Health Consultation

OLD SIMPSONVILLE DUMP #2

SIMPSONVILLE, GREENVILLE COUNTY, SOUTH CAROLINA

EPA FACILITY ID: SCD981474893

NOVEMBER 15, 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 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.

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HEALTH CONSULTATION

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SIMPSONVILLE, GREENVILLE COUNTY, SOUTH CAROLINA

EPA FACILITY ID: SCD981474893

Prepared by:

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

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BACKGROUND AND STATEMENT OF ISSUES

The Agency for Toxic Substances and Disease Registry (ATSDR) asked the South Carolina Department of Health and Environmental Control's (SCDHEC) Office of Environmental Community Health (OECH) to review available environmental sampling data for the Old Simpsonville Dump #2 in Simpsonville, South Carolina. SCDHEC-OECH prepared this health consultation under a cooperative agreement with ATSDR.

In March of 1994, a resident living near the dump wrote ATSDR with concerns about the dump. The resident's letter expressed concerns about the alleged disposal of hazardous waste at the landfill, health problems, and complaints about odor and dust. In August 1994, ATSDR determined that a reasonable basis existed for conducting public health activities in response to this citizen's request (ATSDR 1994a). ATSDR asked SCDHEC to prepare a public health consultation to evaluate environmental data for the site. The petitioner has since moved and SCDHEC has not had any contact with him for several years. SCDHEC does not have any contact information for the petitioner.

Old Simpsonville Dump #2 is in a rural area immediately north of New Harrison Bridge Road (County Road 542) about one-third of a mile west of Fairview Road (County Road 55) in Simpsonville, Greenville County, South Carolina (Appendix A, Figure 1). The site is approximately three miles south of the town of Simpsonville. A small, unnamed stream is north of the site and flows to the west. This stream joins with several other streams before discharging to the Reedy River approximately two miles west of the site. A house is being built on the site, and several other homes are near the site.

Old Simpsonville Dump #2 was used as a temporary waste disposal area after Old Simpsonville Dump #1 closed and before the Piedmont Landfill opened. Greenville County leased the 10-acre tract of land from a local property owner for a small fee. Greenville County, surrounding towns, and local industries used only 4.4 acres of the property as a dump for about six months in 1972 and 1973. It was operated as an open dump with no disposal restrictions (Weston 1990a May). A Y-shaped gully on the property was about 20 feet deep and 35-40 feet in width and was filled during site operations. The arms of the gully were 200 - 400 feet in length (Weston 1990 April). Municipal solid wastes were disposed of at the dump. Solid and liquid chemical wastes were reportedly dumped on the land surface and into trenches and pits at the dump (Weston 1990a May). After the gully was full, it was left uncovered for about two and one-half years before proper cover was applied in 1975 (SCDHEC 1992).

According to a SCDHEC memorandum to the file, in 1989 Greenville County removed waste from the dump that had extended onto an adjacent piece of property. Most of the waste consisted of old textile fibers, plastic wrappings and containers, and household garbage. A few old crushed drums were found in an eroded area of the dump. The wastes were disposed of in the Piedmont Landfill (SCDHEC 1989 September).

Tracy Shelley and Eric Melaro from SCDHEC visited the site on July 22, 1999. Eric Melaro again visited the area surrounding the dump in April 2001. The site is in a rural area that is primarily residential, yet sparsely populated. The site is not restricted, and no signs marking the property were observed. Tracy Shelley, along with two staff from SCDHEC's Bureau of Land and Waste Management, visited the site on April 14, 2004. Two house trailers are still present along the western edge of the dump, and a new home is being built on top of the former dump. The owners will be notified that they are building on top of a former dump.

The site is in Greenville County, which had an estimated population of 379,616 in 2000 (Census Bureau 2001). About 375 persons live within one mile of the site. We do not have any specific information on the number of children living in the community around the dump. However, as in any residential area, child residents are likely.

Old Simpsonville Dump #2 lies within the Inner Piedmont Belt of the Southern Appalachian Physiographic Province of South Carolina. Rock types in the Piedmont include mica schists and granite. The crystalline bedrock is chemically and physically weathered to form a saprolite layer. The saprolite lies above the bedrock and consists of clayey, sandy, micaceous silts and ranges in thickness from zero to about 70 feet in the area. Groundwater moves through the pore spaces of the soils and within fractures in the bedrock. Beneath the site, the shallow groundwater (saprolite aquifer) is found in the saprolite layer between the clay, silt, and sand grains. Groundwater is also found in the bedrock layer (bedrock aquifer) in fracture zones, joints, and planes of weakness. The movement of groundwater in the two aquifers is influenced by the local topography. In the Piedmont of South Carolina, groundwater typically flows from topographically high areas to topographically low areas. The exact route by which groundwater travels may not correspond directly with the surface topography. Groundwater flow is also influenced by local geology (Weston 1990 April).

Water level elevations indicate that the saprolite and bedrock aquifers function as a single aquifer, with hydraulic connection and similar flow patterns. Overall groundwater flow in the area is toward the Reedy River. However, shallow groundwater flow near the site is predominantly to the west-northwest toward the small stream north of the site. Some of the shallow groundwater at the site discharges to the stream that runs north of the dump (Weston 1990a May). This is supported by observations of leachate near the toe of the dump and on the southerly bank of the stream (Weston 1990 April).

In 1986, SCDHEC began receiving odor complaints about the stream that runs north of the dump. A site inspection revealed leachate flowing from the toe of the dump and exposed waste on the surface of the dump (SCDHEC 1992). Leachate is created from the water that seeps through the waste. Leachate may contribute to groundwater and surface water contamination at the site. In June 1986, leachate was observed draining into the stream (SCDHEC 1986 June). A leachate sample collected at that time contained several volatile organic compounds (VOCs), including 1,1-dichloroethene (111 micrograms/liter [µg/L]), trichloroethene (11 µg/L), and trans-1,2-dichloroethene (177 µg/L) (SCDHEC 1988). A leachate sediment sample was collected from the toe of the dump near the unnamed stream as part of the Screening Site Inspection in

June 1989. No organic compounds were found in the sample (NUS 1989). During an April 1990 site visit, Weston personnel also observed leachate outcrops along the banks of the stream and in areas between the site and the stream. Exposed waste and a few drums were also found during the visit (Weston 1990a May).

Several investigations have been completed at the dump since 1986. These investigations involved sampling of groundwater, soil, surface water, sediment, and landfill gas. As part of the 1996-1997 investigation, 48 soil borings were also conducted. These borings were used to map the footprint of the dump. They also indicated that the soil cover over the disposal area is typically at least 12 inches in depth and consists of clay and silt (Fletcher 1997 July).

Groundwater

As part of the Screening Site Inspection, three nearby private wells (#8, #9, and #13) were sampled in June 1989. Trichloroethene (20 μg/L) and 1,1-dichloroethene (16 μg/L) were detected in private well #9 above their U.S. Environmental Protection Agency (EPA) maximum contaminant levels (MCLs) of 5 μg/L and 7 μg/L, respectively. 1,1,1-Trichloroethane (53 μg/L) was also detected in this well at a level well below its MCL of 200 μg/L. In addition to the private well samples, a groundwater sample was collected from a 4 to 5 foot deep temporary well on the landfill. No VOCs were detected in this well (NUS 1989, SCDHEC 1992).

In August 1989, SCDHEC sampled several private wells (#8, #9, #13, and #14). Weston later conducted four rounds of private well sampling from March 1990 to January 1991. During these four rounds, they collected samples from private wells #8, #9, #10, #11, #12, #14, #16, and #52 (Appendix A). Weston sampled individual wells from one to four times. VOCs were detected most often and at the highest levels in private wells #8, #9, and #14. For the most part, VOCs were consistently detected from round to round. However, a large increase in VOC levels was found in private wells #9 and #14 from March 1990 to June 1990. Sampling results from these private wells collected during the SCDHEC and Weston sampling events are summarized in Table 1. 1,1-Dichloroethene, tetrachloroethene, and trichloroethene were the only chemicals detected above their MCLs. 1,1-Dichloroethane and 1,1,1-trichloroethane were regularly detected in private wells, but below their MCLs. Private wells #11 and #52 had one-time detections of 1,1,1-trichloroethane at 1.0 μg/L.

Table 1. Summary of private well sampling data, Old Simpsonville Dump, Simpsonville, South Carolina, 1989 - 1991

	Range of chemical concentrations (µg/L) by private wells (PW)				
Chemicals	PW-8	PW-9	PW-13	PW-14	Screening value (MCL)
1,1-dichloroethene	0.6, 1.22	16.0 - 36.0	0.609	2.19, 6.0	7
tetrachloroethene	2.0 - 5.0	2.5 - 6.0	ND	0.8 - 2.0	5
trichloroethene	ND	15.0 -32.0	0.503	2.94, 8.0	5

µg/L = micrograms per liter
ND = Not detected or concentration was less than the detection limit.
MCL = EPA Maximum Contaminant Level
Shaded areas mean that the chemical was found at or above the screening value.

Following the March 1990 private well sampling, granular activated carbon (GAC) filters were installed in early April 1990 on private wells #8, #9, and #14. Also beginning in April 1990, SCDHEC supplied affected homes with bottled water for drinking (Weston 1990c May).

GAC filters are used to treat VOC-contaminated groundwater. To monitor the effectiveness of the GAC filters, sampling of raw (before GAC filter) and treated (after GAC filter) water from these three wells occurred in May and June 1990. During both sampling events, the GAC filters were effective in removing all VOCs detected in the raw water. In wells #9 and #14, a few chemicals were detected in the samples collected after the GAC filters that were not found in the raw water (Weston 1990 June, Weston 1990b May).

Public water lines were extended to the area in August 1990. On September 4, 1990, the GAC filters were removed from private wells #8, #9, and #14 because the homes had been connected to public water. At some time between September 1990 and January 1991, the homes at private wells #11 and #12 were also connected to public water. After residences were connected to public water, they were not included in subsequent quarterly sampling of private wells (Weston 1990 September, Fletcher 1994).

In 1996 and 1997, The Fletcher Group, Inc. conducted an additional investigation at the dump on behalf of the potentially responsible parties. As part of the investigation, four rounds of quarterly sampling took place from July 1996 to April 1997. Groundwater sampling included three private wells (#8, #9, and #13) and three new monitoring wells (L2MW-01, L2MW-02, and L2MW-03) that were installed as part of the investigation. The monitoring wells were installed at depths from 16 feet to 40 feet. Private well #14 was not monitored because it was dry and appeared to have collapsed. Private-well-sampling results are summarized in Table 2.

1,1-Dichloroethene and trichloroethene were the only VOCs detected above their respective MCLs. 1,1,1-Trichloroethane was also detected once in private well #9 at 5.5 µg/L, far below its MCL of 100 µg/L. Lead was detected twice in private well #9 (3.03 µg/L and 3.37 µg/L) and once in private well #13 (16.8 µg/L). The detection of lead in private well #13 exceeded EPA's action level of 15.0 µg/L for lead (Fletcher 1997 July).

Table 2. Summary of private well sampling data, Old Simpsonville Dump #2, Simpsonville, South Carolina, 1996 - 1997

	Range of chemical concentrations (µg/L) by private wells				
Chemicals	PW-8	PW-9	PW-13	PW-14	Screening value (MCL)
1,1-dichloroethene	ND	9.4 - 14.0	ND	N/A	7
tetrachloroethene	ND	ND	ND	N/A	5
trichloroethene	ND	ND	6.3	N/A	5

µg/L = micrograms per liter
ND = Not detected or concentration was less than the detection limit.
N/A = Not available because well could not be sampled.
MCL = EPA Maximum Contaminant Level
Shaded areas mean that the chemical was found above the screening value.

The three monitoring wells contained several VOCs and metals. Several VOCs were detected above MCLs in L2MW-01 (near the southern boundary of the dump) and in L2MW-02 (near the northwestern corner of the dump). 1,1-Dichloroethene, tetrachloroethene, and trichloroethene were consistently detected above their MCLs in L2MW-01. 1,2-Dichloroethane, 1,2-dichloroethene (total), and methylene chloride were consistently detected above their MCLs in L2MW-02. Beryllium and lead were the only metals detected above their screening values. Beryllium was detected above its MCL (4.0 µg/L) once in L2MW-02 (5.19 µg/L) and once in L2MW-03 (5.63 µg/L). Lead was detected above EPA's action level (15.0 µg/L) in monitoring wells L2MW-02 (21.4 µg/L and 24.8 µg/L) and L2MW-03 (16.2 µg/L and 28.0 µg/L). However, lead was not detected consistently in these wells. Lead was also detected in one private well near the landfill, but at levels far below the EPA action level.

<u>Soil</u>

As part of the Screening Site Inspection, three surface and two subsurface soil samples were collected in June 1989. Sampling depths are not available. No VOCs were detected in the soil samples. No metals were detected above screening values (NUS 1989).

In February 1994, as part of the Expanded Site Inspection, four surface soil (0-3 inches) and six subsurface soil samples (10 inches to 20 feet) were collected. The surface soils samples were co-located with soil boring samples. Seven additional subsurface soil samples were collected in

December 1994. No VOCs, PCBs, pesticides, or semivolatile organic compounds were detected in the surface soil samples. No metals above screening levels were detected in the surface soil samples.

Aroclor 1254 (a polychorinated biphenyl [PCB]) was detected at levels above the SCDHEC-calculated screening value of 14 milligrams/kilograms (mg/kg) in two subsurface soil samples (160 mg/kg and 600 mg/kg) (SCDHEC, 1996). A couple VOCs (xylene, 0.42 mg/kg and toluene, 0.016 mg/kg) were found in a few of the soil boring samples. The concentrations are below screening levels for these two VOCs. Contact with these soils is unlikely to occur because the samples were collected from 10 inch to 20 foot borings.

Surface Water and Sediments

The unnamed stream north of the dump has been investigated several times as part of previous monitoring work done at the dump. The first surface water and sediment samples were collected in 1986. Subsequent investigations have taken place in 1989, 1990, 1994, 1996, and 1997. VOCs have consistently been detected in downgradient surface water samples. Four VOCs have been detected above the South Carolina Water Quality Criteria (SCWQC). Vinyl chloride (maximum concentration-17 µg/L), 1,1-dichloroethene (maximum concentration-11 µg/L), 1,2-dichloroethane (maximum concentration 10 µg/L), and benzene (maximum concentration-9.6 µg/L) were all detected at least once above the SCWQC. Beryllium was also detected one time (8.1 µg/L) above its SCWQC of 4.0 µg/L. Two other VOCs, 1,1-dichloroethane and cis-1,2-dichloroethene, were consistently detected in surface water. South Carolina does not have surface water quality criteria for either of these two chemicals.

Sediment samples collected in 1990 from the unnamed creek contained a couple VOCs detected in only one round of samples. VOCs were not detected in sediments in other previous investigations.

Landfill Gas

Landfill gas samples measure chemicals in the gases created as waste buried in the dump decomposes over time. Finding landfill gas at all types of landfills and dumps is normal. Generally, the largest percentage of soil gas found at landfills is methane. Methane is measured as a percentage of air volume and compared with its explosive limit. It becomes an explosive hazard only when it is found between 5% and 15% per volume of air. This does not mean that it will explode but that an explosion could occur if a source of ignition is present.

Landfill gas samples were collected as part of the 1996 and 1997 investigation. Eight landfill gas monitoring probes (L2VP-01 through L2VP-08) were installed around the perimeter of the dump site and sampled quarterly from July 1996 to April 1997. During the four rounds of sampling, methane was detected in six of the eight monitoring probes. Methane was not detected in 21 of the 32 samples collected. In 8 samples, methane was detected at less than 1.0% per volume of air. In January 1997, methane was detected in L2VP-07 at 24.4%. In April 1997, methane was found in L2VP-03 at 11.8% and in L2VP-07 at 4.8% (Fletcher July 1997).

Monthly methane monitoring (1999-2000) reported percentages of methane between the 5%-15% (explosive limit) a couple of times at one of the monitoring stations. Many measurements were around 3.0% methane, just slightly below the 5% lower explosive limit (Rogers and Callcott Engineers 1999-2000).

Methane is currently measured quarterly at the landfill. Data from March 2001 through August 2003 showed the presence of methane in a couple of probes. Concentrations were 0.3% methane to 0.6% methane in two of the probes (Schnabel 2004). These methane concentrations are far below the lower explosive level of 5%.

As part of the 1996-1997 investigation, three private wells (#8, #13, and #14) were also tested for methane. Methane was not found in any of the samples collected at the private wells. In addition, a subsident crack along the western side of the disposal area was tested for methane. Methane was detected at the crack on 2 of the 4 sampling dates at concentrations between 2.4% and 12.9% in April 1997 and July 1996, respectively (Fletcher 1997 July). The crawl space and yards around the mobile homes located on or adjacent to the dump site were scanned for methane during the investigation. No detections above the lower explosive limit (5% methane per volume of air) were found in these areas (Fletcher 1997 July).

DISCUSSION

Previous investigations at the site have revealed that groundwater and surface water at the site are contaminated with several VOCs. Private wells closest to the site were first sampled in June 1989. Following the March 1990 private well sampling, granular activated carbon (GAC) filters were installed on several private wells in early April 1990. Also in April 1990, SCDHEC supplied affected homes with bottled water for drinking (Weston 1990c May). How long bottled water was supplied is not known. Public water lines were extended to the area in August 1990. On September 4, 1990, the GAC filters were removed from private wells #8, #9, and #14 because the homes had been connected to public water. At some time between September 1990 and January 1991, the homes at private wells #11 and #12 were also connected to public water. After residences were connected to public water, they were not included in the subsequent quarterly sampling of private wells (Weston 1990 September, Fletcher 1994). Exposure at the homes affected by VOC contamination stopped in 1990 when public water was brought into the area.

We know that the persons who lived in the house with the highest VOC concentrations in their well were in the house approximately 10 years before contamination was identified and filters were put in place. We can estimate that persons living in this house could have been exposed to several VOCs for up to 10 years. If one assumes the greatest exposure in a household is from water for drinking and showering, the estimated combined dose from both these pathways would likely be less than the level at which health effects would be expected to occur. The most conservative estimate of exposure was used in this health consultation by assuming a chronic or life-time exposure scenario.

Uncertainties are associated with the toxicologic information for these chemicals. The levels of concern (EPA reference doses) and ATSDR Minimal Risk Levels (MRLs) are generally based on studies using laboratory animals. Uncertainty factors are built into these reference doses, which makes the dose conservative to protect susceptible populations. The reference doses assume a lifetime (70 years) of exposure on a daily basis.

A level of concern is an estimated dose below which adverse health effects are not expected to occur. Levels of concern are normally EPA reference doses or ATSDR Minimal Risk Level (MRLs). This does not mean that a person will become sick if the estimated dose of the chemical is above these levels of concern, but that an increased risk exists that exposure could cause adverse health effects.

Exposure to 1,1-dichloroethene, trichloroethene, and tetrachloroethene may be associated with adverse effects on the liver and kidneys. Most of this information is based on results from laboratory animal studies, and we do not know whether the same problems will occur in humans. Limited evidence also exists of a link between heart, immunologic, and developmental problems in persons exposed to trichloroethene and tetrachloroethene. Exposure to other chemicals found on-site including 1,1-dichloroethene, has been associated with gastrointestinal upset either at high doses or in laboratory animals. Trichloroethene, and to some extent tetrachloroethene, in drinking water in combination with other VOCs has been associated with childhood leukemia, deaths around the time of birth, childhood disorders, and congenital abnormalities (Lagakos et al. 1986). Trichloroethylene (TCE) has also been associated with respiratory problems, skin problems, cardiovascular effects, leukemia, recurrent infections (Byers et al. 1988), and heart disease (Goldberg et al. 1990). These studies, however, did not provide sufficient evidence that just TCE causes these harmful health effects because the persons were exposed to more than one chemical at the same time. Determining which chemical or combination of chemicals would be associated with the various adverse effects is difficult. Moreover, information on other risk factors that could cause similar adverse effects was not included in this study. Exposure to TCE has also been associated with the development of hearing problems in children exposed through drinking water (ATSDR 1994b, Berg et al. 1995).

Streams near the dump are very small, only about three feet wide and very shallow. No one would likely be exposed to substantial doses of VOCs from wading in an ankle-deep stream. Surface soil samples collected in 1989 and 1994 did not find any chemicals above screening levels, and any past or current exposure poses no risk.

Methane is an odorless, flammable, potentially explosive gas produced as the result of decomposition of landfill organic wastes. Methane gas is mobile within porous and permeable soils and can migrate off-site from the original source area. Methane usually moves from areas of high pressure to areas of low pressure, but determining specific patterns of gas movement is often difficult (Van Schiver 1992).

High concentrations of methane commonly occur in landfills that contain municipal garbage and have been capped, thereby trapping these gases beneath the soil cover. The soil cover prevents the gas from migrating upward through the soil, often causing it to move laterally into adjacent land areas. Highest methane concentrations typically occur during the warmer summer months, and concentrations are higher during the heat of the day compared with measurements taken during the morning hours. Methane levels in soils tend to be higher during dry periods and lower after substantial rainfall (Van Schiver 1992).

Methane is measured as a percentage of air volume and compared with the explosive limit. An explosive hazard is present when the range is 5% to 15% per volume of air. This does not mean the methane will explode, but that an explosion could occur if a source of ignition and enough oxygen are present. The lower explosive limit (LEL) of methane corresponds to methane concentrations of 5%. At concentrations below the LEL, the methane/air mixture is too dilute (methane concentrations are too low) to ignite. Any concentration between the LEL (5%) and the upper explosive limit (UEL, 15%) of methane has the right combination of methane and air to cause combustion of the gas. Methane concentrations above the UEL (>15%) are too rich (oxygen levels are too low) to support combustion. To sustain a flame, oxygen levels must be at or above 19%.

A subsident crack along the western side of the disposal area of the landfill was tested for methane. Methane was detected at the crack on 2 of the 4 sampling dates at concentrations (percent per volume of air) between 2.4% and 12.9% in April 1997 and July 1996, respectively (Fletcher 1991 July). The crawl space and yards around the mobile homes located on or adjacent to the dump site were scanned for methane during the investigation. No detections above the lower explosive limit (5% methane per volume of air) were found in these areas (Fletcher 1997 July). Following the 12.9% methane detection, the crack was subsequently filled with a bentonite seal (Fletcher 1997 July).

Although current landfill gas measurements indicate methane levels are far below the lower explosive limit, a house is being built on the top of the landfill. Methane could possibly migrate into the house and pose an explosive risk. No information is available in SCDHEC files about what type of cover was placed on the landfill.

Child Health Issues

Children are at a greater risk than adults are for certain kinds of exposure to hazardous substances emitted from waste sites. Because they play outdoors and because they often carry food into contaminated areas, children are more likely to contact contaminants in the environment. Children are shorter than most adults, which means they breathe dust, soil, and heavy vapors closer to the ground. They are also generally smaller than adults are, resulting in higher doses of chemical exposure per body weight. If toxic exposures occur during critical growth stages, the developing body systems of children can sustain permanent damage. Probably most important, however, is that children depend on adults for risk identification and risk management, housing, and access to medical care. Thus, adults should be aware of public health risks in their community, so they can guide their children accordingly.

In recognition of these concerns, ATSDR has developed screening values for chemicals calculated specifically for children's exposures. SCDHEC's evaluation in this document used these values, and considered children as a susceptible subpopulation.

CONCLUSIONS

We have no information at this time that anyone, either children or adults, is drinking water contaminated with chemicals from the site. We do know that members of at least one family drank water that contained VOCs for an indeterminate period of time. If one assumes the greatest exposure in a household is from water for drinking and showering, the estimated dose from both these pathways combined would likely be less than the level at which health effects would be expected to occur.

Public water was brought into the area in 1990. However, we do not know whether all residents near the landfill have hooked up to public water. A person would have to forgo use of public water or move into the area and use a private well to be exposed to chemicals that may be present in area groundwater. The new home being built on top of the landfill has a public water meter that indicates they will be hooked up to public water.

A couple times during the history of methane monitoring at the landfill methane levels have been within the 5%-15% explosive limit. A new house is being built on top of the landfill. At the time of the site visit in April 2004, the house was not yet completed. Methane gas could possibly migrate into the home and pose a risk of explosion. SCDHEC staff are currently trying to locate the owners and inform them that they are building on top of the landfill and that a risk of methane migrating into the home is possible.

ATSDR classifies sites as to their public health hazard category. Under ATSDR's classification system, the exposure through drinking water is not expected to result in adverse health effects and is categorized as a no apparent public health hazard. The potential for methane to migrate into the crawl space of the home that is being built on the landfill does pose a risk of explosion and poses a future public health hazard. At the time of this health consultation, the house was not yet occupied.

RECOMMENDATIONS

1. Notify the individuals who are building the house on top of the dump that a risk of methane migration into the structure may be present.

2. As a preventive measure, test for methane in the crawl space of the home to determine whether a methane monitor should be installed.

3. Conduct a private well survey to determine whether any residents who have recently moved into the area use private wells instead of public water. The survey should be limited to an area within one mile of the landfill.

4. Sample any downgradient private wells identified during the survey.

PUBLIC HEALTH ACTION PLAN

SCDHEC will notify the homeowner, conduct the methane monitoring, and conduct a well survey. These activities will be conducted by a cooperative effort of OECH, Land and Waste Management, and the Environmental Quality Control (EQC) District office. SCDHEC will also arrange for sampling of private wells identified as being within the area of the plume.

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APPENDIX A
FIGURE

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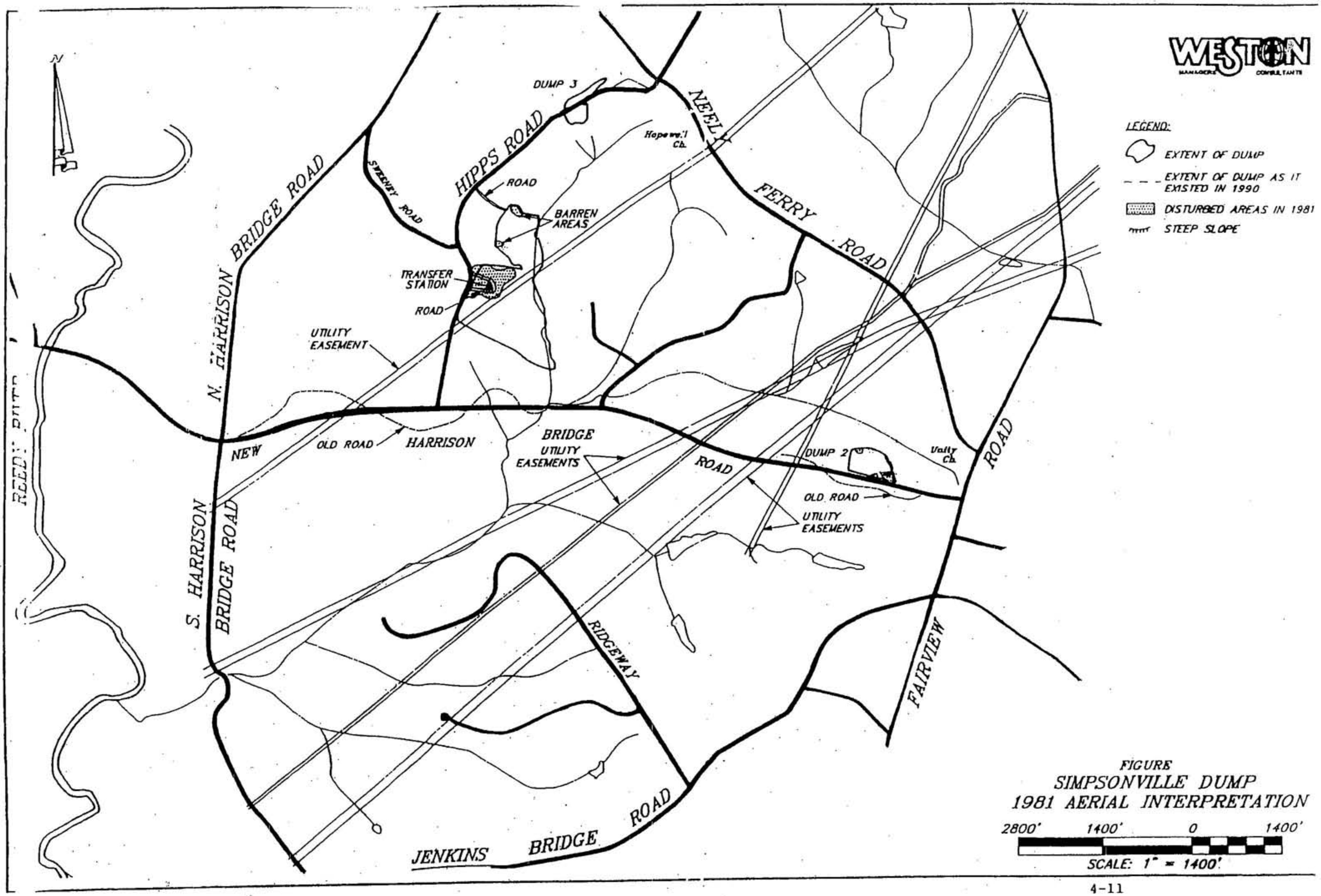

FIGURE
SIMPSONVILLE DUMP
1981 AERIAL INTERPRETATION

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CERTIFICATION

The Old Simpsonville Dump #2 Health Consultation was prepared by the South Carolina Department of Health and Environmental Control 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.

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

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