United States
Environmental Protection
Agency

Office of Public Affairs
Region V
230 South Dearborn Street
Chicago, Illinois 60604

Illinois Indiana
Michigan Minnesota
Ohio Wisconsin

EPA Wausau Well Field Final Feasibility Study

August 1989

INTRODUCTION

The United States Environmental Protection Agency (U.S. EPA), in cooperation with the Wisconsin Department of Natural Resources (WDNR), has completed the ***Remedial Investigation/Feasibility Study*** *(RI/FS) at the Wausau Well Field, Superfund site in Wausau, Wisconsin.*

This fact sheet summarizes the findings of the RI and describes the remedial alternatives evaluated by U.S. EPA in the FS. Also included is a list of the criteria used by U.S. EPA and WDNR to select the preferred alternative.

Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (commonly referred to as the Superfund law) requires that U.S. EPA publish a proposed plan for addressing contamination problems at Superfund sites. The proposed plan will be available prior to the August 22, 1989 public meeting.

Further details on the findings of the RI and the analysis of remedial alternatives are presented in the Wausau Well Field RI and FS reports available for public review at the Wausau City Hall and Marathon County Public Library. Terms first appearing in bold are defined in the glossary.

SITE DESCRIPTION AND BACKGROUND

The Wausau Well Field National Priorities List (NPL) Site consists of the City of Wausau well fields located east and west of the Wisconsin River. Contamination of the East and West Well Fields with volatile organic compounds (VOCs) was

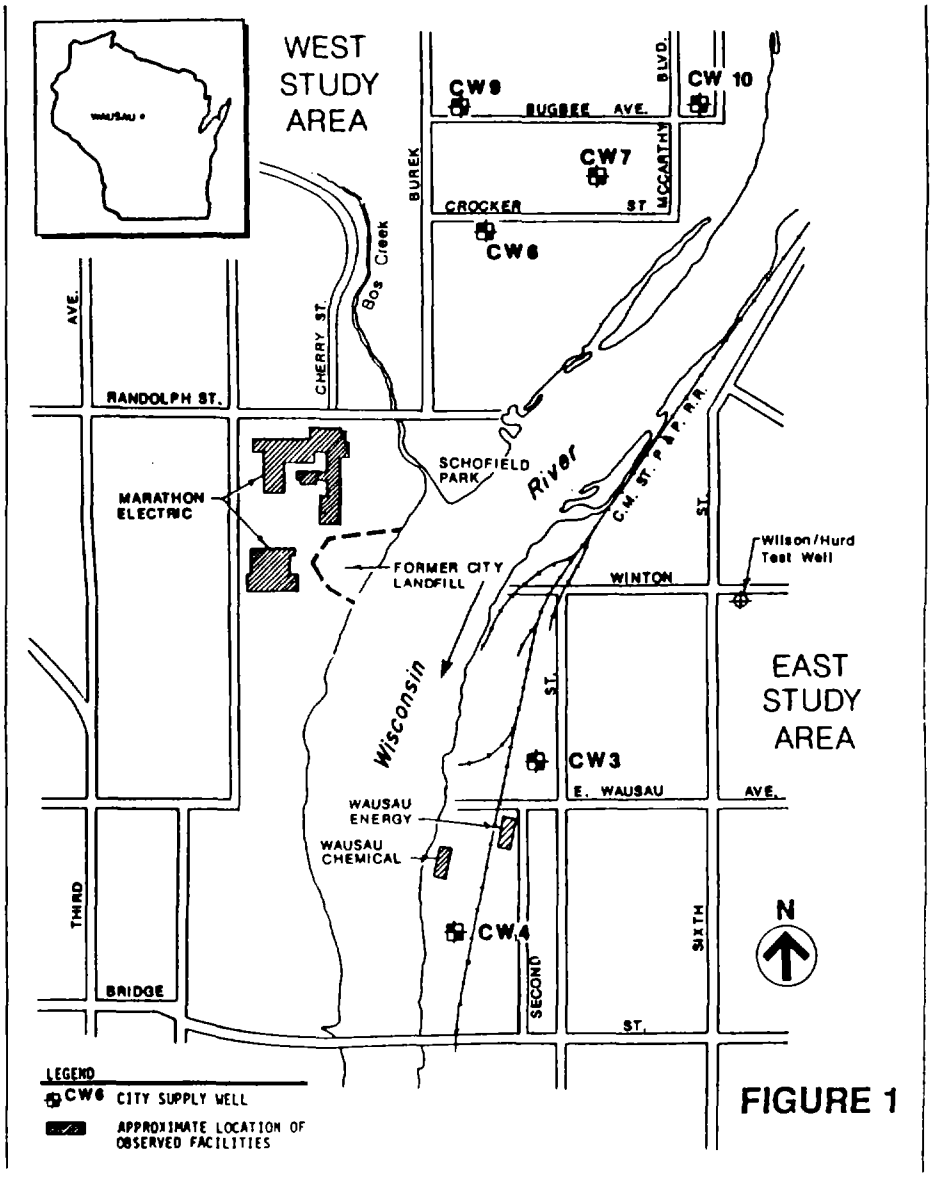

FIGURE 1

discovered in 1982. VOC stripping towers were installed in late 1984 for treating water from City Wells (CW) 3 and 4. The City made provisions for treating water from CW6 for VOC removal and placed the well back in service in July 1988. Local groundwater conditions changed as a result of the well being returned to service. A need to begin remediation on the west side of the river was identified. Therefore, a Phased Feasibility Study (PFS), to develop and evaluate alternatives for this action, was conducted.

As a result, a Phase I Remedy was developed to include installation of an extraction well south of Bos Creek, treatment of water for removal of VOCs, and discharge to the Wisconsin River.

The Remedial Investigation (RI) revealed the following facts which have been utilized in completing the Feasibility Study.

- VOC contamination is present in the northern section of the former City Landfill and in unsaturated soils adjacent to the fill.
- Nonvolatile organic compounds and heavy metals were detected at elevated concentrations in samples from the former City Landfill.
- Groundwater in the west study area is contaminated with a deep aquifer VOC plume. This contaminant plume originates at the former City Landfill near Marathon Electric and has been drawn north toward CW6.
- Groundwater in the east study area is also contaminated with VOCs. Two major contaminant plumes are apparent. One is a deep eastern plume also originating from the former City Landfill. The second plume is a shallow, widely dispersed plume. This plume lies beneath most of the Wausau Chemical property and also to the east and northeast (toward Production Well CW3).
- The unsaturated zone at Wausau Chemical contains widely distributed VOCs. Two primary source areas were identified: (1) near the north loading dock and (2) the former tank storage area.
- The unsaturated zone at Wausau Energy contains numerous petroleum-derived compounds. A former source area appears to be located at the southern end of the site where fuel storage tanks were located. Low concentrations of VOCs observed in groundwater at the site appear to result from an upgradient Wausau Chemical source.

ACTION ALTERNATIVES

The major components of each alternative are described below.

Remedial Alternative 1 No Action

Remedial Alternative 1 would require no additional action beyond the Phase I Remedy. Minimal actions such as additional monitoring may be undertaken.

The City water utility would treat VOC-contaminated water using the existing stripping towers to provide safe drinking water.

Estimated Total Cost: No direct monetary cost would be incurred

Remedial Alternative 2 Groundwater Extraction and Treatment

Groundwater remediation efforts under this alternative are directed toward shallow groundwater contaminants originating at Wausau Chemical. A groundwater extraction system would be installed and operated to extract and treat shallow contaminated groundwater. Water would be treated to remove VOCs and then discharged to the Wisconsin River.

Estimated Total Cost: $1.3 million (in present worth)

Remedial Alternative 3 In-situ Bioreclamation With Partial Treatment and Discharge

Alternative 3 is a groundwater control alternative which employs In-situ Bioreclamation using a recirculating system consisting of groundwater extraction, enhancement with nutrients to encourage natural bacterial action, and recharge to the contaminated shallow portion of the aquifer. To enhance the ability to manage groundwater conditions, the recharge rate would be lower than the extraction rate. Groundwater would be extracted with a portion treated and discharged to the Wisconsin River using a system similar to that used in Alternative 2, and the remainder would be supplemented with nutrients and recharged to the aquifer to encourage the breakdown of contaminants through bacterial action.

Estimated Total Cost: $1.7 million (in present worth)

Remedial Alternative 4 In-situ Bioreclamation

This alternative also employs In-situ bioreclamation using a recirculating system consisting of groundwater extraction, enhancement with nutrients and recharge to the aquifer. Unlike Alternative 3, however, no above ground treatment would be used. Remediation of the shallow aquifer contamination would depend solely on in-situ treatment.

Estimated Total Cost: $1.4 million (in present worth)

Remedial Alternative 5 Active Source Control

Under Remedial Alternative 5, source area remediation would take place to remove VOCs from the soils. Soil vapor extraction systems would be used to remove the VOCs from soils using shallow wells and a vacuum system. Soil vapor extraction systems would be installed at the former City Landfill, Wausau Chemical and Wausau Energy source areas.

Source area remediation removes VOC contamination which has not reached groundwater. This alternative could also be used in combination with a groundwater remediation alternative to reduce the overall operation time. Removing contaminants at the source is more efficient than allowing their release to groundwater and then addressing their remediation.

Estimated Total Cost: $500,000 (in present worth)

GLOSSARY

Remedy or Remedial Action (RA)	Action taken in the event of a release or threatened release of hazardous substances to prevent substantial danger to present or future public health or welfare of the environment.
Bioreclamation	A method for remediating groundwater aquifers contaminated with petroleum compounds and many other organic chemicals, which involves the addition of nutrients and oxygen to stimulate the growth of naturally occurring bacteria.
In-situ	In position, in its original place.
Remedial Investigation (RI)	The collection and evaluation of data to define site conditions, including the extent of releases from the site and the nature of source materials. Data on releases are evaluated to assess the potential effects of the releases on public health and the environment.
Feasibility Study (FS)	A range of likely alternative means of cleaning up the site are developed and compared against each other and the U.S. EPA's nine evaluation criteria (see discussion of the nine criteria on this page).
***Record of Decision* (ROD)**	This is the Superfund program remedy selection document. It is a legal document which demonstrates that the U.S. EPA's decision making process has been carried out in accordance with statutory and regulatory requirements, and explains the rationale by which the site remedy was selected.
National Priorities List (NPL)	U.S. EPA's list of the nation's most serious hazardous waste sites that are eligible for the Federal Superfund program.
Volatile Organic Compounds (VOCs)	Volatile organic compounds (VOCs) are organic chemicals that readily vaporize at normal temperatures. Some VOC's present a human health risk due to potential cancer causing effects.

EPA'S NINE EVALUATION CRITERIA

The U.S. EPA evaluated each of the remedial alternatives against the following criteria:

- **Short-term Effectiveness.** A measure of the effectiveness of an alternative in protecting human health and the environment during construction and implementation.
- **Long-term Effectiveness and Performance.** A measure of long-term effectiveness of an alternative in protecting human health and the environment long after the design objectives have been met.
- **Reduction of Toxicity, Mobility, or Volume.** Addresses the technical performance of treatment technologies used under a proposed alternative.
- **Implementability.** Addresses the technical and administrative feasibility of alternatives, including the availability of goods and services needed to implement the alternative.
- **Cost.** Addresses the capital and operation and maintenance costs of an alternative.
- **Compliance with Applicable or Relevant and Appropriate Requirements (ARARs).** Addresses how the proposed alternative complies with pertinent federal and state regulations. This criterion also considers how an alternative complies with advisories or other guidance that do not have the status of laws but that U.S. EPA and the State have agreed to follow.
- **Overall Protectiveness.** A measure of how well a proposed alternative reduces the current and future threats to human health and the environment identified during the RI.
- **Acceptance by the State.** Addresses the preferences or concerns of the affected state agencies regarding proposed alternatives and ARARs or waivers.
- **Community Acceptance.** Considers community preferences or concerns about alternatives. This will be addressed in the *Record of Decision* following a review of public comments.

MAILING LIST ADDITIONS

Anyone wishing to be placed on the Wausau mailing list, please fill out, detach and mail this form to:

Office of Public Affairs
U.S. EPA - Region V
230 South Dearborn Street
Chicago, Illinois 60604

Name: _____

Address: _____

_____

Telephone: _____

Affiliation: _____

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Public Comment Period and Public Meeting on the Proposed Alternatives

U.S. EPA would like to hear your comments. A public comment period has been set from August 14 to September 12, 1989, to provide the public with an opportunity to send written comments to Susan Pastor at the address listed below. Written comments must be postmarked no later than September 12, 1989. You are encouraged to attend the public meeting on Tuesday, August 22, 1989 at 7:00 p.m. in the Wausau City Hall Council Chambers, 407 Grant Street. U.S. EPA and Wisconsin DNR representatives will present the findings of the RI, the evaluated alternatives, and the proposed plan. Public comments will be accepted and questions will be answered following the presentation.

Date:	August 22, 1989
Time:	7:00 P.M.
Location:	City Hall Council Chambers 407 Grant Street Wausau, Wisconsin

Available Information

Anyone desiring additional information may consult the various U.S. EPA documents that have been prepared for the site. Copies of various documents are available at:

Wausau City Hall
407 Grant Street
Wausau, WI 54401-4783

Marathon County Public Library
400 First Street
Wausau, WI 54401

If you have any questions, the following people may be contacted:

Susan Pastor
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U.S. EPA Remedial Project Manager
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U.S. EPA - Region V • 230 South Dearborn Street • Chicago, Illinois 60604
Toll Free Number: 1-800-621-8431 (9:00 a.m. to 4:30 p.m. Central Time)

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