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Reuse and the Benefit to Community A Beneficial Effects Economic Case Study for the Universal Oil Products (Chemical Division) Superfund Site

Introduction

The Universal Oil Products (Chemical Division) Superfund site in East Rutherford, New Jersey, was the location of a chemical and solvent recovery facility from 1932 to 1969. Facility operations polluted nearby soil, wetlands and groundwater. Cleanup actions and coordination among EPA, the state of New Jersey, the New Jersey Department of Environmental Protection (NJDEP), the New Jersey Sports & Exposition Authority (NJSEA) and other stakeholders enabled successful cleanup as well as the development of the Rutherford Commons shopping complex and extension of New Jersey Transit rail lines. Today, the site is home to stream channels and wetlands, commercial businesses and a rail line extension.

Superfund site restoration and reuse can revitalize local economies with jobs, new businesses, tax revenues and local spending. Cleanup may also take place while active land uses remain on site, allowing continued operation of essential public-service facilities such as rail lines. This case study explores the cleanup and reuse of the Universal Oil Products (Chemical Division) Superfund site, illustrating the beneficial effects of Superfund redevelopment.

Beneficial Effects

Site businesses employ over 300 people, providing estimated annual employment income of over \$10 million and generating over \$111 million in annual sales revenue.

Site properties are currently valued at nearly \$57 million. They generate about \$880,000 in annual property tax revenues.

Incorporating remedial design components as part of a new building on site enabled the safe redevelopment of the property and protects indoor air quality.

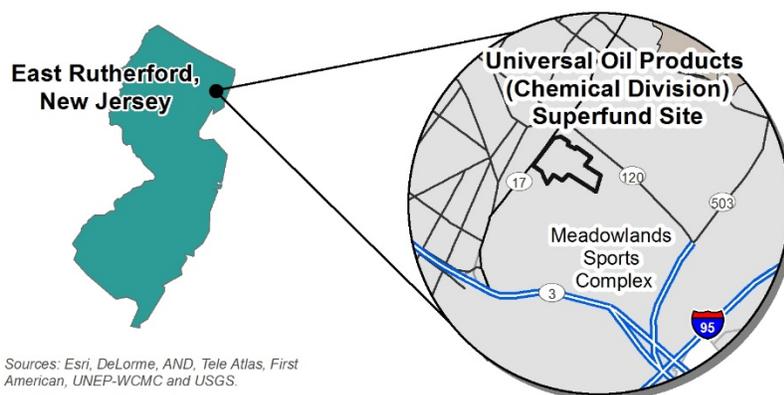


Figure 1. The site's location in East Rutherford, New Jersey.

Site History

The site covers about 74 acres in East Rutherford, Bergen County, New Jersey. Commercial properties are immediately northeast, west and south of the site. Residential areas are located further to the west. The Meadowlands Sports Complex, which includes MetLife Stadium, is southeast of the site. Ackerman's Creek runs through the site into Berry's Creek which runs along the site's eastern extent. Current site features include commercial buildings and associated parking areas, a rail line extension, and wetlands and tidal stream channels. According to the 2019 U.S. Census, about 10,000 people live in East Rutherford.



Figure 2. Ackermans Creek, looking west.

Contamination History

In 1932, Trubeck Laboratories opened an aroma and fragrance laboratory in East Rutherford, New Jersey. Years later, site operations expanded to include the handling of chemical wastes and solvent recovery. Universal Oil Products (UOP) purchased the site property and the facilities in 1960. At the East Rutherford location, UOP developed and made small-batch chemical intermediates for the aroma, pharmaceutical, agricultural, food and fragrance industries. UOP also recovered solvents and waste chemicals at the site. The company's use of wastewater lagoons and the routine handling of raw materials and wastes resulted in the dumping of about 4.5 million gallons of waste solvents and solid chemical wastes into two unlined lagoons, resulting in contamination of site soil, wetlands and groundwater. In 1971, operation of the wastewater treatment plant and wastewater lagoons ceased. All remaining operations at the facility ended in 1979. In 1980, most site structures were demolished. All that remained were concrete slabs and a pipe bridge over the railroad tracks.

In 1983, NJDEP started site investigations and required that UOP conduct a remedial investigation and feasibility study (RI/FS). EPA placed the site on the Superfund program's National Priorities List (NPL) in September 1983. Honeywell International, the site's potentially responsible party (PRP) and current owner of UOP, led a short-term cleanup of the area's lagoons in 1990. NJDEP served as the lead oversight agency from 1982 to 2008. EPA assumed lead oversight responsibility in 2008.

Site Cleanup

To manage the cleanup, EPA divided the site into two areas. Operable unit (OU) 1 includes upland soil. OU2 includes site lagoons, wetlands and sediment.

OU1

EPA selected a remedy for OU1 in 1993. The goal was to make upland soil areas safe for people working on site in the future. Additional investigations found polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons, volatile organic compounds and lead contamination on site. The remedy included excavation and treatment or capping of contaminated soil, institutional controls, and groundwater collection and treatment. Remedy construction began in 1996. EPA updated the cleanup plan in 1998 and in 1999 to remove more soil and improve its treatment and disposal. The PRP completed the OU1 remedy in 2001.

Other OU1 cleanup actions centered on New Jersey Transit’s right of way. The transit system’s Pascack Valley commuter rail line crosses part of the site; the right of way required a different kind of cleanup. Between 2003 and 2005, New Jersey Transit sampled soil and cleaned up right-of-way areas on site and next to it.

Cleanup soon gave way to construction efforts by private developers. As the lead agency for the area’s cleanup at the time, NJDEP issued a determination that the site was ready for redevelopment. The site’s location made it attractive to developers. Commercial construction began in 2005. It included placement and compaction of 3 to 5 feet of clean fill, and installation of geotechnical moisture and vapor intrusion barriers beneath what would become a Lowe’s retail facility to protect indoor air quality. Between 2006 and 2008, several restaurants and stores opened on the western part of the site. They serve area residents and travelers passing through on State Route 17.

OU2

Allied-Signal, the previous owner of the UOP property, led an interim remedial measure under NJDEP oversight to remove PCB-contaminated sediment from the former lagoon system in 1990, involving dredging sediment and transporting it off site for incineration.

Beginning in 2005, Honeywell collected sediment and surface water data in the waterway channels and marshes to investigate the nature and extent of contamination.

In 2010, Honeywell signed an Administrative Order on Consent (AOC) with EPA to complete the RI/FS and conduct a non-time-critical removal action (NTCRA). The 2010 AOC incorporated the former lagoon area as well as the marshes and waterway channels into one operable unit (OU2). Honeywell performed the NTCRA in the northwest corner of OU2 in 2012 and 2013. The NTCRA dug up the former lagoon berms and sediment in areas not addressed during the interim remedial measure and disposed of the material off site. A 1-foot-thick layer of sand backfill was placed in the excavated area.

EPA approved the site’s RI/FS reports in November and December 2018, respectively. EPA selected an interim source control remedy in the site’s 2019 Record of Decision (ROD).



Figure 3. Excavation activities (Source: Honeywell International).



Figure 4. Start of backfill process (Source: Honeywell International)



Figure 5. Excavation work at the lagoon (Source: Honeywell International).

The 2019 ROD selected an interim remedial action to address contaminated sediment in OU2 waterways. Remedial actions include sediment excavation, dewatering and off-site disposal, backfilling of excavated areas, groundwater discharge monitoring, institutional controls, and post-construction monitoring. OU2 remedial actions are ongoing. OU2 was modified in 2019 by an AOC Amendment that added the Ackermans South Area, including Ackermans Creek, to OU2.

Rail Line Expansion

Teamwork and communication among site stakeholders were essential to make sure the cleanup and reuse of OU2 addressed local priorities, including the need for more public transportation. By 2000, NJSEA recognized that the nearby Meadowlands Sports Complex had grown into a regional destination for sports, entertainment and cultural events. At the time, people could reach the area only by car or bus. This led to traffic congestion and limited access to the sports complex for people relying on public transit in northern New Jersey and New York City. Anticipating more population growth, NJSEA recognized the need for a new way for people to reach the sports complex. The solution was a new rail spur, the Meadowlands Rail Spur – a rail line extension connecting the Pascack Valley commuter rail line directly to the sports complex.

NJSEA, New Jersey Transit, the New Jersey Department of Transportation and EPA assessed options for the Meadowlands Rail Spur during the project’s design phase in 2004. In August 2005, NJSEA released an environmental impact statement for the project. It stated that the preferred rail spur route would cross part of the site – the lagoons in OU2 – that had not yet been cleaned up, in order to reduce environmental impacts and construction costs and allow for future growth. EPA facilitated the expedited development of the Meadowlands Rail Spur, putting it into use before the entire OU2 remedy was in place to accommodate state, local and community interests.

The rail line extension required well-coordinated construction and cleanup for the entire width of the rail line right of way extending across the site as well as additional coordination for construction of off-site parts of the rail line. In 2005, off-site rail line construction began. Cleanup of potentially impacted OU2 areas soon followed. NJSEA purchased the OU2 property in 2006 and led the interim remedial measure between April and June 2007 while off-site rail line construction continued. Interim remedial efforts for the extension included soil and sediment removal and off-site disposal. Construction of the elevated rail line began shortly after cleanup of the right of way. Construction teams, NJSEA, New Jersey Transit, EPA and NJDEP communicated frequently throughout the design phase, the remedial phase and the construction phase. The Meadowlands Rail Spur officially opened in July 2009. Contractors completed all rail station construction work in August 2010.



Figure 6. Rail line construction, October 2007 (Source: NJSEA).



Figure 7. Rail line construction, April 2009 (Source: NJSEA).

Across the site, the PRP conducts routine maintenance activities, including mowing and grubbing the capped area and filling any areas that may show signs of erosion or damage from burrowing animals. Inspections take place semi-annually. They inspect the capped area, drainage structures, and security fences and locks.



Figures 8-10. Rail line construction, April 2008 (Source: NJSEA). Rail line construction, December 2008 (Source: NJSEA). The Pascack Valley Line in the foreground and the Meadowlands Rail Spur in the background in 2013.



Legend

-  Approximate Site Boundary
-  Railroad
- ① Lowe's Home Improvement Center
- ② Chili's Restaurant
- ③ FedEx Office Print & Ship
- ④ Five Guys Restaurant
- ⑤ Starbucks

0 250 500 1,000
Feet

Sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, the GIS User Community and the 2019 ROD.

Figure 11. A map of the Universal Oil Products (Chemical Division) site and the locations of some site reuses.

Beneficial Effects

Today, the site supports public transit and commercial reuses; businesses are located in the Rutherford Commons shopping complex at OU1. Businesses on site bolster the local economy and help generate local and state tax revenues. The rail line extension that runs across the site alleviates traffic congestion in the area and provides direct access to the Meadowlands Sports Complex.

Meadowlands Rail Spur

The Meadowlands Rail Spur is two-and-a-half miles long. Part of it crosses OU2. The Meadowlands Rail Spur runs about 30 days each year for football games, concerts, and other stadium events where attendance exceeds 50,000 people. The rail line provides visitors easy access to the Meadowlands Sports Complex in addition to alleviating traffic congestion in the area. During a football game, the rail service replaces an estimated 170,000 vehicle miles travelled and 3,200 vehicle trips. Construction of the entire spur, including the station in the Meadowlands Sports Complex, supported about 1,100 jobs during construction. In 1999, before the construction of the rail spur, the value of the two property parcels the rail line runs through was \$1.5 million. In 2020, the combined value of those property parcels is \$9.4 million.



Figure 12. A sign listing the businesses located at the shopping center on site.

Lowe's Home Improvement Center

This home improvement center is the largest employer on site. It is located on the southwest part of the site, in the southern half of the Rutherford Commons shopping complex. In addition to home improvement goods, the Lowe's also has a garden center and offers regular workshops and a ProService desk for professionals. It generates an estimated \$99 million in annual sales.

Chili's Restaurant

This restaurant has been on site since 2006. It generates an estimated \$4 million in annual sales.

FedEx Office Print & Ship

The FedEx location in Rutherford Commons provides copy and print, packing and shipping, and photo printing services to customers. This location also enables customer pickup of online orders and passport renewals. It generates over \$2 million in estimated annual sales.

Five Guys

This restaurant in Rutherford Commons opened in 2010. It sells burgers, fries and shakes for dining in and takeout. It generates over \$270,000 in estimated annual sales.

Starbucks

This coffee shop location opened in Rutherford Commons in 2007. It features a drive through. The business generates over \$1.4 million in estimated annual sales.

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 nearly \$57 million and generate over \$880,000 in total annual property tax revenues. On-site businesses also generate tax revenues through the collection of sales taxes, which support state and local governments.¹



Figure 13. The Lowe's home improvement store on site.



Figure 14. The Chili's restaurant on site.



Figure 15. A row of businesses at the shopping center on site.

¹ The New Jersey sales tax rate is 6.625%. It is a single tax rate for the entire state. For more information, see <https://www.state.nj.us/treasury/taxation/ratechange/su-overview.shtml#:~:text=Effective%20January%201%2C%202018%2C%20the,Sales%20Tax%20rate%20was%207%25.>

Conclusion

Collaboration and cooperation among EPA, PRP and developers was vital to the site's successful cleanup and beneficial reuse. EPA's carefully designed cleanups protect public health and the environment and took future use considerations into account. This once-contaminated area now supports businesses that provide jobs and services to the community. Today, on-site businesses support local economic growth, providing over 300 jobs, over \$10 million in estimated annual employment income and over \$111 million in annual sales revenue.



Figure 16. People using the Meadowlands Rail Spur during an event at the Meadowlands Sports Complex (Source: NJSEA).

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



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Technical Appendix

Employment Information for On-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 on-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 on-site businesses, EPA used the ReferenceUSA database.² These databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates. While sales values typically exceed estimated totals of annual income, sales can sometimes be lower than estimated income. This could be attributed to a number of business conditions and/or data reporting.

Wage and Income Information for On-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 Universal Oil Products (Chemical Division) 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 by state or national level, respectively. 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 Universal Oil Products (Chemical Division) 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. Universal Oil Products (Chemical Division) Superfund Site: Information for On-Site Organizations and Businesses

On-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 (2019) ^b
Asian Grill	722513	Limited-Service Restaurants	10	\$371	\$19,292	\$192,920	\$195,000
Chili's, Inc. (Chili's)	722511	Full-Service Restaurants	70	\$498	\$25,896	\$1,812,720	\$4,106,000 ^e
Chipotle Mexican Grill	722513 ^e	Limited-Service Restaurants	20 ^e	\$371	\$19,292	\$385,840	\$1,327,000 ^e
FedEx Office and Print Services, Inc. (FedEx Office Print & Ship)	323111	Commercial Printing (except Screen and Books)	7	\$1,147	\$59,644	\$417,508	\$2,020,921 ^f
Five Guys Burgers	722513	Limited-Service Restaurants	16	\$371	\$19,292	\$308,672	\$272,000 ^g
Jersey Mike's Subs	722513 ^e	Limited-Service Restaurants	10 ^e	\$371	\$19,292	\$192,920	\$948,000 ^e
Lowe's Home Centers, LLC (Lowe's #1942)	444110	Home Centers	150	\$743	\$38,636	\$5,795,400	\$99,476,000 ^e
Massage Envy Spa (Massage Envy Spa #992)	812199	Other Personal Care Services	2	\$597	\$31,044	\$62,088	\$54,000 ^g
Mattress Firm	442110 ^e	Furniture Stores	1 ^e	\$803	\$41,756	\$41,756	\$576,000 ^e
Salad Works	722513 ^e	Limited-Service Restaurants	5 ^e	\$371	\$19,292	\$96,460	\$316,000 ^e
Starbucks Corporation (Starbucks)	722513 ^e	Limited-Service Restaurants	14	\$371	\$19,292	\$270,088	\$1,453,000 ^e
Supercuts	812112	Beauty Salons	2	\$481	\$25,012	\$50,024	\$47,000 ^g
The Vitamin Shoppe	446191 ^e	Food (Health) Supplement Stores	7 ^e	\$616	\$32,032	\$224,224	\$837,000 ^e

On-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 (2019) ^b
Wireless World Communications (Verizon Wireless Authorized Retailer)	517312	Wireless Telecommunications Carriers (except Satellite)	2	\$2,361	\$122,772	\$245,544	\$74,000 ^g
Totals			316			\$10,096,164	\$111,701,921

^a NAICS code provided in the D&B database, unless otherwise noted.

^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 derived 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.

^g While sales values typically exceed estimated totals of annual employee income, annual reported sales can sometimes be lower than estimated annual income. This atypical condition of estimated income exceeding sales can be a result of business conditions, estimated business wages not accurately reflecting actual wages for a site business, annual sales being underreported, a business loss for the year or a combination of those factors.

Property Values and Local Tax Revenue Generated from Property Taxes

EPA obtained data on the most recently assessed values for property parcels at the Universal Oil Products (Chemical Division) Superfund site in January 2020 through property records accessible through the New Jersey Assessment Records Search.³ EPA also obtained 2019 property tax information for the site parcels.

Table A-2. Property Value and Tax Summary

Parcel ID No.	Total Assessed Value of Land and Improvements (2020)	Total Property Tax (2019)
0212_104_1.01	\$33,622,700	\$621,464
0212_104_1.02	\$12,977,100	\$241,404
0212_105.01_11	\$533,700	\$9,777
0212_105.01_12	NA ^a	NA ^a
0212_105.01_13	NA ^a	NA ^a
0212_105.01_14	\$426,500	\$7,813
0212_105.01_8	\$6,773,300	\$0 ^b
0212_105.01_9	NA ^a	NA ^a
0212_105.02_5	\$2,623,500	\$0 ^b
0212_105.02_6	NA ^a	NA ^a
Totals	\$56,956,800	\$880,458

^a No property value or tax information available for the parcel.

^b Property belongs to the publicly owned Meadowlands Sports Complex and is tax exempt.

³ http://tax1.co.monmouth.nj.us/cgi-bin/prc6.cgi?district=0212&ms_user=monm.