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Reuse and the Benefit to Community

# Sherwood Medical Co. Superfund Site

## Executive Summary

Two businesses operate at the Sherwood Medical Co. Superfund Site in Norfolk, Madison County, Nebraska – a medical device manufacturer and a property management company. Since 1961, companies have manufactured medical supplies on a portion of the site. Waste disposal practices during the 1960s and 1970s impacted area soil and groundwater with volatile organic compounds (VOCs). Cooperation between the U.S. Environmental Protection Agency (EPA) and the site's potentially responsible party (PRP) has resulted in the successful implementation of cleanup activities and continued industrial and residential use of the site. Project priorities included designing a remedy compatible with existing site uses and providing on-site residents with a permanent and safe drinking water supply.

This case study explores the site's cleanup and continued use, illustrating the opportunities and beneficial effects of Superfund redevelopment in action.

### Beneficial Effects

- **Site businesses employ about 385 people, providing annual employment income of nearly $20 million to the local community.**
- **Recent construction of a vapor extraction system pilot test by the site's PRP is expected to improve the efficiency of groundwater cleanup efforts and result in lower long-term cleanup costs.**
- **In 2014, site properties generated nearly $104,000 in tax revenues and had an estimated property value of over $6.3 million.**
- **Early cleanup efforts resulted in the permanent provision of a clean water supply to the residential community on site.**

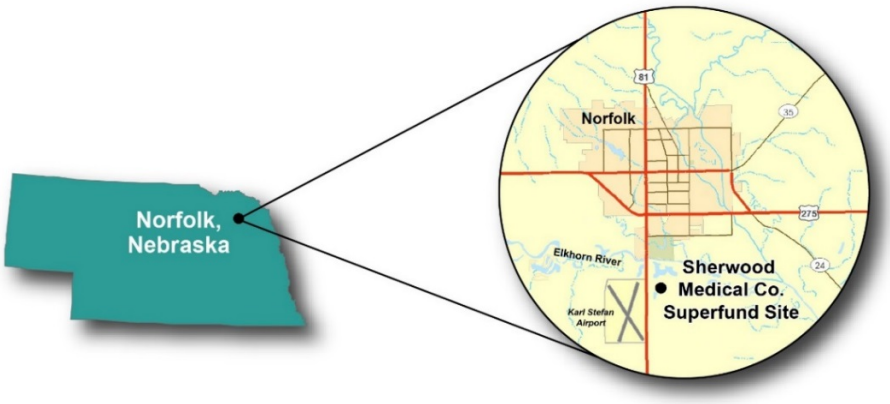


**Figure 1. The site's location near Norfolk in Madison County, Nebraska.**

## Introduction

Superfund cleanups restore value to properties and benefit surrounding communities. Once a property is ready for reuse, it can strengthen a local economy by supporting jobs, new businesses, tax revenues and spending. Cleanup may also take place while there are active land uses on site. This case study captures the beneficial effects of continued uses at the Sherwood Medical Co. Superfund site.

The 66-acre site is located about three miles south of the center of the City of Norfolk, in Madison County, Nebraska (Figure 1). An active manufacturing facility operates on the southern 47 acres of the site. A mobile home park occupies the northern 19 acres of the site (Figure 2). U.S. Highway 81 and Karl Stefan Airport border the site to the west. Sherwood Road lies to the south. Bonita Drive runs along the site's northern boundary. Industrial, commercial, agricultural and residential properties surround the site. According to 2014 Census estimates, about 24,000 people live in Norfolk.

## Site History

The Brunswick Corporation built the on-site facility in 1961. Roehr Products manufactured hand-operated medical syringes at the facility until 1967, when the company changed its name to Sherwood Medical Company (SMC). Since that time, different owners have operated a medical supply manufacturing facility at the site.

Manufacturing processes included the use of chlorinated solvents and the discharge of those solvents and other waste liquids to the facility's floor drains. In the 1960s and early 1970s, the floor drains discharged to the on-site septic system, and later to an underground storage tank. In 1974, SMC built and began treating waste in an on-site sewage treatment plant.

In 1987, the Nebraska Department of Health discovered VOCs in the water system and wells at the Park Mobile Home Court (PMHC), located immediately north of the SMC facility. In 1988, EPA provided PMHC residents with bottled water and later installed an activated carbon water treatment system on the water supply well. Later that year, EPA investigations identified the SMC plant as the source of the VOCs and determined that past site activities were responsible for impacting site soil and groundwater.

## Site Cleanup – Protecting Human Health and Supporting Continued Use

Early Superfund removal cleanup actions by SMC, the site's PRP, included cleaning and decommissioning the on-site septic tank system. EPA also required that SMC provide a supply of potable water to the PMHC and any other affected properties. Access to clean water for the on-site community was a top priority for all parties involved. Public water was not – and still is not – available at the site or in the immediate area. Open communication and cooperation between EPA, SMC and the owner of the PMHC resulted in the successful construction of an on-site drinking water supply system and the infrastructure required to deliver the water to the residential area. SMC constructed a pipeline from the new drinking water supply system to the PMHC property, and began providing residents with clean drinking water in 1989. These early cleanup actions protected the health of on-site residents and provided the mobile home park with a permanent and safe drinking water supply.

EPA placed the site on the Superfund program's National Priorities List (NPL) in October 1992. Following additional investigations, EPA selected a long-term remedial action to address soil and groundwater contamination in a 1993 Record of Decision (ROD). EPA and SMC worked together on a cleanup plan that would be compatible with ongoing land uses at the site. In 1997, SMC filed land and groundwater use restrictions for the site with the Madison County Register of Deeds. Under EPA oversight, SMC performed cleanup activities between 1998 and 1999. Cleanup activities included removal of the septic system, excavation and treatment of impacted soil, groundwater extraction and treatment, and construction of a groundwater monitoring well network. Groundwater extraction

and treatment addresses groundwater cleanup and plume control by the removal of groundwater through extraction wells, on-site treatment, testing and discharge of the treated water to the Elkhorn River, in accordance with a state permit. Groundwater treatment and monitoring are ongoing. Throughout the cleanup, EPA staff met regularly with community stakeholders to share site information and bring community feedback into the Superfund process.

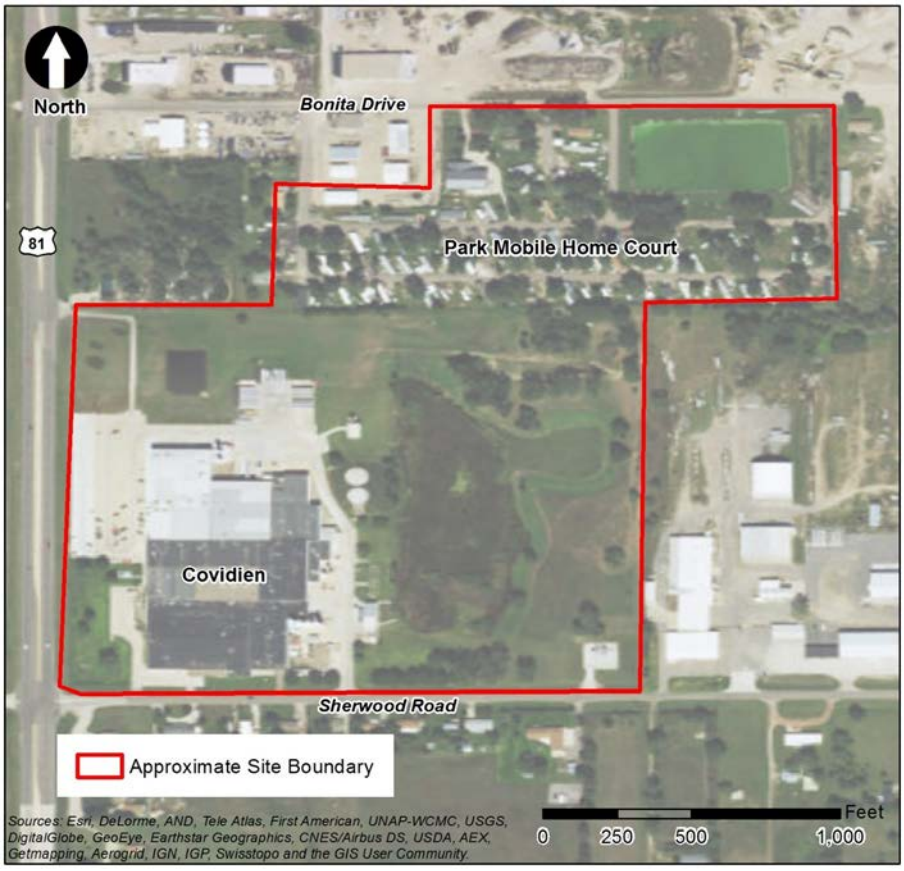


**Figure 2. Map of current site uses.**

With the VOC-contaminated groundwater found at the site, harmful vapors can sometimes move up through the soil and into structures located above the contamination. This scenario, called vapor intrusion, can pollute the air in enclosed structures and pose a threat to human health. In 2011, and again in 2015, the PRP sampled indoor air at the on-site facility to verify that air quality was safe for workers. Sampling results verified that the facility continues to be a safe working environment. Vapor intrusion is not a threat to the PMHC community because groundwater migration is being controlled by the operation of the groundwater extraction and treatment system.

**Figure 3. View of the on-site groundwater extraction and treatment system.**
(Image source: SMC)

To improve the effectiveness of ongoing groundwater cleanup efforts, SMC constructed a soil vapor extraction (SVE) system at the site in 2014. The system was part of a broader pilot study to improve remedy performance. EPA reviewed the system design and approved the installation of the system. This initiative is expected to improve the effectiveness of ongoing groundwater cleanup and speed up the overall cleanup process. SMC continues to treat and monitor groundwater to ensure continued protection of human health and the environment.

**Figure 4. Construction of the SVE system.**
(Image source: SMC)

***"SMC has been extremely responsive in evaluating alternatives and implementing additional actions to expedite the cleanup process. EPA Region 7 continues to work with site stakeholders to ensure the continued protectiveness of the remedy."***

***-Owens Hull, EPA Remedial Project Manager***

## Beneficial Effects

The site's carefully selected remedy protects human health and the environment while also supporting long-standing site uses. The cleanup plan enabled the continued operation of the on-site manufacturing facility while protecting human health and the environment. It also provided the mobile home park with a source of clean water and enabled residents to stay in their homes during and after cleanup.

Today, on-site businesses support about 385 jobs and contribute nearly $20 million in annual employment income to the community. These businesses bolster the area's economy and help generate property tax revenues. The section below describes the beneficial effects of these businesses and the residential development in greater detail.

### Park Mobile Home Court

Park Mobile Home Court is located on the northern portion of the site. This well-established residential area provides affordable housing options for the local community. Estimated 2014 sales for the on-site property management company exceeded $500,000.

### Covidien

Covidien is located on the southern portion of the site. This business' predecessor was one of the first major industries established in Norfolk. Today, Covidien manufactures a variety of medical supply products at its Norfolk plant, including small syringes. It also makes a range of blood collection tubes and thermometer probe covers. The company's on-site facility also performs injection molding and molds plastic components used in the assembly of other medical devices. Covidien employs about 385 people and provides over $19.8 million in estimated annual employment income.


**Figure 5. Covidien manufactures medical supplies at this on-site facility.**
(Image source: © 2015 Google)

## Property Values and Tax Revenues

On-site properties help generate property tax revenues that support local government and public services. In 2014, site properties generated nearly $104,000 in total property tax revenue. Today, these properties have a combined estimated value of over $6.3 million. The Covidien property accounts for about 92 percent of that property tax revenue and about 93 percent of the overall property value.

## Future Site Use

Looking forward, EPA will continue to work with stakeholders to support continued site uses and ensure the long-term protectiveness of the remedy.

## Conclusion

Collaboration and cooperation between EPA and SMC has been key to the successful implementation of the remedy and continued use of the Sherwood Medical Co. Superfund site. The selected remedy is compatible with the continued operation of site businesses while also protecting human health and the environment. It enabled on-site residents to remain in their homes during and after the remedial work, and resulted in the creation of a water supply for the on-site community. Today, on-site businesses support the local economy, providing about 385 jobs and contributing nearly $20 million in estimated annual employee income to the community.

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

## 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. Both databases include data reported by businesses. Accordingly, some reported values might be underestimates or overestimates. In some instances, business and employment information came from discussions with a potentially responsible party (PRP) representative.

### 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 Sherwood Medical Co. 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 Madison 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 Sherwood Medical Co. 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.

**Table 1. Sherwood Medical Co. Superfund Site: Information for On-Site Organizations and Businesses**

| On-site Business | NAICS Code[a] | NAICS Title | Number of Employees | Average Weekly Wage (2014)[b] | Annual Wage (Mean Annual) per Employee | Total Annual Income[c] | Annual Sales (2014) |
|---|---|---|---|---|---|---|---|
| Covidien LP | 339112 | Surgical and Medical Instrument Manufacturing | 385[d] | NP | NP | $19,839,820 | NA |
| Park Mobile Home RV Court | 237210[e] | Land Subdivision | 1[e] | $1,128 | $58,656 | $58,656 | $500,000[e] |
| **Total** | | | **386** | | | **$19,898,476** | **$500,000** |

[a] NAICS code provided in the D&B database, unless otherwise noted.
[b] Average weekly wage per employee based on BLS 2014 Average Weekly Wage data.
[c] Total annual income figures derived by multiplying "Number of Employees" by "Annual Wage (Mean Annual) per Employee."
[d] Value provided by PRP contractor on October 20, 2015.
[e] Data provided by Manta.
NP – Values not provided, withheld per business request.
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 Sherwood Medical Co. Superfund site in October 2015 through property records accessible through Madison County's online property appraisal database (http://madison.gisworkshop.com). EPA also obtained 2014 property tax information for the site parcels.

**Table 2. Property Value and Tax Summary for Taxes Payable in 2014**

| Parcel ID No. | Parcel Owner | Total Market Value of Land and Improvements (2015) | Total Property Tax (2014) |
|---|---|---|---|
| 590156519 | Covidien LP, George McElroy & Associates, Inc. | $5,945,752 | $96,543 |
| 590303114 | Ewin Properties LLC, Mark & Teresa Ewin (MAO) | $190,260 | $3,225[a] |
| 590303122 | Ewin Properties LLC, Mark & Teresa Ewin (MAO) | $249,179 | $4,224[a] |
| | | **$6,385,191** | **$103,992** |

[a] Tax value data for 2014 are not available due to recent property parcel reconfiguration. Tax values calculated by multiplying the 2014 property tax rate for the parcels by the 2015 property values. The Madison County Property Assessor's Office provided the parcel-specific property tax rate during a phone interview on October 2, 2015.