

Health Assessment for

GARDEN STATE CLEANERS COMPANY

CERCLIS NO. NJD053280160

BUENA BOROUGH, ATLANTIC COUNTY, NEW JERSEY

SEP 28 1990

Health and Disease Registry

GARDEN STATE CLEANERS CO.
ATLANTIC COUNTY
BUENA BOROUGH, NEW JERSEY
Prepared by
Environmental Health Service
New Jersey Department of Health (NJDOH)

Prepared for
Agency for Toxic Substances and Disease Registry (ATSDR)

OBJECTIVES

The Remedial Investigation and Feasibility Study (RI/FS) of the Garden State Cleaners (GSC) Site is currently in the second year of the work plan. The objectives of this Health Assessment, based upon the current stage of site remediation, are to:

- * Assess the nature and magnitude of the potential health effects associated with the site and determine the site's degree of public health concern;
- * Identify, if necessary, immediate actions necessary to minimize exposure to hazards and contamination associated with the site;
- * Identify, if necessary, gaps in data and information regarding the site;
- * Document the concerns of the community with regard to the site;
- * Review remedial activities within the context of potential public health implications;
- * Assess whether additional health study or investigation of the site is warranted.

SUMMARY

The Garden State Cleaners Company is a dry cleaning establishment located in Buena Borough, New Jersey. Contaminated wastewater from on-site operations was routinely discharged to on-site soils. Analytical data has described significant soil and ground-water contamination from tetrachloroethylene (PCE) and other volatile organic compounds. Ground-water contamination downgradient (to the south) of the site has required the recommended closing of private wells and the installation of a municipal water supply system. An Administrative Order and Notice of Civil Administrative Penalty Assessment (AO and PSO) were issued to Garden State Cleaners in December 1985, requiring GSC to perform a full RI/FS.

Municipal water supplies have been made available to affected residents, but utilization is elective. The site was included on the NPL list in March 1989 and is currently ranked 105 of 108 sites in New Jersey. ATSDR and NJDOH consider the Garden State Cleaners site to be of public health concern. This site is being considered for follow-up health study or evaluation.

SITE DESCRIPTION

The Garden State Cleaners company is one of two identified responsible parties contributing to the ground-water contamination of the Borough of Buena. Garden State Cleaners is located approximately 500 feet from another NPL site, the South Jersey Clothing Company. The U.S. Environmental Protection Agency (USEPA) initiated a joint RI/FS between Garden State Cleaners and South Jersey Clothing in the spring of 1989. It is assumed in the site literature that the plumes of contamination emanating from these two sites intermingle and contribute to a general ground-water contamination problem in Buena Borough.

The Garden State Cleaners company is an active dry cleaning facility in operation since 1966 on Summer Avenue in Buena Borough. There is one building on-site. In February 1981, during an inspection of the nearby South Jersey Clothing site, it was discovered that wastewater from Garden State Cleaners's dry cleaning operations was being routinely discharged onto the soil. The wastewater contained volatile organic compounds (VOCs), including high concentrations of tetrachloroethylene.

Since 1981, the site and associated activities have been under the supervision of the New Jersey Department of Environmental Protection (NJDEP). Analytical sampling conducted during NJDEP inspections revealed significant soil and ground-water contamination by volatile organic chemicals. Discharge of wastewater ceased in February 1985. Garden State Cleaners is currently operating with a closed loop system, eliminating discharges.

SITE VISIT

NJDOH personnel visited the area of the site on April 7, 1989, but did not enter the Garden State Cleaners property. An inspection from the perimeter of the site and of the surrounding area was conducted. The site is not fenced, and there were no physical hazards evident. Stained soils or other indications of chemical contamination were not visible on-site.

COMMUNITY CONCERNS

Community involvement with the site focuses on GSC's contribution to the general ground-water contamination problem of Buena Borough. Concern with ground-water quality was first documented in 1981 when a resident living to the immediate south of the nearby South Jersey Clothing site contacted the Atlantic County Health Department about a chemical odor in well water.

Subsequent investigations by NJDEP defined a plume of contamination to the south of Garden State Cleaners site which, together with the contamination emanating from the South Jersey Clothing site, ultimately resulted in the recommendation to abandon private wells and to the construction of a public water supply.

Review of the files of NJDEP and the Atlantic County Health Department revealed the following specific concerns of the community:

- * Residents were advised to obtain a municipal water supply at an initial cost of approximately \$2,400 with an annual water fee of \$240. This figure represented an economic hardship to many residents whose well water was contaminated. As a result, it is uncertain if the use of all potentially afflicted wells has been curtailed. The Atlantic County Health Department has expressed difficulty in enforcing the well restriction. It is probable that some wells remain in use for irrigation and potable purposes. Attempts are being made by residents to recover the service connection and water costs from the New Jersey Spillfund program.
- * Past exposure to contaminated ground water is a major concern. Although the impact of Garden State Cleaners on ground-water quality was documented in 1981, many residents feel that the contamination problem has been present for a much longer period of time and is not caused solely by the two sites that have been included on the NPL list (Garden State Cleaners and South Jersey Clothing).

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

The primary contaminant of concern at the GSC site is tetrachloroethylene with relatively lower concentrations of other VOCs also having been identified. The primary environmental pathway associated with this site is ground water. The on-site and off-site soil and air pathways are not presently of concern, but on-site soil contamination may have constituted a significant environmental pathway during the period when GSC discharged wastewater on-site. There is no information available to evaluate the significance of on-site and off-site air pathways during the period of GSC's on-site wastewater discharge. There is no surface water located on site or in the immediate environs. Ground water in the area is moving in a southerly direction. Monitoring wells downgradient of the site have contained tetrachloroethylene concentrations of up to approximately 6,600 ppb.

An initial administrative consent order was signed by the owners of Garden State Cleaners in 1984. NJDEP has installed 14 monitoring wells in the vicinity of the site to characterize the contaminant plume associated with this site and another nearby NPL site, South Jersey Clothing. Tetrachloroethylene has been detected in some of these wells. The Remedial Investigation report summarizing monitoring well data was not available for review and evaluation.

NJDEP conducted soil sampling on the Garden State Cleaners site and at several off-site locations. No contamination was detected at off-site locations. A summary of VOCs that were detected at greater than 1 part per million (ppm) in on-site soils are presented in Table 1.

In a sample taken on May 5, 1982, the J.P. Cleary School water supply tested positive for VOCs, necessitating the use of bottled water and point source filters. Of 11 samples taken, 6 showed greater than 100 ppb of total VOCs (NJDEP personal communication). Tetrachloroethylene has been detected in the school water supply at a maximum concentration of 430 ppb.

NJDEP has described ground-water problems unrelated to Garden State Cleaners in Buena Borough. Benzene has been found by NJDEP in a well in the Landisville section of the Borough, an area not downgradient of Garden State Cleaners. There are many possible sources in the area which could contaminate the highly permeable, underlying Cohansey aquifer. These include spillage from private petroleum product and gasoline tanks, misuse of septic systems and septic tank cleaning chemicals, illegal dumping, and use of fertilizers and pesticides. Such sources are likely contributing to the overall ground-water contamination problem of the area.

The Garden State Cleaners site presents no outstanding or visible physical hazards. Although the property is unfenced, it's area is flat and relatively featureless.

QUALITY ASSURANCE/QUALITY CONTROL

Analysis of samples collected by NJDEP was performed at the New Jersey Department of Health laboratories. Specific information relating to QA/QC is not available for review and evaluation.

DEMOGRAPHICS

The Garden State Cleaners site is located in a mixed residential, commercial, and light industrial section of Buena Borough. The surrounding area is rural and predominantly agricultural in nature. According to the Atlantic County Health Department, there are approximately 1,000 homes within the boundaries of Buena Borough with a population of approximately 4,000 people. Outside the Borough limits, there are trailer parks which contain approximately 1,300 additional persons. Additionally, by assigning 1.5 persons per acre of agricultural land, NJDEP estimates that an additional 10,000 persons may be threatened by contaminated ground water. There are approximately 40 homes which are directly in the path of the contamination plume.

Potential sensitive populations in Buena Borough would include children and elderly that live in the Borough. Of particular concern is the J.P. Cleary School, which is located downgradient of the Garden State Cleaners site. Volatile organic chemicals had been detected in potable water at the school.

ENVIRONMENTAL DATA GAPS

The Remedial Investigation Report of the Garden State Cleaners site, when completed, will detail the nature and extent of contamination associated with the site. The additional site data and information contained in the RI/FS, when available, will be reviewed and evaluated for future addenda to this Health Assessment.

Additional study and investigation of Buenas ground water, beyond the scope of the present RI/FS work plan, may be necessary to comprehensively describe the nature and sources of contamination not attributed to the Garden State Cleaners and South Jersey Clothing sites.

EXPOSURE PATHWAYS

Present exposure pathways at the Garden State Cleaners site are predominantly related to the use of contaminated ground water for potable/domestic purposes and irrigation. Use of such ground water for domestic purposes could result in the ingestion, inhalation, or dermal exposure to contaminants. There are no documented human exposure pathways presently associated with the off-site air and soil media. Human exposure pathways associated with on-site soils and air may have been significant during the period when GSC discharged wastewater on-site. Although data demonstrate high concentrations of PCE in on-site soils during this period, there is no information regarding air quality. Solvent recovery practices instituted by GSC have eliminated external discharge of PCE. Residual concentrations remaining in on-site soils do not constitute a significant exposure pathway.

All water used for drinking and irrigation in Buena Borough was once dependent on ground water. Although a public water supply system was made available in the Borough in 1985, all Borough residents may not have access to or may not have elected to utilize the public water supply. It is likely that Borough residents utilized contaminated water before the public water system became available.

PUBLIC HEALTH IMPLICATIONS

The level of public health concern associated with the site has diminished with the implementation of a municipal water supply in 1985. It is unclear whether all residents have access to and are utilizing public water. There are potential public health concerns associated with homes that have yet to utilize the public water supply and with the area-wide ground-water problem in Buena Borough, which is a combination of site-related and non site-related contamination.

Exposure to high concentrations of the primary contaminant of concern at the site, tetrachloroethylene, has been demonstrated to affect the central nervous system and a number of organs in humans. Animal experiments have demonstrated that (at concentrations that exceed the exposure concentrations associated with this site) tetrachloroethylene is capable of

causing adverse reproductive effects and cancer. Although human data are not adequate to fully categorize tetrachloroethylene's carcinogenicity, tetrachloroethylene is currently listed by the USEPA as a Class B2 (suspected human) carcinogen.

CONCLUSIONS

On the basis of the information reviewed, ATSDR has concluded that this site is of public health concern because the risk to human health resulting from probable exposure to hazardous substances at concentrations that may result in human health effects. As noted in the Environmental Contamination and Physical Hazards section above, human exposure to volatile organic chemicals may be occurring and has probably occurred in the past, via the domestic use of contaminated ground water.

In accordance with CERCLA as amended, the Garden State Cleaners site has been evaluated for appropriate follow-up with respect to health effects studies. Since human exposure to on-site and off-site contaminants may be occurring and has probably occurred in the past, this site is being evaluated for follow-up health effects studies. After consultation with regional EPA staff, and State and local health and environmental officials, the Division of Health Studies, ATSDR, and NJDOH will determine if follow-up public health actions or studies are appropriate for this site. ATSDR will be considering sites for inclusion in the benzene subregistry, and this site will be included in the consideration.

An area-wide ground-water contamination problem exists in Buena Borough. While current remedial investigations adequately define the contributions of identified sites, additional investigations may be indicated to identify other sources of contamination and remedial actions necessary to protect the public health.

The site's degree of public health concern has been diminished since a municipal water supply was made available to alleviate dependence upon private domestic wells. However, utilization of the municipal water supply is not mandatory and involves significant costs. It is possible that contaminated wells continue to be used for potable and domestic purposes. It is recommended that all residents utilize the public water supply system.

When indicated by public health needs, and as resources permit, the evaluation of additional relevant health outcome data and community health concerns, if available, is recommended.

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CERTIFICATION

This Health Assessment was prepared by the New Jersey State Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health assessment was initiated.



Technical Project Officer, SPS, RPB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR, has reviewed this Health Assessment and concurs with its findings.



Division Director, DHAC, ATSDR

REFERENCES

Superfund Documents:

United State Environmental Protection Agency, Hazardous Ranking Score Documentation, January 1983.

United State Environmental Protection Agency, Preliminary Site Assessment, May 1984.

File Reviews:

Atlantic County Health Department.

New Jersey Department of Environmental Protection, Division of Hazardous Waste Management.

NJDEP/Division of Water Resources Southern Regional Enforcement.

Interviews:

Atlantic County Health Department.

NJDEP/DWR Southern Regional Enforcement.

TABLE 1 - Soil Contamination - Garden State Cleaners

Location	1	2	3	4	5
Sample Depth (inches)	10	15	5	38	4
Compound (ppm)					
Tetrachloroethylene	7.52	43	1.35	0.1	0.56
1,2-Dichloroethylene	0.42	24	ND	ND	ND
Trichloroethylene	0.375	16.5	ND	ND	ND

Sample Locations:

- 1) Beneath mouth of boiler blow down pipe. *
- 2) Beneath mouth of steam condensate pipe, north wall. *
- 3) Adjacent to tetrachloroethylene recycle tank. *
- 4) Beneath mouth of steam condensate pipe, east wall. **
- 5) Front lawn of Garden State Cleaners. **

* = Sampled May 2, 1984; ** = Sampled June 21, 1984.

ND = Not detected.