

Health Consultation

OMNOVA SOLUTIONS INCORPORATED SITE
(a/k/a SUN CHEMICAL CORPORATION)

CHESTER, CHESTER COUNTY, SOUTH CAROLINA

EPA FACILITY ID: SCD003164662

FEBRUARY 20, 2004

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members.

This document has previously been released for a 30 day public comment period. Subsequent to the public comment period, ATSDR addressed all public comments and revised or appended the document as appropriate. The health consultation has now been reissued. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at
1-888-42ATSDR

or

Visit our Home Page at: <http://www.atsdr.cdc.gov>

HEALTH CONSULTATION

OMNOVA SOLUTIONS INCORPORATED SITE
(a/k/a SUN CHEMICAL CORPORATION)

CHESTER, CHESTER COUNTY, SOUTH CAROLINA

EPA FACILITY ID: SCD003164662

Prepared by:

South Carolina Department of Health and Environmental Control
Under a Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

PURPOSE

A resident of New York and a former resident of Chester, South Carolina asked the Office of Environmental Community Health (OECH) with the South Carolina Department of Health and Environmental Control (SCDHEC) to evaluate the potential health risks associated with the Omnova Solutions Inc. site in Chester County (Figure 1). The OECH prepared this health consultation under cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). The resident initially petitioned ATSDR, however, in June 2002, the petitioner sent a letter directly to SCDHEC asking for assistance.

BACKGROUND AND STATEMENT OF ISSUES

The Omnova Solutions Inc. site is in Chester, Chester County South Carolina. The facility is approximately 0.2 miles southeast of Chester. It is in an area with a mix of residential, industrial, and other commercial properties. There are homes north and west of the facility. There are about 1,100 people within a mile and 6,200 people within two miles of the facility. The entire city of Chester is within two miles of the site.

There are no municipal wells within four miles of the site. There were about 400 households within a four-mile radius of the site that use private wells. The closest private well is 0.6 of a mile east of the site. All but one of the households closest to and downgradient of the site were provided public water in 1998 when low level VOC contamination was discovered.

The site was first developed in 1963 to produce and sell specialty chemical products used in the production of industrial paper products and for treating and finishing textiles. From 1963 to 1987 the company was called Sun Chemical Corp. Between 1987 and 1998 it went by the name Sequa Corporation. In 1998, Sequa Corporation sold the facility to GenCorp, Inc. In 1999, a new company was created and it is now called Omnova Solutions Inc. The site consists of 96 acres which includes the 70-acre main plant area, the old Southside School property (9.5 acres), the Wilson Street property (1.5 acres), and the Harris Street Property (15 acres) (Figure 1). The Wilson Street property was purchased by the company in 1987 to serve as a buffer between the facility and neighboring residential areas (RMT, Inc., 1993). The property was previously owned by Blue Gas Company, a liquid gas distributor, who operated a scrap metal facility on the property. Omnova Solutions, Inc. manufactures specialty chemical products used in the textile, paper products, and graphic arts industries.

The production area contains a 94,000 square foot main plant building, warehouse, research and development laboratories, a boiler room, maintenance shop, and offices. There are two 96-square foot retention basins in front of the main plant building. There are also two 450-square foot sludge drying beds, a 8,100 square foot equalization basin, approximately 70 above ground bulk chemical storage tanks, two underground storage tanks and two drum storage pads on the property. The bulk tanks contain flammable and nonflammable chemicals. The drums from the storage area are removed within 90 days. The property is fenced, limiting general public or

trespasser access. In addition, some parts of the property are also fenced which limits even worker access.

Prior to 1983, waste was discharged to the sewer system and into the original retention basin. In 1983, SCDHEC issued a construction permit to construct an industrial wastewater pretreatment system. The sludge drying beds were added in 1983. In 1990, the Chester Sewer District issued a permit to the company to discharge into the sewer system. Currently, the waste treatment system includes two retention basins, an equalization basin, chemical processing tanks, clarifier, filter press and sludge drying beds. Dewatered sludge is disposed of at the Chester County Landfill (U.S.EPA, 1993). The equalization basin, sludge drying beds, and the retention basins are part of the facility wastewater pretreatment system. After pre-treatment, wastewater is discharged into the municipal sewer (SCDHEC, 1990). Until 1986, wastewater contained chromium, zinc, chlorinated benzenes, polynuclear aromatic hydrocarbons (PAHs), chlorinated ethanes, and phenol derivatives. As of 1993, treated wastewater is discharged to the Chester District Sewer System. The company does have an air permit through SCDHEC for air releases during batch polymerization, resin production and chemical and polymerization pilot processes.

Historically, most surface water runoff from the eastern, southern, and northern parts of the facility flowed to the southeast by a drainage ditch and into an unnamed, intermittent stream. This stream flowed into a perennial stream, then into Grassy Branch Run. This creek flowed into Rocky Creek and eventually into the Catawba River (U.S.EPA, 1993). Surface water runoff is now collected in a storm water retention pond on-site.

The information presented below, is a brief history of operations, investigations, and removals that have occurred at the facility.

- § April 1962, the South Carolina State Board of Health and Water Pollution Control Authority issued a construction permit to Sun Chemical Corp. to construct sewer connections and a retention basin.
- § In 1969, the facility constructed a lagoon to collect surface water runoff. It may also have received industrial waste water (SCDHEC, 1990).
- § October 1970, the state Water Pollution Control Authority discovered that discharge, which had a high pH, was flowing from the site into a nearby creek (Tanyard Branch) (SCDHEC, 1991).
- § During the 1960's and 1970's, Sun Chemical cleaned out a facility junction box and buried polychlorinated biphenyl (PCB)-contaminated waste in an area that may have been a landfill.
- § In late 1980, Sun Chemical submitted a RCRA Part A permit application for interim status as a treatment, storage, and disposal facility. They requested to withdraw this interim status in 1984.

- § In 1984, Sun Chemical submitted to the United States Environmental Protection Agency (U.S.EPA) a CERCLA 103(c) Notice of Hazardous Waste Site form regarding an on-site landfill at the southwest corner of the facility's parking lot. The landfill was used between 1962 and 1971. Twenty-one soil samples were collected in 1984. PCBs were found in this area up to 6,480 parts per million (ppm). One hundred ninety-two tons of contaminated soil and waste were removed from this area in 1984.
- § SCDHEC completed a Preliminary Assessment in 1990. Soil, sediment, and private wells were sampled as part of this investigation.
- § A 1990 SCDHEC Inspection Report concluded that there were no violations of air standards or regulations at the facility (SCDHEC, 1990).
- § SCDHEC completed a Screening Site Investigation in the spring of 1991. Samples of soil, sediment, private wells were collected as part of this investigation. There were no site-related chemicals detected in the one private well sampled. Soil and sediment samples collected on-site contained PCBs, polynuclear aromatic hydrocarbons (PAHs), and a couple of site-related volatile organic compounds (VOCs).
- § Between 1992-1993, Sequa Corporation conducted a comprehensive site characterization to investigate the nature and extent of contamination and to evaluate the need for remedial activities. This investigation covered nine areas of the site. One hundred soil samples were analyzed by a rapid immunoassay screening test. Complete laboratory analysis was conducted on forty-four of these samples. Twenty-five thousand tons of soil and waste were removed from five areas of the site.
- § Also in 1993, the company completed a Hydrogeologic Assessment of the facility. Seven monitoring wells were installed during this investigation to evaluate groundwater flow rates, direction, and water quality. A contractor working for the company also completed a Summary Assessment of the Wilson Street Property (area next to the site). The investigators noted some municipal trash and debris in this area, but recommended no further action or investigation at this property.
- § In 1993, the U.S.EPA completed a Site Inspection Prioritization which gave the site a low priority for an Expanded Site Investigation.
- § Between 1994-1996, Sequa completed a soil removal at the facility, removing 25,000 tons of soil and waste from five areas of the site. PCB contaminated soil was still present below seven on-site structures including the plant building.
- § In 1997, Sequa Chemicals, Inc. submitted the Soil Removal Project Report to SCDHEC, which outlined soil removal activities at the landfill area, the west field, Area B, the expansion Tank area, tank farm area, surface water retention pond and drainage ditch.

- § A state superfund scoring package was completed in 1997. The site scored a 13, which is below the state scoring target number (SCDHEC, 1997).
- § SCDHEC issued a consent agreement in 1999 which required Sequa to submit a workplan to SCDHEC for review and approval. The workplan proposed actions to identify potential sources of contamination, to assess the nature and extent of contamination, and to evaluate alternatives for remediation.
- § The final Remedial Investigation and Feasibility Study Workplan was completed in July 2000.
- § The Phase II-Remedial Investigation was completed in November 2001. Fourteen soil borings and 53 monitoring wells were sampled as part of this investigation.
- § Currently the investigation at the site is in the last phase of the Remedial Investigation. There is not, as of yet, a Remedial Investigation Report. The Feasibility Study has not been finalized. A pilot study (treatability study) will be completed before the Feasibility Study is undertaken by the company.

SCDHEC, the Water Pollution Control Authority (SCDHEC=s predecessor), and the company, have conducted a number of investigations at the site since 1970. Some of these investigations have not entailed the collection of environmental samples. Since the 1999 consent agreement, the site investigation has been conducted by the company, with SCDHEC oversight.

Screening levels for public health consultations are contaminant concentrations in specific media used to select contaminants for further evaluation. These values include U.S.EPA Maximum Contaminant Levels (MCLs), those calculated by SCDHEC-OECH, ATSDR=s Environmental Media Evaluation Guides (EMEGs), and other relevant guidelines. EMEGs are derived from ATSDR Minimal Risk Levels (MRLs). EMEGS and OECH calculated screening levels are the estimates of a daily human exposure to a chemical likely to be without an appreciable risk of non-carcinogenic adverse effects. MCLs are the maximum permissible levels of contaminants in public water. There are no screening levels for skin contact (dermal absorption).

Groundwater investigations have been going on at the site since 1993. Previous investigations have identified volatile organic compounds (VOCs) and semivolatile organic compounds in groundwater samples collected from monitoring wells at the main plant facility and near the west and southwestern perimeter of the site. The primary VOCs detected have been tetrachloroethene (PERC) and its degradation products. The U.S.EPA MCLs have been exceeded in some of the 58 monitoring wells for PERC, trichloroethene (TCE), 1,2-dichloroethene, and vinyl chloride. The highest concentration of PERC is found in wells near the main plant facility. Downgradient wells also have VOCs in excess of MCLs. PERC was found from below the detection limit to 1,670 micrograms per liter (Φ g/L), TCE from below the detection limit to 210 Φ g/L, and 1,2-

DCE from below the detection limit to 210 Φ g/L. All three chemicals are present in groundwater at the site, above their U.S.EPA MCLs. Aroclor 1242, a polychlorinated biphenyl, was found in one monitoring well at 6.2 Φ g/L, which is above the MCL of 0.5 Φ g/L. This same monitoring well also contained very high VOC concentrations (First Environmental, 2002). Monitoring wells along the southwest boundary of the site also contain site-related chemicals, indicating that the groundwater contamination plume extends beyond the property line. Wells along the southeast boundary of the site did not have site-related chemicals. Groundwater flow at the site is generally toward the southwest, away from the main plant building (RMT, 1998). Two (MW-32 and MW 32A) out of the eight monitoring wells drilled in/near the residential area next to the site contained PERC and TCE at concentrations above their respective MCL=s.

The company surveyed 450 homes to locate which ones still had private wells. Twenty-three private wells closest to the site were sampled in fall of 1998. Seven were considered downgradient from the site. Several site-related chemicals were detected in the wells, but nothing was found above U.S.EPA MCLs. These wells were within about 3/4 miles of the site. However as a precaution, Sequa connected six homes in the neighborhood along the south property line of the plant, to the public water system. The wells were taken out of service by disconnecting the pumps and abandoning the wells. A seventh residence refused the public water supply, but accepted bottled water for drinking and cooking (Ed Reid, Personal Communication, 2002).

The investigations of soil contamination at the site have focused on several areas including the landfill area, area B, the west field area, expansion tank area, tank farm area, and the retention basin and drainage ditch (Figure 2). These parts of the site are where contamination was known or suspected to occur. Access to the site is restricted by a fence. Access to the west field, expansion tank area, drainage ditch and retention basin is further restricted by fencing. The contaminated part of the tank farm was partially covered with gravel and asphalt (RMT, 1997).

Soil samples were first collected at the site in 1984 when a facility investigation showed that soil in the former landfill area was contaminated with PCBs. This investigation revealed four pockets of waste containing butylate melamine resin contaminated with PCBs (Sequa Letter, 1990). Early in the plant=s history, a junction box was periodically cleaned out and the waste material buried in the landfill. Landfill soil samples contained up to 6,480 mg/kg of PCBs Soil samples were also collected as part of the 1991 SCDHEC Screening Site Inspection (five surface and two subsurface soil samples). VOCs were present in the one soil boring sample collected. Aroclor 1248 was present in one soil sample (4.2 mg/kg), collected in a scrap metal area west of the facility, above the 3.5 mg/kg screening level. Polynuclear aromatic hydrocarbons were also found in one surface soil sample (benzo (a) pyrene 5.9 mg/kg) above the screening level of 1.0 mg/kg.

Later in 1984, during replacement of the railroad spur next to the heat transfer expansion tank, the company discovered an additional area of PCB contamination. PCBs were detected in seven composite soil samples ranging from 5 to 4,113 mg/kg.

More recent investigations were completed by the company. Initial soil analysis was conducted using the PCB rapid immunoassay screening test. After screening with the field test, a certain number of samples were then sent for laboratory confirmation. The maximum concentration of PCBs (10,000 mg/kg Aroclor 1242) was found in a subsurface soil sample collected in the landfill area. PCBs were found above the screening level in soil (0.4 mg/kg) in several other areas, including area B, the west field, and the expansion tank area. PCBs were also found in a sediment sample collected from the retention basin.

Removal actions were recommended for contaminated soil in the landfill area, the west field, area B, the expansion tank area, and the stormwater retention basin. No removal was recommended for the drainage ditch. Previous removal actions have also taken place at the landfill and the tank farm area. The 1997 Sequa Soil Removal Project Report detailed and outlined the removal activities at these areas of the property. The removal of contaminated soil in these areas has been completed, and the only surface soil contamination remaining is beneath seven structures on the site.

Additional subsurface soil samples were collected as part of the November 2001 Remedial Investigation-Phase II. Thirty-seven soil samples were collected and sent for analysis from 18 soil borings on the site. All 37 samples were analyzed for VOCs, SVOCs, PCBs, and metals. This round of sampling confirmed pre-existing soil data that indicated no elevated, widespread VOC contamination near the former and current tank farms. In this latest round of sampling, PCBs were the only chemicals found in soil above screening levels. PCBs were detected in two subsurface soil samples, but were above (0.75 mg/kg) the screening level of 0.4 mg/kg in only one sample. One dioxin compound was present below its screening number. Surface soil samples were not collected in this latest investigation

Soil samples were also collected from what is called the Wilson Street Property (Figure 1). Two composite samples were collected from shallow soil borings. TCLP analysis (leachability test) did not show any significant findings. No further action was recommended for this piece of the site.

Remedial activities are ongoing at the site. Currently pilot testing is occurring to determine the efficacy of bioremediation and in situ chemical oxidation to address downgradient groundwater VOC contamination.

DISCUSSION

Soil and groundwater at the former Sequa site are contaminated with site-related chemicals including several VOCs and PCBs. Private wells closest to the site were sampled, seven of which contained site-related VOCs at concentrations below the U.S.EPA MCLs. However as a precaution, Sequa connected six homes with wells downgradient of the site in the neighborhood along the south property line of the plant, to the public water system. The wells were taken out of service by disconnecting the pumps and abandoning the wells. A seventh residence refused the public water supply, but accepted bottled water for drinking and cooking (Ed Reid, Personal

Communication, 2002). This exposure pathway has been eliminated. This means that although a few wells contained site-related chemicals, the concentrations were below screening levels and the homes have been connected to public water.

Most of the soil contamination at the site is in deep soils which limits contact. Although surface soil in the West Field and Area B did contain elevated levels of PCBs, the general public does not have access to the Omnova Solutions Inc. property. Site access is completely restricted by a fence. The remaining contaminated parts of the site are either fenced or under structures on the site. People who work at the site do not have access to contaminated soil. There have been several removals at the site since contamination was first discovered. The 1997 Sequa Soil Removal Project Report detailed and outlined the removal activities at these areas of the property. Removals have taken place at the landfill, West Field, Area B, Expansion Tank area, and the drainage ditch. The removal of contaminated soil in these areas has been completed, and the only remaining contaminated soil is beneath structures on the site. Remaining areas of soil contamination pose a greater likelihood of contributing to groundwater contamination at the site than posing an exposure risk to site workers.

CHILD HEALTH CONSIDERATIONS

Children were not considered for this evaluation since private wells did not contain any site-related chemicals above screening levels and public water has been provided to area residents which eliminated any exposure pathway. In addition, children do not have access to soil contamination on the company property as it is an operating facility and access is restricted by a fence.

CONCLUSIONS

ATSDR classifies sites as to their public health hazard category. Under ATSDR's classification system, the site is classified as a no apparent public health hazard. Even though groundwater at the site is significantly contaminated with VOCs and monitoring wells at the edge of the property contain VOCs above MCLs, this exposure pathway has been eliminated. Homes closest to the site have been provided with public water. The remaining resident with a contaminated well, refused public water but accepted bottled water for drinking and cooking. Historically, soil on site has been contaminated with VOCs and PCBs. Several removals have taken place at the property and any remaining soil contamination is either in deep soils, under structures, or within fenced areas of the site. The entire property is fenced, which limits general public access to the site. There is no reason to expect that workers or area residents have been exposed to chemicals in soil at the site.

RECOMMENDATIONS

No further public health actions are warranted with regard to this site.

PUBLIC HEALTH ACTION PLAN

The results of this health consultation will be provided to the petitioner .

REFERENCES

- Ed Reid. Personal Communication Omnova Solutions, Inc.-E-mail. 2002.
- First Environmental Inc. Final Remedial Investigation and Feasibility Study Workplan. July 2000.
- First Environmental Inc. Remedial Investigation Phase II Report. November 2001.
- SCDHEC-Division of Site Assessment and Remediation. State Scoring Package-Sequa Chemicals, Inc. 1997.
- SCDHEC. Site Inspection Report. Sun Chemical Corporation. Chester, SC. 1990.
- SCDHEC. Preliminary Assessment Report. Sun Chemical Corporation. 1990.
- SCDHEC. Bureau of Solid and Hazardous Waste Management. Site Screening Investigation. Sun Chemical Corporation. 1991.
- Sequa Corporation. 1998- Letter. Private Well Sampling Results.
- RMT Inc. Engineering and Environmental Management Services. Hydrogeologic Assessment of the Sequa Chemical Facility-Chester, SC. 1993.
- RMT Inc. Engineering and Environmental Management Services. Summary Assessment. Wilson Street Property. Sequa Chemicals, Inc. Chester, SC. 1993.
- RMT Inc. Engineering and Environmental Management Services. The Sequa Soil Removal Project Report. Sequa Chemicals, Inc. 1997.
- RMT Inc. Engineering and Environmental Management Services. Groundwater Assessment Report. Sequa Chemicals, Inc. Chester, SC. 1998.
- Unites States Environmental Protection Agency. Site Inspection Prioritization. December 1993.

PREPARERS OF REPORT

Tracy Shelley, M.S.
Program Manager
Division of Health Hazard Evaluation
South Carolina Department of Health and Environmental Control

Debra Gable
Technical Project Officer
Division of Health Assessment and Consultation
Agency of Toxic Substances and Disease Registry

Figure 1

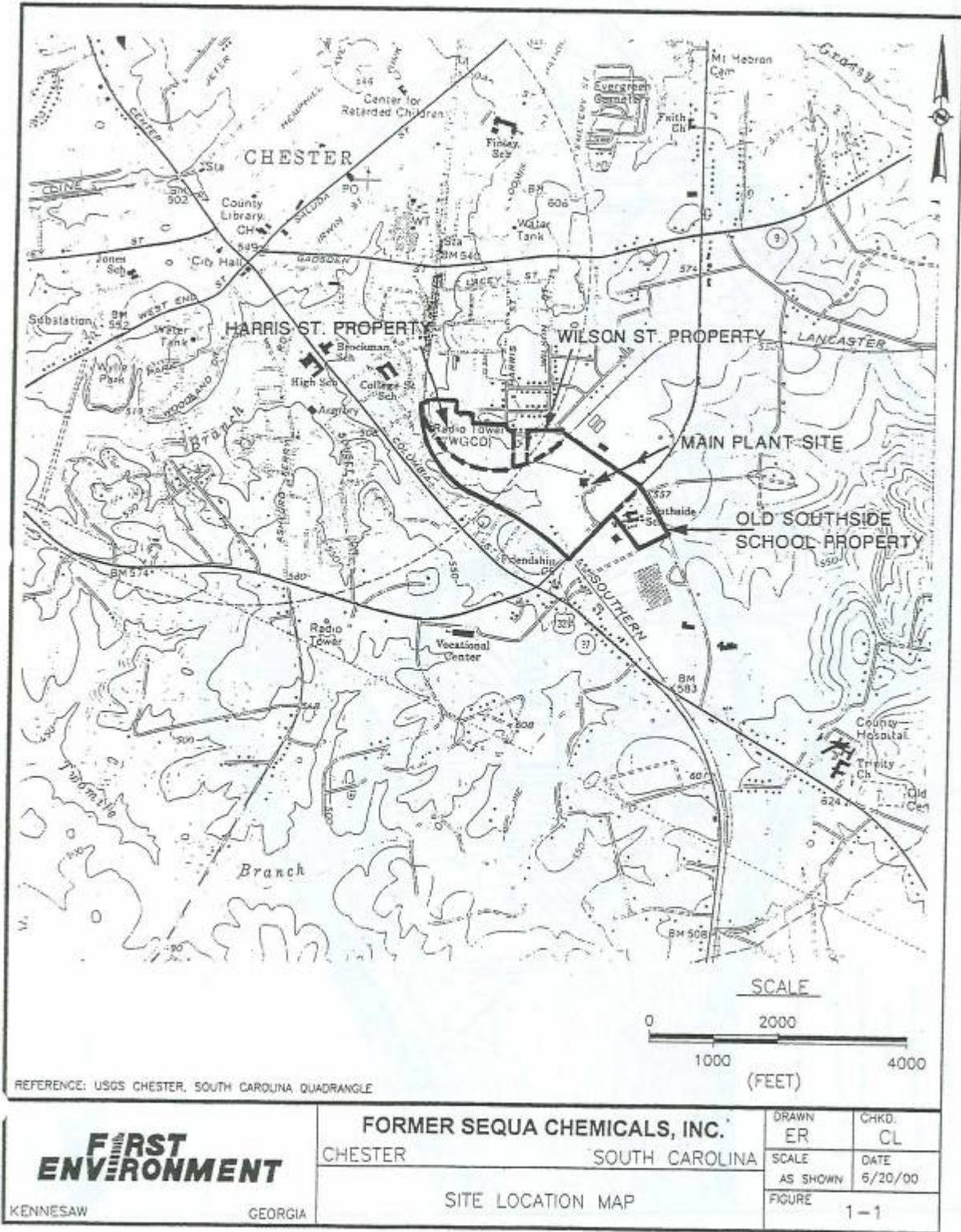
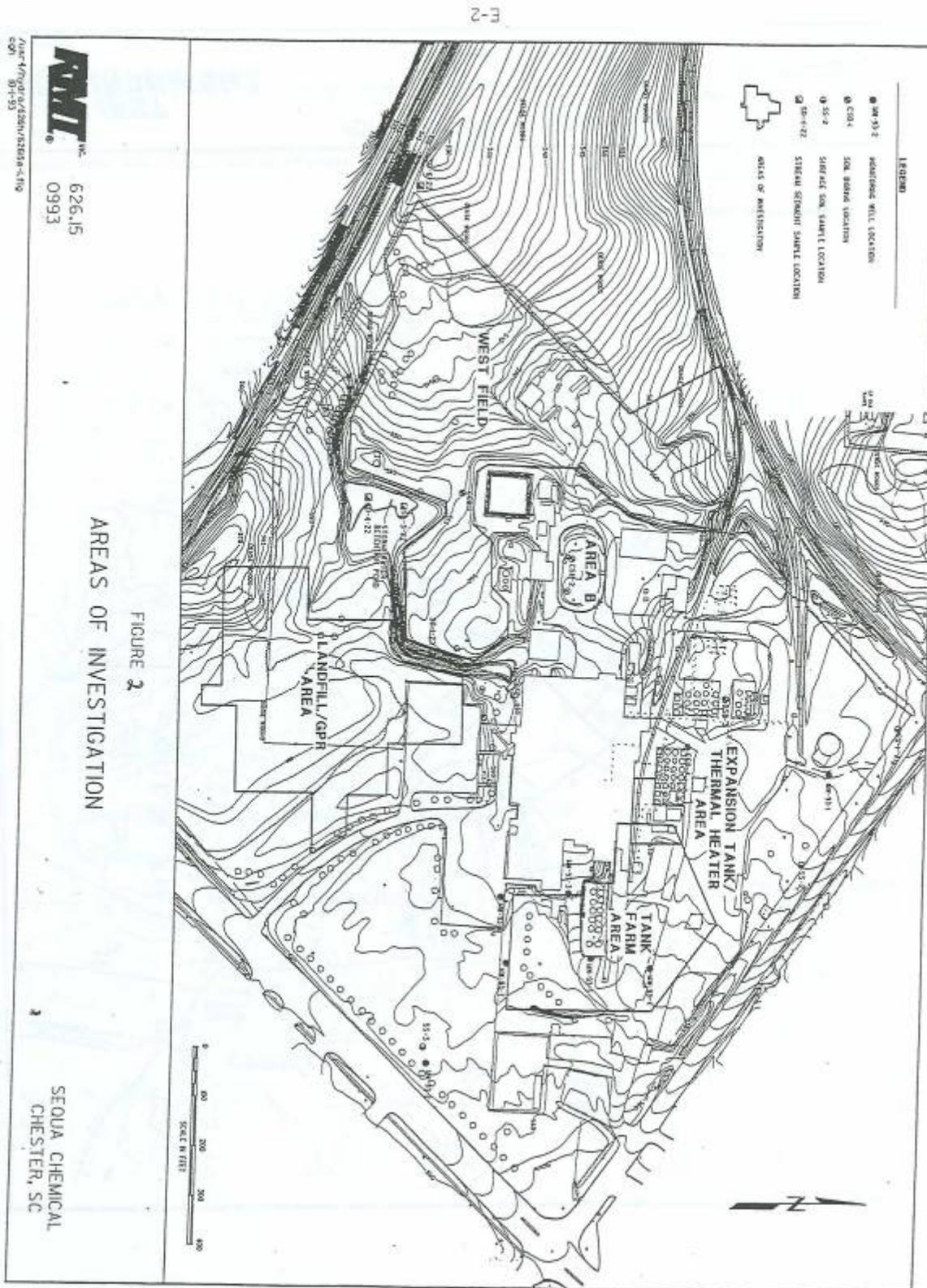


Figure 2



CERTIFICATION

This Health Consultation was prepared by the South Carolina Department of Health and Environmental Control's Office of Environmental Community Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health consultation was begun.

Debra Gable
Technical Project Officer
Superfund Site Assessment Branch (SSAB)
Division of Health Assessment and Consultation (DHAC)
ATSDR

The Division of Health Assessment and Consultation, ATSDR, has reviewed this health consultation, and concurs with its findings.

Roberta Erlwein
Section Chief,
SSAB, DHAC,
ATSDR