REMEDIAL ACTION PLAN (RAP)
GROUNDWATER EXTRACTION, TREATMENT AND DISCHARGE SYSTEM

Marathon Electric Manufacturing Company
Wausau, Wisconsin

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Wausau, Wisconsin

MARCH 1990
REF. NO. 2115(11)
CONESTOGA-ROVERS & ASSOCIATES

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1.0 INTRODUCTION

In accordance with a Consent Decree, entered with the court on September 9, 1989, Marathon Electric Manufacturing Company (Marathon) is proceeding with an extraction well and associated treatment/discharge outlet installation. The purpose of the extraction well is to create a cone of depression capable of containing an identified contaminant plume source to prevent further migration toward City production wells. Should the extraction well not create a cone of depression capable of containing the contaminant plume source, an additional well, in accordance with the Record of Decision, Selected Interim Remedial Alternative (December 23, 1988), will be installed.

The extraction well and associated treatment/discharge structures will be installed at the Marathon facility in Wausau, Wisconsin. The Site is located along the west side of the Wisconsin River within the City of Wausau. A regional and site location map are shown in Figures 1.1 and 1.2, respectively. The locations of the extraction well and existing monitoring wells are shown on Figure 1.3.

This Remedial Action Plan (RAP) has been prepared to summarize all activities associated with the design, installation/construction, operation/maintenance, monitoring, scheduling, organization and reporting for the groundwater extraction, treatment and discharge system.

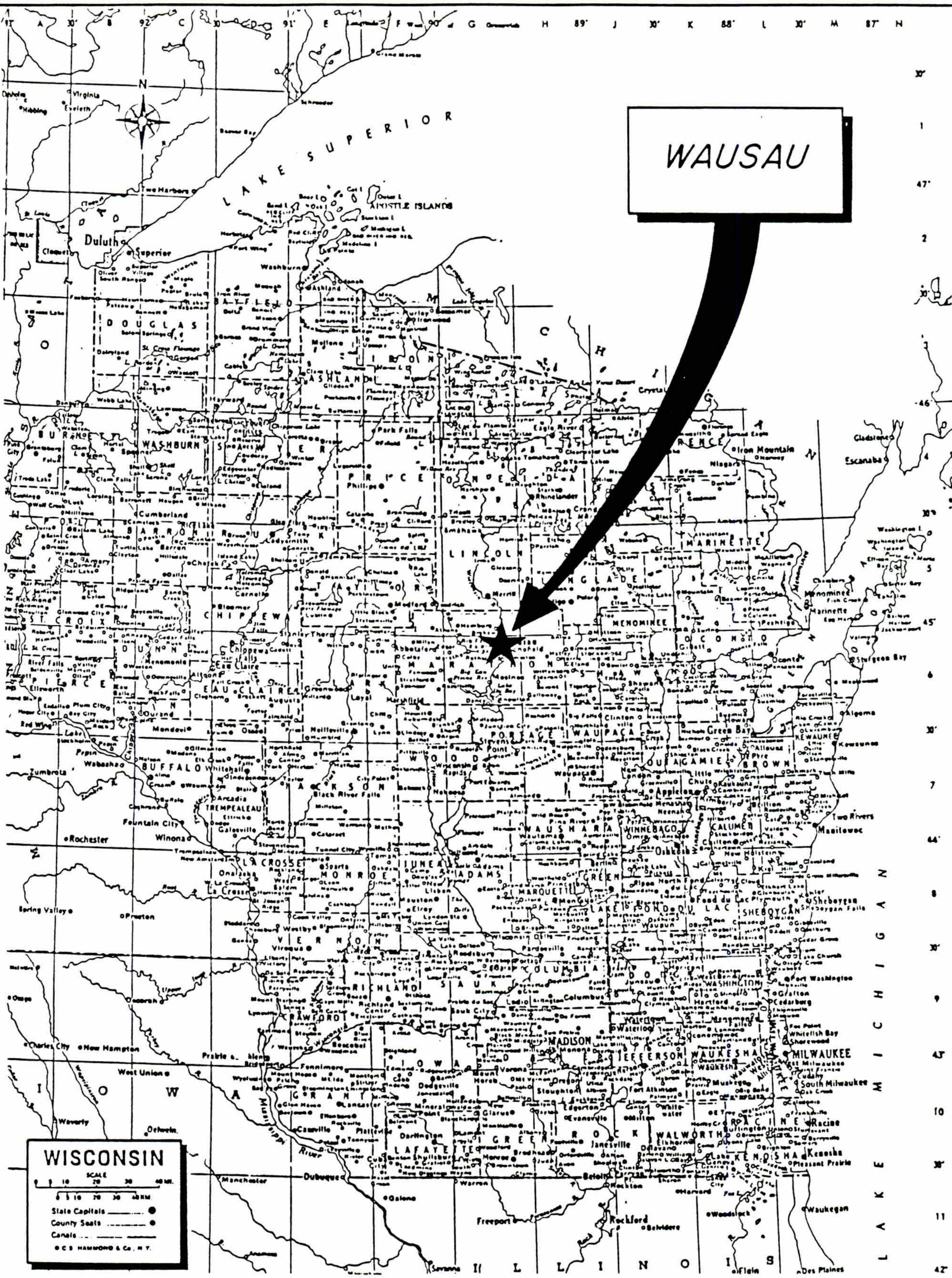

figure 1.1

REGIONAL LOCATION MAP

Marathon Electric Manufacturing Co.

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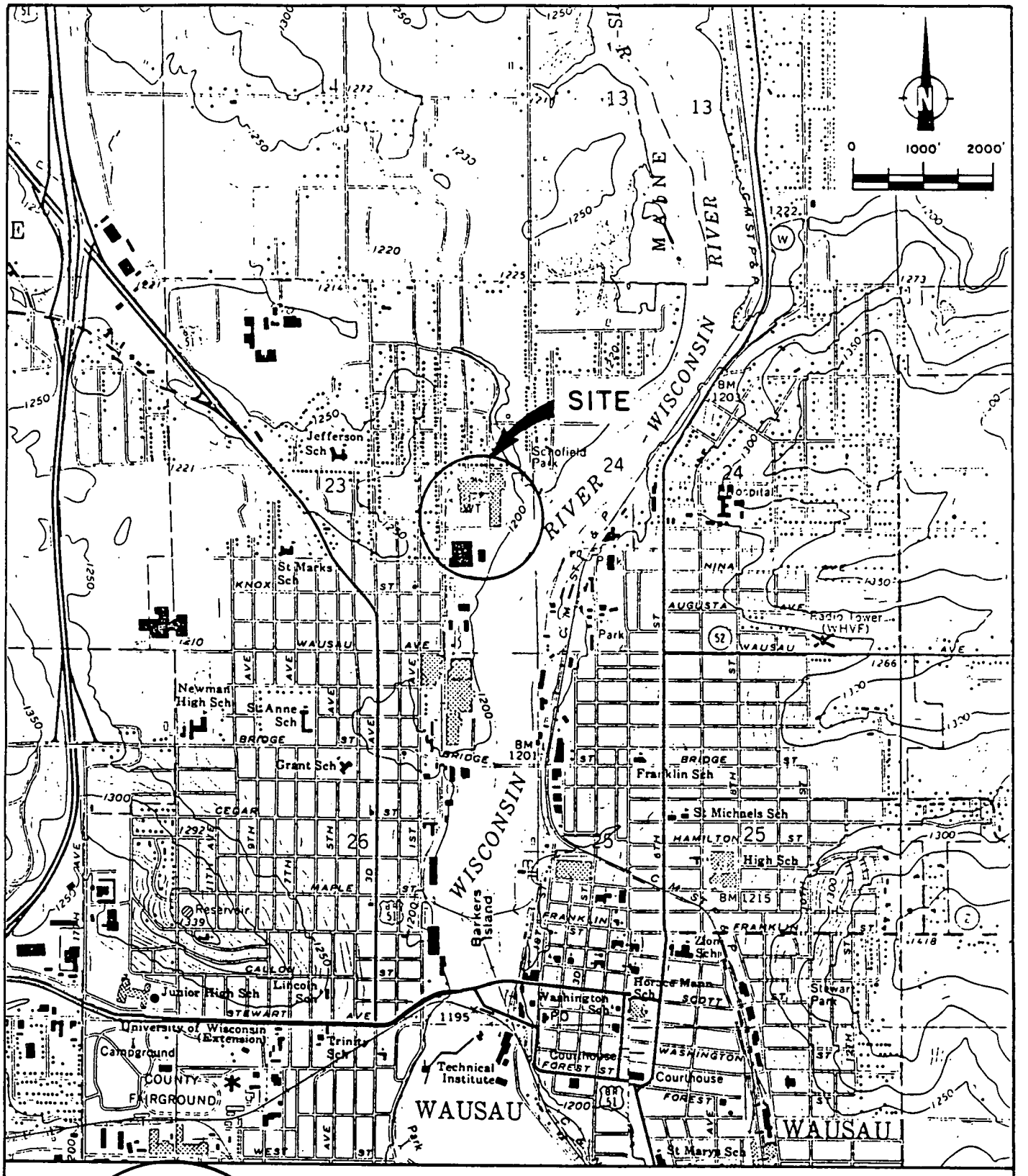

figure 1.2

SITE LOCATION

Marathon Electric Manufacturing Co.

2115-2/03/89-11-0

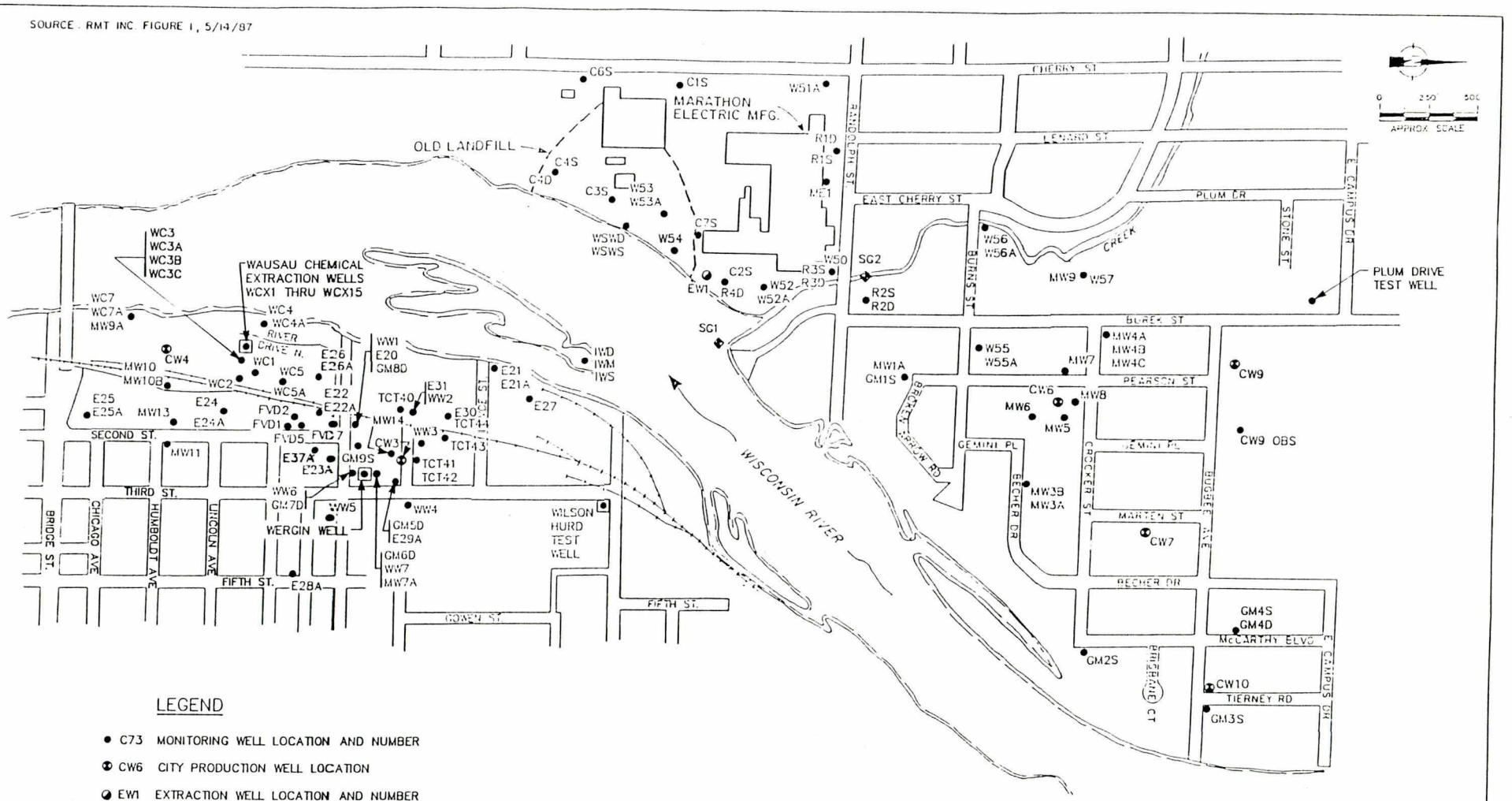

figure 1.3
EXTRACTION WELL AND MONITORING WELL LOCATIONS
Marathon Electric Manufacturing Co.

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1.1 REMEDIAL ACTION OBJECTIVES

The primary objectives of the Remedial Action are the:

1. protection from long-term exposure to low levels of Trichloroethylene (TCE) from ingestion of drinking water; and

2. protection from future increased levels of contaminants in the West Well Field.

The primary objectives of Remedial Action will be satisfied by the installation of a groundwater extraction, treatment and discharge system described herein, supplemented by the provision for implementation of an additional well, if necessary.

2.0 BACKGROUND INFORMATION

2.1 CITY OF WAUSAU WELL FIELD

The City of Wausau is located along the Wisconsin River in Marathon County, Wisconsin. The Wausau Groundwater Contamination Site encompasses an area in the northern section of the city which includes the City Well Field and six of its production wells (see Figure 1.3).

The City of Wausau provides drinking water for approximately 33,000 people. The City presently operates seven groundwater production wells, six of which are located on the north side of the City. The seventh well, Production Well CW8 (CW8), is located adjacent to the Wausau Municipal Airport, on the south side of the City. The water from CW8 has a high concentration of iron and is used only during peak demand periods. Production Wells CW6, CW7, CW9, and CW10 are located west of the Wisconsin River and are collectively referred to as the West Well Field. The West Well Field (Figure 1.2) is located in a predominantly residential area, although a few industrial facilities are located in this area. Production wells CW3 and CW4 are located on the east side of the Wisconsin River and are referred to as the East Well Field. Well CW4 is used only during peak demand periods. The East Well Field is located in a predominantly industrial section of the City.

The seven production wells are screened in an aquifer of glacial outwash and alluvial sand and gravel deposits which underlie and are adjacent to the Wisconsin River. This unconfined aquifer supplies nearly all

potable, irrigation, and industrial water to residents and industries located in Wausau and the surrounding areas. Within the study area the alluvial aquifer ranges from 0 to 160 feet thick, and has an irregular base and lateral boundaries.

2.2 HISTORICAL WELL FIELD CONTAMINATION

The City of Wausau discovered in early 1982 that its production wells CW3, CW4, and CW6 were contaminated by volatile organic compounds (VOCs). Toluene, ethylbenzene, and xylene were also detected at CW4. Trichloroethene (TCE) is the predominant volatile organic compound detected at CW6, although below method detection limit (BMDL) concentrations for tetrachloroethene (PCE) and 1,2-Dichloroethene (DCE) have also been previously reported (Weston, 1984). Since the contamination was first detected in early 1982, TCE concentrations from CW6 have ranged from 70 micrograms per liter (µg/L) to 260 µg/L. Sampling conducted in March 1988 indicated TCE concentrations of approximately 160 µg/L. Sample results from the East Well Field (CW3 and CW4) have indicated PCE, TCE, and DCE impact at both wells. CW4 has generally indicated steadily decreasing concentrations of the three constituents since February 1984. CW3 has indicated decreasing PCE and DCE concentration since the VOCs were discovered in early 1982. However, TCE concentrations at CW3 have remained relatively constant at concentrations ranging between 80 µg/L and 210 µg/L.

To reduce VOC concentrations, the City originally instituted a program where uncontaminated water from CW9 and CW7 was blended with water from CW3, CW4, and CW6 to dilute the VOC concentrations. However, increasing VOC concentrations in groundwater caused this method to be ineffective.

In 1983, the United States Environmental Protection Agency (U.S. EPA) awarded the City of Wausau a federal grant to help fund the design and installation of a packed tower VOC stripper in order to provide sufficient water of acceptable quality to City residents. However, because VOC levels in the distribution system continued to increase, U.S. EPA's emergency response team was asked for assistance. As an interim measure in June 1984, the U.S. EPA installed a granular activated carbon (GAC) treatment system on CW6. VOC stripping towers were installed in the Summer and Fall of 1984 at the City water treatment plant to treat water from CW3 and CW4. Subsequently, the GAC system was removed from service in October 1984. In December 1985 the Wausau Groundwater Contamination Site was added to the National Priorities List (NPL) for remedial activities under Superfund.

The City blends water treated for VOC removal with water from uncontaminated supply sources (CW7, CW9 and CW10) to reduce VOC concentrations in the water supply distribution system. Following installation of the packed tower VOC strippers, the water supply distribution system has had relatively low levels of VOCs (generally below detection limits of 0.5 to 1.0 µg/L). These levels are dependent on continued effective operation of the treatment system for CW3 and CW4, the influent VOC

concentration for each well, and continued use of the three uncontaminated wells (CW7, CW9 and CW10).

2.3 PREVIOUS STUDIES

Previous investigations have identified several potential point sources of VOC contamination in the vicinity of City production wells. Table 2.1 lists the previous studies conducted.

2.4 WELL FIELD CURRENT STATUS

2.4.1 Current Status

A RI/FS was conducted for U.S. EPA by its contractor, Warzyn Engineering, Inc. The RI entailed two phases of field sampling events. Phase I of the RI field work was conducted from August 1987 through January 1988, results of which are summarized in a April 1988 technical memorandum. Phase II of the RI field work was conducted from June to September 1988. Results of this phase of work is included in the RI report for the site dated August 1989. A draft final FS, which addresses remediation of the entire site has been released for public review and comment. A Phased Feasibility Study (PFS) was prepared for the west side plume portion of the Wausau Water Supply Site. The PFS was completed in September 1988.

TABLE 2.1

HISTORICAL REPORTS ON WAUSAU, WISCONSIN WATER SUPPLY SITE

1. Hydrogeological Investigation of Volatile Organic Contamination In Wausau, Wisconsin Municipal Wells, (for U.S.EPA), Roy F. Weston, Inc., September 1985.

2. Subsurface Exploration and Testing Program to Evaluate Ground Water Quality at the Wausau Chemical Facilities in Wausau, Wisconsin, (for Wausau Chemical Company), STS Consultants, Ltd., July 1984.

3. Investigation of An Abandoned City of Wausau Landfill, (for WDNR), CH_2M Hill, February 1986.

4. Existing Conditions Report and Exploration Program, Wausau East Municipal Well Field, Wausau, Wisconsin, (for WDNR), Twin City Testing Corporation, August 1986.

5. Groundwater Investigation, (for City of Wausau), Beecher Hoppe Engineers, Inc., 1983.

6. VOC Groundwater Investigation At The Former Wausau Energy Facility In Wausau, Wisconsin, (for Wausau Energy Corporation), Foth & Van Dyke and Associates, Inc., December 1986.

7. Hydrogeological Investigation of the Alluvial Aquifer Beneath City Well 6, Wausau, Wisconsin, (for City of Wausau and Marathon Electric), RMT, Inc. and Geraghty & Miller, Inc., July 1987.

2.4.2 West Side Plume

A contaminant plume, composed mainly of TCE, exists in the West Well Field and is being drawn toward CW6 due to pumpage. The apparent source area is located to the south, in the area of an old City landfill located on Marathon property.

Until recently, CW6, which the City pumped directly into Bos Creek as waste, served as a blocking well to the rest of the West Well Field. The discharge of CW6 to Bos Creek has resulted in a contaminated groundwater mound between the source area and CW6. The influence of the groundwater mound may not have fully penetrated the glacial outwash aquifer, but Phase I RI data suggest that the mound served effectively to divide the West Well Field contaminant plume into northern and southern portions, indicating that contaminant migration from the source area has been slowed.

In summer 1988 the City of Wausau placed CW6 back in service after completion of a transport pipe to carry contaminated water to the air stripper. Because of this, the pumping rate of CW6 has increased substantially, and the untreated discharge to Bos Creek has been discontinued. These two factors tend to increase the rate of migration from the source area toward CW6. Water from CW6 is treated for VOC removal using the existing air strippers at the water utility. However, if no further action is taken, CW6 will continue to serve as an interceptor well, providing the sole protection for the remaining wells in the West Well Field.

The scope of the PFS was limited to the contaminant plume impacting the West Well Field and CW6. Ultimately, the solution to protecting the West Well Field involved additional controls to prevent contaminants from migrating to the north from the source area. Due to the apparently slowed contaminant migration to the north caused by discharge of CW6 to Bos Creek, additional protection of the West Well Field was determined possible by preventing or limiting the extent of future contaminant movement to the north. Implementation of plume migration controls would effectively limit the time during which CW6 draws in contaminants.

The EPA's PFS evaluated alternatives to address plume migration control in the West Well Field of the site. The selected interim remedial alternative to address the West Well Field plume is recorded in the ROD, dated December 1988.

2.5 WELL FIELD CHARACTERISTICS

2.5.1 Hydrogeology

The City production wells are located within glacial outwash and alluvial sediments underlying and adjacent to the Wisconsin River. The aquifer is located within a bedrock valley which is underlain and laterally bounded by relatively impermeable igneous bedrock. Groundwater flow within the unconfined glacial aquifer has been drastically changed by the installation of the production wells. Under non-pumping conditions,

groundwater flows toward the Wisconsin River and its tributaries (Bos Creek). Groundwater naturally discharges at the surface water bodies. However, under pumpage conditions, groundwater flows toward the production wells. The natural groundwater flow directions are frequently reversed due to City well pumping which induces recharge of surface water into the aquifer. The cone of depression from the East Well Field appears to affect groundwater flow below and to the west of the Wisconsin River. Monitoring well nests located at Marathon indicate very slight downward gradients adjacent to the Wisconsin River. Below the Wisconsin river, the East Well Field production well pumpage has induced surface water recharge of the aquifer, causing flow downward through the river bed and toward CW3. Aquifer hydraulic conductivity tests performed during the Phase I RI investigation indicated hydraulic conductivity values ranging from 1.7×10^{-4} cm/sec to 8.1×10^{-2} cm/sec. The overall average hydraulic conductivity of the outwash aquifer is approximately 2.2×10^{-2} cm/sec, based on test data at monitoring wells.

2.5.2 Chemical Characteristics

Groundwater quality sampling conducted during the RI Phase I investigation has identified a vertical and lateral distribution of total chlorinated ethenes which suggest that a minimum of three sources are affecting the City well field. The distribution was based on a combination of data obtained from laboratory VOC analyses of Round 1 groundwater samples (October 1987) and field laboratory analyses of groundwater samples collected during drilling (October and November 1987).

West side monitoring wells appear to delineate a deep (greater than 100-foot) north-south trending TCE plume. Based on the vertical distribution of TCE throughout the aquifer in the vicinity of the former City landfill and the presence of TCE in the unsaturated zone in this area, a source appeared to be located in the area of the old City landfill located on Marathon property. The plume appeared to have migrated northward, under influence of pumpage from CW6. The highest TCE concentration (4200 µg/L) within this plume was detected approximately 550 feet south of CW6.

TCE was also observed in the shallow aquifer between Bos Creek and CW6. The shallow aquifer TCE contamination appeared to result from the induced infiltration of surface water from Bos Creek, which has been contaminated by the discharge from CW6. The induced surface water recharge of the aquifer was evident from the downward vertical gradients at monitoring well nests in that area. Based on laboratory analyses of samples collected during October 1987, TCE concentrations adjacent to the CW6 discharge were above 100 µg/L. TCE concentrations in the ponded area downstream were approximately 70 µg/L. TCE was not detected in the surface water samples collected upstream of the CW6 discharge, nor was it detected at the point of discharge of Bos Creek to the Wisconsin River.

The distribution of TCE in monitoring wells located between the Wisconsin River and CW3 suggested eastward migration of a deep TCE plume below the Wisconsin River from the vicinity of the Marathon property/former City landfill area. TCE appeared to be vertically

distributed throughout the aquifer in the vicinity of the Marathon property/former City landfill area, indicating close proximity to the source area. Slight-vertical downward gradients were observed in monitoring wells in the area. The highest concentrations of TCE were detected at a depth of approximately 115 feet. After moving into the deeper portion of the aquifer, a portion of the plume appears to migrate eastward under the influence of pumpage from CW3. A part of the plume was also determined to have been captured by the pumpage from CW6 and appeared to migrate northward under the influence of this well. The TCE-contaminated portion of the aquifer appeared to be less than 20 feet thick and was laterally restricted to a relatively narrow flow path into the production wells. Since CW6 produces water nearly equally from all sides of the 50-foot screened interval, the resulting dilution factor appeared to range from 15 to 25. Thus, concentrations observed at the supply well were determined to likely be 15 to 25 times less than actual in plume concentration.

Elevated concentrations of volatile halogenated hydrocarbons (VHH), predominantly tetrachloroethene (PCE), were also identified within the shallow aquifer in the vicinity of the East Well Field (CW3 and CW4). However, this impact appeared to be the result of a separate VHH source and therefore was not addressed under the PFS nor is it addressed under this RAP.

3.0 WORK PLAN PREPARATION

3.1 SATISFACTION OF PERMITTING REQUIREMENTS

Under Superfund and the Consent Decree (Section 5-pages 10 and 11), work which is being done on site does not need to obtain formal permits, however, the work is required to meet the substance of any applicable governmental regulations which apply to the work being done. Permitting requirements which would apply to the work being done on site, if not conducted under Superfund and the Consent Decree, have been identified to include a WPDES WDNR discharge permit of wastewater to the Wisconsin River, a WDNR high capacity well permit and Army Corps of Engineers approval of the rip rap structure to the Wisconsin River.

The groundwater treatment and discharge system to be conducted, provides a passive VOC stripping system. The maximum observed in plume concentrations of contaminants detected in the groundwater beneath Marathon property/former City landfill area are summarized on Table 3.1. The WDNR calculated available maximum and average water quality effluent limits that would be allowed to be discharged to the Wisconsin River. These effluent limits are also summarized on Table 3.1. The Clean Water Act requires groundwater treatment prior to discharge. The groundwater treatment and discharge system has been evaluated by the WDNR and has been determined to satisfy the requirements of the Clean Water Act by providing BAT-equivalent treatment.

TABLE 3.1

WATER QUALITY EFFLUENT LIMITS FOR SURFACE WATER DISCHARGE TO WISCONSIN RIVER

Compound[1]	*Maximum Concentrations Detected (µg/L)*[2]	*Water Quality Effluent Limits (µg/L)*[3] *Maximum*	*Average*
Organics			
trichloroethene	3,900	41,000	--
1,2-dichloroethane	1,200	120,000	--
1,1,1-trichloroethane	134	70,000	--
tetrachloroethene	32	13,000	--
1,1,2-trichloroethane	3.1	36,000	--
1,1-dichloroethane	51.5	--	--
1,1-dichloroethene	6.2	30,000	--
chloroform	54	29,000	--
carbon tetrachloride	120	35,000	33,000
ethyl benzene	494	45,000	--
benzene	124	22,000	--
toluene	4.8	17,000	--
acetone	29	--	--
4-methyl-2-pentone	42	--	--
Inorganics			
aluminium	1,550	1,500	--
antimony	97.5	13,000	--
barium	262	--	--
calcium	92,300	--	--
chromium (total)	594	4,000	2,400
copper	28	36	--
iron	2,100	--	--
magnesium	36,500	--	--
manganese	6,100	--	--
nickel	138	2,300	--
potassium	18,400	--	--
sodium	76,100	--	--
zinc	3,240	220	--

Notes:

(1) Compounds detected in the groundwater beneath Marathon property/former City landfill area based on EPA RI data base.

(2) Maximum concentration of compound detected in groundwater beneath Marathon property/former City landfill area based on EPA RI data base.

(3) Calculated by WDNR.

Should any of the water quality effluent limits summarized on Table 3.1, be exceeded, the groundwater treatment and discharge system will be turned off. Should such a condition arise, an evaluation of the system, to bring it into compliance with the water quality effluent limits, will be conducted in conjunction with the U.S. EPA and the WDNR, prior to the system resuming operation.

The groundwater extraction system to be constructed will exceed a pumping rate of 70 gpm. Therefore, the requirements of a high capacity well permit from the WDNR would apply. The WDNR has approved the design and operation of the groundwater extraction system to be constructed, in a letter addressed to Marathon Electric dated March 31, 1989. The approval is valid for construction of the well within two years from the date of the letter.

The construction of the rip rap discharge structure along the Wisconsin River needs to satisfy the requirements of the Department of the Army, Corps of Engineers. A previously proposed discharge structure, north of where the actual discharge structure will be constructed, has been previously approved by the Department of the Army, Corps of Engineers (see Appendix B). The rip rap structure to be constructed is similar in size and details to the previously proposed structure. On February 28, 1990, the Department of the Army, Corps of Engineers were contacted. The Corps of Engineers stated that since the previous approval was authorized by a nationwide Department of the Army permit, the previous authorization is still valid. Therefore, the proposed rip rap discharge structure on site will

satisfy the technical requirements of the Department of the Army, Corps of Engineers.

3.2 HEALTH AND SAFETY PLAN

A report entitled "Health and Safety Plan •Installation of Extraction Well EW-1 •Pumphouse and Discharge Installation EW-1, Marathon Electric Manufacturing Company, Wausau, Wisconsin" February 1989, has been prepared by CRA. The Health and Safety Plan has been prepared consistent with appropriate sections of the EPA's RI/FS Final Health and Safety Plan for the Wausau NPL Site.

The Health and Safety Plan addresses items related to the installation and construction phase of the groundwater extraction, treatment and discharge system including:

1. site characteristics and hazards;

2. chemical hazard information;

3. task evaluation; and

4. a site emergency contingency plan

The Health and Safety Plan has been submitted to the EPA and the WDNR for review and comments. The Health and Safety Plan,

subsequent to finalization and agency approval, will be adhered to during the installation and construction of the groundwater extraction, treatment and discharge system.

3.3 GROUNDWATER MONITORING PROGRAM (GMP)

A report entitled "Groundwater Monitoring Program, Extraction Well and Monitoring Well Network, Marathon Electric Manufacturing Company, Wausau, Wisconsin", August 1989, has been prepared by CRA.

The Groundwater Monitoring Program (GMP) has been prepared to address monitoring and reporting requirements necessary to assess the operation of and impacts from the groundwater extraction, treatment and discharge system.

The objectives of the GMP are as follows:

1. to monitor the effectiveness of the extraction system in reducing VOC groundwater contamination;

2. to monitor the effectiveness of extraction system in creating hydraulic conditions (cone of depression) to control a west side plume contaminant source from further migrating to City production wells; and

3. to monitor treated groundwater prior to surface water discharge.

In order to provide representative data to satisfy the above objectives, the GMP presents:

1. extraction well pump test procedure;

2. water level monitoring network, frequency and protocols;

3. groundwater sampling network, analytical parameters, frequency, and protocols;

4. water level monitoring and sample collection health and safety provisions;

5. sample container, preservation, labeling and control requirements; and

6. associated monitoring data and assessment reports.

The GMP, subsequent to finalization and agency approval, will be adhered to during all water level and sampling collection activities.

3.4 QUALITY ASSURANCE PROJECT PLAN (QAPP)

A report entitled "Quality Assurance Project Plan, Groundwater Monitoring Program, Marathon Electric Manufacturing

Company, Wausau, Wisconsin", August 1989, has been prepared by CRA. The Quality Assurance Project Plan (QAPP) presents field and laboratory Quality Assurance/Quality Control (QA/QC) protocols to be adhered to during GMP activities.

The QAPP addresses:

1. overall GMP project organization and levels of responsibilities;
2. quality assurance objectives for measurement data;
3. sampling procedures;
4. sample custody and document control;
5. calibration procedures and frequency;
6. analytical procedures;
7. data reduction, validation, assessment and reporting;
8. internal quality control checks and frequency;
9. performance and system audits and frequency;
10. preventative maintenance;
11. specific routine procedures used to assess data precision, accuracy and completeness;
12. corrective action procedures; and
13. quality assurance reporting.

The QAPP, subsequent to finalization and agency approval, will be adhered to during all GMP activities.

3.5 OPERATIONS AND MAINTENANCE PLAN

A manual entitled "Operations and Maintenance, Groundwater Extraction, Treatment and Discharge System, Marathon Electric Manufacturing Company, Wausau, Wisconsin" will be prepared by CRA. The Operations and Maintenance (O&M) Manual will present operation inspection, monitoring, maintenance and reporting requirements to be adhered subsequent to startup of the system.

The O&M Manual will address:

1. overall operations of the system including description of valve/control settings, pumping capacity, power requirements, alarm indicators;
2. inspection requirements and frequencies;
3. preventative maintenance activities and frequencies;
4. corrective active procedures including trouble shooting guidelines; and
5. operation and maintenance reporting.

The O&M Manual will be developed as part of the RD/RA Work Plan and submitted to the EPA and the WDNR for their review and comments, prior to startup of the groundwater extraction, treatment and discharge system. The O&M Manual, subsequent to finalization and agency approval, will be adhered to during operation of the groundwater extraction treatment and discharge system.

3.6 MODIFICATIONS

Modifications to the final GMP, the QAPP and the O&M Manual may be suggested by Marathon, or required by U.S. EPA/WDNR based on assessment reports required as part of the GMP. Any modifications to the GMP, the QAPP and the O&M Manual will require the approval by U.S. EPA in consultation with WDNR.

4.0 REMEDIAL DESIGN

4.1 PRELIMINARY DESIGN REPORT

In September 1987, Marathon submitted a report entitled "Plan of Remedial Work, Marathon Electric Manufacturing Company, Wausau, Wisconsin" to the EPA and WDNR. This report contained preliminary project specifications and design for the installation of a groundwater extraction, treatment and discharge system. Subsequent to issuance of the ROD, the following Contract Documents and Specifications (CD & S) were prepared and submitted to EPA in January, 1989:

1. "Contract Documents and Specifications Installation of Extraction Well EW-1, Marathon Electric Manufacturing Company, Wausau, Wisconsin" January 1989.

2. "Contract Documents and Specifications, Pumphouse and Discharge Outlet Installations EW-1, Marathon Electric Manufacturing Company, Wausau, Wisconsin" January 1989.

Subsequent to submission of the CD & S to the EPA, the CD & S were revised to include only Specifications of Work. The revised documents are referenced in Section 4.2.

4.2 FINAL ENGINEERING PLANS AND SPECIFICATIONS

The following Specifications of Work were prepared and submitted to the EPA in October, 1989:

1. "Specifications of Work, Installation of Extraction Well EW-1, Marathon Electric Manufacturing Company, Wausau, Wisconsin" September 1989.

2. "Specifications of Work, Pumphouse and Discharge Outlet Installations EW-1, Marathon Electric Manufacturing Company, Wausau, Wisconsin" September 1989.

The CD&S present detailed engineering plans and specifications for the installation/construction of the groundwater extraction, treatment and discharge system selected in the ROD. Both CD&S were submitted to the EPA and the WDNR for review and comments. The CD&S and any addendums thereof, subsequent to finalization and agency approval, will be adhered to during the installation/construction of the groundwater extraction, treatment and discharge system.

5.0 REMEDIAL ACTION

5.1 INSTALLATION AND OPERATION OF GROUNDWATER EXTRACTION AND GROUNDWATER TREATMENT

The installation of the groundwater extraction, treatment and discharge system will be in accordance with the selected remedy presented in the ROD. Detailed engineering plans and specifications for the system are discussed in Section 4.1.

In general, the groundwater extraction, treatment and discharge system will consist of:

1. a large diameter extraction well screening approximately the bottom third of the unconfined aquifer;

2. a prefabricated pumphouse shelter on a concrete foundation slab;

3. mechanical components for the pumphouse and extraction well including a large capacity vertical turbine pump, air relief valve, flow control valve, flow meter and water level indication;

4. electrical components for the pumphouse; and

5. a treatment/discharge manhole structure and a treatment/discharge rip rap lined structure.

Health and Safety protocols to be adhered to during the installation of the system are discussed in Section 3.1

5.2 IMPLEMENTATION OF GROUNDWATER MONITORING PROGRAM - SAMPLING PARAMETERS, LOCATIONS FREQUENCY AND DURATION

Implementation of the GMP will be in accordance with the report referenced and discussed in Section 3.2. The GMP report presents:

1. water level monitoring network, frequency and protocol;

2. groundwater sampling network, analytical parameters, frequency and protocols; and

3. health and safety protocols to be adhered to during water level monitoring and sample collection.

The appropriate section from the GMP report (Section 3.0) which presents the above items, is included herein as Appendix A.

6.0 OPERATIONS AND MAINTENANCE PROGRAM

The Marathon groundwater extraction, treatment and discharge system is designed to operate continuously with minimum operator supervision. The duties of the operators will be concerned mainly with scheduled and unscheduled maintenance data collection and trouble shooting of system malfunctions.

The O&M Manual will be developed, as part of the RD/RA Work Plan, and will be submitted to the EPA and the WDNR for their review and comments, prior to of startup of the groundwater extraction, treatment and discharge system. The O&M Manual, subsequent to finalization and agency approval, will be adhered to during operation of the groundwater extraction treatment and discharge system.

6.1 OPERATION

As noted above the system would operate continuously. Inspection of the system, on a routine basis, will include the following items:

1. Inspection of the pump motor for noise and vibration.

2. Inspection of the pump shaft seal.

3. Inspection of the pipe and valves for leaks.

4. Inspection of flow meter to ensure operation.

5. Inspection of pump discharge pressure.

6. Inspection of the discharge outfall structure.

7. Inspection of the pumphouse electrical components to ensure power supply and control voltages.

8. Inspection of the pumphouse structure to ensure:
   a) the structure is dry, and
   b) the heating (or ventilation) is functioning

9. Stop and start the well pump to ensure the pump control valve (check) opens/closes.

10. Close and open the shut off valve to ensure operation. Performance of this work will take place when the pump is not operating.

11. Inspection of the outfall manhole to ensure it is clear of debris.

Any unusual occurrences will be recorded on an inspection and maintenance log form. An example of a typical inspection and maintenance log is presented in Table 6.1. The required inspection frequency for the above items will vary and will be specified in the O & M Manual.

TABLE 6.1

TYPICAL INSPECTION AND MAINTENANCE LOG
GROUNDWATER EXTRACTION TREATMENT AND DISCHARGE SYSTEM
MARATHON ELECTRICAL SITE

Date of Inspection: _____ Inspector: _____ Report to: _____

Item Inspected	*Status* *Aceceptable* ( )	*Unacceptable* ( )	*Date and Nature of Repair*	*Comments*
- pumphouse structure				
- pump running, operation, noise level				
- discharge pressure				
- Pump control valve				
- condition of pipes/valves				
- outfall structures				

6.2 MAINTENANCE

The extraction pump will be essentially maintenance free. Maintenance will be scheduled for greasing the motor bearings.

The flow meter will be essentially maintenance free. Should the meter stop recording, the meter will be opened for inspection of internal parts.

The pump control valve will be essentially maintenance free. However, two main parts, springs and diaphrams, may have to be replaced. The valve will be repaired accordingly. All maintenance will be performed according to the equipment manufacturer's recommendations. All maintenance activities performed will be recorded in the inspection and maintenance log.

6.3 OPERATION MONITORING

In addition to the inspection requirements discussed in Section 6.1, an automatic telephone system will be incorporated to monitor the continuous operation of groundwater extraction system. The system will automatically send an alarm message to a maintenance centre within the Marathon Electric Facility.

7.0 PROJECT ORGANIZATION

Figure 7.1 presents the organization structure for the RAP.

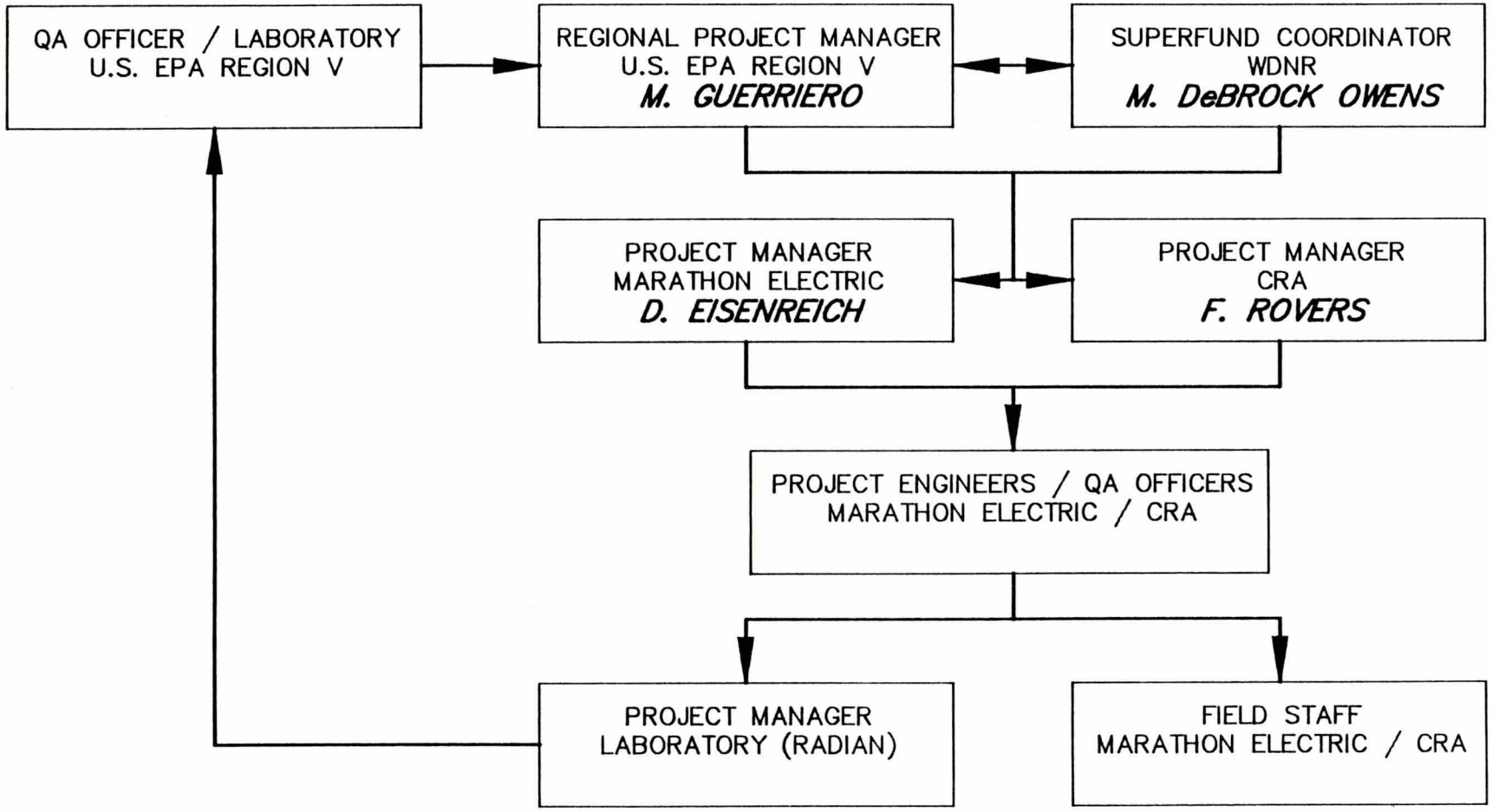


figure 7.1

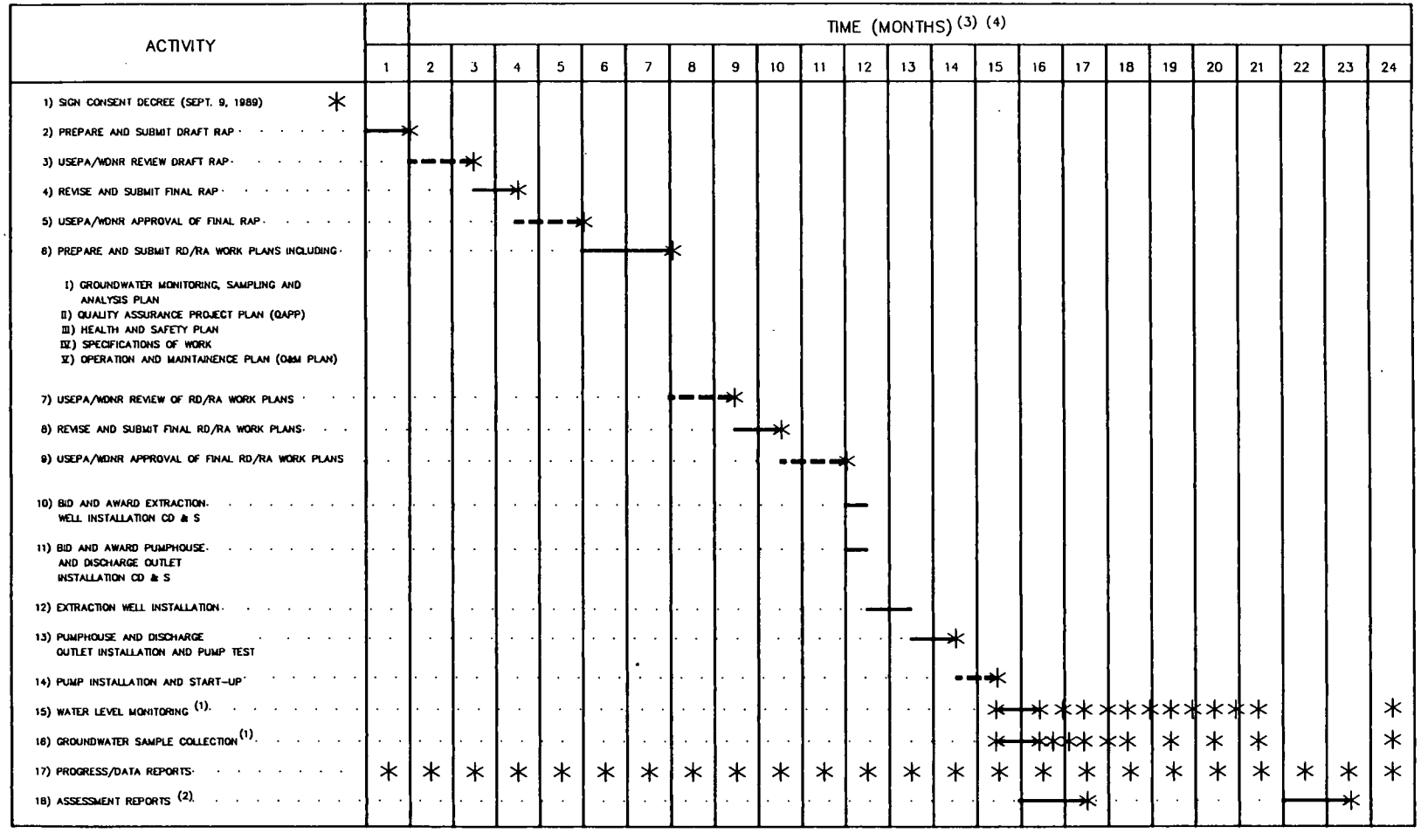
RAP ORGANIZATION

Marathon Electric Manufacturing Company

CRA

8.0 PROJECT SCHEDULE

Scheduling of the RAP is dependent upon EPA/WDNR approval of all associated documents, which have been referenced herein. The scheduling of the RAP activities, subsequent to all necessary approvals, is shown on Figure 8.1. The scheduling of the RAP is based upon the timeframes specified in the Consent Decree. As such, some activities may be performed earlier than indicated on Figure 8.1, subject to appropriate EPA/WDNR approval. Scheduling of the activities are subject to revision due extreme adverse weather conditions or unavailability of a suitable contractor (s) upon approval of documents. Any revisions to the schedule will require approval by the U.S. EPA in consultation with WDNR prior to implementation.



LEGEND

- ✳ EVENT/REPORT/ACTIVITY
- ——— ACTIVITY DURATION
- - - - ACTIVITY OF UNDETERMINED DURATION

NOTES:
(1) ACTIVITIES OCCUR QUARTERLY FOLLOWING 6 MONTHS OF OPERATION
(2) ACTIVITY OCCURS ANNUALLY FOLLOWING 6 MONTHS OF OPERATION
(3) SCHEDULE SUBJECT TO REVISION DUE TO EXTREME ADVERSE WEATHER CONDITIONS
(4) SCHEDULE BASED ON TIMEFRAMES SPECIFIED IN CONSENT DECREE, ACTIVITIES MAY ACTUALLY BE COMPLETED PRIOR TO SCHEDULED DATE

figure 8.1

RAP PROPOSED SCHEDULE

Marathon Electric Manufacturing Co.

CRA

2115-2/03/89-11-1 (S-1)

9.0 REPORTS AND DOCUMENTATION

9.1 PROGRESS REPORTS

Progress reports will be prepared and submitted to the EPA and WDNR following the effective date of the Consent Decree (September 9, 1989). Monthly progress reports will be prepared and submitted throughout the remedial action time period. The monthly progress reports will be submitted by the 12th of each month. The progress reports will include at a minimum:

1. all actions that have been taken, during the previous month, toward achieving the goals set forth in the Consent Decree;

2. All available results of sampling and test and all other data received or generated in the respective reporting period;

3. All plans and procedures completed under the RD/RA Work Plan during the previous month;

4. All actions, data and plans which are scheduled for the next month and other information relating to the progress of construction; and

5. All information regarding percentage of completion, unresolved delays encountered or anticipated that may affect the future schedule for implementation of the RAP and/or the RD/RA Work Plan and a

description of efforts made to mitigate those delays or anticipated delays.

9.2 GMP ASSESSMENT REPORTS

The first GMP Assessment Report will be prepared and submitted to the U.S. EPA and WDNR after the first month of operation. The second Assessment Report will be submitted after the first six months of data collection and further reports annually thereafter. The assessment reports will include on evaluation of monitoring data and an assessment toward achieving overall objectives of source reduction and control.

Modifications to the GMP and performance criteria may be suggested by Marathon Electric, or required by U.S. EPA/WDNR, based on the assessment reports. Any modifications to the GMP will require the approval by U.S. EPA in consultation with WDNR.

9.3 REMEDIAL DESIGN REPORT

As discussed in Section 4.2, detailed engineering plans and specifications for the installation/construction of the groundwater extraction, treatment and discharge system, in the form of Contract Documents and Specifications (CD & S), have been submitted to the EPA and the WDNR for review and comments. Appropriate revisions will be incorporated into the

final design and the CD & S resubmitted to the EPA and the WDNR for final approval.

9.4 CONSTRUCTION REPORT

A Certificate of Completion will be issued to the Contractor (s) at completion of construction activities, subsequent to a final inspection of the works. A Construction Report will be subsequently prepared summarizing construction activities and include as-built drawings. The Construction Report will be submitted to the U.S. EPA and WDNR as part of the second GMP Assessment Report.

APPENDIX A

GROUNDWATER MONITORING PROGRAM SUMMARY

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A.0 GROUNDWATER MONITORING PROGRAM SUMMARY

The Groundwater Monitoring Program (GMP) has been designed, through discussions with the U.S. EPA and the WDNR, to permit a complete assessment of the effectiveness of the groundwater extraction, treatment and discharge system on:

1) Creating cone of depression which controls the west side plume source;

2) Reducing VOC concentrations in the groundwater to attain a cleanup standard of 1.8 µg/L (TCE) (in accordance with Wisconsin Administrative Code NR 140) and comply with all other Federal and State clean-up standards; and

3) Satisfying Federal Clean Water Act Best Available Technology (BAT) requirements for surface water discharge.

An extraction well and observation monitoring program will be established and performed during and following start-up of the groundwater extraction, treatment and discharge system and will include:

1) Water level monitoring on thirty-four monitoring wells, the extraction well, Bos Creek and the Wisconsin River; and

2) Water sample collection and chemical analysis from eleven monitoring wells, four production wells (3, 6, 7, 9), and the extraction well (influent/effluent).

A.1 EXTRACTION WELL TESTING

A pumping test shall be conducted on the extraction well, prior to installation of the permanent pump, to verify the well's yield and efficiency. Initially, a step-drawdown test, consisting of three 1-hour steps, shall be conducted at pumping rates up to a minimum of 1,600 gpm. Subsequently, a 24-hour constant rate pumping test shall be performed on the well, at a rate determined in the field, based on the step-drawdown test. Following pump shut down, water level recovery shall be measured in the extraction well and surrounding monitoring wells for an additional eight hours, or until recovery. The pumping test waters shall be discharged following treatment to the Wisconsin River. Based on the results gathered during and subsequent to the 24-hour constant rate pumping test the permanent pump installation will be finalized and response characteristics of the aquifer evaluated.

A.2 WATER LEVEL MONITORING

A.2.1 Water Level Monitoring Network

A total of thirty-four (34) monitoring wells, Bos Creek, Wisconsin River and the extraction well (EW-1) are proposed to form the water level monitoring network. The water level monitoring network is summarized on Table A.1.

TABLE A.1

WATER LEVEL MONITORING NETWORK
GROUNDWATER MONITORING PROGRAM

Monitoring Well NO.	*Monitoring Well NO.*	*Extraction Well NO.*
C1S	W50	EW-1
C2S	W51A	
C3S	W52A	
C4S	W52	
C4D	W53A	
C6S	W53	
C7S	W54	*WISCONSIN RIVER*
	W55A	SG1
R1S	W55	
R1D		
R2S	IWD	
R2D	IWM	
R3S	IWS	
R3D		
R4D	WSWD	*BOS CREEK*
	WSWS	SG2
E21		
E21A		
E30	WC4	
	WC4A	
TCT44		

The water level monitoring network will provide sufficient data to determine the extent of the cone of depression created by pumping of the extraction well.

A.2.2 Water Level Monitoring Frequency

Water levels will be measured in the well network, immediately prior to and subsequent to start-up of the extraction system, according to the following schedule:

	Frequency	
Time Period	*Monitoring/Wells Staff Gages*	*Extraction Well*
Prior to Startup	1 event	1 event
12 Hr. Subsequent to Startup	1 event	continuous
Week 1	2 events	daily
Month 1	twice/month	twice/week
Month 2 to 6	twice/month	twice/month
Month 6 onwards	quarterly*	quarterly*

*Dependent on whether a pattern is established in aquifer.

During each water level monitoring event, water level measurements will be collected from the well network over a period of no longer than one working day.

In addition to the above schedule, water levels will be measured prior to purging and sample collection (see Section A.3).

The wells, IWD, IWM and IWS, located on the island, will be monitored according to the schedule summarized above, with the following exceptions. Wells IWD, IWM and IWS will not be sampled during the months of December, January and February. Wells IWD, IWM and IWS will not be sampled if they are inaccessible due to weather conditions. If these wells are inaccessible, the EPA project manager will be notified as soon as possible.

A.2.3 Water Level Monitoring Protocol

Water level measurements will be taken in accordance with the schedule summarized in Section A.2.2 and prior to purging and sampling for chemical analysis.

All water levels in monitoring wells will be measured according to the following protocols:

1) New disposable latex gloves will be used when measuring each well.

2) The sampler will measure and record the depth to water in each well to the nearest 0.01 foot using an electric tape or plopper.

3) The bottom three feet of the measuring device will be cleaned with Alconox or equivalent, triple rinsed with deionized water and allowed air dry prior to use in each well. All rinsings will be collected and

either discharged to the sanitary sewer or the storm sewer. Rinse water will not be discharged to the storm sewer if HNu screening (or equivalent) shows elevated levels of contaminants in the rinse water (HNu readings greater than background). In such cases, the rinse water must be discharged to the sanitary sewer.

Water level in the extraction well will be recorded from a continuous monitoring instrument located at its well head. Water levels in the Wisconsin River and Bos Creek will be recorded from staff gages SG1 and SG2, respectively.

A.3 GROUNDWATER SAMPLING

A.3.1 Groundwater Sampling Network

A total of eleven (11) monitoring wells, four (4) City production wells and the extraction well are proposed to form the groundwater sampling network. The groundwater sampling network is summarized on Table A.2.

The groundwater sampling network will provide sufficient data to assess the effectiveness of the extraction well system to control the west side plume source and to monitor the reduction in VOC concentrations in the groundwater over time.

TABLE A.2

GROUNDWATER SAMPLING NETWORK
GROUNDWATER MONITORING PROGRAM

Monitoring Well NO.	*Production Well NO.*	*Extraction Well NO.*
C2S	CW3	EW1
C4D	CW6	(influent/effluent)
R2D	CW7*	
R4D	CW9*	
W52		
W53A		
W53		
W54		
W55		
WSWD		
IWD		

Note:

* Sampled only during selected sampling events as specified in Section A.3.3.

A.3.2 Groundwater Sampling Parameters

All groundwater samples collected will be measured in the field for pH, conductivity and temperature. All groundwater samples will be submitted to a laboratory for Target Compound List (TCL), Volatile Organic Compound (VOC) parameter analysis or for the full TCL organic and Target Analyte List (TAL) inorganic parameter analysis. All analyses will be conducted in accordance with the QAPP.

A.3.3 Groundwater Sampling Frequency

Groundwater samples will be collected from the groundwater sampling network and analyzed for TCL VOC parameters, according to the following schedule:

	Frequency		
Time Period	*Monitoring Wells*	*Production Wells*	*Extraction Well (influent/effluent)*
Immediately Prior to Start-Up	1 event	1 event	1 event
Month 1	once/week	twice/month*	twice/week
Month 2	once/month	once/month*	once/week
Month 3	once/month	once/month	twice/month
Month 4 and 5	once/month	once/month*	once/month
Month 6 onward	quarterly	quarterly	quarterly**

* only production wells 3 and 6 for these sampling events
** dependent on whether a pattern is established with contaminant levels in aquifer

Well IWD, located on the island, will be sampled according to the schedule summarized above, with the following exceptions. Well IWD will not be sampled during the months of December, January or February, or if it is inaccessible due to weather conditions. If well IWD is inaccessible, the EPA project manager will be notified as soon as possible.

In addition to analyzing samples for TCL VOCs, six groundwater samples (influent/effluent extraction well samples and four monitoring well samples whose locations will be specified by the EPA) will be collected during a sampling event in the first month of operation and analyzed for the full TCL and TAL parameters. This data will be presented in an assessment report prepared after the first month of operation. Subsequent to review of the data, it will be determined, in conjunction with the U.S. EPA and the WDNR, whether a second round of groundwater samples is required to be collected from the six locations for full or partial TCL/TAL analysis. The six sample locations will be sampled annually, thereafter, and analyzed for the full or partial TCL/TAL parameters, as determined necessary in conjunction with the U.S. EPA and WDNR.

The production wells and the extraction well (influent) will be sampled at their respective well heads. A treated groundwater (effluent) sample will also be collected from the rip rap discharge structure, immediately prior to the point where treated groundwater enters the Wisconsin River.

After one month of operation, an assessment report will be prepared which will include an evaluation of the water level and sampling

well networks, parameters and frequencies and will recommend revisions, for review/approval with U.S. EPA and WDNR, if necessary. A similar assessment report will follow after six months of operation.

A.3.4 Groundwater Sampling Protocol

A.3.4.1 Monitoring Well Sampling

All monitoring wells will be sampled according to the following protocols:

1. New disposable latex gloves will be used when sampling each well. Additional glove changes will be made for each sampling.

2. The sampler will measure and record the depth to water in each well to the nearest 0.01 foot using an electric tape or plopper. The bottom three feet of the measuring device will be cleaned with Alconox or equivalent, triple rinsed with deionized water and allowed to air dry prior to use in each well.

3. Prior to sampling, each well will be purged, using a bottom-unloading stainless steel or teflon bailer attached to a nylon rope; or a teflon bladder stainless steel pump fitted with teflon purging and air supply lines attached to a nylon rope. A minimum of three times the standing water volume in the well will be removed, or until conductivity and pH stabilize in the purge water. In the event that a

well is purged dry prior to achieving three well volumes, groundwater will be permitted to recover to a level sufficient for sample collection. The time that the well was purged dry will be noted and well recovery will be monitored. Upon recovery, a precleaned bailer or bladder pump will then be used for sample collection. Prior to use in each well, the bailer or bladder pump will be precleaned as follows:

1) Rinse thoroughly with Alconox or equivalent;
2) Triple rinse with deionized water;
3) Allow to air dry.

All waste groundwater, not used for samples, will be collected and either discharged to the sanitary sewer or to the storm sewer. Waste groundwater will not be discharged to the storm sewer if HNu screening (or equivalent) shows elevated levels of contaminants in the groundwater (HNu readings greater than background). In such cases, the rinse water must be discharge to the sanitary sewer.

4. Field measurements of pH and conductivity (using a DspH-3 pH/3 RGE Conductivity Meter or equivalent) and temperature (using a YSI Model 33 SCT meter or equivalent) will be recorded prior to sample collection. Calibration of field instruments will be conducted as specified in the QAPP.

5. After the required standing well water has been purged, water samples will be collected using a bottom-unloading stainless steel or teflon bailer attached to a nylon rope; or a teflon bladder stainless steel pump,

fitted with teflon purging and air supply lines, attached to a nylon rope. The groundwater samples will be collected from the bottom-unloading bailer or collected directly from the purge line of the bladder pump used to purge the well. New nylon rope, where applicable, will be used for each monitoring well.

6. Containers for sample collection and preservation requirements will be prepared in accordance with the QAPP. QA/QC samples (blind field duplicate, matrix spike and matrix spike duplicate, rinsate blank and VOC trip blanks) will be collected or prepared as specified in the QAPP.

7. All disposable gloves and nylon ropes will be placed in DOT approved 55-gallon drums and stored at Marathon's facility. All drummed waste will be disposed of in accordance with State and Federal regulations. All rinsings will be handled as discussed in item (3), above.

8. Samples will be labeled noting the well location, date, time and sampler's initials. A separate hard-cover bound field notebook will be maintained describing the sampling history (including: date and time of collection, sample handling and storage, preservation and labeling, field measurements, details pertaining to well purging and characteristics of each sample taken, and weather conditions).

9. Samples will be placed on ice or cooler pack in laboratory supplied coolers after collection and labeling.

A.3.4.2 Well Head Sampling

The production and extraction well (influent) head sampling will be conducted in accordance with the following protocols:

1. New disposable latex gloves will be used when collecting the water samples.

2. The samples will be collected by the grab sample method directly into the precleaned sample containers. The samples will be collected at the well head directly from sampling ports.

3. Containers for sample collection and preservation requirements will be prepared in accordance with the QAPP. QA/QC samples (blind field duplicate, matrix spike and matrix spike duplicate, and VOC trip blanks) will be collected or prepared as specified in the QAPP.

4. Samples will be labeled noting the sampling location, date, time and sampler's initials. A separate hard-cover field book will be maintained to document all samples and sampling events. Weather conditions at the time of sampling will be noted.

5. Samples will be placed on ice or cooler packs in laboratory supplied coolers after collection and labeling.

A.3.4.3 Treated Groundwater Effluent Sampling

The treated groundwater (effluent) sample will be collected in accordance with the following protocols:

1. New disposable latex gloves will be used when collecting the sample.

2. The sample will be collected by the grab sample method directly into the precleaned sample containers. The sample will be collected from the rip rap lined discharge structure immediately prior to the point where the treated groundwater enters the Wisconsin River.

3. Containers for sample collection and preservation requirements will be prepared in accordance with the QAPP. QA/QC samples (blind field duplicate, matrix spike and matrix spike duplicate and VOC trip blanks) will be collected or prepared as specified in the QAPP.

4. Samples will be labeled noting the sampling location, date, time and sampler's initials. A separate hard-cover field book will be maintained to document all samples and sampling events. Weather conditions at the time of sampling will be noted.

5. Samples will be placed on ice or cooler packs in laboratory supplied coolers after collection and labeling.

A.4 HEALTH AND SAFETY

A.4.1 Water Level Monitoring

Groundwater levels will be measured in the monitoring wells, production wells and extraction wells at the frequency and according to the protocols summarized in Section A.2.

During groundwater monitoring, Level E protection will be required. Air monitoring is not anticipated for this activity.

A.4.2 Water Sample Collection

Water samples will be collected for chemical analysis at the frequency and according to the protocols summarized in Section A.3.

During groundwater sampling, Level D protection will be required. The potential for dermal contact with dissolved chlorinated solvents exists, and should be kept to a minimum by use of dermal protection and eye and face protection (Level D). Air monitoring, using an HNu meter or equivalent, will be conducted during all groundwater sampling activities.

If air monitoring indicates elevated levels of contaminants (HNu readings greater than 2 ppm over background level), air purifying respirators will be utilized (Level C). Air monitoring requirements will be reviewed in the assessment report prepared after the first six months

of operation. The continuation of air monitoring requirements will be evaluated based on the first six months sampling activities.

A.4.3 Levels of Protection

The following describes the levels of protection which may be implemented during the monitoring activities.

Level E

Level E is to be implemented when water level measuring activities take place where there are no samples collected. Level E may include the following:

- steel toe boots
- hard hat
- disposable latex gloves (when needed)
- coveralls
- participation in medial monitoring program and Health and Safety trained, according to OSHA 20 CFR 1910.120.

Level D

Level D is to be worn during sampling activities when organic vapor air contamination is less than 2 ppm over background concentration (according to the HNu readings), but where dermal protection

is warranted. The following list outlines the personal protective equipment to be utilized for Level D:

- Polyethylene (PE) coated Tyvek coveralls
- steel toe/steel shank leather work boots with latex overboots or steel toe/steel shank neoprene boot
- disposable latex gloves
- Nitrile or neoprene gloves
- eye protection (safety glasses or face shield)
- hard hat

Level C

Level C is be worn during sampling activities when organic vapor air contamination is greater than 2 ppm over background concentration (according to the HNu readings). The following outlines this level of protection:

- PE coated tyvek coveralls
- steel toe/steel shank leather work boots with latex overboots or steel toe/steel shank neoprene boots
- disposable latex gloves
- nitrile or neoprene gloves
- half face, air purifying respirator with combination organic vapor/dust and mist cartridge
- hard hat

APPENDIX B

CORRESPONDENCE

DEPARTMENT OF ARMY LETTER DATED

DECEMBER 8, 1987

Rec'd CRA

FEB 23 1990

DEPARTMENT OF THE ARMY

ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U.S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101-1479

December 8, 1987

REPLY TO
ATTENTION OF

Construction-Operations
Regulatory Functions (88-192N-75)

Ms. Beth Schneider Naylor
Foley and Lardner
First Wisconsin Center
777 East Wisconsin Avenue
Milwaukee, Wisconsin
53202-5367

Re: Place riprap for bank stabilization on the bank of the Wisconsin River located at SW¼ NW¼ Sec. 24, T.29N., R. 7E., Marathon County, Wisconsin

We have reviewed the information provided us about your project. The work is authorized by a nationwide Department of the Army permit, provided the enclosed conditions and management practices are followed.

This determination covers only the project referenced above. Should you change the design, location, or purpose of the work, contact us to make sure a violation would not occur. Our telephone number is (612) 725-7557.

It is your responsibility to insure that the work complies with the terms of this letter and the enclosures. PLEASE NOTE THAT THIS CONFIRMATION LETTER DOES NOT ELIMINATE THE NEED FOR STATE, LOCAL, OR OTHER AUTHORIZATIONS.

This authorization expires on January 12, 1992. If you have any questions, please call Yvonne Larson.

Sincerely,

for Dennis G. Blackwell-Krafft
Ben Wopat
Chief, Regulatory Functions Branch
Construction-Operations Division

Enclosure(s)

Determination: 33 CFR 330.5(a)(3)

WISCONSIN

Authority for the following activities is given at 33 Code of Federal Regulations (CFR):

[__] 330.5(a)(8) - Structures for the exploration, production, and transportation of oil, gas, and minerals on the OUTER CONTINENTAL SHELF within areas leased for such purposes by the Department of Interior, Mineral Management Service, provided those structures are not placed within limits of any designated shipping safety fairway or traffic separation scheme (where such limits have not been designated or where changes are anticipated, district engineers will consider recommending the discretionary authority provided by 330.8 of this part, and further subject to the provisions of the fairway regulations in 33 CFR 322.5(1)). (Section 10)

[__] 330.5(a)(9) - STRUCTURES PLACED WITHIN ANCHORAGE OR FLEETING AREAS TO FACILITATE MOORAGE OF VESSELS where such areas have been established for that purpose by the U.S. Coast Guard. (Section 10)

[__] 330.5(a)(10) - Non-commercial, single-boat, MOORING BUOYS. (Section 10)

[__] 330.5(a)(11) - TEMPORARY BUOYS AND MARKERS placed for recreational use such as water skiing and boat racing provided that the buoy or marker is removed within 30 days after its use has been discontinued. At Corps of Engineers reservoirs, the reservoir manager must approve each buoy or marker individually. (Section 10)

[X] 330.5(a)(13) - BANK STABILIZATION activities provided: (i) The bank stabilization activity is less than 500 feet in length; (ii) The activity is necessary for erosion prevention; (iii) The activity is limited to less than an average of one cubic yard per running foot placed along the bank within waters of the United States; (iv) No material is placed in excess of the minimum needed for erosion protection; (v) No material is placed in any wetland area; (vi) No material is placed in any location or in any manner so as to impair surface water flow into or out of any wetland area; (vii) Only clean material free of waste metal products, organic materials, unsightly debris, etc. is used; and (viii) The activity is a single and complete project. (Sections 10 and 404)

[__] 330.5(a)(16) - RETURN WATER FROM AN UPLAND, CONTAINED DREDGED MATERIAL DISPOSAL AREA (see 33 CFR 323.2(d)) provided the state has issued a site specific or generic certification under section 401 of the Clean Water Act (see also 33 CFR 325.2(b)(1)). The dredging itself requires a Section 10 permit if located in navigable waters of the United States. The return water or runoff from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d) even though the disposal itself occurs on the upland and thus does not require a section 404 permit. This nationwide permit satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. (Section 404)

The following MANAGEMENT PRACTICES shall be followed, to the maximum extent practicable, in order to minimize the adverse effects of these discharges on the aquatic environment. Failure to comply with these practices may be cause for the District Engineer to recommend, or the Division Engineer to take, discretionary authority to regulate the activity on an individual or regional basis pursuant to Section 330.8 of this part.

1. Discharges of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.

2. Discharges in spawning areas during spawning seasons shall be avoided.

3. Discharges shall not restrict or impede the movement of aquatic species indigenous to the waters or the passage of normal or expected high flows or cause the relocation of the water (unless the primary purpose of the fill is to impound waters).

4. If the discharge creates an impoundment of water, adverse impacts on the aquatic system caused by the accelerated passage of water and/or the restriction of its flow shall be minimized.

5. Discharge in wetland areas shall be avoided.

6. Heavy equipment working in wetlands shall be placed on mats.

7. Discharge into breeding areas for migratory waterfowl shall be avoided.

8. All temporary fills shall be removed in their entirety.

Nationwide permits do not obviate the need to obtain other federal, state or local authorizations required by law, do not grant any property rights or exclusive privileges, do not authorize any injury to the property or rights of others, nor do they authorize interference with any existing or proposed federal project.

Modification, Suspension or Revocation of Nationwide Permits:

The Chief of Engineers may modify, suspend, or revoke nationwide permits in accordance with the relevant procedures of 33 CFR 325.7. Such authority includes, but is not limited to: adding individual, regional, or nationwide conditions; revoking authorization for a category of activities or a category of waters by requiring individual or regional permits; or revoking an authorization on a case-by-case basis. This authority is not limited to concerns for the aquatic environment as is the discretionary authority in section 330.8.

The following SPECIAL CONDITIONS must be followed in order for the nationwide permits to be valid:

1. That any discharge of dredged or fill material will not occur in the proximity of a public water supply intake;

2. That any discharge of dredged or fill material will not occur in areas of concentrated shellfish production unless the discharge is directly related to a shellfish harvesting activity authorized by paragraph (a)(4) of this section;

3. That the activity will not jeopardize a threatened or endangered species as identified under the Endangered Species Act or destroy or adversely modify the critical habitat of such species.

4. That the activity shall not significantly disrupt the movement of those species of aquatic life indigenous to the waterbody (unless the primary purpose of the fill is to impound water);

5. That any discharge of dredged or fill material shall consist of suitable material free from toxic pollutants in toxic amounts;

6. That any structure or fill authorized shall be properly maintained.

7. That the activity will not occur in a component of the National Wild and Scenic River System; nor in a river officially designated by Congress as a "study river" for possible inclusion in the system, while the river is in an official study status;

8. That the activity shall not cause an unacceptable interference with navigation;

9. That, if the activity may adversely affect historic properties which the National Park Service has listed on or determined eligible for listing on the National Register of Historic Places, the permittee will notify the District Engineer. If the permittee encounters a historic property that has not been listed or determined eligible for listing on the National Register, but which may be eligible for listing on the National Register, he/she will notify the District Engineer.

10. That the construction or operation of the activity will not impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights;

11. That in certain states, an individual state water quality certification must be obtained or waived;

12. That in certain states, an individual state coastal zone management consistency concurrence must be obtained or waived;

13. That the activity will comply with regional conditions which may have been added by the Division Engineer;

14. That the management practices shall be followed to the maximum extent practicable. (See reverse side.)