

Real People – Real Stories

Aquadale, NC (Stanly County)



Exchange Project
BECAUSE OUR ENVIRONMENT AFFECTS OUR HEALTH

Published: December 2006

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Published December 2006

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Significance of Case

In 1953, Carolina Solite Corporation (Solite) opened a plant in Aquadale, North Carolina, to manufacture concrete blocks from a type of rock known as argillite. Approximately thirty years later, the Aquadale plant began incinerating hazardous waste from industries in North Carolina and other states to fuel its kilns. In subsequent years, Solite exceeded federal and state air, water, and soil regulation standards for a variety of contaminants. Local residents believe that emissions from the plant are associated with cases of cancer, respiratory illness, and other health problems they have observed; however, these suspicions have not been confirmed. Concerned citizens formed a grassroots organization called Stanly Citizens Opposed to Toxic Chemical Hazards (SCOTCH) to pressure state and federal authorities to enforce regulations governing Solite's waste incineration. After 12 years of investigation, litigation, and community pressure, Solite terminated its use of hazardous waste as fuel in 2000 and began using recycled motor oil to fuel its kilns.

Community History

Aquadale is described as "a farming community of churches, a few small businesses, an elementary school and volunteer fire department" (Wineka & Hodges, 2000). The rural, unincorporated community is located 40 miles east of Charlotte and has an estimated population of 2,291¹ (U.S. Census Bureau, 2000a). According to 2000 Census data, 88% of the population identified themselves as White, 5% as Black or African American, 5% as Asian/Pacific Islander, 1% as American Indian or Alaska Native or multiple race, and 1% as Hispanic.²

The area's median household income was approximately \$41,000 with 9% of children and 12% of the elderly population living in poverty (U.S. Census Bureau, 2000b). Thirty percent of residents had less than a high school education, 52% were high school graduates or had earned their GEDs, 15% were college graduates,

"We were in a perfect place. We were nestled in a little corner of Stanly County, a country community, a community where everybody knew everybody. And it was located in a place where you're supposed to raise your cotton, your corn, your wheat and things like this. You don't burn hazardous waste. . . . But this facility saw the perfect opportunity to do what they could do out of sight of anybody and get away with it. . . . They really took advantage of the community.

-Community Member

¹ Aquadale's population is estimated from the aggregation of census block groups 4 and 5 in census tract 9910 (U.S. Census Bureau, 2000a).

² According to a 2001 Public Health Assessment by the Agency for Toxic Substances and Disease Registry (ATSDR), 577 people lived within a mile of the Solite plant, and all reported their race as white. See Research section for more information on this Public Health Assessment.

and 3% had graduate degrees (U.S. Census Bureau, 2000b). Aquadale area residents are primarily employed in the education, health, and social services sectors (17%); manufacturing (16%); and professional services (16%).³ The unemployment rate was an estimated 3% in 2000 (U.S. Census Bureau, 2000b).

Solite Corporation,⁴ the parent company of Carolina Solite Corporation, purchased land in Aquadale in 1952 and began operating Carolina Solite one year later at a site about a mile from Aquadale's town center. Solite Corporation chose the Aquadale site because the property is located within the Carolina Slate Belt, an area where argillite⁵ can be mined (Wineka, 2000f). The Solite facility – which includes two quarries, a raw material storage and handling area, a kiln area, and a product storage and handling area – occupies 125 acres of a 689-acre parcel shared with sister company Giant Resource Recovery⁶ (Agency for Toxic Substances and Disease Registry, 2001a). Giant Resource Recovery stored hazardous waste from government and private industry⁷ in six storage tanks and supplied it to Solite for use as a fuel (Wineka, 2000e, , 2000f). In 1991, Solite and Giant Resource Recovery employed 62 people (Basgall, 1991a). In 2000, the plant provided 40 full-time jobs while indirectly supporting about 200 other jobs in the region (Wineka & Hodges, 2000). The company added an estimated \$26.9 million to the local tax base between income and property taxes⁸ (Wineka, 2000e).

³ This category includes scientific, management, administrative, and waste management services.

⁴ Carolina Solite Corporation is part of Solite Corporation, based in Richmond, Virginia (Division of Waste Management, 2000).

⁵ Argillite is a cross between slate and shale and has some of the best properties for producing a strong, lightweight aggregate. The plant crushes, screens, and heats the mined rock to very high temperatures in large kilns to produce aggregate for cement blocks. Al Simon, the Aquadale plant manager, estimated in 2000 that the 689-acre Solite property had enough remaining rock for an additional 40 to 50 years of production (Wineka, 2000f).

⁶ Giant Resource Recovery, formerly known as Oldover Corporation, is a subsidiary of Solite Corporation's parent company, Giant Cement Holding, Inc., which is owned by Cementos Portland Valderrivas. Giant Resource Recovery produces fuel for cement production by processing aluminum cans and other waste (MacAyeal, 2005).

⁷ Industries that contributed to the hazardous waste stored by Giant Resource Recovery included auto body shops, chemical plants, textile manufacturers, press printers, and furniture makers (Wineka, 2000e).

⁸ Through 2000, Carolina Solite paid \$50,000 in real estate and property taxes per year. Income tax on the \$1.3 million annual payroll also contributes to Carolina Solite's local tax base contributions (Wineka, 2000f). No time period was specified for the \$26.9 million.

Hazard

Solite began using hazardous waste to fuel its kilns in 1983⁹ as a strategy to reduce production costs (Basgall, 1991a; Martin, 1994a). Solite was the largest importer¹⁰ and burner of hazardous waste in North Carolina between 1983 and 2000 (Barrett, 1990; Wineka & Hodges, 2000; Yeoman, 1998). During each year from 1983 to 1991, Solite burned up to 62 million pounds of hazardous waste contributed by furniture, textile, chemical, dry-cleaning and other companies¹¹ (Leavenworth, 1993; "Waste incinerator faces hefty fines for violations," 1991). The emissions, as measured by Solite in 1995, contained 33 toxic pollutants and carcinogens such as the heavy metals arsenic, cadmium, chromium, lead, and mercury as well as other pollutants including benzene, carbon tetrachloride, methylene chloride, and toluene (Martin, 1995b; "Waste incinerator faces hefty fines for violations," 1991).

"For many years they [Solite] were as nice as they could be; they would help you out. They'd let you go hunting on the land or let you come over and fish in the pond . . . but then when they started burning this hazardous waste they didn't want you on their land. Eventually they put up a gate where nobody could even come on their land."

-Community Member

As soon as Solite began burning hazardous waste in 1983, the plant received citations for burning polychlorinated biphenyl (PCB) contaminated waste in violation of its air permit; it paid \$11,500 in March 1988 to settle this case with the Environmental Protection Agency (EPA) (Wineka, 2000d). Solite's other violations included exceeding sulfur-dioxide emission limits; installing equipment without permits or testing; poor record-keeping; illegal water discharges; petroleum spills; and various other offenses (Yeoman, 1998). The company also received citations for using damaged pollution control equipment that allowed excessive levels of pollutants such as mercury and hydrogen chloride to enter the environment surrounding the plant ("Carolina Solite stops burning hazardous waste," 1991). Between 1990 and 2000, Solite paid an estimated \$230,000 in fines to a variety of state agencies including the Division of Air Quality (NC DAQ) and the Division of Waste Management.¹²

⁹ While most sources place Solite's first burning of hazardous waste as fuel in 1983, a letter from Dennis Lee and the Blue Ridge Environmental Defense League to the U.S. Environmental Protection Agency Headquarters stated that Solite began burning hazardous waste and coal in the 1970s (Blue Ridge Environmental Defense League, 1999). Additionally, two articles place Solite's first use of hazardous waste in 1981 (Basgall, 1991a; Martin, 1994a).

¹⁰ Giant Resource Recovery provided 50% of the waste fuels burned at the Solite plant, including waste sent to the storage facility from Alabama and Virginia (Wineka & Hodges, 2000). Solite is thought to be largely responsible for the 1989 figures that show North Carolina imported more hazardous waste than it produced (Basgall, 1991c). Solite was the only plant in North Carolina accepting hazardous waste to be destroyed by fire (Basgall, 1991a).

¹¹ In 1995, Solite used one kiln to burn over 12 million pounds of hazardous waste a year. The company proposed to burn close to 100 million pounds of hazardous waste a year using four kilns (Martin, 1995b).

¹² This estimation of fines paid by Solite is based upon reports and newspaper articles and the total was difficult to calculate. For example, during a 7 month span in 1990, Solite received 6 pollution and hazardous-discharge violations punishable by fines of up to \$10,000 a day (Barrett, 1990). However, it is unclear what amount was actually collected for these specific violations.

Despite numerous violations, Solite remained exempt from state and federal hazardous waste incineration laws during the early 1990s because the company claimed its operation units were classified as kilns, not incinerators (Basgall, 1991a). According to the EPA, burning hazardous waste to produce a product (e.g., Solite produced cement blocks) is recycling, and, thus, the state regulated Solite as a "boiler industrial furnace." The fines incurred by Solite are the result of violations of the regulations for a boiler industrial furnace, which are less strict than regulations for incinerators (Wineka, 2000d). Further, Solite stated that burning of hazardous waste did not produce toxic pollutants and that the plant complied with environmental regulations¹³ (Basgall, 1991a).

Over the course of the 12-year struggle to halt the use of hazardous waste as fuel, citizens of Stanly County and neighboring Anson County filed many complaints against Solite and blamed the company for 75 cases of cancer and other health problems near the site (Yeoman, 1998). A resident who lived a mile from the plant stated in a letter written in 1991, "I have lived here 74 years and have never smelled odors in this area like the chemical smells that we have smelled in the last few years, especially late at night" (Basgall, 1991a). Joann Almond, a local activist, shared that her father had chronically complained to her "about his eyes burning" and her stepmother before she passed away would complain about "her tongue swelling up and her throat swelling up" (Basgall, 1991a). However, not all residents and community members opposed the plant. One letter to the state Division of Environmental Management (NC DEM) written by a community resident stated, "I am a lifelong resident of Aquadale, living about a half mile from the plant. I have never had one worry about the operations of the plant. I consider them a good neighbor" (Basgall, 1991a). Some residents also feared that any opposition to Solite might lead to the plant being closed, resulting in job losses. Fear over potential job losses in the community created tension among some community residents;

"The air was so bad it made me sick. And the air was just terrible; it burned your eyes, it burned your throat. And it was just thick with some kind of dust or debris of some sort that was just like sand hitting you in the face."
-Community Member

"Some people worked at that place for years; they didn't want us causing trouble. But I was trying to tell them that if we are getting sick, then you are getting sick too. We're all in this thing together."
-Community Member

however, as one longtime community resident noted, the risk of losing friendships was worth the overall goal of protecting the community's health: "I feel that any risks you might have are never going to be nearly as important as what you are fighting for. I don't mind losing a few friends at church if it means keeping my grandkids safe." Another community resident noted, "We weren't trying to shut down

¹³ By March 1991, North Carolina was characterized as a "bad-actor" by Richard C. Fortuna, executive director of the Hazardous Waste Treatment Council, in the arena of hazardous waste for exporting 80% of its waste to other states and for failure to construct hazardous waste facilities (Babington, 1991).

the plant; we were trying to stop them from making us sick.”

Effects of Exposure to Hazardous Chemicals

Investigations by the state’s Occupational and Environmental Epidemiology (NC OEE) Branch in 1990 and 1991 concluded that residents living near Solite might be “subjected to a slightly increased lifetime cancer risk” due to low levels of arsenic, cadmium and lead in emissions from Solite (Basgall, 1991b). Research compiled by the Agency for Toxic Substances and Disease Registry (ATSDR) links arsenic, cadmium, and lead exposure with a number of adverse health outcomes. Low levels of arsenic exposure are associated with nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels. Throat soreness or irritated lungs can result from breathing high levels of arsenic compounds, and ingesting or breathing low levels of the compound over a long period can cause a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles of feet, and stomach. Ingestion of high levels of arsenic can lead to death, and several studies have shown that inorganic arsenic can increase the risk of lung, skin, bladder, liver, kidney, and prostate cancers (Agency for Toxic Substances and Disease Registry, 2001c). Cadmium, usually found as a chemical compound in rocks and soils, can cause lung damage if it is inhaled in large quantities. Ingesting high levels of cadmium can cause stomach irritation, and long-term exposure to cadmium in air, food, or water is linked with kidney disease (Agency for Toxic Substances and Disease Registry, 1999a). Lead is also a contaminant with potential adverse human health outcomes. Lead exposure can cause brain and kidney damage, anemia, premature birth and miscarriage, and increases in blood pressure, as well as other health problems. Children are especially at risk for ill effects of lead exposure, which are the same whether the substance is inhaled or swallowed (Agency for Toxic Substances and Disease Registry, 1999b).

Other hazardous chemicals detected during investigations of the pollution in Aquadale include chromium and sulfur dioxide. Humans can be affected by chromium compound exposure via food, water, and air contamination, as well as through skin contact with the substance. Chromium (III) is an essential nutrient, while chromium (VI) in the air can cause nose irritation and ingested chromium (VI) can cause stomach ulcers, damage to the kidney and liver, and sometimes death. Skin contact with chromium (VI) can also cause skin ulcers and allergic reactions in some people. The World Health Organization, U.S. Department of Health and Human Services, and the EPA have determined that chromium (VI) is a carcinogen (Agency for Toxic Substances and Disease Registry, 2001d). Additionally, breathing air that contains high levels of sulfur dioxide can be life-threatening; in lower concentrations sulfur dioxide can cause breathing difficulties, airway obstructions, and burning of the nose and

throat. Long-term exposure to sulfur dioxide can also cause changes in lung function (Agency for Toxic Substances and Disease Registry, 1999c).

Response

When North Carolina officials granted Carolina Solite permission to begin burning hazardous waste in 1983, state laws did not require the state or the company to disclose its practices to neighboring communities¹⁴ (Wineka & Hodges, 2000). Although community members had observed tanker trucks in the town and experienced unusual odors and sore throats, the observations were not readily connected to Solite until after a December 1988 *Winston-Salem Journal* article was published about the company (Yeoman, 1998). In response, residents and other concerned individuals formed Stanly Citizens Opposed to Toxic Chemical Hazards (SCOTCH) in July 1989 to oppose hazardous waste burning in the community¹⁵ (Basgall, 1991a). Within two years, more than one hundred members were involved in grassroots efforts with Aquadale resident Joann Almond acting as SCOTCH president (Basgall, 1991a).

"We formed SCOTCH in 1989. First thing we wanted to do was to protect ourselves, try to protect ourselves, you know, because we knew we were going up against a giant, that it would be a David and Goliath fight. So, that's when we organized and got started."
-Community Member

In January 1990, Kenneth Rudo, a state toxicologist with North Carolina Occupational and Environmental Epidemiology (NC OEE), reported significant levels of arsenic, cadmium, and chromium in dust accumulating next to Solite kilns and smokestacks (Barrett, 1990; Yeoman, 1998). Though previous monitoring by the North Carolina Division of Environmental Management (NC DEM) documented that emissions complied with state regulations and wells near the plant were not contaminated (Barrett, 1990), seven months into the investigation, Solite received citations for six pollution and hazardous-discharge violations. As a result of these violations, Solite signed a consent order¹⁶ with NC DEM, which included a \$5,000 fine for long-term leakage of oils and grease into the site's soil.¹⁷ In August 1990, Solite agreed to burn only coal "to eliminate the controversy," according to company president John W. Roberts

¹⁴ The state did not pass regulations governing industries like Solite (boiler and industrial furnaces) until 1991 (Wineka & Hodges, 2000).

¹⁵ James F. Colburn, plant manager of Carolina Solite, attributed the concern to publicity around a Caldwell County hazardous waste incinerator, and protests and lawsuits aimed at preventing a regional hazardous waste incinerator. He said Solite had been burning hazardous waste for eight years without it being a public issue (Basgall, 1991a).

¹⁶ According to the Merriam-Webster *Dictionary of Law*, a consent order is "an agreement of litigating parties that by consent takes the form of a court order" (Consent order, 1996).

¹⁷ The August 1990 fine of \$5,000 was the first ever for the plant, and did not refer to the use of hazardous waste as fuel ("State may fine Stanly plant \$5,000 for oil-leak pollution," 1990).

("Aquadale," 1990; Yeoman, 1998). In November 1990, Solite resumed burning hazardous waste citing a "positive" state environmental report¹⁸ ("Aquadale," 1990).

On March 14, 1991, the NC Environmental Management Commission (NC EMC) approved the consent order, allowing Carolina Solite to continue burning hazardous waste. In exchange, Solite agreed to pay a \$5,827 fine and install bag filters¹⁹ on its kilns within 180 days ("Plant allowed to resume burning hazardous waste," 1991). The same day, the NC OEE released a report of 10 recommendations to reduce arsenic emissions and recommended the continuation of air and groundwater monitoring near Solite (Basgall, 1991b). The report cited a "slightly increased lifetime cancer risk" due to metals in emissions (Basgall, 1991b; Wineka & Hodges, 2000). At the same time, the EPA released new standards that placed Solite under federal hazardous waste regulations.²⁰

In April 1991, the NC DEM mandated that Solite stop using one kiln due to March stack tests showing excessive levels of sulfur dioxide and particulate matter ("Waste incinerator faces hefty fines for violations," 1991). In June 1991, NC DEM confirmed the existence of four unlined waste piles at Solite, one of which contained a toxic concentration of cadmium leachate. Attorney Mark Finkelstein filed an \$18.25 million federal lawsuit²¹ on behalf of SCOTCH and Clean Water Fund of North Carolina against Carolina Solite for violations of the Clean Water and Clean Air Acts in June 1991,²² proposing the termination of hazardous waste burning by the company ("Lawsuit filed against Stanly incinerator," 1991; Wineka, 2000c).

"We played a big role in that [research]. We were able to, with the Air Quality Division, meet with them and help them find places to set up their equipment to do air quality testing. And water, we were able to get the well water sampled in an area surrounding Solite."
-Community Member

Solite once again suspended using hazardous waste as fuel in August 1991, the third time in 18 months. The bag filters required by the consent order could not be installed until after the renewal of Solite's air permit, which was impeded by changes in regulations and new fines ("Carolina Solite stops burning hazardous waste," 1991). The new EPA regulations removed several federal exemptions that had allowed Solite to burn hazardous waste without being regulated as a hazardous-waste incinerator ("Carolina Solite stops burning hazardous waste," 1991). The company received a fine of \$2,150 for two air pollution violations that

¹⁸ It is unclear to which "positive" environmental report Solite was referring.

¹⁹ The bag filters would capture air pollutants without discharging them into holding ponds. The plant would only be able to meet federal regulations once it had the system in place, which could not be installed until the state renewed its air-quality permit, which expired March 31, 1991 ("Carolina Solite stops burning hazardous waste," 1991).

²⁰ Plants burning hazardous waste to fuel manufacturing processes were not previously under federal hazardous waste regulations; the proposed regulations became effective August 1991 (Basgall, 1991b).

²¹ See Legal Action section for more information.

²² The NC Department of Environmental Health and Natural Resources (DEHNR) declined the opportunity to join the suit; DEHNR spokesman Don Follmer said, "We don't have a dog in that fight" ("Lawsuit filed against Stanly incinerator," 1991).

occurred in September and November of 1990,²³ and five more violations were pending with a possibility of \$25,000 in fines ("Carolina Solite stops burning hazardous waste," 1991).

In October 1991, Solite received approval to resume the burning of hazardous waste. The 5-year permit, issued by NC DEM as part of North Carolina's Air Toxics Program, was contingent on adherence to new emissions limits and restricted the burning rate with specific limits to fifteen toxic pollutants ("Plant allowed to resume burning hazardous waste," 1991). Table 1 presents a summary of the major events that occurred between 1990 and 1992 stemming from Solite's hazardous waste burning.

Table 1: Summary Timeline of Industry, Government, and Community Actions, 1990-1992	
<i>Date</i>	<i>Event</i>
Jan 1990	Dust containing arsenic, cadmium, and chromium discovered at Solite
Feb-Aug 1990	Solite cited for six pollution and hazardous-discharge violations
Aug 1990	Solite receives first fine (\$5,000); the fine is assessed for oil leak pollution rather than for use of hazardous waste
	Solite agrees to burn only coal
Nov 1990	Solite resumes use of hazardous waste as fuel
Mar 1991	NC EMC approves consent order, which includes \$5,827 fine and bag filter installation within 180 days
	OEE report cites "slightly increased lifetime cancer risk" and recommends 10 actions to reduce arsenic emissions
Apr 1991	Solite discontinues use of one kiln after NC DEM mandate
Jun 1991	NC DEM confirms existence of four unlined waste piles prompting \$18.25M lawsuit by SCOTCH and the Clean Water Fund of North Carolina
Aug 1991	Solite suspends the use of hazardous waste as fuel
Oct 1991	Solite receives 5-year permit approving the use of hazardous waste if Solite adheres to new emission limits
1991-1993	Solite burns coal instead of hazardous waste possibly because the plant had not met federal standards
1992	Stanly County involved in research study to investigate the impact of incinerators
Summer 1993	Solite receives new permits and invests \$2 million in pollution controls in hopes of resuming waste burning

Two years passed before Solite began burning hazardous waste again. During a three day period in May 1993, Solite conducted compliance tests to secure federal certification to resume hazardous waste burning (Leavenworth, 1993). SCOTCH and the Clean Water Fund filed for and received a temporary restraining order to prevent Solite from burning hazardous waste for at least a week (Leavenworth, 1993). At the hearing, Superior Court Judge Narley Cashwell ruled there was insufficient evidence for a longer injunction ("Judge rescinds order banning waste burning," 1993). Solite received new permits and invested about \$2 million in pollution controls in hopes of resuming waste burning by the end of summer 1993 (Leavenworth, 1993).

In July 1993, SCOTCH, the Clean Water Fund of North Carolina, and Solite reached a settlement on the case filed in June 1991. According to the settlement, the plaintiffs dropped

²³ Uncontrolled fumes allowed by damaged equipment and insufficient water flow to a scrubber system were the sources of the violations according to state records ("Carolina Solite stops burning hazardous waste," 1991).

the suit pending appeal of Solite’s air permit. Solite agreed to bring the plant into compliance with the NC Air Toxics Program, provide a report detailing the improvements to environmental procedures, and allow SCOTCH to inspect monthly monitoring reports.

At the same time, the state legislature developed a bill to place Solite in the Resident Inspector Program administered by the Division of Waste Management. The program involves stationing inspectors at commercial hazardous waste facilities²⁴ in North Carolina for at least

“There were follow-ups done through our [SCOTCH’S] involvement and through our pushing and being persistent...we got a lot of work done that would never have been done if it hadn’t been for us. We got an on-site inspector, which would have never happened without our involvement, I’m sure.”
-Community Member

40 hours per week to ensure that all such facilities comply with guidelines of the Department of Environment, Health, and Natural Resources (NC DEHNR).²⁵ State health director Ronald Levine said the definition of a “commercial facility” did not cover Solite because it did not directly receive hazardous waste²⁶ (Martin, 1994b). Senate Bill 1165 forced Solite to comply by including a special provision that “requires resident inspectors to inspect hazardous waste fuel burners that are an affiliate of and located next to a commercial hazardous waste facility” (Division of Waste Management, 2000).

In April 1994, Solite attempted to adjust its NC DEHNR²⁷ permit, including an increase in the allowable amount of hazardous waste stored at the site from 90,000 to 300,000 gallons. Alan Klimek, chief of the Division of Air Quality, questioned the permit, citing the intent to burn PCB waste and increase sulfur dioxide emissions from 1,410 to 2,337 tons (Martin, 1994a). Solite representative Gregg Franklin maintained the purpose of the permit application was to increase flexibility and fuel flow²⁸ (Martin, 1994a). Table 2 presents the major events regarding Solite between 1993 and 1994.

<i>Date</i>	<i>Event</i>
May 1993	Solite conducts 3-day compliance test with new equipment
	Solite receives injunction to halt the incineration of hazardous waste due to motion filed by SCOTCH and NC Clean Water Fund. Injunction later lifted citing insufficient evidence
Jul 1993	SCOTCH, the Clean Water Fund and Solite reach out-of-court settlement for 1991 \$18.25M lawsuit
1993	State places Solite in Resident Inspector Program
Apr 1994	Solite seeks increase in amount of hazardous waste stored on site
1994	NC Cancer Surveillance Section begins cancer study in Stanly, Anson, and other nearby counties

²⁴ A commercial hazardous waste facility is defined as one “that accepts hazardous waste from the general public or another person for a fee” (Division of Waste Management, 2000).

²⁵ The NC Resident Inspector observed 17 separate cases of visible emissions from the kilns at the Solite plant between May 1995 and January 1999. These violations lead to fines and legal hearings in the summer of 2000 (Wineka, 2000d). As part of the Resident Inspector Program, the facility pays the state an amount equal to the salary for the onsite inspector.

²⁶ Solite paid Giant Resource Recovery for the hazardous waste.

²⁷ In 1997, NC DEHNR became the Department of Environment and Natural Resources (NC DENR).

²⁸ The results of this permit application are unknown.

In March 1995, the NC DEHNR threatened to shut down Carolina Solite for burning hazardous waste because the plant had not certified that it met state limits on toxic emissions. The NC DEM gave the company 60 days to comply before revoking its permit (Martin, 1995a). On the same day, Joann Almond filed a grievance with the U.S. Food and Drug Administration asking the agency to test food and dairy supplies produced in Stanly County for toxins from the plant (Martin, 1995a). Residents of Stanly and neighboring Anson counties also requested that the NC DEM hold a public hearing concerning Solite's proposed renewal of a wastewater discharge permit.²⁹ The permit would allow the company to discharge more than 800,000 gallons of treated wastewater daily into the Rocky River, which flows into the Pee Dee River, a drinking water source for Anson, Richmond and Union counties³⁰ (Martin, 1995a).

In May 1995, a lobbyist for Carolina Solite drafted a bill for Representative John Nichols to introduce to the General Assembly to allow incinerators like Solite³¹ to substitute electronic monitoring for the Resident Inspector Program (Martin, 1995b). The electronic system would allow remote monitoring of fuel input, raw material input, carbon monoxide, combustion zone temperature, oxygen levels, kiln pressure and air pollution control device performance³² (Poe, 1995). State regulators and environmentalists opposed the bill because it would weaken the inspection program created specifically to regulate Solite (Martin, 1995b); however, the NC House of Representatives approved the bill in May 1995³³ (Martin, 1995d).

In April 1996, Solite approached the NC DEHNR for a permit to increase the amount of hazardous chemicals they could burn from three million to six million pounds annually (Maxwell, 1996). The request followed an investigation in which NC DEHNR air quality inspector Lee Daniel expressed concerns that Solite was not adhering to analytic methods for accurately measuring incinerated waste and was possibly not in compliance with the current permit. The state recommended companies use detection methods able to record chemical levels at a sensitivity of five parts per million, while Solite's method was able to detect levels of only 25 parts per million. The company countered that the state did not ask for a different detection method; however, Daniel's report included a recommendation that insisted upon a detailed description and justification of the current method. An employee from the NC DEHNR said state officials were unaware of any issues surrounding Solite's detection methods (Maxwell, 1996). Joann Almond and SCOTCH challenged Solite's permit application; in March 1997, Solite claimed Almond and SCOTCH violated the 1993 settlement by opposing the

²⁹ It is unclear whether the March 1995 renewal of a permit is linked to the April 1994 permit application.

³⁰ The outcome of Almond's FDA petition and the request for a public hearing are unknown.

³¹ Carolina Solite is the only facility of this type in North Carolina (Martin, 1995b).

³² The bill would allow the substitution but not require it (Poe, 1995).

³³ The bill was ratified in July 1995 (Division of Waste Management, 2000, http://www.enr.state.nc.us/docs/RIP_AnnRpt2000.rtf).

modification of its air pollution permit and filed an injunction, also seeking \$10,000 in damages ("Carolina Solite sues environmental group," 1997).

On July 22, 1997, the NC DAQ revoked the June 13 permit issued to Carolina Solite after confirming an error first identified by Almond. The air permit map showed Solite had 1,500 acres instead of its 689 actual acres, invalidating the model used to predict air emissions (Shiffer, 1997; Wineka & Hodges, 2000). Solite first blamed the discrepancy on a data entry mistake made by a surveyor seven years earlier (Shiffer, 1997). The company later said the correct map was on file and the mistake occurred when a third-party contractor tried to fit the map to a different scale (Wineka & Hodges, 2000).

In July 1998, the NC DAQ reached a settlement with Solite to avoid a legal battle over the revoked permit, which would have delayed compliance with the terms of a new permit.³⁴ The settlement³⁵ included provisions for the installation of new pollution controls by January 1999 with demonstrated compliance by March 1999. Solite settled outstanding air quality and permit violations of \$22,687³⁶ and paid \$25,000 to the North Carolina Department of Environment and Natural Resources (NC DENR, formerly NC DEHNR) for costs associated with environmental monitoring.³⁷ The company was subject to fines of \$2,000 per day if the pollution control equipment failed testing requirements and \$500 per day for missing settlement deadlines (North Carolina Department of Health and Human Services, n.d.).

In August 1998, the North Carolina Waste Awareness and Reduction Network (NC WARN)³⁸ petitioned the ATSDR for a public health assessment on behalf of area residents³⁹ who desired an investigation of the possible adverse health effects associated with long-term exposure to Solite's emissions (Agency for Toxic Substances and Disease Registry, 2001a, 2001b). The ATSDR completed the study in 2000, finding elevated arsenic levels below levels linked to adverse health effects (Agency for Toxic Substances and Disease Registry, 1999b).

"Some of the things that are emitted into the air, it may be long-term and it might be years before certain things would show up within the community that these emissions cause...I think documenting everything like this might not help me today, but it might help my grandchildren in years to come."
-Community Resident

³⁴ Under state law, the plant could have continued operations during litigation. The survey of the area was not completed until October 1998 (Yeoman, 1998). Without the survey, the NC Department of Environment and Natural Resources (NC DENR) could not determine the amount of air pollution emitted by the Carolina Solite plant.

³⁵ The North Carolina Waste Awareness and Reduction Network (NC WARN), a negotiation partner during settlement, walked out of talks when it became apparent that their "concerns were being badly subordinated to those of the company" (Yeoman, 1998).

³⁶ Other businesses in North Carolina that burn hazardous waste with similar violations to Solite's (e.g. failure to meet emissions standards, inadequate testing, feeding the kilns too quickly) were fined \$992,000 (Abbott Laboratories) and \$1.7 million (Reilly Industries) (Yeoman, 1998). One source estimated that Solite could have been fined \$170,000 (Dalesio, 1999).

³⁷ In August 1998, the Research Triangle Institute offered to complete an air, surface water, soil and sediment study for \$74,600 (Yeoman, 1998).

³⁸ NC WARN is a non-profit "using science and activism to reduce hazards to public health and the environment from nuclear power and other polluting electricity production" (NC WARN, 2004).

³⁹ See Research-Public Health Assessment for more details.

According to its 1998 settlement with the state, Solite needed to install and pass test burns with new pollution control equipment by March 1999. When state officials questioned acid gas results submitted in a January 1999 test burn report, Solite maintained that the settlement did not require acid gas tests. However, the NC DENR stated the new equipment failed tests for acid gas and mercury. Solite received 60 days to resolve the problems or face a \$6,000-per-day fine (Patterson, 1999; "The State; Activists say agreement violated; State is urged to close waste-burning plant," 1999). In April 1999, independent consultant Joel Hirschhorn assessed Solite compliance history at the request of NC WARN, concluding that Solite was a good Superfund site inspection candidate (Wineka, 2000d).

In August 1999, opponents of the settlement with the state called for a final termination of Solite's permit. Attorneys for SCOTCH and NC WARN maintained that the failure of the January 1999 test burn required a 50% operational shutdown and a fine of over \$300,000 under the 1998 settlement provisions (North Carolina Environmental Insight, 1999). Instead, the plant continued operations with a \$12,000 fine (Wineka, 2000b). At a press conference, SCOTCH and NC WARN highlighted the company's history of violations and cited information from NC DAQ technical staff stating Solite and its new parent company Giant Cement had the worst compliance records in the state. DAQ staff concluded that Solite did not qualify for a permit, but state officials overruled the decision⁴⁰ (North Carolina Environmental Insight, 1999). In September 1999, the NC DENR fined Solite \$52,499⁴¹ in administrative penalties from three emission observations in 1999.⁴² Solite's director of environmental affairs, Steve Holt, said, "It was three minor, short-duration incidents that were corrected immediately" (Dalesio, 1999). State regulators responded that Solite employees diminished but did not eliminate emissions in two of the three occasions (Dalesio, 1999). Table 3 presents the major events that occurred between 1995 and 1999.

⁴⁰ Environmentalists mentioned the office of the Attorney General as the source of the recommendation not to deny the Solite permit (Wineka, 2000d).

⁴¹ Fines for the violations could have been as high as \$25,000 per day with a potential fine of \$170,000 (Dalesio, 1999).

⁴² Inspectors recorded 16 other occasions of violation between May 1995 and January 1999 (Dalesio, 1999).

<i>Date</i>	<i>Event</i>
Mar 1995	NC DEHNR threatens shutdown after Solite fails to certify its ability to meet state toxic emissions limits
	Joann Almond files grievance with U.S. Food and Drug Administration
	Residents request public hearing around Solite's permit renewal, which would increase allowable amount of wastewater discharge into Pee Dee River
May 1995	Representative John Nichols (R-Craven) introduces bill written by Solite lobbyist to allow incinerators to substitute electronic monitoring for the Resident Inspector Program
Apr 1996	Solite approaches NC DEHNR for permit to increase amount of hazardous waste burned
Jun 1997	NC DEHNR issues permit to Solite
Jul 1997	NC DAQ revokes June permit after mapping error identified by Mrs. Almond
Jul 1998	NC DAQ settles with Solite over permit debate. Settlement includes installation of pollution controls, demonstrated compliance and payment of fines
Aug 1998	NC WARN petitions ATSDR for public health assessment; study completed in 2000
Jan 1999	State official questions acid gas results based on provisions in 1998 settlement
Aug 1999	SCOTCH and NC WARN call for final termination of Solite's permit
Sep 1999	NC DENR (formerly NC DEHNR) fines Solite after three observations of emissions

In February 2000, the NC DAQ fined Solite \$40,600 for failure in the bag filter system⁴³ to control mercury and hydrogen chloride emissions, but stated that the amounts of mercury and hydrogen chloride were too small to pose a health risk. According to the NC DAQ, the bag filter system was operating properly by March 2000 ("State fines Carolina Solite \$40,600 for faulty pollution control equipment," 2000). According to state air toxin rules, companies are supposed to limit arsenic concentration at their boundaries to an annual average of 0.23 nanograms per cubic meter (Wineka, 2000a). In March 2000, during a long-term,⁴⁴ statewide air monitoring study, the NC DAQ detected average arsenic concentrations near Solite at 2 to 6.4 times the average statewide concentration⁴⁵ ("State finds elevated arsenic level in air near Solite plant," 2000). Steve Holt, environmental director for Solite Corporation, felt wind direction and lower concentrations of lead and cadmium suggested the impacts measured by the state were attributable to pesticides sprayed on a nearby cotton field ("State fines Carolina Solite \$40,600 for faulty pollution control equipment," 2000; Wineka, 2000a).

On March 31, 2000, attorney Mark Finkelstein and representatives of SCOTCH, NC WARN, and the Clean Water Fund of North Carolina delivered a letter to Attorney General Mike Easley criticizing his office for allowing Solite "to operate out of compliance with state and federal pollution laws for more than a decade" (Wineka, 2000b). The letter referenced the refusal by Easley's office to seek an injunction against Solite when the company appealed the

⁴³ State officials said the bag filter system failed three tests in 1999. Holt maintained that the plant passed the January and April 1999 tests ("State fines Carolina Solite \$40,600 for faulty pollution control equipment," 2000).

⁴⁴ The study was supposed to continue for two years. The data presented was collected between late May and early September 1999 (Wineka, 2000a).

⁴⁵ The state average for arsenic concentrations is 0.85 nanograms per cubic meter ("State fines Carolina Solite \$40,600 for faulty pollution control equipment," 2000). The measurements were completed in March 2000.

July 1997 revocation of its permit and the weak July 1998 settlement.⁴⁶ Further, the letter questioned the continued operation of the plant after failing to fulfill provisions of the 1998 settlement (Wineka & Hodges, 2000). The letter requested a meeting with Easley by the week of April 17, 2000 (Wineka, 2000b). Easley's office responded by saying they were "ready and willing to aggressively litigate whatever actions the state health director and DENR find

"I don't think the laws in place are adequate, and even the laws that are in place, they're not enforced. That was one of the fights we had to face. Solite had a stack of violations and non compliances, I mean, they even had their permits revoked! But the state would turn around and give it right back to them. . . . Solite was so powerful and they had so much money, they could get their people to go and talk to the lawmakers and the people in positions that were able to take care of things like that for them."

-Community Member

merited" (Wineka, 2000d).

About 20 homeowners, activists, lawyers, and at least one representative from Attorney General Easley's office were finally able to meet with state officials in Raleigh on April 19, 2000, to discuss their continuing concerns surrounding Solite ("End to waste burning," 2000; Hodges, 2000a). The meeting included testimonials by community members as well as a petition with 1,500 signatures demanding Solite be shut down. One resident stated that he bought six acres of

land a quarter mile from Solite for \$150,000 in 1997, and that he would be unable to sell it for \$20,000 because of the environmental pollutants (Robertson, 2000b).

In negotiations with state officials occurring prior to this meeting, Solite attorneys mentioned the possibility that the company would cease the use of hazardous waste⁴⁷ (Hodges, 2000b). State attorneys believed residents attending the April 19th meeting would positively receive the possibility of such action; however, at the meeting, Solite environmental director Steve Holt revised the statement saying Solite had not made a decision, but was evaluating the possibility of using coal, diesel and/or used motor oil⁴⁸ to fire its kilns instead of hazardous waste (Hodges, 2000b). Several people at the

"It was amazing that the state and the people who were in charge of this, how unconcerned they were. It was not in their backyard so they really didn't care. . . . It was always some excuse of they didn't have enough inspectors or they couldn't afford but just so many inspections or something. We never got the support, I thought, from our local or state government that we needed. You shouldn't have to get out and have parades and protests to get someone's attention."

-Community Member

⁴⁶ In 1998, assistant secretary of the NC DENR, Bill Holman, stated, "No one ever said that a lot of companies depend on Solite to incinerate their waste, but everyone knew Solite plays that role. There were a lot of other industries depending on Solite to take their waste. It was one factor in our decision to settle with Solite and try to get controls on their stacks as soon as possible" (Yeoman, 1998). In October 1999, the general counsel for the NC DENR, Dan McLawhorn, recommended an injunction as the only way to force Solite into compliance (Wineka, 2000b). In a March 2, 2000 letter to Joann Almond, Robin Smith, the state's assistant secretary for environmental protection, suggested that the Attorney General office's position influenced the decision not to seek an injunction to shut Solite down in November 1999 (Wineka, 2000b).

⁴⁷ Carolina Solite had not burned hazardous waste as fuel since Nov 12, 1999 (Hodges, 2000a).

⁴⁸ Used motor oil does not fall under the government's definition of a hazardous waste so Carolina Solite is subject to less stringent pollution standards than previous hazardous waste monitoring (Hodges, 2001a).

meeting expressed dissatisfaction and distrust about the announcement. Jim Warren of NC WARN said, "Burning used motor oil and coal in a 47-year old leaky, aging facility is no victory. We don't trust them to burn matches" (Hodges, 2000a). Also at the April 19th meeting, a draft report⁴⁹ presented by NC DAQ personnel detailed violations by Solite and new owner Giant Cement, and suggested revoking Solite's permit for a second time⁵⁰ ("Environmentalists, neighbors of plant seek meeting with Easley," 2000).

State officials formalized the permanent end of Solite's hazardous waste burning in two separate agreements with the NC Division of Waste Management and the NC DAQ (Almond, 2000). The agreements settled several pending administrative actions including a \$32,000 fine for two actions and the dismissal of a third⁵¹ (Waggoner, 2000b). In addition to agreeing to burn coal and other fuels instead of hazardous waste, Solite agreed to:

- Submit an air dispersion modeling protocol within 15 days to demonstrate compliance with acceptable ambient levels;
- Submit a new emissions application within 90 days of the protocol's approval;
- Submit an implementation plan for an environmental management system within 180 days of the receipt of the new permit;
- Submit a closure plan for hazardous waste components within 30 days and implementation within 90 days of approval.

(Almond, 2000)

Richard Familia, vice president of environmental affairs for Solite, said the company would discontinue the use of hazardous waste as a fuel while "maintaining an economically viable operation and retaining the 35 to 40 jobs at the site's operation" (Waggoner, 2000b). Almond believed the agreement symbolized a victory, but "remain[ed] concerned about the issue of what they will be burning now" (Waggoner, 2000b).⁵² Table 4 shows the events involving Solite that occurred between 2000 and 2005.

⁴⁹ According to the groups, the law requires the report to be finalized instead of left in draft form ("Environmentalists, neighbors of plant seek meeting with Easley," 2000).

⁵⁰ In May, NC WARN, the Clean Water Fund of North Carolina, and SCOTCH sent a letter to Attorney General Mike Easley calling the circumstances surrounding the draft report an "attempted cover-up" ("Environmentalists, neighbors of plant seek meeting with Easley," 2000).

⁵¹ The state excused over \$100,000 in potential fines to secure the agreement. Because local school systems normally receive the money from pollution fines, Almond argued that the concession took money out of the school system (GreenLink, 2000).

⁵² Ideally, Almond would like to see the plant burn only natural gas (Hodges, 2001b).

<i>Date</i>	<i>Event</i>
Mar 2000	NC DAQ detects arsenic concentrations 2 to 6.4 times the statewide average
Apr 2000	NC Division of Health and Human Services and Stanly County Health Department test residents for long-term exposure to heavy metals
Mar 2000	SCOTCH, NC WARN, and the Clean Water Fund of North Carolina deliver letter to Attorney General Mike Easley
Apr 2000	Homeowners, activists, and owners meet with state officials about Solite
May 2000	SCOTCH, NC WARN, and Clean Water Fund question circumstances around NC DAQ draft report
Jun 2000	State officials and Solite reach agreement to end the use of hazardous waste as fuel

Legal Action

SCOTCH AND THE CLEAN WATER FUND SUE SOLITE

In June 1991, attorney Mark Finkelstein filed an \$18.25 million lawsuit in federal court against Carolina Solite on behalf of SCOTCH and the Clean Water Fund of North Carolina ("Lawsuit filed against Stanly incinerator," 1991). The suit cited emission and water

"My mother and father sold, I believe it was ten acres to them [Solite] and they were just like, you know, 'come on, sell this to us and we'll turn that land into a little park area; your family can use it, and we're going to take care of it.' Well, eventually that little park area is where they dumped used oil....it turned into an oil dump. And the water from that beautiful creek was destroyed."

-Community Member

discharges in violation of the Clean Water Act and Clean Air Act and proposed the termination of hazardous waste burning by Solite ("Lawsuit filed against Stanly incinerator," 1991; Wineka, 2000c). The NC DEM confirmed the existence of four unlined waste piles; laboratory tests discovered cadmium leachate in one pile 83% higher than the levels required to be characterized as hazardous waste. The piles exceeded solid waste standards for barium, lead and selenium ("Lawsuit filed against Stanly

incinerator," 1991). Former Solite employees stated that Solite regularly violated state and federal laws, misled inspectors, and exposed workers to toxic chemicals ("Plant allowed to resume burning hazardous waste," 1991; Wineka, 2000d). In court depositions, former employees referred to the use of a "secret alarm" by company officials. A loudspeaker announcement of "Will Quentin Smith please come to the office" alerted workers of inspectors on the grounds.⁵³ Former Carolina Solite worker William McEwan said, "We knew that the announcement meant to change our normal procedure to procedures that the government was looking for" (Wineka & Hodges, 2000).

⁵³ Quentin Smith was a former employee of Carolina Solite (Wineka & Hodges, 2000).

SOLITE AND SCOTCH SETTLE

In July 1993, SCOTCH and the Clean Water Fund of North Carolina reached a settlement for the 1991 \$18.25 million suit against Solite. According to an unnamed state regulator, Judge Narley Cashwell indicated his intention to rule in favor of SCOTCH and the Clean Water Fund, encouraging Solite to settle (Martin, 1995e). SCOTCH and the Clean Water Fund settled citing a lack of funding and the legion of Solite attorneys (Wineka, 2000c). The settlement specified that SCOTCH and Joann Almond would drop the lawsuit and appeal of Solite's air permit (Martin, 1995e). Solite agreed to bring the plant into compliance with the NC Air Toxics Program⁵⁴ and would grant SCOTCH representatives access to monthly monitoring reports.⁵⁵ Within three months, the company would provide a report of pending and completed improvements in equipment and procedures.⁵⁶ Neither Mark Finkelstein, counsel for the plaintiff, nor Solite spokesperson Susan Hurley disclosed other provisions; however, there was not a provision for Solite to stop burning hazardous waste. Solite planned to resume burning hazardous waste in August 1993 (Martin, 1993).

RESTRAINING ORDER PETITION

In 1993, after two years of burning only coal, Solite conducted a series of test burns with hazardous waste without notifying community members (Leavenworth, 1993). SCOTCH and the NC Clean Water Fund petitioned for a temporary restraining order against Carolina Solite. Superior Court Judge Narley Cashwell issued the order on May 27, 1993, citing the "high likelihood that Carolina Solite [was] violating regulations designed to protect public health and the environment" (Leavenworth, 1993). Judge Cashwell lifted the restraining order after ruling there was not sufficient evidence of an environmental violation ("Judge rescinds order banning waste burning," 1993). Solite spokeswoman Susan Hurley stated, "This confirms that the temporary restraining order . . . should not have been issued in the first place" ("Judge rescinds order banning waste burning," 1993).

NEW SENATE LEGISLATION

Also in July 1993, the North Carolina Senate budget bill stated that new facilities could be issued a permit only after the state determined "additional commercial hazardous-waste

⁵⁴ Two years later, in 1995, Carolina Solite still operated under an interim permit not covered by the Air Toxics pollution limits (Martin, 1995e).

⁵⁵ This provision is already a requirement of public disclosure regulations.

⁵⁶ According to Steve Holt, the environmental affairs director of Solite Corp., the Aquadale plant received \$1.5 million in pollution equipment in 1999 after its acquisition by Giant Cement Holding, Inc. in 1998 (Wineka, 2000e). Holt said Giant Cement invested \$2.4 million in the first year after acquiring Carolina Solite (Wineka, 2000e). Holt attributed the delay in reinvestment in plant operations between the settlement and Giant Cement's acquisition to Carolina Solite's years of financial trouble (Wineka, 2000e). Solite lost at least \$1 million per year in the two years before the Giant Cement Holding acquisition (Wineka, 2000e).

treatment capacity [was] needed" ;⁵⁷ SCOTCH filed a petition with NC DEHNR on August 2, 1994 hoping to apply this provision to Carolina Solite ("Bill's wording may slow incinerators," 1993). In October, State Health Director Ronald Levine ruled that NC DEHNR did not have to determine the need for additional capacity because the plant was not a commercial hazardous waste facility since Solite paid Giant Resource Recovery for the waste.⁵⁸ State Superior Court Judge Donald Stephens upheld Levine's ruling on May 16, 1995 (Martin, 1994b). Joann Almond derided the legal system for allowing the ruling, and said that SCOTCH did not have funding to appeal the decision (Martin, 1994b).

SLAPP SUIT

In March 1997, Carolina Solite sued SCOTCH and Almond⁵⁹ for breach of the 1993 settlement by filing the 1993 petition. SCOTCH contested Solite's modified air permit, and Solite claimed the group's administrative challenge caused "irreparable harm," seeking \$10,000 in damages ("Carolina Solite sues environmental group," 1997; "Judge denies preliminary injunction of appeal of Carolina Solite permit," 1997). Union County Superior Court Judge Sanford Steelman denied Solite a preliminary injunction saying the 1993 settlement did not mean SCOTCH would "support any modifications to the permit which were desired by the plaintiff" ("Judge denies preliminary injunction of appeal of Carolina Solite permit," 1997). In April, Solite added more issues to a motion to reconsider, but Judge Steelman upheld his original ruling (Conservation Council of North Carolina, 1997). NC WARN executive director Jim Warren and Sam McClintock⁶⁰ refer to the legal action as an attempt to silence the opposition to Solite's practices ("Carolina Solite sues environmental group," 1997). This type of legal action is known as a Strategic Lawsuit Against Public Participation (SLAPP). A higher judge ruled against Almond and SCOTCH, and the groups settled with Solite in December 1998 (Wineka, 2000c). The settlement precluded SCOTCH from taking action for nine months with regard to Solite's latest settlement (Wineka, 2000c).

"They really did go to war against SCOTCH. They paid lawyers a lot of money to keep SCOTCH quiet. It made some people scared to speak against Solite, knowing they had that much money and influence."
-Community Resident

⁵⁷ Frank Ballance from Warren County sponsored the provision, which is on page 135 of the 151 page Senate budget bill ("Bill's wording may slow incinerators," 1993) .

⁵⁸ Michael Kelly, deputy director of the NC Division of Solid Waste Management, agreed with this distinction stating, "The definition of a commercial hazardous waste facility is a facility that accepts hazardous waste for a fee. Oldover [a sister corporation of Carolina Solite] is a commercial hazardous-waste facility. Carolina Solite is not because they actually pay Oldover for the fuel" (Martin, 1994b).

⁵⁹ Erin Russell and Theodore Edwards II of Kilpatrick Stockton of Charlotte represented SCOTCH. The representation was one of the first by the NC Bar Association Environmental Section Pro Bono Project (Conservation Council of North Carolina, 1997).

⁶⁰ Sam McClintock is an environmental and computing consultant (Yeoman, 1998).

Research

OCCUPATIONAL AND ENVIRONMENTAL EPIDEMIOLOGY STUDY

The NC OEE investigated the area around Solite in 1990 and 1991 and found that residents close to the plant might have a slightly elevated lifetime cancer risk attributable to arsenic, cadmium, and lead in Solite's emissions (Basgall, 1991b). Arsenic levels were almost 10 times higher than acceptable limits and there were excess levels of mercury, hydrochloric acid releases three times the permit limits, and dioxin emissions over ten times the federal limit (Blue Ridge Environmental Defense League, 1999). The OEE suspected acid emissions may have caused the respiratory complaints reported by some residents (Basgall, 1991b). Also, a well near the plant exceeded state toxic metals standards for drinking water and groundwater (Wineka & Hodges, 2000). The report noted that arsenic, lead and cadmium are also present in coal, another fuel burned by the plant (Basgall, 1991b). There are also sources of arsenic in Aquadale outside the plant including rock from the Carolina Slate Belt, known to have naturally occurring arsenic deposits, and manufactured pesticides used in cotton fields outside the plant (Henderson, 2003).

"Research is important because it can support the community's word. Sometimes when you aren't sure why people are getting sick, research can help show what's really going on."

-Community Member

UNC WASTE INCINERATOR STUDY

In 1992, Stanly County was one of six communities in North Carolina involved in a \$2 million research study conducted by the University of North Carolina and funded by the ATSDR (Leavenworth, 1992). Principal investigator Carl Shy hoped the three-year study would clarify whether waste incinerators are associated with acute health problems for nearby residents ("Plant allowed to resume burning hazardous waste," 1991). The study compared three communities near waste incinerators⁶¹ and three similar communities without waste incinerators. Though it only examined short-term (acute) adverse health effects, Shy said, "If we find there aren't any acute effects on people's respiratory systems . . . it isn't likely that they will get long-term effects from incinerators" (Leavenworth, 1992). Researchers monitored residents' breathing, damage to nasal cells, and air quality data near the incinerators (Leavenworth, 1992). The study concluded that there was no detectable difference in the prevalence of chronic or acute respiratory symptoms, baseline lung function, or particulate matter concentration among any of the three pairs of study communities (Shy, Degnan, Fox, & et al., 1995). However, the study was limited because air pollution contributed by incinerators is almost undetectable by air modeling and monitoring techniques and wind

⁶¹ The three communities included a medical waste facility owned by Waste Management Inc. in Huntersville, NC, the Aquadale Carolina Solite plant, and a solid waste incinerator owned by Mecklenburg County (Leavenworth, 1992).

direction determines significant exposure. In other words, subjects could be exposed when the nearest monitoring station was not or vice versa, resulting in exposure misclassification, which could bias the study toward the conclusion that there is no difference between communities with incinerators and those without (Shy et al., 1995).

STANLY COUNTY CANCER STUDY

In response to pressure from state legislators, the NC Cancer Surveillance Section began a cancer study in 1994 in Stanly, Anson, and other nearby counties looking for possible links between exposure to industrial air pollution and elevated cancer rates (Martin, 1995a). The study did not find cancer rates to be elevated in comparison to the rest of the state nor did it find a link between cancer rates and air quality. The results of the study were presented to the community during the summer of 1995 (T. Aldrich, University of Louisville, Personal Communication, April 22, 2004).

HEAVY METAL ANALYSIS

In June 1998, state toxicologist Luanne Williams estimated a cancer risk almost 5 times the acceptable state levels based on Solite's high levels of arsenic emissions but did not deem the cancer estimate an imminent health hazard, saying, "I wouldn't expect people to die or have health effects"⁶² (Yeoman, 1998). However, the estimate, based on current emissions, did not account for the cumulative exposure of longtime residents or interactions between multiple toxic pollutants. Further, even the elevated current emissions were lower than Solite's emissions when the plant was not closely regulated (Yeoman, 1998).

Monitoring completed between May and September of 1999 by the NC DAQ detected arsenic levels ranging from 2 to 6.4 times the average statewide concentration ("State finds elevated arsenic level in air near Solite plant," 2000). The state DAQ began additional analyses to ascertain the origin of the arsenic and specifically address Solite's claims that the arsenic reading was due to pesticides on nearby fields⁶³ ("State finds elevated arsenic level in air near Solite plant," 2000; Waggoner, 2000a). Two additional air monitoring sites⁶⁴ located near Aquadale and in a cotton field nine miles away were used to establish background values while officials examined stack emissions that led to the conclusion that levels were elevated ("State finds elevated arsenic level in air near Solite plant," 2000). The Blue Ridge Environmental Defense League voiced opposition to the use of small samples that could distort

⁶² The excess cancer risk Williams calculated is about 4.7 out of 1 million (Yeoman, 1998).

⁶³ Sampling of 13 wells did not find contaminants. It is unclear what agency conducted the testing ("Stanly County town waits on arsenic tests at Carolina Solite," 2000). The EPA, NC DENR and NC DHHS planned to sample soil and stream sediments (Almond, 2000; Waggoner, 2000b).

⁶⁴ The state currently had six air monitoring sites near the Solite plant (Wineka, 2000a)

study findings because of the existing sources of arsenic in the area ("Environmentalists, neighbors of plant seek meeting with Easley," 2000).

In April 2000, the NC DHHS and the Stanly County Health Department began to conduct heavy metal analyses of residents' urine. Samples from 30 community members were analyzed for arsenic, mercury, lead and cadmium. Though a few individuals exhibited low levels, they were similar to those of populations *not* living in close proximity to Solite. State epidemiologist Rick Langley stated that there was "nothing in this study to suggest that this community is exposed to high levels of heavy metals" (North Carolina Department of Health and Human Services, 2000).

PUBLIC HEALTH ASSESSMENT

On August 8, 1998, NC WARN petitioned the ATSDR for the first of two public health assessments of the area around Solite. The assessments examined available data from the NC DHHS and the NC DENR relating to primary contaminants of concern which included arsenic, cadmium, and chromium (Agency for Toxic Substances and Disease Registry, 2001a, 2001b).

In the first assessment, air particulates were measured at levels below the EPA recommendations. Cadmium exceeded the ATSDR CVs⁶⁵ in 51 of the 169 samples collected, but these levels were not considered a human health threat (Agency for Toxic Substances and Disease Registry, 2001a). Twelve Solite employees used personal air samplers, and chromium and barium were found in one sample each (Agency for Toxic Substances and Disease Registry, 2001a). Samples of 13 wells contained barium, copper, iron, lead, and manganese at levels below ATSDR CVs and below EPA guidelines (Agency for Toxic Substances and Disease Registry, 2001a). The ATSDR also analyzed data from the North Carolina State Center for Health Statistics to address cancer concerns. Age-adjusted rates for all cancer⁶⁶ were lower in Stanly County than in North Carolina or the United States, and while Stanly County's brain and central nervous system cancer rates were higher than those for the state or the U.S., the increase was not statistically significant. The ATSDR concluded that "available environmental data do not indicate the existence of a health hazard at this time" (Agency for Toxic Substances and Disease Registry, 2001a).

The ATSDR conducted the second public health assessment using monitoring results from 2000, focusing on residents living in close proximity to the plant. Using 1990 U.S. Census data, the assessment estimated a population of 577 within one mile of Solite.⁶⁷ Ambient air monitoring results were similar to 1999 data, and the levels were not expected to

⁶⁵ Comparison Values or CVs are "designed to be orders of magnitude lower than levels known to produce adverse health effects" (Agency for Toxic Substances and Disease Registry, 2001b).

⁶⁶ All-cancer rates take into account all types of cancer in a single rate.

⁶⁷ The assessment data is based on the parts of the five block groups that are located within one mile of Solite: census tract 9910, block groups 4 and 5; census tract 9909, block group 3 and 4; and census tract 9907, block group 3 (Agency for Toxic Substances and Disease Registry, 2001a, , 2001b).

pose a health hazard. None of the soil samples examined exceeded the non-pica⁶⁸ children or adult Comparison Values (CVs), but all sixteen samples exceeded pica children CVs for arsenic, cadmium, and chromium. The levels were not considered a threat to the health of children or adults, barring the ingestion of large amounts of soil (2001b). The ATSDR again concluded that environmental monitoring did not indicate the existence of a human health threat (Agency for Toxic Substances and Disease Registry, 2001b).

Current Status

Solite discontinued its use of hazardous waste as a fuel in 2000. On January 1, 2001, officials removed Solite from the state's Resident Inspector Program (Almond, 2000). Residents remain concerned about the company's plan to burn recycled fuel oil, which may contain toxic metals not covered by the Waste Oil Assessment Plan⁶⁹ (Henderson, 2001). On April 24, 2001, the NC DAQ held a public hearing about a proposed permit for Carolina Solite (Hodges, 2001a). The proposed permit would not change the amount of fuel burned or disallow the use of recycled oil, but it would require a more comprehensive record keeping system and data reports including quarterly reports about the fuels used (Hodges, 2001a, , 2001b). The NC DAQ issued Solite the new permit on June 20, 2001 (Hodges, 2001b). Environmental and health monitoring of the plant continues (Waggoner, 2000b).

"We're just called a watchdog group now. We won't ever sit back and say we're not gonna worry about this anymore, because as long as there's an industry there, there's definitely a reason to be concerned and to keep your eyes open, not sit back and say everything is okay. It may be, and it may not be."
- Community Resident

In September 2004 Solite sold its Stanly County facility to Carolina Stalite Corporation. Carolina Stalite also produces lightweight aggregate such as concrete blocks, but it does not burn hazardous waste as fuel (Stalite Company website, Retrieved Dec 19, 2006). Solite no longer operates any plants in North Carolina (North Carolina Department of Environment and Natural Resources, 2005). However, the company has plants in Virginia and other parts of the Eastern United States (L. Zeller & J. Zeller, personal communication, 2006). In 2005, a community in Cascades, Virginia successfully forced another of Solite's plants to close (L. Zeller & J. Zeller, personal communication, 2006).

⁶⁸ Pica is a habitual consumption of non-food items. The consumption of these non-food items such as soil can place children at risk for the ingestion of toxic materials. This behavior is usually intermittent and occurs in young children (Agency for Toxic Substances and Disease Registry, 2001b). Non-pica children and adults do not exhibit pica behavior.

⁶⁹ The Clean Water Fund of North Carolina, NC WARN, and SCOTCH wrote to Governor Easley advocating for "an effective state regulatory process" for used oil. The groups cite the possible mixture of chemicals and toxic metals into oil as a key concern not addressed in the state's Waste Oil Assessment Plan. NC officials said that the state adheres to the EPA policy of not classifying oil as a hazardous waste if it is to be burned; however, NC imposed stricter limits on allowable amounts of arsenic and chromium (Henderson, 2001).

After reviewing Solite’s monitoring data and audits from 2002 to 2004, the NC DAQ fined the company \$268,616 in June 2005 for intentionally submitting false data, failing to perform and submit quarterly monitoring systems audits, and submitting inaccurate audit reports (North Carolina Department of Environment and Natural Resources, 2005). As a result of the incomplete and inaccurate data, the NC DAQ has no way to verify Solite’s emissions levels between 2002 and 2004 (North Carolina Department of Environment and Natural Resources, 2005). Solite Corporation filed an appeal of the fine; as of December 2006, this appeal process was still underway (J. Evans, personal communication, December 19, 2006).

Table 5: Summary Timeline of Industry, Government, and Community Actions, 2002-2005	
<i>Date</i>	<i>Event</i>
Dec 2002	ATSDR completes second public health assessment
2004	Solite sells Stanly County facility to Carolina Stalite Corp.; Solite no longer operates plants in North Carolina
2005	NC DAQ fines Solite \$268,616 for intentionally submitting false data in monitoring audits from 2002 and 2004, failing to perform and submit quarterly monitoring audits, and submitting inaccurate reports

After more than a decade of investigation, litigation, and community pressure, SCOTCH members are pleased that they were able to force Solite to terminate its use of hazardous waste as fuel; as one SCOTCH member commented, “I just want to say that I am proud that we stood up against Solite, because we knew that what they were doing was wrong. I feel good about what we did.” In spite of this success, SCOTCH members plan to continue monitoring the health of their community.

“This experience has taught me that you have to pay attention - you have to pay attention to *everything* in your community. You have to pay attention to what’s coming in and what companies are doing. You can’t expect them to naturally do what’s right or good. You can’t sit back and expect others to protect your community. *You* have to do it.”
 -Community Member

Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
CV	Comparison value
EPA	Environmental Protection Agency
NC DAQ	North Carolina Division of Air Quality
NC DEM	North Carolina Division of Environmental Management
NC DEHNR	North Carolina Department of Environment, Health, and Natural Resources
NC DENR	North Carolina Department of Environment and Natural Resources
NC DHHS	North Carolina Department of Health and Human Services
NC EMC	North Carolina Environmental Management Commission
NC WARN	North Carolina Waste Awareness and Reduction Network
NC OEE	North Carolina Occupational and Environmental Epidemiology
PCB	Polychlorinated biphenyl
PHA	Public health assessment
SCOTCH	Stanly Citizens Opposed to Toxic Chemical Hazards
SLAPP	Strategic lawsuit against public participation

References

- Agency for Toxic Substances and Disease Registry. (1999a). *ToxFAQs for Cadmium*. Retrieved August 15, 2005 from the Agency for Toxic Substances and Disease Registry website: <http://www.atsdr.cdc.gov/tfacts5.html>.
- Agency for Toxic Substances and Disease Registry. (1999b). *ToxFAQs for Lead*. Retrieved June 30, 2004 from the Agency for Toxic Substances and Disease Registry web site: <http://www.atsdr.cdc.gov/tfacts13.html>.
- Agency for Toxic Substances and Disease Registry. (1999c). *ToxFAQs for Sulfur dioxide*. Retrieved August 16, 2005 from the Agency for Toxic Substances and Disease Registry web site: <http://www.atsdr.cdc.gov/tfacts116.html>.
- Agency for Toxic Substances and Disease Registry. (2001a, September 12). *Petitioned Public Health Assessment Carolina Solite Corporation Aquadale, Norwood, North Carolina (EPA ID#: 980557730)*. Retrieved January 12, 2004 from the Agency for Toxic Substances and Disease Registry website: <http://www.atsdr.cdc.gov/NEWS/solite.html#summary>.
- Agency for Toxic Substances and Disease Registry. (2001b, November 9). *Petitioned Public Health Assessment Carolina Solite Corporation Aquadale, Norwood County, North Carolina (EPA Facility ID: NCD980557730)*. Retrieved June 16, 2004 from the Agency of Toxic Substances and Disease Registry website: http://www.atsdr.cdc.gov/HAC/PHA/carolinasolite2/car_toc.html.
- Agency for Toxic Substances and Disease Registry. (2001c). *ToxFAQs for Arsenic*. Retrieved June 30, 2004 from the Agency for Toxic Substances and Disease Registry web site: <http://www.atsdr.cdc.gov/tfacts2.html>.
- Agency for Toxic Substances and Disease Registry. (2001d). *ToxFAQs for Chromium*. Retrieved August 15, 2005 from the Agency for Toxic Substances and Disease Registry website: <http://www.atsdr.cdc.gov/tfacts7.html>.
- Almond, J. (2000, June 5). *Victory! Aggregate kiln stops burning hazwaste*. Retrieved August 2, 2005 from the Green Link website: <http://www.greenlink.org/public/hotissues/kilnburn.html>.
- Aquadale. (1990, November 23). *USA TODAY*, pp. 8A.
- Babington, C. (1991, May 19). N.C. rated 'bad actor' in hazardous-waste drama. *The News & Observer*.
- Barrett, R. (1990, August 16). Stanly plant burning hazardous waste will switch to coal fuel. *The News & Observer*.
- Basgall, M. (1991a, February 25). Carolina Solite defends its operation. *The News & Observer*, pp. B1.
- Basgall, M. (1991b, March 15). Continued use of waste as fuel authorized. *The News & Observer*, pp. B5.
- Basgall, M. (1991c, March 21). Guidance short on how to solve N.C. waste woes. *News & Observer*, pp. B4.
- Bill's wording may slow incinerators. (1993, May 15). *The News & Observer*, pp. A3.
- Blue Ridge Environmental Defense League. (1999, September 3). *BREDL requests EPA to pull Solite, Inc's operating permits*. Retrieved August 2, 2005 from the Blue Ridge Environmental Defense League website: <http://www.bredl.org/solite/pullpermit.htm>.
- Carolina Solite stops burning hazardous waste. (1991, August 16). *The Herald*, pp. 6A.
- Carolina Solite sues environmental group. (1997, March 26). *Greensboro News & Record*, pp. B2.
- Consent order. (1996). *Dictionary of Law*. Retrieved August 15, 2005 from the Answers.com website: <http://www.answers.com/topic/consent-order>.
- Conservation Council of North Carolina. (1997). *SLAPP suit update*. Retrieved June 30, 2004 from Carolina Conservationist website: <http://www.conservationcouncilnc.org/archive/news/aug97.html#slapp>.
- Dalesio, E. P. (1999, September 21). State regulators penalize Solite \$52,499 for hazardous waste emissions. *The Associated Press*.

- Division of Waste Management. (2000, September 1). *Resident Inspector Program 2000 Annual Report*. Retrieved April 3, 2004 from the Division of Waste Management website: http://www.wastenotnc.org/HWHOME/RIP_AnnRpt2000.doc.
- End to waste burning. (2000, April 20). *Morning Star*, pp. 3B.
- Environmentalists, neighbors of plant seek meeting with Easley. (2000, May 8). *The Associated Press*.
- GreenLink. (2000). *Groups will continue dogging Solite and State to reduce pollution: Citizens get big victory over toxic waste burner*. Green Environmental Coalition. Retrieved March 26, 2004 from GreenLink website: <http://www.greenlink.org/public/hotissues/kilnbrm1.html>.
- Henderson, B. (2001, January 9). Groups want more oversight of recycled oil in North Carolina. *Knight Ridder Tribune Business News*.
- Henderson, B. (2003, March 29). Arsenic may lurk in area's wells. *The Charlotte Observer*.
- Hodges, B. (2000a, April 18). Fight against Solite headed to Raleigh. *Salisbury Post*.
- Hodges, B. (2000b, April 20). Solite neighbors aren't satisfied. *Salisbury Post*.
- Hodges, B. (2001a, April 22). Solite hearing set for Monday. *Salisbury Post*.
- Hodges, B. (2001b, June 22). Solite gains new permit to operate. *Salisbury Post*.
- Judge denies preliminary injunction of appeal of Carolina Solite permit. (1997, April 7). *The Associated Press Newswires*.
- Judge rescinds order banning waste burning. (1993, June 9). *The News & Observer*, pp. A4.
- Lawsuit filed against Stanly incinerator. (1991, June 18). *The News & Observer*, pp. B4.
- Leavenworth, S. (1992, August 7). Study targets health effects of waste incinerators. *The News & Observer*, pp. B4.
- Leavenworth, S. (1993, May 29). Judge orders halt to toxic burning. *The News & Observer*, pp. A3.
- MacAyeal, J. (2005). *Giant Cement Holding Inc.* Retrieved August 2, 2005 from the Hoover's, Inc. website: http://www.hoovers.com/giant-cement/--ID_42235--/free-co-factsheet.xhtml.
- Martin, T. (1993, July 21). Carolina Solite, groups reach settlement. *Winston-Salem Journal*.
- Martin, T. (1994a, April 13). N.C. regulators, Stanly residents question company's waste plans. *Winston-Salem Journal*, pp. 15.
- Martin, T. (1994b, October 15). Official's ruling favors Solite. *Winston-Salem Journal*, pp. 1.
- Martin, T. (1995a, March 5). State threatens to close largest hazardous-waste plant. *Winston-Salem Journal*, pp. 2.
- Martin, T. (1995b, April 1). Hazardous-waste plant wants to lift regulation. *Winston-Salem Journal*, pp. 1.
- Martin, T. (1995d, May 25). House supports cut of inspector at waste plant. *Winston-Salem Journal*, pp. 2.
- Martin, T. (1995e, August 13). Proposal would hinder ability to restrict Solite. *Winston-Salem Journal*, pp. 1.
- Maxwell, S. (1996, April 18). Company wants to add fuel to its fire. *Winston-Salem Journal*, pp. B1.
- NC WARN. (2004). Retrieved August 10, 2005 from <http://www.ncwarn.org>.
- North Carolina Department of Environment and Natural Resources. (2005, June 3, 2005). *Aggregate manufacturer fined \$268,616 for air quality violations*. Retrieved June 14, 2005 from the North Carolina Department of Environment and Natural Resources website: http://daq.state.nc.us/news/pr/2005/solite_fine_06032005.shtml.
- North Carolina Department of Health and Human Services. (2000). *Urine analysis shows no excessive exposure to heavy metals around Solite plant*. Retrieved March 17, 2004 from the North Carolina Department of Health and Human Services website: <http://www.dhhs.state.nc.us/pressrel/8-8-00.htm>.
- North Carolina Department of Health and Human Services. (n.d.). *State settles case with Carolina Solite over air quality violations*. Retrieved April 16, 2003 from the North

- Carolina Department of Environment and Natural Resources website:
<http://www.enr.state.nc.us/newsrels/solite.htm>.
- North Carolina Environmental Insight. (1999, September 3). *Citizens call for third and final termination of Solite permit: Toxic waste burner called a menace to public health statewide*. Retrieved August 2, 2005 from the North Carolina Environmental Insight website: <http://www.environmentalinsight.com/Documents-Air/SCOTCH.html>.
- Patterson, D. (1999, September 3). Environmentalists want state to shut down Solite. *The Associated Press*.
- Plant allowed to resume burning hazardous waste. (1991, October 9). *The Herald*, pp. 9A.
- Poe, T. R. (1995, April 13). Monitoring emissions. *The News & Observer*, pp. A14.
- Robertson, G. D. (2000b, April 20). Residents near plant mostly skeptical after meeting. *The Associated Press*.
- Shiffer, J. E. (1997, July 24). Plant's permit revoked. *The News & Observer*, pp. A3.
- Shy, C., Degnan, D., Fox, D., & et al. (1995). Do waste incinerators induce adverse respiratory effects? An air quality and epidemiological study of six communities. *Environmental Health Perspectives*, 103(7-8), 714-724.
- Stalite Company website. (Retrieved Dec 19, 2006). <http://www.stalite.com/>.
- Stanly County town waits on arsenic tests at Carolina Solite. (2000, May 31). *The Associated Press*.
- State finds elevated arsenic level in air near Solite plant. (2000, March 1). *The Associated Press*.
- State fines Carolina Solite \$40,600 for faulty pollution control equipment. (2000). *The Associated Press*.
- State may fine Stanly plant \$5,000 for oil-leak pollution. (1990, August 22). *The News & Observer*, pp. B5.
- The State; Activists say agreement violated; State is urged to close waste-burning plant. (1999, September 3). *Morning Star*, pp. 3B.
- U.S. Census Bureau. (2000a). *Census 2000 Summary File 1 (SF 1) 100-Percent Data*. Retrieved June 9, 2003 from the U.S. Census Bureau website: <http://www.census.gov>.
- U.S. Census Bureau. (2000b). *Census 2000 Summary File 3 (SF3) Sample Data*. Retrieved June 9, 2003 from the U.S. Census Bureau website: <http://www.census.gov>.
- Waggoner, M. (2000a, April 4). Environmental groups call Easley to task for Carolina Solite violation. *The Associated Press*.
- Waggoner, M. (2000b, June 2). Carolina Solite ends burning of hazardous waste. *The Associated Press*.
- Waste incinerator faces hefty fines for violations. (1991, June 1). *The News & Observer*, pp. B4.
- Wineka, M. (2000a, March 2). Officials find high arsenic levels at Solite plant. *Salisbury Post*.
- Wineka, M. (2000b, April 4). Groups hammer attorney general over response to Solite pollution. *Salisbury Post*.
- Wineka, M. (2000c, April 9). Concerns have grown over years. *Salisbury Post*.
- Wineka, M. (2000d, April 10). Years of troubles at Solite. *Salisbury Post*.
- Wineka, M. (2000e, April 16). Solite says concern misplaced. *Salisbury Post*.
- Wineka, M. (2000f, April 16). Workers part of a 'family business'. *Salisbury Post*.
- Wineka, M., & Hodges, B. (2000, April 9). Slow burn: Some neighbors believe damage is coming from Solite emissions. *Salisbury Post*.
- Yeoman, B. (1998, November 11). Burnt twice Carolina Solite's neighbors thought the toxic fumes were bad enough. Then came toxic neglect from the state. *The Independent*.