



United States Environmental Protection Agency
Region I
Office of Site Remediation and Restoration
1 Congress Street, Boston MA 02114

Superfund Records Center
SITE: Centredale
BREAK: 2.4
OTHER: 253318

Date: May 17, 2005
Subject: POLREP 2 and FINAL - NTCRA
Site: Centredale Manor Restoration Project Superfund Site,
North Providence, Rhode Island
From: OSC Anna Krasko, US EPA, New England Region
To: See Attached List
Response Authority: CERCLA Removal Action
Pollutant: Dioxin
Site ID No.: RID981203755
Phone Number: (617) 918-1232
Mobilization Date: 08/07/01
Completion Date: May 13, 2005
Last POLREP: August 9, 2000

I. Background:

The Site is contaminated primarily with dioxin, as well as other chemical constituents. It consists of the original source area located on two parcels totaling approximately 10 acres on the eastern bank of the Woonasquatucket River, and dioxin-contaminated sediments and floodplain along the River, from Route 44 southerly past the previously breached Allendale Dam (0.4 miles downstream) to an area just below the Lymansville Dam (0.8 miles past the Allendale Dam). This non time-critical removal action (NTCRA) resulted in the removal of contaminated sediment and soil from portions of the Site. The Atlantic Chemical Company and its successors operated on the northern portion of the source area from approximately 1940 until the early 1970s. New England Container Company ("NECC") operated a drum reconditioning facility on a southern portion of the source area from 1952 until the early 1970s. Evidence suggests that the operations of the chemical company and the drum reconditioning facility at the Site resulted in releases and threats of releases of hazardous substances. Crown-Metro, Inc. and Emhart Industries, Inc. are successors of the chemical company that operated at the Site. Currently, two high rise buildings are located on the source area at the Site: Brook Village and Centerdale Manor. The developments are federally-subsidized high-rise apartment buildings housing approximately 135 and 200 elderly residents, respectively. Brook Village Associates Limited Partnership ("BVALP") is the current owner of the northern portion of the source area, which it purchased in October of 1976. Centerdale Manor Associates ("CMA") is the current owner of the southern portion of the source area, which it purchased in March of 1982.

Since its inclusion on the NPL in March 2000, the Site has attracted much public and congressional interest. The Site has a Management Action Committee (MAC), consisting of local, state and federal officials, which meets on a regular basis. A number of Potentially Responsible Parties (PRPs) have been named for the Site, including four which performed this NTCRA.

II. Actions to date:

Over the last two years, EPA initiated several response actions at the Site: (1) two time-critical removal actions; (2) a non-time critical removal action; and (3) a remedial investigation/feasibility study (RI/FS). The first time-critical removal (including sampling, fencing, and the installation of two interim soil caps) was started by EPA and finished by four PRPs at the Site in 2000 pursuant to a Unilateral Administrative Order ("UAO"). The second time-critical removal (reconstruction and capping of the tailrace along the eastern edge of the Centredale Manor property) was performed and/or funded by ten PRPs under an Administrative Order on Consent in 2003/2004. EPA is currently completing the RI and will be completing the FS for long-term cleanup of the Site later this year, with the Record of Decision planned for 2006.

On January 18, 2001, EPA signed an Action Memorandum for this non-time-critical removal. The non-time critical action (including the restoration of the previously breached Allendale Dam and the removal of dioxin-contaminated soil and sediment from residential properties along the River) has been conducted by four PRPs at the Site (BVALP, CMA, NECC, and Emhart) pursuant to a second UAO issued by EPA on March 26, 2001, as amended. The estimated cost to implement the NTCRA was \$2.6 million. The actual removal costs reported by the PRPs totaled \$2.3 million. As planned, construction of the Allendale Dam was largely completed by Spring 2002 with additional repair work on the existing gate structure performed in the Fall 2004. The original schedule for removal work on the residential properties was extended to allow additional delineation sampling in the Spring of 2002. Excavation of contaminated soil and sediment from residential properties was completed in December 2002, and was disposed off-site in July of 2003.

The UAO Statement of Work outlines the scope, submittals and schedule for the NTCRA. The work was performed by the PRPs' contractor, Loureiro Engineering Associates, Inc., pursuant to an approved July 9, 2001, 100% Design and Implementation Work Plan, as amended. The PRPs' contractor mobilized on-site and held a pre-construction meeting on August 7, 2001.

Allendale Dam Restoration - Activities for the reconstruction of the previously breached wooden Allendale Dam included: cutting and clearing trees within the original Allendale Pond footprint; removing the old timber-framed structure of the dam; forming

the concrete extension of the gate structure wingwall; placing temporary cofferdams for water control and diversion; removing debris and sediment in the work zone; rock coring and rock bolt testing; forming and pouring the concrete footing; and forming and pouring the concrete spillway wall.

The new Allendale dam consists of a 105 ft concrete spillway with a concrete-set rip-rap spill pad and crushed gravel toe drain system. A new mechanically operated 60" x 48" sluice gate and a stop log system was installed to provide the means to regulate water levels in the Allendale Pond. The old gate-housing structure and existing stone wall abutment along both shores were preserved and reinforced to the extent possible. Based on a design modification, the new dam sits on four to ten feet of dense undisturbed till with rock anchor bolts installed into the bedrock.

During construction, the Woonasquatucket River was diverted from the work area and controlled using cofferdams upstream and downstream of the Allendale dam location. Water was also pumped from a temporary sump and treated to remove suspended solids before being discharged downstream. All removal of sediment and debris was conducted as dry excavation.

A temporary concrete pad, sealed and lined, was constructed adjacent to the work area to temporarily store the excavated material prior to off-site disposal. The area next to the containment pad was sampled prior to and after use, and was found not to be impacted by the contamination. Approximately 340 tons of sediment and debris were excavated and placed in roll-off containers on the containment pad. Of this volume, 315 tons of sediment and mixed-in debris were transported for incineration to Bennett Environmental Inc.'s (Recupere Sol Inc.'s) facility in Quebec, Canada, and the remaining 25 tons of debris were transported to the Chemical Waste Management (CWM) landfill facility in Model City, NY.

Following restoration activities, including the placement of topsoil and seeding of embankments, a pre-final dam inspection was performed by EPA, the USACE, RIDEM and the PRPs' contractor on April 3, 2002. During the inspection, a "punch-list" was prepared. The final site inspection was conducted by the same parties on June 17, 2002. Prior to the final inspection, the documented "punch-list" items were resolved. In October, 2004, after observing seepage in the downstream embankment, the PRPs' contractor grouted the area underneath the existing old sluice gate structure to fill the voids, and performed a dye test to confirm that the observed seepage had been mitigated.

As required in the Action Memorandum, the Allendale Dam has been restored with provisions for water level controls and the Allendale Pond has been returned to the original elevation by completion of the spillway at 93.5 feet NGVD.

In addition to the work described above, the current owner of the Allendale Dam, the Mill at Allendale Condominium, executed a Declaration of Covenants and Environmental Protection/Conservation Easement which restricts alterations to the Allendale Dam. The Easement was recorded in the Land Evidence Records of the Town of North Providence and the Town of Johnston on March 11, 2004.

Soil and Sediment Excavation - The Action Memorandum for the NTCRA also required the excavation and removal of soils and sediments in the impacted floodplain exceeding 1 ppb of dioxin along Allendale and Lyman Mill reaches. Preliminary activities performed by the PRPs' consultant included a topographic survey to locate sampling locations in the areas previously identified by EPA. A total of 11 locations (in addition to the Allendale Dam) were originally targeted for action. Following additional sampling to refine the delineation of the dioxin-impacted areas in the floodplain, the limits of excavation were established, and soil and sediment were excavated and disposed off-site.

Each action area was established in general through previous sampling by EPA on the residential and recreational-use properties along the shoreline. To further define the limits of excavation, the PRPs' consultant implemented a dioxin immunoassay screening program, centered around previously identified sampling locations exceeding the action level for dioxin.

Due to the low level of correlation between the previous laboratory results and the new screening method (generally showing higher concentrations), in April 2002 the PRPs tested an additional 20 locations along the Allendale pond shoreline outside the action areas. The 40 samples collected from discrete depths of 0-12" and 12-24" were analyzed for dioxin using EPA method 8290. All but one new location were found to be below the action level of 1 ppb; thus one new action area was added, and was defined as Action Area 03/04.

Following this confirmatory testing, a modified, grid-based sampling approach was approved by EPA to complete delineation of specific limits at each Action Area. A grid with a minimum of three additional grab samples in near-proximity to the original sampling location exceeding 1 ppb dioxin was established, and samples were collected and analyzed using EPA Method 8290. If necessary, additional sampling locations were added until no sampling locations exceeded the action level. All the limits of excavation were defined using this approach in July and September 2002, with exception of Area 1 located in the tailrace, close to the Source area. Based on additional sampling results there, it was decided that additional evaluation of approaches to address that area were required. EPA excluded this area from the NTCRA and subsequently initiated the second time-critical removal action to reconstruct and cap the tailrace in its entirety. This action was largely completed in 2004.

The impacted soil and sediment were excavated during October-December 2002. During excavation of areas in the Allendale reach, the elevation of the pond was lowered using the new stop logs and sluice gate mechanism of the Allendale dam. In the Lyman Mill reach, a temporary cofferdam was constructed at each action area to minimize impact on the River. Areas requiring dredging below the water level in the pond required dewatering as well. Soil and sediment were excavated using a vacuum truck system, light construction equipment, and hand tools. Excavation was completed to a depth of two feet and the areas were later backfilled with topsoil and reseeded.

The excavated material was transported to the containment pad located near the Allendale dam and stabilized with saw dust. The free liquids were treated using a bag filter and carbon prior to discharge into the River. Approximately 100 tons of soil and sediment were excavated. The stockpile was tested, and based on the results, the material was transported to the CWM facility in Model City, NY.

Following completion of excavation and off-site disposal of soil and sediment, a pre-final inspection was performed by EPA, USACE, RIDEM, and the PRPs' contractor on September 9, 2003. During the inspection, a "punch-list" was prepared. The final site inspection was conducted by the same parties on October 7, 2003. Prior to the final inspection, the documented "punch-list" items were resolved.

As required by the Action Memorandum, soil and adjacent sediment containing dioxin in excess of 1 ppb was removed from residential and recreational use properties.

On April 7, 2005, the PRPs submitted the Completion of Work Report for the removal action. On May 13, 2005, EPA approved the Completion of Work Report, and determined that the actions specified in the Action Memorandum have been completed and all Work has been fully performed in accordance with the UAO, with the exception of any continuing obligations per the NTCRA Statement of Work and the Post Removal Site Control Plan (PRSCP).

III. Financial:

The total cost of the project, based on the information provided by the PRPs, was \$2,257,745. Of that amount, engineering design was \$157,245; restoration of Allendale dam was \$828,400; delineation and removal of soil and sediment was \$1,034,000; and off-site transportation and disposal of waste was \$238,100. Oversight costs under an IAG with the USACE are approximately \$200,000.

IV. Future Plans:

The January 6, 2003 Post-Removal Site Control plan governs the maintenance activities for this NTCRA, which include periodic inspections, continued maintenance, and any required repair of the newly-restored Allendale dam.

POLREP DISTRIBUTION LIST

Date and Polrep #: May 17, 2005, POLREP # 2

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