION, ACROSS STREET : MARKET, WINE STORE,
HAIRDRESSER, CLOTHES STORE

CORRESPONDENCE :

SAMPLE RESULTS

<u>LOCATION</u>	<u>DATE</u>	<u>TRICHLOROETHYLENE</u>	<u>TETRACHLOROETHYLENE</u>	<u>CIS 1-2</u>
	7/11/83	11	101	22
	7/15/83	2	8.4	4.5

RECORDED BY JIM HEARTY
AT WESTCHESTER DOH
ON 6/29/84

ADDITIONAL SAMPLING RECORDS

NAME: BEDFORD THEATRE BLDG
BEDFORD (T)

TYPE SUPPLY: COMMUNITY PUBLIC WATER SUPPLY

FACILITIES SERVED: BUTCHER/BAKER, RESTAURANT, FLOWER SHOP, THEATER,
± 20 APTS, LIQUOR STORE

CORRESPONDENCE:

<u>DATE</u>	<u>SUMMARY</u>
1/23/84	BOIL WATER, INSTALL GAC

SAMPLE RESULTS

<u>LOCATION</u>	<u>DATE</u>	<u>TRICHLOROETHYLENE</u>	<u>TETRACHLOROETHYLENE</u>	<u>CIS 1-2</u>
	9/13/82	9.2	44	72
	12/2/82	6.4	14	10
	3/8/83	9.9	38	8.7
	6/6/83	7.7	44	5.1
	7/4/83	7.4	60	10
	7/15/83	6.9	38	4.4