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# Cleanup Investigation Complete; Identifying Options is Next Step

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**Ashland/Northern States Power Lakefront Site**

Ashland, Wisconsin

October 2007

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## Public meetings

EPA and Wisconsin DNR invite you to two public informational sessions. The first is a public meeting on **Wednesday, Oct. 17** to learn and ask questions about the findings of the remedial investigation and associated human health and ecological risk studies. A representative from the city of Ashland will also give a presentation on the waterfront development plan.

The following week on **Thursday, Oct. 25**, EPA and Wisconsin DNR will host a workshop to give you an opportunity to identify factors you would like the project team -- EPA, Wisconsin DNR, NSPW and consultants -- to consider when developing and evaluating cleanup options. The workshop will begin with the agencies providing an overview of the array of cleanup options that could be applied to the Ashland/NSP Lakefront site. EPA will also describe the nine evaluation criteria required by Superfund regulations. These nine criteria will be used to evaluate each of the proposed cleanup options. The remainder of the workshop will be devoted to answering questions and discussing community viewpoints.

Both sessions will begin at **6 p.m.** and be held at the **AmericInn of Ashland, 3009 Lakeshore Drive**. The project team will be available an hour before the sessions to talk informally with community members.

For questions about the sessions, or if you need special accommodations to attend, please contact Briana Bill at least one week prior to the meeting, using the contact information on Page 7.



*Workers collect sediment samples.*

Cleanup of the Ashland/Northern States Power Lakefront site is one step closer to completion now that U.S. Environmental Protection Agency has approved a comprehensive report about the contamination. The study, called a remedial investigation, provides critical information about the extent of the polluted area, contaminants found and risks posed to people and the environment. The project team will use what was learned to develop cleanup options for ground water (underground water supplies), Chequamegon Bay sediment and soil.

EPA and Wisconsin Department of Natural Resources are hosting two public informational sessions on the investigation and next steps in the cleanup process. These sessions will give community members an opportunity to ask questions and make comments. See box (left) for more information. This fact sheet provides a summary of the remedial investigation, which will be the topic of the first meeting scheduled for Oct. 17.

Northern States Power of Wisconsin conducted additional field work for the remedial investigation under federal and state supervision between 2005 and 2006 and completed the analysis and report this month. NSPW did the study as part of an agreement with EPA signed in 2003. The work built upon 13 years of studies conducted by NSPW, Wisconsin DNR and EPA and answered a number of remaining questions about the nature and extent of contamination.



*Closed artesian well and former wastewater treatment plant at Kreher Park.*

### **Site history**

The Ashland/NSP Lakefront site includes several properties within the city of Ashland and about 10 acres of sediment and surface water in Chequamegon Bay. The properties include those owned by NSPW, Canadian National Railroad, a portion of the city-owned property including Kreher Park and the former wastewater treatment plant, an inlet of Chequamegon Bay, Our Lady of the Lake Church and School, and private residences.

The NSPW property, located on a bluff overlooking Kreher Park, is the site of a former manufactured gas plant that began operation in 1885, producing gas for street lighting and other residential and commercial uses. It ceased operation in 1947 when it switched to propane distribution.

Kreher Park did not exist before the late 1800s as the Chequamegon Bay shoreline was much closer to what is now the Canadian National Railroad corridor. Kreher Park was created by placement of various fill materials into the bay through the decades. The eastern portion was filled with sawdust, wood waste and other material from local sawmills that operated until the early 1930s. Solid waste, primarily demolition debris, was disposed of along the western side of the property in the 1940s.

Contaminants of concern at the site include tar, oil and other materials. This waste was generated at the former manufactured gas plant. Waste material moved from the former manufactured gas plant to the park via a ravine, and later through a 12-inch clay tile pipe laid inside the ravine. Later, after Kreher Park was

formed from fill, additional pipes and a ditch may have conveyed waste to the bay. Other activities in the area, including possible wood treatment at local sawmills and construction in the 1950s of the former wastewater treatment plant in what is now Kreher Park, may have added to the contamination.

Site contamination was discovered in 1989 while the city was preparing to expand the former wastewater treatment plant. During excavation, workers encountered tar. This discovery led to a series of investigations by Wisconsin DNR and NSPW to assess the nature and extent of contamination at Kreher Park, NSPW property and Chequamegon Bay. Two interim measures have been implemented to date. NSPW began pumping ground water in 2000 from the Copper Falls aquifer, a thick water-bearing formation composed of layers of sand and gravel lying beneath the area. The pumped water is treated at the NSPW plant and discharged into the city's sanitary sewer. In 2002 NSPW dug out contaminated soil and waste at a seepage point at the base of the bluff and removed much of the 12-inch clay pipe in the ravine. This area was then covered with clean material and fenced. NSPW also drilled a well to extract ground water and pump it to the treatment system on the bluff. To date, more than 1.7 million gallons of contaminated water has been pumped out, yielding about 10,000 gallons of a coal tar and water mix. This has reduced the contaminant mass in the Copper Falls aquifer.

In response to a citizen's petition and to address long-term issues, EPA added the site to the National Priorities List, a roster of waste sites eligible for cleanup under the federal Superfund program. NSPW subsequently signed a legal agreement in 2003 to conduct a remedial investigation and feasibility study. The remedial investigation is now complete and approved by the agencies.

### **Site contamination**

The investigation confirmed that contaminants are present in soil and ground water throughout the site, as well as in the sediment near the shore of Chequamegon Bay. The contaminants at the site are typical of those associated with manufactured gas waste and include benzene, arsenic, lead and polycyclic aromatic hydrocarbons, or PAHs.



*Sunset along the shore.*

Over time, the coal tar has separated into both floating and sinking masses of “free product” contamination that does not readily mix with water. The floating portion typically contains the lighter volatile organic compounds such as benzene, while the sinking material contains the heavier PAHs such as naphthalene. Free product exists throughout the site including the filled ravine, Kreher Park fill, sediment, shallow ground water and the deeper Copper Falls aquifer. Additionally, contaminants in the aquifer have mixed with the water, creating a so-called dissolved phase which extends from the former ravine to the bay. Finally, where contaminants have evaporated when exposed to air between soil particles, vapor has formed. These various phases and types of contamination, each with its own chemical and physical characteristics, complicate the cleanup process.

### **Health risks to people**

An important part of the remedial investigation included “risk assessments” to estimate how people and wildlife could be harmed by the pollution if the site is not cleaned up and warning signs and fencing were removed. As explained below, risks

vary depending on the types and levels of substances found and ways people and wildlife could come in contact with them. It is important to understand that a human risk assessment does not determine if people have already been harmed by contamination. Instead, it analyzes the specific uses of the site to identify what categories of people could be exposed (such as swimmers, utility workers, children playing,) how they could be exposed (inhalation, touching contaminants, eating or drinking), what chemicals are present in sufficient quantities to cause harm, and the toxicity or hazard level of the contaminants themselves. Combined with field sampling data, scientists use this information to produce an estimate of the risks posed by the site that gives the agencies the necessary information to determine what cleanup is necessary to make the area safe for its intended future uses.

### **Ground water**

Much of the ground water underlying the site is contaminated with free product and dissolved contaminants. Tests have revealed contaminants to a depth of 70 feet and dissolved contaminants and free product as deep as 185 feet. This contaminated



*Crews take a sediment core.*

ground water is found within the Copper Falls aquifer. Contaminated ground water beneath the NSPW facility has migrated toward Chequamegon Bay underneath homes on St. Clare Street, Our Lady of the Lake Church parking lot and portions of Kreher Park. Ground water in the vicinity of the Ellis Avenue marina parking lot has tested clean. The remedial investigation study also found it unlikely that contamination has entered the bay via ground water in the Copper Falls aquifer. This is because overlying clay (Miller Creek rock formation) thickens and slopes toward the bay, helping to separate the shallow contaminated portion of the Copper Falls aquifer from the lake near shore. This finding is important, as it means it is unlikely that contaminated ground water from the deep Copper Falls aquifer is polluting the sediment. However, it is still possible contaminated water in the Kreher Park fill material can taint the sediment.

**Artesian water:** In much of the affected ground water, contaminant levels exceed state and federal

guidelines for drinking water. In fact, due to concerns about the potential for contamination, EPA and Wisconsin DNR recommended the city close the two artesian wells in Kreher Park used by residents for filling water jugs. The wells, closed in 2004, have always tested clean and therefore have not been permanently shut down in hopes that one day the wells can be reopened. (The wells far west of the site along the lakefront are not in the affected area and are tested by the city several times a year.)

**Vapor:** Because the agencies were concerned about the potential for vapor to move upward through the soil and seep into building foundations, NSPW collected “soil gas” samples near the former gas plant buildings on St. Clare Street. Although samples showed the presence of vapor in the NSPW building, the tests also revealed that soil vapor is not migrating away from the property, which is good news for nearby residences and the school.

### **Kreher Park soil and ravine**

Subsurface soil and fill material in portions of Kreher Park and soil at the top of the bluff fronting the park is highly contaminated. Fortunately, tests show that surface soil is clean and poses no direct contact risk to visitors. However, construction and utility workers digging into the underlying fill and soil in these areas could be exposed to unsafe levels of contamination and would need to wear protective gear until a cleanup takes place.

The former wastewater treatment plant could pose potential harm due to the presence of contaminants in ground water seeping into the basement and indoor air vapor. However, the building is locked and partially fenced and no one works inside the building any longer. The health risk study noted that additional testing would be necessary to better understand the potential health risks for those needing to enter the facility in the future.

One particular area of concern to the agencies is the filled former ravine where waste from the manufactured gas plant and other locations was discharged. The ravine contains both free product and dissolved chemicals. Although the 2002 work eliminated any short-term danger to visitors, the ravine could pose risks to construction or utility workers who might have to dig in the area.



*Aerial view of the site.*



*Coal tar and oil sample.*

## **Ecological risks**

The ecological risk assessment for wildlife found that small bottom-dwelling (benthic) organisms living in the sediment in the affected area most likely are affected by the contaminants. The health of fish and aquatic birds could be harmed as contaminants in sediment are sporadically released into the water where these animals are living, eating or reproducing.

## **Lake sediment**

The remedial investigation study confirms earlier investigations that about 10 acres of Chequamegon Bay are contaminated. The highest levels of contaminants are found offshore between Ellis Avenue and the Kreher Park boat ramp near Prentice Avenue. Both free product and dissolved contaminants are present in sediment. A layer of wood waste which in some places is up to 6-feet deep, lies on the bottom of the bay. The investigation helped answer questions about the extent and potential sources of sediment contamination to the bay. Until the completion of the study, the project team was not certain if the ravine and former tile pipe and open sewer system were the primary conduit of manufactured gas plant waste from the plant to the bay, or if ground water carried contaminants as well. The study concluded that ground water is contributing little, if any, additional contamination.

Contamination exists mainly within the sediment and wood waste rather than the water. However, when the sediment is agitated by waders, boat anchors or strong waves, oil and tar can be released into the water, causing a slick to form. The study found that people who come in contact with oil slicks while swimming or wading are at increased risk for developing a variety of health problems. Signs are posted along the shore and in the water to warn visitors of the risk.

## **Next steps**

Completion of the remedial investigation marks a milestone toward the cleanup of the site. Now the project team has turned its attention toward developing a feasibility study that presents an array of cleanup options. The study will outline the pros and cons of each option and compare each against nine criteria required by federal Superfund regulations. Community acceptance is one of the nine criteria so while the feasibility study is in the early phases, EPA and Wisconsin DNR are hosting a public workshop Oct. 25 so that participants can identify factors important to the community. NSPW is scheduled to submit a draft feasibility study this fall. Once approved, EPA with the assistance of Wisconsin DNR will develop a set of proposed cleanup and management plans for the site. EPA will hold a comment period, and host a public meeting and hearing to give residents and others an opportunity to make comments for the record. EPA will announce the comment period and meeting via a mailer like this one.

## What new information was gained?

Many in the Ashland community are aware the site had been investigated prior to the area being put on the Superfund NPL list in 2002. The field work conducted for the recent remedial investigation helped to address the following questions:

- What is the horizontal and vertical coverage of the dissolved phase and free-product contamination in the ground water? How does the interaction between the ground water and bay affect contaminant movement?
- What is the extent of sediment contamination in Chequamegon Bay?
- What are the effects on surface water from sediment and ground water contamination and runoff from soil?

To this end, more than 2,000 additional samples of ground water, soil, soil gas, sediment, surface water and fish tissue were collected, many from new sampling locations.

## For more information

The remedial investigation and other documentation will soon be available for review in four information repositories and on EPA and Wisconsin DNR Web sites:

[www.epa.gov/region5/sites/ashland/](http://www.epa.gov/region5/sites/ashland/)

[www.dnr.state.wi.us/org/aw/rr/cleanup/ashland.html](http://www.dnr.state.wi.us/org/aw/rr/cleanup/ashland.html)

Vaughn Public Library

502 W. Main St.

Ashland

For hours of operation, call 715-682-7060.

Wisconsin DNR Spooner Service Center

810 W. Maple St.

Spooner

To make an appointment call, 715-635-4049.

Bad River Public Library

100 Maple St.

Odanah

For hours call: 715-682-7111 ext. 1532.

Red Cliff Environmental Protection Agency Office

86395 Hwy. 13, Brood Stock Building

Bayfield

To make an appointment call: 715-779-3650.

## The EPA and Wisconsin DNR project team can be reached at:

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# SEE INSIDE FOR DETAILS

Both sessions will be held at the AmeriCinn of Ashland, 3009 Lakeshore Drive.

**Feasibility Study  
Workshop**  
Thursday, Oct. 25, 6 p.m.

**Remedial Investigation Findings  
Meeting**  
Wednesday, Oct. 17, 6 p.m.

**Public meetings**  
EPA and Wisconsin DNR invite you to two public informational sessions on the  
Ashland/NSP Lakefront site:



Region 5  
Office of Public Affairs (P-19J)  
77 W. Jackson Blvd.  
Chicago, IL 60604

First Class Mail  
Postage and Fees Paid  
EPA  
Permit No. G-35

**ASHLAND/NORTHERN STATES POWER LAKEFRONT SITE:  
Cleanup Investigation Complete; Identifying Options is Next Step**