FIVE YEAR REVIEW REPORT

WAUSAU GROUNDWATER SUPERFUND SITE

WAUSAU,
WISCONSIN

Pursuant to CERCLA

Prepared by:
United States Environmental Protection Agency
Region 5
Chicago, Illinois

Richard C Karl

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Superfund Division, Region 5

6-30-05

Date

FIVE YEAR REVIEW REPORT
EXECUTIVE SUMMARY
JULY, 2005

WAUSAU GROUNDWATER SUPERFUND SITE

WAUSAU,
WISCONSIN

The completion of the current five year review confirms that the Wausau Groundwater Superfund Site remedial action remains protective of human health and the environment. The components of the remedy selected in the 1988 and 1989 Wausau Groundwater Site Records of Decision have been implemented under the 1989 and 1991 Consent Decrees. The City of Wausau's treatment plant regularly operates as an integral part of the City's municipal groundwater system and assures protectiveness under the Wausau Municipal Code requirements. Groundwater extraction well EW1on the west bank of the Wisconsin River continues to operate under an approved permit, and is monitored under the ongoing Site operation and maintenance monitoring program. The west bank soil vapor extraction (SVE) system was shut down in April 1996 and the east bank SVE system was shut down in January 2001 after U.S. EPA and Wisconsin Department of Natural Resource requirements were met.

This is the second five year review for the Wausau Groundwater Site. The first five year review was completed and signed in July 2000. The annual groundwater monitoring program at the Site was modified in October 2000 to include volatile organic compounds for approximately 30 sampling locations. The remaining SVE system wells operating on the east side of the Wisconsin River were shut down in 2001, because of inefficient removal rates.

The Wausau Groundwater Responsible Party Group should continue to maintain and monitor the groundwater monitoring system and extraction well EW1. The City of Wausau should continue to operate the City's municipal groundwater treatment plant as an integral part of the groundwater treatment for the Site. The soil portion of the Wausau Groundwater Site remedy is essentially complete, and will be documented in the Site file for the next Five Year Review in 2010.

Five Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: Wausau Ground Water Contamination		
EPA ID *(from WasteLAN)*: WID980993521		
Region: 5	**State:** WI	**City/County:** Wausau, Marathon

SITE STATUS	
NPL status: X Final _ Deleted _ Other (specify) _____	
Remediation status (choose all that apply): _ Under Construction X Operating _ Complete	
Multiple OUs?* _ YES X NO	**Construction completion date:** 3/18/94
Has site been put into reuse? _ YES X NO	

REVIEW STATUS	
Lead agency: X EPA _ State _ Tribe _ Other Federal Agency _____	
Author name: Jeff Gore	
Author title: Remedial Project Manager	**Author affiliation:** U.S. EPA, Region 5
Review period:** 1/13/05 to July, 2005	
Date(s) of site inspection: May 4, 2005	
Type of review: X Post-SARA _ Pre-SARA _ NPL-Removal only _ Non-NPL Remedial Action Site _ NPL State/Tribe-lead _ Regional Discretion	
Review number: _ 1 (first) X 2 (second) _ 3 (third) _ Other (specify) _____	
Triggering action: _ Actual RA Onsite Construction at OU #__ _ Actual RA Start at OU# 1 _ Construction Completion X Previous Five-Year Review Report _ Other (specify) _____	
Triggering action date *(from WasteLAN)*: 7/10/2000	
Due date *(five years after triggering action date)*: 7/10/2005	

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

U.S. Environmental Protection Agency
Region 5
Five Year Review
Wausau Groundwater Superfund Site
Wausau, Wisconsin
July 2005

I. Introduction

The United States Environmental Protection Agency (U.S. EPA) Region 5 has conducted a five year review of the remedial actions implemented at the Wausau Groundwater Superfund Site in Wausau, Wisconsin. The review was conducted between January 2005 and July 2005. This report documents the results of the five year review. The purpose of five year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of the review are documented in the five year review reports. In addition, five year review reports identify issues found during the review, if any, and make recommendations to address them.

This review is required by policy. U.S. EPA performs policy reviews at sites where no hazardous substances will remain above levels that allow unlimited use and unrestricted exposure after completion of a remedial action, but the remedial action goals specified in a Record of Decision (ROD), will require five or more years to attain, e.g. long-term response action (LTRA) sites. This policy is outlined in OSWER Directives 9355.7-02 (Structure and Components of Five-Year Reviews, May 23, 1991), 9355.7-02A (Supplemental Five-Year Review Guidance, July 26, 1994) and 9355.7-03A (Supplemental Five-Year Review Guidance, December 21, 1995).

The two RODs at the Wausau Groundwater Superfund Site established soil and groundwater clean up standards which would allow for eventual unlimited use of groundwater beyond the Wausau Groundwater Site boundaries. This is the second five year review for the Wausau Groundwater Superfund Site. The first five year review was completed on July 10, 2000. The date for the current five year review is triggered by the completion of the July 2000 review. Both reviews are based on the site remedy construction completion which took place in 1994.

II. Site Chronology

Table 1 lists the chronology of events for the Wausau Groundwater Superfund Site.

Table 1: Chronology of Site Events

Date	Event
1982	Initial discovery of problem
1985	State of Wisconsin treatment system
1985	Proposed for NPL listing
1986	NPL final listing
1987	Remedial Investigation/FS initiated
1989	Remedial Investigation/FS completed
1988	Interim ROD signed
1989	Final ROD signed
1989	Interim RD/RA Consent Decree
1991	Final RD/RA Consent Decree
1990	Remedial Action Start
1994	Remedy construction completion
1996	West side SVE system shut down
2000	Modified groundwater monitoring
2000	First Five Year Review
2005	Proposed SVE system completion
2005	Second Five Year Review

III. Background

A. Physical Characteristics

Wausau, Wisconsin is located in the north central portion of the state along both sides of the Wisconsin River. The City of Wausau provides drinking water for approximately 35,000 people. The Wausau Groundwater Site is located at an area in the northern section of Wausau. The extent of the area of concern for the Site includes both industrial and residential areas.

B. Land and Resource Use

There are two historical property areas of concern, which are associated within the Wausau Groundwater Site. The first area is a Marathon Electric Corporation property along the west bank of the Wisconsin River, which includes a closed former municipal landfill. The second area is the Wausau Chemical facility property located along the east bank of the river (See Figures 1 & 2).

C. History of Contamination

In 1982, three of Wausau's deep aquifer water production wells (CW3, CW4 & CW6) were found to be contaminated with volatile organic compounds (VOCs). The primary contaminants were tetrachloroethene (PCE), trichloroethene (TCE) and 1,2-dichloroethene (DCE). U.S. EPA awarded the City of Wausau a federal grant in 1983 for design and installation of packed tower VOC air strippers for water supply treatment. However, as high VOC levels persisted, U.S. EPA's emergency response team was called in 1984 to install a granular activated carbon (GAC) treatment system at CW6 until the air strippers for CW3 and CW6 were completed later that year. At that point, CW4 was used only occasionally during peak periods until 1989, and then decommissioned when new production well CW10 went on-line.

D. Initial Response

A groundwater extraction system with air stripping treatment required by the State of Wisconsin, also began operating at the Wausau Chemical facility in 1985. The system consisted of a series of extraction wells in the shallow portion of the aquifer at the south end of the Wausau Chemical property. The Wausau Chemical groundwater system operated until 1996, when it was shut down and abandoned.

E. Basis for Taking Action

Remedial planning began at Wausau Groundwater as the Site was proposed for the National Priorities List on April 10, 1985. The Site became a final NPL listing on June 10, 1986. A two phase remedial investigation (RI) was carried out from August 1987 to September 1988. The significant results of the RI documented in a 1989 report included:

* The City's production wells were located in a wedge shaped aquifer composed of glacial outwash materials deposited within the pre-glacial bedrock river valley of the Wisconsin River. The aquifer was the sole-source of potable water for the City of Wausau.

* Two separate sources of contamination were identified within the zone of influence of the City's production wells. The first source was a former municipal landfill located south of CW6 on the Marathon Electric property in the west study area. The second source was the Wausau

Chemical facility located between CW3 and CW4 in the east study area.

* Three plumes of contamination were found within the zone of influence of the City's production wells. The first was composed primarily of TCE and was emanating from the former municipal landfill. This plume was found to split at the boundary of the source area, with one leg migrating north to CW6 and the second leg migrating under the river to CW3. The second plume originated from the southern boundary of the Wausau Chemical property and impacted both CW3 and CW4. This plume was comprised primarily of PCE, but contained other VOCs as well. The third plume originated from the northern boundary of the Wausau Chemical property and was impacting CW3. This plume was comprised primarily of PCE.

* Soils at both source areas were contaminated with VOCs. The soils in the vicinity of the former municipal landfill were contaminated primarily with TCE. Soils on the Wausau Chemical property were contaminated primarily with PCE, along with other VOCs.

Feasibility study (FS) reports that evaluated remedial alternatives based on the findings of the two phases of the RI were completed in September 1988 and August 1989. U.S. EPA issued an interim ROD in December 1988 that called for a groundwater pump and treatment system to address the contaminant plume emanating from the former municipal landfill. A final ROD, which incorporated the interim ROD with remedy objectives for the Wausau Chemical source areas and plumes, was signed in September 1989.

IV. Remedial Actions

A. Remedy Selection

The response actions outlined for the Wausau Groundwater Site in the December 1988 interim ROD included the following remedial components:

* Construction and operation of a treatment system for removal of contaminants.

* Installation of a groundwater extraction well located in the southern portion of the west contaminant plume.

* Discharge of treated water to the Wisconsin River.

* A provision for implementation of an additional well, as necessary.

* An operation and maintenance monitoring program.

The response actions outlined for the Wausau Groundwater Site in the September 1989 final ROD included the following additional components:

* Construction and operation of soil vapor extraction (SVE) systems to remove volatile contaminants from soils at each of the identified source areas.

* Treatment of off-gases from the SVE system operation using vapor phase carbon units, which would be regenerated off-site.

* Groundwater remediation utilizing the City municipal wells and existing air strippers for removal of contaminants from plumes effecting the wells.

* Monitoring of groundwater and soil.

B. Remedy Implementation

A Consent Decree regarding the December 1988 interim ROD was entered in U.S. District Court in September 1989. The contractor representing the responsible parties completed the remedial design (RD) in March 1990. On-site construction began in June 1990, with the installation of a 16-inch diameter extraction well screened over the bottom 40 feet of the aquifer. The extraction well is located at the north boundary of the former municipal landfill and was originally pumped at 1600 gallons per minute (gpm). The pumping rate was later reduced to 850 gpm following a determination that the higher rate created a groundwater zone of influence too far to the south.

A pump house with associated force main and piping was installed to facilitate treatment and discharge of the extracted groundwater. The groundwater is pumped from the well to the pump house, and is discharged to a manhole storm sewer leading to a fenced rip rap outfall structure designed to enhance volatilization, prior to final discharge into the Wisconsin River. The discharge is to meet the substantive requirements of the Wisconsin Pollution Discharge Elimination System (WPDES) issued by the Wisconsin Department of Natural Resources (WDNR). A final inspection for the interim remedy was completed in October 1990.

A Consent Decree regarding the September 1989 final ROD was entered in U.S. District Court in January 1991. The responsible party contractor completed the RD in June 1993. Construction for the final Site remedy began in October 1993 with the installation of two separate SVE systems. One system was located in the vicinity of the closed landfill on the west side of the Wisconsin River, and included two extraction wells. The second SVE system was located on Wausau Chemical property on the east side of the river, and originally included four wells. Two additional extraction wells were later added to the east side SVE system. Both SVE systems consisted of the extraction wells, piping manifolds, a water knock out tank, a blower, off-gas vapor phase carbon treatment, and controls. The SVE wells were screened from five feet below

grade to the water table, and the off-gas systems consisted of two activated carbon canisters with a sampling port in between. The SVE systems began operation in January 1994.

As part of the final remedy, the City of Wausau was required to operate CW3 and CW6 at rates to enhance the removal of VOCs from the groundwater plumes, utilizing the existing City air strippers. Extracted water is to be treated to acceptable health-based levels in accordance with the Safe Drinking Water Act standards prior to distribution. A final inspection for the final remedy was completed in June 1994. The City well treatment system continues to operate to date.

C. Systems Operations/ Operations and Maintenance

Groundwater and surface water remedial objectives for the groundwater treatment system and extraction well at the Wausau Groundwater Superfund Site are the attainment of U.S. EPA primary and secondary drinking water maximum contaminant levels (MCLs), and the elimination of any excess lifetime cancer risks according to the Wisconsin Administrative Code Enforcement Standards (ESs), by utilizing groundwater treatment. Soil remedial objectives include the elimination of any excess groundwater leachate, direct contact, ingestion and inhalation human health risks by treatment of contaminated soils. Soil clean up levels for the Wausau Site were determined using a groundwater leachate model, in order to eliminate additional risks for groundwater contamination.

Excess human health risks due to contaminated groundwater are being addressed by the groundwater remedies at the Site. The groundwater extraction well on the west bank at the Marathon Electric property operates at approximately 800 gpm. Approval was given by U.S. EPA to Marathon Electric in July 1995 to divert a portion of the extracted water for use in the manufacturing building heat exchanger equipment, before discharge over the rip rap to the Wisconsin River. The City of Wausau's groundwater treatment system including air strippers services the municipal wells for the system.

Risks due to contaminated soil and groundwater leachate are addressed by the soil vapor extraction system. The responsible party contractor submitted a Mid-Point of Operations Report for the SVE systems in October 1995, following an operation and maintenance soil boring sampling event. After confirmatory soil samples were taken to assure soil clean up levels were achieved, U.S. EPA approved shut down in April 1996 of the SVE system on the west side of the Wisconsin River, and the two northern SVE wells on the east side of the river. Operation of four SVE wells in the southern portion of the system on the east side of the river continued at that time, although volatile soil contamination had decreased substantially in that area.

V. Progress Since Last Five Year Review

This is the second five year review for the Wausau Groundwater Site. The first five year review report was completed and signed in July 2000. Progress since that time with regard to any recommendations during the 2000 review include the following:

The responsible party contractor submitted a proposal for a modified groundwater monitoring program in April 2000. The changes from the original groundwater monitoring plan involved a reduction of the number and frequency of monitoring locations, elimination of most semivolatile and metals analysis, and quarterly groundwater sampling at the extraction well instead of monthly. U.S. EPA and WDNR provided comments on the proposal and then approved the modified proposal in June 2000. As a result beginning October 2000, annual groundwater monitoring for primarily VOCs included approximately 30 sampling locations at the Wausau Groundwater Site.

The groundwater extraction well on the Marathon Electric property continues to operate at approximately 800 gpm. Although significant reductions in groundwater contamination are evident over the years on the west side of the river, it is expected that the extraction well will continue to operate for the foreseeable future, as concentrations in portions of the deep aquifer are well above clean up standards. The City air strippers for CW3 and CW6 continue to treat water in the deep aquifer on both the east and west side of the river. VOC groundwater contamination above clean up standards is still evident at both CW3 and CW6, but these levels are significantly lower than those of previous years.

The remaining SVE system wells operating on the east side of the Wisconsin River have been shut down since 2001, because of inefficient removal rates. The responsible party contractor sent a letter requesting permanent shut down of the SVE system in March 2002. U.S. EPA and WDNR requested confirmation groundwater sampling by the contractor, which was completed and reported in March 2004. WDNR sent U.S. EPA a memo in October 2004 stating they would concur with U.S. EPA approval of SVE system closure including industrial property controls. U.S. EPA and WDNR are planning on approving permanent SVE closure, after a deed restriction is produced by the responsible party contractor so it can be reviewed and recorded.

VI. Five Year Review Process

A. Administrative Components

The Wausau Groundwater Five Year Review was prepared by Jeff Gore, U.S. EPA Remedial Project Manager for the Site. Eileen Kramer, State Project Manager with the Wisconsin Department of Natural Resources (WDNR), also assisted with the review. The five year review consisted of a Site inspection and review of relevant documents.

B. Community Involvement

The completed report will be available in the Site information repository and the U.S. EPA website for public view. An advertisement notice announcing the five year review process was placed for public viewing in the Wausau Daily Herald newspaper on May 12, 2005.

Community relations ongoing at the Wausau Groundwater Site include the comprehensive sampling program currently being carried out to assure that the residents human health and environment is protected, and contaminants are contained and treated by the Site remedy.

C. Document Review

Documents reviewed in preparation of this five year review report include the following:

1) Five Year Review Report, Wausau Groundwater Site, 7/10/00

2) RD/RA Consent Decrees, Wausau Groundwater Site, January 1991 & September 1989

3) Record of Decisions, Wausau Groundwater Site, September 1989 & December 1988

4) Wausau Groundwater Site file, and operation & maintenance documents

The following standards were identified as applicable or relevant and appropriate requirements (ARARs) in the ROD and previous five year review for the Site, and were reviewed for changes that could affect protectiveness:

- Safe Drinking Water Act Maximum Contaminant Levels (MCLs);

-Resource Conservation and Recovery Act (RCRA) hazardous and solid waste disposing and storage regulations;

- Clean Water Act (CWA);

- Department of Transportation (DOT) hazardous materials rules;

- State of Wisconsin requirements for soil, groundwater, surface water and air compliance;

- City of Wausau Municipal Code requirements

D. Data Review

The Wausau Groundwater Consent Decree operation and maintenance sampling has been

completed and reported at the Site through the end of 2003. The 2004 Annual Monitoring Report is currently in draft review. Approximately 30 sampling locations are monitored in the program each year for VOCs. Extraction well EW1 is also sampled quarterly for flow rate (approximately 800 gpm) and VOCs. The objective of the groundwater monitoring program at the Site is to ensure containment of the contaminant plume, and a move toward improvement in groundwater quality.

The primary VOCs found in the plume on the west bank of the Wisconsin River were trichloroethane (TCE) and its degradation compound cis-1,2-dichloroethene (C12DCE). Vinyl chloride was detected in one well on the west bank. Seven monitoring wells in this area during 2003 produced TCE concentrations greater than 5 micrograms per liter (ug/l). VOCs were found in the shallow portions of the aquifer at the southern portion of the west bank, but were found in the deeper portions of the aquifer at the northern portion of the west bank. The extraction well EW1 is located along the west bank.

VOCs found in the plume on the east bank of the Wisconsin River include tetrachloroethene (PCE), TCE, C12DCE and vinyl chloride. Two wells on the east bank had PCE concentrations above 5 ug/l in 2003. One location had TCE levels above 5 ug/l and a well had vinyl chloride levels above 2 ug/l. The City of Wasuau's treatment plant including air strippers is located on the east bank.

Although significant reductions in groundwater contamination are evident in many areas of the west and east banks, it is expected that extraction well EW1 and the treatment system at the City of Wausau's treatment plant will operate for the foreseeable future.

The soil vapor extraction (SVE) system has been shut off since January 2001. U.S EPA and WDNR are currently in the process of reviewing final approval of completion of the soil remedy of the Wausau Groundwater Site. We are currently waiting to receive and review a property deed restriction from the responsible party contractor.

E. Site Inspection

The Wausau Groundwater Site has been visited a number of times by the current remedial project manager since the last five year review. The most recent visit was performed on May 4, 2005, in order to inspect the Site for this five year review. Jeff Gore of U.S. EPA and Eileen Kramer of WDNR were present during the May inspection.

The Site was found to be in good condition during the inspection. Recent metal labels put on the monitoring wells made them easy to locate. A walk around the Site showed no signs of any vandalism with minor disturbances. The disturbances involved what looked to be vehicles running into a small number of bumper posts and wells. One groundwater well, WC4A, was found not to have a lock.

Issues found during the five year review inspection were minor and included:

1) Monitoring well WC4A needs to have a lock placed on it.

2) Monitoring well WC5 had a bumper that was broken and falling over.

3) W52/W52A were located in a depression area and the concrete was starting to break up.

4) An unmarked rusted well casing in the back Wausau Chemical parking lot was severely dented.

VII. Assessment

The following questions address the protection of human health and the environment of the remedy at the Wausau Groundwater Superfund Site.

Question A: Is the remedy functioning as intended by the decision documents? Yes.

- **Implementation of Institutional Controls and Other Measures:** The 1988 and 1989 Wausau Groundwater RODs required utilizing the City of Wausau's existing municipal wells and treatment plant. The Wausau Municipal Code outlines a Wellhead Protection ordinance in Chapter 23.54, and also addresses a Private Water Well ordinance in Chapter 19.30. These controls remain in place with the City of Wausau, in order to protect the remedy and control land and groundwater use. A property deed restriction document is also currently being drafted by the responsible party contractor to address the completion of the soil remedy on the Wausau Chemical facility property. Wausau Chemical is being required to classify and assess controls on their industrial property to ensure protection of human health and the environment, and to protect the remedy.

- **Remedial Action Performance:** The remedial action components included in the Wausau Groundwater 1988 and 1989 RODs have been implemented. Construction and operation of a treatment system for the groundwater municipal system, installation of a groundwater extraction well located in the west bank contaminant plume, and construction and operation of a soil vapor extraction (SVE) system have all been completed in accordance with approved work plans. The Preliminary Close-Out Report signifying construction completion was finalized in March 1994.

- **System Operations/O&M:** The City of Wausau's treatment plant with air strippers regularly operates as an integral part of the City's municipal groundwater system. The extraction well on the west bank discharges into the Wisconsin

River under an approved permit. It originally operated at 1600 gallons per minute (gpm), but was later reduced to 800 gpm based on groundwater modeling. This extraction well continues to operate at 800 gpm. The soil vapor extraction system began operating in January 1994. The west bank SVE system was shut down in April 1996. The east bank SVE system was shut down in January 2001. Formal soil remedy completion will be given after a deed restriction is produced and reviewed for the Wausau Chemical facility property.

- **Cost of System Operations/O&M:** Current annual O&M costs at the Wausau Groundwater Site are primarily contributed to operation, maintenance, reporting and management of the Site groundwater treatment systems. 2004 Site estimated annual costs are approximately $100,000. Other costs involve U.S. EPA and WDNR project manager time and travel related to the Site, and unexpected Site construction or maintenance.

- **Opportunities for Optimization:** Final completion and approval of the soil remedy at the Wausau Groundwater Site will formalize the shut down of all SVE wells. As a result, there would not be any need for further operation and maintenance sampling associated with the soil portion of the Site remedy. The groundwater monitoring program was modified and optimized in 2000, which created a reduction in the number of wells and constituents being sampled.

- **Early Indicators of Potential Remedy Issues:** There have been no indicators of significant potential remedy issues in relation to the Wausau Groundwater Site since the last five year review in 2000. The Site groundwater treatment system should operate for the foreseeable future, since contaminant levels are substantially above remedial action cleanup standards.

Question B: Are the assumptions used at the time of remedy selection still valid? Yes.

- **Changes in Standards and To Be Considered:** Standards outlined in the 1988 and 1989 Wausau Groundwater RODs and 1989 and 1991 Consent Decrees are still valid at the Site. Wisconsin enforcement standard NR140 for vinyl chloride is 0.2 ppb, as opposed to the U.S. EPA drinking water standard of 2 ppb.

- **Changes in Exposure Pathways:** No new exposure pathways have been discovered at the Wausau Groundwater Site since the last five year review in 2000.

- **Changes in Toxicity and Other Contaminant Characteristics:** Toxicity and other factors for contaminants of concern have not changed since the last five year review in 2000.

- **Changes in Risk Assessment Methodologies:** Risk assessment methodologies used at the Wausau Groundwater Site since the last five year review in 2000 have not changed, and do not call into question the protectiveness of the remedy.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy? No.

No other information has come available that could question the remedy for Wausau Groundwater. The Site remedy remains protective of human health and the environment.

VIII. Issues

Issues that were discovered during the five year review process and the Wausau Groundwater Site inspection are noted in Table 2.

Table 2: Identified Issues

Five Year Review Issues	**Affects Current Protectiveness (Y/N)**	**Affects Future Protectiveness (Y/N)**
Review Wausau Chemical property deed restriction for SVE system closure	N	N
Continue to monitor groundwater treatment system to assure Site containment and treatment	N	N
Continue monitoring extraction well EW1 discharge to Wisconsin River to assure permit requirements are met	N	N
Issues Noted at Site Inspection		
Provide lock for monitoring well WC4A	N	N
Repair or replace monitoring well WC5 bumper	N	N
Fill in depression and repair concrete at monitoring wells W52/W52A	N	N
Abandon or repair severely dented and rusted well casing in back Wausau Chemical parking lot	N	N

IX. Recommendations and Follow-up Actions

The following recommendations and follow-up actions address the issues which were identified during the five year review and Site inspection:

1) Review Wausau Chemical property deed restriction produced by responsible party contractor before initiating soil remedy completion.

2) Operation and maintenance annual monitoring should continue on the groundwater treatment system to assure Site plume containment and treatment.

3) Extraction well EW1 monitoring (currently quarterly) should continue to assure Wisconsin River permit requirements are met.

4) Lock needs to be provided for monitoring well WC4A by responsible party contractor.

5) WC5 bumper needs to be repaired or replaced by responsible party contractor.

6) W52/W52A depression area and damaged concrete need to be repaired by responsible party contractor.

7) Severely dented and rusted unmarked well casing in back Wausau Chemical parking lot needs to be abandoned or repaired by responsible party contractor.

Table 3 : Recommendations and Follow-up Actions

New Five Year Review Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Mile-stone Date	Affects Protective ness (Y/N) Current, Future
Property deed restriction	Provide deed restriction for agency review	Wausau Groundwater Group/CRA	EPA/WDNR	2005/ As soon as possible	N, N
Monitor groundwater system	Continue Site monitoring program	Wausau Group/ CRA	EPA/WDNR	2005/ ongoing	N, N
EW1 monitoring	Continue monitoring EW1	Wausau Group/ CRA	EPA/WDNR	2005/ ongoing	N, N

Inspection Site Issues					
Well WC4A lock	Provide lock	Wausau Group/ CRA	EPA/WDNR	2005/ ASAP	N, N
Well WC5 bumper	Repair or replace bumper	Wausau Group/ CRA	EPA/WDNR	2005/ ASAP	N, N
W52/W52A depression	Fill depression and repair concrete	Wausau Group/ CRA	EPA/WDNR	2005/ ASAP	N, N
Unmarked dented well casing	Abandon or repair well casing	Wausau Group/ CRA	EPA/WDNR	2005/ ASAP	N, N

X. Protectiveness Statements

Completion of the current five year review confirms that the Wausau Groundwater Superfund Site remains protective of human health and the environment, and there are no known exposure pathways that could result in unacceptable health risks. The components of the remedy selected in the 1988 and 1989 Wausau Groundwater Site RODs have been implemented under the 1989 and 1991 Consent Decrees.

The City of Wausau's treatment plant regularly operates as an integral part of the City's municipal groundwater system and assures protectiveness under the Wausau Municipal Code requirements. Extraction well EW1on the west bank of the Wisconsin River continues to operate under an approved permit, and is monitored under the ongoing Site operation and maintenance monitoring program. The west bank SVE system was shut down in April 1996 and the east bank SVE system was shut down in January 2001 after U.S. EPA and WDNR requirements were met. Formal soil remedy completion will be given after a deed restriction is produced and reviewed for the Wausau Chemical facility property.

Since it is unlikely that Site groundwater cleanup standards will be met during the next five years, operation of the groundwater treatment systems should be continued for the foreseeable future.

XI. Next Review

The Wausau Groundwater Superfund Site requires ongoing policy five year reviews until unrestricted use and unlimited exposure is obtained. The next review will be scheduled to be completed by July 2010, and will be five years from the completion date of this report. The

completion date of the current five year review is the signature date shown on the cover attached to the front of this report.

FIVE YEAR REVIEW REPORT
LIST OF DOCUMENTS REVIEWED
JULY, 2005

WAUSAU GROUNDWATER SUPERFUND SITE

WAUSAU,
WISCONSIN

1) Five Year Review Report, Wausau Groundwater Site, July 2000

2) RD/RA Consent Decree, Wausau Groundwater Site, January 1991

3) RD/RA Consent Decree, Wausau Groundwater Site, September 1989

4) Record of Decision, Wausau Groundwater Site, September 1989

5) Record of Decision, Wausau Groundwater Site, December 1988

6) Wausau Groundwater Site file, and operation & maintenance documents.

7) Wausau, Wisconsin Municipal Codes regarding private water wells and well head protection overlay district.

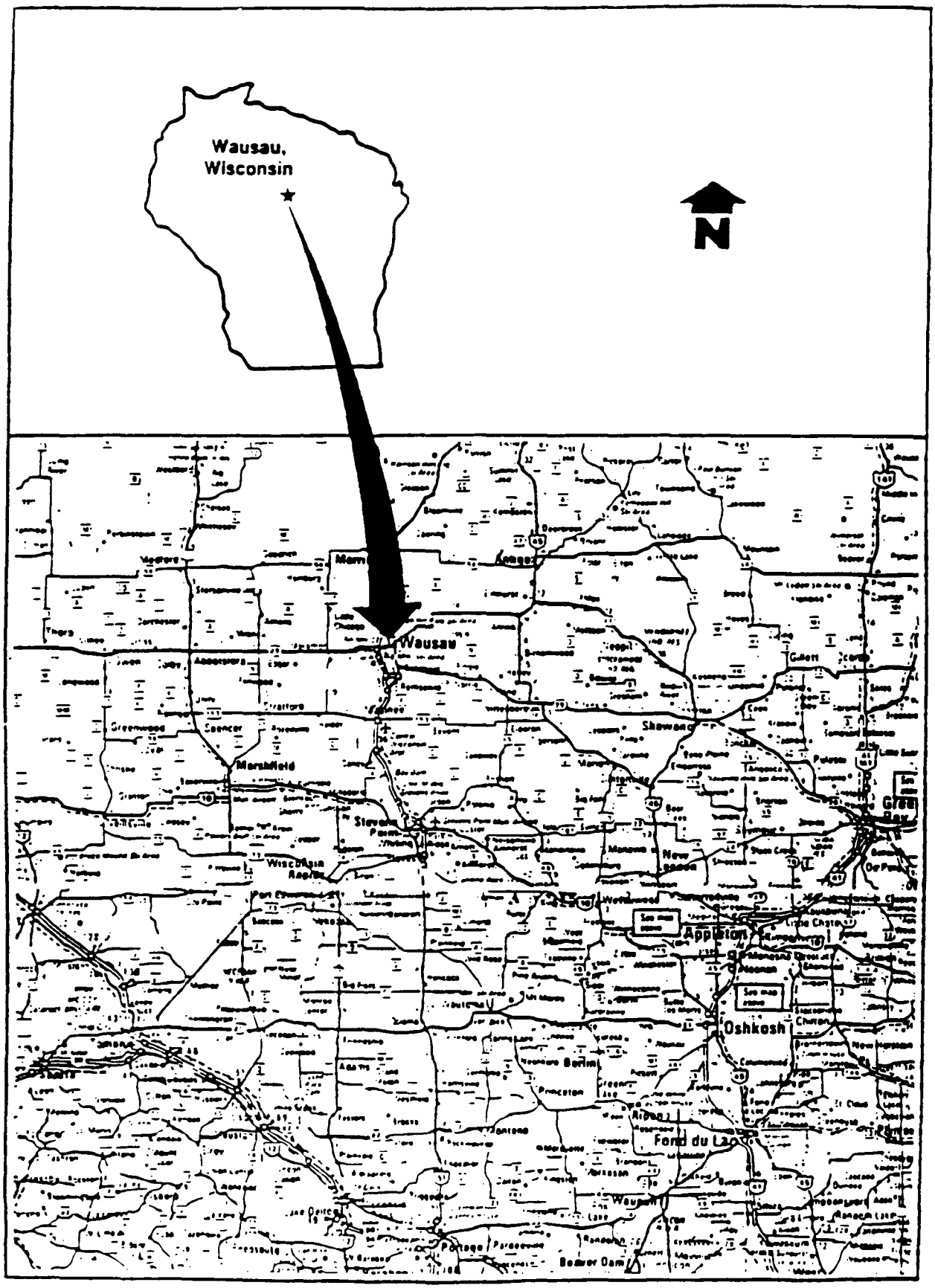

FIGURE 1 REGIONAL LOCATION MAP

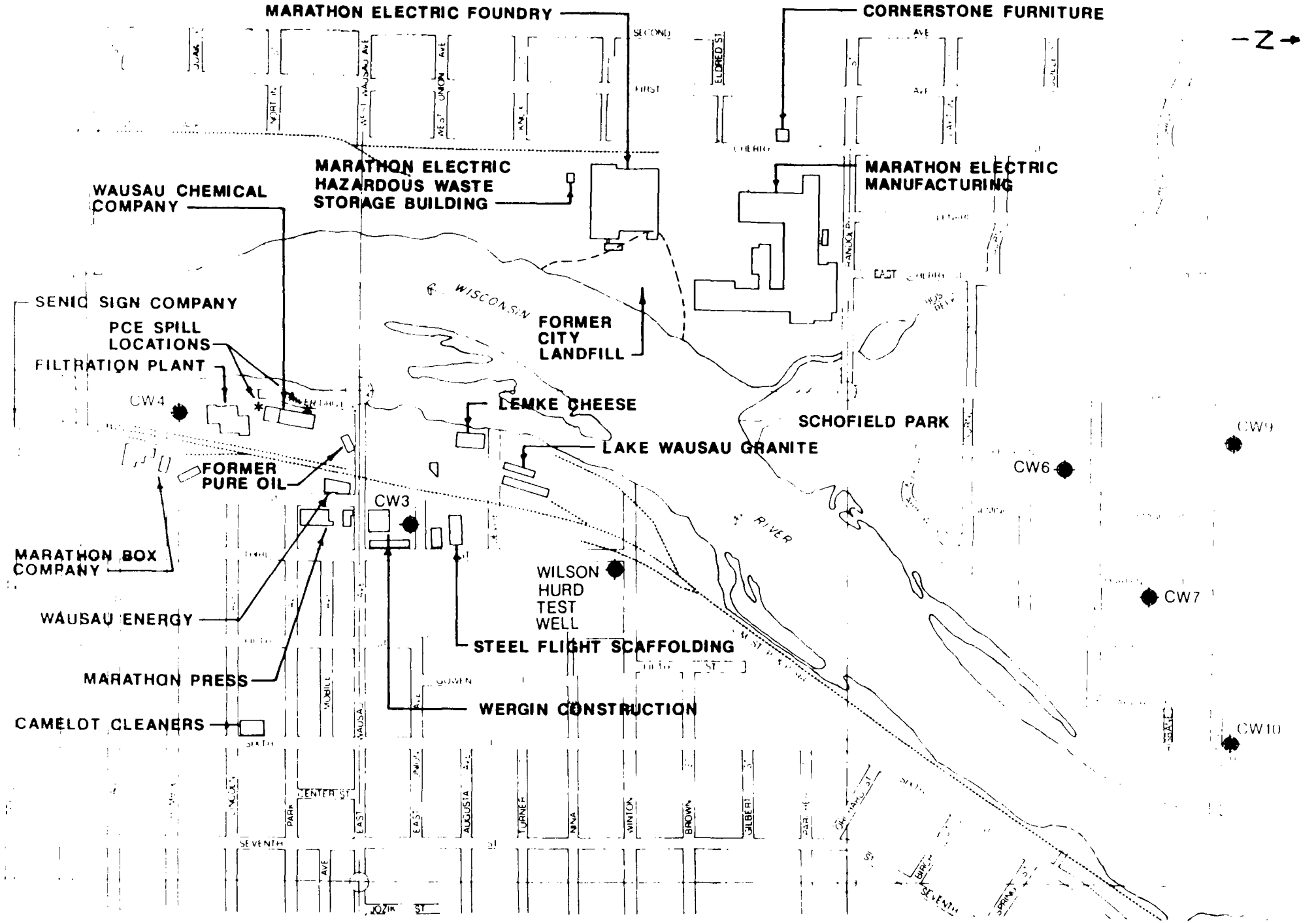
MARATHON ELECTRIC FOUNDRY
CORNERSTONE FURNITURE
MARATHON ELECTRIC HAZARDOUS WASTE STORAGE BUILDING
MARATHON ELECTRIC MANUFACTURING
WAUSAU CHEMICAL COMPANY
SENIC SIGN COMPANY
PCE SPILL LOCATIONS
FILTRATION PLANT
CW4
FORMER CITY LANDFILL
LEMKE CHEESE
SCHOFIELD PARK
LAKE WAUSAU GRANITE
CW9
CW6
FORMER PURE OIL
CW3
MARATHON BOX COMPANY
WILSON HURD TEST WELL
CW7
WAUSAU ENERGY
STEEL FLIGHT SCAFFOLDING
MARATHON PRESS
WERGIN CONSTRUCTION
CAMELOT CLEANERS
CW10
W. WISCONSIN
WISCONSIN RIVER
SECOND
FIRST
SEVENTH
CENTER ST
EAST
AUGUSTA
TURNER
WINTON
BROWN
GILBERT
MOBILL

Figure 2