EPA Region 5 Records Ctr.
224718

Five Year Review

Pursuant to CERCLA

Second Five-Year Review Report for Better Brite Superfund Site De Pere, Brown County, Wisconsin

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In conjunction with:

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11-23-04

Date

EXECUTIVE SUMMARY

The Better Brite Superfund site consists of 2 separate properties (The Better Brite Zinc & Chrome Shops). These 2 properties were included on the NPL as one site due to similarities in contaminants, site history and ownership.

The Record of Decision (ROD) for the final remedial action was signed on September 24, 1996. This ROD called for soil stabilization at the Chrome Shop and moving the groundwater extraction and treatment system to the Zinc Shop. During the fall of 1999, soil stabilization was implemented to a depth of approximately 20 feet below ground surface at the former Chrome Shop site. The groundwater treatment building was dismantled and moved to the former Zinc Shop site. The groundwater extraction and treatment system began operating at the former Zinc Shop site in November of 1999 and is currently being maintained by the Wisconsin Department of Natural Resources (WDNR). WDNR is funded for for these activities for 10 years under a Cooperative Agreement with USEPA. A Preliminary Closeout Report (PCOR) was signed for the Site in February 2000, once all the construction was completed at the Site and the shakedown period for the groundwater extraction and treatment system at the Zinc Shop had been completed.

Groundwater quality and public health concerns are being assessed via groundwater monitoring at both the Zinc and Chrome Shops.

Soil stabilization at the Chrome Shop appears to have lowered the concentrations of the main contaminant (chromium) significantly. The WDNR expects to operate the groundwater extraction and treatment system at the Zinc Shop for several years (some estimates up to 30-50 years). The groundwater plume is controlled by the groundwater extraction system and groundwater monitoring indicates minimal threat to neighboring property owners. The WDNR and EPA certify that the work conducted to date and the remedies selected are being monitored and continue to remain protective of human health and the environment.

Table of Contents

Section		
Executive Summary		2
Table of Contents		3
List of Acronyms		5
Five-Year Review Summary Form		6
I.	**Introduction**	9
II.	**Chronology**	9
III.	**Background**	
	Physical Characteristics	10
	Land and Resource Use	10
	History of Contamination	10
	Basis for Taking Action	11
	Initial Response	11
IV.	**Remedial Actions**	
	Remedy Selection	14
	Remedy Implementation	14
V.	**Progress Since Last Five Year Review**	15
VI.	**Five Year Review Process**	
	Administrative Components	15
	Community Involvement	15
	Document Review/Data Review	16
VII.	**Technical Assessment**	
	Question A: Is the remedy functioning as intended by the decision documents?	16
	Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of remedy selection still valid?	16

Question C: Has any other information come to light that could call into question the protectiveness of the remedy? 16

VIII. Issues 17

IX. Recommendations and Follow-up Actions 17

X. Protectiveness Statement 17

XI. Next Five Year Review 17

Attachment

Chapter 26 of the Municipal Code for DePere, Wisconsin

List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
MCL	Maximum Contaminant Level
NCP	National Priorities List
O&M	Operation and Maintenance
PRP	Potentially Responsible Party
RA	Remedial Action
RCRA	Resources Conservation and Recovery Act
RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RPM	Remedial Project Manager
USEPA	United States Environmental Protection Agency
USDOJ	United States Department of Justice
WDNR	Wisconsin Department of Natural Resources

Five-Year Review Summary Form

SITE IDENTIFICATION		
Site name *(from WasteLAN)*: BETTER BRITE PLATING CO. CHROME AND ZINC SHOPS		
EPA ID *(from WasteLAN)*: WIT560010118		
Region: 5	**State:** WI	**City/County:** Brown

SITE STATUS	
NPL status: Final	
Remediation status Complete	
Multiple OUs?* Yes	**Construction completion date:** 02/08/2000
Has site been put into reuse? NO	

REVIEW STATUS	
Lead agency: USEPA Region 5	
Author name: Keld Lauridsen and Jon W. Peterson	
Author title: Project Managers	**Author affiliation:** WDNR and USEPA

Review period:** 11/23/1999 to 11/23/2004
Date(s) of site inspection: May 6, 2004
Type of review: Post SARA
Review number: Second
Triggering action: Last Five Year Review
Triggering action date *(from WasteLAN)*: November 23, 1999
Due date *(five years after triggering action date)*: November 23, 2004

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

Five-Year Review Summary Form, cont'd.

Issues:

Stabilized Chromium in soil remains at the properties under structures and asphalt. This has to be officially recorded for this property.

The groundwater standards have not been achieved in the area around the Site.

Recommendations and Follow-up Actions:

Conduct reviews at minimum 5-year intervals to ensure the remedy maintains its protectiveness.

Protectiveness Statement(s):
The remedy at the Better Brite Site is currently protective of human health and the environment.

Long term protectiveness will be attained when groundwater clean-up standards are met throughout the plume and proprietary controls are obtained on the properties to prevent excavation of stabilized soils.

Other Comments:

I. INTRODUCTION

A. Authority and Purpose

Section 121 (C) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by SARA and Section 300.430 (f) (4) (ii) of the National Contingency Plan (NCP), require that periodic (no less often than five years) reviews are to be conducted for sites where hazardous substances, pollutants or contaminants remain at the site at levels that do not allow for unlimited use and unrestricted exposure following the completion of all remedial actions for the site. The purpose of this five-year review is to evaluate whether the remedial actions implemented continue to be protective of human health and the environment. This review focuses on the protectiveness of the Better Brite Superfund Site, De Pere, Wisconsin. This review will be placed in the Site files and at the local repository for the Better Brite Superfund Site at the Brown County Public Library, De Pere Branch, DePere, Wisconsin.

EPA, Region V, and the Wisconsin Department of Natural Resources (WDNR) conducted the second five-year review of the remedy implemented at the Better Brite Site in De Pere, Wisconsin. This review was conducted by Keld Lauridsen, State Project Manager and Community Involvement Coordinator of WDNR and Jon Peterson, Remedial Project Manager of EPA, during October and November 2004. This documents the results of the review.

This is the second five-year review for the Better Brite Site. The triggering action for this statutory review is November 23, 1999, which is the signature date of the first five-year review report. The five-year review is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

II. SITE CHRONOLOGY

October 1986 and October 1993	Fund Lead Removal Action
October 26, 1989	Proposed for the NPL
August 30, 1990	Finalized on NPL
September 1995	State-lead Remedial Investigation and Feasibility Study (RI/FS) for the Better Brite site was finalized
September 24, 1996	WDNR and EPA issued a Record of Decision (ROD) for a final remedial action at the site
August 23, 1999	Remedial construction activities began at the Chrome Shop
October 29, 1999	Soil stabilization at the Chrome Shop was completed

Week of September 13, 1999.	The foundation drains were installed at the Zinc Shop site
Beginning on October 20, 1999	The treatment building and system was relocated and reinstalled at the Zinc Shop portion of the Better Brite site
November 8, 1999	The WDNR, HSI Geotrans, Inc, RMT, Inc., and the City of De Pere conducted a pre-final inspection of the construction conducted during the remedial action
November 1999	First five-year review completed
December 1999	The groundwater recovery & treatment system restarted
May 6, 2004	Last Site Inspection

III. BACKGROUND

Physical Characteristics

This National Priority List (NPL) site consists of two separate properties where Better Brite formerly operated a metal plating business. The properties are known as the Chrome Shop and Zinc Shop. The Better Brite Chrome and Zinc Shops are located at 519 Lande Street and 315 South Sixth Street, respectively, in the City of De Pere, Brown County, Wisconsin. The sites are approximately 2,000 feet apart in Sections 21 and 28 De Pere Township (T23N, R20E).

The Chrome Shop property comprises 3.7 acres and the Zinc Shop property comprises 0.61 acres. Both sites are approximately ¼ mile west of the Fox River, and are in primarily residential areas.

Land and Resource Use

Better Brite began operations at the Zinc Shop in the late 1960's. Vertical in-ground dip tanks were used for chromium plating operations. By 1978 chrome plating operations began at the Chrome Shop site, and operations at the Zinc Shop had been converted to zinc plating only. The Chrome Shop engaged in plating of 15 to 20-foot rollers for paper mills in the area.

History of Contamination/Initial Response

Numerous complaints of spills and dumping from neighbors and employees prompted the initial investigations of the site by the Wisconsin Department of Natural Resources (WDNR) in 1979. Limited site investigation and remedial efforts were conducted throughout the 1980s. Better Brite filed for bankruptcy protection in 1985. After exhaustive action to identify responsibility for releases at the site, it was determined that there was no viable responsible party. Therefore,

the WDNR and EPA assumed responsibility for funding the remedial action (RA) to alleviate the threat to public health.

Basis for Taking Action

The Better Brite sites were nominated for inclusion on the NPL in October 1989, and added to the list on August 28, 1990. The Chrome and Zinc Shops were combined as one site for joint nomination to the NPL due to their proximity to one another and their related background. The WDNR and EPA conducted a Remedial Investigation and Feasibility Study (RIFS) from 1990 to 1995. The selected remedial options are consistent with the Record of Decision declaration (ROD) prepared by the WDNR and EPA issued September 24, 1996.

INITIAL RESPONSE

Historical Actions

Initial investigation work at the Better Brite Chrome Shop site was conducted in September and October 1979. Soil samples indicated the area of contamination was south and west of the plating building extending to a surface drainage ditch. The depth of contaminated soil was estimated at 6.5 to 9 feet below ground surface (bgs). Total chromium was detected in groundwater samples ranging from 62 to 429 milligrams per liter (mg/L). Hexavalent chromium was detected in the groundwater samples at levels ranging from 60 to 280 mg/L. Surface water concentrations of total chromium and hexavalent chromium were 1,511 mg/L and 1,440 mg/L, respectively.

A Remedial Action Plan (RAP) was prepared for the site in April 1980. The proposal included a drainage trench, a surface water control system, and limited contaminated soil excavation. Plans were made to discharge groundwater with concentrations of chromium greater than 0.5 mg/L to the De Pere sanitary sewer. Groundwater containing less than 0.5 mg/L chromium would be discharged to the storm sewer. Better Brite implemented the proposals.

In May of 1984, the EPA conducted an inspection of the site. The EPA noted that groundwater collecting in the drainage trench was discharged to the storm sewer. Also noted was a black "tarry" substance leaking from the building and the ventilation system. The black "tarry" substance was found to contain chromium at concentrations up to 550,000 milligrams per kilogram (mg/kg).

The EPA conducted two site inspections of the Chrome Shop in 1986. Physical observations of the property were made and soil samples were collected during the first site inspection on April 22, 1986. During the second inspection on June 20, 1986, EPA noted that four vertical underground plating tanks were removed and discolored groundwater was collecting in the voids.

Removal Actions

Based on the results of the inspections, a Site Assessment and Emergency Action Plan was prepared in September 1986. The plan concluded that the Chrome Shop posed an immediate threat to human health. A Phase 1 removal action was conducted at the Chrome Shop between September and December 1986. Chromic acid, cyanide and other hazardous materials were removed and disposed. Additional groundwater monitoring wells and bedrock piezometers were installed in October 1987.

The EPA constructed an on-site water treatment system in September 1990. By November of 1990 the treatment facility at the Better Brite Chrome facility was functional. Treatment of recovered groundwater consists of precipitation of the chromium followed by settling and filtration. The remaining cake is hauled away for further treatment and disposal.

The EPA conducted a Phase 2 removal action at the Chrome Shop in 1993. Approximately 5,000 tons of contaminated soil was removed from the southwest corner of the property. The groundwater collection system was enlarged to include the entire excavation cavity created by the removal of contaminated soils.

ZINC SHOP

Historical Actions

A series of site investigations were conducted at the Zinc Shop and surrounding properties. The EPA conducted a site assessment in October 1986. Chromium and zinc contamination was detected in water samples collected from the Zinc Shop sump and the sump located in the residence south of the site. The EPA also conducted an inventory of materials and storage units on site.

In June 1987 the WDNR conducted a site screening evaluation. Site activities included performing soil borings and installing groundwater monitoring wells to characterize site soils, determine the direction of groundwater flow, and analyze soil and groundwater samples for contamination. Various contaminants, primarily chromium, were detected in soil and groundwater at the site, on properties surrounding the site, and in the sumps of adjacent homes.

Removal Actions

The EPA performed a second site assessment at the Zinc Shop in October 1989. The assessment confirmed the WDNR report of contamination and illegally stored hazardous substances. Based on the results of the site assessment, the EPA conducted a removal action consisting of sampling and sorting hazardous materials, securing and heating the building, removal of wastes, decontaminating the building and compiling the analytical results of previous investigations.

The EPA constructed a groundwater recovery sump along the east side of the building in 1990. Approximately 350 cubic yards of chromium contaminated soil was excavated and disposed of

during the installation of the sump. The EPA conducted additional decontamination of the building and investigation beneath the concrete slab foundation in 1991.

The Zinc Shop burned down in September 1992. The EPA removed the building and the slab foundation in November 1992. Contaminated soil was excavated from beneath the slab and the groundwater collection sump was enlarged to include the area beneath the building. Approximately 6,032 tons of chromium contaminated soil, concrete, and building debris was removed from the site and disposed. The excavation and sump construction activities were completed in January 1993. Contaminated groundwater was extracted from a sump regularly and trucked to the Chrome Shop for treatment until the Fall of 1999.

Effectiveness of Removal Actions

Total chrome concentrations have decreased dramatically at the Chrome Shop between 1994 and 1998. Total chromium concentrations in influent water samples collected from the Chrome Shop in 1994 were approximately 500,000 micrograms per Liter (ug/L). Concentrations of total chromium decreased to approximately 150,000 ug/L in 1999.

A similar decrease in total chrome concentration appears to be occurring at the Zinc Shop. Concentrations of total chromium in groundwater extracted from the sump at the Zinc Shop were approximately 600,000 ug/L in 1993. Total chromium concentrations decreased to approximately 100,000 ug/L in 1996 and to approximately 65,000 ug/L by 1999. Through August 1999, approximately 2,330,000 gallons of chromium contaminated water had been removed from the Zinc Shop and Chrome Shop sumps.

Remedial Investigation and Feasibility Study

The remedial investigation and feasibility study (RIFS) for the site was finalized in September 1995. The RI concluded that releases of contaminants occurred resulting in impacts to soil, groundwater, and possibly air and surface water. Contaminants relating to the plating operation, including metal plating solutions and solvents, were discharged primarily from leaking underground plating tanks, drum and roll-off box storage areas, and surface spills. As a result, both inorganic and VOC contaminants are present at the sites.

Chromium is the primary contaminant of concern in groundwater at both the Zinc Shop and the Chrome Shop. A large percentage is present in the form of hexavalent chromium, which is the most mobile and most dangerous form of chromium. Antimony, arsenic, beryllium, cadmium, cyanide, iron, lead, nickel, silver, and thallium were also detected in groundwater at one or more locations at concentrations in exceedance of Wisc. Admin. Code NR 140 regulatory limits.

Contaminants at both sites are limited to the upper portion (top 25 feet) of the unconsolidated deposits. Groundwater is the primary migration pathway of concern. Contaminants are present in groundwater at levels that exceed regulatory limits for safe drinking water.

IV. REMEDIAL ACTIONS

REMEDY SELECTION

On September 24, 1996 the WDNR and EPA issued a Record of Decision (ROD) for a final remedial action at the site. The major components of the remedy include:

- Extraction of groundwater at the Zinc Shop from the existing groundwater extraction sump.
- Relocation of the treatment plant, which is currently located at the Chrome Shop, to the Zinc Shop.
- Stabilization of hexavalent chromium (change to trivalent) in soil/groundwater by addition of a compound to the soil to prevent further migration of chrome contamination.
- Construction of new exterior foundation drains at two properties near the Zinc Shop site with collected water pumped to the pretreatment facility at the Zinc Shop site.
- Continued groundwater monitoring at the Chrome Shop and the Zinc Shop to evaluate the effectiveness of the remedial action. Groundwater monitoring will include the replacement of select monitoring wells at the Chrome Shop that were removed during soil stabilization activities.

The Final Design Report (FDR), prepared by HSI Geotrans, was completed in January 1999. This is the final remedial design for the remedy selected in the ROD.

REMEDY IMPLEMENTATION

Remedial action activities began at the Better Brite Site on August 23, 1999. The area with groundwater impacted by hexavalent chromium at the Chrome Shop was stabilized by mixing a chemical reductant into the soil to a depth of 20 feet below ground surface. The stabilization process was performed in two foot lifts and resulted in the conversion of hexavalent chromium in soil and groundwater to the trivalent state which limits the potential for contaminant migration. Soil stabilization at the Chrome Shop was completed on October 29, 1999. Relocation and restart of the groundwater recovery and treatment system at the Zinc Shop was completed by the end of 1999. The replacement monitoring wells at the Chrome Shop were installed during the winter of 1999-2000. The extraction of hexavalent chromium-contaminated groundwater and subsequent pretreatment prior to discharge to the sanitary sewer is ongoing.

The annual Operation and Maintenance costs have been averaging from $21,500 to $23,000 per year. This includes approximately $3000 per quarter that the City of DePere charges the WDNR to operate the treatment system or $12,000 per year; $3000 per year for sludge disposal; $5000 per year for groundwater monitoring and up to $3000 per year for WDNR salary.

Institutional Controls

Both the Chrome and Zinc Shop properties are currently capped with building structures, asphalt pavement or a vegetative surface cover which will effectively eliminate any direct contact concerns.

No institutional controls in the form of proprietary controls have been implemented yet. Closure of the Better Brite Superfund site is not expected to occur at any time within the near future.

However, the City of DePere strictly regulates all well construction and abandonment within the City Limits. Chapter 26 of the municipal code of DePere requires hook up to the City water line anywhere within the City limits and strictly regulates any installation of wells. Chapter 26 of the municipal code is attached to this document.

V. PROGRESS SINCE LAST FIVE YEAR REVIEW

Post-remedial groundwater monitoring events have occurred during May 2000, November 2000, June 2001, November 2001, May 2002, November 2002, May 2003 and May 2004 from select monitoring points. Sampling results generally indicate a significant decline when compared to the pre-remedial sampling results. Sentinel monitoring points indicate that the remedial action appears to have been successful but additional monitoring is needed to verify this. Select site monitoring points are currently being sampled annually. Next sampling event is anticipated to occur during May 2005. If contaminant concentrations appear to have stabilized, a biannual sampling schedule will be implemented.

VI. FIVE YEAR REVIEW PROCESS

Administrative Component

The Better Brite Five Year Review team was led by Keld Lauridsen of the WDNR, currently assigned as both the State Project Manager and the Community Involvement Coordinator for the Better Brite Chrome and Zinc Shops Superfund Site. Jon Peterson, who is assigned as Remedial Project Manager on the Site and Tom Turner, who is assigned as the Associate Regional Counsel on the Site, also assisted in the review.

The five year review consisted of a Site inspection and review of relevant documents. The completed report will be available in the Site information repository and the U.S. EPA website for public view.

Community Involvement

The Community Involvement component of the five-year review process will occur through notification of the public of the five-year review in December 2004 through a press release and newspaper ad. Public comments will be solicited, reviewed and recorded.

Document Review/Data Review

Record of Decision, Groundwater Monitoring Reports, Operation and Maintenance Plan, the previous (1999) five-year review Report, and various Correspondence.

VII. TECHNICAL ASSESSMENT

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

Nothing observed at the Site would constitute an imminent threat to the integrity of the remedial action.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid? YES

There have been no changes in the physical conditions of the Site that would affect the protectiveness of the remedy.

As the remedial work has been completed, most ARARs or performance standards cited in the ROD have been met, with the exception of the groundwater standards.

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

There is no other information that calls into question the protectiveness of the remedy.

VIII. ISSUES

Stabilized Chromium in soil remains at the properties under structures and asphalt. This has to be officially recorded for this property.

The groundwater standards have not been achieved in the area around the Site.

IX. RECOMMENDATIONS

The WDNR and EPA recommend continued implementation of the September 24, 1996 ROD. These activities ensure the capture and treatment of groundwater contaminants and the eventual achievement of groundwater clean-up standards for contaminants at the site. And see Institutional Control (IC) assessment table following.

Issue	Recommendation	Responsible Party	Milestone	Protectiveness
Stabilized Chromium in soil remains at the properties under structures and asphalt/Notice to future owners	Place notice on the properties within 6 months of report/Obtain restrictive covenant or other proprietary control-according to IC Plan	WI	Obtain Notice and submit IC Plan within 6 months of report	Current: No Future: Yes
Continue groundwater pump and treat system until groundwater standards are achieved	Coordinate with and provide map of groundwater plume to city/Obtain residential well inventory of plume area	WI	Contact city within 6 months of report	Current: No Future: Yes

X. STATEMENT ON PROTECTIVENESS

The removal actions at the Chrome and Zinc Shop sites minimized the immediate threat to public health and safety. Removal of the most highly contaminated soils and the installation and operation of the groundwater pump and treat system has reduced the concentrations of contaminants at both sites. Implementation of the selected remedy will further reduce the risk to human health and the environment.

Soil stabilization activities and removal of additional contaminated soil at the Zinc Shop during foundation drain installation addressed the source of contamination and reduce the potential human health risks by minimizing the direct contact and inhalation exposure threat.

The selected remedial action for the groundwater contamination is effective in the reduction of chromium in groundwater at the Chrome Shop and the Zinc Shop and reduces the risks associated with the contaminants.

The WDNR and EPA certify that the work conducted to date and the remedies selected remain protective of human health and the environment.

XI. NEXT FIVE YEAR REVIEW

The next five-year review will be completed by November 23, 2009, which is approximately five years from the date of this review.

ATTACHMENT

Chapter26
Chapter26 WATER AND SEWER SERVICE*

*Cross references: City administration, ch. 10; construction site erosion control, ch. 42; plumbing code, ch. 66; sewerage system regulations and user charge system, ch. 70; public health, ch. 74; solid waste/curbside recyclable collection, ch. 82; housing code, ch. 94.

Sec. 26-1. Management of water utility.
Sec. 26-2. Water main installations.
Sec. 26-3. Water main extensions; assessment.
Sec. 26-4. Sewer main extensions; assessment.
Sec. 26-5. Storm drainage.
Sec. 26-6. Sump pump installation.
Sec. 26-7. Sewer inspector.
Sec. 26-8. Water use restricted; emergency shortage; declaring bans.
Sec. 26-9. Connection to water system required.
Sec. 26-10. Water utility rules and regulations adopted.
Sec. 26-11. Interconnections and cross connections.
Sec. 26-12. Private well regulation.

Sec. 26-1. Management of water utility.
(a) Pursuant to the provisions of Wis. Stats. § 66.068(7), the city water utility shall be operated and managed by the board of public works under direct supervision of the director of public works. The board's management of such utility shall be under the general control and supervision of the common council.
(b) The board of public works shall have the general powers and duties in its operation and management of such utility, as provided by law; and shall adopt such rules and regulations for the management of such utility as such board deems necessary.
(Code 1974, § 8.01)

Sec. 26-2. Water main installations.
(a) Upon the installing of any water mains in any street, service lines shall also be installed.
(b) Before a street is improved by the installing of curb and gutter or permanent surfacing, water service lines shall be installed.
(c) A building site shall consist of a lot or a parcel of property, which in the opinion of the director of public works/city engineer or his designee is an approved building site. The location of the service line shall be determined by the director of public works/city engineer or his designee.
(d) Upon the installation of a service line, the public works department shall be advised of the location of the service line, and the department of public works shall keep a permanent record of the installation.
(e) The water utility shall cause the property owner benefited by the installation to be billed, if the address of the property owner is known, and the property owner shall pay the charges of the installation within 30 days after the date of the sending of the bill. If the charges are not paid within 30 days, the charges shall become a special assessment against the property benefited, shall be extended on the tax roll and collected as a special assessment, the same as for the installation of water mains.
(f) For the property benefited by the installation of the water service line there shall be no tapping charge when a connection is made to the service line.
(Code 1974, § 8.02)

Sec. 26-3. Water main extensions; assessment.
Assessment for the extension of a water main shall be as provided in section 13-11 of this Code.
(Code 1974, § 8.03)

Sec. 26-4. Sewer main extensions; assessment.
All new storm sewer and sanitary sewer main extensions within the city may be chargeable to benefited property by means of a special assessment to be levied upon such property in the net amount of benefits over damages as determined by the common council pursuant to the procedures set forth in Wis. Stats. § 66.60. Laterals shall be installed at the time the storm sewer and sanitary sewer main extensions are installed for each building site, and such property may be assessed for benefits derived from such installation as determined by the common council in accordance with statutory procedure.
(Code 1974, § 8.04)

Sec. 26-5. Storm drainage.
(a) *Clear water.* Clear water shall include water from roof drains, surface drains, foundation water drains, cistern overflows, refrigerator cooling waters and water from air conditioning equipment.
(b) *Discharge to sanitary sewers.* No person shall discharge any clear water by means of sump pump or roof drains into any sanitary sewer, and no person shall permit rainwater or surface water to drain directly into any sanitary sewer.
(c) *Discharge to storm sewer.* All clear water shall discharge directly into a storm sewer where such sewer is available, and the director of public works may direct such connection if he deems it necessary and in the public interest.
(1) *Permit required.* No person shall open any street, alley or other public place for the purpose of connecting to a storm sewer or other terminal without first obtaining from the director of public works a written permit to open such street, alley or public place.
(2) *Inspection.* Any person receiving a permit to connect to a storm sewer shall notify the street superintendent whenever the work is ready for inspection. All work shall be left uncovered until examined and approved by him.
(d) *Discharge to public streets.* No person shall discharge any clear water directly into a public street or alley from November 1 to March 31, inclusive. No person shall discharge any clear water directly into a public street or alley from April 1 to October 31, inclusive, without first obtaining from the director of public works, a written permit to do so.
(e) *Discharge onto sidewalks.* No person shall permit the drainage of water directly onto any sidewalk or other public area.
(f) *Other discharges.* Where a storm sewer is not available, the discharge of clear water shall be either:
(1) Into a underground conduit leading into a drainage ditch or dry well;
(2) Onto the ground surface at least one foot from the building foundation and directed toward the front or rear lot line.
Such discharge shall not be directed so as to flow on adjacent property nor shall the discharge be allowed to accumulate and create ponds of standing water or other public nuisance. Nothing contained in this subsection shall act to relieve a person from complying with the other provisions of this section.
(g) *Correction; penalty.* Any person who is the owner of any building or land wherein there is a violation of the provisions of this section, shall cause the violation to be corrected within a maximum of 60 days after being notified in writing by the director of public works or sewer inspector, whose duty it shall be to enforce this section. Any person who shall thereafter continue to violate the provisions of this section shall be subject to the forfeiture provided for violation of this chapter. Nothing in this section shall preclude the city from maintaining any other appropriate action to prevent or remove a violation of this section.
(Code 1974, § 8.09)

Sec. 26-6. Sump pump installation.
(a) *Installation required; discharge regulated.* The installation of sump pumps shall be required in all residential, commercial and industrial buildings constructed after July 17, 1973. The effluent from all sump pumps installed pursuant hereto shall be discharged directly into the storm sewer where such sewer is available or can be made available.
(b) *Permits required; inspection.* Any person applying for the plumbing permit under this chapter shall certify to the issuing officer or department that a sump pump shall be installed within such building and shall submit plans and specifications relating to the connection of such pump to the storm sewer. The plumbing inspector or other officer, prior to issuing any permits, shall review and approve such plans and specifications. Any installation and connection hereunder shall be performed in such a manner as to allow for inspection by the plumbing inspector.
(Code 1974, § 8.10)

Sec. 26-7. Sewer inspector.
(a) *Qualifications.* There is hereby created an office of sewer inspector. The person chosen to fill the office of sewer inspector shall be well versed in the regulations of the city relating to storm drainage as set forth in sections 26-5 and 26-6.
(b) *Method of appointment.* The sewer inspector shall be appointed by the mayor, subject to confirmation by the common council.
(c) *Duties.* It shall be the duty of the sewer inspector to enforce the provisions of sections 26-5 and 26-6. The sewer inspector shall periodically submit to the board of public works a report on the results of his inspections and the status of compliance with the provisions of sections 26-5 and 26-6. In addition, the sewer inspector shall advise and assist the director of public works and his assistants in the discovery and solution of drainage and sewer related problems in the city.
(d) *Authority.* The sewer inspector, in the discharge of his duties, shall have the right to enter upon any property and have free and unobstructed access to any building or premises, or its part, during reasonable hours. He is hereby authorized and empowered to issue any order in the best interest of the general public to enforce compliance with sections 26-5 and 26-6, to reinspect, as provided, to determine such compliance, to issue citations for noncompliance and to commence appropriate actions to enforce the penalties provided.
(Code 1974, § 8.11)

Sec. 26-8. Water use restricted; emergency shortage; declaring bans.
Whenever the director of public works/city engineer shall advise the mayor in writing that the water supply of the city's water utility is being depleted and that normal levels of supply are not foreseen, or that a situation exists with respect to the city's water supply system requiring curtailed water use, the mayor may declare a water shortage emergency in the city and direct a ban on the use of water supplied by such facility for nonessential uses including, but not limited to, the watering of lawns, gardens, shrubbery and other domestic plant life. The mayor may use discretion in determining the extent of the restrictions based upon the seriousness of the supply depletion or system problem, and may direct a ban between specific dates or between the hours of 7:00 a.m. and 7:00 p.m.; may direct an alternating ban based on odd/even days of the month and property addresses; or may direct a ban composed of combinations of the foregoing restrictions. Any ban so imposed by the mayor shall remain in effect until such time as the mayor is advised that water supplies are sufficient to allow for cessation of such ban, whereupon the mayor shall direct that the ban is ceased. If the mayor declines to direct the cessation of such ban after having been advised by the water utility, in writing, that the cause for such ban no longer exists, the common council may consider the matter at any meeting upon the request of any member and may, by resolution, declare the cessation of such ban.
(Code 1974, § 8.12)

Sec. 26-9. Connection to water system required.
Pursuant to the provisions of Wis. Stats. § 144.06, to ensure preservation of public health, comfort and safety, any person owning property upon which buildings are used for human habitation and where such property is located adjacent to an installed water main shall connect to such water service within one year after receipt of notice to connect from the city. If such person fails or neglects to connect as required in such notice within the time prescribed, the city shall cause such connection to be made and the expense of such connection assessed as a special tax against the property.
(1) *Excavation permit required.* No person shall open any street, alley or other public place for the purpose of connecting to a water main without first obtaining from the director of public works or his authorized agent a permit to open such street, alley or public place. The cost for such excavation permit shall be as provided at section 22-11 of this Code. Prior to issuance of such excavation permit, the applicant shall arrange for an inspection and connection to the water main by the water superintendent or his designee.
(2) *Connection permit required.* No person shall make any attachment or extension of a lateral to any building without first obtaining a lateral connection permit as provided at section 66-9 of this Code.
(3) *Qualified applicant.* The permits referred to in this section shall only be granted upon application by a licensed and bonded plumber authorized by the agent or owner of the premises desiring to make such connection, extension, or alteration. The applicant shall state the name of the owner and that the applicant and owner will be bound by, and subject to, the rules and regulations prescribed in this chapter, chapter 66 of this Code, and any other applicable municipal or state regulation. Applications under this section shall give the exact location of the

premises, the purpose of the connection, the time the work is to be done, and all other particulars reasonably required by the director of public works or his designee in relation thereto.
(Code 1974, § 8.14)

Sec. 26-10. Water utility rules and regulations adopted.
The rules and regulations of the water utility as approved by the state Public Service Commission in Order Number 1610WR-1, for services rendered on and after March 3, 1980, are incorporated by reference and made a part of this chapter as though fully set forth in this section. A copy of such rules and regulations shall be filed with the city clerk-treasurer.
(Code 1974, § 8.15)

Sec. 26-11. Interconnections and cross connections.
(a) *Definitions.* The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:
Cross connection means any physical connection or arrangement between two otherwise separate systems, one of which contains potable water from the city water system, and the other, water from a private source, water of unknown or questionable safety, or steam, gases or chemicals, whereby there may be a flow from one system to the other, the direction of flow depending on the pressure differential between the two systems.
(b) *Prohibitions; exceptions.* No person shall establish or permit to be established or maintain or permit to be maintained any cross connection. No interconnection shall be established whereby potable water from a private, auxiliary or emergency water supply other than the regular public water supply of the city may enter the supply or distribution system of such municipality, unless such private, auxiliary or emergency water supply and the method of connection and use of such supply shall have been approved by the board of public works and by the state department of natural resources in accordance with Wis. Admin. Code NR § 811.
(c) *Inspections*
(1) It shall be the duty of the city water utility to cause inspections to be made of all properties served by the public water system where cross connections with the public water system is deemed possible. The frequency of inspections and reinspection based on potential health hazards involved shall be as established by such utility and as approved by the state department of natural resources.
(2) Upon presentation of credentials, the representative of the city water utility shall have the right to request entry at any reasonable time to examine any property served by a connection to the public water system of the city for cross connections. On request, the owner, lessee or occupant of any property so served shall furnish to the inspection agency any pertinent information regarding the piping systems on such property.
(d) *Discontinuation of service.*
(1) The city water utility is hereby authorized and directed to discontinue water service to any property wherein any connection in violation of this chapter exists, and to take such other precautionary measures deemed necessary to eliminate any danger of contamination of the public water system. Water service shall be discontinued only after reasonable notice and opportunity for hearing before the board of public works except as provided in subsection (d)(2) of this section. Water service to such property shall not be restored until the cross connection has been eliminated in compliance with the provisions of this chapter.
(2) If it is determined by the city water utility that a cross connection or an emergency endangers public health, safety or welfare and requires immediate action, and a written finding to that effect is filed with the clerk-treasurer and delivered to the customer's premises, service may be immediately discontinued. The customer shall have an opportunity for hearing before the board of public works within ten days of such emergency discontinuance.
(e) *Other regulations not affected.* This chapter does not supersede the state plumbing code or chapter 66 of this Code, but is supplementary to them.
(Code 1974, § 8.16)

Sec. 26-12. Private well regulation.
(a) *Purpose.* The common council finds and determines that private wells are a known pathway for the entrance of contaminants into groundwater aquifers, which aquifers also supply the municipal water system. It is further determined that cross connecting of private wells and municipal water sources may lead to such contamination. Contamination of the city's water supply would severely and adversely affect the health, safety and general welfare of city residents, particularly since contamination once introduced is extremely difficult to correct. Therefore, it is necessary and in the public interest that all wells within the corporate limits of the city, whether existing or

hereafter installed, shall be effectively monitored and regulated in regard to their creation, operation and abandonment as set forth in this section.

(b) *Definitions.* The following words, terms and phrases, when used in this section, shall have the meanings ascribed to them in this subsection, except where the context clearly indicates a different meaning:

Municipal water system means the system owned and operated by the city water utility for the provision to the public of piped water for human consumption.

Noncomplying means a well or pump installation which does not comply with the provisions of Wis. Admin. Code NR ch. 112, in effect at the time the well was constructed, a contamination source was discovered, the pump was installed, or work was done on either the well or pump installation.

Pump installation means the pump and related equipment used for withdrawing water from a well, including discharge piping, ground connection, pitless adapters, pressure tanks, pits, sampling faucets and well seals or caps.

Unsafe means a well or pump installation which produces water which is bacteriologically contaminated or contaminated with substances exceeding the standards of Wis. Admin. Code NR chs. 809 or 140, or for which a health advisory has been issued by the state department of natural resources.

Unused means a well or pump installation which is not in use or does not have a functional pumping system.

Well means an excavation or opening into the ground made by digging, boring, drilling, driving or other methods for the purpose of obtaining groundwater for consumption or other use.

Well abandonment means the filling and sealing of a well in accordance with the provisions of Wis. Admin. Code NR ch. 112.

(c) *Registration of wells.* No new wells shall be constructed and installed nor shall any existing well be maintained unless the wells are registered with the water utility by the owner of the property upon which the wells are located, and unless all such wells are in complete requirements with the provisions of this section, section 26-11, and the provisions of Wis. Admin. Code NR ch. 112. The registration form shall require, at a minimum, the following information:

(1) Specific location.
(2) Age of well.
(3) Depth of well.
(4) Width of well.
(5) Type of casing.
(6) Intended use.

(d) *Permit required.* No well shall be constructed, installed or maintained unless a permit is issued by the water utility upon registration as required in subsection (c) of this section. Prior to issuance of the permit, the owner, upon the direction and supervision of the water utility, shall comply with the requirements below. If the water utility determines that the well conforms with the provisions of this section, a permit not to exceed five years shall be issued. Such permit may be subject to renewal at the request of any owner of such well only upon submitting information verifying that the conditions of this section are met. Permit applications and renewals shall be made on forms provided by the water utility. In order to permit a well to be constructed, installed or maintained, or for any such permit to be renewed, the water utility must be satisfied of the following requirements:

(1) The well construction and pump installation meet or are ungraded to meet the requirements of Wis. Admin. Code NR ch. 112.

(2) The well construction and pump installation have a history of producing bacteriologically safe water as evidenced by at least two samplings taken a minimum of two weeks apart. No exception to this condition may be made for unsafe wells unless the state department of natural resources approves in writing the continued use of the well.

(3) There are no cross connections between the well and the pump installation and the municipal water system.

(4) The proposed use of the well and pump installation is reasonably justified in addition to other water provided by the municipal water system.

(e) *Permit fee.* Every person requesting a well permit shall pay a fee in an amount equal to $20.00, plus the actual cost of the two water sample tests required by this section and any other sample required by the water utility as provided in this section.

(f) *Additional conditions of permit.* The right to construct, install and maintain a well as authorized by permit under this section shall be expressly conditioned upon the owners and successors in interest complying with the following:

(1) The owner shall permit the water utility or its designee access to the well for inspection and testing at any time during normal working hours.

(2) No repair or modification of any well may be performed unless prior notification is given to the water utility and the plan and resulting construction is reviewed and inspected by such utility.
(3) The city shall have the right to sample the water after completion of any such repairs or modification. Such sampling shall be at the owner's cost and may either be done by the city or by the owner at the city's direction.
(4) The city shall have the right to randomly test or to direct the owner to test the well not more than two times in any six-month period. The city may require additional testing if there is reason to believe some contamination may be present or that the results of previous tests may be invalid.
(5) The cost of any testing and sampling as provided in this section shall be paid by the owner upon invoice by the city.
(6) A permit issued in accordance with the provisions of this section shall be revoked by the water superintendent upon notice to the permittee that any of the following have occurred:
a. The owner of the well has refused access to a well for testing or has failed to follow a direction of order of the water utility in regard to testing or sampling.
b. The owner of any well has neglected to pay for any tests authorized with 30 days of billing or invoice.
c. Any test results demonstrate well contamination and do not meet reasonable health standards or are in violation of any state or municipal ordinance dealing with well operation.
d. The parties aggrieved by permit revocation may appeal the initial decision of the water superintendent to the board of public works by filing a written petition for review with the city clerk-treasurer.
(g) *Well abandonment.* Upon revocation of a well permit in accordance with this section or upon voluntary determination to abandon the use of any well previously permitted hereunder, all wells under the jurisdiction of this section shall be abandoned in accordance with the procedures of Wis. Admin. Code NR ch. 112. All debris, pump, piping, unsealed liners, and other obstructions which may interfere with this sealing operations shall be removed prior to abandonment. The owner of the well or the owner's agent shall notify the water utility superintendent at least 48 hours prior to commencement of any well abandonment activities. The abandonment of the well shall be observed by the water utility superintendent and an abandonment report form, supplied by the state department of natural resources, shall be submitted by the well owner to the water utility and the state department of natural resources within ten days of the completion of the well abandonment.
(h) *Abandonment of unused or previously abandoned wells.* It shall be the responsibility of the landowner of any real property upon which a well is located to see to it that all wells located on the owner's property have been properly abandoned in accordance with the procedures of Wis. Admin. Code NR ch. 112, regardless of whether such owner has used such well. Upon discovery of any unused or previously abandoned well, the owner shall notify the water utility and comply, insofar as is practicable, with the procedures of subsection (g) of this section. In the case of a previously abandoned well, if the owner can produce proof of compliance with state well abandonment requirements to the satisfaction of the utilities manager/engineer, compliance with this section may be deemed unnecessary. Such determination shall be at the discretion of the utilities manager/engineer upon considering the present and future possibility of ground water contamination at the well site.
(i) *Failure to properly abandon well public nuisance.* Failure to abandon any well after revocation of a permit to follow the provisions of Wis. Admin. Code NR ch.112, in abandoning such well is hereby deemed a public nuisance, and the city may cause such well to be property abandoned and may assess the cost against the owner of the affected property and collect it as a special tax.
(j) *Penalty.* In addition to any and all other costs which may be incurred by property owner under the provisions of this section, any person who violates any provision of this section shall pay a forfeiture of not less than $100.00 nor more than $500.00. From the time of written notice of such violation, each day of continuing violation of any provision of this section shall be considered a separate violation for the purposes of imposing forfeitures stated in this subsection.
(Code 1974, § 8.17)