



Remediation Status Baseline Report on Existing Heavy Industry Use Sites

Pursuant to 7 Del.C. §7015(b) Delaware's Coastal Zone Act

September 2017

Prepared by: The Department of Natural Resources and Environmental Control (DNREC)

Introduction

On August 2, 2017, Governor John Carney signed House Bill 190, the Coastal Zone Conversion Permit Act, amending 7 Del. C. Under this amendment, the Department of Natural Resources and Environmental Control (Department, or DNREC) is directed to provide a report to the General Assembly and the Governor regarding the condition of existing heavy industry use sites in Delaware's coastal zone.

7 Del.C. §7015(b) states:

Within 30 days of the passage of the Coastal Zone Conversion Permit Act, the Department of Natural Resources and Environmental Control shall provide to the General Assembly and the Governor a baseline report summarizing the contamination and remediation status of each of the 14 heavy industry use sites as of July 1, 2017.

This document provides an overview of DNREC's regulatory remedial programs, and Delaware and federal law governing the 14 heavy industry sites within Delaware's Coastal Zone. All but one of these locations are in New Castle County, with Delaware Storage and Pipeline located in Kent County. This report is broken into sections summarizing the environmental status of each location. It represents the Department's best knowledge of each site at this time.

DNREC's Regulatory Remedial Programs

Groundwater, soil, surface water, and sediment remediation occurs under one or more of the following programs.

Resource Conservation and Recovery Act (RCRA)/Hazardous Waste Management (7 Del. C. Ch. 63)

A facility that is managed through the Resource Conservation and Recovery Act /Hazardous Waste Management program meets the requirements of being considered a transportation, storage, and disposal (TSD) facility. Historically these TSDs contained a unit or multiple units that managed hazardous waste(s). Under this program, the facility or responsible party conducts and assumes the cost of investigation, remediation, and post-closure monitoring and maintenance.

Underground Storage Tank Act (7 Del. C. Ch. 74) and Aboveground Storage Tank Act (7 Del. C. Ch. 74A)

The Underground and Aboveground Storage Tank programs ensure the cleanup of releases from specific tanks located at a facility. Both programs have regulations that are designed to ensure that the tank systems are constructed and maintained in a way to minimize the risk of a release of regulated substance such as petroleum into the environment. If a release occurs, the responsible parties have an obligation to perform the necessary cleanup activities. The Department refers to these types of cleanup projects as Leaking Underground Storage Tank Projects (LUSTs) or Leaking Aboveground Storage Tank Projects (LAST). Cleanups under these programs may occur independently or be combined with a facility-wide cleanup under another program.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, or Superfund)

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is a federal program that captures facilities that did not meet the transportation, storage, and disposal definition but otherwise had contamination and a nonviable responsible party to complete an investigation and remediation. Federal and/or state dollars are expended until a viable responsible party(ies) can be identified and cost recovery be effected. In order for the Environmental Protection Agency (EPA) to perform the lead under CERCLA utilizing federal funds, the state has to concur with this action and provide assurances to fund 10 percent of the remedial action and 100 percent of the long-term operation and maintenance. An example of this is Standard Chlorine, where the state is responsible for funding the full amount of maintaining the groundwater treatment system and the engineered soil cap once they are considered operational and functional. In other cases, as with Formosa, the EPA is the technical lead due the complexity of the facility but a viable Potentially Responsible Party (PRP) pays for the remedial action and the state is not required to provide a cost share. However, if in the future the federal government determines that the PRP is no longer viable, then the state must agree to provide the above mentioned cost share.

Delaware's Hazardous Substance Cleanup Act (HSCA).

The Hazardous Substance Cleanup Act (HSCA) (7 Del. C. Ch. 91) gives DNREC the ability to ensure cleanup of facilities with a release or imminent threat of release of hazardous substances. HSCA applies to all of the programs, including the Brownfields Program, Voluntary Cleanup Program, state led projects, and enforcement. The Brownfields Program follows the Hazardous Substance Cleanup Act statute and regulations, and Brownfields Grants are financed by the HSCA Fund for certified sites. State led projects follow the HSCA statute and regulations, and the cleanup is financed by the Hazardous Substance Cleanup Act Fund until the responsible party can be identified. HSCA allows for viable Potentially Responsible Parties (PRPs) to voluntarily enter into a settlement agreement to fund and remediate the facilities. HSCA also provides the funding mechanism to address facilities where either the state is the PRP or no viable PRP could be identified.

Under each of these programs, a facility can complete an investigation and implement a remedy decision; however, the site may be reopened upon discovery of new information (e.g., toxicity research, changes to site understanding, new release, and changes to site use).

Remedy decisions do not require removal of all hazards from a site. Remedial actions performed either by the state or federal government cannot restore these facilities back to their original pristine condition. Therefore, restrictions are often placed on the facility limiting its future use (e.g., non-residential uses only) or placing requirements for future monitoring (e.g., soil cap inspection). A remedy may include engineering and/or institutional controls, such as fencing or a deed notice/environmental covenant. Long-term operations, maintenance, and monitoring strategies may be required to maintain and verify the effectiveness of a remedy decision. Redevelopment of these facilities must abide by other applicable laws and regulations such as zoning limitations, no matter what regulatory program leads the remedial action.

Oversight of a facility may be administratively led by either the state or a federal agency. DNREC provides technical support to the EPA on federal-led projects, and vice versa. The lead agency is selected based on a variety of factors, including statutory authority and resource availability.

Status of Sites

Chloromone/Kuehne

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10152894>

This site is currently in use as a chemical processing plant. It is currently not in any of DNREC's or EPA's remediation programs. Two Leaking Underground Storage Tank projects were previously identified; both are now closed. One Aboveground Storage Tank containing a 23% sodium hydroxide solution was removed from the site. That project is closed requiring no further action.



CitiSteel

Responsible Party: Environmental Liability Transfer Company

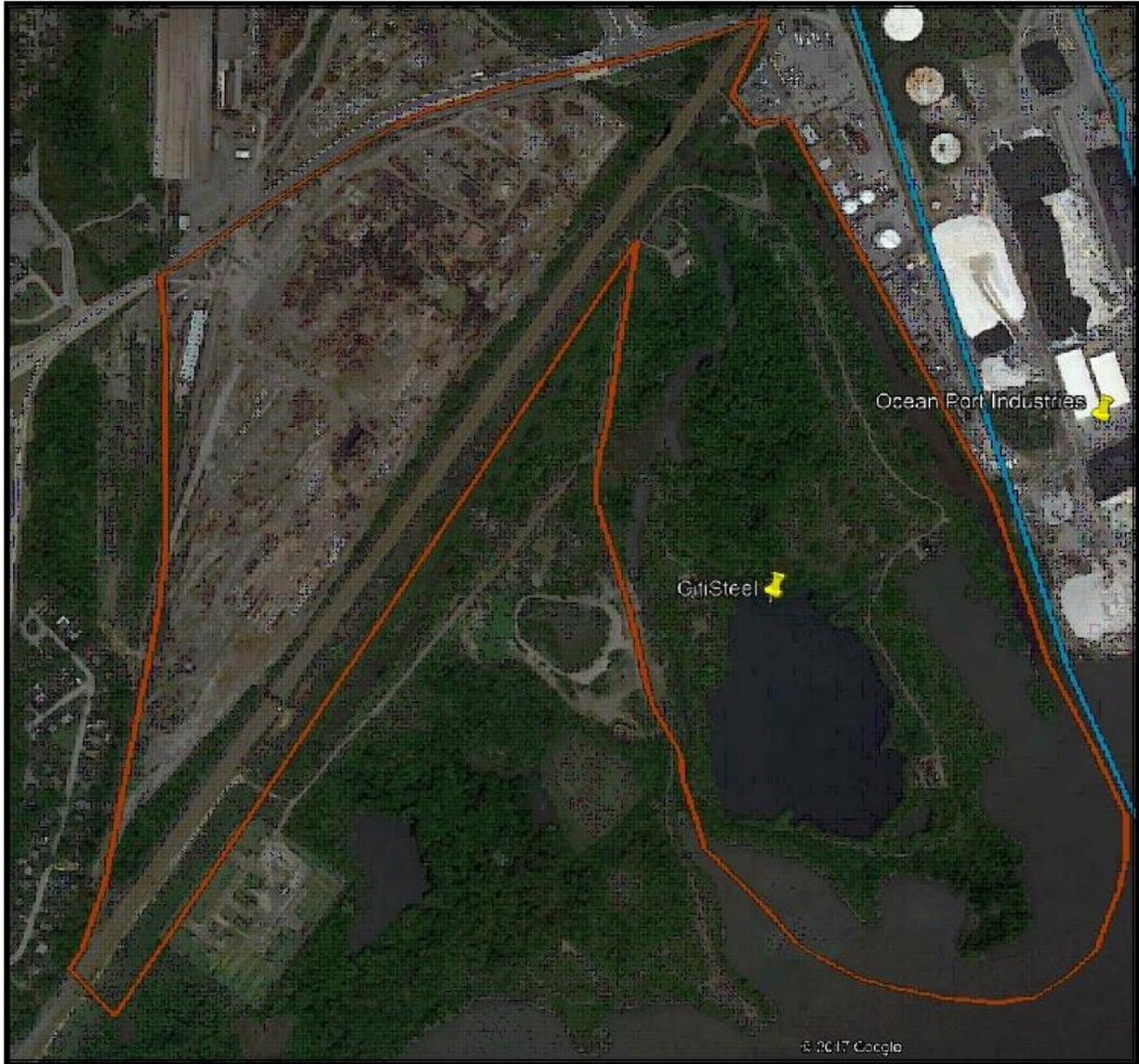
Remedial Program(s): Hazardous Substance Cleanup Act, Voluntary Cleanup

Contaminants of Concern: PAHs, PCBs, and metals.

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10000063>

This is a Hazardous Substance Cleanup Act Voluntary Cleanup site. Responsibility for the cleanup is held by a subsidiary (Claymont Properties, LLC) of the current property owner, Environmental Liability Transfer Company. There is no state financial liability for this site. The site has been separated into seven distinct operable units at different phases of the remedial process. At this time, a majority of the site has been investigated and there are environmental concerns relating to soil, groundwater, and sediments on areas of the site. DNREC has issued Final Plans of Remedial Actions on certain operable units and is overseeing the responsible party in performing those remedial actions, as necessary.

Two underground storage tanks have been removed at CitiSteel, with minimal contamination encountered. Both Leaking Underground Storage Tank projects are now closed.



   **CITISTEEL**

 2017 GOOGLE AERIAL

Delaware City Refinery

Responsible Party: Motiva Enterprises

Remedial Program(s): Resource Conservation and Recovery Act, Corrective Action program

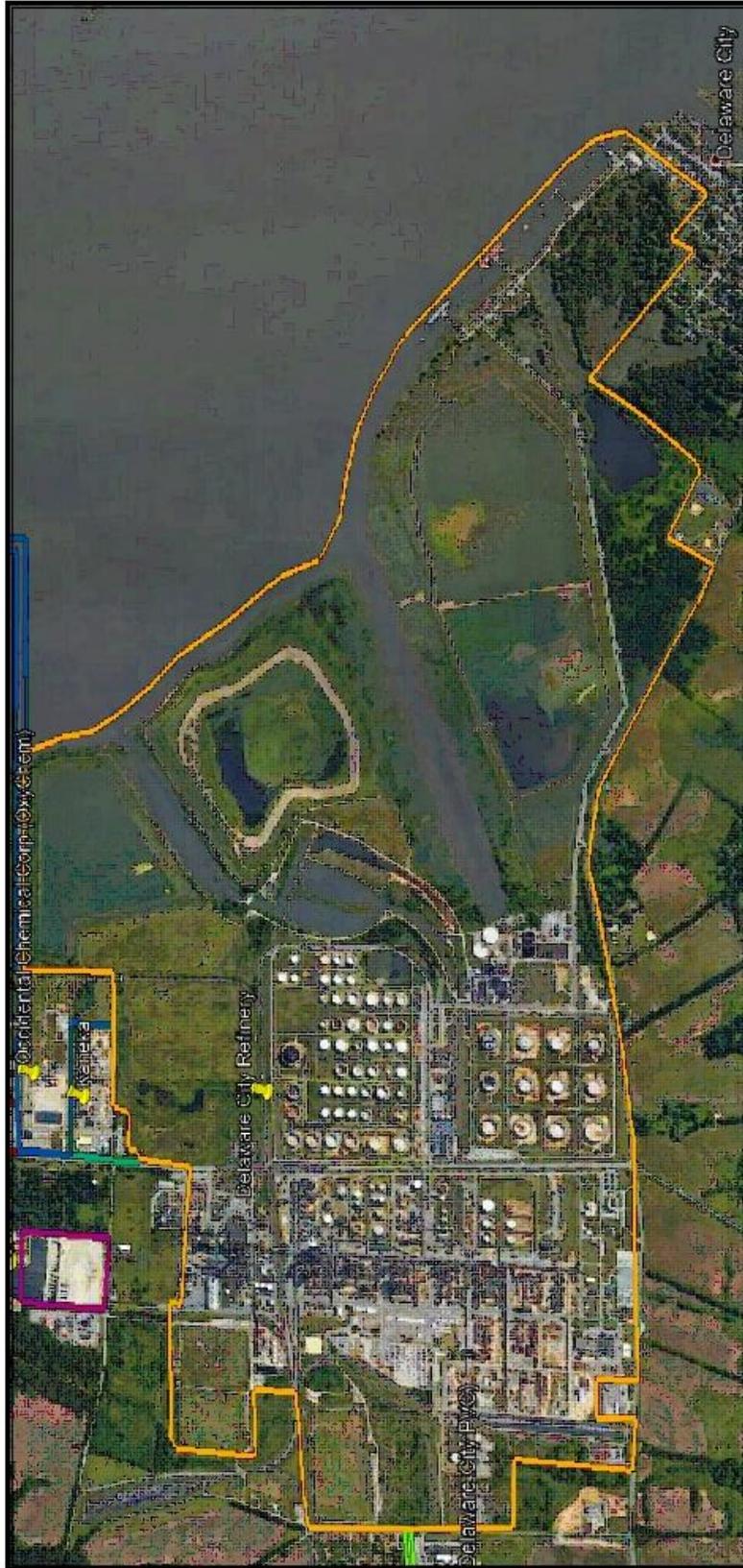
Contaminants of Concern: Petroleum hydrocarbons

Link: <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-delaware-city-refinery-delaware-city-de>

Cleanup activities at the Delaware City Refinery (DCR) are underway, conducted under the Resource Conservation and Recovery Act Corrective Action program as a DNREC lead site. Although PBF Energy is the current owner of the Refinery, Motiva Enterprises (a former owner of the refinery) retains the environmental liability for the facility. For this reason, Motiva Enterprise is the financially responsible party for all Resource Conservation and Recovery Act Corrective Actions of historical contamination at this site.

The facility is in the process of a Remedial Facility Investigation to determine the corrective measures that should be taken to address soil and groundwater contamination. A large plume of petroleum hydrocarbons has been identified beneath the site and groundwater sampling is being conducted to assess the plume. Chlorinated volatile organic compounds (VOCs) are in the groundwater under the site, but are likely from off-site sources. Soil contamination has been identified in some areas of the site, and specific Solid Waste Management Units are in various states of cleanup.

There have been five leaking underground storage tank projects at the facility that have since been closed. Eleven above ground storage tanks have been closed or taken out of service. Original tank contents included methanol, spent sulfuric acid and spent caustics in addition to petroleum hydrocarbons. All eleven are closed with no further action required. Petroleum contamination is currently being addressed through the Resource Conservation and Recovery Act Corrective Action Program.



DELAWARE CITY REFINERY

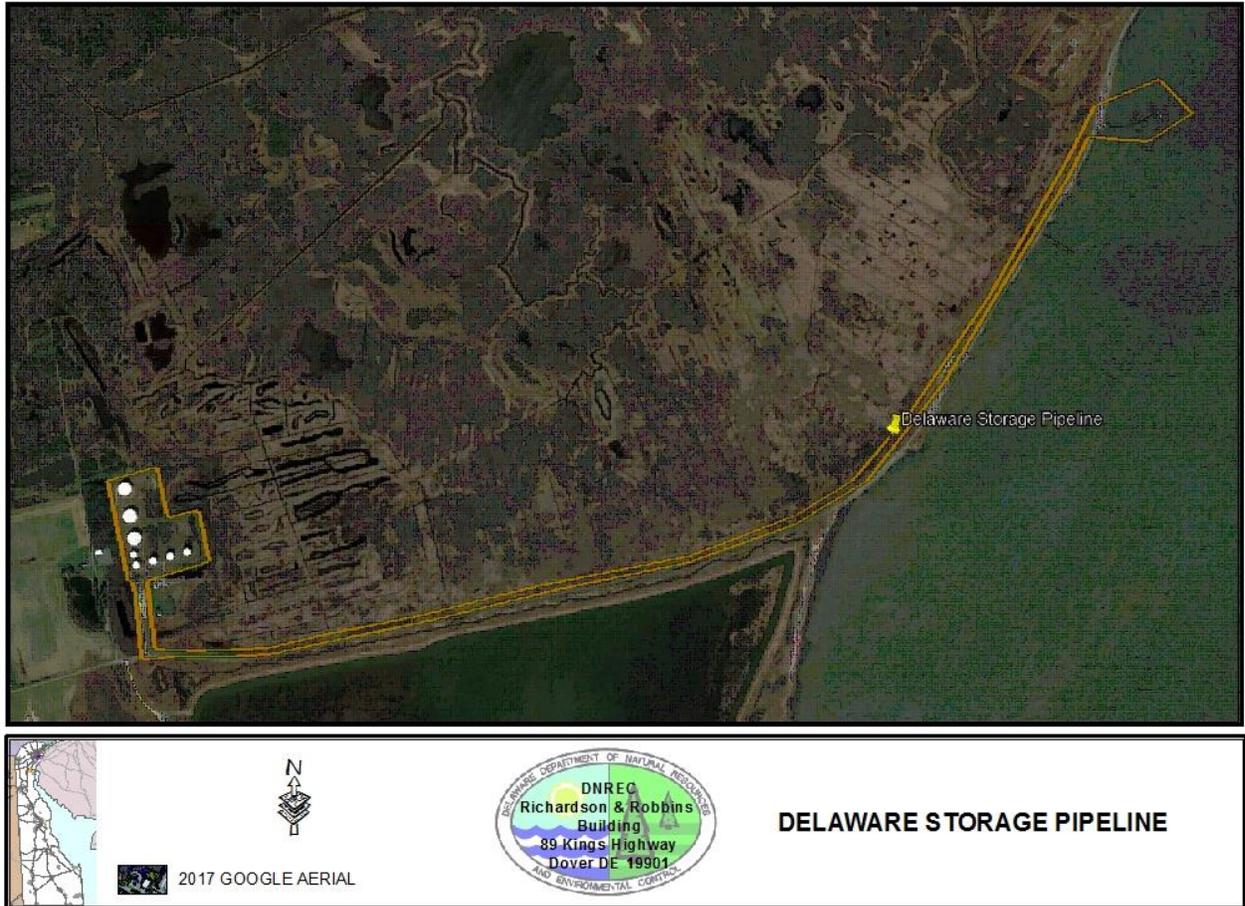
DNREC
DELAWARE DEPARTMENT OF NATURAL RESOURCES
AND ENVIRONMENTAL CONTROL
Richard son & Robbins
Building
89 Kings Highway
Dover DE 19901

2017 GOOGLE AERIAL

Delaware Storage Pipeline

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10000982>

This is an active site that is used for bulk transfer of jet fuel. It is not in any of DNREC's or EPA's remediation programs.



Diamond State Port Corporation (formerly DuPont/Chemours) Edgemoor

Responsible Party: Diamond State Port Corporation

Remedial Program(s): Resource Conservation and Recovery Act, Corrective Action

Contaminants of Concern: Metals, dioxins, furans

Link: <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-chemours-company-fc-llc-edge-moor-plant-wilmington-de>

This is a state-led Hazardous Waste Management site. Financial responsibility for investigation, cleanup, and monitoring is currently held by the Diamond State Port Corporation. DNREC's Solid & Hazardous Waste Management Section has received a revised Risk Assessment and is reviewing a Corrective Measure Study. The former settling ponds are currently in post-closure monitoring.

One Aboveground Storage Tank containing ferric chloride was closed in place requiring site assessment. The investigation has been incorporated into Resource Conservation and Recovery Act Corrective Action efforts. The site has had two Leaking Underground Storage Tank projects in the past which are currently closed.



	 2017 GOOGLE AERIAL		DIAMOND STATE PORT CORPORATION Formerly DUPONT/CHEMOURS EDGEMOOR
---	---	---	--

Formosa (Delaware City PVC)

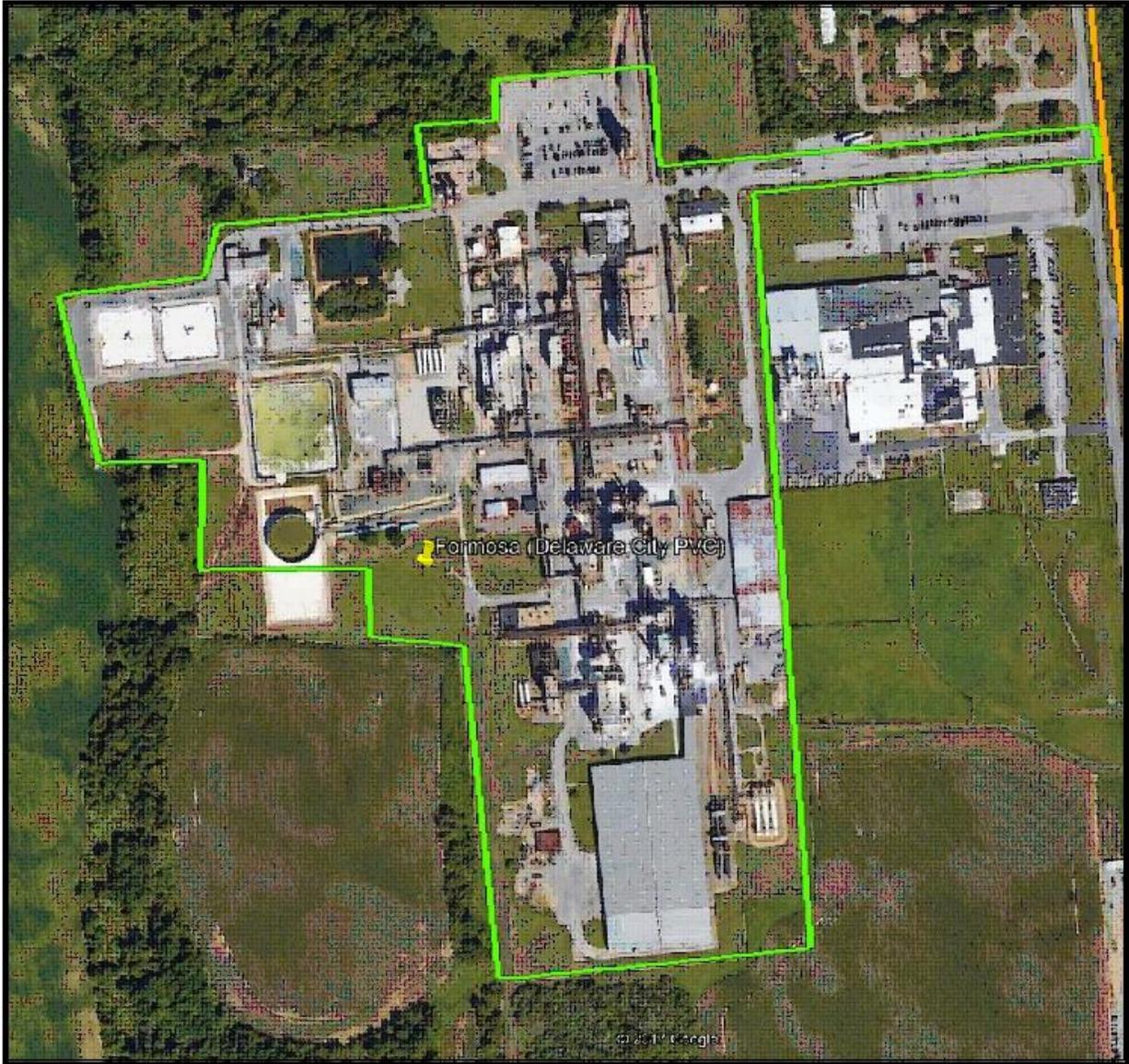
Responsible Party: Formosa

Remedial Program(s): Comprehensive Environmental Response, Compensation, and Liability Act

Contaminants of Concern: Volatile organic compounds, PVC (Polyvinyl Chloride) resins, high density polyethylene, tairyln acrylic, acrylic acid and ester, caustic soda

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10056495>

This is an EPA-led Comprehensive Environmental Response, Compensation, and Liability Act site. Responsibility for the cleanup is held by the current property owner (Formosa) and the former owner (Stauffer). There is currently no state financial liability for this site; however, if in the future the Responsible Parties no longer have the financial means to remediate the site and the EPA takes over the costs of remediation, they may seek a state cost share, as the EPA usually requires state financial participation. Numerous remedial actions have occurred onsite to address soil and groundwater contamination. At this time, an ongoing pump and treat system is in operation to address groundwater contamination.



2017 GOOGLE AERIAL

N

DNREC
Richardson & Robbins
Building
89 Kings Highway
Dover DE 19901

**FORMOSA
(DELAWARE CITY PVC)**

General Chemical

Responsible Party: Honeywell, Chemtrade, and Drawbridge LLC

Remedial Program(s): Resource Conservation and Recovery Act Corrective Action

Contaminants of Concern: Arsenic, lead, and DDX (DDT, etc.)

Link: <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-general-chemical-corporation-claymont-de>

This is an EPA-led Resource Conservation and Recovery Act Corrective Action site, with extensive DNREC technical support (i.e., staff time). The financial responsibility for cleanup is held collectively between Honeywell, Chemtrade (the current owner of the former General Chemical site), and Drawbridge (recent purchaser and developer of a portion of the General Chemical site). Soil, groundwater, and sediments in the Delaware River are contaminated, with arsenic, lead, and DDX (DDT, etc.) are the main contaminants of concern. Plans for remediation and redevelopment of a portion of the property as a railyard are nearing final form, with plans for continued remediation and expected redevelopment for the remainder of the site to follow. Plans for capping a portion of the contaminated sediments in the Delaware River are being developed, although additional work will be required.

This facility has only had one Leaking Underground Storage Tank project, which was closed in 1991.



   **GENERAL CHEMICAL**

 2017 GOOGLE AERIAL

Kaneka

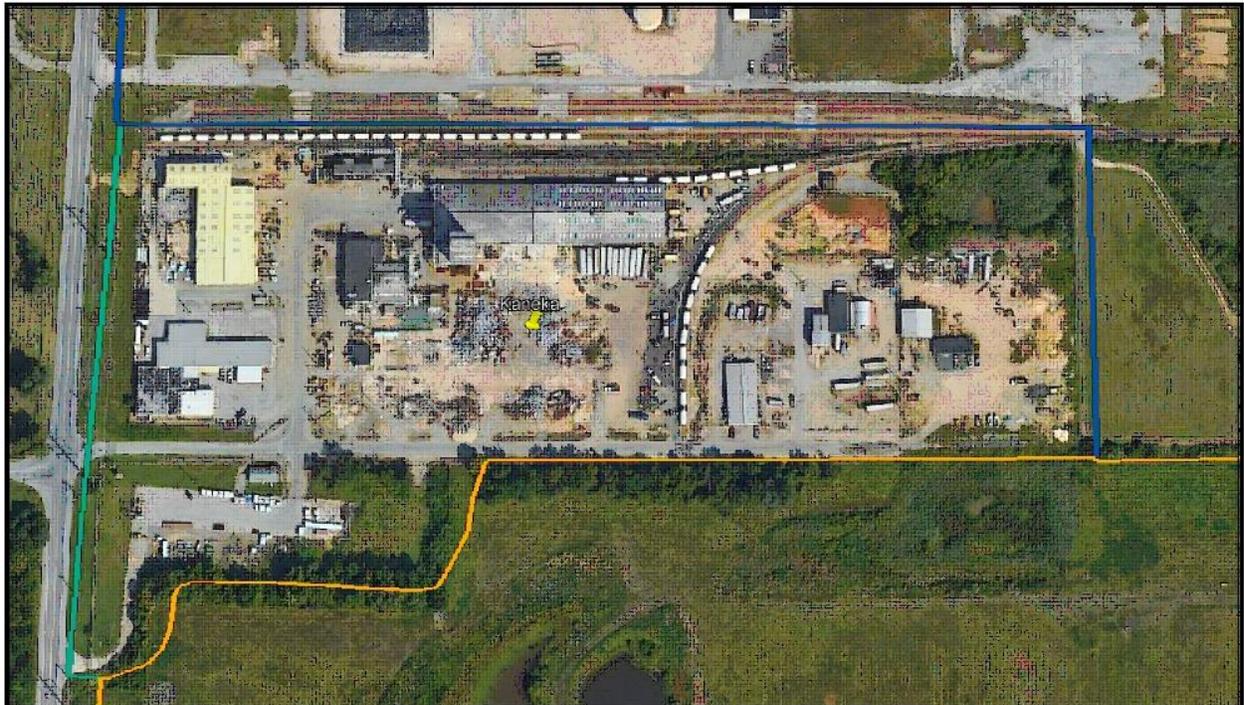
Responsible Party: Kaneka of America Corporation and EcReCon (Delaware City Industries)

Remedial Program(s): Hazardous Substance Cleanup Act Voluntary Cleanup Site

Contaminants of Concern: Volatile organic compounds in groundwater

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10000027>

This is a DNREC Hazardous Substance Cleanup Act Voluntary Cleanup Site. Responsibility for the groundwater is with Kaneka of America Corporation, and EcReCon (Delaware City Industries) has the remaining operations and maintenance (O&M) responsibilities for all other outstanding issues. There is no state financial liability for this site. The site is currently in the operation & maintenance phase which includes groundwater monitoring to address low level of volatile organic compounds in groundwater.



Occidental Chemical Corporation (OxyChem)

Responsible Party: OxyChem

Remedial Program(s): Resource Conservation and Recovery Act

Contaminants of Concern: Chlorobenzenes, mercury, manganese, and some chlorinated volatile organic compounds (VOC)

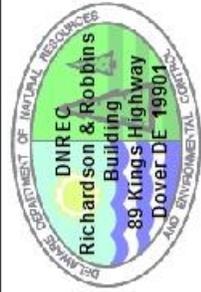
Link: <https://www.epa.gov/hwcorrectiveaction/hazardous-waste-cleanup-occidental-chemical-corporation-new-castle-de>

This site is an EPA-led Resource Conservation and Recovery Act Corrective Action site, with extensive DNREC technical support (i.e., staff time). The financial responsibility for cleanup is held by OxyChem, with its holding company Glenn Springs Holdings conducting the remediation. Soil, groundwater, and sediments in a small tributary to Red Lion Creek are contaminated. Chlorobenzenes, mercury, manganese, and some chlorinated volatile organic compounds (VOCs) are constituents of concern, with initial remediation primarily targeting the former two. VOC contamination is likely coming from an offsite (upgradient) source. Remediation has been completed for some areas of this site, and designs are in progress for others.

Fourteen Aboveground Storage Tanks have been removed or closed at this facility in the last 10 years. Tank Management Program requirements were waived for 12 of the tanks contained within the area designated for EPA-led RCRA Corrective Actions. The other two site assessments showed no indication of tank release or failure and were subsequently closed.



2017 GOOGLE AERIAL



OCCIDENTAL CHEMICAL CORPORATION (OXY CHEM)

Oceanport

Responsible Party: Oceanport

Remedial Program(s): Above Ground Storage Tank Program

Contaminants of Concern: Petroleum

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10054711>

This site is in active use as a bulk product transfer facility. One Leaking Underground Storage Tank project was identified and closed several years ago at this facility.

Oceanport had ten registered aboveground storage tanks at their facility. All of these tanks have since been removed or are considered permanently closed. As part of the tank closure process, nine leaking aboveground storage tank release projects were initiated, indicating releases of petroleum products. To date, four projects have been closed and require no further action. The remaining five projects have been combined in order to address clean-up requirements more efficiently. Due to the facility's close proximity to Naaman's Creek, DNREC's Tank Management Section is requiring clean-up to the strictest risk-based screening levels.



   **OCEAN PORT INDUSTRIES**

2017 GOOGLE AERIAL

Port of Wilmington

Responsible Party: Diamond State Port Corporation

Remedial Program(s): Hazardous Substance Cleanup Act (Voluntary)

Contaminants of Concern: Metals (lead, arsenic, antimony, chromium in soils, sediments, iron and manganese), PAHs and petroleum compounds in soil

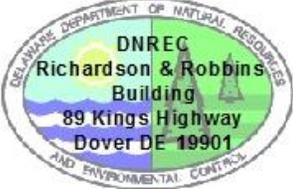
Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10153008>

This site is a DNREC Hazardous Substance Cleanup Act Voluntary Cleanup site. Responsibility for the cleanup is held by the current property owners, Diamond State Port Corporation. The current property owner is working with DNREC in evaluating the facility to address environmental conditions that may be present onsite.

Six Leaking Underground Storage Tank projects have been identified and subsequently closed at this facility. Eight Aboveground Storage Tanks have been closed or removed, all containing petroleum products. All projects are now closed.



2017 GOOGLE AERIAL



PORT OF WILMINGTON

Standard Chlorine of Delaware Metachem

Responsible Party: N/A – Responsible Party declared bankruptcy

Remedial Program(s): Comprehensive Environmental Response, Compensation, and Liability Act

Contaminants of Concern: Benzene, many types of chlorobenzene compounds toluene, polychlorinated biphenyls (PCBs), meta-chloronitrobenzene, and dioxins

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10000054>

Standard Chlorine of Delaware/Metachem is a federal Superfund site governed by a Record of Decision from 1995. As an EPA-led CERCLA site, they fund 90 percent of remedial costs, and DNREC funds the remaining 10 percent. Once the site remedy is determined to be operational and functional, the State will be responsible for 100 percent of the costs associated with operation and maintenance of the remedy. The contaminants of concern include benzene, many types of chlorobenzene compounds toluene, polychlorinated biphenyls (PCBs), meta-chloronitrobenzene, and dioxins. The remedial actions are separated into Operable Units (OU) such as interim action for groundwater (OU-1), sediments (OU-2), and soils (OU-3), along with a final action for groundwater (OU-4).

Remedial actions for OU-1 and OU-3 have been completed. This includes a sub-surface slurry wall to contain and treat groundwater, and a multilayer cap that will prevent contact with the contaminated soil at the site, along with capturing and treating any soil gas that may come from the soil. Following completion of the cap, EPA and DNREC are exploring options for creating a solar photovoltaic system to power the groundwater and soil gas treatment system at the site.

Three Leaking Underground Storage Tank Projects have occurred at this facility, all are now closed.



   **STANDARD CHLORINE OF DELAWARE METACHEM**

 2017 GOOGLE AERIAL

Sunoco

Responsible Party: Sunoco/Evergreen Resource Group, LLC

Remedial Program(s): Resource Conservation and Recovery Act Corrective Action; Above Ground Storage Tank Program

Contaminants of Concern: Benzene

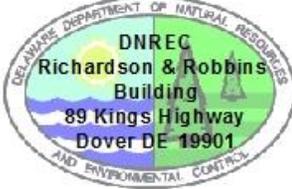
Link: <https://www.epa.gov/hwcorrectiveactionsites/hazardous-waste-cleanup-sunoco-partners-m-t-marcus-hook-refinery-marcus-hook>

Most of the Sunoco site is in Pennsylvania, with only a small portion in Delaware. The Resource Conservation and Recovery Act Corrective Action is being handled by EPA in conjunction with Pennsylvania Department of Environmental Protection, and the site is not on the list of Delaware RCRA Corrective Action 2020 sites. For the Hazardous Substance Cleanup Act, representatives of the EPA, site owners, and DNREC discussed in December 2013 the responsible parties entering a voluntary cleanup program (VCP) agreement. At this time, the property owners have not entered into a VCP with DNREC and the site is being addressed by the EPA. The former Sunoco tank farm is being addressed under a VCP agreement with Sunoco/Evergreen Resource Group, LLC. There is no state financial liability for this portion of the site. The Final Plan of Remedial Action required annual groundwater sampling to ensure the site remains protected and an environmental covenant restricting future use of the property.

Eight Aboveground Storage Tanks have been removed or closed in place containing ethylene glycol, propylene glycol, and petroleum products. Seven of these projects have been closed. Two projects remain open due to benzene exceedances. Semi-annual monitoring is ongoing.



2017 GOOGLE AERIAL



SUNOCO

Uniquema (Croda) (a/k/a ICI - Atlas Point)

Responsible Party: Croda & Fuji Films

Remedial Program(s): Hazardous Substance Cleanup Act Voluntary Cleanup

Contaminants of Concern: Metals (arsenic, cadmium, lead, manganese), PAHs, volatile organic compounds (bis(2-chloroethyl) ether (BCEE), phthalate acid esters, 1, 2, dichloroethane, PCE)

Link: <http://www.nav.dnrec.delaware.gov/DEN3/Detail/FacilityDetail.aspx?id=10153130>

This is a Hazardous Substance Cleanup Act Voluntary Cleanup site. Responsibility for the cleanup is held by the current property owners, Croda & Fuji Films (Croda has taken the technical lead). There is no state liability for this site. The site has been broken into two operable units. Operable unit 1 addresses impacted soil onsite while Operable unit 2 addresses groundwater that has impacted on- and off-site of the facility. Ongoing monitoring and remediation are occurring to address the soil and groundwater contamination. Croda also has an agreement with Artesian Water to address contamination found in Croda's Cherry Lane production well in New Castle.

Two Leaking Underground Storage Tank projects have been initiated at this site. One has been closed and one is being addressed through Hazardous Substance Cleanup Act Cleanup activities. Six Aboveground Storage Tanks have been closed or removed at the site, all containing petroleum products. Minimal contamination existed on-site; all projects are now closed.

