

Vineland Chemical Co., Inc.

New Jersey

EPA ID#: NJD002385664

EPA REGION 2 Congressional District(s): 02

Cumberland

Vineland

NPL LISTING HISTORY

Proposed Date: 9/1/1983

Final Date: 9/1/1984

Deletion Date: 2/18/2009

Site Description

The Vineland Chemical Company manufactured arsenic-based herbicides from 1950 to 1994 on this 54-acre site in a residential and industrial area of the City of Vineland. The plant site included a number of manufacturing and storage buildings, a laboratory, several lagoons, and former chicken coops. The majority of the site is covered with vegetation, with the exception of the parking lots and a paved manufacturing area. A security fence surrounded the main part of the plant, including the former manufacturing buildings and lagoon area. Prior to 1977, the company stored by-product arsenic salts in open piles and in the chicken coops. As a result of water contacting the exposed piles, arsenic contaminated an adjacent wetland (Blackwater Branch), surface and subsurface soils, groundwater, and the nearby Maurice River and downstream Union Lake. The lower Maurice River system extends 26 miles from the lake to the Delaware Bay. By 1982, the Vineland Chemical Company, in response to State actions, instituted some cleanup actions and modified the production process. These modifications included: installing a non-contact cooling water system, lining two of the lagoons, installing a storm water runoff collection system, and disposing of piles of waste salts. Also, in 1982, the company, under a State Administrative Order, began operating a wastewater treatment system to remove arsenic. The treatment system received contaminated process water and groundwater from two lined surface impoundments and discharged treated water to percolation lagoons. However, the treatment system was able to process only 35,000 gallons of contaminated water per day, while an estimated 150,000 gallons left the site daily. Further, the system had been unable to reduce arsenic concentrations to acceptable levels. Approximately 57,000 people depend on the groundwater system in the area for drinking water, either through private or municipal wells. Residential areas are located on all sides of the site. Numerous towns and villages are close to the Maurice River.

Site Responsibility: This site is being addressed through Federal actions.

Threat and Contaminants

The groundwater is contaminated with organic and inorganic arsenic, along with some minor amounts of other metals. The surface soil on the site is contaminated with arsenic and small amounts of other metals. The subsurface soil is contaminated with arsenic alone. Sediments and surface waters in the Blackwater Branch, Maurice River and Union Lake are also contaminated with arsenic. A previous health screening study showed that some Vineland Chemical employees had elevated concentrations of arsenic in their blood and urine. Accidental ingestion, direct contact, or inhalation of the contaminants may result in an increased exposure to carcinogenic and non-carcinogenic risks. Nearby residents located downstream of the plant site using well water also may be subject to health risks. Because of the contamination migrating from the site, recreational activities are being monitored in the Maurice River and Union Lake.

Cleanup Approach

The site is being addressed in two stages -- immediate actions, and four long-term remedial phases focusing on source control, contaminant migration management, and the cleanup of marsh/river and lake sediments. The remedy was selected in a Record of Decision in 1989.

Response Action Status --

Immediate Actions: In 1992 and 1993, EPA boarded up the chicken coops and abandoned buildings, fenced off the contaminated areas, and removed hazardous chemicals stored on the site. In 1995, EPA completed demolition work at the site which included the removal and disposal of eight contaminated buildings. The final two remaining site buildings were demolished in the spring of 2004.

Plant Site Source Control: Cleanup by EPA of the arsenic-contaminated soil on the site, which is a continuing source of groundwater contamination. In September 2001, EPA revised the approach for dealing with contaminated plant soils. An Explanation of Significant Differences (ESD) was issued calling for the excavation and washing of the plant site soils (vs in-place flushing). Also, in 2001, a contract was awarded to begin the soil washing work. The construction of the soil washing facility was completed in the fall of 2003. In early 2004, after a start-up and optimization period, full-scale operation of the innovative soil washing plant began. The on-site soil remediation has been integrated with the first phase of the River Areas work (i.e., the adjacent contaminated marsh/wetland sediments) and was completed in early 2008. Over 400,000 tons of arsenic-contaminated soil/sediments were processed through the soil washing plant.

Plant Site Management of Migration: Cleanup of the arsenic-contaminated shallow groundwater and reduce or prevent its migration to the Blackwater Branch, a tributary to the Maurice River. This involves pumping groundwater at a high flow rate, treatment and discharge to surface water (i.e., the Blackwater Branch). The contract for the construction of a two million gallon per day (MGD) extraction and treatment system was awarded in September 1997. Actual construction of the facility began in March 1998 and continued for two years. Operation of the new facility began in the spring of 2000 and is ongoing. The pump and treat operation has effectively captured the flow of arsenic-contaminated groundwater from the plant site. The quality of effluent from the groundwater treatment plant continues to meet the Record of Decision cleanup standard. To date, over 3.2 billion gallons of contaminated groundwater have been treated at the facility.

River Areas Sediments: The approach for River Areas is to undertake sediment remediation activities in the Blackwater Branch and Maurice River in a phased manner. The first phase included remediation of the arsenic-contaminated sediment in the Blackwater Branch floodplain and channel east of Mill Road. The Blackwater Branch sediments were excavated, treated in a soil washing plant to remove arsenic, and redeposited on-site. After backfilling, the stream channel and floodplain were restored to their pre-contamination condition, including the re-establishment of an Atlantic White Cedar wetland. Cleanup efforts involving this initial began in early 2006 and were essentially completed by the early 2008. The next phase involves the cleanup of arsenic-contaminated sediments in the segment of Blackwater Branch west of Mill Road. This effort began in mid-2008. Upon completion of the cleanup of Blackwater Branch (to its confluence with the Maurice River), a three-year natural flushing period with environmental monitoring of the Maurice River will be undertaken to determine if natural flushing can reduce arsenic to acceptable levels. Active remediation of the Maurice River will be considered if arsenic concentrations remain above the the cleanup standards specified in the Record of Decision after the three-year period. The Maurice River represents the final phase of the River Areas work.

Union Lake Sediments: The impacts of Plant Site Source Control, Plant Site Management of Migration and River Areas remedial activities on Union Lake will be evaluated prior to proceeding with active cleanup of the lake. The lake is the sink for most of the arsenic contamination. Current plans call for the remediation of those areas of the lake with unacceptably high arsenic concentrations by lowering the water level and then dredging. High public access areas, including the public beach and the sailing club, will be cleaned up by treating the contaminated materials, and then returning the cleaned material to the lake. Aqueous wastes will be treated utilizing the on-site groundwater treatment plant to remove and convert arsenic to a sludge form for off-site treatment and disposal.

Site Facts: EPA is performing environmental studies to evaluate the need to clean up the river and lake sediments. These long-term studies will utilize data collected before and during the cleanup activities involving the soil and groundwater.

In February 1994, a consent decree to settle liability of the owner and the only responsible party, Miriam Schwerdtle, was entered in the court.

Cleanup Progress

EPA early on sealed the chicken coops and abandoned buildings, fenced off the contaminated areas, and removed hazardous chemicals stored on the site. EPA also demolished and disposed of the arsenic-contaminated buildings. These actions reduced the risk to human health and the environment.

Remedial activities in connection with Operable Unit 1- Plant Site Source Control (i.e., on-site soils) have been completed. The on-site soils were processed in a 70-ton per hour soil washing facility. Operable Unit 2 - Plant Site Management of Migration (i.e., groundwater extraction and treatment) and Operable Unit 3 - River Areas (i.e., phased sediment excavation along the Blackwater Branch) are ongoing. The groundwater plant is anticipated to operate for approximately 15 years. EPA has also completed the cleanup of sediments associated with the first segment of the Blackwater Branch. Work on the remaining segments began in mid-2008 and will be ongoing for approximately four years. Upon completion of the ongoing Blackwater Branch sediment cleanup, EPA will be further evaluating the cleanup options for the remaining Operable Unit 3 - River Areas (i.e., Maurice River) and Operable Unit 4 - Union Lake. The site is completely fenced.

Site Repositories

Vineland City Library 1058 East Landis Ave. Vineland, N.J. 08360

Vineland City Health Dept. 7th and Wood St Vineland N.J. 08360

EPA Records Center 290 Broadway, 18th Floor New York, NY 10007-1866 (212) 637-4308