

**United States Environmental Protection Agency**  
**Region IV**  
**POLLUTION REPORT**

**Date:** Tuesday, April 6, 2010

**From:** Stephen Ball

**Subject:** Construction Completed/Sampling Pending

Forshaw Chemical Site  
605 State St., Charlotte, NC  
Latitude: 35.2405000  
Longitude: -80.8702000

|                          |              |                            |                |
|--------------------------|--------------|----------------------------|----------------|
| <b>POLREP No.:</b>       | 4            | <b>Site #:</b>             | A4PA           |
| <b>Reporting Period:</b> |              | <b>D.O. #:</b>             |                |
| <b>Start Date:</b>       | 10/19/2009   | <b>Response Authority:</b> | CERCLA         |
| <b>Mob Date:</b>         |              | <b>Response Type:</b>      | Time-Critical  |
| <b>Demob Date:</b>       |              | <b>NPL Status:</b>         | Non NPL        |
| <b>Completion Date:</b>  |              | <b>Incident Category:</b>  | Removal Action |
| <b>CERCLIS ID #:</b>     | NCN000409865 | <b>Contract #</b>          |                |
| <b>RCRIS ID #:</b>       |              |                            |                |

**Site Description**

The Forshaw Chemical site is approximately 5.25 acres in size and includes two former pentachlorophenol (PCP) formulating buildings, an office building, and a warehouse. The site is located in a mixed industrial/residential area. A municipal park and elementary school are located on the opposite bank of Stewart Creek, just downstream of the site.

Forshaw Chemical began formulating PCP in 1971 up until December 2003, when Forshaw Chemical ceased all PCP production operations. Currently, the property serves as a distribution center only. The original PCP manufacturing building is currently used for storage of Buckshot, a herbicide. This building is rundown and accessible to the public.

During the March 2005 SI for Clorox Chemical, two surface soil samples were collected along the west side of the original PCP formulating building, adjacent to the loading dock area. Analytical results for indicated the presence of PCP at a concentration of 250,000 micrograms per kilogram ( $\mu\text{g/kg}$ ).

In addition to the soil samples, a duplicate set of surface water and sediment samples were collected at the probable point of entry (PPE). PCP was detected in the surface water at an average concentration of 160 micrograms per liter ( $\mu\text{g/L}$ ) and in the sediment at a concentration as high as 900  $\mu\text{g/kg}$ .

On October 4, 2005, the North Carolina Superfund Section personnel conducted an on-site/off-site reconnaissance for the Clorox Chemical site. According to an employee of Forshaw Chemical, the City of Charlotte's stormwater system captures runoff upgradient of the Forshaw Chemical property. Forshaw Chemical's stormwater system ties into the City of Charlotte's system on the site, immediately downgradient of the former PCP manufacturing buildings. All stormwater that runs through the Forshaw Chemical property is piped directly into Stewart Creek, Stewart Creek, as well as the entire 15-mile surface water pathway for the site, is considered a fishery.

Based on the potential surface water pathway receptors, the North Carolina Superfund Section proceeded with an ESI for the Clorox Chemical site. On December 5–6, 2005 and January 25, 2006, the North Carolina Superfund Section personnel conducted an ESI sampling event at Clorox Chemical. A total of five soil samples from the overland flow pathway from Forshaw Chemical and immediately upgradient of their stormwater system were collected during the December 2005 ESI sampling event. In addition, a total of six surface water and six sediment samples from the January 2006 ESI sampling event pertain to Forshaw Chemical and its impact upon Stewart Creek.

Since there has been an observed release of PCP to the on-site soils and Stewart Creek, and the potential for soil exposure to the neighboring community, the North Carolina Superfund Section recommended that Forshaw Chemical be added to the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS). The site was added to CERCLIS on April 3, 2006. A Preliminary

Assessment (PA) was completed for the site and approved by EPA on April 3, 2006.

On June 6 2007, US EPA arrived on site to collect analytical samples from around the Forshaw Facility. Sample locations focused on the potential pathways of contaminant release offsite. A site reconnaissance was performed to locate the storm water pipe system to help determine sample locations. Samples were collected from sediment/soil located within the storm water pipes, sediment from the lagoon, and sediment/water from the adjacent creek. Samples were brought to the laboratory and analyzed for Dioxins, PCP, Pesticides and Arsenic. Analytical results from the sampling event were reviewed and validated by a TN&A senior chemist. Results showed contaminants above the Region 9 industrial and residential standards for Pentachlorophenol, arsenic, and several dioxin compounds. These results indicated contamination potentially leaving the site. US EPA held a conference call on August 6th to discuss the results with NCDENR, and the EPA. EPA's toxicologist Scott Sudweeks participated in the conference call to discuss future actions. It was decided that further action was necessary to determine the risk to public health outside of the chemical facilities boundaries. Subsequently, EPA entered into discussions with the PRP as to the path forward.

On August 17, 2009 Forshaw Chemicals and EPA came to agreement on a clean-up strategy and Forshaw Chemicals entered into an Administrative Order on Consent (AOC) with EPA. Forshaw hired Hart and Hickman as their environmental contractor and produced a work plan for the clean-up scope. The plan includes installing a seamless pipe at the impacted portion of the stormwater conveyance system to prevent contamination from migrating into the pipe and ultimately into Stewart Creek. In addition, on site source areas of PCP and Dioxins will be excavated and placed into a biological treatment cell on site. Forshaw will then bioremediate those soils within the treatment cell. If bioremediation efforts fail Forshaw has agreed to dispose of contaminated soils off site at an appropriate disposal facility.

### **Current Activities**

During the week of November 16 soil confirmation samples were received from the Area 1 excavation. Samples taken from the north wall indicated that clean-up goals had not been achieved. All other samples were below clean-up goals located in the removal action work plan. In order to reach goals on the north portion of the excavation, additional soil was excavated and placed in the treatment cell and the north wall was re-sampled. These sample results were below the clean-up goals. The final dimensions of the Area 1 excavation were 61 ft on the east, 74ft on the north, 98 ft on the west, 26 ft on the south and about 9 to 10 ft deep.

Forshaw's environmental contractor, Hart and Hickman, proposed abandoning and plugging the portion of the storm sewer that ran through the Area 1 excavation rather than replacing it with a new seamless pipe as required in the removal action work plan. After discussions with the City of Charlotte, the OSC and performing flux calculations on the storm water network capabilities it was determined that the portion of the pipe in question was not needed to effectively move storm water through the site. It was abandoned in place by filling with concrete and on December 1, 2009 the upgradient manhole storm water pipe opening was plugged and sealed with a metal plate. The downgradient catch basin pipe opening located in the Area 2 excavation was sealed in a similar manner.

On December 4, 2009 backfilling of the Area 1 excavation began. A gravel base was put in to aid in the compaction process and then the excavation was filled with soils excavated from the treatment cell. During the following weeks of December 7, 2009 and December 14, 2009 Site restoration activities took place. Final grading of Area 1 was conducted. Paving of Area 1 and 2 was completed on January 13, 2010. A concrete retention wall was erected in the place of the old brick wall and the site was swept and cleaned of dirt and debris.

During this period four composite soil samples were collected from the soils located in the treatment cell to determine if the soil concentrations in the treatment cell were still above the clean-up goals specified in the removal action work plan. Results indicated that none of the samples were above the PCP clean-up goal of 300 mg/kg and only 2 of the 4 samples were slightly above the Dioxin equivalence clean-up goal of 5 ug/kg. Those exceedances were in sample TC-COMP-2 and TC-COMP-3 with results of 5.15 ug/kg and 5.17 ug/kg respectively. Hart and Hickman has proposed no further sampling, treatment or other actions regarding the soil in the treatment cell. Currently, a meeting is being planned between the EPA OSC, NCDENR, Forshaw Chemicals and Hart and Hickman to discuss the results further and identify a path forward.

On January 15, 2010 a second flush was performed on the remaining storm water pipe that discharges to Stewart Creek. On January 21, 2010, during the next rain event, storm water samples were collected in the junction box near Stuart Creek as well as at the outfall of the storm water pipe to determine if PCP was still discharging to the creek. The sample result in the junction box was 0.120 mg/L and the result

from the outfall was 0.025 mg/L. Based on these results Hart and Hickman recommended bimonthly sampling of these two locations for six months to determine if there is still a source of PCP discharging to the creek or if results were merely residual contamination flushing out. Samples will be collected during a rain event for the months of March, May and July. Once all events are complete and data received a decision will be made regarding further removal actions at this site.

**Planned Removal Actions**

- Meet with NCDENR regarding treatment cell status and fate
- Conduct 3 storm water sampling events to determine the need for further removal action

**Key Issues**

NC DENR cleanup requirements are more stringent than EPA requirements for the site.

[response.epa.gov/Forshaw\\_Chemical](https://response.epa.gov/Forshaw_Chemical)