



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

DEC 30 2016

Mr. Ken Taylor  
SC Dept. of Health & Environmental Control  
2600 Bull Street  
Columbia, SC 29201

Subject: Burlington Industries Cheraw Site  
Cheraw, Chesterfield County, South Carolina

Dear Mr. Taylor:

The U.S. Environmental Protection Agency's Emergency Response, Removal and Prevention Branch (ERRPB) conducted a Removal Site Evaluation (RSE) at the above referenced Site for potential removal action eligibility under the *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*.

Based on the information collected during the RSE, the On-Scene Coordinator (OSC) recommends this Site be given priority for removal eligibility contingent upon availability of approved funds under the EPA's Superfund Removal Program (see enclosed RSE memo). Concurrent with this recommendation, the EPA may also begin its enforcement activities to determine potentially responsible parties for this Site.

A decision to conduct a removal action will be documented in an Action Memorandum, and a copy will be forwarded to the State. Should the final determination be that a removal action is not warranted, you will be subsequently notified of this determination.

Should you have any questions concerning ERRPB's determination, please contact Matthew Huyser, OSC, at (404) 562-8934, or Matt Taylor, Chief of Removal Operations Section, at (404) 562-8759.

Sincerely,

  
James W. Webster, Ph.D., Chief  
Emergency Response, Removal and Prevention Branch

Enclosure

cc: Dawn Taylor  
Tony Moore  
Matt Taylor  
James Webster  
Matthew Huyser  
Subash Patel

Anita Davis  
Ronald Saskowski

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Burlington Industries Cheraw Site  
Removal Site Evaluation POLREP



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region IV

**Subject:** POLREP  
Removal Site Evaluation  
Burlington Industries Cheraw Site  
650 Chesterfield Highway, Cheraw, Chesterfield County, South Carolina 29520

**Latitude:** 34.697743° North  
**Longitude:** 079.914605° West

**From:** Matthew J. Huyser, On-Scene Coordinator  
**Thru:** Matt Taylor, Removal Operations Section *M.T.*  
**To:** James W. Webster, Ph.D., ERRPB  
**Date:** December 7, 2016  
**Reporting Period:** 10/4/2016 – 12/7/2016

**1. Introduction**

**Site Number:** B49F  
**Response Authority:** CERCLA  
**Response Type:** Time-Critical  
**Response Lead:** EPA  
**Incident Category:** Removal Assessment  
**NPL Status:** Non NPL

**1.1 Site Description**

The Burlington Industries Cheraw Site (the Site) consists of the former Burlington Industries, Inc. facility property (650 Chesterfield Highway in Cheraw, Chesterfield County, South Carolina) as well as 3.2 miles of surface water drainage from the facility to the Pee Dee River and the adjacent parcels along the pathway. The former Burlington Industries, Inc., facility is currently owned by Highland Industries, Inc. (a division of Takata Corp.); the facility manufactures commercial and industrial textiles and composites. Adjacent properties to the surface water drainage corridor include private residences and public lands. These include 37 occupied private residences and Huckleberry Park, which is a 2.7-acre public park with playground equipment for children.

During its investigation of a property in a residential neighborhood which purportedly held lagoons that were operated by Burlington Industries, the South Carolina Department of Health and Environmental Control (SC DHEC) discovered the presence of Polychlorinated Biphenyls (PCB) in residential surface soils. Subsequent sampling events revealed PCBs in surface and subsurface soils of adjacent residential lots, the former Burlington Industries property, sediments along the surface water corridor and public and private properties downstream.

## 1.2 Preliminary Removal Assessment/Removal Site Inspection Results

In October 2015, the SC DHEC Division of Site Assessment and Remediation was contacted by a resident in Cheraw, inquiring about an unidentified wastewater unit had been historically located on his property and/or an adjacent vacant lot. Under a Public Service Activity (PSA) SC DHEC determined that there had been several permitted sludge drying beds located on at least one undeveloped lot within the residential neighborhood. The drying beds were constructed by Burlington Industries on or before 1971 as part of a wastewater pretreatment system. Solid components in wastewaters from the plant had reportedly caused blockages within the city sewer. The pretreatment system utilized a clarifier, which separated sludge for the drying beds and sent pretreated water through the city sewer to the public wastewater treatment plant. In 1974, Burlington Industries received a construction permit (Permit No. 2852-C) from SC DHEC for "a chemical pretreatment system having recycling capabilities comprising units for neutralization, chemical precipitation, dissolved air flotation and sludge handling," which may have been for the purposes of expanding or modifying the existing installation.

According to a 1989 letter from Burlington Industries to SC DHEC requesting permission to remove or cover remaining solids in the drying beds:

*"In the early to mid-1970s, the plant was applying latex and acrylic finishes along with pigment dyes and delusterants to fiberglass fabrics and some of this material was falling out in the sewer lines causing blockage problems for the city. At their request, the plant installed a settling tank and the sludge from this tank were pumped into drying beds behind the plant."*

It is unknown at what point the application of these finishes was initiated and at what point they ceased. PCB-containing compounds were used as fabric coatings for heat and/or flame resistance<sup>1</sup> as well as in synthetic resins, rubber, adhesives and dedusting agent<sup>2</sup>. Prior to construction of the pretreatment system and prior to operation of the Cheraw Wastewater Treatment Facility, the Burlington plant discharged at least some of its wastewater directly to the adjacent ditch. A letter dated March 12, 1970, from the Pee Dee District Sanitation Director to the South Carolina Board of Health Pollution Control Authority Executive Director states that "several complaints have been received by the Chesterfield County Health Department concerning the discharge of a waste product into an open ditch [by the Burlington Industries facility]". The Sanitation Director confirmed by direct observation that "the plant is indeed discharging a green fluid...into an open ditch at the rear of a housing development."

Burlington Industries, Inc. purchased the property at 650 Chesterfield Highway in Cheraw, Chesterfield County, South Carolina in 1960. The manufacturing facility was referred to as the James Fabrics Plant and produced woven fiberglass commercial and industrial fabrics. In 1988, the plant was sold to Highland Industries, Inc. The property sale to Highland Industries was only a subset of the overall

<sup>1</sup> <http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/SourcePCBs.pdf>

<sup>2</sup> Agency for Toxic Substances and Disease Registry Toxicological Profile for Polychlorinated Biphenyls (PCBs). November 2000

property footprint owned by Burlington Industries and did not include the location on which the six sludge drying beds were located. The drying beds were closed in 1989 wherein approximately 300 cubic yards of dried sludge and soil were excavated and transported to the Chesterfield County Landfill for disposal as nonhazardous waste. Burlington Industries had requested permission from SC DHEC in 1989 to cover the drying beds or dispose of the material as nonhazardous waste; sample analytical results were provided to demonstrate that the waste did not qualify as a RCRA (Resource Conservation and Recovery Act) toxicity characteristic hazardous waste (40 CFR § 261.24). However, no samples were analyzed for PCBs, and no information or indication was provided to SC DHEC that the waste stream could be contaminated with PCBs.

The undeveloped land north of the manufacturing plant that was not purchased by Highland Industries, including the land on which the former drying beds sat, was sold by Burlington Industries in 1990 to a developer who subdivided the property into 20 large lots, 11 of which are now occupied by residences. Based on the overlay of historical aerial images, it appears that the drying beds sat predominantly on one vacant lot located at the intersection of Little John Road and Robin Hood Drive. At present, the lot is mostly clear with tree lines along the south, east and west boundaries.

In February 2016, SC DHEC conducted an expanded PSA and collected 10 soil samples (three surface, three subsurface and three sediment samples). During the investigation, SC DHEC found several small pieces of a dark green or dark-gray rubbery material on the lot where the former drying beds were located. The same material was found in larger segments along the western edge of the vacant lot. The material appeared to have consistent characteristics with material found in photographs taken of the drying beds in 1988. Within soil and sediment samples that were collected, laboratory analysis found elevated concentrations of PCB Aroclor 1248 in the residential lot and the drainage ditch at a range of 300 µg/kg to 14,000 µg/kg. This exceeds the May 2016 EPA Region 4 Regional Screening Level (RSL)<sup>3</sup> for Aroclor 1248 which is 230 µg/kg<sup>4</sup>.

In response to the unexpected discovery of PCBs at the Site, the SC DHEC Superfund State Remedial group began a Site Investigation (SI) in August 2016 and collected samples to further characterize the Site. Surface and subsurface soil samples were collected from around the former drying beds, the Highland Industries property and residential yards. Sediment samples were collected from the adjacent drainage ditch and subsequent creek. A Dextsil® L2000DX PCB analyzer was utilized for field screening of samples; 56 of over 100 samples yielded sufficiently positive values using the screening system<sup>5</sup> and were sent for laboratory analysis. PCB Aroclor 1248 was found in residential yards at concentrations up to 490,000 µg/kg, and Aroclor 1254 was found in residential yards at concentrations up to 590,000 µg/kg (the comparable RSL for PCB Aroclor 1254 is 240 µg/kg). Aroclors 1248 and 1254 were found in ditch sediment samples at concentrations up to 1,900,000 µg/kg and 880,000 µg/kg, respectively.

Additional samples collected by SC DHEC in September, October and November 2016 investigated more residential properties, additional areas of the ditch near the former Burlington Industries facility, sediments within the surface water drainage corridor into the Pee Dee River, sediments from ponds adjacent to the drainage corridor and soils in Huckleberry Park. PCB Aroclors 1248 and 1254 were found throughout the Site with highest concentrations near the ditch at the west boundary of the former Burlington Industries facility, followed by decreasing concentrations throughout the surface water

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<sup>3</sup> Regional Screening Levels (RSL) are conservative risk-based screening values developed by the U.S. EPA to help identify contaminants of potential concern.

<sup>4</sup> RSL for Residential Soil with target cancer risk (TR) of 1E-06 and target hazard quotient (THQ) of 1.0

<sup>5</sup> EPA 600/R-98/109)

drainage corridor. The decreasing concentration trend was observed in both sediments and adjacent surface soils. Table 1 contains a summary of PCB Aroclor 1248 and 1254 sample results which exceeded 1,000 µg/kg, as well as subsequent concentration intervals by order of magnitude, from SC DHEC samples that were collected through October 2016.

**Table 1. Count of PCB Aroclor 1248 and 1254 detections above 1,000 µg/kg (aka 1 ppm) and subsequent intervals by order of magnitude within soil and sediment samples collected by DHEC through October 2016**

PCB Aroclor	≥ 1,000 < 10,000 µg/kg		≥ 10,000 < 100,000 µg/kg		≥ 100,000 > 1,000,000 µg/kg		≥ 1,000,000 µg/kg		Total Samples
	1248	1254	1248	1254	1248	1254	1248	1254	
Sediment in Ditch near facility			5	7	8	4			23
Sediment Downstream	7	8							26
Pecan Drive Residences	5	31	5	13	7	9	1	1	138
Sherwood Forest Residences	3	7	2		1	1			21
Huckleberry Park	7	8	2	1					12
City Parcel by Middle School	2	3	3	2					5
Highland Industries Property	1	1	5	5					30

Sediments within the ditch at the west boundary of the former Burlington Industries facility show a high degree of uniformity among all samples collected with concentrations of PCBs for each Aroclor in excess of 10,000 µg/kg. Several residences on Pecan Drive show high concentrations of PCBs, and these are parcels that border the drainage ditch. At least six parcels contain PCB Aroclors 1248 or 1254 in excess of 100,000 µg/kg while three more parcels contain concentrations of at least 10,000 µg/kg. One sample in a residential yard on Pecan Drive yielded PCB Aroclor 1248 and 1254 concentrations of 2,100,000 µg/kg and 1,600,000 µg/kg, respectively.

PCB Aroclors were found at concentrations above 1,000 µg/kg within yards of two occupied residences of the Sherwood Forest community, which is located on the east side of the drainage ditch. Several small segments of dark gray rubbery material, consistent with material SC DHEC had identified in February, were found in unoccupied parcels of the Sherwood Forest community. Sample results of these materials yielded concentrations of PCB Aroclor 1248 up to 750,000 µg/kg. Concentrations of PCB Aroclors 1248 and 1254 in excess of 10,000 µg/kg were also found on surface soils of a 4.2-acre city-owned parcel north of Long Middle School which had recently been clear cut by the city for storm water management purposes.

Within Huckleberry Park, PCB Aroclor 1248 was found at 1,400 µg/kg within a general grass area. PCB Aroclor 1248 was also found at concentrations ranging from 5,200 µg/kg to 16,000 µg/kg under swing sets within the park. PCB Aroclor 1254 was found at concentrations ranging from 4,700 µg/kg to 13,000 µg/kg within the same samples under the swing sets. After SC DHEC's August 2016 sampling event, which identified PCBs within Huckleberry Park, the City of Cheraw closed the park to public access. During an October sampling event, SC DHEC noted that steps taken by the City of Cheraw to close the park had been unsuccessful; SC DHEC documented evidence of children in the park such as bare footprints and sand/mud that had been placed onto the park slide. None of the swings at the park had been removed. A pile of material was found by SC DHEC along the creek bank which borders the south

side of the park. The City of Cheraw identified this material as dredge from the creek, which was removed under approval by the U.S. Army Corps of Engineers for the purposes of improving storm water drainage following Hurricane Matthew.

Contamination of PCBs on the Highland Industries property (former Burlington Industries facility) occurs generally within 150 feet of the drainage ditch. Five locations yielded PCBs of both Aroclors 1248 and 1254 in excess of 10,000  $\mu\text{g}/\text{kg}$  and one location yielded PCB concentrations in excess of 1,000  $\mu\text{g}/\text{kg}$ . Since purchasing the property in 1988, Highland Industries has expanded the west side of the building and constructed a parking lot and road on the west side within 20 feet of the west property line. Additionally, a storm water retention unit was constructed, or was expanded, near the point at which the ditch initiates. It is unknown whether construction activities disturbed or otherwise affected soils that were/are contaminated with PCBs.

### **1.3 Site Location**

The former Burlington Industries facility is currently owned by Highland Industries, Inc. and is located at 650 Chesterfield Highway, Cheraw, Chesterfield County, South Carolina. The original Burlington Industries property extended to the north and east of the facility and covered 93.8 acres. An eastern portion of this property was undeveloped by Burlington Industries and was sold for commercial use. The central parcel of 51.7 acres, which contained the manufacturing facility operated by Burlington Industries beginning in 1961, was ultimately sold to Highland Industries, Inc. in 1988. The northern parcel of 25 acres, upon which the former drying beds are located, was sold to a developer in 1990 who subdivided the property into 20 large lots, 11 of which are now occupied by residences. That development is known as Sherwood Forest. Two residences within the Sherwood Forest development border the contaminated ditch and one borders a downstream unnamed tributary; also, one parcel contains the former drying beds. West of the facility is a development of 61 residences along Pecan Drive which was built in the 1960s. Ten of these residences border the property with Highland Industries along with three undeveloped parcels. Five of these residences plus an additional seven residences along Pecan Drive border the contaminated ditch.

The surface water drainage corridor from the former Burlington Industries facility to the Pee Dee River is approximately 3.2 miles long. Storm water from contaminated soils at the facility and nearby residences flows to a drainage ditch that travels northward approximately 1,000 feet where it joins an unnamed intermittent tributary. The tributary flows approximately one-mile eastward; along the way it flows adjacent to three ponds but does not inherently pass through any pond system. The tributary then intersects with Wilson Branch, a perennial creek. Wilson Branch flows northeast for approximately 0.5 miles, and borders Huckleberry Park, until it intersects with Huckleberry Branch. Huckleberry Branch is a perennial creek that flows 1.5 miles east and south until it discharges to the Pee Dee River. The corridor is prone to flooding, particularly in residential yards and the public park along Wilson Branch.

## **2. Removal Site Evaluation**

The EPA Region 4 Superfund Site Evaluation Section reviewed and approved the SI submitted by SC DHEC in September 2016. Based on the high concentrations of PCBs at the Site, SC DHEC requested that the EPA Region 4 Emergency Response, Removal and Prevention Branch (ERRPB) conduct a Removal Site Evaluation (RSE). The EPA met with SC DHEC on October 19 to receive a briefing on the Site, then attended a public meeting where SC DHEC presented their sampling and investigation findings to residents in Cheraw. The EPA's START contractor (Superfund Technical Assessment and Response Team) digitized data collected by SC DHEC into the EPA's Scribe database and geospatial

publishing service. Due to the widespread coverage of sample data collected by SC DHEC, there is no need for the EPA to collect independent samples for the purpose of completing the RSE.

Data and digital maps were provided to the EPA's Scientific Support Section (SSS) to advise on prioritization and actionable levels for conducting a time-critical removal action at the Site in response to elevated concentrations of PCBs. SSS responded with a recommendation to prioritize removal activities with a tiered approach; Tier I actions would focus on currently occupied residential properties with PCB Aroclor concentrations greater than ten times the respective EPA Region 4 Removal Management Level (RML)<sup>6</sup> for residential soil; Tier II actions would then focus on currently occupied residential properties with PCB Aroclor concentrations greater than the RML. Both tiers intend that adjacent ditch sediments, where water is intermittent, should be addressed as surface soils. Additionally, Huckleberry Park should be considered a residential property. A cleanup goal of < 1,000 µg/kg PCBs is recommended.

The residential soil RMLs for PCB Aroclors 1248 and 1254 are 23,000 µg/kg and 3,500 µg/kg, respectively. Under the Tier I criteria, ten times the RML for PCB Aroclors 1248 and 1254 will be 230,000 µg/kg and 35,000 µg/kg, respectively. At present, there are seven residential properties and 1,000-feet of drainage ditch which meet the Tier I criteria; furthermore, one residential property and Huckleberry Park meet the Tier II criteria. Additional properties may be added as subsequent sample data are collected and evaluated.

### 3. Recommendation

Sampling has shown that the Site is contaminated with PCB Aroclors 1248 and 1254 above their respective RMLs for surface soil on residential properties. PCB contaminants occur within residential yards, the Highland Industries lot, a public park and a surface water drainage corridor of 3.2 miles from the former Burlington Industries facility to the Pee Dee River.

Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) lists factors to be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (iv), (v) and (vii) directly apply to the Site:

*300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals or the food chain from hazardous-substances-or-pollutants-or-contaminants;* According to samples collected by SC DHEC, at least six residential parcels along Pecan Drive contain PCB Aroclors 1248 or 1254 in excess of 100,000 µg/kg while three more parcels contain PCB concentrations of at least 10,000 µg/kg. One sample in a residential yard on Pecan Drive yielded PCB Aroclor 1248 and 1254 concentrations of 2,100,000 µg/kg and 1,600,000 µg/kg, respectively. PCBs were found at concentrations above 1,000 µg/kg within yards of two occupied residences of the Sherwood Forest community.

Within Huckleberry Park, PCB Aroclor 1248 was found at concentrations ranging from 5,200 µg/kg to 16,000 µg/kg under swing sets within the park. PCB Aroclor 1254 was found at concentrations ranging from 4,700 µg/kg to 13,000 µg/kg within the same samples under the swing sets. During an October sampling event, SC DHEC noted that steps taken by the City of

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<sup>6</sup> Removal Management Levels (RML) are risk-based screening values developed by the U.S. EPA to determine whether sample concentrations are sufficiently elevated that they may warrant a removal action. Exceedance of an RML by itself does not require a removal action, nor does it imply that adverse health effects will occur.

Cheraw to close the park had been unsuccessful; SC DHEC documented evidence of children in the park such as bare footprints and sand/mud that had been placed onto the park slide.

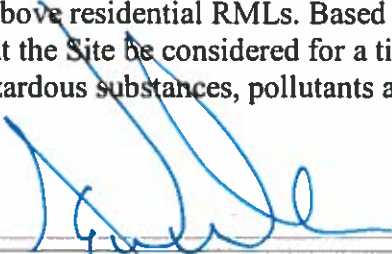
**300.415(b)(2)(iv): High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;** Sediments within the 1,000-foot ditch at the west boundary of the former Burlington Industries facility show a high degree of uniformity among all samples collected with concentrations of PCB Aroclors 1248 and 1254 in excess of 10,000 µg/kg. Concentrations for each PCB Aroclor exceeded 100,000 µg/kg in at least half of the samples that were collected from the ditch. At least seven downstream sediment samples in intermittent and perennial tributaries yielded PCB Aroclor concentrations in excess of 1,000 µg/kg. PCBs within ditch and creek sediments along the surface water corridor will migrate to the Pee Dee River.

**300.415(b)(2)(v): Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;** The surface water drainage corridor at the Site is prone to flooding, particularly in residential yards and the public park along Wilson Branch. Contaminated sediments from the ditch and/or creek may mobilize and deposit upon residential properties during flooding events.

**300.415(b)(2)(vii): The availability of other appropriate federal or state response mechanisms to respond to the release;** The State of South Carolina does not currently have sufficient funding to complete a response or removal action at the Site. The EPA has initiated discussions with Potentially Responsible Parties (PRP) who may be able to conduct some of the needed removal activities. The EPA Region 4 Superfund Enforcement Section continues to investigate the existence, liability and viability of additional PRPs.

The RSE has identified elevated concentrations of PCB Aroclors 1248 and 1254 at the Site at concentrations above residential RMLs. Based on the criteria listed above, the EPA Region 4 ERRPB recommends that the Site be considered for a time-critical removal action to remove and/or prevent migration of hazardous substances, pollutants and contaminants.

CONCUR: \_\_\_\_\_

  
James W. Webster, Ph.D., Chief, ERRPB

DATE: 12/14/2016

NON-CONCUR: \_\_\_\_\_

James W. Webster, Ph.D., Chief, ERRPB

DATE: \_\_\_\_\_