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Reuse and the Benefit to Community A Beneficial Effects Economic Case Study for the Ventron/Velsicol Superfund Site

Introduction

The Ventron/Velsicol Superfund site is located in the boroughs of Carlstadt and Wood-Ridge in Bergen County, New Jersey. Nearly 50 years of mercury processing plant operations, including improper waste disposal, contaminated the soil, groundwater, surface water and sediment on and around the site. EPA and the New Jersey Department of Environmental Protection (NJDEP) collaborated on the site's cleanup. Commercial and light-industrial uses have remained active and expanded on site during cleanup. The site also includes Berry's Creek, which provides recreational amenities such as fishing, crabbing and kayaking, as well as ecological services within the larger watershed.

Superfund site restoration and reuse can revitalize local economies with jobs, new businesses, tax revenues and local spending. This case study explores the cleanup and reuse of the Ventron/Velsicol site, illustrating the beneficial effects of Superfund Redevelopment.

Beneficial Effects

Site businesses employ about 187 people, providing an estimated annual employment income of \$10.9 million and generating over \$124 million in annual sales revenue.

Site properties are currently valued at over \$41 million. They generate about \$1.2 million in annual property tax revenue.

Several on-site businesses are optimizing use of space not only for operations, but also supporting rooftop solar installations that can provide utility cost savings and reduce greenhouse gas emissions.

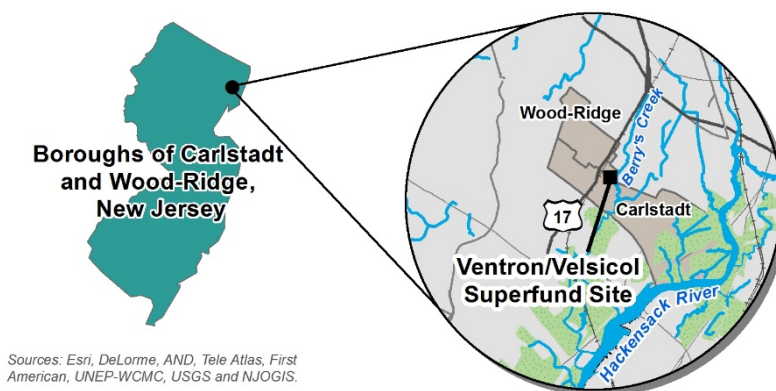


Figure 1. Location of the Ventron/Velsicol site in the boroughs of Carlstadt and Wood-Ridge in Bergen County, New Jersey.

Site History

The Ventron/Velsicol site occupies about 38 acres just outside of New York City. Industrial and commercial properties surround the site to the north, west and south. Berry's Creek and associated wetlands and marshes border the site to the east. The Norfolk Southern Railway runs directly northwest of the site, with additional rail lines splitting off and running through industrial properties on Ethel Boulevard. These rail lines provide freight services to surrounding areas of Bergen County. Current property features include commercial and light-industrial warehouses and associated parking areas. Nearly 12,000 people live within one mile of the site's boundary, based on the population density of overlapping census tracts. Seven percent of people living within one mile of the site's boundary had an income level below the federal poverty level in the past 12 months.

Various companies operated a mercury processing plant on site from 1927 to 1974. F.W. Berk and Company made mercury products at the plant from 1927 until 1960, when the corporation dissolved. In 1960, Wood-Ridge Chemical Corporation (WRCC), a wholly-owned subsidiary of the Velsicol Chemical Corporation (Velsicol), acquired the property and continued mercury processing operations. In 1968, Ventron Corporation (Ventron) purchased WRCC and continued operating the plant until its closure in 1974. Ventron and its corporate successors would later be considered one of the site's potentially responsible parties (PRPs), an entity deemed responsible for the contamination at the site.

Throughout its operations, the facility made organic and inorganic mercury compounds and reclaimed mercury¹ from internal processes and customer waste products such as batteries, thermometers and amalgams. Improper handling and disposal of materials containing mercury and other waste products resulted in soil, groundwater, surface water and sediment contamination. Contaminated areas include the 7-acre former plant area and the 19-acre area next to the former plant once used for dumping wastes, known as the on-site area, as well as two properties across Ethel Boulevard from the former plant area (the off-site area). Ventron directly released contamination to Berry's Creek from the plant via a wastewater discharge pipeline, as well as indirectly via



Figure 2. Warehouses on site. They are located where the mercury processing plant once stood.



Figure 3. The Norfolk Southern rail line splitting off at Ethel Boulevard in front of on-site warehouses.

¹ For information about the health impacts of mercury, see the Agency for Toxic Substances and Disease Registry's Mercury-ToxFAQS™ Fact Sheet: <https://www.atsdr.cdc.gov/toxfaq/tfacts46.pdf>.

overland and groundwater transport of contamination from the area of dumped wastes. These releases resulted site-related wastes contaminating the waterway, tributaries and marshes. The Berry's Creek Study Area (BCSA) is being cleaned up as part of the Ventron/Velsicol Superfund site.

After the plant's closure, a commercial real estate developer by the name of Wolf bought the Ventron property and demolished the mercury processing plant in 1974. NJDEP had begun investigating contamination in Berry's Creek in the mid-1960s and EPA became involved in 1970. With EPA and NJDEP investigations already underway, the additional site-related contamination immediately came to the attention of the agencies. Demolition halted while investigations into the former mercury processing plant property took place. The property owner subdivided the 7-acre former plant property into two parcels and transferred ownership of the western parcel to U.S. Life Insurance Company in 1975, which built a warehouse on the western parcel after removing the upper layer of soil contamination. Wolf built a warehouse on the eastern parcel. This Wolf warehouse reportedly contained mercury-contaminated soil in place under its foundation and under asphalt pavement around the building. EPA added the site to the Superfund program's National Priorities List (NPL) in 1984.

Site Cleanup

Following the confirmation of mercury contamination in Berry's Creek in 1974, NJDEP, with EPA oversight, began leading investigations into the former Ventron property. NJDEP replaced contaminated soil with clean fill and restored the cleaned-up areas at nine nearby residential properties and one publicly-owned property impacted by surface water runoff carrying mercury and other contaminants.

In collaboration with NJDEP, EPA selected a comprehensive cleanup plan to address groundwater and soil contamination for the site, which EPA refers to as operable unit (OU) 1. Later, EPA and NJDEP selected an interim cleanup plan for the BCSA portion of the site, which is referred to as OU2. The OU1 cleanup plan included capping, excavating, disposing contaminated soil off-site, placing a vertical hydraulic barrier to contain groundwater contamination, and ensuring a clean buffer zone between capped areas and Berry's Creek. Cleanup also included land and groundwater use restrictions to prevent exposure to contaminated groundwater and to limit use of site properties to industrial and commercial uses. The OU1 cleanup was completed in 2010.

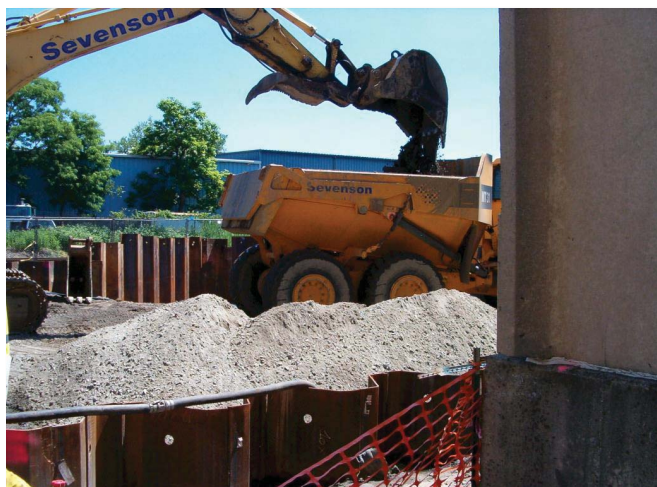


Figure 4. Excavating contaminated soil at the site in 2010.
Source: New Jersey Department of Health



Figure 5. Measuring mercury vapor at the site in 2010.
Source: New Jersey Department of Health

Duke Realty built a new warehouse facility on the 19-acre site area to the east of the Wolf warehouse in 2017. Construction included a vapor barrier to address potential risks from vapor intrusion. Vapor intrusion is the movement of chemical vapors from soil or groundwater into overlying buildings. The soil or asphalt cover over the contamination, concrete flooring along with the vapor barrier inside the new warehouse and groundwater use restrictions protect the health of people working on site.

With EPA oversight, site PRPs completed an investigation of the BCSA (OU2) in 2018. EPA decided on a phased cleanup approach that focused on the areas of greatest risk first and issued the OU2 Berry's Creek interim cleanup plan in 2018. The interim cleanup plan, which focuses on the most highly contaminated areas, includes sediment removal and backfill/capping of the sediment removal area, removing water from the sediment and disposing the contaminated sediment off-site, and long-term monitoring. The cleanup design is underway, and EPA anticipates its completion to allow site preparations to begin in 2024.

Beneficial Effects

Today, the Ventron/Velsicol site remains in the center of an important industrial district of New Jersey with easy access to New York City. Several warehouses for the shipment, crating and packaging of food products, as well as a metal supplier, and an additional warehouse for a business that uses recycled materials for the packaging of various products, all operate on site. These businesses bolster the local economy and help generate local and state tax revenues. Additional land is still available on site for future development or expansion. The Berry's Creek portion of the site includes marshes and waterways that provide ecological habitat for diverse wildlife and support recreational uses.

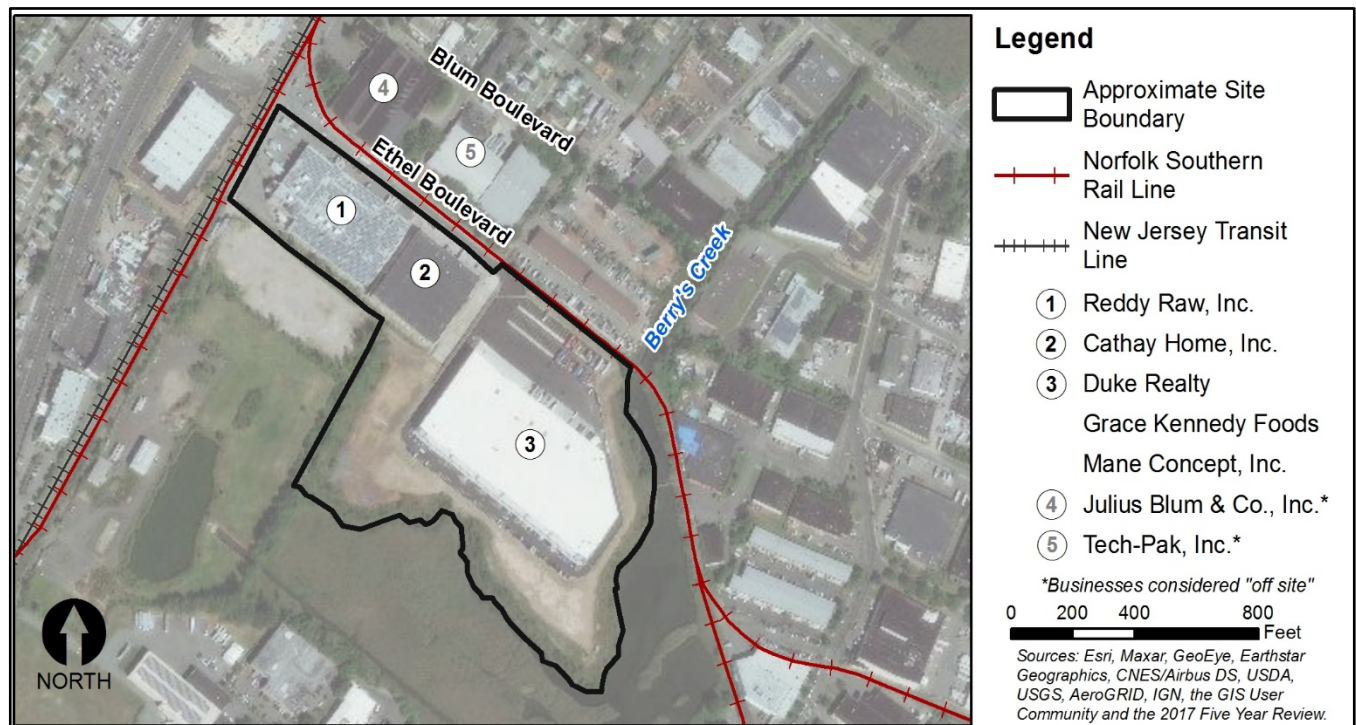


Figure 6. Aerial view of businesses located on site.

Reddy Raw, Inc.

This packaged food wholesaler located at 1 Ethel Boulevard on the site occupies the U.S. Life Insurance warehouse facility. The company delivers minimally processed food products from vendors to chefs. Jobs at the on-site business facility generate over \$5 million in estimated annual employment income. Sales revenue for the business facility on site was nearly \$86 million in 2020.

Cathay Home, Inc.

This on site business located at 3 Ethel Boulevard operates out of one of the Wolf warehouse spaces and makes and imports sheets, quilts and other textiles.

Grace Kennedy Foods

This multinational Caribbean food product distributor originated in Jamaica. The company operates in Duke Realty's LEED (Leadership in Energy and Environmental Design)-certified warehouse at 5 Ethel Boulevard on part of the 19-acre portion of the site to the east of the Wolf warehouse. LEED certification is a globally recognized symbol of sustainability from the U.S. Green Building Council that verifies that buildings meet the highest standards of environmental responsibility. Duke Realty has committed to building only LEED-certified buildings.

The food product distributor imports, packages and delivers dry and canned food products and also uses the warehouse as its U.S. headquarters. Jobs at the on-site business facility provide nearly \$2 million in estimated annual employment income. The 2020 sales revenue for the business facility on site exceeded \$25 million.



Figure 7. Reddy Raw warehouse on site.



Figure 8. Cathay Home, Inc. warehouse.



Figure 9. The Duke Realty warehouse where Grace Kennedy Foods and Mane Concept, Inc. operate.

Mane Concept, Inc.

This company, which operates out of the Duke Realty warehouse on the site, makes and distributes wigs and other hair products. Jobs at the on-site business facility provide nearly \$80,000 in estimated annual employment income. The 2020 annual sales revenue for the business facility on site was \$413,000.

Julius Blum & Co., Inc.

This business provides metal components to architectural industries and is located on the “off site” part of the site across Ethel Boulevard from the U.S. Life Insurance warehouse. The company reduces waste in its operations by reusing old newspaper in its packaging, reusing storage boxes and bins, and providing information on the recycled content in its manufacturing processes for clients seeking LEED certification. Jobs at the on-site business facility provide nearly \$3 million in estimated annual employment income. The business facility on site generated \$11 million in sales revenue in 2020.

Tech-Pak, Inc.

This packaging firm uses processed and recycled materials for packaging and assembly of commercial products. The business is committed “to producing sustainable packaging that is clean, safe and protects the environment and the communities in which we live.” Raw materials used by the business are certified by the Sustainable Forestry Initiative and the Forest Stewardship Council. The business is also located on the “off site” part of the site across Ethel Boulevard from the U.S. Life Insurance and Wolf warehouses. The business branch on site generated \$1.4 million in sales revenue in 2020.



Figure 10. The Julius Blum & Co., Inc. warehouse.



Figure 11. The Tech-Pak, Inc. warehouse.

Solar Energy Facilities on Site

Several buildings at the site have solar installations on their rooftops. In 2005, Julius Blum & Co., Inc. placed eight solar panels on the roof of their Blum Boulevard building. The installed capacity of the rooftop array is 10.2 kilowatts of electricity that can help offset the business's energy usage. In 2011, Reddy Raw, Inc. installed a 480-kilowatt capacity solar array that covers nearly the entire rooftop of its warehouse.

New Jersey's Clean Energy Act of 2018 established a statewide Community Solar Program. The pilot program allows property owners to lease their rooftops or land to solar developers to construct large solar projects that power their communities. Utility customers who participate in the program will receive solar energy from the commercial rooftop projects and also receive a credit on their utility bills. Community solar will therefore enable access to clean energy generation for utility customers currently unable to place solar generation directly on their own properties.

The New Jersey Board of Public Utilities selected Duke Realty in 2020 to host solar projects covering nearly one million square feet of roof space across four New Jersey properties, including Duke Realty's warehouse on the site. Working with Solar Landscape, a community and commercial solar installer, Duke Realty installed a 2.3-megawatt capacity solar array on the rooftop of Duke Realty's warehouse at the site. The project generates enough energy to provide electricity to 380 homes.



Figure 12. Solar arrays on Reddy Raw, Inc. (foreground) and Julius Blum & Co., Inc. (background).

Source: Imagery ©2021 Google. Imagery ©2021 Bluesky, Maxar Technologies, Sanborn, USDA Farm Service Agency, Map data ©2021



Figure 13. The solar array on the Duke Realty warehouse where Grace Kennedy and Mane Concept, Inc. operate.

Source: Imagery ©2021 Google. Imagery ©2021 Bluesky, Maxar Technologies, Sanborn, USDA Farm Service Agency, Map data ©2021

Alternative Energy Reuse at Superfund Sites

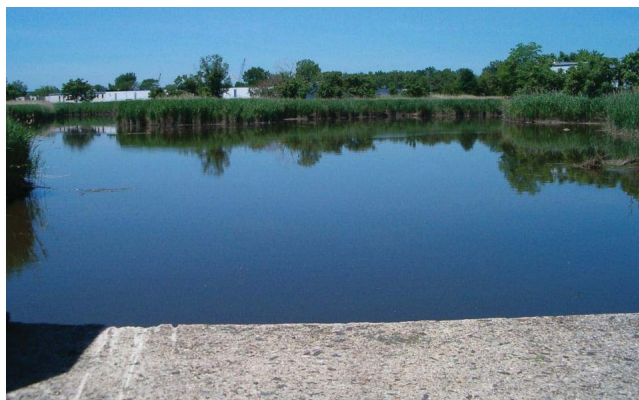
EPA's Superfund Redevelopment Program helps communities reclaim and return contaminated lands to productive use. Alternative energy resources can help communities create jobs and diversify local economies. They also are an important part of America's energy security and environmental sustainability. Superfund sites can be well-suited for alternative energy production. Sites in urban and rural areas near utilities and transportation networks help keep development costs low.

As of September 2020, alternative energy facilities are located at 69 Superfund sites. They support 72 alternative energy projects with an installed capacity of about 395 megawatts, enough to power more than 98,000 homes per year. Of these projects, 76% are solar projects and 7% are wind projects. Biomass, landfill gas and geothermal facilities make up the remaining 17% of the projects. About 26% of the projects offset on-site energy demands of cleanup efforts or directly power site-related cleanup activities.

Berry's Creek: Ecological and Recreational Benefits

The BCSA is in a 12-square-mile urban watershed that feeds into the Hackensack River. Industrial development and landfill operations around Berry's Creek affected surface water and aquatic life. Investigations at different parts of Berry's Creek began in the 1960s. Remedial design for the interim OU2 cleanup plan is underway. The BCSA waterways are currently used for recreational activities such as fishing, crabbing, canoeing and kayaking. NJDEP issues fish and crab advisories to regulate consumption and protect human health.

Berry's Creek is a tidal estuary with the majority of water in the creek coming from the tide. The BCSA contains over 750 acres of marshes and forms part of the New Jersey Meadowlands, a large area of interconnected wetlands and marshes along the Hackensack and Passaic Rivers. BCSA wetlands are a part of the greater New Jersey Meadowlands and sustain a variety of wetland functions and support an array of fauna types. More than 256 bird species use the wetlands that encompass the Meadowlands, and they form a major way station for migratory birds traveling along the Atlantic Flyway. The U.S. Fish and Wildlife Service estimates about 40% of migratory bird species occurring in the eastern United States use these wetlands as a stopover for foraging and resting during spring and fall migrations.



Figures 14 and 15. Publicly accessible areas of Berry's Creek.

Source: New Jersey Department of Health

Property Values and Tax Revenues

On-site properties help generate property tax revenues that support local government and public services. Today, site properties have a combined value of over \$41 million. This includes the two “off site” properties that were also subject to cleanup, across Ethel Boulevard from the former mercury processing plant. In 2020, on- and off-site properties generated about \$1.2 million in total property tax revenues. Businesses also generate tax revenues through the collection of sales taxes, which support state and local governments.²

Conclusion

Collaboration and cooperation among EPA, NJDEP and site PRPs was vital to the site’s successful cleanup and beneficial continued use and reuse. EPA’s and NJDEP’s carefully designed cleanups protect public health and the environment and are compatible with the operations of site businesses. This once-contaminated area now supports businesses that provide jobs and services in the community. The businesses also incorporate environmental initiatives as part of their operations, from installing rooftop solar panels and reducing greenhouse gas emissions to sustainable sourcing of raw materials. Today, site businesses continue to support the local economy, providing about 187 jobs and \$10.9 million in estimated annual employee income.



Figure 16. Aerial view of Berry's Creek.

For more information about EPA's Superfund Redevelopment Program, visit:
<https://www.epa.gov/superfund-redevelopment>.

² The sales tax rate for the state of New Jersey is 6.625%. Bergen County has no additional sales tax. For more information, visit the New Jersey Division of Taxation website at <https://www.state.nj.us/treasury/taxation/ratechange/su-overview.shtml>.



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Technical Appendix

Employment Information for Site Jobs

EPA obtained the data included in this appendix directly from reputable sources and reported the data as presented by those sources. Information on the number of employees and sales volume for site businesses came from the Hoovers/Dun & Bradstreet (D&B) database.¹ D&B maintains a database of over 300 million businesses worldwide. When Hoovers/D&B database research was unable to identify employment and sales volume for site businesses, EPA used the ReferenceUSA database.² These databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates.

Wage and Income Information for Site Jobs

EPA obtained wage and income information from the U.S. Bureau of Labor Statistics (BLS). Part of the U.S. Department of Labor, the BLS is the principal federal agency responsible for measuring labor market activity, working conditions and price changes in the economy. All BLS data meet high standards of accuracy, statistical quality and impartiality.

EPA used the BLS Quarterly Census of Employment and Wages database to obtain average weekly wage data for businesses at the Ventron/Velsicol Superfund site. Average weekly wage data were identified by matching the North American Industry Classification System (NAICS) codes for each type of business with weekly wage data for corresponding businesses in Bergen County. If weekly wage data were not available at the county level, EPA sought wage data at the state or national level. In cases where wage data were not available for the six-digit NAICS code, EPA used higher-level (less-detailed) NAICS codes to obtain the wage data.

To determine the annual wages (mean annual) earned from jobs generated by each of the selected businesses at the Ventron/Velsicol Superfund site, EPA multiplied the average weekly wage figure by the number of weeks in a year (52) and by the number of jobs (employees) for each business.

¹ <http://www.dnb.com>

² <http://resource.referenceusa.com>

Table A-1. Ventron/Velsicol Superfund Site: Information for Site Organizations and Businesses

Site Business	NAICS Code ^a	NAICS Title	Number of Employees ^b	Average Weekly Wage (2019) ^c	Annual Wage (Mean Annual) per Employee	Total Annual Income ^d	Annual Sales (2020) ^b
Cathay Home Inc.	314120	Curtain and Linen Mills	NA	\$1,297	NA	NA	NA
GraceKennedy Foods (La Fe)	488991	Packing and Crating	50 ^e	\$727	\$37,804	\$1,890,200	\$25,454,545
Julius Blum & Co. Inc.	423510	Metal Service Centers and Other Metal Merchant Wholesalers	32	\$1,727	\$89,804	\$2,873,728	\$11,000,000
Mane Concept Inc.	448150	Clothing and Accessories Stores	3	\$512	\$26,624	\$79,872	\$413,000
Reddy Raw, Inc.	424420	Packaged Frozen Food Merchant Wholesalers	90	\$1,076	\$55,952	\$5,035,680	\$85,909,091 ^f
Tech- Pak, Inc.	326150	Paper Bag and Coated and Treated Paper Manufacturing	12	\$1,566	\$81,432	\$977,184	\$1,400,000
Total			187			\$10,856,664	\$124,176,636

^a NAICS code provided by the D&B database.

^b Data are from the D&B database, unless otherwise noted.

^c Average weekly wage per employee based on BLS 2019 Average Weekly Wage data.

^d Total annual income figures calculated by multiplying "Number of Employees" by "Annual Wage (Mean Annual) per Employee."

^e Data are from the ReferenceUSA database.

^f Annual sales value calculated using the "Sales Per Employee" method. In cases where information sources do not provide annual sales data, an estimated annual sales value was calculated using the "Sales Per Employee" method. This method involves dividing the company-wide sales value by the number of employees that work at all branches of the business. That value equals an estimated business sales value per employee for the entire company. That value is then multiplied by the number of employees at the on-site business location to calculate an estimated annual sales value for the site-specific business location.

NA = Not available.

Property Values and Local Tax Revenue Generated from Property Taxes

EPA obtained data on the most recently assessed values for property parcels at the Ventron/Velsicol Superfund site in March 2021 through property records accessible through Bergen County's online property assessment database.^a EPA also obtained 2020 property tax information for the site parcels.^a

Table A-2. Property Value and Tax Summary for Taxes Payable in 2020

Parcel ID No.	Total Market Value of Land and Improvements (2021)	Total Property Tax ^a (2020)
0269_229.02_4	\$12,142,800	\$341,941
0269_229.02_2	\$5,641,300	\$158,859
0269_229.02_1	\$13,078,000	\$368,276
0269_229_2	\$5,450,000	\$153,472
0269_229_1	\$5,184,000	\$145,981
Total	\$41,496,100	\$1,168,529

^a Property value and tax records obtained from the Bergen County property records. <http://bcgisweb.co.bergen.nj.us/parcelviewer/>.