Health Consultation

Review of the Draft Remedial Design Work Plan for Operable Unit 1
Review of the Draft Remedial Investigation/Feasibility
Study Work Plan for Operable Unit 2

SOUTHERN SOLVENTS, INCORPORATED SITE

TAMPA, HILLSBOROUGH COUNTY, FLORIDA

CERCLIS NO. FL0001209840

MARCH 14, 2000

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 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://atsdr1.atsdr.cdc.gov:8080/

HEALTH CONSULTATION

Review of the Draft Remedial Design Work Plan for Operable Unit 1
Review of the Draft Remedial Investigation/Feasibility
Study Work Plan for Operable Unit 2

SOUTHERN SOLVENTS, INCORPORATED SITE

TAMPA, HILLSBOROUGH COUNTY, FLORIDA

CERCLIS NO. FL0001209840

Prepared by:

Florida Department of Health
Bureau of Environmental Toxicology
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

BACKGROUND AND STATEMENT OF ISSUES

The Florida Department of Health (FDOH), through a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR) in Atlanta, Georgia, evaluates the public health significance of hazardous waste sites in Florida. On February 7, 2000, the United States Environmental Protection Agency (EPA) requested that FDOH review and provide comments on the Draft Remedial Design Work Plan for Operable Unit 1 and the Draft Remedial Investigation/Feasibility Study Work Plan for Operable Unit 2, for the Southern Solvents, Inc. site. Each of these documents presents the specific actions that will be conducted to optimize the cleanup of this hazardous waste site. These actions include tasks related to sample collection, data acquisition, data analysis, community involvement, and report preparation. Since the FDOH is concerned with the health of residents surrounding a site, this consultation is focused on those tasks that involve contamination assessment, remedial actions, protective measures, pollution and community involvement.

FDOH has determined that a Health Consultation is an appropriate response to evaluate the proposed work plans. In this Health Consultation, FDOH gives recommendations in order to reduce the frequency, duration and intensity of exposures to site contaminants. The interpretation, advice, and recommendations presented in this Health Consultation are site-specific and should not be considered applicable to any other site.

The Southern Solvents, Inc. site is located at 4109 West Linebaugh Avenue, Tampa, Hillsborough County, Florida. The site is approximately 500 ft. west of the intersection of Gunn Highway and West Linebaugh Avenue and measures approximately 100 feet by 185 feet. The site is bordered by Gold Cup Coffee to the north, Express Printing to the west, West Linebaugh Avenue to the south and a closed Amoco gas station to the east. The only on-site structure is a one-story metal building with a concrete platform at the north end. Between 1977 and 1985, Southern Solvents, Inc. stored and distributed the dry-cleaning solvent, tetrachloroethylene, to area dry cleaners. Tetrachloroethylene was stored in vertical and horizontal storage tanks on or near the concrete slab or in small trucks in the north and northeast parts of the site. Accidental spills of tetrachloroethylene were reported in the mid-1980s and are thought to be the source of the soil and groundwater contamination. The site is still owned by Southern Solvents, Inc. and is leased to AAA Diversified Services, a commercial painting company (Bechtel Engineering, Inc., 1998).

In 1988, Florida's Department of Health and Rehabilitative Services, discovered contamination of the well on the Southern Solvents, Inc. property and in wells on several neighboring properties. Since 1988, Contamination Assessment Reports of the surficial aquifer (Mortensen Engineering, 1991; 1993) and Floridan aquifer (Mortensen Engineering, 1994) showed that (1) the tetrachloroethylene contamination of on-site groundwater could only be due to the operations of Southern Solvents, Inc. and (2) tetrachloroethylene and its breakdown products, trichloroethylene and 1,2-dichloroethylene are present in groundwater, both on and off of the site. These findings

were confirmed and further detailed in a Draft Remedial Investigation Report (Bechtel Engineering, Inc., 1998). This report showed that the contamination of the shallow surficial aquifer spanned the site, while deeper surficial aquifer wells show a trend for the contamination to be migrating to the southwest, with the direction of groundwater flow. This is expected since tetrachloroethylene tends to sink in water. Several monitoring wells were also installed into the Floridan aquifer and, like the surficial, the Floridan aquifer was contaminated both on and off of the site. Unfortunately, the pattern of contamination in the Floridan aquifer could not be delineated because only a small number of wells were drilled in the Floridan aquifer.

In addition to groundwater contamination, the Contamination Assessment Reports and the Remedial Investigation Report described significant soil contamination that was confined to the site (Mortensen Engineering, Inc., 1991; 1993; 1994; Bechtel Engineering, Inc., 1998). The concentration of tetrachloroethylene in soil increases as the depth of the soil sample increases. The highest concentration of tetrachloroethylene (50,000,000 micrograms per kilogram [μg/kg]) was detected in the region of the chemical storage tanks approximately 35 feet below the surface.

FDOH is currently conducting a public health assessment on this site to determine if area residents may be at an increased risk of illness due to exposure to contaminants from this site. Since no significant surface soil contamination has been detected and the source for drinking water to the immediate residents is from the municipal supply, FDOH has not identified an immediate health threat. However, the potential for human exposure to contaminants from this site exists.

CHILDREN AND OTHER UNUSUALLY SUSCEPTIBLE POPULATIONS

The unique vulnerabilities of infants and children demand special emphasis in communities faced with the contamination of their environment. Children are at a greater risk than adults from certain kinds of exposure to hazardous substances emitted from waste sites. They are more likely to be exposed because they play outdoors and because they often bring food into contaminated areas. They are shorter than adults, which means they breathe dust, soil, and heavy vapors close to the ground. The developing body systems of children can sustain permanent damage if toxic exposures occur during critical growth stages. Most importantly, children depend completely on adults for risk identification and management decisions, housing decisions, and access to medical care. In regards to this site, no completed exposure pathways have been identified since the potable water for area residents comes from municipal supplies.

DISCUSSION

The EPA has divided the contamination and remedial efforts at this site into two operable units. The remediation design for an operable unit is considered independently from other

operable units and the remediation plans may be specific for each operable unit. Operable Unit 1 (OU1) at Southern Solvents, Inc. consists of the soil and surficial aquifer. Specifically, "the soil" includes the topsoil (0-4 feet, vadose zone) and the soil within the surficial aquifer (4-35 feet, saturated zone). The Record of Decision for OU1 (EPA, 1999) evaluated two courses of action for the remediation of OU1. The EPA resolved that the top four feet of soil will be excavated from around the on-site building, and treated and disposed of off-site. The contamination in the deeper, saturated soils and in the surficial aquifer will be remediated using a technique called *In Situ* Chemical Oxidation. With this method, a strong oxidant (i.e., hydrogen peroxide) will be pumped into the saturated soil and surficial aquifer, where it will degrade the chlorinated solvents into carbon dioxide, water and salts. The State of Florida has established a soil guidance concentration, or cleanup goal, of 30 μg/kg for tetrachloroethylene. This concentration is predicted to be low enough to prevent significant leaching of contaminants from the adsorbed phase (i.e., soil) to the dissolved phase (i.e., groundwater) and thus, re-contaminate the groundwater. The initial cleanup goal for the surficial aquifer is 300 micrograms per kilogram (μg/L) with a final goal of 3 μg/L, which is equal to the Maximum Contaminant Level for tetrachloroethylene in Florida. These remediation actions for OU1 are presented in the Record of Decision (EPA, 1999). The technique to be used to clean OU2, the Floridan aquifer, has not been determined because the extent of contamination needs to be better characterized. Therefore, a Remedial Investigation and Feasibility Study is currently being planned for this operable unit.

Below FDOH lists the actions proposed in the Draft Remedial Design Workplan and the Draft Remedial Investigation/Feasibility Study Workplan. These actions may involve the collection of additional samples, data analysis, further bench research, or community involvement.

In the Draft Remedial Design Work Plan for OU1, the EPA has proposed the following actions:

- Collect eighty additional soil samples from the saturated zone (>4 feet deep) to further characterize the horizontal extent of the contamination. All soil samples will be analyzed for volatile organic compounds at an EPA Region 4-designated laboratory and handled in accordance with the EPA Quality Assurance Plan guidelines.

- Construct a 3-dimensional model of the contamination in the soil and surficial groundwater, based on the contaminant concentrations and the location of the contamination.

- Determine the total mass of contaminant within the saturated soil, using the 3-dimensional model. This data will provide information important to the success of the next action.

- Perform laboratory bench tests to optimize the *In Situ* Chemical Oxidation

procedure. This will define the chemical oxidant demand of the soil matrix, chemical dosing levels required, and the reaction rates for the site/soil conditions. Information gained in this step will be applied to information about the total mass of contamination and location of contamination, in order to most efficiently remediate the saturated soil and surficial aquifer. In addition, information gathered here will aid in estimating the total cost for remediation of OU1.

- Draft a Pollution Mitigation Plan, Waste Management Plan and Health and Safety Plan as part of the Remedial Design Work Plan and the Site Management Plan.

- Promote community relations and education in accordance with *Community Relations in Superfund: A Handbook*, June 1988 by:

    - Maintaining the current mailing list of community members.

    - Preparing and distributing fact sheets to local residents and businesses. The fact sheets will include information on (a) the remedial schedule and activities, (b) chemical spills and releases, and (c) any potential inconveniences that these activities may cause (i.e., traffic and noise).

In the Draft Remedial Investigation/Feasibility Study Work Plan for OU2, the EPA has proposed the following actions.

- Install additional deep monitoring wells into the Floridan aquifer to:

    - Further characterize the horizontal extent of the contamination in the Floridan aquifer. The locations of the wells will be based on information presented in the Draft Remedial Investigation Report. All groundwater samples will be analyzed for volatile organic compounds at an EPA Region 4-designated laboratory and handled in accordance with EPA Quality Assurance Plan guidelines. These analyses will be conducted on samples from ten newly drilled monitoring wells.

    - Measure physical characteristics of the groundwater in Floridan aquifer. These include oxidation-reduction potential, temperature and conductivity.

    - Measure the chemical characteristics of the groundwater of the Floridan aquifer. These include pH, total oxygen, total metals, chloride, dissolved gases, nitrate, nitrite, sulfate, hydrogen and total organic carbon.

- Measure volatile organic compounds and indices of groundwater quality in the existing deep and shallow monitoring wells.

- Install five deep monitoring wells (i.e., 110 feet) to examine the vertical extent of contamination.

- Collect water level measurements from the existing and newly drilled monitoring wells to define the hydraulic conductivity and direction of groundwater movement of the Floridan aquifer.

- Draft a Pollution Mitigation Plan, Waste Management Plan and Health and Safety Plan as part of the Remedial Design Work Plan and the Site Management Plan.

- Prepare a baseline risk assessment addressing both human and ecological concerns. This risk assessment will be based on existing data and the information obtained from the newly drilled wells.

- Evaluate remediation techniques and perform treatability studies on technologies that may be useful in remediating the Floridan aquifer.

    - Remediation techniques will be evaluated for their effectiveness to protect human environmental health, permanence, cost, and state and community acceptance.

- Promote community relations in accordance with *Community Relations in Superfund: A Handbook*, June 1988 by:

    - Sponsoring two public meetings where community concerns can be heard. In addition, the EPA will prepare a responsiveness summary to address concerns that were introduced in the public comment period of the RI/FS and the public meeting.

    - Maintaining the current mailing list of community members.

    - Preparing and distributing fact sheets to local residents and businesses. The fact sheets will include information on (a) the remedial schedule and activities, (b) spills and releases, and (c) any potential inconveniences (i.e. traffic and noise) these activities may cause.

Some of the activities proposed in the Draft Remedial Design for OU1 and the Draft Remedial Investigation and Feasibility Study for OU2 are expected to generate some hazardous waste materials. These include personal protection equipment, contaminated soil, sample residuals, decontamination solutions, well-development solutions and purge water. Waste materials will be stored on-site in labeled 55-gallon drums until an EPA Region 4-approved subcontractor disposes of the waste in accordance with local, state and federal regulations.

CONCLUSIONS

At EPA request, FDOH has reviewed the Work Plans for the Remedial Design for OU1 and the Remedial Investigation and Feasibility Study for OU2 for the Southern Solvents, Inc. site. These documents identify the tasks that will be conducted in order to complete the final Remedial Design for OU1 and the Remedial Investigation and Feasibility Study for OU2 for the Southern Solvents, Inc. site. Collecting additional samples from soil and groundwater (Floridan aquifer) will serve to better define the contamination from this site and will result in a more efficient and effective clean-up.

RECOMMENDATIONS

FDOH has reviewed the Draft Remedial Design Work Plan for OU1 and recommends:

1. In the Draft Remedial Design Work Plan for OU1, there is no mention of the clean-up activities for the unsaturated soils. The Record of Decision for OU1 stated that the top four feet of soil around the on-site building would be removed and treated and disposed of off-site (EPA, 1999). Although additional data may not be required for this remedial action, FDOH recommends that the EPA include a brief description of this action in the Background section of final Remedial Design Work Plan.

2. The removal of soil is likely to generate dust and therefore, airborne contaminants. FDOH has estimated that the amount of tetrachloroethylene in dust would be negligible and not likely to increase the risk of illness to area residents. However, FDOH recommends that the EPA include a brief section in the Remedial Design Work Plan for OU1 and/or the Pollution and Mitigation Plan demonstrating that the dust generated will not pose a health threat to area residents.

3. FDOH would like to be provided copies of the latest data from OU1.

4. FDOH would like to be provided copies of all fact sheets that are sent to the community and be informed of all public meetings in regards to this site. This recommendation does not need to be stated in the Work Plan but is a FDOH request. Contact information is given under the section, PREPARERS OF REPORT.

5. FDOH gives no recommendations in regards to the locations of the soil samples. The data from these samples is being gathered in order to optimize the clean-up, rather than being used to predict human health risk. Previous data from the Draft Remedial Investigation Report was used to demonstrate that surface soil contamination should pose a health risk to are residents.

FDOH has reviewed the Remedial Investigation and Feasibility Study for OU2 and recommends:

6. FDOH recommends that the ten wells that are to be installed for characterization of the horizontal extent of contamination be screened at least 50 feet below the surface. We recommend this because the pattern of contamination in the Floridan aquifer is likely to be similar to that seen in the surficial aquifer, where there was a trend for the contamination to be deeper in the aquifer as the distance from the source increased (Bechtel Engineering, Inc., 1998). In the Draft Remedial Investigation Report, the three Floridan aquifer wells that showed signs of contamination were screened between 45 and 60 feet below the surface (Bechtel Engineering, Inc., 1998).

7. FDOH recommends that well samples be taken from area businesses that may have deep, potable wells. These businesses are identified in the Well Inventory Data in the Contamination Assessment Report (Mortensen Engineering, Inc., 1991, Appendix D).

8. FDOH makes no specific recommendations in regards to the locations of the monitoring wells. The locations of these wells are to be based on the data presented in the Draft Remedial Investigation Report (Bechtel Engineering, Inc., 1998). FDOH requests that the direction of groundwater flow in the Floridan aquifer be determined prior to drilling of these ten wells, so as to ensure that the wells are drilled downstream of the site.

9. FDOH would like to be provided with and allowed to review the latest data from groundwater samples taken from both the surficial and Floridan monitoring wells.

10. FDOH would like to receive copies of all fact sheets that are to be distributed to the community and be informed of all public meetings. This recommendation does not need to be stated in the Work Plan but is a FDOH request. Contact information is given under the section, PREPARERS OF REPORT.

PUBLIC HEALTH ACTION PLAN

This section describes what ATSDR and/or FDOH plan to do in regards to persons living in the areas around this site. The purpose of a Public Health Action Plan is to reduce any existing health hazards and to prevent any from occurring in the future. ATSDR and/or FDOH will do the following:

1. FDOH will review all fact sheets that are to be distributed to the businesses or residents of the community near the Southern Solvents, Inc. site.

2. FDOH will be notified of and be available for any public meetings related to the Southern Solvents, Inc. site.

3. FDOH will continue to review the most recent contamination data as it becomes

available. Specifically, FDOH will review the soil data to be taken in the Remedial Design Work Plan of OU1 and the groundwater data to be taken in preparation of the Remedial Investigation/Feasibility Study.

DOCUMENTS REVIEWED

Bechtel Engineering, Inc. (1998) Draft Remedial Investigation Report. Southern Solvents, Inc. Tampa, Hillsborough County, Florida.

EPA (1999) Record of Decision. Southern Solvents, Inc. Tampa, Hillsborough County, Florida.

Mortensen Engineering, Inc. (1991) Contamination Assessment Report. Shallow Aquifer System. Southern Solvents, Inc. Tampa, Hillsborough County, Florida.

Mortensen Engineering, Inc. (1993) Addendum II. Contamination Assessment Report. Shallow Aquifer System. Southern Solvents, Inc. Tampa, Hillsborough County, Florida.

Mortensen Engineering, Inc. (1994) Contamination Assessment Report. Upper Floridan Aquifer System. Southern Solvents, Inc. Tampa, Hillsborough County, Florida.

PREPARERS OF REPORT

Davis H. Daiker, Ph.D.
Environmental Specialist
Bureau of Environmental Toxicology
Florida Department of Health
2020 Capital Circle SE
Bin #C-22
Tallahassee, FL, 32399-1742

ATSDR Technical Project Officers:

Debra Gable
Remedial Programs Branch
Division of Health Assessment and Consultation

Betty Phifer
Division of Health Studies

Teresa Nastoff
Division of Health Assessment and Consultation

ATSDR Regional Representative:

Bob Safay
Regional Services
Office of Regional Operations

CERTIFICATION

This Southern Solvents, Inc. Health Consultation was prepared by the Florida Department of Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ASTDR). It is in accordance with approved methodology and procedures existing at the time the public health assessment was begun.

Debra Gable, Technical Project Officer
Division of Health Assessment and Consultation
ATSDR

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

Richard Gillig,
Section Chief, SPS, SSAB, DHAC, ATSDR