EXPANDED SITE INSPECTION/REMEDIAL INVESTIGATION REPORT
DIAZ CHEMICAL CORPORATION
HOLLEY, NEW YORK

CERCLIS ID No. NYD067532580

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

EPA Contract No. 68-W-00-121
Work Assignment No. 071
Document Control No. SAT.20103.1071.557

August 2004

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SITE SUMMARY

The Diaz Chemical Corporation ("Diaz") site (CERCLIS ID No. NYD067532580) is the release and associated sources from a defunct chemical manufacturing plant located at 40 Jackson Street in the Village of Holley, Orleans County, New York (Ref. Nos. 1, pp. 1, 7; 2, p. 1; 6, p. 1). Aliases for the Diaz site include Diaz Chemical c/o FMC and FMC c/o Diaz Chemical c/o FMC (Ref. No. 69, p. 1). The geographic coordinates of the Diaz property are 43° 13' 23.00" North latitude; 78° 01' 48.00" West longitude (Ref. No. 3, p. 1). The Diaz plant is located about 25 miles west of Rochester and 50 miles east of Buffalo (Ref. No. 2, p.1). The property was initially developed as an industrial plant in the 1890s and was used primarily for tomato processing and cider vinegar production before being purchased by Diaz in 1974. From 1890 to 1914, the property was owned by Miller & Pettengill and used for food processing purposes. During 1914 it was owned by Genesee Fruit Corporation and from 1914 through 1974 it was owned by Duffy-Mott and used for food processing, mainly cider vinegar production. Diaz was a manufacturer of specialty organic intermediates for the agricultural, pharmaceutical, photographic, color and dye, and personal care products industries. The Diaz product line varied over the years of operation but primarily consisted of halogenated aromatics and substituted benzotrifluorides. Diaz used the facility from 1974 until it ceased operations on June 23, 2003. The facility employed 35 to 50 people, depending on the plant operations. Diaz filed for bankruptcy and abandoned the facility in June 2003, leaving behind a number of chemicals in drums and tanks. The property then came under the jurisdiction of the U.S. Environmental Protection Agency (EPA) Response and Prevention Branch, pending removal of the abandoned chemicals (Ref. Nos. 2, p. 1; 4, p. 8; 5, p. 8; 6, p. 1; 7, p. 2; Figures 1 and 7).

The Diaz plant consisted of several buildings that ranged in construction from masonry and timber (built around 1890) to a modern bulk handling facility constructed in the early 1990s. The facility had five separate areas designated A through F. Areas A through D were the glass-lined reactors or reaction vessels ranging in capacity from 2,000 gallons to 4,000 gallons. Area F primarily was used for capturing open source emissions from the transfer operations. The Diaz property is a wedge-shaped parcel of approximately 5 acres bounded on the north and east by residential parcels on Jackson Street and South Main Street. To the south and west, it is bordered by Conrail railroad tracks, and beyond that by undeveloped land and a group of former Duffy-Mott Corporation, Inc. buildings that are now vacant. Across the railroad tracks is the Holley VFW Hall, and a small tributary to the East Branch Sandy Creek. The manufacturing areas are paved with concrete. Surface water runoff and spilled material flows into polyvinylchloride (PVC)-lined trench drains that flow to a large high-density polyethylene (HDPE)-lined concrete collection sump on the east edge of the property. The water is then pumped to a holding tank treatment sump, and eventually discharged to the Village of Holley Publicly Owned Treatment Works (POTW) (Ref. Nos. 5, p. 10, 11; 6, pp. 5 through 8, 15; 7, pp. 1, 3 through 5; 8, pp. 8 through 11; Figure 2).

In May 1974, Diaz installed a 1,000-gallon diesel underground storage tank (UST). Two additional 1,000-gallon USTs were installed in May 1978 to store leaded and unleaded gasoline. An Environmental Data Resources (EDR) report dated 11 February 2003 indicates that these tanks were closed in-place or removed prior to April 1991. Additional references indicate that a tank was removed on 23 October 1986 (Ref. Nos. 9, pp. 29 through 31; 10, pp. 1 through 6; 11, pp. 1, 2, 3; 22, pp. 6, 7).

Regulatory History

The Diaz facility has a regulatory history dating back to 1975. A brief summary follows.

On 1 August 1975, an undetermined amount of nitrating acid spilled while operators were pumping from a tank car to reactor vessel R-3. The acid was neutralized with soda ash and flushed with water (Ref. No. 14, p. 2).

On 3 November 1975, trespassers opened the gate in a storage/setting tank discharge line, from the former Duffy-Mott Corporation, spilling 7,500 gallons of an unknown material that reached East Branch Sandy Creek (Ref. No. 9, pp. 15 through 16).

In January 1977, a reactor vessel exploded releasing 1,000 pounds of nitric acid and sulfuric acid into the air through a ruptured disk. The release covered approximately 3 to 5 acres. Area residents complained about burning eyes and skin, and a stinging sensation in their throats. Diaz had to pay for repainting cars damaged by the release (Ref. No. 22, p. 10).

On 19 May 1977, 200 gallons of sulfuric acid were discharged to the East Branch of Sandy Creek killing 350 to 400 fish (Ref. No. 13, p. 3).

On 6 July 1977, 100 to 150 gallons of chlorobenzoic acid were spilled and 20% of the spill was lost to the ground (Ref. No. 13, p. 3).

On 7 July 1977, a release of trifluralin resulted in the formation of a large orange-brownish cloud emanating from many openings in the plant; the wind pushed the cloud towards the west. The cloud burned the leaves on the corn on the outside rows of a cornfield 1 mile south of Route 31 on Lake Road (Ref. Nos. 13, p. 3; 22, p. 12).

On 20 October 1977, 50 gallons of sulfuric acid were spilled on the ground. The spill was contained in a trench (Ref. No. 13, p. 3).

On 5 November 1977, nitrous oxide gas was released when 100 gallons of sulfuric acid and nitric acid were combined (Ref. No. 13, p. 3).

On 14 January 1978, 40 to 50 gallons of nitric acid were emitted to the air, causing a cloud that irritated eyes, a pungent odor, and a stain in the snow (Ref. No. 13, p. 2).

On 23 March 1978, 100 pounds of nitrous oxide were released into the air over a 20-minute period (Ref. No. 13, p. 2).

On 20 July 1978, 2 to 5 gallons of nitrous oxide were released to the ground and to the air (Ref. No. 13, p. 2).

On 13 January 1979, 10 to 20 gallons of calcium carbonate were spilled at the intersection of South Main Street and Hillcrest Drive (Ref. No. 13, p. 2).

On 12 February 1979, an overloaded stack scrubber allowed 10 pounds of nitric acid to be released to the atmosphere during an 8- to 10- minute venting (Ref. No. 13, p. 2).

On 23 July 1979, an unknown amount of ethylbenzene spilled during a transfer from a truck into a vertical tank in the plant's yard. The product overflowed through the vent on the top of the tank (Ref. No. 14, p. 7).

On 12 September 1979, an unknown amount of an aqueous acid waste spilled during transfer to the carbonate waste storage tank No. 2. The tank valve failed spilling the liquid waste. The operator was transported to the hospital where a patch was placed over his eye (Ref. No. 14, p. 8).

On 28 November 1979, a Diaz employee was moving a pyridine drum in Area 5. During transport, the drum fell from the fork-lift and hit the ground, spilling its contents (Ref. No. 14, p. 9).

On 3 November 1980, during a bromine batch production, the product started to fume while it was being transferred to drums. The system was purged via the bottom valve. Later, the vibration from the cooling water flowing through the lines broke a glass "T" connection, spilling approximately 40 to 80 gallons of hydrogen bromide (Ref. Nos. 14 through 16).

On 4 August 1982, a Diaz employee was removing a pallet that was next to the 4-chlorobenzotrifluoride (PCBTF) drums. The fork on the forklift tore a hole in the side of a drum, releasing one third of the contents (Ref. No. 14, p. 24).

On 13 September 1983, 5 to 10 gallons of bromide were released to the air, forming an odorous cloud (Ref. No. 13, p. 2).

On 29 January 1985, 30 to 40 pounds of ammonia were released to the air, causing area residents to complain (Ref. Nos. 13, p. 1; 22, p. 12).

On 14 March 1985 an undetermined amount of chlorine was released from a tank and into the Holley sewage treatment plant (Ref. Nos. 9, pp. 34, 35; 13, p. 2; 22, p. 12).

On 16 April 1985 an unknown amount of bromoacetophenone was released into the air (Ref. Nos. 13, p. 2; 22, p. 12).

On 12 August 1985, approximately 100 gallons of hexane overflowed from an outdoor 500-gallon tank during a transfer operation, reaching the storm sewer on Jackson Street. Another report indicates that a 55-gallon drum of hexane overflowed, spilling 20 to 50 gallons of xylene into the sewer on Jackson Street, reaching the East Branch Sandy Creek (Ref. Nos. 9, p. 26; 13, p. 2; 22, p. 12).

On 18 August 1986, approximately 50 gallons of hexane were spilled on the ground when a tank in Area A overflowed (Ref. No. 14, p. 47).

On 25 September 1986, dimethyl sulfoxide gas was released to the air due to a scrubber problem. Diaz failed to report the incident to the New York State Department of Environmental Conservation (NYSDEC) until after residents filed an odor complaint (Ref. Nos. 13, p. 1; 22, p. 13).

On 2 October 1986, the Holley fire department responded to help neutralize a 55-gallon nitric and sulfuric acid spill (Ref. Nos. 9, p. 27; 13, p. 1; 14, pp. 50 through 52; 22, p. 13).

On 22 October 1986, 1 gallon of ethychloropopanal was spilled when a tank valve was replaced on a holding tank. A nearby resident complaint about odors inside the residence (Ref. Nos. 9, p. 17 through 18; 22, p. 13).

On 24 October 1986, approximately 5 gallons of sulfuric acid were spilled while a drum containing the acid was being moved (Ref. No. 14, p. 55).

On 13 November 1986, approximately 50 gallons of a caustic absorber solution were spilled. The spilled solution reached the outfall regulated under a State permit for discharges into a stream (Ref. No. 14, p. 54).

On 21 December 1986, an unknown amount of an unknown petroleum product, suspected to be bromine, was spilled on the property and reached the East Branch of Sandy Creek (Ref. No. 9).

On 14 January 1987, 3,000 pounds of liquid bromine were spilled onto the floor of Area B when a tank ruptured at the weld seam (Ref. Nos. 9, p. 42 through 43; 13, p. 1; 14, pp. 62 through 68).

On 19 March 1987, 1,500 gallons of process water and sludge were discharged to Sandy Creek (Ref. Nos. 13, p. 1; 22, p. 14).

On 23 April 1987, an unknown amount of chlorine as hypochloric acid vapors was released into the air because the chlorination process was not operating properly (Ref. Nos. 13, p. 1; 22, p. 14).

On 22 July 1987, 10 gallons of tri-methyl amine were released into the air because of a tank overfill (Ref. No. 13, p.1).

On 13 July 1988, 100 gallons of triethylamine spilled on the pavement in the runoff containment area outside the buildings (Ref. Nos. 13, p. 1; 14, pp. 85 through 86; 22, p. 14).

On 5 January 1989 the New York State Supreme Court submitted judgement against Diaz for operating as a storage, treatment, and disposal (TSD) facility storing more than 20,000 gallons of hazardous waste for more than 90 days without NYSDEC's approval (Ref. No. 32).

On 30 March 1989, FMC Corporation signed an Operating Services Agreement with Diaz. This agreement authorized FMC to occupy a certain portion of the Diaz property, with the only purpose being to convert technical-grade carbofuran pesticide into technical-grade carbosulfan pesticide (the "conversion process"). Based on an agreement dated 20 January 1988, amended 13 January 1989, Diaz previously had performed the conversion process for a fee (Ref. Nos. 11, pp. 1 through 7; 22, p. 14).

On 30 March 1989, approximately 800 gallons of acetic anhydride were spilled from a tank valve that broke when an employee stepped on the valve. The spilled material entered the collection trench (Ref. No. 9, pp. 41 through 42).

In 1989, Diaz sampled two production wells located in the northeast corner of the facility. Ethylene dichloride was detected above 1 parts per million (ppm) in groundwater (Ref. Nos. 9; 13, p. 1; 14, p. 95 through 99).

On 15 December 1989, approximately 200 to 225 gallons of a compound identified as CBTL spilled at the Diaz facility. A bulk operator accidently overfilled tank 133 while off-loading a tanker trailer. The material spilled through the vent pipe on the tank (Ref. Nos. 9; 12, p. 1).

An unknown material was spilled on 21 February 1990 (Ref. Nos. 14, pp. 103 through 106; 22, p. 14).

On 7 March 1990, personnel from the NYSDEC, Region 8, Air Resources Division, visited the Diaz facility. During the visit, NYSDEC personnel observed that areas inside the plant were crowded, metal floors were rusted, and some equipment was corroded. Also, wet spots were observed throughout the plant, indicating leaks or wash water on the floors. The overall housekeeping at the facility needed improvement (Ref. No. 28, pp. 1 through 4).

In July 1990, a reactor vessel exploded, resulting in the release of a herbicide, Lactofen, and nitrogen (Ref. 22, p. 11).

On 16 July 1990, an explosion at Diaz released an undetermined amount of an unknown petroleum product to the air. A Diaz employee indicated to a neighbor that the material released to the air and the neighbors' property was some type of "Teflon" material. Additional information indicated that the released material was a herbicide identified as lactofen and nitrogen (Ref. No. 22, p. 11).

In August 1990, residents within 200 to 300 feet of the Diaz plant filed odor complaints due to a release of chlorine gas (Ref. Nos. 14, p. 117 through 121; 22, p. 14).

On 12 November 1990, 300 gallons of para-chlorobenzotrifluoride, ferric chloride anhydrous and dichlorobenzotrifluoride were spilled at the Diaz plant (Ref. Nos. 14, pp. 122, 123; 22, p. 15).

On 4 January 1991, approximately 22 to 33 pounds of bromine were lost through a hole in a 100-gallon cylinder in the production Area D (Ref. No. 14, p. 127 through 130).

On 19 January 1991, an unknown amount of bromine was spilled (Ref. No. 22, p. 15).

On 26 June 1991, an unknown quantity of sulfuric and nitric acid spilled at the facility was flushed with 71,000 gallons of water. Allegedly, the water mixture reached the Holley sewer system (Ref. Nos. 14, p. 134 through 140; 22, p. 15).

On 30 July 1991, an unknown amount of 24DBFB spilled on the floor of a warehouse. Allegedly, the spilled material did not reached the sewer (Ref. No. 14, p. 141).

In 3 September 1991, a bromine spill occurred at the Diaz facility and dimethyl sulfoxide formed mercaptan, causing odor complaints from nearby residents (Ref. Nos. 14, pp. 145 through 149; 22, p. 15).

On 22 September 1991, citizens complained about a propane or sulfur-like smell in the air. Diaz indicated the smell was due to the distillation of a contaminated product. During the distillation process, dimethylsulfoxide formed mercaptan (Ref. Nos. 9, p. 19; 22, p. 15).

On 26 December 1991, a reactor vessel exploded, resulting in the release of 150 gallons of a mixture of sulfuric acid and nitric acid into the air through a ruptured disk. The spill occurred as a result of violent chemical reaction of the acid and some other unknown chemical inside the tank (Ref. Nos. 14 pp. 155 through 160; 22, p. 11).

On 22 February 1992, approximately 10 gallons of hydrogen bromide spilled from a tank reached a sewer (Ref. No. 14, p. 164).

On 21 March 1993, a Diaz employee noticed liquid leaking through the dike wall of tank No. 131. The tank was leaking 48% hydrogen bromide. The spill area was neutralized with a solution of sodium hydroxide (Ref. No. 14, pp. 166 through 167).

In July 1992, Diaz was added to the New York Registry of Inactive Hazardous Waste Disposal Sites as a Class 2 site because of groundwater contamination. The Class 2 classification indicated that the contaminants at the site presented significant threat to public health or the environment for which action was required (Ref. No. 5).

On 16 July 1992, NYSDEC issued a memorandum indicating that the presence of ethylenedichloride and other organic compounds in the groundwater was characteristic of Diaz operations (Ref. No. 33).

On 6 August 1992, 25 gallons of dibromobenzene were spilled at the Diaz property (Ref. No. 9).

On 24 August 1992, a citizen complained to NYSDEC and the police department about a strong chemical odor. The amount of the spilled material is unknown. The Orleans Health Department indicated that the material spilled was bromobenzene (Ref. Nos. 9, pp. 14 through 15; 14, p. 181).

In 1993, approximately 50 gallons of acetic acid were spilled (Ref. No. 9).

In July 1994, a Consent Order (CO) was signed with NYSDEC committing Diaz to conduct a Remedial Investigation/Feasibility Study (RI/FS). The first phase RI was completed in December of 1994. In November 1994, H&A of New York prepared a Phase I Technical Memorandum - Phased RI/FS for Diaz summarizing activities during 1994. The Phase I investigation included: Hydropunch™ soil sampling, soil-gas testing, surface soil sampling, and analysis; and monitoring well installations, sampling, and analysis. The investigation indicated that elevated concentrations of volatile organic compounds (VOCs) and semivolatile organic compounds (SVOCs) were found in the overburden soils at various areas of the Diaz facility. Elevated VOC concentrations were found in the overburden groundwater. An assessment of interim remedial measures (IRMs) considered installation of a groundwater migration control system across the southeast portion of the Diaz property. Twelve monitoring wells were installed. Seven wells were completed as overburden monitoring wells ranging in depth from 12.1 to 25 feet; five wells were completed as shallow bedrock monitoring wells ranging in depth from 38.5 to 49.7 feet (Ref. No. 5).

In March 1995, a reactor vessel exploded, resulting in the release of m-bromofluorobenzene into the air through a rupture disk. Nearby residents complained about the odors from the release (Ref. Nos. 14, p. 193 through 194; 22, p. 11).

On 28 July 1995, a 7,000-gallon aboveground storage tank (AST) containing hydrochloric acid (HCL) split along a horizontal seam, spilling 600 gallons of HCL. Most of the product entered the facility trench draining system which led to a collection pit. Some of the HCL shot over the secondary containment wall, reaching the concrete/asphalt. Approximately 100 to 150 gallons left the property discharging along Jackson Street. Most of this product, except 5 gallons, was recovered. The 5 gallons reached the East Branch of South Sandy Creek via the storm sewer. The storm sewer was flushed and neutralized. Diaz monitored the outfall at the East Branch of Sandy Creek for pH and cleaned the secondary containment area (Ref. No. 9, pp. 24 through 25).

In November 1995, H&A of New York issued a "RI/FS Phase II Technical Memorandum" indicating that the information gathered during the second phase supplemented and confirmed earlier findings. Six additional monitoring wells were installed on the Diaz property. New analytical data from this Phase II indicated the presence of dissolved site-specific indicator compounds (SSICs) in groundwater indicating the need for a pump-and-treat IRM to capture groundwater along the downgradient, (east) property boundary. The highest concentrations of site-related compounds were found in the overburden wells, predominantly VOCs and lesser amounts of SVOCs. VOCs and SVOCs also were found also in the soil samples (Ref. No. 5, p. 10).

In 1996, Diaz conducted Phase III of the RI. During this phase of the investigation, elevated levels of site-specific compounds and ethylene dichloride (EDC) were detected in the overburden groundwater, as well as xylenes and other hydrocarbons in the overburden soils along the water table. The Phase III report identified three areas of concern or sources (Ref. No. 5, p. 10).

On 15 July 1997, during a batch reaction, that used potassium hydrate, metabromofluorobenzene, tetramethylammonium bromide, and methanol, the temperature inside the reactor increased above normal causing an increase in pressure. Approximately, 300 pounds of potassium hydrate (KOH) were released to air when the pressure built up inside the reaction tank caused a rupture disc to fail. The KOH was released in form of a mist. Residences and automobiles affected by the release were washed by Diaz. Some cars were sent to an auto body shop to be buffed and four houses were power-washed. A neighbor indicated that some trees and shrubs were damaged by the spill. Another resident indicated that the leaves on the trees facing to the west side of Diaz were falling and dying. Phase IV of the RI was conducted in 1997, along with a second IRM. The new IRM consisted of a biological treatment for sub-surface petroleum contamination. The fourth phase report indicated contaminated groundwater was migrating off the Diaz property (Ref. Nos. 9, pp. 39 through 41; 14, pp. 197 through 207; 22, p. 11).

On 28 June 1998, 300 pounds of 3,4-dimethoxytoluene were spilled at the Diaz facility (Ref. No. 9).

In 1998, Haley and Aldrich issued a year-end summary report for the activities performed at Diaz in accordance with the Phase V work plan approved by the NYSDEC in 1998. The report indicates that a total of nine indoor air samples were collected from nearby residences. The samples were collected to evaluate the potential for off-site exposures. The samples were collected and analyzed for volatile

organic and site-specific compounds by Upstate Laboratories of East Syracuse, New York. The site-specific compound PCBTF was detected in one of the residences as well as benzene, toluene, ethylbenzene, and xylene (BTEX). Water samples from the residences' basement sumps were also collected. The analytical data indicated the presence of dissolved VOCs. Permanent metal Bilco® doors were installed in one residence over the sumps to minimize air infiltration. Also, two Electrocorp® Model 100 heavy-duty air filters were installed in the basement of two residences to absorb airborne VOCs. Soil gas samples were collected using a Gore-sorber® soil gas sampler. The Gore-sorber® data indicated the presence of a VOC plume moving east toward the East Branch of Sandy Creek ravine and diminishing in concentration with distance. Reportedly, the water-quality data indicated that the plume was not migrating into the deeper bedrock, nor was it detected in the creek water (Ref. No. 5, pp. 1 through 42).

In October 1999, a bromine cylinder ruptured, spilling approximately 100 pounds of bromine to the concrete. The bromine vaporized to the air and necessitated evacuation of the Diaz plant (Ref. Nos. 9, pp. 19 through 20; 22, p. 16).

On February 2000, Haley & Alrich of New York issued an RI summary report on behalf of Diaz. The report summarized the results of the remedial RI activities in Phases I through VI from 1994 through 1999. The report indicates that the environmental media impacted are associated with the plant property and the groundwater flowing off the property to the east. The nearby Sandy Creek had not been impacted. The groundwater in and adjacent to the site is not used for drinking water because the local groundwater naturally contains high concentrations of salts and sulfur bacteria. The groundwater data indicated that the plume of dissolved VOCs, originating from the soils in the source areas, moved down into the weathered shale bedrock and migrated beyond the Diaz property boundaries towards the ravine east of the property (Ref. No. 5).

On 3 August 2000, EPA conducted a Resource Conservation and Recovery Act (RCRA) compliance inspection to determine Diaz's compliance with applicable federal regulations for organic air emissions pursuant to the 40 Code of Federal Regulation (CFR), Part 265, Subpart BB and CC. A Diaz representative indicated to EPA that Diaz believed those regulations were not applicable to the facility (Ref. No. 21, p. 1).

On 27 March 2001, EPA issued a Complaint and Notice of Opportunity for Hearing, alleging that Diaz violated the organic emission regulation, specifically by: failing to make a determination of the maximum organic vapor pressure for organic hazardous waste in its tanks; failure to monitor valves on a monthly basis or perform an initial performance test to comply with alternative requirements on the valves; failure to have an up-to-date analysis and supporting information data and documentation in the facility operating record; and failure to comply with the Air Emission Standards for equipment leaks or to have a list of equipment used less than 300 hours per calendar year (Ref. No. 21, p. 1).

On 5 January 2002, an accidental release of an estimated 80 gallons of 2-chloro-6-fluorophenol (CFP) occurred from a process building roof stack vent at the facility. The release was the result of the over-pressurization and rupture of a pressure disk of a reactor vessel containing approximately 2,500 gallons of CFP. The CFP alighted on homes and properties in the neighborhood immediately adjacent to the facility, and was visible as colored droplets on homes. As a result, 15 homes in the neighborhood were evacuated and residents were relocated to area hotels by Diaz. Odor complaints

were received from as far as approximately 12 miles from the facility, the night of the release (Ref. Nos. 4, pp. 5 through 9; 16; 17, pp. 1 through 6, 34, 35; 18; 19; 20, pp. 1 through 10; 22, pp. 1, 7 through 10; 22, pp. through 10).

On 12 January 2002, the New York State Attorney General's Office in Buffalo had flake samples collected from the material released on 5 January 2002 from the Diaz facility. The samples were collected from a car windshield and a house window that were spattered with droplets of the spilled material. The samples were sent to Alta Analytical Perspectives in Wilmington, North Carolina and analyzed under project number P1947. The analytical results indicated that the most of the total mass or weight of the sample consisted of three different phenoxyphenols (dichlorodifluoro-, trichlorodifluoro-, and trichlorophenoxyphenol) and no more than one or two percent of 2-chloro-6-fluorophenol by weight (Ref. No. 23, pp. 1 through 7).

On 17 January and 31 January 2002, the New York State Department of Health (NYSDOH), Center for Environmental Health, collected a total of 36 urine samples from residents in the Village of Holley. The urine samples were analyzed by NYSDOH. The analyses detected 2-chloro-6-fluorophenol in 11 of the 36 samples (31%). Concentrations of 2-chloro-6-fluorophenol ranged from 1.9 micrograms per liter (µg/L) to 16.6 µg/L. According to the NYSDOH, the people who had detectable levels were more likely to report health symptoms than the people without detectable levels of the chemical (Ref. No. 24, pp. 1 through 12).

On 8 March 2002, the Supreme Court of the State of New York issued a Verified Complaint (State of New York vs. Diaz) indicating that Diaz caused a public nuisance by its operations of a chemical manufacturing plant (Ref. No. 22, p. 1).

On March 16, 2002, NYSDEC requested that EPA use the provisions of CERCLA to conduct an assessment of the neighborhood that was affected by the chemical release from Diaz (Ref. No. 27, p. 1).

On 28 March 2002, NYSDEC approved the Record of Decision (ROD) for Diaz. The selected remedies included: continued operation of the current IRMs, including an interceptor trench blasted into bedrock, railroad spur bioventing, and maintaining engineering control in the residences on the South Main Street; installation of an additional recovery well; implementation of a soil management plan; maintenance and augmentation of the concrete pads and existing network of PVC-lined drains; replacement of sewer lines running under the sources; establishment of a deed restriction on the property; maintenance of institutional controls in place at the two residential properties on South Main Street; creation of Operable Unit # 2 to address the contaminant source areas; and institution of a long-term groundwater monitoring program which would encompass on-site and off-site wells sampling along with periodic sampling of indoor air (Ref. No. 8).

On May 16, 2002, at the request of Diaz and New York State, EPA assumed payment for relocation and living expenses, when Diaz announced its inability to fund these efforts. EPA also began conducting additional site characterization (Ref. No. 4, p. 5; 27, p. 2).

On 28 May through 29 May 2002, the EPA Environmental Response Team/Response Engineering Analytical Contract (ERT/REAC) conducted air monitoring for CFP in the impacted neighborhood.

On 4 June through 5 June 2002, ERT/REAC re-mobilized to the site to conduct additional sampling for CFP, including property soil samples, indoor surface wipes, and indoor air samples. Air samples were collected utilizing a Trace Atmospheric Gas Analyzer (TAGA). In August 2002, ERT/REAC submitted the air and soil sampling results. The results for the air sampling confirmed levels of CFP less than 1 parts per billion (ppb) in four of the homes tested. All internal wipe samples were non-detect. Soil analytical data confirmed levels of CFP in concentrations from 5 ppb to 860 ppb in four of the residences (Ref. No. 25, pp. 1 through 282).

On June 18, 2002, a Risk Management Plan (RMP) for the facility was submitted (Ref. No. 70, p. 1).

On 29 August 2002, personnel from the EPA's Air Compliance Branch (ACB) conducted an inspection at the Diaz plant to determine if the facility's operations and processes were in compliance with the New York state air operating permit and the State Implementation Plan (SIP). Among the findings after the inspection, EPA indicated a concern regarding the company's manufacturing of unpermitted chemicals and use of storage tanks which may require permits. The year 2000 Toxic Release Inventory (TRI) indicated that Diaz had total air emissions (fugitive and permitted) of 1,2-dibromomethane, 1,2-dichloroethane, acetophenone, bromine, chlorobenzene, methanol, toluene and xylene (Ref. Nos. 7, pp. 1 though 12; 26, pp. 1 through 10; 27, pp. 1 through 4).

On 20 September 2002, EPA Region II, Response and Prevention Branch issued an Action Memorandum to request additional funding to continue with the removal action activities at the site (Ref. No. 27, pp. 1 through 8).

On 26 November 2002, NYSDOH, Center of Environmental Health, issued a Public Health Assessment report of the assessment conducted at Diaz after the 5 January 2002 release. The report indicates that the residents of the Village of Holley were exposed to CFP. Residents reported odors and health problems like sore throat, headache, nose irritation, and eye irritation from the exposure (Ref No. 4, pp. 1 through 99).

In April 2003, EPA announced that it had ordered Diaz to correct deficiencies in the way the company was operating its facility. It was the first such order issued in EPA Region 2 for violation of the "General Duty Clause" of the Clean Air Act. EPA had been collecting air, soil, and interior surface samples near the site since May 2002 when the announcement was made (Ref. No. 71, p. 1).

SAT 2003 Reconnaissance and Sampling

On 29 May 2003, the Region II Site Assessment Team (SAT) conducted an on-site reconnaissance. A multi-gas/photo-ionization detector (PID) combination air monitor was carried during the reconnaissance. During the inspection, SAT observed 55-gallon drums containing various halogenated liquid wastes stored throughout the Diaz property. The southern portion of the property is covered with vegetation. There are a series of monitoring wells and piezometers in this area. There are five flush-mount monitoring wells in an area between Building C and Area D. The monitoring wells are 3 to 4 feet apart. There is a 2,000-gallon AST labeled "Hazardous Waste Tank" in a diked area east of the sumps area. At the east-southeast corner of the property, in the bedrock blasted trench area, there is an area covered with vegetation mostly used to store scrap metals, drums

and an unused AST. In the eastern portion of the facility, there is an area designated as Area 5 Tank Farm. This area has approximately 10 ASTs in a dike. The tanks are of different volumes and are used to store different compounds (a 12,150-gallon and a 3,000-gallon AST labeled as flourobenzene; a 12,150-gallon AST, labeled as methanol recycle; a 13,448-gallon AST labeled as m-bromofluorobenzene crude; a 13,448-gallon AST labeled as toluene, and a 3,200-gallon AST labeled as m-fluorobenzene wet). There are two monitoring wells and two piezometers to the north of Area 5. Also in this area there are more than 200 metal and polyethylene 55-gallon drums staged for recycling. East of Area 5, there is a garage of one residence facing South Main Street. A pile was observed on the Diaz property, at approximately 80 feet east from the new loading dock area, adjacent to the fence. The pile consists of soil, rocks, stainless steel pipes, and other debris. Labels reading "dibromofluorobenzene toluene process" were observed mixed in the pile. Also, it was observed that surface runoff in this area flows towards the backyards of the residences located on South Main Street (Ref. No. 29, pp. 1 through 9).

There are six transformers in a fenced-in area north of Area D. The transformers are owned by Diaz. Three transformers have blue non-PCB labels; three are unlabeled and therefore assumed to be PCB contaminated. There are two monitoring wells east of the transformer area. There is a drum storage area between the transformer area and the wastewater sumps. To the north of the transformers is the wastewater sump area of the wastewater treatment plant. The concrete surface in the southwest corner of the sump area is irregular and appears to be corroded. The wastewater sumps are divided into three sedimentation chambers. Sludge was observed in the first chamber of the wastewater sumps (Ref. No. 29, pp.1 through 9).

Wastewater from the facility was observed discharging to the wastewater sumps and treatment plant at the time of the reconnaissance. No readings above background were detected on the PID in this area. It was observed that a patch of soil was void of vegetation, approximately 10 feet by 12 feet, and located north of the wastewater treatment plant pumps building (Ref. No. 26, pp.1 through 9).

The stack associated with the 5 January 2002 release of 2-chloro-6-fluorophenol is located on the roof of a building south of the maintenance building. During the site reconnaissance, although no readings above background were detected on the air monitoring instrument in this area, strong odors were perceived throughout the Diaz property. Ferric chloride and aluminum chloride were used as catalysts in the production reactions and reportedly scrubbers were still in operation. Several features of the facility were located for mapping purposes using Global Positioning System (GPS) measurements (Ref. No. 29, pp. 1 through 9).

During the reconnaissance it was observed that Diaz discharges to a storm sewer drain located to the northeast of the property on Jackson Street. Two discharges to the unnamed tributary of the East Branch of Sandy Creek were observed. One of the discharges runs through a pipe directly under the Holley VFW Hall. The other discharge pipe is located southwest of the facility and is known to have an NPDES permit. Also, there is a corrugated pipe on the fence line to the south of the facility, north of the VFW Hall. The origin of this pipe is unknown. (Ref. No. 29, pp. 1 through 9).

On 16 through 27 June 2003, Region 2 SAT personnel collected a total of 275 surface soil samples, 11 sediment samples, 8 groundwater samples, 3 surface water samples, 1 wastewater sample, and 1 sludge sample for: Target Compound List (TCL-Organic), and 2-chloro-6-fluorophenol (2C6FP); and

Target Analyte List Metals (TAL-Metals), cyanide, and molybdenum analyses. The samples were collected under the USEPA Contract Laboratory Program (CLP) case number 31846. The organic analyses were performed by Liberty Analytical and the inorganic metal analyses were performed by CHEMED. In addition, 143 surface soil samples were analyzed for dioxin by Southwest Research Laboratories. Also, 42 dust samples were collected from the interior of nearby residences and sent to Severn Trent Laboratories (STL) for TAL-metals, and mercury analyses. In addition, 23 dust samples were collected and sent to Southwest Research Institute for dioxin, polycyclic aromatic hydrocarbons (PAHs) and 2C6FP analyses. A total of 17 insulation (fiberglass) samples were collected and sent to Compuchem Laboratories for 2C6FP analysis. A total of 55 indoor air samples were collected from the interior of the residences. The samples were sent to STL Burlington Laboratories for EPA Method T0-15 and 2C6FP analyses (Ref. Nos. 29; 30, pp. 1 through 176).

Hydrogeology, Well Use and Surface Water

The Diaz site is located on glacial deposits which overlie bedrock strata of Ordovician age. The Ordovician strata overlie Precambrian crystalline rock. The surficial deposits in the region were laid down as glacial basal till and as lacustrine (lake bed) sediments. The lacustrine sediments at the Diaz property consist of interlayered fine sands and silts. The till deposits tend to be mostly fine-grained but heterogeneous, consisting of silt with eroded rock fragments in the form of gravel, cobbles and boulders. Bedrock in Holley consists of the Queenston Shale and younger formations of the Medina Group. The Queenston Shale consists of siltstone with interbeded shale and is approximately 1,000 feet thick. Bedrock strata underlying the site have been affected by faulting associated the Clarendon-Linden fault system. The Clarendon-Linden fault is characterized by high-angle reverse and normal faulting (Ref. No. 31, pp. 18 through 21).

Groundwater at the site flows through both overburden soils and bedrock. Groundwater is found on the Diaz property at a depth of 10 to 15 feet below ground surface around the main production areas. Flow in the overburden is through the glacial till and glacolacustrine silts and sands. Flow through the bedrock is assumed to be primarily through bedrock joints and fractures associated with the Clarendon-Linden fault system, with minimal flow occurring in the matrix between fractures. The overburden permeabilities range from 2.5×10^{-5} to 4.4×10^{-3} centimeters per second (cm/sec), with a geometric mean of 1.8×10^{-4}. Bedrock permeabilities range from 5.2×10^{-7} to 3.7×10^{-4} cm/sec, with a geometric mean of 4.8×10^{-5}. Groundwater flow is primarily toward the east and to the southeast of the Diaz facility (Ref. No. 8, p. 15; 31, p.18 through 21).

At the time of the Phased Remedial Investigation/Feasibility Study (RI/FS) there were eight domestic wells ranging in depth from 12 to 95 feet and one abandoned well within a 0.5-mile radius of the Diaz facility. These wells were used for gardening, laundry, and washing vehicles. The Village of Holley receives potable water from a public utility system. The Holley public water supply system serves approximately 2,200 people. It consists of three hand-dug and two drilled wells. The hand-dug wells flow by gravity to a pumping station and the water is stored in a 100,000-gallon storage tank. The Holley potable water system receives water from the Monroe County Water Authority in the summer. The whole system produces approximately 132 million gallons (MG) per year (Ref. Nos. 31, p. 23; 32, p. 1).

The East Branch of Sandy Creek is designated by the NYSDEC as a “Significant Coastal Fish and Wildlife Habitat” from the confluence of the east and west branches to Lake Ontario. The entire stream is designated as a Class “C” (unprotected) designation from the Village of Holley to Lake Ontario . The “C” designation reflects that cold water fish (salmonids) are not present in the summer and do not successfully spawn in this stream. The East Branch of Sandy Creek has no surface water intakes and is not used for public water supply (Ref. No. 33, pp. 1 through 3).

SITE ASSESSMENT REPORT: EXPANDED SITE INSPECTION/REMEDIAL INVESTIGATION

PART I: SITE INFORMATION

1. Site Name/Alias Diaz Chemical Corporation, a.k.a. Diaz Chemicals, Inc., a.k.a. Diaz Chemicals Corporation, a.k.a. FMC C/O Diaz Chemicals

   Street 40 Jackson Street

   City Village of Holley State New York Zip 14470

2. County Orleans County C ode 073 Cong. Dist. N/A

3. CERCLIS ID NO. NYD067532580

4. Parcel Nos.: 87.8-2-38.1, 88.5-1-29, 87.6-2-30, 88.29-1-19

5. Latitude 43° 13' 22.00" North Longitude -78° 01' 47.00" West

   USGS Quad(s). Holley, NY

6. Approximate size of site 5 Acres

7. Owner: Diaz Chemical Corporation Telephone Nos. (716) 638-6321

   Street 40 Jackson Street

   City Holley State NY Zip 14470

   Mailing Address Box 194, Holley, New York 14470

8. Operator Diaz Chemical Corporation

   Telephone No.(716) 638-6321

9. Type of Ownership

   X Private __ Federal __ State

   __ County __ Municipal __ Unknown __ Other

10. Owner/Operator Notification on File

__X__ RCRA 3010 4 Dec 1986 Date _____ CERCLA 103c Date _____

11. Permit Information

Permit	Permit No.	Date Issued	Expiration Date
SPDES	NY0107166	7/01/1979	03/01/2005
Air	C3432010060B6901WI24	3/08/1996	
	C3432010060B6901WI23	3/08/1996	
	C3432010060B6901WI22	3/08/1996	
	C3432010060B6901WI21	3/08/1996	
	C3432010060B6901WI20	3/08/1996	
	C3432010060B6901WI19	3/08/1996	
	C3432010060B6901WI18	3/08/1996	
	C3432010060B6901WI17	3/08/1996	
	C3432010060B6901WI16	3/08/1996	
	C3432010060B6901WI15	3/08/1996	
	C3432010060B6901WI14	3/08/1996	
	C3432010060B6901WI13	3/08/1996	
	C3432010060B6901WI12	3/08/1996	
	C3432010060B6901WI11	3/08/1996	
	C3432010060B6901WI10	3/08/1996	
	C3432010060B6901WI09	3/08/1996	
	C3432010060B6901WI08	3/08/1996	
	C3432010060B6901WI07	3/08/1996	
	C3432010060B6901WI06	3/08/1996	
	C3432010060B6901WI05	3/08/1996	
	C3432010060B6901WI04	3/08/1996	
	C3432010060B6901WI03	3/08/1996	
	C3432010060B6901WI02	3/08/1996	
	C3432010060D3901WI13	3/08/1996	
	C3432010060D3901WI12	3/08/1996	
	C3432010060D3901WI11	3/08/1996	
	C3432010060D3901WI10	3/08/1996	
	C3432010060D3901WI09	3/08/1996	
	C3432010060D3901WI08	3/08/1996	
	C3432010060D3901WI07	3/08/1996	
	C3432010060D3901WI06	3/08/1996	
	C3432010060D3901WI05	3/08/1996	
	C3432010060D3901WI02	3/08/1996	

Permit	Permit No.	Date Issued	Expiration Date
RCRA	NYD067532580	NA	NA
NY Industrial User Permit	Permit No. 001	07/06/0997	05/31/1999

Ref. Nos. 34, 35, 36, 37, 38

12. Site Status

___ Active X Inactive __ Unknown

13. Years of Operation: 29 years

14. Identify the types of waste sources (e.g., landfill, surface impoundment, piles, stained soil, above- or below-ground tanks or containers, land treatment, etc.) on site. Initiate as many waste unit numbers as needed to identify all waste sources on site.

(a) Waste Sources

Waste Unit No.	**Waste Source Type**	**Facility Name for Unit**
1.	Tanks/Containers	Wastewater Treatment Sump
2.	Contaminated soil	On-site contaminated soil
3.	Tanks/Containers	Tanks
4.	Drums	Drums

(b) Other Areas of Concern

No other areas of concern were identified during SAT's investigation.

Ref. No. 29

15. Describe the regulatory history of the site, including the scope and objectives of any previous response actions, investigations and litigation by State, Local and Federal agencies (indicate type, affiliation, date of investigations).

- On 5 January 1989 the New York State Supreme Court submitted judgement against Diaz for operating as a storage, treatment, and disposal (STD) facility storing more than 20,000 gallons of hazardous waste at the facility for more than 90 days without NYSDEC's approval.

- On 30 March 1989, FMC Corporation signed an Operating Services Agreement with Diaz. This agreement authorized FMC to occupy a certain portion of the Diaz property, with the only purpose being to convert technical-grade carbofuran pesticide into technical-grade carbosulfan pesticide (the "conversion process"). Previously, Diaz had performed the conversion process for a fee.

- In July 1992, Diaz was added to the New York Registry of Inactive Hazardous Waste Disposal Sites as a Class 2 site because of groundwater contamination. The Class 2 classification indicated that the contaminants at the site presented a significant threat to public health or the environment for which action was required.

- On 16 July 1992, NYSDEC issued a memorandum indicating that the presence of ethylenedichloride and other organic compounds in area groundwater was characteristic of Diaz operations.

- In July 1994, a Consent Order (CO) was signed committing Diaz to conduct a Remedial Investigation/Feasibility Study (RI/FS). The first phase RI was completed in December of 1994. In November 1994, H&A of New York prepared a Phase I Technical Memorandum - Phased RI/FS for Diaz summarizing activities during 1994. The Phase I investigation included soil-gas testing, Hydropunch™ sampling, soil sampling, and analysis and monitoring well installations, sampling, and analysis. The investigation indicated elevated concentrations of VOCs and SVOCs were found in the overburden soils at the various areas of the facility, and elevated VOC concentrations were found in the overburden groundwater. An assessment of IRMs considered installation of a groundwater migration control system across the southeast portion of the property. Twelve monitoring wells were installed. Seven wells were completed as overburden bedrock monitoring wells ranging in depth from 12.1 to 25 feet; five wells were completed as shallow bedrock monitoring wells ranging in depth from 38.5 to 49.7 feet.

- In 1996, Diaz conducted Phase III of the RI. During this phase of the investigation, elevated levels of site-specific compounds and EDC were detected in the overburden groundwater, as well as xylenes and other hydrocarbons in the overburden soils along the water table. The Phase III report identified three areas of concern or sources.

- In 1998, Haley and Aldrich issued a year-end summary report for the activities performed at Diaz in accordance with the Phase V work plan approved by NYSDEC in 1998.

- In February 2000, Haley & Alrich of New York issued a RI summary report on behalf of Diaz. The report summarized the results of the RI activities in Phases I through VI from 1994 through 1999.

- On 3 August 2000, EPA conducted a RCRA compliance inspection to determine Diaz's compliance with applicable federal regulations for organic air emissions pursuant to the 40 Code of Federal Regulation (CFR), Part 265, Subpart BB and CC. A Diaz representative indicated to EPA that he believed those regulations were not applicable to the facility.

- On 27 March 2001, EPA issued a Complaint and Notice of Opportunity for Hearing, alleging that Diaz violated the organic emission regulation by failing to make a determination of the maximum organic vapor pressure for organic hazardous waste in its tanks; failure to monitor valves on a monthly basis or perform an initial performance test to comply with alternative requirements on the valves; failure to have an up-to date analysis and supporting information data and documentation in the facility operating record; and failure to comply with the Air

Emission Standards for equipment leaks or to have a list of equipment used less than 300 hours per calendar year.

- On 12 January 2002, the New York State Attorney General's Office in Buffalo had flake samples collected from the material released on 5 January 2002 from the Diaz faciliity.

- On 17 January and 31 January 2002, NYSDOH, Center for Environmental Health, collected a total of 36 urine samples from residents in the Village of Holley.

- On 8 March 2002, the Supreme Court of the State of New York issued a Verified Complaint (State of New York vs. Diaz) indicating that Diaz caused a public nuisance by its operation of a chemical manufacturing plant.

- On 28 March 2002, NYSDEC approved the Record of Decision (ROD) for Diaz.

- On 29 August 2002, personnel from the EPA's Air Compliance Branch (ACB) conducted an inspection at the Diaz plant to determine if the facility's operations and processes were in compliance with the NY state air operating permit and the State Implementation Plan (SIP).

- On 20 September 2002, EPA Region 2, Response and Prevention Branch issued an Action Memorandum to request additional funding to continue with the removal action activities at the site and site inspection.

- On 26 November 2002, NYSDOH, Center of Environmental Health, issued a Public Health Assessment report of an assessment conducted at Diaz after the 5 January 2002 release.

- On 7 March 2003, personnel from the NYSDEC, Region 8, Air Resources Division, visited the Diaz facility. The overall housekeeping at the facility needed improvement.

- On 29 May 2003, the Region II Site Assessment Team (SAT) conducted an on-site reconnaissance.

Ref Nos. 5, pp. 1 through 42; 7, pp. 1 through 12; 8; 9, pp. 41 through 42; 21, p. 1; 23, pp. 1 through 7; 26, pp. 1 through 10; 27, pp. 1 through 4; 32; 33

a) Is the site or any waste source subject to Petroleum Exclusion? Identify petroleum products and by products that justify this decision.

No. Diaz is an inactive halogenated and specialty chemicals manufacturing company.

Ref. Nos. 4, p. 4; 5, p. 8; 12, pp. 1 through 7; 39

b) Has normal farming application of pesticides registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) occurred at the site? Have pesticides been produced or stored at the site? Have there been any leaks or spills of pesticides on site?

No application of pesticides registered under FIFRA have occurred at the site. Diaz manufactured organic specialty chemicals and intermediates for the pharmaceutical, photographic, color, dye, and personal care products industries as well as the agricultural industry. There is documentation indicating more than 30 spills and releases at the Diaz facility throughout its operational years. In 1989, Diaz signed an agreement with FMC Corporation for the conversion of pesticides.

Ref. Nos. 2, pp. 1 through 2; 9, pp. 14 through 42; 12, pp. 1 through 7; 13; 14, pp. 1 through 207

c) Is the site or any waste source subject to RCRA Subtitle C (briefly explain)?

Diaz had a generator identification number (NYD067532580). Diaz wastes consisted of process water, and halogenated, organic, and inorganic residual wastes from the manufacturing processes. Hazardous wastes generated at Diaz included wastes exhibiting the characteristics of toxicity and wastes from non-specific sources (F wastes) and discarded commercial chemical products including manufacturing chemical intermediates (U wastes).

Ref. Nos. 4, pp. 6, 13, 234 through 238; 39

d) Is the site or any waste source maintained under the authority of the Nuclear Regulatory Commission (NRC)?

Neither the site nor any waste sources are maintained under the authority of the NRC.

Ref. Nos. 1; 2; 4

16. Do any conditions exist on site which would warrant immediate or emergency action?

Available background information and observations made during the 29 May 2003 on-site reconnaissance and the 16 through 27 June 2003 site inspection conducted by Region II SAT indicates that there are an undetermined amount of containers (drums, tanks, sumps) containing hazardous wastes in different storing and staging areas throughout the Diaz property. Some of these storing areas are not covered or protected. The facility ceased operations with all the wastes in place. Although the property is completely fenced, trespassers can access the property and containerized wastes can be subject to vandalism. At the time of the preparation of this report a Removal Action was underway.

Ref. Nos. 29, 39

17. Information available from:

Contact: Dennis Munhall Agency: U.S. EPA Telephone No.: (212) 637-4343

Preparer: Jorge L. Quiñones Agency: Weston Solutions, Inc. Date: March 2004

PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.

Waste Unit 1 - Wastewater Treatment Sump

Source Type

_____ Landfill	_____ Contaminated Soil
_____ Surface Impoundment	_____ Pile
_____ Drums	_____ Land Treatment
___X___ Tanks/Containers	_____ Other

Description:

The waste unit is part of the wastewater treatment system. Wastewater and stormwater runoff is collected via surface trenches and directed to an open concrete tank known as the wastewater treatment sump. This trench system receives water and spills from the different facility buildings. Treated groundwater also is discharged to this sump. The sump is divided into three sedimentation chambers. The sump is 13.8 feet deep by 21 feet long by 14.7 feet wide. Sludge was observed accumulated in the first chamber of the sump.

Ref. Nos. 7, pp. 1, 5; 29

Hazardous Waste Quantity

Based on background information and information gathered during the site reconnaissance, the sump has an approximate volume of 17,000 gallons (2,272.6 cubic feet). Assuming a 1-foot layer of sludge in each of the sedimentation chambers, the sludge volume would be approximately 294 cubic feet.

Ref. Nos. 7, p. 3; 40; 41; Tables 1 through 5

Hazardous Substances/Physical State

Sludge and wastewater samples collected during the site inspection indicated the presence of aluminum, arsenic, barium, chromium, calcium, copper, lead, magnesium, manganese, nickel, zinc, molybdenum, 1,2-dichloroethane, 2-chloro-6-fluorophenol, heptachlor, heptachlor epoxide, endrin, 2-butanone, phenol, acetophenone, phenanthrene, anthracene, carbazole, fluoranthene, pyrene, benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, and gamma-chlordane in concentrations above the CRDLs and CRQLs organic and inorganic analytes in concentrations above the Contract Required Detection Limits (CRDLs) and the Contract Required Quantitation Limits (CRQLs).

According to background information and observations made during the site reconnaissance, the physical state of the wastes discharged into the sump was liquids (wastewater).

Ref. No. 7, p. 3

Waste Unit 2 - On-site Contaminated Soil

Source Type

_____ Landfill	____X____ Contaminated Soil
_____ Surface Impoundment	_____ Pile
_____ Drums	_____ Land Treatment
_____Tanks/Containers	_____ Other

Description:

The waste unit includes soils located at the southeast corner of the property known as the Hillcrest Lot. This area was reportedly used to stage non-hazardous materials. During SAT's on-site reconnaissance, it was observed that the area was used to stage unused tanks, mixing tank parts, drums, and other scrap. The eastern part of this area is where the groundwater interceptor trench is located.

Hazardous Waste Quantity

Based on observations during the site reconnaissance, and drawings from previous investigations, and GPS data, the waste area is approximately 1.163 acres. Analytical results indicates concentration of metals and organic compounds in concentrations significantly above background concentrations, CRDLs, CRQLs, and NYSDEC Recommended Soil Cleanup Criteria (RSCC).

Ref. Nos. 29; 40

Hazardous Substances/Physical State

There is no background information indicating the physical state or if wastes were disposed of in the Hillcrest Lot area. However, during SAT's site inspection, it was observed that the area is used to stage drums, tanks, mixing parts, and scrap. Surface runoff from Area 5 and the drum storage area flows through the Hillcrest lot and adjacent areas. During the site inspection, surface soil samples were collected. Analytical results indicated the presence of arsenic, chromium, copper, lead, magnesium, nickel, fluoranthene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(a)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, and 4,4-DDE in concentrations significantly above background, CRDLS, RSCC, and/or the EPA Soil Screening Levels (SSLs).

Ref. Nos. 8; 29; Tables 5 through 8

Waste Unit 3 - Tanks

Source Type

_____ Landfill	_____ Contaminated Soil
_____ Surface Impoundment	_____ Pile
_____ Drums	_____ Land Treatment
____X____ Tanks/Containers	_____ Other

Description:

The waste unit consists of the aboveground storage tanks (ASTs) located in the tank farms throughout the Diaz facility. The tanks contains process wastewater, toluene, hydrobromic acid, methanol/water mix, mixed bromotoluene, sodium hydroxide, scrubber solution, sodium thiosulfate, and calcium chloride. The ASTs were abandoned after the facility ceased operations in the summer of 2003.

Hazardous Waste Quantity

Based on a "Bulk Chemical Inventory" prepared by WRS Infrastructure & Environment, Inc. (WRS) dated 8 October 2003, the total volume of liquid waste in the tanks is approximately 111,000 gallons.

Ref. No. 39, p. 6

Hazardous Substances/Physical State

The ASTs contain process wastewater as well as other solutions, mixtures and product chemicals. According to background information, the physical state of the wastes is liquid and they consist of halogenated products and solvents.

Ref. No. 39, p. 6

Waste Unit 4 - Drums

Source Type

_____ Landfill	_____ Contaminated Soil
_____Surface Impoundment	_____ Pile
___X_____ Drums	_____ Land Treatment
_____ Tanks/Containers	____X____ Other (contaminated sediments)

Description:

The waste unit consists of hundreds of drums located outside Warehouses 2 and 3, Building F, and Area 5 drum storage area that contain acids, bases, solvents, and halogenated solvents and wastes. The drums were inventoried in June 2003 by WRS.

Ref. No. 39, p. 7 through 9

Hazardous Waste Quantity

The wastes are stored in 55-gallon drums staged in different areas throughout the property. The waste quantity volume was determined from the WRS a drum inventory to be 10,489,517 kilograms (2,312,542 gallons) of containerized waste.

Ref. Nos. 39, p. 7 through 9; 41

Hazardous Substances/Physical State

According to background information, the physical state of the hazardous substances stored in drums are liquids or aqueous wastes According to WRS the drums specifically contain 2,4-dichloro, 5-nitrobenzotrifluoride, 3-amino,4-chlorobenzotrifluoride, acetone, copper oxide, dibromoanisole, fluorobenzene, sulfuric acid, hydrobromic acid, potassium carbonate, potassium fluoride, m-fluoroanisole, magnesium chloride, magnesium sulfate, sodium bromide, sodium acetate, n-propylbromide, o-fluoroaniline, p-bromotoluene, p-chloroacetophenone, p-chlorobenzotrifluoride, p-fluoroaniline, p-fluorophenol, p-fluronitrobenzene, tetrabromoammonium bromide, o-bromotoluene, xylene/toluene, bromoxylenes, dibromofluorobenzene, and 3,5-dibromofluorobenzene.

Ref. No. 39, p. 7 through 9

PART III. SAMPLING RESULTS

EXISTING ANALYTICAL DATA

On 5 September 1990, Huntington Analytical Services collected two groundwater samples from Well 1 and Well 2. The samples were analyzed under job number HAS#90-1189 for VOC and inorganic wet chemical analyses. The analytical results indicated the presence of ethylene dichloride (2,100 micrograms per liter (ug/l), total phenolics (0.02 mg/l), chloride (2,350 mg/l), and sulfate (370 mg/l) in Well 1 and Well 2 (Ref. No. 42, pp. 1 through 8).

On 19 November 1990, Upstate Laboratories issued an Analysis Report # 111990008-Annual to Diaz for groundwater samples collected by Diaz from Well 1 and Well 2. The samples were collected on 5 September 1990 and analyzed for VOCs and other specialty halogenated compounds. Analytical results indicated the presence of 1,2-dichloroethane (2,600 ug/l), and bis(2-ethylhexyl)phthalate (18 ug/l) (Ref. No. 43, 1 through 12).

On 26 July 1992, NYSDEC issued a memorandum indicating that ethylene dichloride was detected in groundwater at the Diaz site. Analytical results included in the memorandum indicated that analytical results from samples collected from Well 1 and Well 2 in 1989 indicated the presence of methylene dichloride (6 ug/l), ethylene dichloride (280 ug/l to 3,700 ug/l), acetone (10 ug/l to 2,290 ug/l), 1-bromo-2-chloroethane (180 ug/l to 591 ug/l), 2-bromopyridine (94 ug/l to 2,500 ug/l), and p-chlorobenzotrifluoride (13 ug/l to 270 ug/l). A composite sample collected on 26 through 29 November 1990 by Huntington Analytical Services indicated the presence of methylene chloride (44 ug/l), acetone (76 ug/l to 290 ug/l), ethylene dichloride 69 ug/l to 148 ug/l), ethylene dibromide (91 ug/l to 100 ug/l), bromochloroethane (58 ug/l to 150 ug/l), fluorobenzene (68 ug/l to 92 ug/l), 2-bromopyridine (120 ug/l to 430 ug/l), p-chlorobenzo trifluoride (518 ug/l to 958 ug/l),and 3,4-dichlorobenzotrifluoride (340 ug/l to 360 ug/l) (Ref. No. 46, pp. 1 through 3).

On 11 May 1995, the NYSDEC, Bureau of Western Remedial Action, collected sediment and surface water samples from Sandy Creek. The samples were shipped to Ecology and Environment, Inc. under Case Number RB095 for VOC (method 91-1) and SVOCs analyses. The analytical results indicated the presence of dimethylphthalate (120 ug/kg) in the sediment sample DZ01 (Ref. No. 44, pp. 1, 6, 8 through 17).

On 20 June 1995, H&A of New York collected two groundwater samples from monitoring wells MW-104S (GW1) and MW-105SR (GW2), and three sediment samples, including a duplicate, from Sandy Creek and an unnamed stream. The samples were sent to Upstate Laboratories, Inc. for VOCs, SVOCs, and site-specific compound analyses. Analytical results indicated the presence of 1,2-dichloroethane (8,600 ug/l), dimethylphthalate (36 ug/l), 1-bromo,2-chloroethane (1,300 ug/l), 4-chlorobenzotrifluoride (1,000 ug/l), and 3,4-dichlorobenzotrifluoride (42 ug/l) in MW104S; 1,2-dichloroethane (89 ug/l) and 1-bromo,2-chloroethane (7 ug/l) were detected in MW-105SR. Analytical results for one of the samples collected in Sandy Creek indicated the presence of 4-chlorobenzotrifluoride (19 ug/l) (Ref. No. 45, pp. 1 through 23).

On 29 December 1998, Haley & Aldrich issued a RI/FS Phase V Technical Memorandum. This document summarize the Phase V activities performed during year 1998, including residential indoor air sampling, residential sump sampling, and groundwater sampling. A total of nine indoor air samples were collected from nearby residences on 26 February through 11 August 1998. Analytical results indicated the presence of 4-chlorobenzotrifluoride (PCBTF) (29 ug/m^3) as well as benzene, toluene, ethylbenzene, and xylenes. Water samples were collected from residences sumps on 26 February and 20 October 1998. The analytical results indicated the presence of dissolved VOCs. Soil gas samples were collected using Gore-Sorber modules during June and August 1998. Analytical results indicated the presence of VOCs ranging from 40.6 ug to 91.68 ug and 4-chlorobenzotrifluoride (138.6 ug/m^3), 3,4-dichlorobenzotrifluoride (26.5 ug/m^3), 1-bromo-4-fluorobenzene (3.9 ug/m^3), and ethylene dichloride (2.7 ug/m^3). Other compounds, including 1,2-bromochloroethane, 1,2-dibromoethane, and tetrachloroethene were detected in concentrations of less than 1 ug. Groundwater samples were collected during 16 to 19 October 1998. The samples were collected from monitoring wells MW-103, MW-104, MW-105, MW-106, MW-107, MW-108, MW-109, MW-110, MW-111, and MW-112 and analyzed for VOCs and SVOCs including site-specific compounds and Tentatively Identified Compounds (TICs). Analytical results indicated the presence of 4-chlorobenzotrifluoride (0.980 mg/l), 1,2-dichloroethane (0.630 mg/l), and 1-bromo,2-chloroethane (0.2 mg/l) (Ref. No. 47, pp. 1, 6, 8 through 11).

On 3 May 1999, Upstate Laboratories, Inc. collected and analyzed four indoor air samples from the basement of residences in Holley. The samples were analyzed for TCL volatiles. The analytical results indicated the presence of 4-chlorobenzotrifluoride (33 ug/m^3), methylene chloride (9 ug/m^3), and toluene (17 ug/m^3) (Ref. No. 48, pp. 1, 3, 4 through 17).

On 12 January 2002, the NYS Attorney General's Office had flake samples collected from glass surfaces that had been spattered with droplets of the material released from Diaz. The samples were sent to Alta Analytical Perspectives, Wilmington, North Carolina for analysis (Ref. No. 49, pp. 1 through 7).

On 14 though 15 January 2002, NYSDOH and Orleans County Health Department (OCDOH) staff collected indoor air samples from the living rooms and basements of four homes along Jackson Street and South Main Street. The analytical results showed concentrations of less than 30 micrograms per cubic meter (µg/m^3) of CFP in the indoor and outdoor air samples. Additional samples were analyzed by NYSDOH Wadsworth Center, detecting CFP in air in a concentration of 0.2 mcg/m^3 in air. (Ref. No. 4, p. 11).

On 17 and 31 January 2002, NYSDOH collected a total of 36 urine samples from 36 residents of Holley. Analysis detected 2-chloro-6-fluorophenol in 11 of the 36 samples. On 8 March 2002, NYSDOH collected additional samples from individuals who had detectable levels of 2-chloro-6-fluorophenol in the first urine test (Ref. No. 21, pp. 1 through 11).

On 20 May 2002 and 3 June 2002, the Lockheed Martin/Environmental Services REAC personnel collected air, soil and wipe samples from residential properties in the Village of Holley, near the Diaz facility. The air samples were analyzed for CFP using a Trace Atmospheric Gas Analyzer (TAGA) mobile laboratory to collect the sample. The air sampling results indicated concentrations

for CFP ranging from 0.21 to 0.40 micrograms per cubic meter ($\mu g/m^3$) in air. The soil sampling results indicated concentrations of CFP ranging from 4.4 to 860 micrograms per kilograms ($\mu g/kg$). The wipe samples results indicated concentrations of CFP below the method detection limit (MDL) of 0.1 micrograms per square centimeter ($\mu g/100\ cm^2$). (Ref. No. 25, pp. 1 through 8).

On 3 June 2003, Region 8-NYSDEC, collected water samples from three sumps in buildings F, A and C at the Diaz facility. The samples were analyzed by Ecology and Environment Laboratory in Lancaster, New York, for VOCs and SVOCs in addition to halogenated compounds. Analytical results indicated the presence of 1-bromo-4-fluorobenzene (1,200 ppb), fluorobenzene (38 ppb), 1-bromo-2-chlorobenzene (25 ppb), 1-bromo-3-fluorobenzene (21 ppb), 1-bromo-2-fluorobenzene (930 ppb), 1,1,2-trichloro-1-propene (17 ppb), 4-chlorobenzotrifluoride (880 and 62 ppb), 3,4-dichlorobenzotrifluoride (59 ppb), chlorobenzene (24 ppb), benzene (21 ppb), bis(2-ethylhexy)phthlate (48 ppb), and polycyclic aromatic compounds (15 ppb). (Ref. No. 6, pp. 9 through 10).

SITE INSPECTION SAMPLING RESULTS

ON-SITE SAMPLES

Sump Samples

In June 2003, Region 2 SAT collected a wastewater sample (DCI-WW-01) and a sludge sample (DCI-SLD-01) from the bottom of the wastewater collection sump. The samples were analyzed under the contact laboratory program (CLP), Case Number 31846. The organic portion of the samples were sent to Liberty Analytical Corporation for TCL volatile analyses. The inorganic portion of the samples were sent to ChemTech Consulting Group (CHEMED) for TAL Metals, cyanide, and molybdenum analyses. The wastewater and the sludge samples analytical results indicated the presence of organic and inorganic constituents above the Contract Required Quantitation Limits (CRQLs) and the Contract Required Detection Limits (CRDLs) respectively. The wastewater sample (DCI-WW-01) analytical results indicated the presence of calcium (104,000 ug/l), copper (28.4 ug/l), magnesium (13,600 ug/l), manganese (470 ug/l), zinc (102EJ ug/l), molybdenum (6J ug/l), 1,2-dichloroethane (10 ug/l), 2-chloro-6-fluorophenol (3J ug/l), heptachlor (11J ug/l), heptachlor epoxide (5.4 ug/l), and endrin (0.31J ug/l) in concentrations above the CRQL and CRDL. The sludge sample (DCI-SLD-01) analytical results indicated the presence of aluminum (3,500 mg/kg), arsenic (4.8 mg/kg), barium (126 mg/kg), chromium (77.3 mg/kg), copper (778 mg/kg), lead (16.4 mg/kg), magnesium (1,1700 mg/kg), manganese (687 mg/kg), nickel (51.6 mg/kg), zinc (633 mg/kg), molybdenum (7.5 mg/kg), 2-butanone (16J ug/kg), phenol (2,400 ug/kg), acetophenone (890 ug/kg), phenanthrene (7,500 ug/kg), anthracene (740 ug/kg), carbazole (970 ug/kg), fluoranthene (1,400 ug/kg), pyrene (11,000 ug/kg), benzo(a)anthracene (4,900 ug/kg), chrysene (5,900 ug/kg), bis(2-ethylhexyl)phthalate (3,200 ug/kg), benzo(b)fluoranthene (5,800 ug/kg), benzo(k)fluoranthene (5,400 ug/kg), benzo(a)pyrene (5,300 ug/kg), indeno(1,2,3-cd)pyrene (3,400J ug/kg), dibenzo(a,h)anthracene (880 ug/kg), benzo(g,h,i)perylene (2,400 ug/kg), endrin (18,000J ug/kg), and gamma-chlordane (34,000 ug/kg) in concentrations above the CRDLs and CRQLs (Ref. Nos. 62; 63; Tables 1 through 4).

On-site Soil Samples

Eight surface soil samples were collected within property boundaries to characterize on-site soil conditions. Surface soil samples DCI-S-237, DCI-S-238, DCI-S-239, and DCI-S-240 were collected from the south and southeast portion of the property in areas where scrap and other refuse materials were staged. Surface soil samples DCI-S-241, DC-S-242, and DCI-S-243 were collected from the east of the property in an area of surface runoff, east of the Area 5 drum storage. The samples were collected at a depth of 0 to 3 inches. Surface soil samples analyzed for TCL organics were sent to Liberty Analytical Corporation under CLP Case Number 31846. Soil samples analyzed for TAL metals, including cyanide and molybdenum were shipped to ChemTech Consulting Group under CLP Case Number 31846. Also, the samples were analyzed for dioxin, and 2-chloro-6-fluorophenol by Southwest Research Laboratory.

The analytical results for surface soil samples DCI-S-237 and DCI-S-238, collected in the area southeast of monitoring well MW106SR, indicated the presence of arsenic (38.3 mg/kg), chromium (31.4 mg/kg), copper (163 mg/kg; 36.5 mg/kg), lead (71.4 mg/kg), magnesium (18,200

mg/kg), nickel (56.4 mg/kg), phenanthrene (970 ug/kg), fluoranthene (1,700 ug/kg), pyrene (1,500 ug/kg), benzo(a)anthracene (760 ug/kg), chrysene (870 ug/kg), benzo(b)fluoranthene (750 ug/kg), benzo(k)fluoranthene (670 ug/kg), benzo(a)pyrene (810 ug/kg), indeno(1,2,3-cd)pyrene (650J ug/kg), dibenzo(a,h)anthracene (180J ug/kg), benzo(g,h,i)perylene (460 ug/kg), and endosulfan I (4.1ug/kg) in concentrations significantly above background concentrations, CRDLs, and CRQLs. Arsenic, chromium, copper, lead, magnesium, nickel, benzo(a)anthracene, chrysene, benzo(a)pyrene, and dibenzo(a,h)anthracene were detected in concentrations above the EPA SSLs and the NYSDEC RSCCs. Analytical results for samples DCI-S-239 and DCI-S-240 indicated the presence of copper (41.9 mg/kg), lead (41.4 mg/kg), and magnesium (47,200 mg/kg) in concentrations significantly above background. Surface soil samples DCI-S-241, DCI-S-242, and DCI-S-243 analytical results indicated the presence of lead (50.4 mg/kg to 247 mg/kg), and anthracene (717J ug/kg) in concentrations significantly above background, CRDLs, CRQLs, and RSCCs. Surface soil sample DCI-S-244 was collected northeast of the wastewater sump. Sample DCI-S-244 analytical results indicated the presence of phenanthrene (270J ug/kg), anthracene (59J ug/kg), fluoranthene (760 ug/kg), pyrene (610 ug/kg), benzo(a)anthracene (310J ug/kg), chrysene (450 ug/kg), benzo(b)fluoranthene (410 ug/kg), benzo(k)fluoranthene (390 ug/kg), and benzo(a)pyrene (380J ug/kg) in concentrations significantly above background. Chrysene was detected in a concentration significantly above background and above the RSCCs, and SSLs (Ref. Nos. 62; 63; Tables 5 through 8).

On-Site Groundwater Sampling

Five groundwater samples were collected from five monitoring wells located within the property boundaries in order to characterize local groundwater conditions. The groundwater samples were collected from monitoring wells MW101S (DCI-GW-02), MW106SR (DCI-GW-03), MW102S (DCI-GW-04), MW103S (DCI-GW-05), and MW-108SR (DCI-GW-06). Groundwater samples DCI-GW-02 and DCI-GW-04 were in upgradient locations to the northwest and northeast, respectively. DCI-GW-GW-03, DCI-GW-04, DCI-GW-05, and DCI-GW-06 were collected from downgradient locations to determine a release to and/or migration of contaminants in groundwater. Groundwater samples analyzed for TCL organics were sent to Liberty Analytical Corporation under CLP Case Number 31846. Groundwater samples were analyzed for TAL metals, including cyanide and were shipped to ChemTech Consulting Group under CLP Case Number 31846. Groundwater sample DCI-GW-02 analytical results indicated the presence of aluminum (3,430 ug/l), iron (8,620 ug/l), and manganese (727 ug/l) in concentrations significantly above background. DCI-GW-04 analytical results indicated the presence of manganese (153 ug/l) in a concentration significantly above background and the CRDLs. Groundwater sample DCI-GW-05 was collected east of the transformers area to the east of the facility. The analytical data indicated the presence of manganese (90.3 ug/l) in a concentration significantly above background and the CRDLs. Groundwater samples DCI-GW-03 and DCI-GW-06 were collected downgradient, from the south portion of the property. The analytical results indicated the presence of iron (3,060 ug/l and 11,800 ug/l) and manganese (88 ug/l and 155 ug/l), in concentrations significantly above background and the CRDLs. Another water sample was collected, as groundwater (DCI-GW-08), from the sump in the basement of the residence located at 40 South Main Street. Analytical data did not indicated the presence of inorganic or organic compounds in concentrations significantly above background (Ref. Nos. 62; 63; Tables 9 through 12).

Off-Site Sampling

SURFACE WATER SAMPLES

Surface water sampling

Three surface water samples were collected from the unnamed tributary of the East Branch of Sandy Creek. The samples were collected from two points of discharge from the property to the unnamed stream. The samples were collected to determine migration of contaminants from the property to the creek. Surface water sample DCI-SW- 02 and DCI-SW-03 (duplicate) were collected at PPE 2, located southeast from the property and the bridge over State Road 237. Sample DCI-SW-01 was collected from the PPE 1, located south of the property. The samples were analyzed under CLP Case Number 31846. The organic portion of the samples were sent to Liberty Analytical Corporation for TCL analyses. The inorganic portion of the samples were sent to ChemTech Consulting Group (CHEMED) for TAL metals, cyanide, and molybdenum analyses. The analytical results for sample DCI-SW-01 indicated the presence of lead (23.9 ug/l), manganese (29.9 ug/l), and molybdenum (14.4J ug/l), in concentrations above the CRDLs. Samples DCI-SW-02/DCI-SW-03 analytical results indicated the presence of manganese (21.5 ug/l; 24.5 ug/l) and molybdenum (1.6J ug/l)in concentrations above the CRDLs. Also, samples DCI-SW-03/DCI-SW-03 indicated the presence of traces of bromodichloromethane (1J ug/l), styrene (6 ug/l), and bromoform (6J ug/l). Manganese, lead, molybdenum, bromodichloromethane, styrene, and bromoform were detected in the wastewater sump (Ref. Nos. 62; 63; Tables 13 through 16).

Sediment Sampling

A total of 10 sediment samples were collected from the unnamed tributary and from the East Branch of Sandy Creek. All samples were analyzed under CLP Case Number 31846. The organic portion of the samples were sent to Liberty Analytical Corporation for TCL analyses. The inorganic portion of the samples were sent to ChemTech Consulting Group (CHEMED) for TAL metals, cyanide, and molybdenum analyses. Sediment samples DCI-SED-01 and DCI-SED-02 were collected as background from the unnamed tributary. Sediment samples DCI-SED-06 and DCI-SED-07 were collected as background from the East Branch of Sandy Creek (EBSC). DCI-SED-03 and DCI-SED-04 were collected downstream from the confluence of unnamed stream and the East Branch of Sandy Creek. Sample DCI-SED-04 analytical results indicated the presence of magnesium (10,700 mg/kg) in a concentration significantly above background and the CRDLs. Sediment sample DCI-SED-05 was collected from the confluence of the unnamed tributary and the East Branch of Sandy Creek. The analytical results indicated the presence of magnesium (11,300 ug/kg) in a concentration significantly above background and CRDLs. Sediment sample DCI-SED-08 was collected at PPE 2, from the unnamed tributary. The analytical results indicated the presence of copper (37 mg/kg), magnesium (42,000 ug/kg), phenanthrene (2,700 ug/kg), anthracene (530 ug/kg), pyrene (3,000 ug/kg), benzo(a)anthracene (1,400 ug/kg), chrysene (1,700 ug/kg), benzo(b)fluoranthene (1,600 ug/kg), benzo(k)fluoranthene (1,400 ug/kg), indeno(1,2,3-cd)pyrene (1,100 ug/kg), and benzo(g,h,i)perylene (970 ug/kg) in concentrations significantly above background, CRQLs and/or CRDLs. Sediment samples DCI-SED-09/DCI-SED-10 were collected at PPE 1, from the discharge to the unnamed tributary. The analytical results respectively indicated the presence of arsenic (3.1J mg/kg, 4.4 mg/kg), phenanthrene (1,100

ug/kg), anthracene (830 ug/kg, 280J ug/kg), pyrene (3,900 ug/kg, 1,500 ug/kg), benzo(a)anthracene (2,400 ug/kg, 810 ug/kg), chrysene (2,500 ug/kg), benzo(b)fluoranthene (2,700 ug/kg, 740 ug/kg), benzo(k)fluoranthene (2,200 ug/kg, 810 ug/kg), benzo(a)pyrene (2,300 ug/kg, 710 ug/kg), indeno(1,2,3-cd)pyrene (1,600 ug/kg, 520 ug/kg), and benzo(g,h,i)perylene (1,200 ug/kg, 400J ug/kg) in concentrations significantly above background, CRDLs and/or CRQLs (Ref. Nos. 62; 63; 64; Tables 17 through 20).

Non-Residential Soil Sampling

Seven surface soil samples were collected in different locations outside the Diaz property to determine migration of contaminants from the facility. Two samples were collected from an empty lot north of the backyards of the residences located at 9, 11, and 13 Jackson Street. Two samples were collected east of the Area 5 Tank Farm, east of the facility's southeast side fence. Finally, two surface soil samples were collected from the Murray-Hollow Monument area. The analytical results were compared to eight background samples collected from four residential properties located to the north and south fo the Diaz property, presumed to be not influenced by past plant activities. Analytical results for the sample collected from the Murray-Hollow Monument area indicated the presence of SVOCs including fluoranthene (1,100 ug/kg), pyrene (910 ug/kg), benzo(k)fluoranthene (660 ug/kg), benzo(k)fluoranthene (600 ug/kg), benzo(a)pyrene (620 ug/kg), indeno(1,2,3-cd)pyrene (490 ug/kg) in concentrations above background (Ref. Nos. 29, 62, 63; Tables 109 through 112).

Residential Sampling

Soil sampling

A total of 22 residential properties were sampled by Region 2 SAT on 16 through 27 June 2003. The residential properties were located on Jackson Street, Thomas Street, South Main Street, and Geddes Street. A total of 10 samples were collected from the yards of the selected residences. A total of eight background surface soil samples were collected from four residential properties located within half a mile to the north and the south of the Diaz property. The soil samples were collected from 0 to 3 inches below the vegetation cover. All the soil samples were analyzed under CLP Case Number 31846. The organic portion of the samples were sent to Liberty Analytical Corporation for TCL analyses, including 2-chloro-6-fluorophenol. The inorganic portion of the samples were sent to ChemTech Consulting Group (CHEMED) for TAL metals, cyanide, and molybdenum analyses. In addition, soil samples were sent to Southwest Research Laboratories for dioxin analysis. For resident confidentiality reasons, the home addresses will not be disclosed in this report.

Residence A

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of zinc (554 mg/kg), phenanthrene (950 ug/kg), fluoranthene (1,200 ug/kg), pyrene (1,000 ug/kg), benzo(a)anthracene (540 ug/kg), chrysene (610 ug/kg), benzo(b)fluoranthene (490 ug/kg), benzo(k)fluoranthene (490 ug/kg), benzo(b)fluoranthene (500 ug/kg), indeno(1,2,3-cd)pyrene (350J ug/kg), 4,4'-DDE (230 ug/kg), 4,4'-DDT (140 ug/kg), and endrin aldehyde (7

ug/kg) in concentrations significantly above background concentrations, and above the CRDLs and CRQLs. (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 21 through 24).

Residence B

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (234 mg/kg) and zinc (135 mg/kg) in concentrations significantly above background concentrations and above CRDLs. Zinc was detected in a concentration above the RSCC. In addition, pyrene (410 ug/kg), phenanthrene (440 ug/kg), fluoranthene (510 ug/kg), dieldrin (21 ug/kg), 4,4-DDT (120 ug/kg), and alpha-chlordane (3.1 ug/kg) were detected in concentrations significantly above background and above CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 25 through 28).

Residence C

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of copper (42 mg/kg) and lead (584 mg/kg) in concentrations significantly above background; phenanthrene (1,700 ug/kg), anthracene (430 ug/kg), fluoranthene (3,200 ug/kg), pyrene (2,600 ug/kg), benzo(a)anthracene (1,300 ug/kg), chrysene (1,700 ug/kg), benzo(b)fluoranthene (1,400 ug/kg), benzo(k)fluoranthene (1,500 ug/kg), benzo(a)pyrene (1,500 ug/kg), indeno(1,2,3-cd)pyrene (1,100 ug/kg), benzo(g,h,i)perylene (850 ug/kg), beta-BHC (7.8 ug/kg), 4,4'-DDE (2,100 ug/kg) in concentrations significantly above background and above CRQLs. (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 29 through 32).

Residence D

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of copper (36.8 mg/kg), lead (940 mg/kg), bis(2-ethylhexyl)phthalate (19,000 ug/kg), di-n-octylphthalate (10,000 ug/kg), phenanthrene (730 ug/kg), fluoranthene (1,700 ug/kg), pyrene (1,300 ug/kg), benzo(a)anthracene (670 ug/kg), chrysene (880 ug/kg), benzo(b)fluoranthene (930 ug/kg), benzo(k)fluoranthene (910 ug/kg), benzo(a)pyrene (920 ug/kg), indeno(1,2,3-cd)pyrene (660J ug/kg), benzo(g,h,i)perylene (500 ug/kg), beta-BHC (9.2 ug/kg), and delta-BHC (3.4 ug/kg) in concentrations significantly above background and the CRDLs and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 33 through 36).

Residence E

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (260 mg/kg), beta-BHC (3.9 ug/kg), di-n-octylphthalate (760 ug/kg), and fluoranthene (360J ug/kg) in concentrations significantly above background and above the CRDLs and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 37 through 40).

Residence F

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (1,132 mg/kg), phenanthrene (1,900 ug/kg), anthracene (600 ug/kg), fluoranthene (8,200 ug/kg), pyrene (7,200 ug/kg), benzo(a)anthracene (2,800 ug/kg), chrysene (2,700 ug/kg), benzo(b)fluoranthene (3,200 ug/kg), benzo(k)fluoranthene (2,300 ug/kg), benzo(a)pyrene (3,000 ug/kg), indeno(1,2,3-cd)pyrene (2,100 ug/kg), dibenzo(a,h)anthracene (590 ug/kg), benzo(g,h,i)perylene (1,600 ug/kg), 4,4'-DDE (250 ug/kg), and 4,4'-DDT (160 ug/kg) in concentrations significantly above background, CRDLs and the CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 41 through 44).

Residence G

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of chromium (38.3 mg/kg), lead (2,110 mg/kg), phenanthrene (530 ug/kg), fluoranthene (560 ug/kg), pyrene (560 ug/kg), chrysene (370J ug/kg), 4,4'-DDE (690 ug/kg), and 4,4-DDT (220 ug/kg) in concentrations significantly above background, CRQLs, and CRDLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 45 through 48).

Residence H

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (232J mg/kg), phenanthrene (2,900 ug/kg), anthracene (690 ug/kg), fluoranthene (2,800 ug/kg), pyrene (2,500 ug/kg), benzo(a)anthracene (1,200 ug/kg), chrysene (1,200 ug/kg), benzo(b)fluoranthene (960 ug/kg), benzo(k)fluoranthene (910 ug/kg), benzo(a)pyrene (1,000 ug/kg), indeno(1,2,3,-cd)pyrene (610 ug/kg), and benzo(g,h,i)perylene (480 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 49 through 52).

Residence I

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of copper (34.5 mg/kg), phenanthrene (2,300 ug/kg), anthracene (430J ug/kg), fluoranthene (3,700 ug/kg), pyrene (3,100 ug/kg), benzo(a)anthracene (1,500 ug/kg), chrysene (2,000 ug/kg), benzo(b)fluoranthene (1,900 ug/kg), benzo(k)fluoranthene (1,500 ug/kg), benzo(a)pyrene (1,800 ug/kg), indeno(1,2,3-cd)pyrene (1,300 ug/kg), and 4,4'-DDE (450 ug/kg), 4,4-'DDD (13 ug/kg), 4,4'-DDT (160 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 53 through 56).

Residence J

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (1,320 ug/kg), anthracene (350J ug/kg), fluoranthene (2,900 ug/kg), pyrene (2,900 ug/kg), benzo(a)anthracene (1,400 ug/kg), chrysene (1,800 ug/kg), benzo(b)fluoranthene (1,800 ug/kg), benzo(k)fluoranthene (1,300 ug/kg), benzo(a)pyrene (1,500 ug/kg), indeno(1,2,3-cd)pyrene (1,100 ug/kg), benzo(g,h,i)perylene (840 ug/kg), heptachlor (40

ug/kg), dieldrin (330J ug/kg), endrin (260J ug/kg), heptachlor epoxide (6J ug/kg), and gamma chlordane (17J ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 57 through 60).

Residence K

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (112 mg/kg), phenanthrene (1,700 ug/kg), fluoranthene (2,800 ug/kg), pyrene (2,600 ug/kg), benzo(a)anthracene (930 ug/kg), chrysene (1,200 ug/kg), di-n-octylphthalate (590 ug/kg), benzo(b)fluoranthene (950 ug/kg), benzo(k)fluoranthene (1,200 ug/kg), benzo(a)pyrene (1,200 u/kg), indeno(1,2,3-cd)pyrene (750 ug/kg), benzo(g,h,i)perylene (640 ug/kg), 4,4'-DDE (1,400 ug/kg), 4,4'-DDD (25 ug/kg), 4,4'-DDT (540 ug/kg), alpha-chlordane (18J ug/kg), and gamma-chlordane (16 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 61 through 64).

Residence L

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (2,670 mg/kg), phenanthrene (2,400 ug/kg), fluoranthene (3,700 ug/kg), pyrene (2,200 ug/kg), benzo(a)anthracene (910 ug/kg), chrysene (1,200 ug/kg), benzo(b)fluoranthene (1,100 ug/kg), benzo(k)fluoranthene (1,100 ug/kg), benzo(a)pyrene (1,100 ug/kg), indeno(1,2,3-cd)pyrene (830 ug/kg), and benzo(g,h,i)perylene (650 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 65 through 68).

Residence M

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (7,050 mg/kg), zinc (2,000 mg/kg), phenanthrene (3,600 ug/kg), anthracene (610 ug/kg), fluoranthene (4,200 ug/kg), pyrene (3,100 ug/kg), benzo(a)anthracene (1,400 ug/kg), chrysene (1,700 ug/kg), benzo(b)fluoranthene (1,200 ug/kg), benzo(k)fluoranthene (960 ug/kg), benzo(a)pyrene (1,100 ug/kg), indeno(1,2,3-cd)pyrene (690 ug/kg), bis(2-ethylhexyl)phthalate (1,400 ug/kg) and 4,4'-DDE (120 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 69 through 72).

Residence N

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of copper (1,620J mg/kg), lead (809 mg/kg), fluoranthene (740 ug/kg), and pyrene (580 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 73 through 76).

Residence O

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (1,410 mg/kg), phenanthrene (5,200 ug/kg), anthracene (1,600 ug/kg), fluoranthene (9,500 ug/kg), pyrene (7,200 ug/kg), benzo(a)anthracene (3,400 ug/kg), chrysene (4,000 ug/kg), benzo(b)fluoranthene (3,200 ug/kg), benzo(k)fluoranthene (3,200 ug/kg), benzo(a)pyrene (3,100 ug/kg), indeno(1,2,3-cd pyrene (2,400 ug/kg), dibenzo(a,h)anthracene (700 ug/kg), benzo(g,h,i)perylene (1,900 ug/kg), 4,4'-DDE (580 ug/kg), and 4,4'-DDT (570 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 77 through 80).

Residence P

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (4,740 mg/kg), fluoranthene (6,100 ug/kg), pyrene (5,000 ug/kg), benzo(a)anthracene (1,900 ug/kg), chrysene (2,200 ug/kg), benzo(b)fluoranthene (1,600 ug/kg), benzo(k)fluoranthene (1,500 ug/kg), benzo(a)pyrene (1,600 ug/kg), indeno(1,2,3-cd)pyrene (1,100 ug/kg), benzo(g,h,i)perylene (770 ug/kg), 4,4'-DDE (2,900 ug/kg), 4,4'-DDD (45 ug/kg), and 4,4'-DDT (2,300 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 81 through 84).

Residence Q

A total of 11 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (806 mg/kg) in concentration significantly above background and the CRDLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 85 through 88).

Residence R

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of chromium (2,000 mg/kg), lead (441 mg/kg), 4,4'-DDE (350 ug/kg), and 4,4'-DDT (230 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 89 through 92).

Residence S

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (1,050 mg/kg), phenanthrene (1,100 ug/kg), fluoranthene (2,100 ug/kg), pyrene (1,700 ug/kg), benzo(a)pyrene (1,300 ug/kg), chrysene (2,100 ug/kg), bis(2-ethylhexyl)phthalate (650 ug/kg), benzo(b)fluoranthene (890 ug/kg), benzo(k)fluoranthene (750 ug/kg), benzo(a)pyrene (1,300 ug/kg), indeno(1,2,3-cd)pyrene (550 ug/kg), benzo(g,h,i)perylene (660 ug/kg), 4,4'-DDE (380 ug/kg), and 4,4'-DDT (240 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 93 through 96).

Residence T

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (506 mg/kg) and 4,4'-DDE (120 ug/kg) in concentrations significantly above background, CRDLs, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 97 through 100).

Residence U

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (2,340 mg/kg), zinc (581 mg/kg), phenanthrene (590 ug/kg), fluoranthene (13,000 ug/kg), pyrene (9,100 ug/kg), benzo(a)anthracene (3,900 ug/kg), chrysene (3,900 ug/kg), benzo(b)fluoranthene (2,700 ug/kg), benzo(k)fluoranthene (3,000 ug/kg), benzo(a)pyrene (3,100 ug/kg), indeno(1,2,3-cd)pyrene (2,400 ug/kg), dibenzo(a,h)anthracene (750 ug/kg), benzo(g,h,i)perylene (1,800 ug/kg), and alpha-BHC (29 ug/kg) in concentrations significantly above background, CRDLS, and CRQLS (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 101 through 104).

Residence V

A total of 10 surface soil samples were collected from the yard of this residence. Analytical results indicated the presence of lead (257 mg/kg), zinc (359 mg/kg), phenanthrene (690J ug/kg), fluoranthene (1,400J ug/kg), pyrene (950J ug/kg), chrysene (740 ug/kg), bis(2-ethylhexyl)phthalate (1,600 ug/kg), benzo(b)fluoranthene (830 ug/kg), benzo(k)fluoranthene (740 ug/kg), benzo(a)pyrene (700 ug/kg), 4,4'-DDE (670 ug/kg), and 4,4'-DDT (300 ug/kg) in concentrations significantly above background, CRDLS, and CRQLs (Ref. Nos. 29; 30, pp. 1 through 176; 62; 63; Tables 105 through 108).

On 12 November 2003, the EPA SAT collected 3 surface soil samples from the each backyard of the residences located on Van Buren Street. The samples were analyzed for TAL inorganics, including cyanide and molybdenum and for TCL organics, including 2-chloro- 6- fluorophenol. The inorganic analytical results for these samples indicated the presence of lead in concentrations raging from 276 mg/kg to 744 mg/kg, significantly above background and CRDLs. The organic analytical results indicated the presence of fluoranthene (460 ug/kg), pyrene (370J ug/kg), phenanthrene (340J ug/kg to 540 ug/kg), fluoranthene (400J ug/kg to 1,100 ug/kg), pyrene (450 ug/kg to 820 ug/kg), benzo(a)anthracene (430J ug/kg), chrysene (590 ug/kg), indeno(1,2,3-cd)pyrene (450 ug/kg), benzo(b)fluoranthene (500 ug/kg), and benzo(a)pyrene (400J ug/kg) in concentrations significantly above background and CRQLs. Benzo(a)anthracene, chrysene, and benzo(a)pyrene were found in concentrations above the NYSDEC RSCCs. (Ref. Nos. 65, 66, 67, 68; Tables 119 through 146).

Indoor Air Sampling

A total of 49 indoor air samples were collected from residences located on Jackson, Geddes, Thomas, and South Main Streets. The samples were collected from the basements and living areas inside the residential properties. Analytical results indicated the presence of

diclorofluoromethane, chloromethane, trichlorofluoromethane, methylene chloride, chloroform, benzene, toluene, xylene, 1,4-dichlorobenzene, acetone, methyl butyl ketone, methyl isobutyl ketone, and methyl butyl ketone in concentrations ranging from 1.2 micrograms per cubic meter (ug/m^3) to 860 ug/m^3 above the method detection limits (MDLs) (Ref. Nos. 29; 50, pp. 1 through 238; Tables 109 and 110).

Indoor Dust Samples

A total of 19 indoor dust samples were collected from the interior of residential properties located along Jackson Street, South Main Street, Thomas Street, and Geddes Street. The dust samples were shipped to the laboratory for SVOC, dioxin, mercury, and metals analyses. The analytical results of the dust samples indicated the presence of some metals and SVOCs, mostly phthalates, inside the residences. In addition, dust samples analytical results indicated the presence of dioxin in a total adjusted concentration ranging from 22.6 picograms per gram (pg/g) to 2,760 pg/g (Ref. Nos. 29; 51, pp. 1 through 63; Tables 115, 116 and 117). Insulation samples were collected from the interior of 16 residential properties located on Jackson Street, South Main Street and Geddes Street. The samples were analyzed for CFP. CFP was not detected in any of the insulation samples. (Ref. Nos. 29; 30, pp. 1 through 176; 52, pp. 1 through 39; Table 118).

PART IV: HAZARD ASSESSMENT

GROUNDWATER ROUTE

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.

There is an observed release of contaminants to groundwater from the Diaz facility. Previous investigations performed at the site since 1989 indicated the presence of chlorinated organic compounds in groundwater, including ethylene dichloride, 1,2-dichloroethane, dimethylphthalate, acetone, methylene chloride, xylenes, and other hydrocarbons. Analytical results from the samples collected by Region II SAT in 2003 indicated the presence of iron, manganese, and aluminum, in concentrations significantly above background and CRDLs.

A six-phase RI conducted by Diaz from 1994 to 1999 revealed that soils and groundwater on the property and nearby are contaminated with VOCs and SVOCs. Contaminants detected in soil and groundwater included 1,2-dichloroethane (EDC), vinyl chloride, 1,2-dibromoethane (EDB), benzene, xylene, ethylbenzene, and a number of brominated chemical intermediates.

Ref. Nos. 5; 9, pp. 41 through 42; 14, pp. 197 through 207; 22, p. 11; 33; 40; 41; 45, pp. 1 through 23; 46, pp. 1 though 3; Tables 9 through 12

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strata, confining layers, interconnections, discontinuities, depth to water table, groundwater flow direction.

The Diaz site is located on glacial deposits which overlie bedrock strata of Ordovician age. The Ordovician strata overlie Precambrian crystalline rock. The surficial deposits in the region were laid down as glacial basal till and as lacustrine (lake bed) sediments. The lacustrine sediments at the Diaz site consist of interlayered fine sands and silts. The till deposits tend to be mostly fine-grained but heterogeneous, consisting of silt with eroded rock fragments in the form of gravel, cobbles and boulders. Bedrock under the Village of Holley consists of the Queenston Shale and younger formations of the Medina Group. The Queenston Shale consists of siltstone with interbeded shale and is approximately 1,000 feet thick. Bedrock strata underlying the site have been affected by faulting associated the Clarendon-Linden fault system. The Clarendon-Linden fault is characterized by high-angle reverse and normal faulting.

Groundwater at the site flows through both overburden soils and bedrock. Flow in the overburden is through the glacial till and glacolacustrine silts and sands. Groundwater is found on the Diaz property at a depth of 10 to 15 feet below ground surface around the main production areas. Flow through the bedrock is assumed to be primarily through bedrock joints and fractures associated with the Clarendon-Linden fault system, with minimal flow occurring

in the matrix between fractures. The overburden permeabilities range from 2.5 x 10^{-5} to 4.4 x 10^{-3} centimeters per second (cm/sec), with a geometric mean of 1.8 x 10^{-4}. Bedrock permeabilities range from 5.2 x 10^{-7} to 3.7 x 10^{-4} cm/sec, with a geometric mean of 4.8 x 10^{-5}. Groundwater flows is primarily toward the east and to the southeast of the Diaz property.

At the time of the Phased RI, there were eight domestic wells ranging in depth from 12 to 95 feet and one abandoned well within a 0.5-mile radius of the Diaz facility. These wells were used for gardening, laundry, and washing vehicles. The Village of Holley receives potable water from a system operated by the Holley Water and Electric Utilities. The Holley public water supply system serves approximately 2,200 people. It consists of three hand-dug and two drilled wells. The hand-dug wells flow by gravity to a pumping station and the water is stored in a 100,000-gallon storage tank. The Holley potable water system receives water from the Monroe County Water Authority in the summer. The whole system produces approximately 132 million gallons (MG) per year.

There are approximately five public supply wells operated by the Village of Holley Water Supply System within a 4-mile radius of the Diaz facility. The Holley water system produces approximately 132 MG per year and serves approximately 2,200 people.

Geologic Unit	**Depth (Approximate)**	**Thickness (Approximate)**
Fill Deposits	0 feet to 4.5 feet	3.5 feet to 8.0 feet
Glaciolacustrine Deposits	4.5 feet to 14.4 feet	6.4 feet to 20.8 feet
Glacial Till	14.4 feet to 25.4 feet	3.0 feet to 14.0 feet
Queenston Shale	> 20 feet	1,000 feet

Ref. Nos. 5. pp. 24 through 26; 31, pp. 18 through 23; 32, p. 1

3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

The depth of the lowest point of waste disposal/storage is 10 feet bgs. According to measurements taken by Region II SAT, the wastewater sump is approximately 14 feet deep. The depths of domestic wells within the area range from 12 to 95 feet deep. The groundwater at the Diaz facility is at a depth of 10 feet below the ground surface. The sump has a layer of sludge at the bottom. Background information indicates that this sump is lined. However, there is no evidence indicating if the liner is continuous throughout the bottom of the sump. Analytical results from the wastewater samples indicated the presence of copper, magnesium, manganese, molybdenum, 1,2-dicholorethane, 2-chloro-6-fluorophenol, heptachlor, heptachlor epoxide, and endrin.

The sludge sample analytical results indicated the presence of aluminum, arsenic, barium, chromium, copper, lead, magnesium, manganese, nickel, zinc, molybdenum, 2-butanone, phenol, acetophenone, phenanthrene, anthracene, carbazole, fluoranthene, pyrene, benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, benzo(g,h,i)perylene, endrin, and gamma-chlordane in concentrations above the CRDLs and CRQLs.

Ref. Nos. 6, p. 10; 7, p. 5; 8; 29, p. 18; 6, pp. 2 through 42;. 62; 63; Tables 1 through 4

4. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the top of the aquifer of concern?

The permeability value of the glaciolacustrine deposits and Queenston Formation is 10^{-6} to 10^{-8} cm/s. Because the depth to aquifer is evaluated as 10 feet, there is no continuous intervening stratum.

Ref. Nos. 5. pp. 24 through 26; 6, p. 10; 8; 31, pp. 18 through 23; 32, p. 1

5. What is the net precipitation at the site (inches)?

The net precipitation at the site is more than 5 to 15 inches.

Ref. No. 54, p. 3

6. What is the distance to and depth of the nearest well that is currently used for drinking purposes?

The nearest well that is currently used for drinking water purposes is a public water supply well (Glidden Well) located at approximately 2,625 feet southwest of the Diaz facility. The well is 32 feet deep and is part of the Village of Holley water system. The Village of Holley water system serves approximately 2,200 people.

Ref. No. 32

7. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be actually contaminated by hazardous substance(s) attributed to an observed release from the site.

There are no drinking water wells that are observed or suspected to be contaminated by hazardous substances attributable to the site.

Ref. Nos. 5, pp. 3 through 39; 31, pp. 9 through 32; 40; 41; Tables 5 through 8

8. Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.

Distance	Holley Wells	Total Population
0 - ¼ mile	0	0
>¼ - ½ mile	0	0
>½ - 1 mile	3	1320
>1 - 2 miles	2	880
>2 - 3 miles	0	0
>3 - 4 miles	0	0
Total	**5**	**2200**

A total of 2,200 persons obtain drinking water from the aquifer of concern within a 4-mile radius of the Diaz facility. The Village of Holley water system receives a portion of its water from the Monroe County Water Authority in the summer. The Village of Holley water system produces approximately 132 MG per year.
Ref. No. 32

State whether groundwater is blended with surface water, groundwater, or both before distribution.

The Village of Holley water supply wells are part of a blended system. The water from the wells flows to a pumping station. The water is pumped and stored in a 100,000-gallon aboveground storage tank. In the summer, the Village of Holley buys approximately 13 million gallons of water from the Monroe County Water Authority.

Ref. No. 32

Is a designated wellhead protection area within 4 miles of the site?

Wellhead Protection Areas (WHPAs) exist within 4 miles of the site.

Ref. No. 55, pp. 1 through 3

Does a waste source overlie a designated or proposed wellhead protection area? If a release to groundwater is observed or suspected, does a designated or proposed wellhead protection area lie within the contaminant boundary of the release?

The waste sources evaluated for the Diaz site do not overlie designated or proposed WHPAs.

Ref. No. 55

9. Identify one of the following resource uses of groundwater within 4 miles of the site (i.e., commercial livestock watering, ingredient in commercial food preparation, supply for commercial aquiculture, supply for major, or designated water recreation area, excluding drinking water use, irrigation (5-acre minimum) of commercial food or commercial forage crops, unusable).

According to background information and EPA's Safe Drinking Water Information System(SDWIS) database, public water supply wells are used for domestic purposes within 4 miles of the Diaz facility. There is no other information available at this moment indicating use of groundwater as a resource (i.e., commercial livestock, irrigation or recreation).

Ref. No. 56, pp. 1 though 3

SURFACE WATER ROUTE

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.

There is an observed release of contaminants to surface water. There are two points of discharge where surface water and sediment samples were collected. The analytical results for the water samples indicated the presence of lead, manganese, molybdenum, bromodichloromethane, styrene, and bromoform in concentrations significantly above CRDLs and CRQLs. The sediment sample analytical results indicated the presence of magnesium, copper, phenanthrene, anthracene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and benzo(g,h,i)perylene in concentrations significantly above background concentrations, CRDLs, and CRQLs. Manganese, lead, molybdenum, bromodichloromethane, styrene, and bromoform were detected in the wastewater sump at the Diaz facility. The property's surface water runoff flows towards the wastewater sump that discharges to the Holley wastewater treatment plant and the East Branch of Sandy Creek.

Ref. Nos. 6, pp. 1 through 10; 7, p. 5; 29, p. 8; 35, p. 10; 40; 41; Tables 13 through 20; Figure 4

11. Identify the nearest down slope surface water. If possible, include a description of possible surface drainage patterns from the site.

The nearest downslope surface water is an unnamed tributary of the East Branch of Sandy Creek. The unnamed tributary is located at approximately 750 feet southeast of the Diaz property. Surface water runoff from the Diaz property is collected by a drainage system that discharges to a sump located at the facility. This sump also collects the groundwater pumped from the groundwater extraction system. The surface runoff water discharges to the unnamed tributary through outfalls 001 and 002. The treated water is discharged to the Village of Holley wastewater treatment plant.

Ref. Nos. 6, pp. 1 through 10; 7, p. 5; 29, p. 8; 35, p. 10

12. What is the distance in feet to the nearest down slope surface water? Measure the distance along a course that runoff can be expected to follow.

The nearest downslope surface water is an unnamed tributary of the East Branch of Sandy Creek located at approximately 750 feet southeast of the Diaz property.

Ref. Nos. 5, p. 4; 8, p. 8; 29, p. 9; Figure 1; Figure 4

13. Identify all surface water body types within 15 downstream miles.

Name	Water Body Type	Flow (cfs)	Saline/Fresh/Brackish
Unnamed tributary	Minimal stream	Less than 10 cfs	Fresh
East Branch of Sandy Creek	Small to moderate stream	10 to 100 cfs	Fresh

Ref. Nos. 4, p. 9; 5, pp. 6, 13, 15, 229; Figure 1 and Figure 2

14. Determine the 2 yr., 24 hr rainfall (inches) for the site.

The 2-year, 24-hour rainfall for the site is approximately 2.5 inches.

Ref. No. 57, pp. 1, 2

15. Determine size of the drainage area (acres) for sources at the site.

The Diaz property is located in the most elevated part of Jackson street. Therefore, there is no runoff coming from outside the property boundaries. The size of the drainage area for sources at the Diaz site is equivalent to the total property zone, approximately 5.5 acres.

Figure 1, Figure 4

16. Describe the predominant soil group in the drainage area.

The Diaz site is located on top of glacial deposits which overlie bedrock strata of Ordivician age. The site is underlain by man-placed deposits consisting of dark brown medium dense fine sand and gravelly sand with cobbles, cinder, brick and wood fragments and root fibers.

Ref. No. 31, pp. 18 through 20

17. Determine the type of flood plain that the site is located within.

The Diaz site is located in a Zone C (minimal flooding areas).

Ref. No. 58, pp. 1 and 2

18. Identify drinking water intakes in surface waters within 15 miles downstream of the point of surface water entry. For each intake identify: the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served, and stream flow at the intake location.

There are no drinking water intakes in surface waters within 15 miles downstream of the two known points of surface water entry.

Ref. No. 33, p. 1; Figure 4

19. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

Fishery Name	Water Body Type	Flow (cfs)	Saline/Fresh/Brackish
East Branch of Sandy Creek	Small to moderate stream	10 to 100 cfs	Fresh

Ref. No. 33, pp. 1 through 3

20. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry.

Environment	**Water Body Type**	**Flow (cfs)**	**Wetland Frontage**
East Branch of Sandy Creek	Small to moderate stream	10 to 100 cfs	4.2 miles

Ref. No. 60, Figure 4

21. If a release to surface water is observed or suspected, identify any intakes, fisheries, and sensitive environments from question Nos. 18-20 that are or may be actually contaminated by hazardous substance(s) attributed to an observed release of from the site.

The last 7 miles of Sandy Creek are designated by the NYSDEC as "Significant Coastal Fish and Wildlife" area due to a warm water fishery for Lake Ontario.

Ref. No. 33, pp. 1 and 2

22. Identify whether the surface water is used for any of the following purposes, such as: irrigation (5 acre minimum) of commercial food or commercial forage crops, watering of commercial livestock, commercial food preparation, recreation, potential drinking water supply.

The East Branch of Sandy Creek is not a potential drinking water supply. The drinking water for the Village of Holley is supplied by groundwater wells operated by Village of Holley water system. There is no information available indicating if the surface water is used for irrigation of commercial food, commercial forage crops, watering of commercial livestock, or commercial food preparation.

Ref. No. 33, p. 1 and 2

SOIL EXPOSURE PATHWAY

23. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of observed contamination.

There are approximately 15 residents within 200 feet of observed contamination. Analytical results for the samples collected to the west of the Diaz property indicated the presence of organic and inorganic compounds that were detected in the backyard soils of the residential properties adjacent to the Diaz property.

Ref. Nos. 40, 41; Tables 1 through 8; 59, p. 7; Figure 1, Figure 3

24. Determine the number of people that regularly work on or within 200 feet of observed contamination.

The Diaz facility ceased operations in July 2003. There is a 24-hour security guard located at the gate of the property. The guards work 8-hours shifts.

Ref. No. 6, p. 1

25. Identify terrestrial sensitive environments on or within 200 feet of observed contamination.

There are no terrestrial sensitive environments on or within 200 feet of observed contamination.

Ref. No. 33, pp. 1 through 3

26. Identify whether there are any of the following resource uses, such as commercial agriculture, silviculture, livestock production or grazing within an area of observed or suspected soil contamination.

No area on the site is known to be utilized as a resource for commercial agriculture, silviculture, livestock production or grazing.

Ref. Nos. 2, p. 1; 4, pp. 8 through 9; 5, p. 8;

AIR PATHWAY

27. Describe the likelihood of release of hazardous substances to air as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them the site. For observed release, define the supporting analytical evidence and relationship to background.

A release of contaminants to air is observed. During its years of operation, Diaz had a history of recurring releases in to the air from its facility. Hundreds of citizen complaints were lodged against the company. In January 1977, a release of nitric acid and sulfuric acid into the air caused area residents to experience burning eyes and skin and stinging sensation in their throats. Fugitive releases of ammonia in January 1985, chlorine gas in August 1990, and m-bromofluorobenzene in March 1995 all resulted in odor complaints from nearby residents. Other compounds that were released to the air through fugitive emissions between 1977 and 1999 included the herbicides lactofen and trifluralin, nitrogen, potassium hydroxide, methanol, tetraethyl ammonium bromide, bromoacetophenone, and dimethyl sulfoxide gas. According to EPA's Toxic Release Inventory (TRI), Diaz reported releasing 188,105 pounds of TRI chemicals via air emissions from 1987 through 2001.

On 5 January 2002, an accidental release from a non-permitted emission at Diaz splattered chemicals onto downwind residential properties.

Ref. Nos. 4, pp. 5 through 28; 13; pp. 1 through 3; 14, pp. 1 through 207; 16, p. 1; 17, pp. 1 through 35; 17; 18; 20, pp. 1 through 10; 22, pp. 4 through 221

28. Determine populations that reside within 4 miles of the site.

Distance	Population
On site	
>0 - ¼ mi	359
>¼ - ½ mi	737
>½ - 1 mi	2,052
>1 - 2 mi	3,106
>2 - 3 mi	2,068
>3 - 4 mi	5,185

Approximately 13,507 persons reside within a 4-mile radius of the Diaz facility.

Ref. Nos. 14, pp. 12 through 14; 59, pp. 1 through 53, Figure 3

29. Identify sensitive environments, including wetlands and associated wetlands acreage, within 4 miles of the site.

Distance	Wetland Acreage	Sensitive Environments
On Site	0	None Identified
0 - ¼ mile	0.80	None Identified
>¼ - ½ mile	10.40	Twin-Leaf (Jeffersonia Diphylla)
>½ - 1 mile	71.28	Twin-Leaf (Jeffersonia Diphylla)
>1 - 2 mile	429.09	Twin-Leaf (Jeffersonia Diphylla)
>2 - 3 mile	651.40	Twin-Leaf (Jeffersonia Diphylla) Shining Bedstraw (Galium Concinnum)
>3 - 4 mile	1,580.92	Twin-Leaf (Jeffersonia Diphylla)

The New York Natural Heritage Program database indicates that in an area south of the Diaz facility in the Town of Clarendon, the twin leaf (Jeffersonia Diphylla), an endangered threatened species has been found. Also, in an area southeast of the Diaz facility, the endangered plant shining bedstraw (Galium Concinnum) has been found. There are approximately 2,743.89 acres of wetlands within a 4-mile radius of the facility.

Ref. Nos. 33, pp. 1 through 3; 60; Figure 3

30. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

A release to air is observed. An air release from a non-permitted emission point in January 2002 left solidified drops containing 2-chloro-6-fluorophenol (CFP) on residential and public property, including houses, cars and a swing set, as far as 0.31 mile east-northeast of the facility. The release produced odors that were reported as far as 12 miles away. In addition to CFP, other phenolic compounds and toluene were also present in the released chemical mixture. Residential neighbors complained of odors and respiratory and other ailments associated with the release. Direct observations document this release of a CERCLA hazardous substance to the air pathway. There is a residential and student (day-care) population of approximately 1,096 people within 0.5 mile of the Diaz facility.

Ref. Nos. 4, pp. 5 through 28; 13; pp. 1 through 3; 14, pp. 1 through 207; 16, p. 1; 17, pp. 1 through 35; 17; 18; 20, pp. 1 through 10; 22, pp. 4 through 221; 59, pp. 1 through 53

31. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 29, that are or may be located within the area of air contamination from the release.

A release to air is observed; the nearest sensitive environment that could be affected by the release to air is an area south of the Diaz facility containing endangered and threatened plant species, which includes twin leaf and shining bedstraw. The area is located in the town of Clarendon approximately 0.45 mile south of the facility.

Ref. No. 33, pp. 1 through 3

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