

Water Management Plan for Construction Activities

Upper River – Phase I

Sheboygan River and Harbor Superfund Site

Sheboygan County, Wisconsin

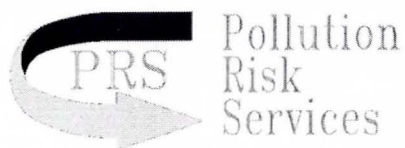
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1.0 INTRODUCTION

This Water Management Plan has been prepared to document water management activities to be implemented in association with remedial action required at the Sheboygan River and Harbor Superfund Site, Sheboygan County, Wisconsin. Remedial activities are required to be implemented as set forth in the Record of Decision (ROD), Consent Decree (CD), and Upper River Statement of Work (URSOW).

The Upper River activities associated with the Sheboygan River and Harbor Superfund Site include investigation/remediation of Upper River soft sediments, flood plain soil, and the Tecumseh Products (Tecumseh) Plant Site area. The Upper River activities are to be conducted in two phases: Phase I will address remediation/control of impacted soils and groundwater at the Tecumseh site; Phase II will address investigation/remediation of soft sediments (including near shore sediments and Area 1) and flood plain soils in the Upper River (from the Tecumseh site to the Walderhaus Dam). This water management plan applies to activities to be conducted during Phase I remediation/control.

Remedial activities at the Tecumseh site are anticipated to commence during the Spring of 2004. As part of the overall Phase I activities, trench dewatering, stormwater runoff from PCB-impacted soils, and decontamination water will require treatment prior to being discharged into the Sheboygan River. In addition, a groundwater monitoring/interceptor trench (GMIT) and monitoring wells will be installed. Treated water will be discharged to the Sheboygan River. This document outlines the approach to capture, transport, and treat the water at the site during the remediation activities and during the operation of the GMIT, as required.

2.0 CONTINGENCY WATER TREATMENT SYSTEM

The contingency water treatment system (CWTF) will be operated during remediation activities and will treat water generated during GMIT construction activities, stormwater runoff from PCB-impacted soils, monitoring well development, and decontamination. Additionally, the system will be used to treat water generated during operation of the GMIT, as required. The water management approach for each source of PCB-impacted water is discussed in subsequent sections.

The existing CWTF at the site was used to treat PCB-impacted water generated during previous remedial activities and pilot studies performed at the Tecumseh facility. The CWTF is currently located in a heated construction trailer at the site. The CWTF (Appendix A) consists of: (2) chemical addition tanks with flow control pumps, (1) influent sedimentation tank, (1) multimedia filter, (2) two pairs of activated carbon units in series, and (1) effluent/backwash tank. Water from the above operations will enter the system at a maximum rate of 30 gallons/minute. Two chemical tanks will pump alum and polymer at a field-determined flow rate into the influent stream to aid in separating PCB-impacted particles from the water. The water will then enter the sedimentation tank that will allow detention time for primary settling of solids suspended in the water. The water stream will pass through the multimedia filter and the activated carbon units to treat the water to below the regulated limits. Finally, the water will enter the effluent/backwash tank where the stream will overflow and gravity feed into the Sheboygan River.

Discharge piping is currently located aboveground; however, the system will be modified so that discharge piping will be buried at a level below the frost line to prevent freezing. Associated aboveground piping will be insulated and heat traced to prevent freezing.

Five sampling ports will be available in the treatment system. These locations are as follows: SP-1 (Influent sedimentation tank), SP-2 (Influent to the activated carbon units), SP-3 and SP-4 (Between activated carbon pairs), and SP-5 (Effluent). During construction activities, the parameters, monitoring frequency and limits will be consistent with WPDES regulations. These requirements are as follows:

<u>Parameter</u>	<u>Monitoring Frequency</u>	<u>Limit</u>
Total Suspended Solids (TSS)	Once per day	40 mg/l
Total PCB's	Once per day	Non-detect (<0.05 mg/l)

The effluent monitoring frequency will be daily the first 3 days of operation to demonstrate the effectiveness of treatment. The frequency will then be adjusted to sampling the effluent on a weekly basis for the first 4 weeks, followed by sampling on a monthly basis for the first 3 months or as otherwise agreed upon with WDNR and USEPA.

3.0 TRENCH DEWATERING

During construction of the GMIT, groundwater entering the GMIT excavation is estimated at a maximum rate of 30 gallons/minute following the initial dewatering of the trench. Because the water has the potential to be impacted, the water will be collected in the sump at the northeast end of the trench and pumped to CWTF. The pump will be equipped with a float to allow for continuous dewatering during GMIT construction activities. Water will be pumped directly to the treatment system influent sedimentation tank or into poly tanks depending on the location at the site. The water will be treated as discussed in Section 2 and discharged into the Sheboygan River.

4.0 STORMWATER RUNOFF

To the extent practical, stormwater that contacts PCB-impacted soils will be contained and pumped to the CWTF. However, polyethylene sheeting and diversion berms are to be utilized to minimize the potential for PCB-impacted stormwater runoff. The PCB impacted stormwater runoff will either be pumped to holding tanks or directly to the CWTF based on the volume of water to be treated and the impacts it may have on other water management activities associated with remedial activities. The water will be treated as discussed in Section 2 and discharged into the Sheboygan River.

5.0 DECONTAMINATION WATER

Equipment used at the site (i.e. hand tools, heavy equipment) will be decontaminated prior to being released from the Site. Decontamination of heavy equipment will be performed using a portable unit located as shown on Phase I, Drawing 8. Smaller hand tools will utilize buckets for decontamination. The water used during this process has the potential of being contaminated with PCB-impacted particles. Therefore, decontamination water will be contained in the reservoir provided in the portable unit (heavy equipment) or buckets (hand tools) and pumped directly into the treatment system or polytanks. Decontamination water will be as discussed in Section 2 and discharged into the Sheboygan River.

6.0 INTERCEPTOR TRENCH GROUNDWATER

Water collected during the operation of the GMIT will be pumped directly to the CWTF. The pump and conveyance system will be as shown on the Construction Drawings and Specifications. The pump will be automated so that the water level within the sump can determine the on/off frequency.

7.0 CONTINGENCY PLAN

As with all systems, the potential for equipment failure is inherent. Therefore, a contingency plan has been developed to address potential circumstances that may arise during construction activities. Poly tanks will be mobilized as required to provide additional storage capacity for potentially PCB-impacted water. Arrangements for back-up treatment equipment will also be made. In addition, off-site disposal and transportation at a POTW will be pre-arranged to manage any excess or all of the water generated during remediation activities at the Site.

APPENDIX A

CONTINGENCY WATER TREATMENT SYSTEM LAYOUT

APPENDIX B

**CONTINGENCY WATER TREATMENT FACILITY
OPERATING PROCEDURES**

Contingency Water Treatment Facility Operating Procedures

The following outlines detailed operating procedures for the water management system.

The system will meet the requirements listed below:

- The treatment and discharge will be operated in full compliance with applicable WPDES regulations;
- Monitoring and reporting will be in full compliance with WPDES regulations; and
- Reports will be considered as part of the O&M Plan.

STAGE 1 – PRIMARY TREATMENT

The impacted water stream from construction activities (i.e. trench dewatering, stormwater runoff, decontamination water, or groundwater) will enter the treatment system where (2) dosing pumps will add alum and polymer to aid in the sedimentation of the suspended solids. The rate of chemical feed will be determined in the field and modified based on the results of Total Suspended Solid (TSS) levels in the effluent stream. The water will then flow into the Influent Sedimentation Tank (T-1) where solids will have sufficient detention time to remove settleable particulates. Sampling point (SP-1) will be used to characterize the initial level of PCBs and TSS prior to treatment. Solids that accumulate in the tank over time will be monitored to determine the frequency of cleaning the tank.

STAGE 2 – SECONDARY TREATMENT

The effluent from the Sedimentation Tank will overflow into a weir box installed at the end of the tank and be pumped (P-1) to the Multimedia Filter based on level control sensor in the weir box. (Note: In order to achieve the proper flow, Valve MV-1 will be in the open position, Valve AV-1 will be automatically closed, and Valve MV-2 (Bypass) will be closed.) The stream will pass through the Multimedia Filter and through the Valve MV-3 (Open) to an automatic valve AV-2. At this point, the stream will be sent through either path “a” or “b” to a series of Activated Carbon Units (GAC A-1 and A-2

or GAC B-1 and B-2). The second sampling point (SP-2) will be utilized at the influent to the activated carbon units. This sampling will aid in determining the efficiency of particulate removal from the Multimedia Filter and determining the frequency of media replacement. The third and fourth samples (SP-3, SP-4) will be collected between the GAC pairs to determine the efficiency of particulate removal and breakthrough.

STAGE 3 – FINAL TREATMENT

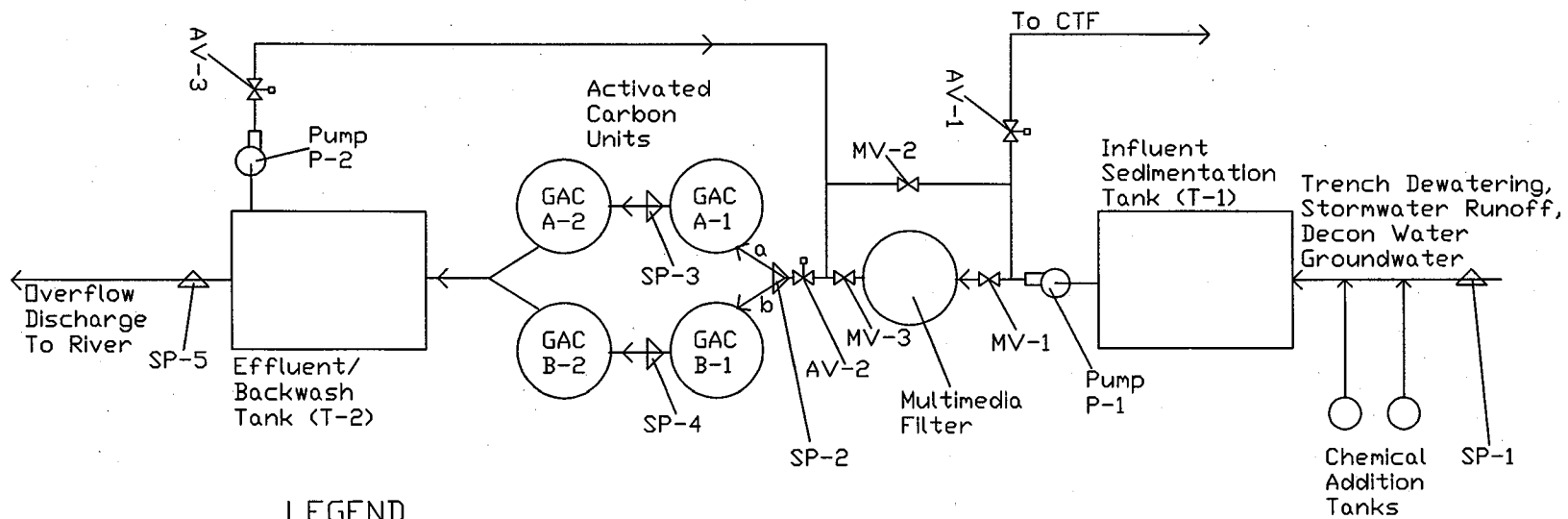
After passing through the activated carbon units; the stream will enter the Effluent/Backwash Tank (T-2). The final sampling point (SP-5) will be located at the outlet of T-2. This sampling point will aid in determining the efficiency of the system. Should the effluent meet discharge requirements, the water will be discharged via gravity to the Sheboygan River. A contingency recycle stream is provided with the system if additional treatment of the effluent is necessary (i.e. not meeting discharge requirement). This can be achieved by using pump P-2 and opening the automatic valve (AV-3) until the appropriate PCB and TSS levels are obtained. The discharge goals for this system are to achieve PCB levels of non-detect (<0.05 mg/l) and TSS levels of less than 40 mg/l at a maximum flow rate of 30 gallons/minute. Solids that may accumulate in the tanks will be monitored to determine the frequency of cleaning the tanks.

OPERATIONS AND MAINTENANCE

Samples will be taken at all five sampling points on a monthly basis or as otherwise agreed upon with the USEPA and the WDNR. The samples will be analyzed for PCBs and TSS.

Results of sampling will aid in providing an evaluation of equipment operation and efficiency. If it is determined that the equipment is not operating at an appropriate efficiency or capacity, arrangements will be made to perform maintenance on the equipment. At a minimum, maintenance of equipment will be according to manufacturer's recommendations. Equipment or components of equipment may be replaced if it is deemed prudent to maintain successful operation.

APPENDIX A - CONTINGENCY WATER TREATMENT SYSTEM LAYOUT



LEGEND

- ⊗ Manual Valve
- ⊕ Automatic Valve
- △ Sampling Point