Executive Summary

Beginning in 1940, the Naval Industrial Reserve Ordnance Plant (NIROP) and FMC Corp. (Fridley Plant) Superfund sites in Fridley, Minnesota, designed and manufactured advanced naval weapons. The two sites played an important role during World War II by supplying the U.S. Navy with weapons and equipment. After the war, weapons design and manufacturing continued on parts of the two sites. Site activities contaminated site groundwater, surface waters and soils. Potentially responsible parties (PRPs) worked with the U.S. Environmental Protection Agency (EPA) and state officials to ensure the safe commercial and industrial use of the sites, during and after cleanup.

Today, the sites are home to the Northern Stacks Industrial Park, which occupies the two sites plus additional land in between the two. The industrial park will support a variety of commercial and industrial businesses once construction is fully complete. This case study explores the area’s cleanup and reuse, illustrating the opportunities and beneficial effects of Superfund redevelopment in action.

Beneficial Effects

- Final construction of the industrial park will include eight buildings, which will support technology-related businesses, office space and bulk distribution.
- Current site businesses employ 628 people, providing annual income of over $47 million to the community.
- In 2016, site properties generated over $1.1 million in tax revenues and have an estimated property value of nearly $44 million.
Introduction

Site restoration and reuse can revitalize a local economy with jobs, new businesses, tax revenues and spending. This case study captures the beneficial effects of the redevelopment at the NIROP and FMC Corp. (FMC) Superfund sites.

The sites occupy about 122 acres and make up the new Northern Stacks Industrial Park in Fridley, Minnesota. The sites are located south of Interstate 694 and east of Interstate 94 and the Mississippi River. Industrial and commercial land surround the sites to the north, east and south, while residential lands surround the sites to the east and west. The towns of Hilltop and Columbia Heights are located east of the site. About 8,400 people live within a 1-mile radius of the sites.¹

Figure 2. NIROP and FMC Corp. Site boundaries. Source: Minnesota Pollution Control Agency (MPCA).

¹ According to EPA’s web tool, Enviromapper: https://www.epa.gov/emefdata/em4ef.home.
Site History

The two sites were instrumental in manufacturing and supplying the U.S. Navy with advanced naval weapons and equipment during World War II. The northern site, NIROP, was originally owned by the U.S. Navy, while the southern site, FMC Corp., was originally owned by FMC.

Operations at both sites led to contamination. From 1940 until 1969, FMC operators disposed of plating wastes, paint, paint sludge, oils, bottom ash and solvents in an on-site landfill. In the early 1970s, operators at the NIROP site began to dispose of paint sludge and solvents in pits and trenches on a part of the site called the North 40 area. Improper waste disposal practices led to groundwater, surface water and soil contamination at both sites.

In 1980, Minnesota Pollution Control Agency (MPCA) staff received information regarding past disposal practices at both sites. MPCA ordered site operators to conduct initial investigations to determine the extent of contamination. These initial site investigations discovered volatile organic compounds (VOCs), primarily trichloroethene (TCE), in site soils, groundwater and nearby surface waters. During investigations, several emergency response actions were performed, which included removing contaminated drums and some site soils. EPA listed the FMC site on the Superfund Program’s National Priorities List (NPL) in September 1983 and the NIROP site in November 1989.

Site Cleanup

FMC Corp. (Fridley Plant)

MPCA selected the cleanup plan for FMC and EPA concurred in a September 1987 Record of Decision (ROD). The ROD designated cleanup actions under one operable unit (OU) for contaminated groundwater because EPA determined that site soils were remediated following the emergency removal action. Site cleanup began in 1987 and included groundwater extraction and treatment, groundwater monitoring and institutional controls to restrict groundwater use.

In December 1987, FMC completed construction of the five-well groundwater extraction system. Following treatment, the system discharged to the sanitary sewer system under a Metropolitan Council Environmental Services permit. From 1988 through 2012, the groundwater extraction system removed about 19,900 pounds of VOCs, including about 16,600 pounds of TCE. In 2013, EPA and MPCA issued an Explanation of Significant Differences (ESD) requiring installation of an air stripper to treat extracted groundwater and the shutdown of one...
of the extraction wells. Treated groundwater is now discharged to the Mississippi River via the storm sewer under a National Pollutant Discharge Elimination System permit. Groundwater monitoring is ongoing. Current institutional controls preventing use of contaminated groundwater include Minnesota Rule 4725, which limits well construction on site, and the City of Fridley’s requirement for municipal water supply use. MPCA is now the lead agency for the site.

NIROP

In order to manage cleanup of the NIROP site, EPA divided the site into three OUs: OU1 addressed contaminated groundwater; OU2 addressed contaminated soils within the legal boundaries of the site, excluding soils underlying the former plating shop; and OU3 addressed soil underlying the former plating shop. EPA selected a cleanup plan to address OU1 contamination in a September 1990 ROD. The remedy for OU1 included a pump-and-treat system to remove VOCs, with discharge initially to the sanitary sewer system, and then to the Mississippi River in 1998. The Navy began operating the pump-and-treat system in June 1991 and still operates it today. Today, operation and maintenance activities continue as prescribed in the ROD.

During the 1990s, the Navy continued soil investigations and performed several more emergency response actions to remove contaminated drums and site soils. EPA signed the ROD for OU2 and OU3 in September 2003. The remedy called for institutional controls to restrict certain land uses and to prohibit the disturbance of soil at certain site locations. The Navy recorded these institutional and land use controls in a deed restriction, which is still enforced today.

Redevelopment Efforts

In June 2004, the Navy sold the NIROP site buildings and property to United Defense Limited Partnership (UDLP), who in turn sold the site property to another private company, ELT Minneapolis LLC, in June 2005. The Navy still remained in charge of cleanup efforts at the site. In November 2005, ELT Minneapolis LLC began leasing the former Navy buildings to British Aerospace Engineering Systems (BAE) as a defense weapons manufacturing facility. During this same time, FMC continued to own the southern site. While BAE operated out of the former Navy buildings, the remaining area of both sites sat idle with no reuse plans in place, soil contamination still below the former plating shop on NIROP, and cleanup actions still incomplete. In a growing industrial area, the sites were ideal for new industrial and commercial development, but remained unusable as long as contamination remained in place at concentrations above levels acceptable for industrial or commercial use.

In 2012, Paul Hyde of Hyde Development, a local development company located in Minneapolis, began to envision opportunities for productive reuse of the sites. Hyde Development had formerly redeveloped several other Superfund sites in Minnesota, including the Joslyn Manufacturing & Supply Company and Boise Cascade/Onan Corporation/Medtronic Inc. sites. Such prior work showed that the company had experience in working with contaminated and formerly contaminated land. As a first step toward reuse, Hyde Development initially contacted EPA about redevelopment opportunities at the NIROP site. In order for redevelopment to occur, EPA made it clear that the sites would need to be cleaned up to a level that would allow for commercial and industrial uses. However, there were complications in achieving that goal.
Redevelopment Roadblocks

Since the reuse area involved two different Superfund sites, Hyde Development and all relevant parties interested in redevelopment had to determine the jurisdiction over the various parts of the site. The Navy no longer owned the property associated with NIROP, but was still in charge of cleanup at the site, while FMC still owned the southern site. Further complicating things, NIROP was a federal facility (a site formerly used by a federal government agency), meaning Hyde Development had to work with a very large organization, and not just a smaller, private PRP. Another priority for redevelopment was expediting cleanup actions to allow for commercial and industrial use of the sites. To speed cleanup, Hyde Development and EPA considered enrolling the sites in Minnesota’s Voluntary Investigation and Cleanup (VIC) program. The program is independent of federal and state Superfund programs and would allow the needed cleanup actions to occur more quickly. However, the VIC program route required EPA and MPCA to allow the VIC program to be the lead agency on the cleanup. Recent testing at the time revealed that site soils on NIROP had been cleaned up to levels specified in the ROD, meaning the Navy had met their obligation to remediate site soils (OU2), and EPA was no longer required to oversee site soil cleanup. On the state side, the MPCA Superfund division was interested in deleting as many OUs from the NPL on both sites as possible. Therefore, with the possibility that the additional cleanup actions could achieve the deletion goal, MPCA Superfund division also agreed to step aside to support remaining cleanup under the VIC program.

Since November 2005, BAE had been leasing the former Navy buildings for defense weapons manufacturing. After the end of the Afghanistan and Iraq wars, demand for defense weapons manufacturing greatly decreased. In response to decreased demand, many defense contractors, including BAE, started consolidating manufacturing plants. BAE consolidated the Fridley plant with their St. Louis plant, resulting in only the engineering team remaining on site. While the engineering team wanted to stay in Fridley due to their long-time presence there, BAE no longer needed to lease all the former Navy buildings. With lease renewal upcoming, BAE considered relocating the engineering team. Through careful planning and determination, Hyde Development was able to help convince BAE to continue onsite operations, allowing Hyde Development to showcase an example to potential tenants of what development could look like on the Site.

The first step involved drafting a new lease agreement for BAE, stipulating that BAE would operate out of about half the space they had formerly occupied at a rate agreeable to both parties. The second step required that Hyde Development would simultaneously remodel BAE’s current space to better fit the recent change in facility operations, while allowing BAE to operate during the remodeling. Finally, as part of the additional cleanup actions under the VIC program, all remaining unused, former Navy buildings would be demolished to make space for new development.

With both EPA and MPCA agreeing to let the VIC program take the lead, the NIROP and FMC sites were enrolled in Minnesota’s VIC program. However, remaining site contamination below the former plating shop (OU3), was still the Navy’s responsibility. Existing institutional controls prevented the space from being excavated without approval, and the amount of contamination below the concrete was still unknown. Therefore, the Navy was hesitant to

Figure 4. The former Navy smoke stacks, which serve as the inspiration for the name of Northern Stacks Industrial Park.
potentially expose large amounts of contamination underneath the concrete because they had already fulfilled their cleanup obligation for site soils. Hyde Development had hoped to redevelop this space, but this would not be possible with contamination remaining in place. To address the issue, developers discussed the benefits of addressing the contamination directly with the Navy. By addressing the contamination at the source, the Navy would most likely reduce the time for groundwater remediation, while also completely addressing remaining OU3 cleanup. The Navy ultimately agreed to pay for the excavation and cleanup of the contamination.

VIC Cleanup Actions and Redevelopment Construction

Hyde Development began designing the redevelopment before the selection of VIC cleanup plans. Starting in 2012, the redevelopment team designed the four-phase project. In July 2013, before completing design plans, Hyde Development purchased the entire 122 acres (including both sites as well as the land in between the two sites). Around this same time, the VIC program began designing cleanup plans for the two sites. In the end, cleanup plans involved excavating and treating contaminated soil beneath the plating shop. The treated soils would later be placed underneath a capped, on-site area. In early 2014, Hyde Development completed redevelopment plans and named the redevelopment project Northern Stacks Industrial Park (Northern Stacks), inspired by two former Navy smoke stacks, which were to remain on site. The redevelopment involved four phases: construction of bulk distribution and office warehouse buildings in Phase I, the BAE renovation in Phase II, construction of more office warehouse buildings in Phase III and construction of bulk distribution and office warehouse building in Phase IV.

With cleanup plans completed, the VIC program began cleanup actions at both sites in the spring of 2015. VIC cleanup actions included excavating contaminated soils beneath the plating shop, treating the soils and placing these treated soils beneath a cap that was constructed underneath Phase III. The Navy and MPCA had worried that there would be a staggering amount of contaminated soil beneath these areas, however, the amount of contaminated soil ended up being about a quarter of the originally expected amount.

Although cleanup actions were not yet completed, Hyde Development began construction on areas that were not affected by voluntary cleanup actions in July 2014. Hyde Development completed construction of the first Phase I building of Northern Stacks Industrial Park, called Stacks 1, in January 2015. Stacks 2, the second building of Phase I, was started in April 2016 and was completed in September 2016. Stacks 3, the first building of Phase III construction, began construction in September 2016 and is scheduled to reach completion in the spring of 2017. Construction begin and end dates for the other buildings and phases are yet to be decided.

“We quantify the uncertainty, understand the risk, and then address the risk.”

- Paul Hyde
Beneficial Effects

The selected remedy and cleanup actions protect human health and the environment while enabling new industrial and commercial development. Phase II, the BAE renovation, began in early 2015 with completion in December 2015, and is now fully operational. By July 2016, all tenants for Stacks 1 started operations, including Kaufman Container, Lindenmeyr Munroe and OnTrac Express Services. Tenants in Stacks 2 will include Trio Supply Co. and MB2 Raceway. In total, current operational site businesses employ 628 people and provide over $47 million in annual employee income. The 2015 sales for these businesses totaled nearly $110 million. While individual economic data are not available for some current and future site businesses, it is estimated that the Stacks 1 building employs about 100 people in total, and the Stacks 2 building will have similar employment numbers. The section below highlights the beneficial effects of the new site uses in greater detail.
British Aerospace Engineering (BAE) Systems, Inc.
Headquartered in Arlington, Virginia, BAE Systems, Inc. provides support for a wide range of defense and military systems, designs and manufactures electronic systems for military and commercial applications, and produces specialized security and protection products.\(^2\) This particular branch specializes in research and development for search detection and navigation instruments and provides nearly $45 million in annual employee income. BAE’s 2015 sales reached $82.7 million.

Kaufman Container
Operating since 1910, Kaufman Container manufactures packaging for many industries, including the food and beverage, industrial chemical, household chemical, health care and cosmetics industries.\(^3\) The company operates out of a 50,000-square-foot leased portion of the building with 32-foot ceilings. The branch contributes over $620,000 in annual employee income. Annual sales in 2015 reached nearly $7.5 million.

Lindenmeyr Munroe
Specializing in paper and packaging distribution services, Lindenmeyr Munroe also performs consulting services for inventory management, e-commerce solutions, product sourcing and the creation and implementation of environmental initiatives. Currently headquartered in Purchase, New York, the company was originally founded in 1859 in Lower Manhattan as Lindenmeyr Paper.\(^4\)

OnTrac Express Carriers
OnTrac Express Carriers offers a variety of shipping services to meet most regional shipping needs, including overnight shipping. After first expanding throughout the western U.S., this particular branch is the company’s first expansion into Minnesota.\(^5\) This branch contributes nearly $2 million in annual employee income and generated over $19.2 million in annual sales in 2015.

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\(^3\) [http://www.kaufmancontainer.com/about/markets.asp](http://www.kaufmancontainer.com/about/markets.asp).
\(^5\) [https://www.ontrac.com/services.asp](https://www.ontrac.com/services.asp).
**Trio Supply Co.**

Founded by three individuals in 1985, Trio Supply Co. is a leading Minneapolis supplier of institutional food service disposables as well as janitorial and sanitary products. The company’s primary customer base includes restaurants, schools, hospitals and government agencies. The company operates at two locations in Minnesota, one of which is located off site. In 2015, company-wide sales for both business branches were estimated at $20 million.

**MB2 Raceway**

Beginning operations in Los Angeles County, California, MB2 has expanded operations into Ventura and Fresno Counties in California, as well as Des Moines, Iowa. This Minneapolis location will represent the company’s second venture into the Midwest and will provide the area with high-speed indoor go-kart racing that is fun for all ages and skill levels. The raceway will operate out of a 55,000-square-foot facility.

**Property Values and Tax Revenues**

On-site properties help generate property tax revenues that support local government and public services. During the 2015-2016 fiscal year, the six property parcels that make up the Northern Stacks Industrial Park generated over $1.1 million in property taxes for Anoka County. Currently, site properties have a total estimated land value of nearly $11.9 million and total estimated improvement value of nearly $32 million. In total, site properties are valued at nearly $44 million. On-site businesses that produce retail sales and services also generate tax revenues through the collection of sales taxes, which support state and local governments.

**Conclusion**

Cooperation among EPA, the state of Minnesota, redevelopers and the PRPs has been instrumental to the successful cleanup and reuse of the Naval Industrial Reserve Ordnance Plant (NIROP) and FMC Corp. (Fridley Plant) Superfund sites. Voluntary cleanup actions and the overcoming of significant challenges laid the groundwork for redevelopment at the sites. When construction of the Northern Stacks Industrial Park is complete, it will support a wide variety of commercial and industrial uses. Current on-site businesses also support local economic growth, providing 628 jobs and over $47 million in estimated annual employee income.

For more information about EPA’s Superfund Redevelopment Initiative (SRI), visit: 

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6. [http://triosupply.com/about.html](http://triosupply.com/about.html).
8. The combined sales tax rate in Anoka County is 7.125 percent. This combined rate includes sales tax rates for the state, county and city. For more information, see the web page: [http://www.taxrates.com/state-rates/minnesota/counties/anoka-county](http://www.taxrates.com/state-rates/minnesota/counties/anoka-county).
Technical Appendix

Employment Information for On-site Jobs
EPA obtained the data included in this Technical 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. EPA also gathered information on businesses and corporations from D&B.

D&B maintains a database of over 225 million active and inactive businesses worldwide. Database data include public records, financials, private company insights, extensive global information, telephone numbers and physical addresses.

When Hoovers/D&B database research could not identify employment and sales volume for on-site businesses, EPA used the Manta database. In cases where Manta did not include employment and sales volume for on-site businesses, EPA used the ReferenceUSA database. These databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates. In some instances, business and employment information came from business representatives.

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. Its mission is to collect, analyze and disseminate essential economic information to support public and private decision-making. 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 Naval Industrial Ordnance Plant (NIROP)/FMC Corp. (Fridley Plant) Superfund sites. 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 Anoka 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 Naval Industrial Ordnance Plant (NIROP)/FMC Corp. (Fridley Plant) Superfund sites, 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.
<table>
<thead>
<tr>
<th>On-site Business</th>
<th>NAICS Code</th>
<th>NAICS Title</th>
<th>Number of Employees</th>
<th>Average Weekly Wage (2014)</th>
<th>Annual Wage (Mean Annual) per Employee</th>
<th>Total Annual Income</th>
<th>Annual Sales (2015)</th>
</tr>
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<tbody>
<tr>
<td>Bae Systems Land &amp; Armaments L.P.</td>
<td>334511^e</td>
<td>Search Detection &amp; Navigation Instruments</td>
<td>550^f</td>
<td>$1,561</td>
<td>$81,172</td>
<td>$44,644,600</td>
<td>$82,703,081^g</td>
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<tr>
<td>Kaufman Container</td>
<td>423840^h</td>
<td>Industrial Supplies Merchant Wholesalers</td>
<td>10^i</td>
<td>$1,195</td>
<td>$62,140</td>
<td>$621,400</td>
<td>$7,481,000^i</td>
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<td>Lindenmeyer Munroe</td>
<td>424110^h</td>
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<td>$1,458</td>
<td>$75,816</td>
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<td>Couriers and Express Delivery Services</td>
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<td>$564</td>
<td>$29,328</td>
<td>$1,994,304</td>
<td>$19,253,248^e</td>
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<td>$62,140</td>
<td>NA</td>
<td>NA</td>
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<td>711212^h</td>
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<td>$636</td>
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<td>Total</td>
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<td></td>
<td></td>
<td>$47,260,304</td>
<td>$109,437,329</td>
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^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 2014 Average Weekly Wage data.
^d Total annual income figures derived by multiplying “Number of Employees” by “Annual Wage (Mean Annual) per Employee.”
^e NAICS code provided by the ReferenceUSA database.
^f Data provided by Paul Hyde, of Hyde Development, on 8/1/2016.
^g 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 can be 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 business, for all locations. 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.
^h NAICS code assumed based on business type.
^i Value provided by ReferenceUSA.
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 Naval Industrial Ordnance Plant (NIROP)/FMC Corp. (Fridley Plant) Superfund sites in July 2016 through property records accessible through Anoka County’s online database: [https://prtinfo.co.anoka.mn.us/(21mas0qr2km0ptzkruyqvs45)/search.aspx](https://prtinfo.co.anoka.mn.us/(21mas0qr2km0ptzkruyqvs45)/search.aspx). EPA also obtained 2016 property tax information for the site parcels.

Table 2. Property Value and Tax Summary for Taxes Payable in 2016

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<tr>
<th>Parcel ID No.</th>
<th>Parcel Address</th>
<th>Land Value</th>
<th>Improvement Value</th>
<th>Total Market Value of Land and Improvements (Tax Year 2017)</th>
<th>Total Property Tax (2016)</th>
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<td>27-30-24-13-0004</td>
<td>4800 East River Rd. NE</td>
<td>$19,610,700</td>
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<td>41 Northern Stacks Dr. NE</td>
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<td><strong>$31,982,100</strong></td>
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