

# Ciba-Geigy Corp.

## New Jersey

EPA ID#: NJD001502517

### EPA REGION 2

#### Congressional District(s): 03

Ocean

Route 37 in Dover Township

#### NPL LISTING HISTORY

Proposed Date: 12/30/1982

Final Date: 9/8/1983

## Site Description

The Ciba-Geigy Chemical Corporation site in Toms River, Dover Township, New Jersey, was owned and operated by the Ciba Specialty Chemicals Corporation (Ciba) which was formerly the Ciba-Geigy Chemical Corporation (Ciba-Geigy). In April 2009, BASF bought Ciba Specialty Chemicals. The site encompasses approximately 1,400 acres, 320 of which are developed, with the remainder consisting of cleared areas, pine barrens and wetlands. From 1952 to 1990, Ciba-Geigy manufactured dyes, pigments, resins and epoxy additives. In 1988, pigments and dyestuffs manufacturing operations ceased and in December 1990, resins and epoxy manufacturing ceased. All commercial operations at the site ceased in December 1996. Most of the manufacturing buildings were subsequently demolished. Sludge and process wastes were disposed of in several locations on the site, including a stacked drum disposal area originally believed to contain approximately 35,000 drums and a 12-acre filtercake disposal area containing wastewater treatment plant sludge and process wastes. Wastewater treatment operations at the site also resulted in the contamination of several areas including backfilled lagoons near the Toms River and two equalization basins. Contamination from these areas and several others on site (referred to as source areas) has leached into the groundwater.

Site groundwater flows east towards the Toms River and adjacent wetlands. Groundwater in the local area is tapped by municipal, industrial, and private wells. To the north, south and west, the site is bordered by light industrial, commercial, residential, and recreational areas. The Township of Dover has an estimated population of 90,000 persons. There are 180 residential units less than 1/2 mile to the north of the site and more than 250 residential units less than 1/2 mile from the site's southern boundary. An elementary school is adjacent to the site along the southwestern fence line.

In 1978, the State of New Jersey issued permits to close two disposal areas on site. The New Jersey Department of Environmental Protection (NJDEP) issued an Administrative Order in 1980 that required Ciba-Geigy to remove 15,000 drums from an on-site solid waste landfill and to initiate groundwater monitoring at the site. In 1985, Ciba-Geigy began pumping contaminated groundwater and discharging it with treated wastewater to the Atlantic Ocean via a ten mile pipeline. In December 1991, as an interim measure, the NJDEP granted Ciba-Geigy a permit that allowed the company to discharge treated groundwater on site to the ground surface. NJDEP also required closure of the Ocean pipeline. Wastewater and sanitary flows were directed to the Ocean County Utilities Authority (OCUA) plant in Berkeley Township. The discharge to OCUA was stopped after commercial operations ceased in 1996.

Site Responsibility: This site is being addressed through a combination of Federal, State and potentially responsible parties' actions.

## Threat and Contaminants

Groundwater and soils are contaminated with volatile organic compounds (VOCs) including chlorobenzene, 1,2,4-trichlorobenzene, 1,2-dichlorobenzene, 2-chlorotoluene and trichloroethene (TCE). The groundwater plume migrates to the Toms River and wetlands along the eastern boundary of the site. EPA determined that the greatest potential threat to human health and the environment was through ingestion of contaminated groundwater. No private drinking wells were located within the area of contaminated groundwater; however, EPA required the closure of all affected residential irrigation wells.

## Cleanup Approach

EPA determined that the greatest potential threat to human health and the environment was through contaminated groundwater. EPA decided to address cleanup of the site in two phases or operable units (OUs). OU1 focused on cleanup of the contaminated groundwater and OU2 addressed the source areas. A Record of Decision (ROD) for OU1

was signed on April 24, 1989. The ROD specified that contaminated groundwater would be pumped, treated on site, and discharged to the Toms River; the uncontaminated lower aquifer would be evaluated; the Toms River would be monitored; contaminated residential irrigation wells would be closed; and, an investigation would be conducted to acquire enough data to characterize source areas and determine appropriate cleanup actions. In late 1991, representatives of citizens and environmental groups and Ciba-Geigy requested that EPA reconsider on-site recharge of treated groundwater instead of river discharge. EPA re-evaluated on-site recharge and determined that it was technically feasible, could be implemented in the same time frame as the original ROD remedy, and was protective of human health and the environment. The public showed overwhelming support and EPA issued an Explanation of Significant Differences (ESD) in September 1993 which changed the discharge point for treated groundwater from the Toms River to recharge on site.

The second phase of the site investigation began in September 1989 and was completed in 1994. It was undertaken to evaluate the extent and nature of contamination of the source areas. A second ROD addressing the source areas was signed in September 2000. The ROD called for excavation and on-site bioremediation of approximately 150,000 cubic yards of contaminated soil and backfill of the treated soil on site. The ROD also called for the excavation of buried drums from the stacked drum disposal area (one of the source areas). Once excavated, the drum contents would be shipped off site for disposal. The remedy also included caps and slurry walls in several source areas.

#### Response Action Status

**Groundwater:** All contaminated residential irrigation wells were sealed by mid-1991. Full-scale operation of the on-site groundwater treatment plant began in March 1996. Approximately 2.0 million gallons of groundwater is treated each day. All sample results for the treated groundwater have been below the criteria established in the ROD and ESD. The treated groundwater is recharged to an area in the north of the Site. Groundwater samples indicate that the plume of contaminated groundwater has shrunk and that contaminant concentrations at the edges of the plume decreased. Some degradation of the capture envelope has been observed of late due to operation and maintenance issues. Ciba plans to address these issues by optimizing the performance of the pump and treat system. Work on optimization began in July 2010 and is planned to last for approximately three years.

**Source Areas:** The design of the OU2 source area remedy was completed in summer 2003 and on-site construction began in October 2003.

**OU2 – Soils:** Source area soils were treated using in-situ and ex-situ treatment systems. Exsitu soil treatment began on July 6, 2004 and was completed in August 2010, yielding a final total of 342,877 cubic yards of soil treated. In situ treatment of approximately 65,000 cubic yards of soil was started in 2003 and is expected to continue for the next two to three years. Work on installation of caps and slurry walls in other areas of the Site was completed on December 4, 2010.

**OU2 – Buried Drums:** The first phase of the source area cleanup involved the removal of buried drums from an area on Site known as the Stacked Drum Area (SDA). The drums were stacked beneath a liner from one to four layers deep. The drum removal phase of the cleanup began on December 9, 2003 and was completed on November 22, 2004. A total of 47,055 drums were removed from the SDA. The contents of the drums were sent off Site for disposal.

**Site Facts:** In 1984, EPA informed Ciba Geigy, the party potentially responsible at the time, for contaminating the site, of its responsibility for the remediation. Ciba-Geigy agreed to cooperate and conducted several investigations to determine the nature and the extent of the contamination. In September 1993, Ciba-Geigy entered into a Consent Decree with EPA which required implementation of the revised, groundwater remedy and reimbursement of past costs which together estimated \$54 million. In October 1995, EPA and Ciba-Geigy entered into an Administrative Order on Consent (AOC) that allowed Ciba to perform the feasibility study to evaluate cleanup alternatives for the source areas. In March 2001, Ciba entered into a Consent Decree with EPA to implement the source area cleanup that was estimated at \$90 million.

## Cleanup Progress

#### Groundwater (Construction Complete)

The groundwater extraction, treatment and recharge systems are operational. Contaminated irrigation wells have been sealed. The local community is not affected by the contaminant plume, and the site does not pose an immediate threat to the surrounding community. Over 9.5 billion gallons of contaminated groundwater have been treated to meet EPA criteria, to date.

#### Source Areas

The site is fenced and guarded, so access is limited. The local community is not impacted by the source areas. Cleanup of the source areas began in October 2003. Drum removal operations from the stacked drum disposal area was completed in November 2004. Soil removal at the source areas, ex-situ treatment of the soil, and construction of the caps and slurry walls at certain source areas was completed in 2010. Enhanced, in-situ bioremediation of saturated soil

and groundwater at the equalization basins, which remains a source, is being evaluated as part of the optimization of the groundwater remedy.

## **Site Repositories**

Ocean County Public Library, 101 Washington Street, Tom River, NJ 08753.

Additional Links:

Record of Decision Abstract

January 2000