

United States Environmental Protection Agency
Region IV
POLLUTION REPORT

Date: Wednesday, September 28, 2011

From: Jennifer Wendel, RPM

Subject: Final POLREP

Ecusta Mill

1 Ecusta Road, Pisgah Forest, NC

Latitude: 35.2711000

Longitude: -82.7050000

POLREP No.:	37	Site #:	A4AK
Reporting Period:	09/1/2009 to 09/28/2011	D.O. #:	
Start Date:	9/22/2008	Response Authority:	CERCLA
Mob Date:	9/22/2008	Response Type:	Time-Critical
Demob Date:		NPL Status:	Non NPL
Completion Date:	9/26/2011	Incident Category:	Removal Action
CERCLIS ID #:	NCD003166675	Contract #	EP-W-05-053
RCRIS ID #:			

Site Description

The Ecusta Mill is a former flax pulping and paper manufacturing facility that was built in 1939 and was operational until 2002. Cellophane production also occurred at the facility for approximately 30 years. In addition, the following activities have occurred at the Site: chlorine production operations using Sorenson mercury cells (electro-chemical building); caustic storage; water and wastewater treatment; and printing. EPA's Removal Program and the North Carolina Department of Environment and Natural Resources (NC DENR) first responded when the plant was closed down in 2002. Of primary concern were potential releases from an interruption of power to the basement sumps under the production buildings. The EPA Environmental Response Team conducted sampling of the concrete floor, the sub-floor, and soils under the electro-chemical building and sediments in on-site ditches. This sampling confirmed the presence of mercury in the sub-floor structures to 16 feet below ground surface (580 mg/kg) and the floor drains (260 mg/kg) of the electro-chemical building, in the indoor air and in the overland drainage ditches which had received historic discharge from the building.

An Expanded Site Inspection (ESI) was conducted by EPA Region 4, Science and Ecosystem Support Division and the State in March, 2004. The ESI focused on two main areas of concern, the electro-chemical building and the Aeration and Sedimentation Basin (ASB) area. Mercury was detected in soils adjacent to the electro-chemical building, in sediments in the on-site drainage ditches and in sediments of the Davison River immediately adjacent to the manufacturing area. The ESI also confirmed soils and sediments in other areas of the site are contaminated with mercury and dioxin. Groundwater sampling has confirmed low-levels of mercury in groundwater near the electro-chemical building, low levels of carbon disulfide and 1,1-Dichloroethane near the cellophane plant, and a high pH reading (pH 12.17) in the area of a previous caustic spill.

The total Site is approximately 527 acres in a mixed-use residential/industrial area. The manufacturing facility is approximately 213 acres. The ASB has a surface area of approximately 75 acres and was used for wastewater treatment. The ASB also receives storm water from approximately one-third of the site, including those areas historically most actively involved in paper production. The following industrial solid waste landfills are located at the Site: the Island landfill, the new ash landfill; the old ash and sludge landfills which are unlined industrial landfills which do not have permit numbers issued. The previous site owner is in the process of closing all landfills in compliance with State permit requirements.

A small arms firing range has been historically operated on the Site south of the main manufacturing operations on a largely undeveloped parcel of land near the confluence of the Davidson and French Broad Rivers. Lead impacted soil has been document from the historic firing range.

Renova Partners, a Brownfields redevelopment company purchased the property in January 2008. Renova formed a subsidiary company Davidson River Village, LLC (DRV) who is conducting complete demolition of all on-site structures prior to site redevelopment. D.H. Griffin was retained by

DRV to conduct the demolition.

DRV is conducting the Removal Activities at the site under an AOC with EPA. They have hired Shaw Environmental as the lead environmental contractor. Removal Activities include a Time Critical Removal Action and 2 Non-Time Critical Removal Actions.

Current Activities

As required by the United States Environmental Protection Agency's (EPA) Bona-fide Prospective Purchaser (BFPP) Agreement and Order of Consent with DRV, the Time Critical Removal Action (TCRA) objectives focused on source material removal in the following areas.

- Slab removal for identified buildings;
- Visual inspection and field screening of the slabs and the subsurface soils in the area where slabs are to be removed; and sub-grade soil sampling on a grid beneath the machine shop and the printing building;
- Drainage Structure Removal, and excavation and disposal of contaminated soils in the East and South Drainage ditches;
- Investigation and hot spot removal at the Olin Disposal Area;
- Excavation and off-site disposal of soil with contamination exceeding 400 milligrams per kilogram (mg/kg) of lead in the Rifle Range area;
- Demolition of Building 58 and Building 56 (the Electrochemical (EC) Building); and,
- Waste characterization of Building 58 and 56 structures and debris

In addition, the TCRA included closure and capping of the Former Brown #1 Landfill and spot source treatment of small areas of VOC contaminated groundwater in two areas under former buildings.

Completed Areas

Building Slab Areas

Activities at the building Slab Areas were performed from 11/13/2008 to 7/22/2011. During removal activities, 5,126 cubic yards of soil was excavated from beneath 15 of the 96 building slabs where sampling and analysis showed that contamination concentrations were above the site specific remediation goals (SRGs). Analytical results showed a majority of the sub-slab soil contamination was from PAH and metals; only two buildings (Bldg 7 and 27) showed contamination from VOCs. Of the excavated soils, a total of 4,958 cubic yards was transported to the Republic Landfill in Enoree, SC and 168 cubic yards of PAH and arsenic contaminated soil was approved for placement on site at the coal yard, which was designated as a restricted development reuse area. The coal yard also received native soils from the cellophane area with high natural concentrations of arsenic.

All but 10 concrete building slabs were demolished and crushed for use as onsite backfill. Every 1,000 cubic yards of the crushed material was sampled to ensure that lead contamination was not present in the reused material. Approximately 73 samples were collected and analyzed, verifying that lead concentrations were below 400 mg/kg. The 10 remaining slabs were left in place and will eventually be reused during future site development. Building footers and underground utilities were also removed down to four foot below ground surface. Basement, sump, and pit floors where no excavation occurred were sampled to confirm that no contamination was present above SRGs and then perforated to allow for drainage. Structures left in place were documented in the final site as-built drawings. Full documentation of all activities and sample results can be found in the Final Revision 1, TCRA Slab Investigation Report dated 8/1/2011, located in the site file.

Electrochemical (EC) Building Demolition

EC Building demolition involved demolition at Building 56 and Building 58. Building 56 demolition activities were conducted from 8/8/2009 to 9/29/2009. EC Building 58 demolition activities were conducted from 1/31/2011 to 3/7/2011. Dust management was maintained during the demolition using a water truck and real-time dust monitoring. Personnel and perimeter air monitoring was conducted as well as the use of Level C personal protective equipment (PPE).

Demolition debris was segregated and staged into 100 cubic yard debris piles, based on the results of an extensive sampling program performed prior to demolition. Like debris streams (wood, pipe insulation, metal, concrete, and brick) were staged together. Except at metal debris piles, composite samples were collected from each debris pile and analyzed for TCLP mercury to determine proper offsite disposal requirements. At metal debris piles, each pile was covered with tarps and allowed to equilibrate. Readings of the atmosphere under the tarps were taken with the Jerome mercury meter to

determine if any residual mercury contamination on the metal was volatilizing. Metal scrap piles were released for reuse when field meter readings were below detection limits. Most of the demolition debris was determined to be suitable for Subtitle D disposal, except for a small quantity of EC Building debris that failed TCLP analyses and required management as a (characteristically) hazardous waste. Non-hazardous building debris was transported to the Republic Waste Services in Enoree, SC from April 12, 2011 to May 15, 2011 and hazardous debris was transported and disposed of at the EQ Landfill in Belleville, MI from May 10, 2011 to May 13, 2011. Complete documentation of all demolition and disposal actions can be found in the Final EC Building Response Action Construction Completion Report dated 8/19/2011, located in the site file.

Process Sewer and Drainage Ditch Areas

Activities involving the process sewer and drainage ditch areas were performed from 2/10/2009 to 5/15/2011. Remedial action in these areas was focused on investigation and remediation of any potential mercury impacts that resulted from the operation of the process sewers and ditches associated with the EC Building. The process sewer and drainage ditch area was separated into six distinct sections to address the specific characteristics of each location; these sections included the concrete loading dock U-Trench, the East Process Sewer piping; the South Process Sewer piping; and the East, South and West Drainage Ditches. Analytical results confirmed the removal of the mercury contaminated soils and sediment from the process sewer and drainage ditches. Final disposal totals were included with the EC building trench remediation and demolition debris disposal totals.

A temporary water treatment system was also set up to hold and treat water generated during remedial activities. The temporary water treatment system was designed as a pre-treatment to the main wastewater treatment system, with its primary objective to remove mercury sediment prior to discharge to the aerated stabilization basin (ASB). Approximately 350,000 gallons of water were pre-treated and sent to the wastewater treatment system and the pre-treatment process removed in excess of 98 percent of the total mercury. Full documentation of all activities can be found in the Final Process Sewer and Drainage Ditch System TCRA Completion Report dated 1/28/2011, located in the site file.

Rifle Range

Activities at the Rifle Range were performed from 10/23/2008 through 1/29/2009. During the removal activities, 1,175 tons of lead contaminated soils were solidified with portland cement and transported to the Union County subtitle D landfill in Enoree, SC. Soil screening to separate the lead shot was not warranted since lead shot constituted only a small percentage of the soil matrix. The screening activities were focused on a ½ acre area located southeast of the main facility focused around the shooting shelter and soil berm backstop. Confirmation samples collected in this area following removal verified that lead concentrations in the remaining soil were below 400 mg/kg. Full documentation of all activities can be found in the Final TCRA Completion Report Rifle Range dated 7/21/2009, located in the site file.

Olin Disposal Area

Activities at the Olin Disposal Area were performed from 10/21/2008 through 3/24/2009. During removal activities, 246 cubic yards of soil was excavated from six locations that were identified based on results from samples collected for PAH and metals analysis. The Olin Disposal Area was made up of the north area (Site 1 and 2) and the south area just south of the coal yard. In the north area, cracked concrete debris from the Sorensen Cells reportedly was buried along with other demolition debris. The Sorensen process used mercury to produce caustic and chlorine for the production of paper. In the south area, film material was reportedly buried along with ash and “clinkers” from the boiler house. The film material consisted of waste from the manufacture of cellulose film at another part of the Ecusta plant. Confirmation samples collected in these areas following soil removal showed that contaminant concentrations in the remaining soils were below site specific remediation goals for soil and groundwater protection. Full documentation of all activities can be found in the Final TCRA Completion Report Olin Disposal Area dated 7/21/2009, located in the site file.

In February of 2010, Pace Laboratory informed the DRV that the validity of some PAH sample results were possibly impacted by QC issues at their Charlotte laboratory. Some of these sample results were from samples collected at the Olin Disposal Area and therefore warranted re-evaluation. Full validation of the laboratory data packages led to resampling of certain confirmation samples.

Groundwater Source Treatment

The transportation garage (Building 27) was a small building, approximately 4,000 square feet, used to service and maintain motor vehicles. Investigation results show that impact to groundwater and soils at

Building 27 is limited in the extent and contamination consists to typical petroleum hydrocarbons. These are known to naturally attenuate and can be easily remediated with enhanced in-situ biodegradation. The remedial process of enhanced in-situ biodegradation uses oxygen releasing compounds to provide oxygen needed for aerobic biodegradations. A slurry of ORC-Advanced® will be injected on a 15-foot spacing to deliver approximately 60 lbs of ORC-Advanced® per injection point. It is expected that groundwater and soils in the capillary fringe zone will be remediated in approximately 6 to 9 months. Progress of remediation will be monitored using monitoring wells MW-35, MW-36, and MW-37.

The solvent recovery area (Building 7) showed VOC detections in January 2007 when MW-7 was installed. Three additional wells were installed (MW-40, 41, & 42) in January 2010 as well as a direct push technology (DPT) groundwater assessment in April 2010 to further delineate the area of contamination. On March 5, 2011, the injection of 4,950 gallons of bioaugmentation (SDG-9) reagent was completed. Current groundwater data shows trichloroethylene (TCE) degradation is occurring.

Brown #1 Landfill

Design and improvement work at the Brown #1 Landfill was performed from June 2009 to May 2011. In the past, the inactive monofill landfill was used to dispose of fly ash generated from Ecusta's on-site coal-fired burners from 1977 to 1979. The landfill covers an approximately 3-acre area near the eastern boundary of the Ecusta site.

State required environmental site assessment (ESA) services included a slope stability investigation, cover thickness evaluation, and groundwater seep assessment. In general, the disposed fly ash was found to be poorly compacted, and high groundwater levels were observed in the landfill in the vicinity of the first bench. As a result of these conditions, the landfill was determined to have inadequate Factor of Safety (FS) values with respect to several potential modes of slope failure, and construction of surface and subsurface drainage improvements and a rock buttress at the toe of the landfill was recommended to improve these FS values. These improvements were made and post-construction evaluation results showed that the water level dropped several feet and confirmed an adequate FS was established. Long-term monitoring of water levels is recommended and will be performed under the Redevelopment Areas Remedial Action Plan (RAP) approved by NCDENR. Full documentation of all activities can be found in the Final Brown #1 Landfill Improvements Completion Report dated 6/3/2011, located in the site file.

Next Steps

Operation and Maintenance requirements for the EC Building remedy are detailed in the Completion Report and the Electrochemical Building Area Remedial Action Plan (RAP), approved by the North Carolina Department of Environment and Natural Resources. These actions will be implemented as part of the RAP.

The Redevelopment Areas EE/CA report addresses constituents, areas, and matters throughout the Redevelopment Areas (excluding the Electrochemical building area) on the Site. The EE/CA also recommends, and EPA concurs with, long-term ground water monitoring to be conducted in the Redevelopment Areas pursuant to the Redevelopment Areas Remedial Action Plan (RAP), as approved by the North Carolina Department of Environment and Natural Resources.

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