DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
Interim Final 2/5/99
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: **Technitrol, Inc.**
Facility Address: **1952 East Allegheny Avenue, Philadelphia, Pennsylvania 19134**
Facility EPA ID #: **PAD002300556**

1. Has all available relevant/significant information on known and reasonably suspected releases to the groundwater media, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units [SWMU], Regulated Units [RU], and Areas of Concern [AOC]), been **considered** in this EI determination?

   [X] If yes – check here and continue with #2 below.

   [ ] If no – re-evaluate existing data, or

   [ ] If data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Is **groundwater** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective "levels" (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

____ If yes - continue after identifying key contaminants, citing appropriate "levels," and referencing supporting documentation.

X If no - skip to #8 and enter "YE" status code, after citing appropriate "levels," and referencing supporting documentation to demonstrate that groundwater is not "contaminated."

____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The former Technitrol, Inc. facility (Technitrol or facility) operated from September 1956 to July 1997. Technitrol manufactured electronic products and systems, such as transformers, pulse transformers, and delay lines at the five-story building located at the corner of Emerald Street and East Allegheny Avenue in northeast Philadelphia, Pennsylvania.

Technitrol's electronic components were used by manufacturers to modify or filter electrical signals. The company's metallurgical components included electrical contacts and assemblies and contact materials used in circuit breakers, wiring devices, and a variety of electrical products and appliances. The process involved welding transformer assemblies and encasing them in epoxy shells. In 1993, the facility operated a products division, machine shop, research and development division, and components and transformer division. In 1995, cobalt steel, stainless steel, and aluminum cutoffs were made in the machine shop. Halogenated solvents, such as chlorinated fluorocarbons and 1,1,1-trichloroethane (1,1,1-TCEA), and nonhalogenated solvents, such as xylene and methyl ethyl ketone (MEK), were utilized mainly as degreasing solvents to clean machine parts. The types of wastes generated depended on the type of product being manufactured.

On August 18, 1980, Technitrol, Inc. completed their first Notification of Hazardous Waste Activity form. It identified the facility as a generator of hazardous waste that treated/stored/disposed hazardous waste. On October 9, 1980, the USEPA assigned the facility USEPA identification (ID) No. PAD002300556 (NUS Corporation [NUS], 1990). On November 17, 1980, the facility submitted the Part A Hazardous Waste Permit Application that identified USEPA Hazardous Waste Codes F001and F003 were handled at the facility. The facility stated they were not a hazardous waste storage or disposal facility. They generated and stored their own waste and disposed of them off site to licensed disposal facilities. On December 23, 1980, the USEPA acknowledged the Part A Hazardous Waste Permit Application and accepted the information as an initial qualification for interim status. On April 24, 1984, PADEP stated that the facility was not a treatment, storage, disposal (TSD) facility or that they qualified under the permit by rule (PBR) provision. As such, they no longer had interim status and the Part A Hazardous Waste Permit Application was returned by PADEP. On October 22, 1997, the facility sent a letter to USEPA Region III requesting the USEPA ID No. PAD002300556 be deactivated since the facility was no longer owned or occupied by Technitrol.

The dust collector units, one formerly located in the model shop on the second floor of the building and the other formerly located in the sanding room on the third floor, were permitted by the Philadelphia Department of Public Health, Air Management Services. The License Code was 3216; the permit number was 745730. The particulate-free air was exhausted to outside the facility via a rooftop vent also permitted by the City of Philadelphia (City). The permit was no longer required when operations ceased in 1997.

In November 2010, Technitrol, Inc. was purchased by Pulse Electronics Corporation (Pulse) and the name Technitrol, Inc. was no longer used.

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[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriate "levels" (appropriate for the protection of the groundwater resource and its beneficial uses).

On September 19, 1997, the deed for the facility was transferred to Impact Services Corporation (Impact). Technitrol participated in a Neighborhood Assistance Program promoted by the State of Pennsylvania and donated the facility to this not-for-profit organization. Any and all existing property and assets were removed from the facility with the exception of 458 storage boxes containing paper records that remain in the building. Impact's operations do not require an air permit or a hazardous waste permit.

Site Layout
The former facility is located in at the intersection of East Allegheny Avenue and Emerald Street in northeast Philadelphia, Pennsylvania. High density residential and commercial districts are located near the former facility. The Delaware River is aligned northeast to southwest within the area and flows to the southwest. The river is approximately two miles east and 1.5 miles south of the former facility. Major industrial parks are located along the Delaware River shore. Interstate 95 is aligned along the river's northern shore.

The facility consists of one five-story building that parallels Emerald Street, one three-story building that parallels East Wishart Street, a boiler house, and an asphalt-paved parking lot. Both the three and five-story structures have partially exposed basements. Access to the facility is restricted by a fence and locking gates. The property is covered almost entirely with impermeable surfaces (buildings, asphalt, and concrete). Small landscaped areas are present at the main entrance to the five-story building and the entrances to the parking lot, which account for approximately 0.02 acres of the approximately 0.8 acre property. The City of Philadelphia tax and property assessment website lists the land area as 34,000 square feet, and the improved area as 68,572 square feet. The property is zoned limited industrial (L4).

Surface runoff discharges into the storm water drain located in the facility's parking lot (NUS, 1990). This drain leads to the City of Philadelphia Water Department (CPWD) sewage treatment plant where it is treated and discharged into the Delaware River approximately 0.5 stream miles downstream of the confluence of Frankford Creek and the Delaware River (southeast of the facility). Due to the distance of the facility to the nearest surface water bodies (approximately 1.5 miles), direct discharges of surface runoff from the facility are not expected.

There have been no known hydrogeological investigations conducted at the facility. The facility is underlain by Urban land soil. This soil (Ub - zero to eight percent slopes) is so densely covered by urban structures that identification of the soils was not practical (NUS, 1990). Most areas have been smoothed, and the original soil material has been disturbed, filled over, or otherwise destroyed before and during construction. The facility is underlain by the Quaternary age Trenton Gravel (NUS, 1990). The Trenton Gravel is a gray to pale reddish-brown, medium- to coarse-grained very gravelly sand. There are also interbedded clay-silt and crossbedded sand layers. The Trenton Gravel, the aquifer underlying the facility, has a high porosity and high permeability. The Trenton Gravel is hydraulically interconnected to the other rock units in the study because of their relatively similar lithologies and the sporadic continuity of the clay confining layers. The expected direction of groundwater flow is to the southeast, toward the Delaware River. Flow direction is based upon topographical observations and the role of rivers as discharge points for groundwater (NUS, 1990).

The CPWD supplies water to all residents in the study area north of the Delaware River. CPWD utilizes three surface water intakes on the Delaware River to obtain its water. The intakes are located 6.8 miles northeast/upstream, 4.9 miles west-northwest, and 5 miles west of the facility. No domestic wells were located within the three-mile radius of the facility (NUS, 1990). The nearest public water well (UWC) was located 2.65 miles east of the facility. Information obtained from the Pennsylvania Department of Conservation and Natural Resources (DCNR) Groundwater Information System (PaGWIS) accessed on October 28, 2011 provided the following information regarding 15 groundwater wells located within a 0.5 mile radius surrounding the facility. No wells were observed on the facility property. Three unused/destroyed wells were located northeast of the facility, drilled in 1934 (2) and 1976. Two destroyed wells were located southwest of the facility, drilled in 1906 and 1948. The remaining 10 wells were located east and southeast of the facility. Nine of the wells were unused or destroyed. Only one well, located about 0.25 miles east of the facility and installed in 1951, was possibly in use as an industrial withdrawal well for Scholler Bros, Inc. (former chemical company).

Technitrol had an administrative division and an engineering (and laboratory) division at the facility. In the 1970s, Technitrol introduced a products division at the facility. This division assembled electronic products and systems, such as currency counters and chassis and cabinets for the Department of Defense (DOD).

During the facility's operations, the fifth floor of the building contained an assembly area for chassis and cabinets, a wave solder machine, and a vapor degreaser. The fourth floor included administrative offices for engineers, drafters, and managers in the products division. The third floor contained the sheet metal shop, the sanding room, and the plating room (cadmium and later zinc-chloride). The second floor contained administrative offices and the engineering office that was divided into six different laboratories for the components and transformer division. A faxtron machine that was used to X-ray component parts for defects, a degreaser and vapor phase reflow system unit, and a dust collector/vent were also present on the second floor. The first floor contained accounting offices for the divisions, a shipping and receiving office/dock, a maintenance room, and the components and transformer division hazardous waste storage area where a spray paint booth and two metal lockers were located. The basement contained the products division assembly area, a receiving and inspection area, an environmental headquarters area where material safety data sheets were stored, a customer service area, and the products division hazardous material storage area. A 1,1,1-TCEA distillation unit was also located in this storage area. Three floor drains were located in the basement floor of the building. All three drains lead to the City sewer system. One drain is located in the former products division hazardous material storage area. The other two drains are located in the long hallway leading to this room (NUS, 1990). The facility operated a freight elevator to transport clean and waste materials throughout the building. The elevator is located at the loading dock.

Two 400-gallon (some documents identified two 200-gallon) steel, 1,1,1-TCEA aboveground storage tanks (ASTs) were formerly located outside the shipping/receiving door on the parking lot. These ASTs were removed in 1986. A garage once stood in the northeast portion of the parking lot. This building was removed in 1986. The facility dismantled the garage containing asbestos-containing material (ACM) (insulation) to expand the parking lot. A boiler room is located on the property. The boiler used No. 2 fuel oil that was stored in the 8,000-gallon underground storage tank (UST) located directly east of the boiler room in the parking lot.

Impact has done extensive remodeling inside of the building, which included the replacement of the elevator in 2008. The bottom of the elevator shaft is concrete. Impact's representative stated they have not observed water in the elevator shaft. There has been no construction or excavation outside of the building. Per the July 2012 site visit, the following observations were documented. Impact's offices are located on the fifth floor. The wood floors were refinished. Walls were constructed for office space. The offices are carpeted. The fourth floor is used as the high speed copy center. New tile flooring was installed and the fourth floor remains otherwise unchanged. The third floor is used by Impact as a community center/meeting room. The wood floors were refinished except in the northern portion, which is currently used as a storage area (458 boxes of Technitrol documents are stored in this area). The second floor is currently lightly used. The southern portion is carpeted and used as classrooms. The wood floors in the northern portion are sanded. This area was not in use at the time of the July 2012 site visit other than for records storage. The first floor is currently occupied by ACCU Staffing Services. The southern portion is used for offices and a common area. The northern portion is used as classrooms (one of which was formerly Technitrol' s clean room that was constructed but never placed into service). A clothing shop is located in the extreme north end of the first floor (formerly the components and transformer division hazardous waste storage area). The wood floors were refinished. The basement is used by Impact for offices and classrooms. The wood floors were refinished in the southern portion, and new tile/carpet was installed in the northern portion including the former product division hazardous materials storage area. The floor drain identified in this area has been covered with tile. The two floor drains in the hallway are present.

The former outside 1,1,1-TCEA ASTs area and raw and hazardous material storage area are open concrete areas and fenced with a chained gate. The air conditioning units are currently located at the former 1,1,1-TCEA ASTs area. The boiler room contains the boiler and a water holding tank and water softening treatment chemicals for the City water supply. Impact no longer uses the boiler; it was taken out of service in approximately 2010. No. 2 fuel oil was formerly used to heat the facility; however, the facility is currently heated primarily by electric. Natural gas is also used at the facility. The fuel oil was stored in an 8,000-gallon UST located beneath the parking lot directly east of the boiler room. The Impact representative was uncertain of the volume of fuel oil remaining in the UST since it was removed from service in 2010. Technitrol had the UST tightness tested on May 9, 1997. The UST passed the USEPA tank tightness test at that time. (Note: The UST appeared to be situated inside of a concrete vault; however, the tank tightness test indicates that UST was installed in sand and gravel backfill and the groundwater level was 6 feet above the bottom of the tank as determined using an observation well near the UST, which was not observed during the July 2012 site visit.)

Waste Types and Quantities
On August 18, 1980, the facility completed their first Notification of Hazardous Waste Activity form. It identified generation and treatment/storage/disposal as the type of hazardous waste activity for the facility. Hazardous wastes identified from nonspecific sources were F001 (spent halogenated solvents used in degreasing operations), F002 (spent halogenated solvents and the still bottoms from the recovery of these solvents), F003 (spent nonhalogenated solvents and the still bottoms from the recovery of these solvents), and F005 (spent nonhalogenated solvents and the still bottoms from the recovery of these solvents). Commercial chemical product hazardous waste codes were U002 (acetone), U121 (trichlorofluoromethane), U158 (4,4-methylenebis or 2-chloroaniline), U159 (MEK), U160 (MEK peroxide), U161 (methyl isobutyl ketone), U162 (methyl methacrylate), U220 (methyl benzene), U226 (methyl chloroform), U229 (unknown), U238 (carbonic acid or ethylester), and U239 (dimethyl-[IT] benzene [xylenes]). The nonlisted hazardous wastes were characterized as ignitable (D001) and toxic (D000). The facility stated they used several halogenated chlorinated fluorinated solvents and the nonhalogenated solvents to clean parts during the course of manufacture.

The facility was not a hazardous waste treatment or disposal facility; they accumulated and stored their own wastes on site prior to transporting them off site to licensed disposal facilities. The maximum storage at the facility was 50 drums of combined wastes. In 1980, the facility planned to collect wastes containing 1,1,1-TCEA and chlorinated fluorocarbons from two of its other facilities. These wastes were to be sent off site for reclamation due to their high cost in a virgin state. This idea was later vacated because of the extensive permitting procedures involved.

In late April 1981, the facility dismantled the cadmium plating line located on the third floor of the building and replaced it with the zinc-chloride plating line. The plating line was completely eliminated from the facility in 1986 (PADEP, 1995).

Technitrol phased out transformer manufacturing from the facility between 1982 and 1985 and incorporated it into its Petersburg, Pennsylvania facility. Note: The available documentation did not refer to any dielectric fluid containing polychlorinated biphenyls (PCBs) being used on site.

In 1986, the facility began to dismantle its garage and build a larger parking lot. The garage contained ACM (insulation) - approximately 2,740 pounds of ACM waste. In 1986, approximately 14,760 pounds of waste materials were removed from the facility; it included 6,615 pounds of zinc-chloride from the plating operation waste and 605 pounds of hazardous waste.
In 1993, the facility generated the following hazardous wastes: cutting oil, 1,1,1-TCEA, and lab packs.

Per a chart provided by the facility during the August 9, 1995 routine inspection conducted by PADEP, the facility provided its tracked annual regulated and nonregulated hazardous wastes disposed by the facility. In 1982, 19,120 pounds of hazardous wastes were disposed; in 1983 and 1984 the amount was less than half of the 1982 quantity; in 1984, the facility eliminated the printed circuit board operation. The waste quantity increased in 1986 when the facility eliminated the plating facility and cleaned-up during major facility renovations that were occurring at that time; from 1987 to 1994, hazardous wastes disposed were less than 843 pounds annually. The facility conducted ACM removal almost continuously from 1986 to 1994. Infectious waste (4 pounds) was disposed in 1994.

Air
The facility's air emissions sources were permitted by the Philadelphia Department of Public Health, Air Management Services under license code 3216, permit number 745730. The permit was in effect since at least 1981 until the facility closed in 1997. No other air permits, inspections, violations, or complaints were identified in the regulatory agency files. Because the facility has not operated at this location since 1997, the City's files pertaining to the air permit were not reviewed for this report. Impact's operations do not require an air permit.

National Pollutant Discharge Elimination System (NPDES)
No NPDES permit documentation was identified in the regulatory agency files reviewed; however, the facility discharged three floor drains and plating line wastewaters to the City sewer system. Although the City reportedly sampled the effluent from the cadmium plating line, there were no known permits through the City for these discharges. There were no inspections, violations, or complaints identified.

SWMUs

Thirteen SWMUs were identified for the facility during the March 22, 1990 site inspection by NUS: the former 1,1, 1-TCEA waste storage tanks, the former cadmium plating line, the former zinc-chloride plating line, the former garage/ACM waste (insulation), the December 1989 fuel oil spill area, the wave solder machine, the vapor degreaser machine, the punch press machine, the sanding room dust collector unit, the products division hazardous waste material storage area, the model shop dust collector unit, the materials laboratory degreaser and vapor phase reflow system, and the components and transformer division hazardous waste material storage area. As the facility closed in 1997, the operational SWMUs identified during the 1990 site visit were no longer present during the July 2012 site visit.

SWMU 1 - Former 1,1,1-TCEA Waste Storage Tanks

Two 400-gallon steel ASTs were located outside the facility's shipping door on the paved parking lot area. (Note: A drawing dated October 31, 1980, which was part of the Part A Hazardous Waste Permit Application, identified the tanks being 200-gallon capacity each). One tank stored virgin (or reclaimed) 1,1,1-TCEA; the other tank stored waste 1,1,1-TCEA. The solvent was used in the vapor degreaser and as a general cleaning solvent. Reportedly, the tanks were sealed and were located in an elevated concrete dike/vault of unknown dimension and capacity. The distribution process was not known or how the 1,1,1-TCEA waste was disposed or how often it was disposed (NUS, 1990). The ASTs were thought to be installed in the 1960s. No releases of reclaimed or waste 1,1,1-TCEA were reported (NUS, 1990).

In 1986, the two 1,1,1-TCEA ASTs were removed and disposed by a company that performed solvent reclamation.

Currently, this location houses the building air conditioning units. The ground surface is concrete and in good condition. There was no indication of the former tanks and/or piping or any containment structures that may have been present at the time the tanks were in use. A sewer grate was observed in the vicinity of the location of the former ASTs. It was unknown to the Pulse/Impact representatives if the grate discharged to the storm sewer system. (Note: the storm sewer grate near the 8,000-gallon UST [SWMU 5] reportedly drains to the City sewage treatment plant.)

SWMU 2 - Former Cadmium Plating Line

The cadmium plating line was located on the third floor of the building. All plating line wastewaters and spent tank solutions were discharged from the unit into the City sewer system. These discharges were monitored by the Philadelphia Bureau of Water Pollution Control. Periodically, the Bureau obtained grab samples from the drain pipe that led from the plating unit to the sewer system. It was unknown when the plating line was established. No releases of spent tank solutions and wastewater are known or have been documented (NUS, 1990).

In late April 1981, the facility discontinued cadmium plating. By March 29, 1982, the unit was completely dismantled and disposed off site. The cadmium plating line was immediately replaced by a zinc-chloride plating line (SWMU 3) that utilized zinc-chloride baths.

The area in which SWMU 2 was located is currently used for storage. The floors are wooden and appeared to be in good condition. There was no indication of the former plating line observed during the July 2012 site visit.

SWMU 3 - Former Zinc-Chloride Plating Line

The zinc-chloride plating line was located on the third floor of the building. The unit, activated in the spring of 1981 after the cadmium plating line was removed from service, utilized zinc chloride baths to plate metal casings for the DOD and various machine shops. The unit produced two wastes: wastewater, which was discharged directly from the tanks (open steel and aluminum tanks of unknown size containing caustic and zinc-chloride solutions and alodine [a conversion coating for aluminum]) into the City sewer system, and spent plating solutions, which were pumped from the tanks into 55-gallon drums, hand-trucked to the elevator, and transported to the basement, where they were staged on the cement floor. The drums were disposed off-site. The disposal company hand-moved the drums from the basement, where they were staged, to the elevator and transported them to the loading dock. A hydraulic dock leveler moved each drum onto the truck. The loading dock was located near the parking lot.

The facility's final 1986 hazardous waste manifest for plating room eliminations identified that approximately 16 drums of waste (880 gallons) were collected, transported, and disposed. The wastes were subdivided as follows: approximately 385 gallons of D002 and D007 waste (chromic acid solution), approximately 330 gallons of D002 waste (alkaline cleaner), and

approximately 165 gallons of nonregulated, nonhazardous waste (zinc chloride). It was not known what chromic acid was used for in the plating lines or which line it was used in. No releases of wastewater or spent plating solutions are known or have been documented (NUS, 1990).

All zinc-chloride plating was discontinued in 1986, as it was expensive to operate. At this time, all plating solutions were removed and disposed. It was not known how large the plating line was or how many tanks it utilized.

The area in which SWMU 3 was located is currently used for storage. The floors are wooden and appeared to be in good condition. There was no indication of the former plating line observed during the July 2012 site visit.

SWMU 4 - Former Garage/ACM Waste (Insulation)
In April 1986, the facility dismantled a 90- by 38-foot garage and a 30- by 25-foot building that was attached to the garage. The garage, present at the facility when purchased in 1956, was removed to expand the parking lot. The facility also dismantled two three-story houses that were located in the parking lot. The ACM (insulation) was disposed off site. No release of insulation had occurred (NUS, 1990).

The area is currently used for parking. The parking lot is asphalt-paved and in good condition.

SWMU 5 - December 1989 Fuel Oil Spill Area
On December 22, 1989, approximately 30 gallons of No. 2 fuel oil overflowed from a service truck tank pump onto the facility's macadam parking lot. The 8,000-gallon UST is located beneath the facility's parking lot directly east of the boiler house. The oil tank truck pump was properly placed in the fuel tank pipe, but driver negligence caused the release. The oil was immediately covered with approximately 800 pounds of oil-dry (an absorbent). No oil reached the parking lot drain that leads to the City sewage treatment plant. The oil-soaked absorbent material was disposed off site.

The UST remains in-place; however, Impact has not used oil for heat since approximately 2010. The building is currently heated using electric service. Natural gas service is also provided to the building. There was no evidence of the location of this release at the July 2012 site visit. Tightness testing conducted on the UST for Technitrol on May 9, 1997 indicated the UST was leak tight.

The site is essentially capped with structures/pavement. The release from the delivery overflow was addressed quickly. Therefore, it is not expected that subsurface soils or groundwater have been contaminated by the facility operations that would create vapor intrusion issues into the on-site or neighboring buildings. There were no known or documented releases to subsurface media.

SWMU 6 – Former Wave Solder Machine (Products Division)
The wave solder machine was located on the fifth floor. The first wave solder machine was established at the facility in the early 1970s. The most recent machine was established in 1986. This machine applied a uniform coating of solder to electric circuit boards. Kester flux was added to the solder to make it smooth and uniform. The wave solder machine produced dross, an oxidized solder scraping waste that was collected from a valve into a one-gallon paint can. These cans were stored under the machine. The product waste was sold to a smelter for reclamation. No floor drains were observed near the unit. No releases of solder were known or documented (NUS, 1990). Emissions from this machine were permitted by the Philadelphia Department of Public Health, Air Management Services, license code 3216, permit number 745730.

Impact constructed offices at the location of this former SWMU. The hardwood floors in the hallways were refinished and were in good condition at the time of the July 2012 site visit. The office spaces were carpeted. Impact stated that the floors were in good condition. Minimal repairs were completed.

SWMU 7 – Former Vapor Degreaser Machine (Products Division)
The vapor degreaser was located on the fifth floor of the building and was used to clean refuse collected on the circuit boards from the wave solder machine in a bath of 1,1,1-TCEA and isopropyl alcohol. The vapor degreaser (a closed unit), activated at the facility in the 1970s, had a capacity of 12 gallons of bath solution. The circuit boards and the bath solution were placed in the top of the machine. The machine had a refrigeration mechanism that prevented vapors from releasing

into the ambient air. A hood was also stationed above the machine to suction any vapors out of the air. Emissions from the degreaser were permitted by the Philadelphia Department of Public Health, Air Management Services, license code 3216, permit number 745730.

Clean 1,1,1-TCEA was hand carried in a five-gallon pail from the products division hazardous waste material storage area in the basement to the fifth floor. One pail of clean 1,1,1-TCEA (1,1,1-TCEA/alcohol/flux solution) was observed near the machine during the 1990 site visit. Waste 1,1,1-TCEA was collected via a waste valve in the left side of the machine and into a five-gallon pail. Two pails of waste 1,1,1-TCEA were observed next to the clean 1,1,1-TCEA pail. The waste produced by this process was a spent 1,1,1-TCEA/alcohol/flux solution. When the five-gallon pails were full, they were hand-carried down to the products division hazardous waste material storage area in the basement and poured into a 55-gallon drum of similar waste. No floor drains were observed near the unit. No releases of 1,1,1-TCEA/alcohol/flux solution were known or documented (NUS, 1990).

Impact constructed offices at the location of this former SWMU. The hardwood floors in the hallways were refinished and were in good condition at the time of the July 2012 site visit. The office spaces were carpeted. Impact stated that the floors were in good condition. Minimal repairs were completed.

SWMU 8 – Former Punch Press Machine – PRD (Products Division)
The punch press machine was located in the sheet metal shop on the third floor. The sheet metal shop contained five different types of machines that drill, bend, and grind sheet metal (aluminum sheets) into various forms. The punch press machine processed templates. Motor oil was used to lubricate the machines. Since the late 1950s/early 1960s, the motor oil was transported in five-gallon pails by hand from the products division hazardous waste materials storage area in the basement to the third floor. The oil was applied to metal sheets and machine parts with a roller brush. The motor oil was temporarily stored in five-gallon buckets on the wooden floor. Waste oil was collected in separate five-gallon pails and hand carried to the products division hazardous waste material storage room in the basement and placed in a 55-gallon drum. The punch press machine had an oil drip pan (2.5 by 1.5 square feet) underneath it to collect oil drippings. This oil was emptied into a five-gallon pail and taken to the basement when full. Any spilled waste motor oil was cleaned up with oil-dry; the oil-dry was disposed in the trash. No floor drains were observed near the unit.

Only small spills of motor oil on the floor occurred (NUS, 1990). During the 1990 site visit, small dry oil stains surrounded the punch press machine. A six-inch square oil spill covered with oil-dry (an absorbent) was observed drying near the machine. An open, half-full five-gallon pail of clean oil-dry material was observed in a corner along with an open, half-full, five-gallon pail of clean motor oil.

Impact currently uses this space as a community center/meeting space. The hardwood floors were refinished and were in good condition at the time of the July 2012 site visit. The oil stained area near the former punch press was observed. Impact stated that minimal repairs were needed while refinishing the floors.

SWMU 9 – Former Dust Collector Unit (Sanding Room) (Products Division)
The sanding room, established in the late 1950s/early 1960s, was located on the third floor of the building. Metal forms were processed on the sanding machines to produce a grain finish effect. A dust collector unit was also located in this room. A polyester filter bag collected the waste powdered aluminum and steel produced by the sanding machines. This filter bag was inspected bi-annually and cleaned when necessary. The filter bags were cleaned off with a brush, and the waste was placed in a plastic bag and then a cardboard box.

The waste powders were stored on the third floor with the scrap metal in 55-gallon steel drums. A scrap dealer bought the metal scraps for reuse. The dust collector unit was permitted by the Philadelphia Department of Public Health, Air Management Services, license code 3216, permit number 745730. It was not known if another type of permit was required before this permit.

Impact currently uses this space as a community center/meeting space. The sanding machines and dust collector were not present, and the hardwood floors were refinished and in good condition at the time of the July 2012 site visit.

SWMU 10 – Former Hazardous Waste Material Storage Area (Products Division)
The products division hazardous waste material storage area, established in 1985, was located in the basement of the facility. This room stored virgin product and waste product generated by the products division. This room may have stored 1,1,1-TCEA waste, still bottoms, waste oil, waste MEK, flux waste, and any unidentified wastes before testing/off-site disposal. Waste 1,1,1-TCEA was hand-carried from various work stations in five-gallon pails down to this room and poured into the waste 1,1,1-TCEA drum. Waste oil was carried in a similar fashion.

In August 1989, a still was purchased to reclaim 1,1,1-TCEA on site. It was first used on August 31, 1989. Portions of waste 1,1,1-TCEA to be processed in the still were drawn from the waste drum using a hand-activated suction pump. Approximately eight gallons could be distilled in one hour. The still had a condenser unit from which reclaimed 1,1,1-TCEA was released into a bucket. The reclaimed 1,1,1-TCEA was then poured into the virgin 1,1,1-TCEA drum. The still claimed an 80 percent yield. Unreclaimed wastes, or still bottoms, were placed in the unreclaimed waste 1,1,1-TCEA still bottom drum.

The room also contained a table on which two one-gallon containers of unidentified liquid wastes were placed. Ten one-gallon containers of Kester flux waste were also on this table. The waste was disposed off site.

This room also contained a one-gallon container of paint thinner and a six-gallon container of virgin MEK (used as a parts degreaser). According to the facility representative in 1990, parts to be cleaned with MEK were transported to the hazardous waste material area and cleaned under the small hood there. The majority of the MEK waste was immediately volatilized since the amounts used were small; any MEK waste was placed in a small container and stored in this room before the manifested removal. Approximately one gallon of MEK was used annually. During the 1990 site visit, no MEK waste was observed.

During the 1990 site visit, the room contained four 55-gallon drums that contained virgin cutting oil, virgin 1,1,1-TCEA (with isopropanol), waste 1,1,1-TCEA, and unreclaimed waste 1,1,1-TCEA still bottoms. However, a waste oil drum was not observed. No containment structures existed other than the intact drums and containers on the cement floor. A floor drain was located in this room. This was an open drain intended for draining any fire-sprinkler system water. The drain leads to the City sewer system. No releases from the waste drums were known or documented (NUS, 1990). NUS recommended the entrance to the room be secured with a cement berm of adequate dimensions.

During the July 2012 site visit, this area was an open room at the north end of the basement hallway. The room had recently been re-tiled by Impact, and the floor drain was covered over. The area was in good condition.

SWMU 11 – Former Dust Collector Unit (Model Shop) (Components and Transformer Division)
The model shop, functioning since approximately 1960, was located on the second floor of the building. Research for electronic parts for use in transformers and delay lines was conducted in this room. The room contained sandblasters, which utilized abrasive grits. These closed-system machines were sealed and vented into a dust collector unit. The dust collector utilized polyester filter bags that collected powdered aluminum, steel, wood, glass epoxy, and bicarbonate soda (a blasting medium). The filter bags were inspected every three months. When necessary, the dust waste was brushed into plastic bags, weighed, boxed, and disposed in the outdoor dumpster as municipal waste.

The dust collector unit was permitted by the Philadelphia Department of Public Health, Air Management Services, license code 3216, permit number 745730. The particulate-free air was vented outside of the facility. The vent was permitted by the City. No releases from the dust collector were known or documented (NUS, 1990).

The model shop recently had been used by Impact as a kitchen area; however, due to funding cuts, this floor is only lightly used. This model shop area is only used at this time for records storage. The wood floors were recently sanded, but not sealed, and appeared in good condition. Some discolored areas were observed throughout the floor; however, it is not certain whether these discolorations are related to past operations or are a result of the partial refinishing process. The dust collector unit remains in place, but has been disconnected.

SWMU 12 – Former Degreaser and Vapor Phase Reflow System (Materials Laboratory) (Components and Transformer Division)
The degreaser and vapor phase reflow system were located in the materials laboratory in the engineering section located on the second floor of the building. The degreaser utilized Freon as a parts cleaner. From its inception in the late 1970s or early 1980s until 1987, the degreaser utilized chlorinated fluorinated Freon (CF Freon). In 1987, the facility began utilizing fluorocarbon-free Freon (SMT Freon). The vapor phase reflow system was established in 1985.

The degreaser unit consisted of two tanks: one containing clean SMT Freon, the other containing spent SMT Freon. Both tanks were covered by a hood to prevent spills and volatilization of Freon. The spent SMT Freon tank had a distillation unit built into it (vapor phase reflow system) that condensed vaporized Freon into the system. The degreaser and vapor phase reflow system worked in conjunction to prevent any release of Freon into the ambient atmosphere. When the spent SMT Freon tank was full, a technician drained the tank through a threaded plug into a five-gallon metal container. This container was then hand-carried via the elevator to the components and transformer hazardous waste material storage area on the first floor. It was weighed, labeled, and placed in a metal locker in this room (45-gallon capacity) and then disposed off site. The waste disposal practices were similar for both types of Freon.

The size of the degreaser tanks is unknown. No floor drains were observed near the unit. No releases from the degreaser and vapor phase reflow system were known or documented (NUS, 1990).

As observed during the 2012 site visit, this area is currently used for storage of records. The degreaser and vapor phase reflow system was no longer present. The wooden floors were recently sanded, but not refinished. Discolored areas were observed throughout the floors; however, it is not certain whether these discolorations are related to past operations or are a result of the partial refinishing process.

SWMU 13 – Former Hazardous Waste Material Storage Area (Components and Transformer Division)
This room, functioning since approximately 1960, was located on the northern end of the first floor of the building. It was used to temporarily store hazardous waste generated by the components and transformer division. When a raw material product container was empty or a raw material shelf life was expired, it was manually carried from the laboratory via the elevator to the component and transformer division hazardous waste material storage area where it was weighed and labeled and placed in a metal locker with an approximately 45-gallon shelf capacity.

Liquid wastes such as spent Freon and expired or unused flux materials and expired or partially empty containers of epoxy resins, solder paste, and powdered iron residues were weighed, bagged, labeled, and temporarily stored in a 45-gallon capacity metal locker or seated on the counter in the room pending disposal. The wastes were disposed off site.

Other wastes managed in this SWMU based on the facility's 1986 hazardous waste manifest included: approximately 50 to 95 percent of the waste was trichlorotrifluoroethane (Freon 113), and 0 to 15 percent was composed of other halogenated solvents. The waste may have been subdivided as follows: approximately 55 gallons of F001 and F002 waste (1,1,1-TCEA), approximately 110 gallons of F001 and F002 waste (Freon 113), approximately 165 gallons of F003 waste (xylene), and approximately 75 gallons of D002 waste (ferric chloride).

A January 6, 1989 manifest listed the following wastes managed in this SWMU: approximately 5 pounds of D001 waste (1 pound each of Konform, Non-Sticken Stuffe, silicone spray, parting agent, hysol mold release, and DME mold saver), approximately 75 pounds of D001 waste (lacquer thinner, thinner, epoxy, polycast 25, MIS 142C [fluorocarbons], and MEK), approximately 1 pound of D001 and D002 waste (amine), approximately 1 pound of D001 waste (aluminum powder), approximately 4 pounds of D002 waste (Kester soldering flux), and approximately 2 pounds of a nonregulated, nonhazardous solid waste (M-12-N resin and silicon powder). In addition, on March 16, 1989, approximately 75 pounds of a hazardous solid waste were disposed off site. The exact type of waste was not known (NUS, 1990).

No floor drains were observed near the unit. No releases from the hazardous waste material storage room were known or documented (NUS, 1990).

This SWMU is currently located within a small clothing shop. The wooden floors had been refinished and are in relatively good condition. A stained area was observed on the floor adjacent to the exit doors. No other indications of the former

storage area were observed during the July 2012 site visit.

Storage Tanks

Former 1,1,1-TCEA Waste Storage Tanks

The facility formerly maintained two 400-gallon ASTs (SWMU 1) for the storage of 1,1,1-TCEA for use in the vapor degreaser and as a general cleaning solvent. Periodically, one of the tanks was filled with virgin or recycled 1,1,1-TCEA, while the other tank (storing used 1,1,1-TCEA) was emptied into a tanker truck and transported off site for reclamation. The sealed tanks were located in an elevated concrete dike of unknown dimension and capacity outside the shipping door on the paved parking lot. No releases were reported (NUS, 1990). On February 28, 1994, it was noted that the two ASTs (thought to be installed in the 1960s) had been removed in 1986, and that reclaimable wastes would no longer be stored at the facility.

No indication of the ASTs was observed at the facility during the July 2012 site visit. The area is enclosed by a gated fence. The ground surface was concrete in relatively good condition. This area currently houses the air conditioning units for the buildings.

8,000-Gallon No. 2 Fuel UST

The facility operated one 8,000-gallon steel UST that was used to store No. 2 fuel oil for heating the facility. A report for tightness testing conducted by Hi-Tech Environmental Service on May 9, 1997 stated that the UST passed the USEPA tank tightness test. The 8 foot diameter, 21.5 foot long UST was installed in sand and gravel backfill. The groundwater level was 6 feet above the bottom of the tank as determined using an observation well near the UST (a well was not observed during the July 2012 site visit). The property was transferred to Impact in September 1997. Impact stated that they discontinued using heating oil in approximately 2010, and the building is currently heated using electric. The building is also provided with natural gas. The UST remains in place; however, the volume of heating oil remaining in the UST is unknown. The parking lot around the UST location was in good condition with no major staining observed.

AOCs

No AOCs were identified in the reviewed documents or during the July 2012 site visit.

Releases

The only reported release was the December 1989 fuel oil spill. The release was addressed (SWMU 5).

No contaminated groundwater is known to be present at the site as a result of the facility operations. Accordingly, no exposure pathway/release controls are relevant.

3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within "existing area of contaminated groundwater"[2] as defined by the monitoring locations designated at the time of this determination)?

_____ If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the "existing area of groundwater contamination"[2]).

_____ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"[2]) - skip to #8 and enter "NO" status code, after providing an explanation.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

4. Does "contaminated" groundwater **discharge** into **surface water** bodies?

_____ If yes - continue after identifying potentially affected surface water bodies.

_____ If no - skip to #7 (and enter a "YE" status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater "contamination" does not enter surface water bodies.

_____ If unknown - skip to #8 and enter "IN" status code.

Rationale and Reference(s):

[2] "existing area of contaminated groundwater" is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of "contamination" that can and will be sampled/tested in the future to physically verify that all "contaminated" groundwater remains within this area, and that the further migration of "contaminated" groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] of each contaminant discharging into surface water is less than 10 times their appropriate groundwater "level," and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?

_____ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration[3] of key contaminants discharged above their groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.

_____ If no - (the discharge of "contaminated" groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration[3] of each contaminant discharged above its groundwater "level," the value of the appropriate "level(s)," and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations[3] greater than 100 times their appropriate groundwater "levels," the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

[3] As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

6. Can the **discharge** of "contaminated" groundwater into surface water be shown to be "**currently acceptable**" (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented[4])?

____ If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site's surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR
2) providing or referencing an interim-assessment,[5] appropriate to the potential for impact, that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment "levels," as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.

____ If no - (the discharge of "contaminated" groundwater can not be shown to be "**currently acceptable**") - skip to #8 and enter "NO" status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.

____ If unknown - skip to 8 and enter "IN" status code.

Rationale and Reference(s):

[4] Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

[5] The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the "existing area of contaminated groundwater?"

_____ If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the "existing area of groundwater contamination."

_____ If no - enter "NO" status code in #8.

_____ If unknown - enter "IN" status code in #8.

Rationale and Reference(s):

8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

__X__ YE - Yes, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the **Technitrol, Inc.** facility, EPA ID # **PAD002300556** , located at **1952 East Allegheny Avenue, Philadelphia, Pennsylvania 19134**

Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater". This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.

____ NO - Unacceptable migration of contaminated groundwater is observed or expected.

____ IN - More information is needed to make a determination.

Completed by (signature) _____ Date 11/29/12

(print) Jennifer A. Wilson, P.G.

(title) Licensed Professional Geologist

Supervisor (signature) _____ Date 11-29-2012

(print) Mohamad Mazid, Ph.D., P.E.

(title) Chief, Engineering Services Section

(EPA Region or State) PADEP, Southeast Region

Locations where References may be found: 1/9/2013

USEPA Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
South East Regional Office
2 E. Main Street
Norristown, PA 19401

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Facility Name: Technitrol, Inc.
EPA ID# PAD002300556
City/State Philadelphia, Pennsylvania 19134

MIGRATION OF CONTAMINATED GROUNDWATER UNDER CONTROL (CA 750)