

United States Environmental Protection Agency
Region I
POLLUTION REPORT

Date: Friday, June 17, 2005
From: Gary Lipson

Subject: Roosevelt Drive Oil Site
140 Roosevelt Drive, Derby, CT
Latitude: 41.3228000
Longitude: -73.0958000

POLREP No.:	9	Site #:	696
Reporting Period:		D.O. #:	
Start Date:	8/25/1994	Response Authority:	OPA
Mob Date:		Response Type:	Time-Critical
Demob Date:		NPL Status:	
Completion Date:		Incident Category:	Removal Action
CERCLIS ID #:		Contract #	
RCRIS ID #:		Reimbursable Account #	01R0X08302D91CHRZ108
FPN#	014504		

Site Description

The site is located at 140 Roosevelt Drive in Derby Connecticut at the former site of the Hull Dye and Print industrial complex.

On August 25, 1994, USEPA received a call from the Connecticut Department of Environmental Protection (DEP), requesting access to the Oil Spill Liability Trust Fund, in order to conduct removal actions to prevent the continuing discharge of oil to the Housatonic River from the former Hull Dye facility located at 140 Roosevelt Avenue in Derby, Connecticut.

EPA OSC Thomas Condon responded to the scene, and opened FPN # 014504. The OSC and the National Pollution Fund Center (NPFC) Case Officer prepared a Pollution Removal Funding Authorization (PRFA), which was issued to the DEP for costs associated with recovery of the oil. DEP hired a cleanup contractor and initiated cleanup operations.

Sampling of the river bottom in the area of the discharge indicated that the river sediments were saturated with oil in an area approximately 30 ft. by 100 ft. and at thicknesses of up to 8 ft. The sediments were excavated and shipped off site for disposal. Oil released during the sediment excavation was collected using a vacuum truck. In total 10,000 gallons of oil and 1,500 cubic yards of oil saturated sediments were removed.

An interceptor trench and recovery well system was installed to contain and collect the oil, thereby preventing the continued discharge to the river. The system (Derby-1) has been operating continuously, and approximately 5,000 additional gallons of oil have been recovered.

Operation of this recovery system resulted in the minimization, but not complete elimination of the discharge to the river as a small amount of oil periodically bubbles up from beneath the tailrace. To control this release, boom and sorbents have been continuously maintained in the area around the tailrace.

On August 20, 1999, DEP received a report of an oil sheen on the river, apparently emanating from the tailrace of the facility at a greater rate than previously seen. DEP and EPA initiated an investigation to better delineate the plume of oil, and to develop a plan to prevent the discharge. Several wells were installed and gauged. Information from the wells indicated that the oil was migrating under the facility (and under the tailrace) to the river. In addition, the investigation indicated that the plume extended onto an adjacent property.

Based upon the information generated, plans to construct a recovery system in the suspected source area were developed, and removal operations began on December 6, 1999.

The 400,000 gallon above ground storage tank was dismantled and removed followed by the excavation

and removal of the 20,000 gallon underground day tank. The removal of the day tank revealed the apparent source of the release to be an underground pipe between the day tank and the pumphouse. During operation of the facility, oil in the pipe would have been heated and under pressure. Because the leak was underground, it apparently went undetected over an extended period of time. Also, due to the inefficiency of #6 oil boiler systems, detection of an inventory loss would have been unlikely.

Prior to excavating a collection trench, a series of ten 10 inch diameter wells were installed. These wells were pumped to depress the water table in the area to be excavated. The pumped water was sent through a treatment system consisting of an oil water separator and frac tanks, and then discharged to the river.

The trench was excavated, approximately 350 feet in length, and 25 to 30 feet deep. Approximately 4,276 tons of oil contaminated soil was shipped off site for disposal by thermal desorption. In addition approximately 8,000 gallons of oil was recovered during the excavation and shipped off site to be recycled.

A series of five 24 " diameter recovery wells were installed in the trench, and the trench was backfilled with pea stone.

An oil recovery system was designed utilizing the five recovery wells (Derby-2). Each of the wells contains a submersed pump to suppress the groundwater table and enhance the flow of oil into the recovery well. The groundwater is pumped to a frac tank, and then through activated carbon cells prior to discharge to the River. Each of the recovery wells contains a skimmer which recovers oil into a 50 gallon day tank which is then pumped into a 1000 gallon above ground storage tank and subsequently shipped off site for disposal.

System installation began in May 2000, and was completed in August 2000. The system has been operating since that time, and to date the system has recovered approximately 160,000 gallons of oil.

Over time there is an apparent trend toward increased oil seepage into the tail race which is seen mainly at low tide. Possible causes of this are scouring of the bottom of the tailrace as a result of previous operation of the turbines, and a water main break along Roosevelt Drive during the summer of 2003. The oil seepage continues to be contained and recovered using boom and sorbents.

After approximately four years of secondary recovery, EPA and DEP determined that an assessment of the subsurface free product contamination at the site needed to be conducted. The OSC requested the assistance of ERT and their Response Engineering and Analytical Contract (REAC) personnel in conducting the investigation which was performed in August of 2004. REAC personnel installed two additional monitoring wells and a soil boring. Previously installed piezometers were found to be compromised with oil, so new piezometers were installed, but due to the high viscosity of the oil, these were also compromised soon after installation. As a result, the free oil product thickness at each monitor well of concern could not be reliably quantified. There were a number of findings documented during this investigation which can be seen in the Lockheed Martin report entitled "Roosevelt Drive Oil Spill Site: 2004, Assessment of Subsurface Free Product Oil Plume and Recovery System", currently located in the site file. The conclusions that REAC arrived at are as follows:

Since the last delineation in 1999, the free product plume has remained fairly consistent, with the exception of the breakouts in the tailrace;

Groundwater flow appears to converge in the southeast corner of the facility which appears to be the primary reason for a continued pocket of product in that location;

Seepage of oil in the tailrace occurs primarily during low tide conditions;

Given the rate at which oil is being recovered in Derby-2, the high viscosity of the oil, and a large smear zone of oil cause by the tidal fluctuations, the collection system cannot be expected to remove the significant volume of free product located on the neighboring property;

Due to the high viscosity of the oil, all of the existing monitoring wells are believed to be clogged and continued use may not produce reliable data.

A number of REAC generated follow-up recommendations are currently being evaluated by EPA. They include: the installation of a separate oil recovery system in the southeast corner of the building; the installation of a dam across the tailrace channel (elaborated upon in the 'Planned Removal Actions' section

of this POLREP); shutting down Derby-1 for a period of time to evaluate the recharge of oil; piping the groundwater from Derby-1 to Derby-2 for treatment or replacement of the frac tank at Derby-1 with a smaller one and move the Derby-1 frac tank to Derby-2 for additional treatment; and in an attempt to determine the pathway of oil migration, analyze free product samples collected at various locations across the site. Aging or weathered pattern analysis may provide a better understanding of the product oil pathway.

Current Activities

Periodic site inspections, ongoing system maintenance, groundwater treatment and discharge, and periodic transportation and disposal of collected oil are tasks that have been conducted under the auspices of the DEP and their contractors under the existing PRFA. Due to the additional workload presented by some of the recommendations listed above and in conjunction with DEP's ongoing workload, EPA and DEP agree that EPA will assume responsibility for oversight of any future site work. The agencies are working to tally the costs generated to date by the various entities and EPA is preparing the necessary paperwork to assume control of the site.

During the early spring of 2005, EPA was contacted by McCallum Enterprises I Limited Partnership, the owners of the power generating units located in the Hull Dye building. At the request of EPA, the turbines had been taken off line a number of years previous as their operation appeared to be exasperating the release of oil to the river. The company is interested in bringing the turbines back on line and are currently performing a preliminary cost analysis to see if that is feasible. The EPA has stated to McCallum Enterprises that any engineering plans being developed must include an oil collection system that EPA will be able to tie into the existing treatment system.

Due to other commitments, OSC Tom Condon is being replaced by OSC Gary Lipson.

Planned Removal Actions

EPA is working on transitioning the site from a DEP lead via the PRFA to an EPA lead oil site. When EPA has their contractors on board within the next two months, the inspections, maintenance, and T & D of oil and spent carbon will be their responsibility. EPA will also be working with the owners of the turbines to ensure proper oil collection if the turbines are able to be brought back on line. EPA is considering implementing at least one of REAC's recommendations which is to construct a removable dam at the down gradient end of the tailrace. The purpose of this would be to raise the head in the tailrace, creating a 'false high tide' condition. This is considered a viable option as the majority of oil that has been seen migrating into the river from the tailrace has done so under low tide conditions. Construction of a dam of this type will have to be worked into any plans that the turbine owners have for their operation.

A computer tracking system was installed in conjunction with the second oil collection system. This allowed for remote analysis of the system and its individual components, an alarm system that would warn the users of high oil levels or malfunctions, and was designed to track pump cycles, tidal influences, and ongoing trends. EPA's contractor(s) will examine the existing data, plot and document the cycles and seasonal fluctuations, recommend changes as necessary, and will continue to monitor the site, both remotely and on-site.

Next Steps

EPA is drafting the paperwork necessary to assume control of the site and will ensure that their contractors are familiar with all site operations. McCallum Enterprises is expected to contact EPA by early July with their preliminary cost analysis regarding retrofitting the turbines and/or the tailrace to allow for the turbines to be brought back on line.

Key Issues

Note that in the Costs to Date section of this POLREP, the figure of \$3,500,000 in the Total to Date column for the CT DEP PRFA represents the approximate amount of expenditures submitted by the CT DEP and their contractor(s) and approved by EPA. The CT DEP is currently reviewing additional invoices submitted by their contractor(s) prior to submitting them to EPA for their approval.

response.epa.gov/rooseveltdrive