

POLREP 30
SPECIAL BULLETIN D – FINAL POLREP
Lin Electric Company Site
1400 Bluefield Avenue
Bluefield, West Virginia

DATE: 13 August 2010

ATTN: EPA RRC
WVDEP

I. SUMMARY FACT SHEET

Site: Lin Electric Company Site

Location: 1400 Bluefield Avenue, Bluefield, Mercer County, WV 24701

Size: Approximately 2 acres

Current Owner: Gordon and Danny Lusk

Site Status: Inactive/closed

Funding Approval Date: July 24, 2008 - initial funding of \$447,876
November 21, 2008 - funding increased to \$2,073,563

Response Action Period: July, 2008 to May, 2010

Response Activities: EPA removed and disposed of sources of PCB contamination from the Site and took action to remove or prevent potential migration pathways from the Site to area surface water. Items removed and disposed included drums of waste, transformers containing PCB oil, contaminated site drainage features (pipe and concrete sumps and trenches), and contaminated soil, sludge, sediment, and debris. In addition, pits, vaults, sumps, and basements were cleaned, their leaks were sealed, and they were then backfilled to minimize off-site drainage. Finally, filter media was removed from the area waste water treatment plant due to possible PCB contamination.

Hazardous Materials: Polychlorinated biphenyls (PCBs) and trichloroethene.

Quantities Removed: **Hazardous waste material disposed of by EPA:** three (3) PCB transformers (1813 Kg); Seven (7) drums PCB contaminated liquids; fifteen (15) drums PCB contaminated solids.
Hazardous waste material disposed of by Potentially Responsible Party (PRP): 338 tons of soil and debris containing PCBs at concentrations greater than 50 mg/kg (debris consisted of pipes, drains, and concrete).
Non-hazardous waste disposed of by EPA: Twenty two (22) drums of non-hazardous material PCB less than 50 mg/kg; Approximately 2 tons non-hazardous material (PPE); 261 tons of solidified solids from the waste water treatment plant.
Non-hazardous waste material disposed of by PRP: 349 tons of soil and debris containing PCBs at concentrations less than 50 mg/kg PCBs.

OSC: Michael Towle

Removal Contractor: WRS Compass, Bristol, PA.

Disposal Locations: **TSCA/Hazardous: EPA** – Environmental Protection Service, Wheeling, WV (transformers); EQ Florida, Inc., Tampa, FL (drums - liquids and solids); Veolia, Deer Park, Texas (drums – liquids and solids).
PRP - EQ Wayne facility, Michigan (soil and debris greater than 50 mg/kg PCBs).
Non-hazardous/non-TSCA: EPA - EQ Florida, Inc., Tampa, FL (drums); American Landfill, Waynesburg, Ohio (drums); Mercer County Landfill (PPE waste and waste water treatment solids); Eviro Tank Clean, Belpre, Ohio (PCB contaminated water); Rumpke Landfill, Ohio (spent carbon)
PRP - Mercer County Landfill (soil and debris less than 50 mg/kg PCBs)

Project Ceiling: \$2,073,563.

Project Costs: \$957,542

II. SUMMARY OF INCIDENT

Background

The Lin Electric Company Site (Site) is located at 1400 Bluefield Avenue in Bluefield, Mercer County, West Virginia. The Site is bound by Bluefield Avenue (southeast), active railroad tracks (northwest), and two commercial properties (northeast and southwest sides). A community youth center and residential area is located across Bluefield Avenue.

The facility at the Site was historically operated as an electrical coil manufacturing and electric motor repair service business. The National Electric Coil Company, then McGraw Edison Service Group (a division of McGraw-Edison Co.), operated the facility prior to 1988. Cooper Industries merged w/McGraw Edison Company in 1985. Cooper Industries conducted clean up/closure of the facility from 1986-1988 under the direction of the West Virginia Department of Environmental Protection (WVDEP). The cleanup was completed in accordance with approved standards typical of low contact or industrial re-use and ultimately approved by the WVDEP. Clean up activities included characterization of wastes and contamination in drums, tanks, soil, floor areas, sludge and residues from floor drains, and machine/equipment surfaces. In the final phase of the clean up, surfaces of the building were decontaminated, some of the facility drains and drainage systems were cleaned, and wastes were disposed. The main contamination issues at the facility were polychlorinated biphenyls (PCBs) and volatile organic contaminants that likely resulted from the use of trichloroethene (TCE) in degreasing operations in use in the business.

The OSC's review of the files relating to the cleanup and the analytical data therein indicates that the cleanup was fairly aggressive and largely effective at removing PCBs from the facility to the approved standards. However, the OSC believes that PCBs may have remained in certain drainage systems since Cooper Industries believed it would be impractical to evaluate all drainage systems at the Site. Subsequent to the Cooper Industries clean up, the Lin Electric Company (Lin Electric) operated at the Site from approximately 1988 to 2003 conducting a similar business. (Polrep Nos. 4 and 5).

WVDEP inspected the Site on April 22, 2004 and found the facility was not in use. Portions of the facility, e.g., basements and vaults formerly containing equipment, were flooded and numerous containers of hazardous substances were present. WVDEP requested assistance from the U.S. Environmental Protection Agency (EPA) to conduct a removal site evaluation at the Site. EPA conducted a removal site evaluation from November 30 - December 2, 2004. The evaluation identified numerous containers of flammable and corrosive hazardous substances present at the Site that posed the threat of release into the city storm drain system and into surface water through the facility's drain systems (Polrep Nos. 1 and 4).

EPA initiated a Removal Action at the Site on Dec 2, 2004. Clean up activities included removal of drums containing hazardous substances and decontamination of areas identified by the OSC in the 2004 Removal Site Evaluation. The Removal Action was completed January 31, 2005, but did not address some drums found in the flooded and oil-covered basement (the oil was found to contain about 6 mg/kg PCBs). Additionally, the 2004 Removal Action did not address PCBs contamination found in certain drainage systems at the Site. The EPA OSC at that time determined that no further investigation was necessary (Polrep Nos. 3 and 4).

Removal Site Evaluation

In Spring 2008, EPA met with the WVDEP and the Virginia Department of Environmental Quality (VADEQ) to review information obtained from surface water sampling and fish studies conducted in the Bluestone River and its tributaries by the United States Geological Survey, WVDEP, and VADEQ. The Bluestone River receives drainage from the Lin Electric Site and other possible sources of contaminants. Fish consumption advisories had been issued for the Bluestone River due to elevated PCBs concentrations in fish tissue. EPA agreed to assist in evaluating potential sources of the PCBs contamination including the former Lin Electric Company Site. The OSC visited the Lin Electric Site in May 2008 and found that the majority of the buildings at the Site had been demolished and that the building remains were piled at the Site. The OSC observed drums in the basement at the Site through a window along the sidewalk.

The EPA, with the assistance of WVDEP conducted an evaluation of the Site in June 2008 which included the collection of samples of water and debris within basements and sediments within select drainage features. A large pile of building debris covered much of the Site. The Site had been sold and the new owners had demolished most of the buildings at the Site with intentions of future development. The owners assisted EPA by moving certain debris to facilitate safe entrance to basement features. Analytical results for the June 2008 samples indicated the presence of PCBs contamination.

In summary, the following was detected:

- 7.8 ug/L PCBs in water accumulated in the basement,
- 3.6 ug/L PCBs in water accumulated in the subsurface compressor room,
- 2.6 mg/kg PCBs in debris within the basement,
- 16 mg/kg PCBs in debris within the sump adjacent to the degreaser in Area 1d
- 84 mg/kg PCBs in sediment within the floor drain in Area 4
- 11.9 mg/kg PCBs in sediment within an old storm drain in Area 4
- 0.34 mg/kg PCBs in the area storm drain accessed in Area 4

It was also determined, by comparing present day and historical levels, that the basement water level was fluctuating suggestive that water was migrating from the facility. Dye tracing performed by the WVDEP verified that on-site storm drainage features were connected to off-site drainage features which eventually drain into the Bluestone River via Whitley and Beaverpond Creeks (Polrep No. 4).

On July 23, 2008, EPA Region III approved an Action Memorandum which authorized additional funding, a change of scope, and an exemption from the 12 month statutory limit for a removal action at the Lin Electric Company Site. The primary goals of the removal action were to address the PCB-contaminated water and oil in the basement, remove drums and their contents, and to minimize further off-site migration of PCB contamination (Polrep No. 5). Additional Site characterization was also planned to support future actions. The total project ceiling was approved for \$447,876.

2008 Removal Activities

A Removal Action was re-initiated at the Site on August 13, 2008. Planned removal activities included: removal and disposal of PCB-contaminated liquids in the basement of the former facility; removal and disposal of unknown drums located in the basement; removal of PCB-contaminated water from within vaults; removal of PCB-contaminated debris and sludge from within floor drains and to the extent practical within off-site drainage systems; actions to minimize the off-site migration of PCB through off-site drainage systems; and further characterization of the Site (Polrep No. 6).

During the Removal Action, the OSC tried to implement the use of nomenclature established previously for the Site (e.g., nomenclature utilized during the cleanup conducted by Cooper in the 1980s) to describe certain areas and features even though the buildings were removed. During the course of the removal and between August 13 and 26, 2008, debris and sludge was removed and prepared for off-Site disposal from the following Site drainage features:

- Area 3b sump located in the northeast corner of the Site in former Crane shop 3;
- Area 1d sump located in the northwest corner of the Site and near the degreaser tank vault;
- Area 4 floor trench located in the former High Voltage Area;
- west side storm drain (a limited segment attached to the Area 1d sump);
- Bluefield Avenue storm drain

The degreaser vault in Area 1d (northwest corner of the Site) was associated with a square sump (Area 1d sump) located immediately south of the degreaser vault. The Area 1d sump was full of debris (e.g., bricks associated with the demolition of the facility) on top of a layer of finer grained sediment. The drainage pipe leading from the sump was later determined to connect into a 36 inch diameter drop box associated with a drainage system (west side storm drain) that connected into the storm system along Bluefield Avenue. The EPA Emergency & Rapid Response Service (ERRS) contractor removed the Area 1d sump's drain pipe leading from the sump westward to the corner of the former boiler/locker room building. The pipe was full of black, oily material. After removing the subject section of pipe, cloudy ground water entered the remaining pipe sections and drained into and through the 36"-diameter drop box along the west side storm drain, then to a storm inlet at the westside gate, and then into a Bluefield Avenue storm inlet/sump (Polrep No. 10). This visible water flow demonstrated a pathway of migration from the Site to the off-site storm system.

EPA directed ERRS to remove contaminated water from Site basements and in-ground tanks/vaults to provide access to investigate how contaminated water may be migrating from the Site. The WVDEP assisted in the investigation by conducting dye tests and the Sanitary Board of Bluefield (Sanitary Board) assisted in identification of drainage system connectivity using specialized equipment (Polrep Nos. 7 and 9).

Water was pumped from the following features:

- former degreaser tank vault in Area 1d;
- basement along the front of the Site;

- Vault 116 (located adjacent to the compressor room); and
- compressor room.

Some of the water was pumped into temporary storage tanks. Some of the water was pumped into other Site vaults or basements after those receiving units had been pumped out and leaks plugged. After pumping the water out of the features, water was observed to be re-infiltrating into some of the features via pipes, sumps, and/or floor drains further supporting the scenario in which waters were able to flow through the features at the Site and then discharge from the Site (Polrep Nos. 8 through 11). These features were plugged prior to demobilizing from the Site.

Once the water in the degreaser vault was pumped down, the sludge and debris was removed and drummed for disposal. The vault was cleaned using water spray. Leaks from which water was able to enter the vault were plugged. This feature was subsequently used to receive waters from other features.

Once the water in the basement was pumped down, the drums in the basement were removed, consolidated and prepared for disposal. Liquid contents were consolidated into 3 drums and solid contents consolidated into 2 drums. Leaks and drains in the basement were plugged and this feature was subsequently used to receive water from other features.

Once the water in the vault adjacent to the compressor room was pumped down the vault was cleaned and leaks were plugged.

Once the water in the compressor room was pumped down, the transformers in the vault were removed and the remaining oil was drained and drummed for disposal. The transformers were left for the Site owner. The drains in the compressor room were plugged.

WVDEP used dye tracing to investigate a potential migration route from an old sanitary sewer manhole in the former High Voltage Area. This testing appeared to indicate that this drain was connected into the active area sanitary system. WVDEP's test was verified by the Bluefield Sanitary Board of Bluefield (BSB) who used a dye trace and TV to observe that the old sanitary sewer drain connected into the area sanitary drain system (Polrep Nos. 7 and 9). The BSB also verified using acoustical devices that the Area 3b sump and drain pipe connected to the area storm drain system (Polrep No. 9).

The BSB assessed a Bluefield Ave storm inlet in the gutter of Bluefield Avenue in front of the Site which was determined to receive drainage from the degreaser sump in Area 1d. The storm inlets sump was found to be approximately 15 feet deep, but the destination of the discharge was not immediately determined. The BSB removed some of the sediment from the drop box. The removed solids were drummed for disposal by ERRS (Polrep No. 9). WVDEP later dye-tested the Bluefield Avenue storm inlet/sump. Water was observed exiting the storm inlet and dye was observed at numerous locations along the drainage pathway of area storm drainage to Whitley Creek. This testing demonstrated connectivity between the Site drainage features and area surface waters (Polrep No. 11).

A suspected Old storm drain system located in the High Voltage area (Area 4) was found to extend southwest through the Site, but dropped to a then unknown destination at the edge of Site

(Polrep No. 9). Ultimately, the feature was found to drain to the area storm drain.

The following Site features were plugged during the removal (Polrep Nos. 10 and 11):

- 1) Area 3b sump and drain;
- 2) Old sanitary line in area 4;
- 3) Old storm line in area 4;
- 4) Area 4 floor trough (trench);
- 5) Area 1d sump and drain;
- 6) Westside storm system at inlet at western gate;
- 7) Tank vault 116 pipe;
- 8) Compressor Room pipe and sump;
- 9) Basement Area drains and sump; and
- 10) Subgrade drain pipe along western limit of former facility.

In order to further characterize the Site, the OSC directed START to collect soil and sediment samples from areas across the Site. ERRS used a hammer mounted on a backhoe to break small portions of concrete to allow access for START to collect soil samples beneath the concrete pad at a number of locations. Sediment samples were also collected from some of the storm drains and pipes. A number of surface water and storm water samples were also collected from on- and off-site locations and analyzed for PCB congeners to assess the extent of contamination. Water samples were collected from on-site containment systems and analyzed to determine disposal options (Polrep No. 9).

Analytical results of soils collected beneath the concrete slab in various areas of the Site did not indicate elevated PCB contamination. Analytical results of samples collected in August 2008 to support disposal of removed sediments and other media indicated high concentrations of PCB contamination. The highest PCBs concentrations were found in sediment samples collected from the westside drainage system (3911 mg/kg PCBs). Other high concentration PCB aroclor detections included: 335 mg/kg in sediment removed from the Bluefield Avenue storm inlet/sump and 65 mg/kg in sediment from the Area 3b sump. Previous analytical data already indicated a level of 84 mg/kg in the Area 4 drain. Each of these features was connected to the area storm water system which drained to area surface waters (Polrep No. 12).

Analytical results for surface and storm water samples collected in August 2008 also indicated that elevated PCB contamination is found in the storm waters (surface water stream Whitley Branch which runs through underground culverts in Bluefield) and the highest concentrations are at and downstream of the Site. However, significant problems with sample documentation rendered much of the surface water data unsupportable. Nonetheless, levels as high as 16 ug/L were detected in storm waters near the Site (Polrep No. 12).

The Site was temporarily demobilized pending arrangement for disposal of wastes generated during the removal on August 26, 2008. Removal activities were re-mobilized on October 13, 2008 to conduct transportation and disposal (T&D) of wastes generated during the Removal. Drummed wastes and debris generated during the removal were shipped off site for disposal. The disposition of wastes was detailed in Polrep No. 13, which included descriptions of waste streams,

quantities, manifest Nos., and the respective disposal facilities.

The majority of water from Site features that had been pumped into on-site temporary storage tanks was pumped back into the features (plugged) from which it originated. Some of the water was transported off site for disposal (Polrep No. 12). Some water from the temporary storage tanks was pumped through a treatment system to determine the feasibility of treating the PCB-contaminated water to allow for its potential discharge into the local sewer system (Polrep Nos. 12 and 13).

Due to irregularities in documentation of collection of surface water and storm water samples during the August sampling events, EPA directed START to conduct additional sampling during base flow conditions and following a rainfall (storm) event. The re-sampling was conducted the week of October 13, 2008 during both base-flow and a rainfall-event condition. Additional soil and sediment samples were also collected during the week from the west side storm drain system, the old storm drain pipe, the yard storm drain, and the old sanitary sewer manhole.

EPA demobilized the removal on October 17, 2008 until outstanding analytical data could be evaluated and until discussions could be held with potentially responsible parties (PRPs).

Analytical results for the October 15, 2008 sediment sampling confirmed elevated concentrations of PCB (297 mg/kg) in the westside storm drain system. Elevated concentrations of trichloroethene (TCE) and dichloroethene (DCE) were also found in the west side storm drain system at 550 mg/kg and 320 mg/kg, respectively. Analytical results also indicated lower concentrations of PCB in the old storm drain system running through the middle of the facility at concentrations of about 6 mg/kg. Results for soil samples did not indicate elevated PCB or other contaminants, indicating that the PCB contamination may be limited to sources located within and migrating through drainage systems connected to the former facility (Polrep No. 14).

Analytical results for the October 2008 surface water sampling events (base flow and rainfall event) indicated that the highest concentrations of PCB congeners continue to be found in the storm drain system at the Lin Electric Site.

An additional sampling event was coordinated with both WVDEP and VADEQ to be conducted during a storm event. The sampling event was conducted during a rainfall event on December 11, 2008. Surface, storm system, and sanitary sewer water samples were collected during this event. The analytical results indicated again that the storm water migrating through the Lin Electric Site contains the highest levels of PCBs. PCBs were also found migrating in waters collected from Whitley Creek and within the storm sewers of Cherry Street and Lynn Street. PCBs were also detected in the sanitary sewer outside of the Lin Electric facility at similar concentrations. This data reinforced results from previous sampling that indicate that PCBs are migrating from the Site. The data also indicated that PCBs could also be originating from other sources upstream of the facility and that PCB sources could be contributing contaminants to both the storm and sanitary systems (Polrep No. 14).

2009 Removal Activities

On March 10, 2009, prior to re-initiation of Removal activities, EPA conducted sampling of the concrete slab at the Site in order to characterize it as a potential source of PCB contamination. Most of the floors and concrete at the facility had been cleaned up during the PCB remediation conducted in the 1980s. The March 2009 sampling activity was conducted to evaluate if the concrete had become significantly re-contaminated subsequent to the 1980s remediation. The analytical results for the concrete do not indicate significant re-contamination of the concrete by activities after Cooper cleaned the facility in the 1980's. Results for only one concrete sample collected near the basement indicated elevated PCB concentrations (an area used by EPA to support cleanout of the Bluefield Avenue storm inlet). This area was included in plans for remediation during the next phase of the Removal Action (Polrep No. 14).

The Removal response action was re-mobilized during the week of April 20, 2009. Prior to mobilization, EPA Region III signed a Request for a Modification of Scope, Additional Funding, and Exemption from the \$2 Million Statutory Limit for the Removal Action. This authorized additional funding and modified the scope of the Removal Action to address additional contamination and conditions at the Site that were identified during the 2008 Removal activities. The primary goals of the remainder of the EPA Action were to remove the significant sources of PCBs from the Lin Electric Site and mitigate future releases of PCBs from the Site into the area surface waters. This was to be accomplished by removing PCB sources in Site drainage features (or by removing the drainage feature itself), and by cleaning and filling pits and features which could contain contaminated waters or contribute to off-Site migration of PCBs (Polrep No. 14).

The major activities conducted during the course of the removal included:

1. Collecting, staging, and disposing of PCB-contaminated soil and Site debris;
2. Removing, sampling, and disposing of three transformers containing PCB oil;
3. Excavating, removing, and disposing of site drainage features containing PCB contamination;
4. Plugging of drainage features that might allow off-site migration of PCB or TCE contamination;
4. Pumping, treating, and disposing of PCB-contaminated water from the basement, compressor room, vaults, and pits; and
5. Cleaning features listed in item No. 4, plugging any locations allowing groundwater re-infiltration, and backfilling the features.

Piles of soil, bricks, and other debris from across the Site were staged in segregated piles of suspected clean materials and suspected contaminated material. Concrete above drain pipes and around drainage features (sumps and trenches) to be removed were cut with a concrete saw. The ERRS contractor used an excavator to remove the drainage feature or concrete slabs above drain pipes that were to be removed (Polrep No. 16).

ERRS subcontracted a crane and a man lift to remove three transformers located in the west side alley which served the former facility (Polrep No. 16). The transformers were staged at the site on a concrete pad, sampled, and transported off site on June 17, 2009 for disposal at a TSCA disposal facility (Polrep No. 20).

In order to mitigate the potential for off-site migration of Site contaminants, drainage features, including sumps, trenches, and subsurface pipes that had been characterized as containing PCB contamination were to be removed. Drainage features that were excavated and disposed of during the Removal included the following: (a Site Feature Map that depicts the remediated Site features is provided on the EPA Site website, www.epaossc.org/linelectric

- Area 3b sump and drain pipe extending westward to the area storm drain. The entry point into the area storm drain was patched with concrete after the drain pipe was removed (Polrep No. 17).

- West side drainage system. This included the Area 1d sump and drain pipes, the 36" inch diameter west side storm drain drop box in the west alley, and 10" and 6" diameter pipes that extended from the area of former Boiler building at the north end of the west alley, southward to the storm drain in the sidewalk along Bluefield Avenue. The pipe contained black, oily waste material throughout. The portion of this pipe directly connected into the Area 1d sump was excavated during previous removal activities in 2008 (Polrep No. 17).

- Loading Dock trench drain and contaminated soils below it at the southwestern portion of the Site (Polrep No. 17).

- Area 4 trench drain.

- The 24"-diameter storm drain that extended from just north of the Area 4 Trench southward to Bluefield Avenue. Only fragments of the pipe were observed and recovered north of the trench. Suspect black fill material encountered while excavating the drain pipe was excavated, sampled, and staged on Site until disposal arrangements could be made (Polrep No. 18).

- Four 6"-diameter pipes containing black waste material in Area 4. Two of the 6" pipes containing black, PCB-contaminated waste material (aroclor 1260 at 7.9 and 8.8 mg/kg, respectively) were discovered during the excavation of the old storm drain manhole in Area 4. The two pipes drained into the manhole. A third pipe was discovered while excavating the two 6"-diameter pipes and the fourth pipe connected into one of these pipes and extended northward, ending at the footer. The pipes were removed and the locations where two of the pipes ended at the footer were capped with concrete (Polrep Nos. 18 and 19). The purpose of these pipes is unknown, but likely storm pipes conveying roof drainage into the area storm system.

- West side alley sidewalk storm drain box, the Bluefield Avenue storm inlet/sump, and the interconnecting drainage. A 500-gallon-capacity underground storage tank (UST) encountered approximately 20 feet east of the west side alley storm drain sump was also removed. The UST was situated underneath the city sidewalk and extended northward under the concrete pad in the Loading Dock area. The UST was primarily filled with soil but also contained water with an oil layer. START collected a post-excavation confirmation soil sample from the sidewall near the bottom of the UST excavation. START also collected a sample of the black sediment found under the Bluefield Avenue storm inlet/sump and a post-excavation confirmation soil sample (Polrep No. 21). On June 10, 2009, an ERRS subcontractor installed a new concrete storm drain sump to replace the excavated Bluefield storm inlet and sump. The Bluefield Public Works (PW) Department installed a new PVC pipe from a newly installed west side alley storm drain to the

new Bluefield Avenue storm drain (Polrep No. 20).

Excavations were backfilled with one or a combination of the following: clean overburden soil; cleaned bricks/debris; and gravel.

Additionally, ERRS cleaned debris and sediment out of two electrical conduit trenches that extended from the western portion of the basement northward to the wall along the northern boundary of the facility (Polrep No. 22).

EPA also addressed Site features that had been identified as containing PCB contaminated water. Two of the features, the basement and compressor room, had been determined to have connectivity with the off-site area storm drainage system. The following Site features were remediated as part of the Removal (Site Feature Map):

- degrease vault in area 1d;
- four small pits located throughout the Site (Pit 01, Pit 02, Pit 03, and the decon pit);
- basement;
- compressor room;
- vault 116;
- three shallow sumps (23" diameter sump in former Crane Shop #3, sump located west of former Shop #2 Coil Department; and sump south of the compressor room).

These features were cleaned out, the drains and leaks were sealed/plugged, and backfilled with clean overburden soil from Site excavations, clean bricks/concrete debris; and/or gravel.

Contaminated water removed from Site features was treated in an on-site water treatment system (WTS). The water was pumped through two filter tanks, a 25-micron sock filter, an organic clay tank, a carbon tank, and finally a 1-micron filter to remove contaminants. Treated water was discharged into the City of Bluefield sanitary sewer system through the old sanitary sewer manhole.

The Bluefield Sanitary Board (BSB) provided assistance on numerous occasions throughout the removal. The assistance consisted primarily of using the Sanitary Board's vacuum/flusher truck to clean out drainage features and using video equipment to trace on- and off-site drainage systems. The Sanitary Board used the vacuum/flusher truck to clean residual sediment, debris, and waste water from ERRS decontamination activity from the following features (Polrep Nos. 17, 19, 20):

- off-site area storm drains along Bluefield Avenue;
- on-site area storm drain pipe from the drop box north of the office building northward to a cooling unit vault located on the north side of the facility wall;
- on-site sumps and yard drains;
- degrease vault;
- compressor room; and
- vault 116.

Solid waste material/sludge collected in the Sanitary Board truck during cleaning operations was

placed in 55-gallon steel drums and/or on-site waste piles for storage until disposal (Polrep No. 17). Waste water generated was emptied into the basement, or other Site features to be treated in the WTS. ERRS decontaminated BSB equipment after each use.

The Sanitary Board also used video equipment to trace area storm drain pipes along Bluefield Avenue to help determine the drainage pathway for site-related drainage. The Sanitary Board traced storm water downstream to a point where the entire flow escaped outward through cracks in the storm water pipe (Polrep 17). The video equipment was also used to trace the area storm drain pipe from the drain located in the parking lot to the storm box in Area 4, and northward to the cooling unit vault located north of the wall in Area 3. ERRS plugged holes and pipes that entered the vault. ERRS also plugged a hole in the concrete pad that went directly into the storm drain along the rear of the facility. This segment of the area storm drain was previously cleaned by the owners of the building in 1987 (Polrep No. 20).

START collected concrete core samples from the basement and compressor room following decontamination and prior to backfilling to confirm adequacy of clean up/decontamination efforts. START also collected 20 cored concrete samples from around the Site after ERRS completed cleaning the concrete pad at the end of Removal activities. START also collected storm water samples from the area storm drain system on June 29, 2009. Area storm drain water samples were collected at the Lynn Street, Cherry Street, and Lin Electric area storm drain boxes (in Area 4), as well as the cooling unit vault located on the north side of the Crane Shop #3 wall (Polrep No. 23). A shallow groundwater sample was collected from Area 1d, to the southwest of the Area 1d sump and degrease vault (Polrep No. 22).

Analytical results of concrete core samples collected and analyzed for PCBs were received in August 2009. These results along with previous data collected by EPA indicate that PCB concentrations in concrete remaining at the Site are low (e.g., less than 2 mg/kg) and indicate that the Site's structure was not likely significantly re-contaminated by operations after cleanup by Cooper in the 1980's. Results from a confirmatory sample collected following decontamination of an area near the basement where elevated concentrations were detected previously (due to EPA decontamination activities) indicated that the area had been adequately decontaminated. The information indicates that the PCB cleanup conducted by Cooper Industries in the 1980's remained effective and that significant re-contamination of the concrete likely did not occur (Polrep No. 25).

Analytical results for PCB congener analysis of the shallow groundwater sample collected near the degreaser vault and Area 1d sump indicated the presence of PCB congeners totaling approximately 10.4 ng/L. This same sample also contained several halogenated organic compounds, including: trichloroethene (74 micrograms per liter [ug/L]); vinyl chloride (1.6 ug/L); cis-1,2-dichloroethene (28 ug/L); and tetrachloroethene (1.3 ug/L) (Polrep No. 25).

Analytical results for the storm water samples collected on 6/29/09 for PCB congeners analysis generally indicated that PCB levels in the storm water at the Site had declined significantly from previous sample events by an order of magnitude. This indicates that the Removal Action may have been effective at reducing the potential for release of PCBs into the area storm waters from sources within the known drainage features addressed by EPA. Additionally, the results indicate

that a source upgradient to the Site may exist (Polrep No. 25).

EPA, ERRS, and START temporarily demobilized from the Site on July 1, 2009 until disposal arrangements could be determined (Polrep No. 23). On July 9, 2009, EPA issued a Unilateral Order to Cooper Industries, a former owner of the property at the Lin Electric Site. The Order requested that the Company complete the disposal of the waste materials accumulated and remaining at the Site. On July 17, 2009, the Company notified EPA that, as it previously verbally discussed with EPA, the Company intended to comply with the Order (Polrep No. 24). The ERRS contractor was demobilized from the Site by July 31, 2009 and Cooper Industries took over responsibility for disposal of waste materials accumulated during the removal that remained at the site (Polrep No. 24).

On August 6, 2009, EPA approved a Response Action Plan (RAP) submitted by Cooper Industries. The RAP described the procedures for security of the wastes pending disposal, removal of the wastes from the Site, disposal of the wastes, and decontamination of the concrete pad under the wastes. At that time, responsibility for security and disposal was transferred from EPA to the Company (Polrep No. 25).

Between August 17 and August 20, 2009, PRP contractors were mobilized to complete the off-Site transportation and disposal of the wastes accumulated by EPA at the Site (Polrep No. 25). Refer to Section V of this report for specific information pertaining to the waste disposal. After removal of the waste materials, the PRP contractors pressure washed the concrete pad and collected the water for analysis and disposal at EnviroTank Clean of Belpre, Ohio. The concrete under the waste was then sampled and found to contain low level residual PCB concentrations similar to those EPA previously found by EPA and determined to be within the concrete in the remainder of the Site (e.g., less than 2 mg/kg) (Polrep No. 25).

EPA collected an additional sample of the storm water from the area storm drain box in Area 4 at the Site on September 15, 2009. Analytical results indicated a total PCB congener concentration of approximately 680 pg/L, an order of magnitude lower than the concentration of the sample collected on 6/29/09.

2010 Removal Activities

In January 2010, EPA and BSB officials met to discuss resolution of a potential issue relating to PCBs that may have been discharged into the sanitary sewer system from the Site during the course of the EPA Removal Action. EPA discharged treated water from the cleaning of the subsurface features into the sanitary system. A sample of the treated water was found to contain PCBs above the discharge parameters for the BSB facility. Despite calculations which showed that the actual potential loading of PCBs from the Removal Action was negligible when compared to loading that might originate from other sources (based upon EPA sampling of PCBs in the area sanitary flow), EPA sampled the media, found low level of PCBs, and agreed to remove filter media from the BSB facility.

EPA re-mobilized the ERRS contractor to the BSB facility on May 4, 2010. EPA removed sand filter media, dried the media, solidified the media with Portland cement, and disposed the media. Approximately 261 tons of solidified media was disposed at the Mercer County Landfill facility

in Princeton, WV. EPA also replaced the media. EPA demobilized from the BSB facility on May 27, 2010.

To address the potential that volatile organic compounds may be facilitating the migration of PCBs from the Lin Electric Site through the ground water, EPA installed 3 temporary ground water monitoring wells at the Site between May 18 and 19, 2010. The wells were sampled on June 1, 2010. The results found up to 200 ug/L of trichloroethene and 20.1 ng/L of PCBs in the ground water. There did not appear to be a correlation between the concentration of PCBs and volatile organic compounds in the ground water samples. The OSC determines that even though the data shows low levels of organic contaminants in the ground water, the data do not suggest that the ground water is resulting in the off-Site migration of elevated PCBs contamination within the scope of the Removal Action.

III. RESOURCES COMMITTED

The total project ceiling approved in the Action Memorandum for the re-initialization of the removal in July 2008 was \$447,876. The Action Memorandum was modified in November 2008 to change the scope of the removal and increase the project ceiling to \$2,073,563.

Estimated Total Cost Summary

Extramural Costs	Costs to date	Budgeted Ceiling
ERRS 2- Cleanup Contractor	\$718,232	\$943,740
ERRS 1- Cleanup Contractor (2004)	\$97,255	\$97,255
START 2	\$132,730	\$216,492
START 1 (2004)	\$9,325	\$9,325
Unallocated	\$0.00	\$836,145
Total Site Costs	\$957,542	\$2,102,957

IV. ROSTER OF AGENCIES, ORGANIZATIONS, AND INDIVIDUALS

The following table provides a list of federal, state, and local agencies and contractors involved in this removal action. The table also includes a brief description of duties involving this removal action.

AGENCY	CONTACT	BRIEF DESCRIPTION OF DUTIES
U.S. EPA Region III 1650 Arch Street Philadelphia, PA 19103 (215) 814-3272	Mike Towle	On-Scene Coordinator: Performed initial assessment. Coordinated all aspects of the project integrating various agencies and contractors. Responsible for the overall success of the project.
U.S. EPA Region III 1650 Arch Street Philadelphia, PA 19103	Joan Martin-Banks	EPA Enforcement: Responsible for federal investigation into the location of a responsible party.
U.S. EPA Region III 1650 Arch Street Philadelphia, PA 19103	Robin Eiseman	EPA Attorney who contacted known potential responsible parties and negotiated for property access.
U.S. EPA Region III 1650 Arch Street Philadelphia, PA 19103	Joanna McDonald	EPA Senior Site Administrative Officer. Responsible for tracking all site costs.

AGENCY	CONTACT	BRIEF DESCRIPTION OF DUTIES
West Virginia Division of Environmental Protection - Division of Water and Waste Management - Environmental Enforcement-Hazardous Waste 116 Industrial Drive Oak Hill, WV 25901 (304) 465-1919	Penny Harris	Assisted OSC with investigation and evaluation of the Site.
Virginia DEQ Office of Watershed Programs P.O. Box 1105 Richmond, VA 23218 (804) 698-4240	Craig Lott	Coordinated with OSC regarding water quality issues. Assisted in surface water sampling events.
City of Bluefield, WV 200 Rogers Street P.O. Box 4100 Bluefield, WV (304) 327-2401	Andy Merriman	City Manager
City of Bluefield, WV 200 Rogers Street P.O. Box 4100 Bluefield, WV (304) 324-2255	Brian K. Cochran, Esq.	City Attorney
City of Bluefield, WV Public Works P.O. Box 4100 Bluefield, WV 24701 (304) 327-2458	Tony Wagner	Point of contact for work pertaining to removal/replacement of City storm drains/pipes.

AGENCY	CONTACT	BRIEF DESCRIPTION OF DUTIES
City of Bluefield Public Works 200 Rogers Street P.O. Box 4100 Bluefield, WV 24701 (304) 327-2492	Dallas B. Fowler, Jr.	Superintendent of Public Works. Installation of new storm drain pipe and replaced sidewalk.
Sanitary Board of Bluefield (WV) 100 Rogers Street P.O. Box 998 Bluefield, WV 24701 (304) 325-3681	Shannon Bailey	Engineering Manager. Point of contact for the Sanitary Board of Bluefield. Conducted trace/verification of city storm sewers and prepared storm sewer maps. Cleaned off-site and on-site storm drains and on-site pits using city flusher/vacuum truck.
Lusk Disposal P.O. Box 300 Bluefield, WV 24701 (304) 425-9338	Gordon and Danny Lusk	Current property owners
Cooper Industries		Coordinated and arranged for transportation and disposal of wastes generated during the removal action.
TechLaw, Inc. EPA/START III - Western Area 131 Peninsula Street, Suite B Wheeling, WV 26003 (304) 230-1230	Gene Nance	Member of EPA's Superfund Technical Assessment and Response Team (START) who provided oversight of removal activities, written and photographic documentation, multimedia sampling, and analytical services coordinator.

AGENCY	CONTACT	BRIEF DESCRIPTION OF DUTIES
<p>WRS Compass EPA ERRS Contractor 925 Canal Street, Suite 3701 Bristol, PA 19007 (267) 540-0048</p>	<p>Scott Garpiel</p>	<p>Response Manager who coordinated or otherwise provided the overall labor, materials, and services to the OSC to excavate pipes containing PCB contamination; remove sediment and sludge from basements and pit; removed and disposed of transformers from electric poles; collected disposal profile samples.</p>

V. WASTE TREATMENT AND DISPOSAL

EPA Waste Disposal

Drummed wastes and debris generated during the 2008 Removal activities were shipped off site for disposal by the EPA. The disposition of wastes was detailed in Polrep No. 13, which included descriptions of waste streams, quantities, manifest Nos., and the respective disposal facilities. In summary, 16 drums of hazardous waste or PCB waste containing PCB concentrations above 50 mg/kg were shipped from the Site to Veolia in Deer Park, Texas. Additionally, 12 drums of non-hazardous waste or waste containing PCB concentrations less than 50 mg/kg were also shipped to the American facility in Ohio. Finally, 5000 gallons of waste water, 5 drums of spent carbon, and 20 yards of protective clothing were also shipped to Enviro Tank (Ohio), Rumpfke (Ohio) and the Mercer County Landfill (WV), respectively.

EPA arranged for transportation and disposal of eleven drums of waste materials generated during the 2009 Removal activities. The drums were shipped off site on 6/29/09. The drums were shipped to EQ Florida, Inc., located in Tampa, FL, for disposal. The shipment included the following: four drums of TSCA PCB liquid waste; two drums of PCB-containing capacitors that were removed from the compressor room; and five drums of non-hazardous waste. PPE waste generated during the removal was shipped off site on 6/30/09. The PPE waste was disposed of as non-hazardous solid waste at the Mercer County Landfill, located in Princeton, WV (Polrep No. 25). Additionally, the 3 PCB transformers and oil were shipped from the Site.

EPA arranged for the off-Site transportation of the solidified filter media from the BSB facility between May 25 and 26. The media was disposed at the Mercer County Landfill in Princeton, WV.

PRP Waste Disposal

Between August 17 and August 20, 2009, contractors were mobilized to the Site to complete the off-Site transportation and disposal of the wastes accumulated by EPA at the Site. Approximately 338 tons of soil and debris containing PCBs greater than 50 mg/kg were removed from the Site and transported to Michigan for disposal at the EQ Wayne facility. These consisted primarily of the subsurface pipes and drains and surface features (e.g., concrete trenches) which contained PCB wastes as well as associated contaminated soils. During this time period, approximately 349 tons of debris generated during the Removal Action which may contain low levels of PCB contamination was also removed. This material was disposed at Mercer County Landfill. This material consisted predominantly of rubble removed from the concrete pad and excess soils removed during the excavation of certain subsurface features (Polrep No. 25).

VI. Future Considerations

Analytical results for shallow groundwater indicate low levels of PCB congeners and several volatile organic compounds including trichloroethene and cis-1,2-dichloroethene. Shallow groundwater was encountered in numerous excavations around the Site at depths of approximately 2 feet and has likely contacted sources of PCB contamination removed by EPA

during the course of the Removal Action. The analytical results are not unexpected, but not necessarily within the scope of the Removal Action. The ground water may migrate to the area storm system. EPA has determined that the storm system is also affected by unknown upstream sources.

The analytical results of concrete and soil indicate only low levels of PCBs contamination consistent with the previously approved (1980s) cleanup levels for the Site. The OSC finds that the previous cleanup standards are reasonable for the Site (e.g., low contact condition). The Removal Action has resulted in the removal of remaining known sources of PCBs contamination that may affect surface water. The OSC expects that residual trace contamination levels will continue to decline.

Future usage of the Site must consider the residual low level contamination remaining at the Site. Although the residual contamination may not be migrating, the contamination may need to be addressed to support certain future land uses.