

RI/FS Work Plan
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RI/FS Work Plan
N.W. Mauthe Company
Appleton, Wisconsin

Prepared for:
Wisconsin Department of Natural Resources
Madison, Wisconsin

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WORK PLAN
REMEDIAL INVESTIGATION AND FEASIBILITY STUDY
N.W. MAUTHE COMPANY
APPLETON, WISCONSIN

INTRODUCTION

This Work Plan describes the activities proposed for the performance of a Remedial Investigation (RI) and Feasibility Study (FS) at the N.W. Mauthe Company site (Site) located in the City of Appleton, Wisconsin. Warzyn Engineering Inc. (Warzyn) has prepared this draft Work Plan for the Wisconsin Department of Natural Resources (WDNR) under Contract 2941.

The objective of the RI is to determine the nature and extent of the contamination at the Site in order to support the risk assessment and the activities of the FS. The objective of the FS is to develop and evaluate appropriate remedial action alternatives based on RI data.

This Work Plan addresses, on a task by task basis, the activities necessary to meet the objectives of the RI/FS. A schedule for implementation of RI/FS tasks and submission of RI/FS reports and deliverables is contained in Table 1.

SECTION 1 - REMEDIAL INVESTIGATION

Task 1 - Scope of Work

This RI/FS Work Plan has been developed in conformance with the standards set forth in the following statutes, regulations and guidance:

- Section 121 of CERCLA;
- U.S. EPA, 1988 "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, Interim Final", Publication No. EPA/540/G-89/004, Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01, October 1988.
- National Oil and Hazardous Substances Pollution Contingency Plan (NCP), dated March 1990) (40 CFR 300); and
- Additional guidance documents provided by U.S. EPA.

Task 2 - Description of the Current Environmental Situation

This task was accomplished as part of the Focused Feasibility Study (FFS). The draft Site Evaluation Report (SER) was submitted to the WDNR and U.S. EPA in November 1989. The final SER, with revisions addressing comments from the WDNR and U.S. EPA, was submitted in March 1990.

Task 3 - Plans and Management

The draft Work Plan includes a series of associated plans, each with a specific focus or function. These documents include:

- Phase I and Phase II Site Investigation Plans;
- Quality Assurance Project Plan (QAPP);
- Data Management Plan (DMP); and
- Health and Safety Plan (HSP).

The Phase I Site Investigation Plan describes the activities to be conducted in the first phase of the field investigation and is presented in the next section of this draft Work Plan. The Phase II Site Investigation Plan will be prepared after the completion of Phase I activities, if found to be necessary to complete the RI.

A QAPP has been prepared in accordance with current U.S. EPA guidance. The QAPP adheres to the U.S. EPA's Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans (QAMS-005/80). The QAPP specifies the analytical methods and protocols to be used at the various stages of the Site investigation. Specific methods are defined for Quality Assurance procedures. U.S. EPA Contract Laboratory (CLP) protocols will be used for contaminant characterization analyses. The Sampling Plan for the Phase I activities is included in Appendix A of the QAPP.

The DMP (included in Appendix B of the QAPP) provides the specific methods by which the results of the Site investigative activities will be tracked, confirmed, and stored.

The HSP has been prepared to address hazards the investigation activities may present to the investigation team and to the surrounding community. The plan conforms to applicable regulatory requirements and guidance, including:

- OSHA requirements 29 CFR Part 1910.120, Hazardous Waste Operations and Emergency Response; Interim Final Rule. (51 FR 45654-45675, December 19, 1986, as amended);
- OSHA requirements (29 CFR 1910 and 1926); and
- Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities, prepared by NIOSH, OSHA, USGS, and EPA, October 1985, as amended (NIOSH publication No. 85-115).

The HSP details personnel responsibilities, protective equipment, procedures and protocols, decontamination, training and medical surveillance. The plan identifies problems or hazards that may be encountered and their anticipated solutions. Procedures for protecting third parties such as visitors or the surrounding community are also provided.

Task 4 - Phase I Site Investigation

Site Preparation

It is anticipated that Site preparations, including fencing the Site and installing a decontamination facility, will have been completed during activities associated with the FFS. It may be necessary to construct a new decontamination facility for RI activities, because of the possibility that the original decontamination facility may be damaged or removed during an operable unit remedy under the FFS. Figure 4 of Appendix A of

the QAPP shows conceptual plans for the Site layout for conducting the RI. The location of the new decontamination facility, the Site office trailer, and the investigative waste staging area may be changed after the nature and extent of the FFS related activities are known. Conceptual designs for the decontamination facility are included in Attachment 1 of Appendix A of the QAPP. It should be noted that these designs are for planning purposes, only, and should not be used for construction.

Field Investigation

The field investigation will be performed to determine background groundwater quality and identify potential contaminant migration pathways. It is expected that the source characterization will have been completed under the FFS. The RI will examine the extent and effects of the contaminant release on area soils, groundwater, surface water, buried utilities, and residential building interiors, and the possibility of airborne contaminant migration. Investigation activities are designed to provide data of sufficient detail to support the risk assessment, screening of remedial technologies, alternatives development and screening, and detailed evaluation of alternatives during the FS. The Phase I Site Investigation is designed to be as comprehensive as possible, based on existing data, but a Phase II Site Investigation may be required to fill data gaps identified upon completion of Phase I. Phase I Site Investigation activities are summarized in Table 2.

4.1 Migration Pathway Assessment. The migration pathway assessment will be conducted to identify and describe the physical characteristics of potential contaminant pathways through the soils, surface water, groundwater, and air.

4.1.1 Drainage Analysis. Depending on the nature of remedial action performed under the FFS, a drainage analysis may be performed to characterize surface water drainage from the Site. Most of the data needed for this analysis have already been collected during the Site survey. Based on the topographic contours, probable surface water flow lines will be drawn on a Site map to help determine areas drained by specific storm sewer inlets. These areas will also be shown on the map. The discharge point of the storm sewer system will be determined using plans obtained from at the City of Appleton Department of Public Works.

4.1.2 Identification of Buried Utilities. It is important to determine the location of buried utilities, because the trenches in which they are installed may serve as preferential migration pathways for contaminants. Locations of utility mains and laterals were obtained from utility companies and are shown on Figure 1. It is expected that additional on-Site utility laterals may be identified during the geophysical survey, as discussed in the FFS Work Plan.

4.1.3 Hydrogeologic Investigation. The hydrogeologic investigation is an important component of the migration pathway assessment. Information obtained during this phase of the work will be combined with data collected during the contaminant assessment (see Section 4.2) to evaluate the transport pathways and extent of contaminants in soil and groundwater. Data obtained during hydraulic gradient computations and hydraulic conductivity tests will be used to determine a range of groundwater flow velocities in the area of the Site. Contaminant transport conditions will be evaluated by comparing observed contaminant distributions with estimated groundwater flow velocities and infiltration rates.

Installation of Monitoring Wells. At least four replacement water table wells will be installed in locations where existing wells are known to be damaged (Figure 1) using methods described in this section. Additional replacement wells may be installed based on results of the well inspection discussed in the FFS Work Plan.

Eighteen new groundwater monitoring wells are proposed at 13 locations on and adjacent to the Site, to supplement existing and replacement wells. The purpose of the wells is to provide information on groundwater flow directions and aquifer properties, and establish the lateral and vertical extent of groundwater contamination. Nine water table wells and nine piezometers will be installed at the locations shown on Figure 1. The rationale for the placement of these wells is presented in Table 3. Soil samples collected during monitoring well installation activities will be used to determine geologic conditions at the Site, and to aid in the contaminant assessment. Borings and well installations are assumed to be performed at personal protection level D or C. Well installation will be performed in general accordance with NR 141.

Borings for water table wells will be drilled using 4 1/4-in. inside diameter (I.D.) hollow stem augers from the ground surface to the bottom of the boring. Soil samples for field classification and chemical analysis will be collected using a split spoon sampler at 2 1/2-ft intervals from the surface to 10 ft, and at 5-ft intervals, or changes in stratigraphy, from 10 ft to the bottom of the boring. Soil samples will be analyzed for U.S. EPA Contract Laboratory Program (CLP) Target Compound List (TCL) (volatile organic compounds (VOCs), only) and Target Analyte List (TAL) parameters. One soil sample will be collected for grain size analysis from each soil unit identified within each boring. Only the deepest boring at well nest locations will be sampled.

Water table wells will be constructed of 2-in. I.D. threaded flush joint Schedule 40 PVC casing, with a 10-ft long PVC well screen. Typical water table well construction details are shown in Figure 2 for locations where conformance with NR 141 is determined to be possible (i.e., at locations where the depth to water is greater than approximately 8 ft). Actual boring depths will be based on in-field conditions.

The water table will likely be encountered within 4 ft of the ground surface at several proposed water table well locations. However, NR 141 requires that water table monitoring wells be constructed with a minimum of 6 in. of filter pack sand above the screen slots, 2 ft of fine sand, a minimum 2-ft annular space seal, and a surface seal. At locations where a shallow water table is encountered, there may not be enough room between the water table and the ground surface to meet these NR 141 specifications. Therefore, a variance has been obtained from the WDNR so that wells can be constructed with screens intersecting the water table at locations where installation consistent with NR 141 requirements is not otherwise possible. The well design shown in Figure 3 has been accepted by the WDNR for use in this investigation.

Deep borings for piezometers will be drilled using 4 1/4-in. I.D. hollow stem augers, to a depth of 20 ft. The hollow stem augers will be removed, and a temporary 8-in. casing will be installed to the bottom of the boring. The 20-ft casing depth should be sufficient to seal off the borehole to contaminants, based on the WDNR's 1982 soil boring data. The 8-in. casing will be raised approximately 2 ft, and bentonite pellets will be poured down the inside of the casing to fill the bottom 2 ft of the boring. The

casing will then be seated into the pellets at the bottom of the boring. The borings will be completed using clear water rotary drilling methods while advancing 7-in. casing, telescoped within the 8-in. casing. If a significant water bearing unit is encountered, 6-in. casing will be telescoped within the 7-in. casing, to complete the boring. The identification of a significant water bearing unit will be made by the field geologist, based on the presence of clean sand and/or gravel occurring in a continuous layer greater than 5 ft thick. These procedures are intended to prevent the potential migration of contaminants along the borehole. During completion of the well, the temporary casing will be removed.

Water for drilling will be obtained from the public water supply of the City of Appleton. The water source will be sampled three times during the drilling phase of the RI. One sample will be collected prior to drilling, one during the drilling phase, and one upon completion of drilling. Analytical parameters will include those specified in the Groundwater Quality Sampling section (Section 4.2.1) of the RI/FS Work Plan.

In piezometer borings, soil samples for field classification purposes will be collected with a split spoon sampler at 2 1/2-ft intervals from the ground surface to 10 ft, and at 5-ft intervals or major changes in stratigraphy from 10 ft to the bottom of the boring. Piezometer borings that will be sampled include the borings for wells W1B, W5C, W9, W10B, W12B and W13. Soil samples for chemical analysis will be collected from each of these borings at 2 1/2-ft intervals from the ground surface to 10 ft, at 5-ft intervals from 10 ft to 30 ft, and at 10-ft intervals from 30 ft to the bottom of the boring. Soil samples will be analyzed for TCL(VOC)/TAL parameters. One soil sample will be collected for grain size analysis from each soil unit identified within each boring. Only the deepest boring will be sampled at well nest locations. A total of 21 soil samples are assumed to be collected for grain size analysis from piezometer borings.

One Shelby tube sample for vertical permeability and Atterberg limits will be collected from each identified soil unit in borings W12B and W10B. It is assumed that a total of 12 Shelby tube samples will be collected.

Table 2 presents a summary of soil samples to be collected under the well installation subtask.

Piezometers will be constructed of 2-in. I.D. threaded, flush joint Schedule 40 PVC casing (Schedule 80 in well W12B), with a 5-ft PVC screen. Typical well construction details for piezometers are shown in Figure 4. Well W12B will be screened at the base of the unconsolidated deposits. The remainder of the piezometers will be screened at intermediate depths within the unconsolidated deposits (Table 3). Final well logs will be prepared in accordance with NR 141 requirements.

Some wells may be installed at locations where an operable unit remedy of the FFS is implemented. Because the nature of the potential remedy is not known, a revision to the RI/FS Work Plan may be necessary so that well installation activities are compatible with the remedy. If necessary, an addendum to the Work Plan will be submitted to account for necessary modifications to the scope of work, schedule, and budget.

Water table wells and piezometers will be developed in accordance with NR 141 requirements. After a 30-min. surge and purge sequence, at least 10 well volumes of water will be removed from each well that is not bailed dry. Temperature, specific conductance, and pH (in that order) will be monitored periodically during the development procedure. The well will be considered developed when these parameters have stabilized. If a well can be purged dry, development will be accomplished by removing five well volumes of water, and the surge and purge sequence will be omitted.

Investigative wastes generated during installation of monitoring wells will be handled as described in the Investigative Waste Management Plan (IWMP), included in Appendix A. Investigative waste will include both solid (e.g., drill cuttings, drill mud) and liquid (e.g., purge water, decontamination water) wastes.

Hydraulic Conductivity Tests and Water Level Measurement. In-situ single well hydraulic conductivity tests of each new and existing monitoring well will be performed following monitoring well installation and development, to assess hydraulic conductivity and groundwater flow rates. Hydraulic conductivity tests will be accomplished by measuring the rate of rise of the water level in the well after the removal or displacement of a known volume of water. The data will be analyzed using the methods of Bouwer and Rice (1976) and Bouwer (1989).

Water levels will be measured in the new and existing monitoring wells to determine the water table elevation and assess horizontal and vertical hydraulic gradients in the vicinity of the Site. Water levels will be measured on a monthly basis during the Phase I investigation for a period of one year.

4.1.4 Surface Soil Sampling and Air Pathway Analysis

The final component of the migration pathway assessment is an investigation of surface soil contamination. The surface soil data will be used to predict the exposure potential to humans via dust inhalation, direct contact and ingestion of the contaminated surface soil. Nine surface soil samples will be collected from the Site and surrounding area and two background surface soil samples will be collected off-Site in areas that should not be influenced by contamination. Sample locations are presented in Figure 1 and the rationale for collecting the samples is presented in Table 4. The specific sample locations will be documented in the field. Surface soil samples will consist of the surficial 2 cm of soil. Sampling will be concentrated in areas primarily devoid of vegetation (i.e., areas that have a high erosion potential). Six samples will be collected on-Site and along the railroad corridor to estimate the dust generation potential and exposure potential to receptors located both in these potential source areas (via direct contact and ingestion), and off-Site (via inhalation of dust). Three samples will be collected in backyards or gardens of residences to determine the migration potential of Site contamination, and to estimate the magnitude of receptor exposure.

A grain size analysis will be performed on each sample to determine the silt content of the soil. The silt content is used in dust dispersion models which estimate the amount of dust generation from exposed soils.

Each sample will be mixed and divided into two subsamples. One subsample from each location will be fractionated, and the less-than-35 micron fraction of the soil will be analyzed for chromium, cadmium, and cyanide. Thirty-five microns was chosen as the criteria for analysis, because it is the general cut-off for the largest particles which can be suspended in air. The less-than 35 micron fraction will be analyzed, because metals tend to concentrate in the finer sized particle fraction of soil. Therefore, a total soil analysis would not accurately represent the concentration of the metals in dust sized particles.

The unfractionated subsamples will be analyzed for chromium, cadmium and, cyanide. Metal concentrations in the unfractionated soil will be measured, because persons may contact or ingest the soil.

Results from the grain size analysis will aid in modeling fugitive dust generation potential at the Site. The modeling effort will involve the use of one of two models. The first model, developed by the Soil Conservation Service (SCS), is referenced in the Air/Superfund National Technical Guidance Study Series, published in 1989 as EPA-450/1-89. However, the usefulness of the SCS model is limited by the following constraints:

- The model accounts for both suspendable and non-suspendable movement of soil, which could over-estimate the amount of contaminant release; and
- The model can not predict short term contaminant concentrations, providing only long-term estimates of air releases.

A more useful model was developed by Cowherd, et. al. (1985). The Cowherd model is recommended in the Superfund Exposure Assessment Manual, published in April 1988 as EPA/540/1-88/00. The Cowherd model predicts the portion of respirable dust likely to be generated, which is helpful in the risk assessment process.

4.2 Contaminant Assessment. The following tasks are intended to evaluate the distribution of contaminants on- and off-Site:

- Groundwater quality sampling;
- Surface water sampling;
- Surface soil sampling;
- Utility sampling; and
- Residential building sampling.

4.2.1 Groundwater Quality Sampling. The new and existing Site monitoring wells will be sampled as part of the Phase I investigation. Water quality data from wells W1A and W1B are assumed to be representative of background groundwater quality in the vicinity of the Site, based on existing knowledge of the direction of the groundwater flow. The water quality data from these background wells will be compared with the data from downgradient wells to determine the effect of the Site on groundwater quality.

Each well to be sampled which recovers rapidly (i.e., can not be bailed dry) will be purged of a minimum of three well volumes immediately prior to sampling. Other wells will be purged of one well volume. Purging and sampling will be conducted with either stainless steel bailers or a Keck submersible pump. Purged water will be contained and handled as directed in the IWMP (Appendix A).

Two rounds of groundwater samples will be collected approximately 6 months apart, during high and low water table conditions. The first round of samples will be analyzed for the parameters listed below:

- U.S. EPA CLP TCL(VOC)/TAL parameters
- Hexavalent chromium
- Chloride
- Sulfate
- Total dissolved solids
- Total organic carbon
- Field pH
- Field specific conductance
- Temperature

The need for complete TCL(VOC)/TAL parameter analysis of groundwater samples collected in Round 2 will be reassessed by the U.S. EPA and WDNR, based on results of Round 1 data. The numbers and types of analytes may be reduced, based on Round 1 results. Measurement of temperature, specific conductance, and pH (in that order) will be performed in the field. Details of sampling methods, collection of blanks and duplicates, preservation of samples, and sample handling are discussed in the Sampling Plan. Level D or C personal protection is assumed for sampling.

Data assembled during the preparation of the SER do not indicate the presence of private water supply wells which might be considered at risk due to Site conditions. The Miller Electric and Manufacturing Company owns two high capacity wells, Ou-294 and Ou-307, which are located upgradient of the Site. These two wells will be sampled during the first sampling round. Analytical parameters will be the same as those specified for monitoring wells.

Groundwater Age Dating. Groundwater age dating will be used to estimate travel time of groundwater through the till soils to the bedrock aquifer. Age dating of groundwater is often accomplished through analysis of naturally occurring radioactive isotopes such as tritium (^3H) or carbon 14 (^{14}C). The ^{14}C method is most accurate when dating materials on the order of thousands of years old or more, and is probably inappropriate for this investigation. However, the ^3H method is used to date water of relatively recent origin and can potentially provide data in assessing migration pathways at the Site.

Tritium is a naturally occurring isotope of hydrogen which is produced in the earth's atmosphere through the incidence of cosmic rays. With the advent of atmospheric testing of thermonuclear devices in 1953, the amount of ^3H in the earth's atmosphere increased dramatically. The sudden increase of atmospheric ^3H was reflected in a corresponding increase of ^3H levels in atmospheric water and precipitation. Therefore, groundwater which was recharged after 1953 shows increased ^3H concentrations.

For the Site investigation, groundwater samples for ^3H will be collected during the first sampling round from new piezometers and the water table wells at corresponding piezometer locations. A sample of the water used for drilling will also be analyzed for ^3H content.

The vertical distribution of piezometers in the proposed monitoring well network is designed to provide sufficient resolution to define the depth of the post-1953 recharge front, if this front is still within the till. The depth of the post-1953 recharge front will be used to determine the average vertical component of groundwater flow velocity, or recharge rate.

4.2.2 Surface Water Sampling. There are no known locations in the immediate vicinity of the Site where surface water is present on a continuous basis. During periods of snowmelt or heavy rainfalls, water reportedly ponds in the drainage ditch along the railroad tracks.

If standing water is observed during the field investigation, three samples will be collected using stainless steel sampling equipment. Samples will be analyzed for parameters specified in the Groundwater Quality Sampling section (Section 4.2.1) of the RI/FS Work Plan. However, if the volume of available surface water is limited,

fewer samples will be collected. If the volume is extremely limited, only TAL parameters will be analyzed. Surface water will be sampled once during the Phase I investigation, if possible. Further details concerning surface water sampling protocol are discussed in the Sampling Plan.

4.2.3 Utility Corridor Sampling. Soil samples will be collected from the trenches of buried utilities at locations shown on Figure 5. Ten hand auger borings and 23 excavation pits are planned. The purpose of these samples is to determine the concentration of contaminants in the trenches of buried utilities, and to provide information about the migration of contaminants along the trenches. Rationale for utility sampling locations is shown in Table 5. Samples will be analyzed for TCL (VOC)/TAL parameters.

Digger's Hotline member companies and the City of Appleton will be contacted to provide field location and depth information about the utilities prior to intrusive activities. A drill rig will not be used for utilities sampling, because of the relatively high risk of damage to utilities using this method. Instead, hand auger borings and excavation pits will be performed.

Ten hand auger borings will be performed at locations along fiber optics cable trenches (Figure 5). The borings will be advanced to the approximate depth of the identified utility. One soil sample will be collected from the bottom of the boring. If the auger contacts the utility, the boring will be relocated so that a soil sample can be collected immediately adjacent to the utility. Borings will be backfilled with bentonite pellets. Soil removed from the borings that is not kept for analysis will be handled according to methods specified in the IWMP.

It is anticipated that the potentially high gravel content of backfill in most utility trenches will preclude the use of hand augers. In these locations, sampling will be facilitated by performing excavations of utility trenches. Twenty-three excavations are expected to be conducted under Phase I of the RI (Figure 1).

The locations of the excavation pits will be marked with paint, and pavement material will be cut to dimensions specified by the excavation subcontractor, using a pneumatic hammer, or other appropriate method. A backhoe will be used to excavate subsurface soils. The excavation subcontractor will determine if and when the use of the backhoe should be discontinued and the excavation continued with hand tools to decrease the risk of potential damage to the utility. Any necessary shoring or bracing of the walls of the excavation pit will be performed by, and at the discretion of, the excavation subcontractor, based on standard practices and the HSP issued with this Work Plan. A geologist will maintain a log of materials encountered during the excavation. Stainless steel sampling equipment will be used to collect a soil sample from the backhoe bucket or shovel, as applicable. The soil collected for analysis will be removed from immediately adjacent to the utility, at the bottom of the excavation.

Materials removed from the excavation pit will be piled adjacent to the excavation. Upon completion of sampling, the excavation will be backfilled using the original, excavated material. The backfilled excavation will be recompact and resurfaced by the excavation subcontractor under direction of the City of Appleton.

It is anticipated that considerable effort will be required to coordinate utility excavations with the excavation subcontractor, the City of Appleton and respective utility companies.

Additional buried utilities may be identified by the geophysical survey described in the FFS Work Plan. If necessary, the RI/FS Work Plan will be modified to include sampling of additional on-Site utilities after the utilities have been located.

4.2.4 Residential Building Sampling

Air and dust wipe samples will be taken inside three residences and two businesses located southeast of the Site, in the area bounded by the railroad tracks and Second and Outagamie Streets (locations R1 through R5, Figure 1). This information will be used to estimate the exposure potential to residence and workers via inhalation of dust and direct contact and incidental ingestion of dust. One home located in the

residential area north of the Site (in the vicinity of 1421 W. Fourth St.) will be selected and used as a source of background dust and indoor air quality (R6, Figure 1).

Dust samples will be collected in the basement of each building in an area not routinely cleaned (e.g., underneath a furnishing) and an area that is routinely cleaned (i.e., floor surface). The dust samples will be collected on tared fiberglass filters which will be moistened with distilled water. Dust sample collection will be accomplished by wiping the identified area with the fiberglass filter, using a back and forth motion. Separate filters will be used for collection of metals and cyanide samples. The surface area which is wiped will be recorded and each sample will be analyzed for the weight of dust on the filter. The dust wipe sample collected in the uncleaned area will be analyzed for chromium, cadmium, and cyanide. The metal concentration per unit surface area and per gram dust will be reported. The dust concentration collected from the routinely cleaned surface, in conjunction with the metal dust concentration from the surface not routinely cleaned, will be used to estimate the analyte concentration per surface area for the routinely cleaned surface. This data combined with standard receptor exposure assumptions will be used to estimate the magnitude of human exposure to metals via dermal contact and incidental ingestion of dust.

Indoor air samples will be collected in the basement of each building to estimate the indoor concentration of chromium, cadmium, and cyanide in air. Metals may be bound to the dust particles in the air. Therefore, 24-hour dust samples will be collected on a tared filter by drawing air through a filter cassette at a flow rate of 1.4 L/min using a personal air sampling pump. The total volume of air sampled should be 2160L. Separate pump and filter assemblies will be used for metals and cyanide sample collection. The tared filter will be analyzed for the total weight of dust collected and the total analyte concentration on the filter. This data, in conjunction with the total volume of air sampled, will be used to calculate the concentration of dust and analyte in air. Data will be reported on a dry weight basis in the following manner: ug dust/m³ air; ug analyte/m³ air; and ug analyte/g dust. This data, combined with standard receptor exposure assumptions, will be used to estimate the magnitude of metal exposure via dust inhalation to humans.

Task 5 - Phase II Site Investigation Plan

The objective of the Phase II Site Investigation is to supplement the results of the Phase I Site Investigation, if needed. The scope of the Phase II investigation will be determined at the conclusion of the Phase I activities. Likely tasks include the placement of additional soil borings, the construction of additional monitoring wells, water level monitoring, and groundwater quality monitoring. The need for groundwater flow modeling, an air pathway assessment, and additional investigative activities will be determined using the Phase I results. A revision of the RI Work Plan, budget and schedule to detail the Phase II activities will also be prepared.

Task 6 - Preliminary Remedial Technologies

A master list of potentially feasible technologies will be developed. The list may include both on-Site and off-Site technologies, as appropriate, depending on the magnitude of the problem identified during the Site Investigation. The goals of the preliminary remedial technology evaluation will be to conceptualize the type of appropriate remedial actions needed, and to identify potentially feasible technologies which are available. The primary concerns will involve where remedial technologies need to be applied (e.g., source, off-Site) and what kind of technologies might be appropriate for mitigating the kind, amounts, concentrations, and distributions of contaminants found in association with the Site.

Task 7 - Site Investigation Analysis And Baseline Risk Assessment

An analysis of data collected during this investigation will be made so that the quality (i.e., QA/QC) and quantity of data adequately support the risk assessment and FS. Further discussion of data analysis is included in the DMP (Appendix B of the QAPP). A summary of the analysis will be included in the Technical Memorandum and RI Report.

The Baseline Risk Assessment (BRA), which will be incorporated into the RI Report, will combine the site investigation results, chemical fate and transport evaluation, toxicology, exposure assessment (including a demographic profile of population at risk) and a risk assessment/impact evaluation into a description and quantification of actual and potential hazards associated with the Site. The assessment will aid in the determination of remedial action(s) required to mitigate actual or potential threats to

human health, welfare or the environment, and the level to which Site clean-up may be required. A plan for conducting the BRA is included in Appendix B.

Task 8 - Reports

After completion of Phase I activities and analysis, exclusive of Round 2 groundwater sampling, data will be reviewed and a Technical Memorandum will be prepared. This Technical Memorandum will include:

- A summary of monitoring well installation, water level monitoring and details of hydraulic conductivity tests. Boring logs and well construction details will be included;
- Procedures used for Round 1 groundwater sampling;
- Procedures used for surface water sampling;
- Procedures used for the preliminary air pathway analysis sampling;
- Procedures used for sampling utilities;
- Procedures used for residential building sampling;
- Laboratory analysis results for the Phase I investigation;
- Recommendations for Round 2 groundwater sampling parameters;
- Recommendations for additional data needed at the Site; and
- An interim Site assessment based on evaluation of Phase I data.

Five copies of the draft Technical Memorandum will be distributed to the WDNR and five copies to the U.S. EPA (10 copies, total). After review of the Technical Memorandum, a meeting will be held to discuss the results of the Phase I Site Investigation, whether additional investigation is warranted, and the scope of the additional investigation. If additional investigation is deemed necessary, a Phase II Site Investigation Plan will be prepared and incorporated into the RI/FS Work Plan. If no additional investigation is needed, the Round 2 groundwater quality sampling will be conducted for comparison to Round 1 results.

An RI Report will be prepared to summarize and evaluate the data collected during the Site Investigation. The primary emphasis of the RI Report will be to delineate

sources and extent of released hazardous constituents. The report will address Site conditions based upon the media and area investigated. It is anticipated the identifiable media and areas will be:

- Surface soils;
- Subsurface soils;
- Surface water;
- Utility trench backfill;
- Air;
- Groundwater; and
- Private residences.

The nature and extent of the releases in each medium and area will be discussed in the report. The character of the releases with respect to known or potential threats to public health, welfare or the environment will be identified. An assessment of the significance of observed or potential releases will be made.

As part of the RI report, a review of QA/QC procedures followed for the sampling, analysis, and data handling, as required by the approved QAPP, will be prepared. Limitations on data usage based on deviations from the QAPP, or from available analytical QA/QC information, will be identified.

The RI Report will consider applicable U.S. EPA guidance documents. The report will be issued as a draft following receipt of the groundwater monitoring data from the last phase of groundwater investigations. A final RI Report will be prepared, incorporating comments from the WDNR and the U.S. EPA.

SECTION 2 - FEASIBILITY STUDY

INTRODUCTION

This section provides a general description of tasks proposed for conducting the FS for the N.W. Mauthe Company NPL site (Site) located in Appleton, Wisconsin. It is expected that the FFS will be completed prior to initiation of the FS. The FS will address groundwater contamination and other migration pathways not addressed in the FFS.

Task 9 - Work Plan

A refinement to this Work Plan will be submitted for the FS, including task descriptions, budget, and schedule, as data become available during the RI. A draft work plan will be prepared and submitted to the WDNR and the U.S. EPA (10 copies total) for review and comment. After receipt of comments, a final Work Plan will be prepared and submitted to WDNR and U.S. EPA (10 copies total).

Task 10 - Development of Remedial Alternatives

The purpose of this task is to develop a range of remedial alternatives for the Site. This task constitutes the first stage of the FS and consists of interrelated subtasks. The subtasks described below may be viewed as steps that involve making successively more specific definitions of potential remedial activities.

Establishment of Remedial Action Objectives

Site-specific objectives for the remedial action will be established for the Site, considering the description of the current situation, information gathered during the RI, NCP, the U.S. EPA's interim guidance, and the requirements of other applicable U.S. EPA, Federal and Wisconsin applicable or relevant and appropriate requirements (ARARs).

These objectives consist of medium-specific or operable unit-specific goals for protecting human health and the environment. They will specify: the contaminant(s) of concern, exposure route(s) and receptor(s), and an acceptable contaminant level or range of levels for each exposure route.

Acceptable exposure levels for human health will be determined on the basis of risk factors and contaminant-specific ARARs. Contaminant levels in each media will be compared with these acceptable levels, which will be determined on the basis of an evaluation of the following factors:

- For carcinogens, whether the chemical-specific ARARs provides protection within the risk range of 1×10^{-4} to 1×10^{-6} with a goal of 1×10^{-6} in accordance with Region V policy and, whether achievement of each chemical-specific ARAR will sufficiently reduce the total risk from exposure to multiple chemicals.
- For non-carcinogens, whether the chemical-specific ARAR is sufficiently protective if multiple chemicals are present at the Site.
- Whether environmental effects (in addition to human health effects) are adequately addressed by the ARARs.
- Whether the ARARs adequately address each significant pathway of human exposure identified in the Baseline Risk Assessment. For example, if exposure from the ingestion of fish and drinking water are both significant pathways of exposure, application of an ARAR that is based only on drinking water ingestion (e.g., MCLs) may not be adequately protective.

If an ARAR is determined to be protective, it will be used to establish the acceptable exposure level. If not determined protective (presents a risk greater than 10^{-4}), or if it does not exist for the specific chemical or pathway of concern, or if multiple contaminants may be posing a cumulative risk, then acceptable exposure levels will be identified through the risk assessment process.

Detailed guidance for conducting a BRA at Superfund sites is described in U.S. EPA documents entitled: Risk Assessment Guidance for Superfund, Volume 1 - Human Health Evaluation Manual and Volume 2 - Environmental Evaluation Manual (1989).

The determination of acceptable exposure levels will depend on the availability of Site Investigation results. Where possible, preliminary response objectives will be established based on existing site information, a qualitative assessment of potential risks, and ARARs. Response objectives will be revised as information from the RI becomes available.

Development of General Response Actions

General response actions will be developed to meet the identified remedial action objectives. Response actions may include source control measures, migration control measures or both, depending on the media and/or exposure pathways that may need to be addressed.

Area and Quantity Determination

Areas of concern and quantities of material to be addressed by the general response actions will be identified for each medium of concern. This determination will be made based on the initial Site evaluation and information from the RI, as it becomes available.

Identification and Screening of Remedial Technologies/Process Options

A range of potentially applicable technologies will be considered and, based on Site and waste conditions, a limited number of specific process options will be identified to address Site problems. Conceptually, the screening process may be viewed as consisting of the following:

- Refinement of technologies considered as part of the RI,
- Identification of the general technology types associated with the general response actions,
- Identification of process options associated with each technology type, and
- Screening technology types and process options based on an evaluation with respect to technical implementability, effectiveness and cost.

Technologies and process options that cannot be effectively implemented at the Site will be eliminated from further consideration. This screening will be based on information from the RI and on technology capabilities/limitations.

Assembly of Alternatives

Alternatives will be assembled by combining general response actions and the process options chosen to represent the various technology types for each media or operable unit. Alternatives will be formulated to provide comprehensive Site remedies. Operable unit alternatives may be developed if this approach is determined to be advantageous. Alternatives to be developed will include the following:

- Treatment alternatives for source control that eliminate or minimize the need for long-term management (including monitoring);
- Alternatives involving treatment as a principal element to reduce the toxicity, mobility or volume of waste.

At least two additional alternatives will be developed, including the following:

- An alternative that involves containment of waste with little or no treatment, but provides protection of human health and the environment primarily by preventing exposure or constraining the movement of the waste;
- A No Action alternative.

Task 11 - Screening of Alternatives

The purpose of this task is to narrow the list of alternatives to be evaluated in detail.

Conceptually, the screening process consists of the following steps:

- Refine/define alternatives in sufficient detail to enable a screening level analysis;
- Evaluate alternatives on a general basis to determine their effectiveness, cost and implementability; and
- Make screening judgements to determine which alternatives will be retained for detailed evaluation.

Alternatives Definition

In this subtask, alternatives will be further defined to form a basis for evaluating and comparing them prior to their screening. Sufficient quantitative information to allow differentiation among alternatives with respect to effectiveness, implementability, and cost is required. Parameters that may require additional refinement include the extent or volume of contaminated material and the size of major technology and process options. The following information will be developed, as appropriate, for the various technology processes used in an alternative:

- Size and configuration of on Site extraction and treatment systems or containment structures;
- Time frame in which treatment, containment, or removal goals can be achieved;

- Process flow rates and/or rates of treatment;
- Spatial requirements for constructing treatment or containment technologies or for staging construction materials or excavated soil or waste;
- Distances to disposal or treatment facilities; and
- Required permits and imposed limitations.

Initial Screening

In this subtask, defined alternatives will be evaluated against short- and long-term aspects of three broad criteria: effectiveness, implementability, and cost. These are described as follows:

- Effectiveness: Alternatives will be evaluated to determine whether they adequately protect human health and the environment; attain Federal and Wisconsin ARARs or other applicable criteria, advisories, or guidance; significantly and permanently reduce the toxicity, mobility, or volume of the hazardous constituents; are technically reliable; and are effective in other respects. The consideration of reliability will include the potential for failure and the need to replace the remedy.
- Implementability: Alternatives will be evaluated as to the technical feasibility and availability of the technologies that each alternative would employ; the technical and institutional ability to monitor, maintain, and replace technologies over time; and the administrative feasibility of implementing the alternative.
- Cost: The cost of construction and long-term costs to operate and maintain the alternative will be evaluated. This evaluation will be based on conceptual costing information and not a detailed cost analysis. At this stage of the FS, cost will be used as a factor when comparing alternatives that provide similar results, but will not be a consideration at the screening stage when comparing treatment and non-treatment alternatives.

Alternatives Array Document

Upon determining regulatory requirements with the WDNR, an Alternatives Array Document will be provided to request the determination of possible ARARs by concerned Federal agencies. A description of the alternatives retained for detailed evaluation (including extent of remediation, contaminant levels to be addressed, and methods of treatment) will be presented. This document will also include a brief Site history and background, a Site characterization summary that includes contaminants of concern, migration pathways, receptors, and other pertinent Site information. This

Alternatives Array Document will be submitted to the U.S. EPA and the WDNR, along with the request for notification of the standards and requirements. If needed, a meeting will be scheduled to discuss the Alternatives Array Document and ARARs.

Task 12 - Testing and Supplemental Remedial Investigations

The purpose of this task is to provide data not available from the RI to support the detailed analysis of alternatives in the FS. The need for additional data will be identified. Additional data gathering may involve Site characterization, waste characterization, exposure pathway characterization, and other materials testing or treatability studies. Within the scope of this task, the need for testing will be identified. If necessary, a general outline of a program will be submitted along with a proposal for Work Plan preparation. No actual testing activity is proposed at this time.

Task 13 - Remedial Alternatives Evaluation

Section 121 (b)(1)(A-G) of CERCLA identifies general requirements for remedial actions, and establishes the SARA statutory preference for permanent remedies, and for treatment and/or resource recovery technologies that reduce toxicity, mobility or volume of hazardous substances, pollutants and contaminants. Further, it directs that the long-term effectiveness of alternatives be specifically addressed and that at a minimum the following be considered in assessing alternatives:

- A. Long-term uncertainties associated with land disposal;
- B. Goals, objectives and requirements of the Solid Waste Disposal Act;
- C. Persistence, toxicity, mobility and propensity for bioaccumulation of hazardous substances and their constituents;
- D. Short and long-term potential for adverse health effects from human exposure;
- E. Long-term maintenance costs;
- F. Potential for future remedial action costs if the alternative were to fail; and
- G. Potential threat to human health and the environment associated with excavation, transportation and redisposal, or containment.

The U.S. EPA has developed nine evaluation criteria as follows:

1. Overall Protection The assessment describes how the alternative as a whole achieves protection and will continue to protect human health and the environment.
2. Compliance with ARARs The assessment describes how the alternative complies with ARARs, or, if a waiver is required, how it is justified.
3. Long-term Effectiveness and Permanence The assessment evaluates the long-term effectiveness of alternatives in protecting human health and the environment after response objectives have been met.
4. Reduction of Toxicity, Mobility and Volume The assessment evaluates the anticipated performance of the specific treatment technologies.
5. Short-term Effectiveness The assessment examines the effectiveness of alternatives in protecting human health and the environment during the construction and implementation period until response objectives have been met.
6. Implementability This assessment evaluates the technical and administrative feasibility of alternatives and the availability of required resources.
7. Cost This assessment evaluates the capital and O&M costs of each alternative.
8. State Acceptance This assessment reflects the State's (or supporting agency's) apparent preferences or concerns about alternatives.
9. Community Acceptance This assessment reflects the community's apparent preferences or concerns about alternatives.

Consideration of the criteria is intended to satisfy the statutory requirements (i.e., points A through G above), and to enable the decision maker to compare alternatives and select a remedy which will:

- Be protective of human health and the environment;
- Attain applicable or relevant and appropriate requirements (ARARs), or provide grounds for invoking a waiver;
- Be cost effective;
- Use permanent solutions and alternative treatment technologies to the maximum extent practicable; and
- Satisfy the preference for treatment that reduces toxicity, mobility or volume as a principle element (or provide an explanation for why it does not).

The Evaluation of Alternatives task is basically a three-stage process consisting of a detailed development, analysis and comparison of alternatives.

Detailed Definition of Alternatives

Each alternative will be defined in sufficient detail to facilitate subsequent evaluation and comparison. Typically, this activity may involve modification of alternatives based on ARARs, refinement of quantity estimates, technology changes, or Site areas to be addressed. Prior to detailed definition, the final conceptual alternatives will be agreed on by the WDNR and U.S. EPA.

Detailed Analysis of Alternatives

Alternatives will be evaluated with respect to the nine criteria listed above. The analysis of alternatives will encompass, within the framework of the nine criteria:

- Technical, cost and institutional considerations,
- Compliance with statutory and regulatory requirements, and
- State and community acceptance.

Comparison of Alternatives

After each alternative has been analyzed against each of the criteria, a comparative analysis will be conducted. The purpose of this analysis is to compare the relative performance of alternatives with respect to each evaluation criterion. The analysis will identify the strengths and weaknesses of the alternatives relative to one another with respect to each criterion, and how reasonable variations of key uncertainties could change the expectations of their relative performance. If innovative technologies are being considered, their potential advantages in cost or performance and the degree of uncertainty in their expected performance (as compared with more demonstrated technologies) will also be determined.

Task 14 - Feasibility Study Report

FS activities and results will be described and documented in a report. An FS report covering the activities and conclusions of FS tasks will be prepared and submitted in preliminary draft form to the U.S. EPA and the WDNR for review and comment (10 copies total).

A meeting will be scheduled to discuss U.S. EPA and WDNR comments, if any, prior to preparation of the draft report. Comments determined to be within the scope of the FS will be addressed in the draft FS report.

Five copies of a draft FS report will be submitted to both the WDNR and U.S. EPA for review. A final copy will be submitted based upon all agency comments to be used as the public review draft during the public comment period.

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SECTION 3 - RI/FS COST ESTIMATE AND SCHEDULE

The RI/FS activities as described in the Work Plan are estimated to cost approximately \$800,000 to complete. This estimate includes the various field and sampling activities, a Technical Memorandum on the results of the field and sampling activities, a draft and final RI Report and Baseline Risk Assessment, an Alternatives Array Document, a draft and final FS Report and Project Management costs.

This cost estimate does not include costs for laboratory analyses (analyses are to be performed under the Contract Laboratory Program by the U.S. EPA), Remedial Design/Remedial Action (RD/RA), costs associated with community relations or costs incurred by the WDNR or U.S. EPA.

The RI/FS is expected to require at least 15 months to complete the scope of work presented in this Work Plan as shown on Table 1. An actual starting point for the RI/FS activities cannot be determined at this time, but will occur sometime during or after the FFS activities.

REFERENCES

- Bouwer, Herman and R.C. Rice, 1976, "A Slug Test for Determining Hydraulic Conductivity of Unconfined Aquifers With Completely or Partially Penetrating Wells", Water Resources Research, Vol. 12, No. 3, p.423-428.
- Bouwer, Herman, 1989, "The Bouwer and Rice Slug Test - An Update", Ground Water, Vol. 27, No. 3, p. 304-309.
- Cowherd, C., Jr., Muleski, G.E., Englehart, P.J., and Gillette, D.A. Rapid Assessment of Exposure to Particulate Emissions From Surface Contamination Sites. U.S. EPA (EPA/600/8-85/002) Office of Research and Development, Washington, D.C., 1985.
- National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300), March 1990.
- U.S. Environmental Protection Agency, "Procedures for Conducting Air Pathway Analyses for Superfund Applications", Vol. I-IV, Office of Air Quality Planning and Standards, 1989.
- U.S. Environmental Protection Agency, "Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA, Interim Final", Publication No. EPA/540/G-89/004, Office of Solid Waste and Emergency Response Directive 9355.3-01, 1988.
- Wisconsin Administrative Code, Chapter NR 141, 1990.



TABLE 1
RI/FS Schedule

<u>Task</u>	<u>Time (Months)</u>
Initiation of RI/FS	0
Completion of Field Activities	6
Completion of Tech Memo	10
Completion of Draft RI Report	14
Completion of Final RI Report	18
Completion of Alternatives Array	20
Completion of Draft FS Report	24

This generalized schedule assumes that agency review time does not exceed 8 weeks and only one set of review comments are presented to the consultant. The schedule assumes that CLP turnaround will not exceed six weeks and that data validation will not exceed eight weeks. It also assumes that no additional field investigations are found to be necessary after the completion of the proposed scope of work.

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13954-MD

TABLE 2

Phase I Site Investigation Activity Summary
 N.W. Mauthe Company RI/FS
 Appleton, Wisconsin

Activity	Subtask No.	Type	Description	Results	Utilization of Data	Anticipated No. of Investigative Samples
Drainage Analysis	4.1.1	IM	Locate storm sewer inlets, construct and analyze topographic map.	Topographic map with drainage zones identified.	1. Determine drainage patterns in vicinity of Site.	None
Well Replacement and New Water Table Well Installation	4.1.3	IM, FA, LA	Four replacement water table wells and nine new water table wells installed using hollow stem augers. Soil samples for field classification and TCL(VOC)/TAL parameters at 2 1/2-ft intervals to 10 ft, 5-ft intervals thereafter, except at well nests. One soil sample from the screened interval of each well for grain size analysis. Well development per NR 141.	Well construction logs, laboratory results for soil TCL(VOC)/TAL parameters and grain size, well development forms, field development parameters.	1. Determine contaminant distribution. 2. Determine subsurface geologic and hydrogeologic conditions.	55 LA (TCL(VOC)/TAL) 13 LA (grain size)
Piezometer Installation	4.1.3	IM, FA, LA	Nine piezometers installed using hollow stem augers and rotary methods. Soil samples for field classification and TCL (VOC)/TAL parameters at 2 1/2-ft intervals from ground surface to 10 ft, at 5 ft intervals from 10 ft to 30 ft. Below 30 ft, field classification samples at 5-ft intervals, TCL(VOC)/TAL samples at 10-ft intervals. One sample for grain size analysis from each identified soil unit within borings. One Shelby tube sample from each identified soil unit in piezometer borings W12B and W10B. Samples will be collected from the deepest boring at well nests. Three water quality samples and one ³ H sample from the source of water used for drilling.	Well construction logs, laboratory results for grain size, Atterberg limits, permeability, soil TCL(VOC)/TAL parameters, drilling water TCL(VOC)/TAL parameters and ³ H; well development forms.	1. Determine contaminant distribution. 2. Determine subsurface geologic and hydrogeologic conditions.	65 LA (TCL(VOC)/TAL) 28 LA (grain size) 12 LA (Shelby tube) 3 LA (water-TCL(VOC)/TAL) 1 LA (water- ³ H)
Groundwater Level Monitoring	4.1.3	IM	Collect monthly groundwater level measurements over a one-year period.	Groundwater elevations.	1. Determine vertical and horizontal hydraulic gradients at Site. 2. Determine potential changes in contaminant migration.	None

TABLE 2
(Continued)

Activity	Subtask No.	Type	Description	Results	Utilization of Data	Anticipated No. of Investigative Samples
Hydraulic Conductivity Testing	4.1.3	IM	Conduct baildown test in each monitoring well.	Hydraulic conductivity values.	1. Determine groundwater flow velocities.	0
Surface Soil Sampling and Air Pathway Analysis	4.1.4	LA	Collect soil samples from upper 2 cm of soil, split to two subsamples. Analyze <35 um fraction from one subsample and total soil from other subsample for chromium, cadmium and cyanide.	Laboratory results for grain size and chemical analyses.	1. Determine potential for dust generation and exposures to contaminants.	22 LA (chemical) 11 LA (grain size)
Groundwater Quality Sampling	4.2.1	LA, FA	Two rounds of groundwater samples from monitoring wells approximately six months apart. Samples analyzed for TCL(VOC)/TAL parameters and field parameters. Samples for 3H analysis from piezometers and associated water table wells during the first round of groundwater sampling. One water sample for TCL(VOC)/TAL parameters from each of two private wells (Miller Electric) during Round One.	Analytical laboratory results, field results for field parameters, and 3H concentrations.	1. Assess impact of Site on groundwater quality. 2. Aid in assessment of groundwater migration pathway. 3. Determine groundwater travel time through till.	66 LA (TCL(VOC)/TAL) 66 FA 14 LA (3H)
Surface Water Sampling	4.2.2	LA, FA	If surface water is observed on-site, three samples collected once during the RI for TCL(VOC)/TAL parameters, or only TAL parameters if volume is limited.	Analytical laboratory results and field results for field parameters.	1. Assess potential off-Site migration of contaminants through surface water routes.	3 LA
Utilities Sampling	4.2.3	LA	One soil sample from each of 10 hand auger borings and 35 soil samples from 23 excavation pits. Samples analyzed for TCL (VOC)/TAL parameters.	Analytical laboratory results	1. Determine concentration and extent of contaminants in utility trenches.	45 LA
Residential Building Sampling	4.2.4	LA	Two dust wipe samples and one air sample from each of six private buildings (including one background building) for chromium, cadmium, and cyanide.	Analytical laboratory results.	1. Endangerment Assessment	18 LA

NOTES

IM = in-situ measurements
FA = field analysis
LA = laboratory analysis

TABLE 3

**Monitoring Well Location Rationale
N. W. Mauthe Company RI/FS
Appleton, Wisconsin**

<u>Well (See Figure 1)</u>	<u>Type(1)</u>	<u>Approx. Depth (ft)(2)</u>	<u>Rationale</u>
W1A	wt	13	To determine water table elevation To examine groundwater quality upgradient from Site
W1B	p	40	To examine groundwater quality upgradient from Site and age-date groundwater To determine vertical gradients upgradient from Site
W2	wt	13	To determine water table elevation To examine groundwater quality north of Site
W3	wt	13	To determine water table elevation To examine groundwater quality along railroad tracks northeast of Site
W4	wt	13	To determine water table elevation To examine groundwater quality west of Site
W5A	wt	13	To determine water table elevation To examine groundwater quality downgradient from Site
W5B	p	30	To determine vertical gradients To age date groundwater and assess vertical extent of contamination
W5C	p	50	To determine vertical gradients To age date groundwater and assess vertical extent of contamination
W6	wt	13	To determine water table elevation To assess extent of contamination downgradient from Site
W7	wt	13	To determine water table elevation To examine groundwater quality south of Site
W8	wt	13	To determine water table elevation To assess extent of contamination downgradient from Site

TABLE 3
(Continued)

<u>Well (See Figure 1)</u>	<u>Type</u> (1)	<u>Approx. Depth (ft)</u> (2)	<u>Rationale</u>
W9	p	40	To determine vertical gradients To examine vertical extent of contamination and age date groundwater
W10A	p	40	To determine vertical gradients To examine vertical extent of contamination and age date groundwater
W10B	p	60	To determine vertical gradients To examine vertical extent of contamination and age date groundwater
W11	wt	13	To determine water table elevation To examine groundwater quality southwest of Site along railroad tracks
W12A	p	80	To determine vertical gradients To examine vertical extent of contamination and age date groundwater
W12B	p	110	To determine vertical gradients To examine vertical extent of contamination and age date groundwater
W13	p	40	To determine vertical gradients To examine vertical extent of contamination and age date groundwater

Notes:

1. Well type code = wt = water table well
p = Piezometer

2. Total estimated footage: wt = 117 ft (exclusive of replacement wells)
p = 490 ft

TABLE 4

Surface Soil Sample Location Rationale

<u>Location</u> (From Figure 1)	<u>Purpose</u>
SS-1, SS-2	To determine background concentrations of contaminants at locations where the probability of migration and deposition of contaminants is relatively low.
SS-3 through SS-8	To determine surface soil contaminant concentrations and the potential for airborne release of contaminants.
SS-9 through SS-11	To determine the migration potential of contaminants and estimate the magnitude of receptor exposure.

Table 5

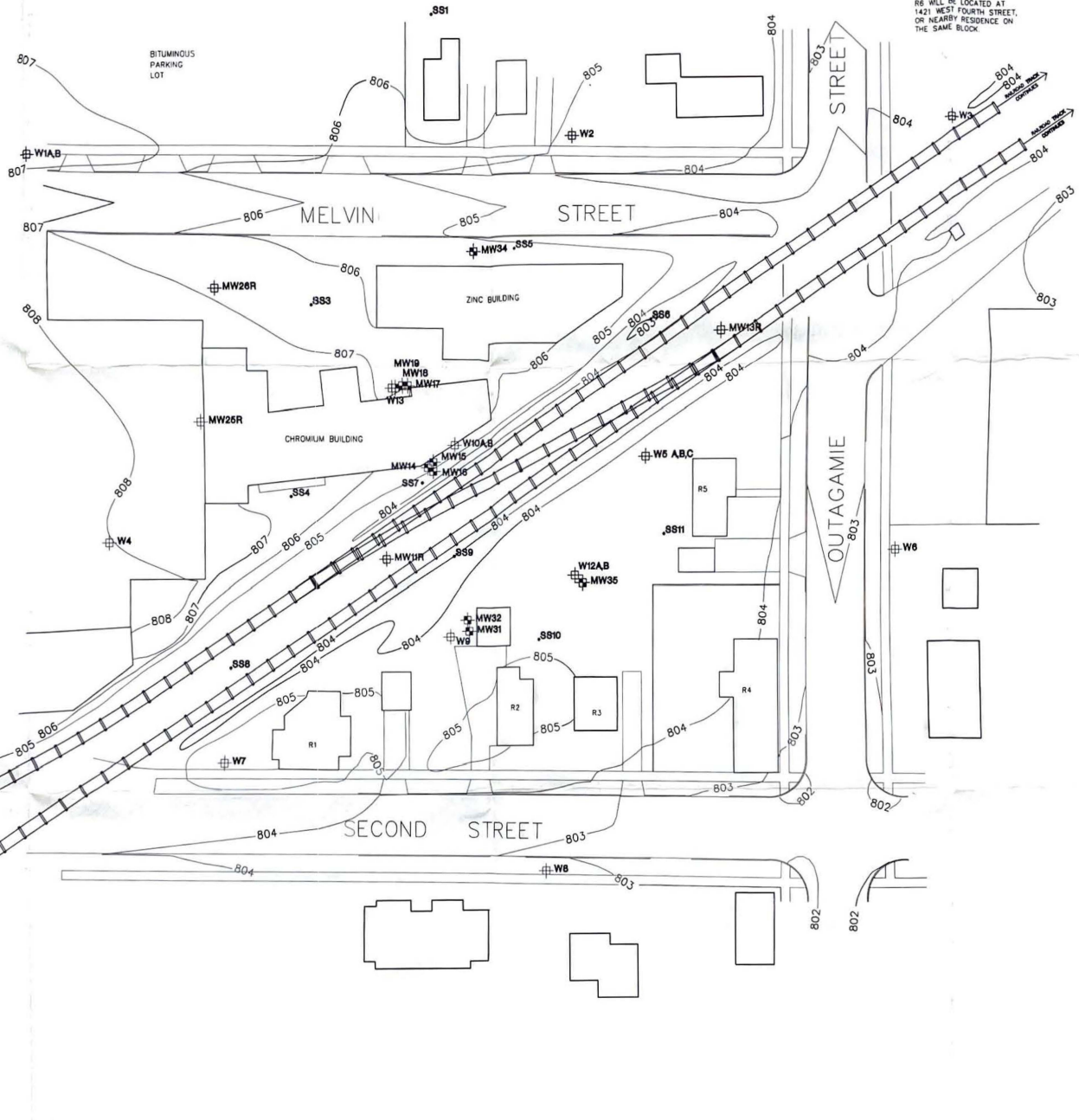
Utility Excavation Location Rationale
N. W. Mauthe Company RI/FS
Appleton, Wisconsin

<u>Utility Excavation Location (From Figure 5)</u>	<u>Rationale</u>
E1, E2, E5, E7, E10, E12, E13, E14, E15, E16, E17, E20	To analyze for contaminants and assess potential contaminant migration in gas utility trenches.
E3, E8, E11, E13, E15, E17, E19, E22	To analyze for contaminants and assess potential contaminant migration in sanitary sewer utility trenches.
E4, E11, E13, E15, E17, E18, E22, E23	To analyze for contaminants and assess potential contaminant migration in water utility trenches.
E6, E9, E11, E13, E15, E17, E21	To analyze for contaminants and assess potential contaminant migration in storm sewer utility trenches.



.SS2 (SS2 WILL BE LOCATED APPROXIMATELY 100 FEET NORTH OF SS1)

R6 WILL BE LOCATED AT 1421 WEST FOURTH STREET, OR NEARBY RESIDENCE ON THE SAME BLOCK



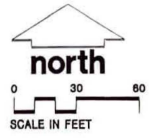
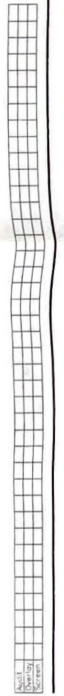
LEGEND

- 807 — GROUND SURFACE CONTOUR ELEVATION
- ▭ EXISTING BUILDING
- ▬ RAILROAD TRACKS
- .SS1 SURFACE SOIL SAMPLE LOCATION AND NUMBER
- ⊕ MW17 EXISTING MONITORING WELL LOCATION AND NUMBER
- ⊕ MW13R PROPOSED REPLACEMENT MONITORING WELL LOCATION AND NUMBER
- ⊕ W2 PROPOSED MONITORING WELL LOCATION AND NUMBER

NOTES

1. BASE MAP DEVELOPED FROM WARZYN ENGINEERING INC. DRAWING 13954-1.
2. TOPOGRAPHIC CONTOUR INTERVAL IS 1 FT.
3. ELEVATIONS FOR THIS MAP ARE BASED ON U.S.G.S. DATUM
4. PROPOSED MONITORING WELLS AT LOCATIONS W1A, W2, W3, W4, W5A, W6, W7, W8, W11, MW19, MW13R, MW25R AND MW26R WILL BE INSTALLED AS WATER TABLE WELLS. PROPOSED MONITORING WELLS AT LOCATIONS W1B, W2B, W2C, W9, W10A, W10B, W12A, W12B, AND W13 WILL BE INSTALLED AS PIEZOMETERS. SEE TABLE 3 OF RI/FIS WORK PLAN FOR DESIGN DEPTHS OF MONITORING WELLS.
5. BACKGROUND DUST WIPE AND AIR SAMPLES R6 WILL BE COLLECTED FROM A RESIDENCE LOCATED NORTH OF THE SITE IN THE VICINITY OF 1421 WEST FOURTH STREET.

QUALITY CONTROL	DATE
Checked	
Reviewed	
Designed	
Drawn	
Field	
Client	



DESIGNED AND MONITORING WELL AND SURFACE SOIL SAMPLE LOCATIONS

RI/FIS WORK PLAN

N.W. MAUTHE COMPANY

APPLETON, WISCONSIN

WARZYN ENGINEERING, INC.

Checked By: JSM

Drawn By: JSM

Designed By: JSM

Approved By: [Signature]

Date: 10-16-91

Reference: File Path: \13954\13954-9

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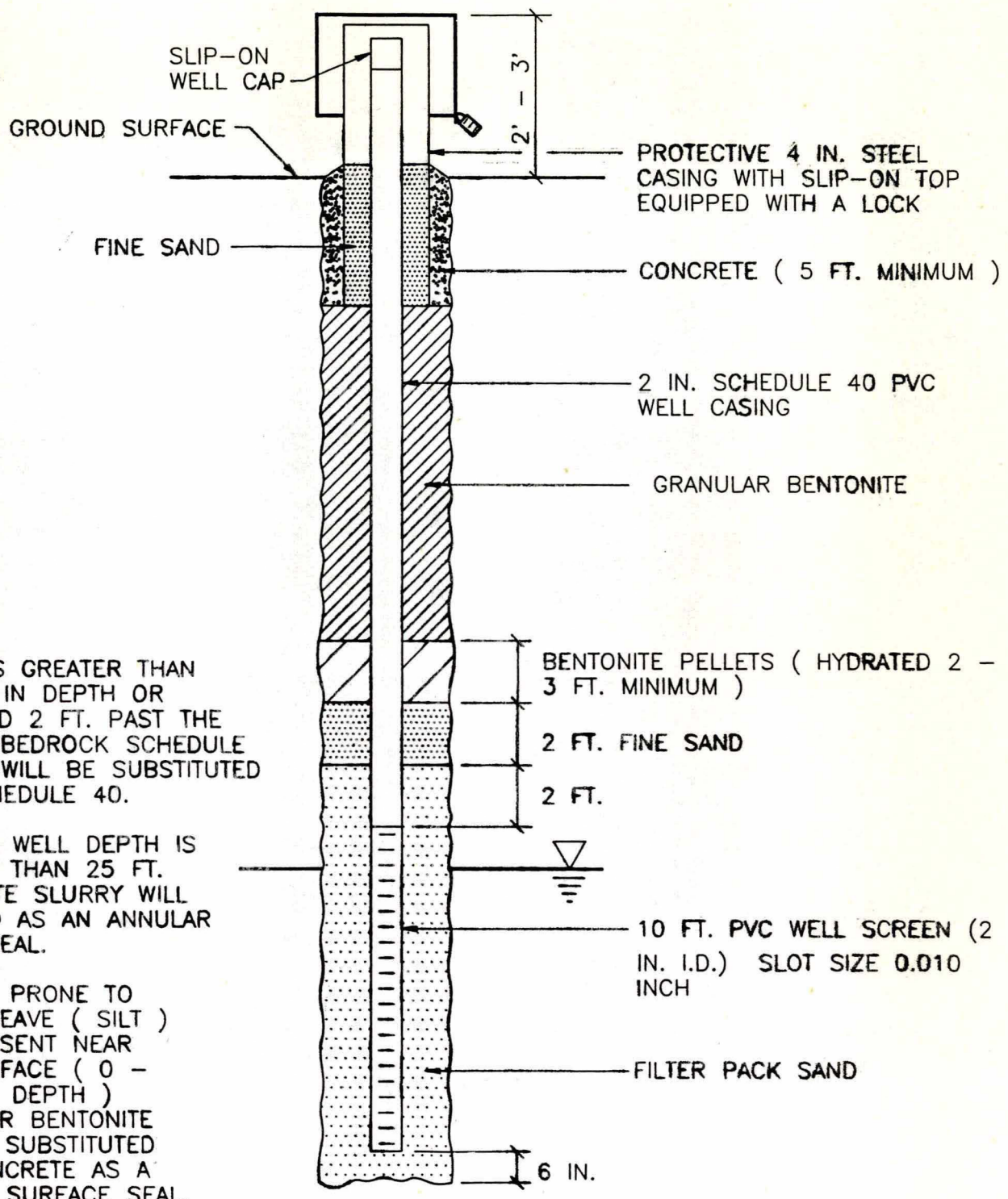
Printed: 10/16/91

Sheet Number: 9 OF 9

Drawing Number: 13954

FIGURE 1

QUANTITY CONTROL
 DATE
 INITIALS
 Drafting Standards
 DATE 5:2:90 PM
 Initials
 Lead Professional
 DATE 5:2:90
 Division
 Initials
 Section



NOTES

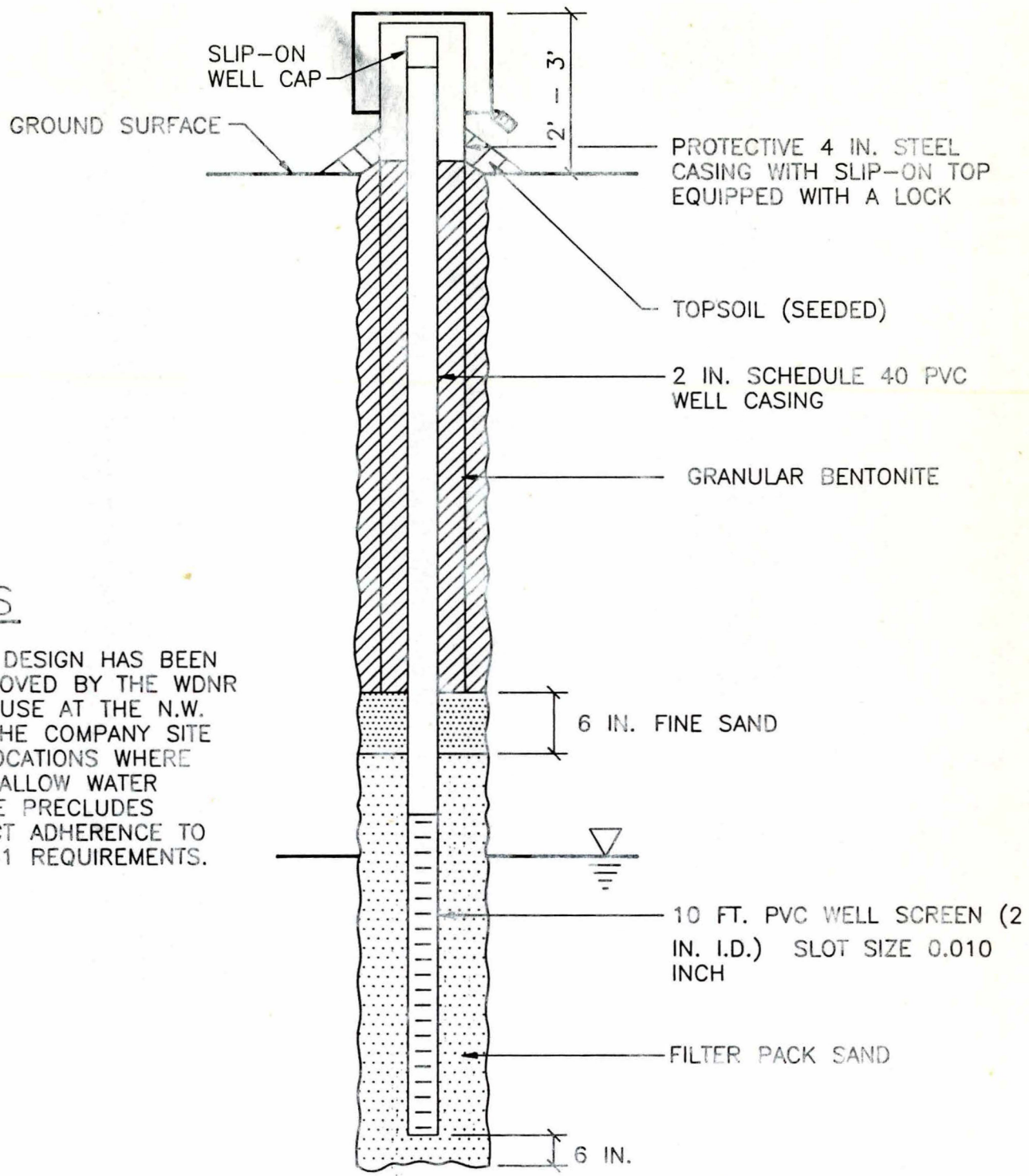
1. IN WELLS GREATER THAN 100 FT. IN DEPTH OR INSTALLED 2 FT. PAST THE TOP OF BEDROCK SCHEDULE 80 PVC WILL BE SUBSTITUTED FOR SCHEDULE 40.
2. IF TOTAL WELL DEPTH IS GREATER THAN 25 FT. BENTONITE SLURRY WILL BE USED AS AN ANNULAR SPACE SEAL.
3. IF SOILS PRONE TO FROST HEAVE (SILT) ARE PRESENT NEAR THE SURFACE (0 - 5 FT. IN DEPTH) GRANULAR BENTONITE WILL BE SUBSTITUTED FOR CONCRETE AS A GROUND SURFACE SEAL.

NOT TO SCALE

FIGURE 2

	TYPICAL WATER TABLE WELL (NR 140)	Drawn S.P.	Checked TAPP	App'd. RKA
	RI/FS WORK PLAN N.W. MAUTHE COMPANY APPLETON, WISCONSIN	Revisions	Date 10-16-90	
	13954 WELL_A2			13954

QUANTITY CONTINUED
 INITIALS DATE
 Drafting Standards P.L.E. 5:20 PM 5-2-90
 Lead Professional J.A.B. 5:20 Division 4EA 5-3-90
 Section A.M.S. 5:20 Other



NOTES

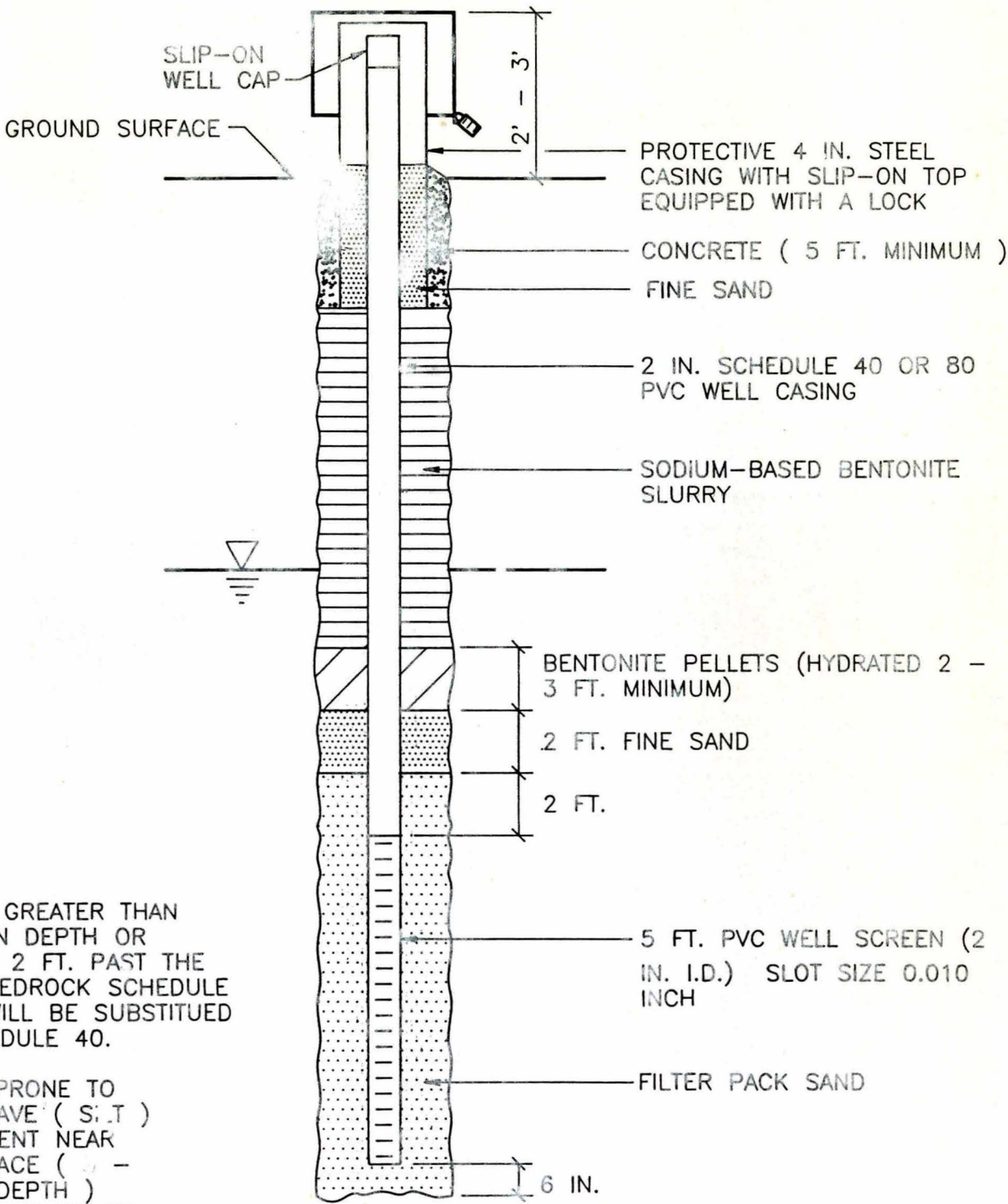
1. THIS DESIGN HAS BEEN APPROVED BY THE WDNR FOR USE AT THE N.W. MAUTHE COMPANY SITE IN LOCATIONS WHERE A SHALLOW WATER TABLE PRECLUDES STRICT ADHERENCE TO NR141 REQUIREMENTS.

NOT TO SCALE

FIGURE 3

	SHALLOW WATER TABLE WELL	Drawn S.P.	Checked [Signature]	App'd. RCH
	WORK PLAN	Date: 10-16-90	Title: 13954	A3
	M. THE COMPANY	Location:	State: WISCONSIN	
	A.			

QUALITY CONTROL
 INITIALS DATE
 Drafting Standards *JKH* 5:30 PM
 Lead Professional *TAPB* 5:25 Division *66A* 5:30
 Section



NOT TO SCALE

1. IF SOILS GREATER THAN 1 FT. IN DEPTH OR UNCALLED 2 FT. PAST THE TOP OF BEDROCK SCHEDULE 80 PVC WILL BE SUBSTITUED FOR SCHEDULE 40.
2. IF SOILS PRONE TO FROST HEAVE (S.I.T) ARE PRESENT NEAR THE SURFACE (0 - 5 FT. IN DEPTH) GRANULAR BENTONITE WILL BE SUBSTITUED FOR CONCRETE AS A GROUND SURFACE SEAL.

FIGURE 4

	TYPICAL PIEZOMETER (NR 141)	Drawn <i>S.P.</i>	Checked <i>TAPB</i>	App'd. <i>RKH</i>
	RI/FS WORK PLAN N.W. MAUTHE COMPANY APPLETON, WISCONSIN	Revisions	Date <i>10-16-90</i>	13954 A4

LEGEND

- 807 TOPOGRAPHIC CONTOUR ELEVATION
- CHAIN LINK FENCE (6)
- G GAS MAIN
- W WATER MAIN
- Sim STORM SEWER MAIN
- San SANITARY SEWER MAIN
- Po OVERHEAD ELECTRICAL LINE
- To OVERHEAD TELEPHONE LINE
- Tu UNDERGROUND TELEPHONE LINE
- PARKING LOT DRAIN
- PROPERTY LINE
- ▭ EXISTING BUILDING
- ▬ RAILROAD TRACKS
- HB1 PROPOSED HAND AUGER SOIL BORING LOCATION AND NUMBER
- E2 PROPOSED UTILITY EXCAVATION LOCATION AND NUMBER

NOTES

1. BASE MAP DEVELOPED FROM WARZYN ENGINEERING INC. DRAWING 13954-1
2. TOPOGRAPHIC AND UTILITY SURVEY WAS PERFORMED BY E.W.I. ENGINEERING ASSOCIATES, INC. ON JANUARY 4, 5 AND 9, 1980 (FIELD BOOK #104)
3. ELEVATIONS FOR THIS MAP ARE BASED ON U.S.G.S. DATUM.
4. TOPOGRAPHIC CONTOUR INTERVAL IS 1 FT.
5. SUBSURFACE UTILITIES AND FEATURES SHOWN ON THIS MAP HAVE BEEN APPROXIMATED BY LOCATING SURFICIAL FEATURES AND APPURTENANCES, LOCATING DIGGER'S HOTLINE FIELD MARKINGS AND BY REFERENCE TO UTILITY RECORDS AND MAPS.
6. ACTUAL LOCATIONS OF SOME EXCAVATION PITS MAY BE CHANGED BASED ON FIELD LOCATION OF UTILITIES AND RESULTS OF A GEOPHYSICAL SURVEY.

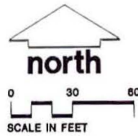
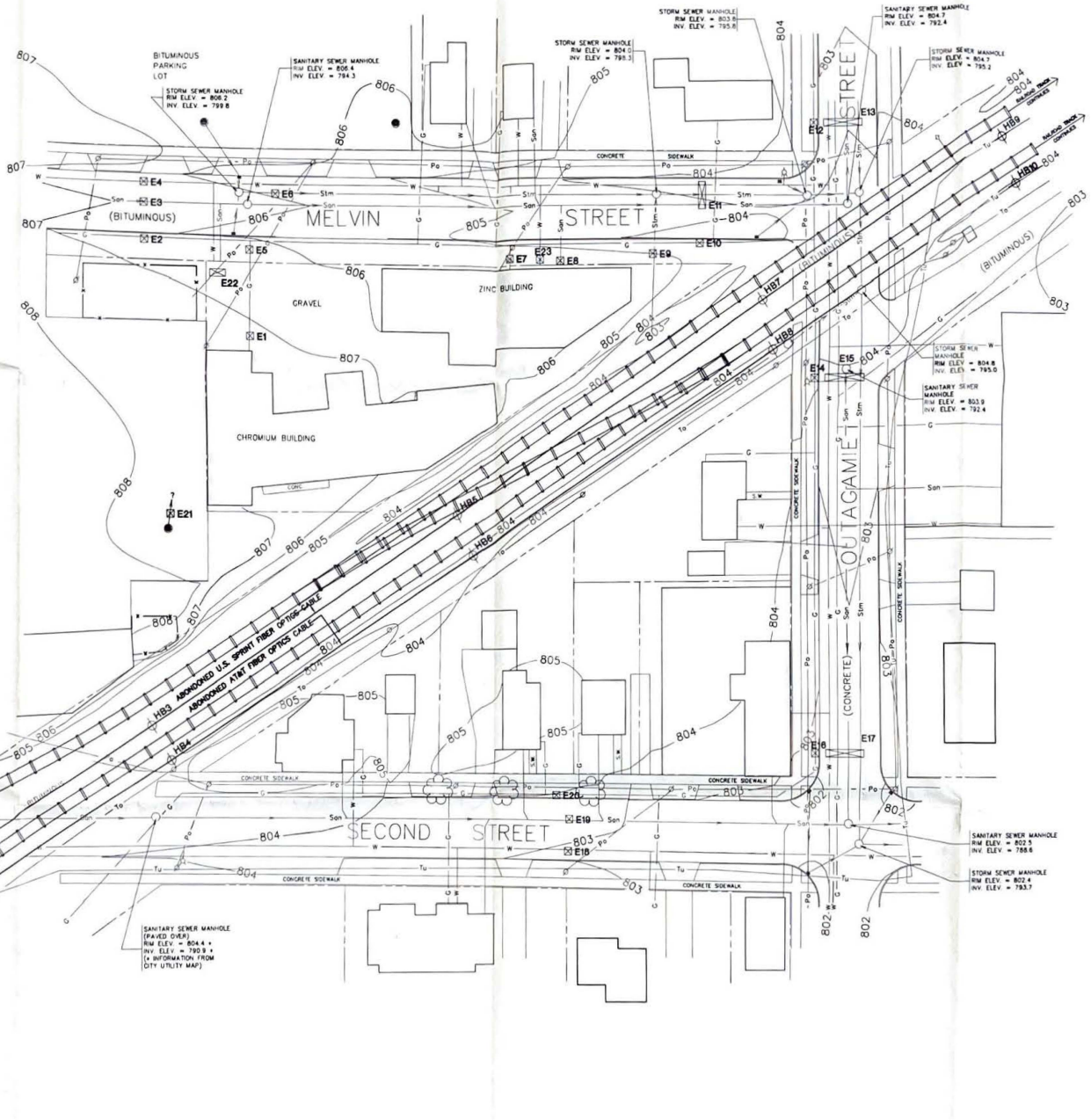


FIGURE 5

Checked By: **TJRB**
 Date: **10-16-90**
 Drawn By: **JSM**
 Approved By: **Robert J. Warzyn**
 Reference: **13954.FIG2**
 File Path: **WARZYN\Projects\13954\FIG2**
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WARZYN
 WARZYN ENGINEERING, INC.

Date: 10-16-90
 Project: **PROPOSED UTILITY SAMPLING LOCATIONS**
 Client: **R/V/F WORK PLAN
N.W. MAUTHIE COMPANY
APPLETON, WISCONSIN**

Printed: **OCT 14 1980**
 Sheet Number: **10**
 Drawing Number: **13954**

WARZYN



Appendix A

Investigative Waste Management Plan

Appendix A

Investigative Waste Management Plan N.W. Mauthe Company Appleton, WI

It is anticipated that potentially hazardous solid and liquid wastes will be generated as a result of activities conducted under various tasks of the Remedial Investigation/Feasibility Study (RI/FS) and Focused Feasibility Study (FFS) at the N.W. Mauthe Company site (Site). Solid wastes are expected to include drill cuttings, drill mud, and excess soils from sampling. Liquid wastes are expected to include purged water for wells, and water and solvents from from decontamination procedures. The protocol for handling investigative waste is as follows:

1. Solid investigative wastes (exclusive of personal protective equipment) will be contained in a roll-off box(es) maintained near the decontamination pad. The roll-off box(es) will be lined with polyethylene and covered with a tarp. The solids will not be tested and will be included as a part of the overall Site remedy. Steel drums will be used to transport and store the solids until the wastes can be transferred to the roll-off box(es).
2. Liquid investigative waste will be stored temporarily in the decontamination pad holding tank. Waste which is generated by activities conducted on the decontamination pad will be allowed to drain to the holding tank. Waste generated in other areas will be contained and transported to the decontamination pad in drums and transferred to the holding tank. Procedures for moving contaminated equipment around the Site are provided in the Sampling Plan (Appendix A of the QAPP). When the holding tank is approximately 60 percent full, the contents will be sampled for parameters required under Green Bay Metropolitan Sewerage District (GBMSD) General Ordinance 78-1 and/or Chapter Seven of the Municipal Code of the City of Appleton (see Attachments A-1 and A-2), which include:
 - Aluminum
 - Arsenic
 - Cadmium
 - Chromium
 - Copper
 - Cyanide
 - Lead
 - Mercury
 - Nickel
 - Zinc
 - pH

If the waste is considered acceptable by the City of Appleton Wastewater Treatment Plant, the waste will be transported to a drop station specified by the City of Appleton. The City of Appleton Wastewater Treatment Plant will be notified in writing prior to disposal of the waste. If the waste is determined to be hazardous, or otherwise unacceptable to the City of Appleton, the waste will be transported to a GBMSD drop station and disposed consistent with GBMSD General Ordinance 78-1, after written notice providing pertinent information is supplied to GBMSD. It may be necessary to limit the quantity of waste discharged to GBMSD at a given time, so that the total 24-hour mass limit of a specific substance is not exceeded. If necessary, the persons responsible for field activities will prepare a hazardous waste manifest and provide the manifest to the WDNR to obtain appropriate signatures.

Any updates to the sewerage ordinances issued before or during the RI should be reviewed for potential impacts on liquid waste disposal procedures.

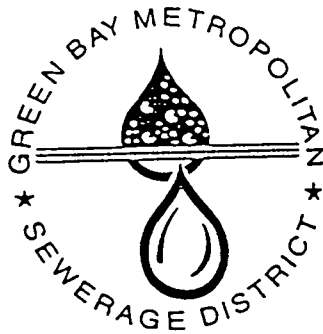
Personal protective equipment (PPE) will be decontaminated after each use. disposable PPE will be decontaminated at the decontamination facility and placed in plastic garbage bags for ordinary solid waste disposal.

TAPB/dlk/AJS/GEA/DWH
[jlv-602-91j]
13954-MD

Attachment 1

**Green Bay Metropolitan Sewerage District General Ordinance 78-1,
Metro Sewer Use Ordinance**

GREEN BAY METROPOLITAN SEWERAGE DISTRICT
GENERAL ORDINANCE 78-1
METRO SEWER USE ORDINANCE
ADOPTED JULY 23, 1985
PUBLISHED JULY 30, 1985



GREEN BAY METROPOLITAN SEWERAGE DISTRICT

**GENERAL ORDINANCE 78-1
METRO SEWER USE ORDINANCE**

AN ORDINANCE FOR THE SUPERVISION, PROTECTION, MANAGEMENT, REGULATION AND USE OF THE METRO SEWERAGE SYSTEM (AS DEFINED HEREIN) AND TO COMPLY WITH FEDERAL AND STATE PRETREATMENT REQUIREMENTS, TO PROVIDE RULES BOTH NECESSARY AND PROPER TO ACHIEVE BEST RESULTS FROM THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF THE METRO SEWERAGE SYSTEM AND TO PROVIDE RULES BOTH NECESSARY AND PROPER TO PREVENT DAMAGE TO THE METRO SEWERAGE SYSTEM OR THE ENVIRONMENT FROM MISUSE, INJURY TO EMPLOYEES, SURCHARGING ALL OR PART OF THE METRO SEWERAGE SYSTEM OR INTERFERENCE WITH THE PROCESS OF SEWAGE TREATMENT, DISPOSAL OR OPERATION OF THE TREATMENT PLANT

Pursuant to authority granted by Wisconsin Statute Section 66.24(1)(d), the Commission of the Green Bay Metropolitan Sewerage District hereby adopts the following rules:

PART I. 1958 SEWER USE ORDINANCE REPEALED

101. The Green Bay Metropolitan Sewerage District Sewer Use Ordinance adopted July 10, 1958 is hereby repealed.

PART II: PURPOSE, SCOPE AND GENERAL PROCEDURE

201. It is the intent and purpose of this Ordinance:
- (a) to establish rules regulating connections to the METRO Sewerage System, regulating dischargers and limiting or prohibiting the discharge of wastes which, in any measurable or detectable part thereof, can be expected to, contributes to or, in fact, does any of the following:
 - (1) interfere with the normal operation of the METRO Sewerage System or any part thereof; or
 - (2) contaminate the POTW's biological processes, sludge or final effluent; or
 - (3) detrimentally affect the quality of final effluent; which will pass through the system inadequately treated into the receiving waters of the State or atmosphere, or otherwise be incompatible with the system; or
 - (4) interfere with the opportunity to recycle, reclaim, and/or dispose of wastewater and sludge from the system; or

(5) cause unreasonable maintenance, attention and expense to METRO.

(b) and to provide penalties for the violations of these rules including violations of any orders or notices issued pursuant to them.

202. This Ordinance sets forth uniform requirements for dischargers into the METRO Sewerage System and enables METRO to comply with all applicable state and federal laws, including the Act and the General Pretreatment Regulations (40 CFR, Part 403).

203. This Ordinance applies to each Municipality served by METRO, to every person within METRO's jurisdiction and to each discharger to the METRO Sewerage System or any part thereof. Any of said Municipalities may adopt compatible ordinances, but this Ordinance shall have precedence over any such ancillary Ordinances.

204. With respect to violations occurring within any Municipality which has adopted a compatible sewer use ordinance METRO will, prior to any direct enforcement action, contact the appropriate municipal agency and the offending discharger and make available to the Municipality any data it has concerning the violation in order to give the Municipality opportunity for implementation of appropriate corrective action. If the Municipality fails to take adequate and timely action, METRO will take such primary or supplemental enforcement action as METRO deems appropriate.

205. This Ordinance may be referred to as the METRO Sewer Use Ordinance.

PART III: DEFINITIONS

The following definitions are applicable to this Ordinance:

301. Act - Means The Federal Water Pollution Control Act, known as The Clean Water Act, 33 U.S.C. 1251 et seq., as amended.

302. Building Drain (Sanitary) - Means that part of the lowest horizontal piping of a drainage system which receives the discharge of wastewaters from soil, waste, and other drainage pipes inside the walls of a building and conveys it to the building sewer, beginning five (5) feet outside the inner face of the building wall.

303. Categorical Pretreatment Standard; National Categorical Pretreatment Standards; Pretreatment Standards - Means any regulation containing pollutant discharge limits promulgated by the U.S. EPA in accordance with Section 307(b) and (c) of the Act, which applies to a specific category of industrial dischargers.

304. Commission - Means the Commission of the Green Bay Metropolitan Sewerage District.

305. Comprehensive Plan - Means a master plan for the physical development of a Municipality. Such plan, with accompanying maps, plats, charts, programs and descriptive and explanatory matter shall show the Municipality's intentions and projections for the physical development of the Municipality. Such plan shall be made with the general purpose of guiding and accomplishing a coordinated, adjusted, and harmonious development of the Municipality which will, in accordance with existing and future needs and consistent with adopted regional plans, best promote public health, safety, morals, order, convenience, prosperity, or the general welfare, as well as efficiency and economy in the process of development. Such plan shall include, among other things, the following: the general location, character and extent of main traffic arteries, bridges and viaducts; public places and areas; schools; police and fire protection; parks; parkways; recreational areas; airports; delineation of streams, rivers, lakes, drainage courses, both natural and man-made; identification of flood ways and flood plains; topography including soils descriptions; land use (zoning), existing and proposed, including permitted uses of each zone, in relation to surrounding communities; the location and extent of sanitary and interceptor sewers, storm sewers, combined sewers, water conduits; and a facilities plan showing growth phasing of all services.
306. Contribute: Contributes - Means, with reference to a contamination of METRO sludge or to NPDES/WPDES permit violation, any one or more of the following acts by an Industrial Discharger:
- (a) the discharge of a quantity of any limited or proscribed parameter in excess of that allowed by contract with METRO or of that allowed by this Ordinance or other applicable law; or
 - (b) the discharge of wastewater which substantially differs in nature or constituents from the discharger's average discharge; or
 - (c) the discharge in violation of any provision of this Ordinance, or of the limitations directed to the discharger by a METRO Pretreatment Order, regardless of the actual or probable effect of the violation on METRO, the POTW, METRO's treatment processes or operations, or its sludge processes, use or disposal; or
 - (d) the discharge of any wastewater when the Industrial Discharger knows or has reason to know that: (i) its discharge, alone or in conjunction with discharges from other sources, would result in a METRO permit violation or prevent sewage sludge use or disposal by METRO in accordance with Section 405 of the act, The Solid Waste Disposal Act (SWDA) including Title II, the Clean Air Act, the Toxic Substances Control Act (TOSC), the Resource Conservation and Recovery Act (RCRA), or any state regulations contained in a sludge management plan prepared pursuant to Subtitle D of SWDA as applies to METRO's selected method of sludge management; or (ii) METRO is, for any reason, violating its final effluent limitations in its NPDES/WPDES Permit and that such discharge either alone or in conjunction with discharges from other sources, increases the magnitude or duration of METRO's violations.

307. Detrimentially Affect; have a detrimental effect - Means any adverse consequence, temporary or permanent, to METRO, its property, personnel, performance, processes or operations or any stage, state or product thereof, of a pollutant.

A pollutant has a detrimental effect if, either singly or by interaction with other wastes, it will:

- (a) Pass through the METRO Sewerage System and into the waters of the state, or into the atmosphere essentially unchanged or unaffected by the POTW's treatment processes; or
- (b) Interfere with the efficacy of the POTW, METRO's personnel, performance, treatment or other processes or operations, or its sludge processes, use or disposal. These include by way of illustration and not limitation, the activated sludge, the aeration or other activated sludge processes; the waste heat recovery processes; the sludge disposition or other solids handling processes; the final effluent; or
- (c) cause METRO to violate its NPDES/WPDES Permit, applicable state or federal law or lawful regulation pursuant thereto, or contribute to such cause or to the magnitude or duration of a violation; or
- (d) create or constitute a hazard to life or health; or
- (e) block or impede the flow or flow capacity at any point within the METRO Sewerage System.

308. Discharger - Means any person, Municipality or other entity that discharges anything, without limitation, directly or indirectly into a sewerage system or any part thereof.

- (a) Industrial Discharger - Means any non-residential and/or non-commercial discharger who discharges into the METRO Sewerage System by any one or combination of the following means: pipes, conduits, pumping stations, force mains, constructed drainage ditches, surface water intercepting ditches, intercepting ditches, any and all constructed devices and appliances appurtenant thereto.
- (b) Significant Industrial Discharger - Means any Industrial Discharger to the METRO Sewerage System whose effluent (i) quantity or quality subjects it to reporting regulations as defined in Wisconsin Administrative Code NR101.11(4) as amended or (ii) has in it toxic or hazardous substances as identified in this Ordinance in either concentration or daily quantity in excess of the reporting levels set forth or (iii) is found by METRO, WDNR or the U.S. EPA to have significant impact, either singly or in combination with other contributing industries, on the POTW, the quality of sludge, the quality of the final effluent or air emissions generated by the treatment system or, (iv) although not generally reportable under the NR101.11(4) (as amended) reporting requirements, is nevertheless, in the volume discharged, subject to any pretreatment standards.

- (c) Commercial Discharger - means any discharger who discharges wastewater into the METRO Sewerage System from any of the: transient lodging, retail and wholesale establishments or placed engaged in selling merchandise for personal, household or industrial consumption, and/or rendering services to others.
- (d) Residential Discharger - means any discharger who discharges wastewater into the METRO Sewerage System from a single or multi-family dwelling or boarding or lodging house.
309. Domestic Wastewater - Means water-carried wastes normally discharging into the sanitary sewers from dwellings (including apartment houses and hotels), office buildings, factories and institutions, free from storm water and industrial wastes.
310. Effluent - Means wastewater, water or other liquid after some degree of treatment, flowing out of any wastewater treatment facility.
- Final Effluent - Means the effluent which is discharged from the POTW (point sources) into waters of the state.
311. Floatable Oil - Means oil, fat or grease in a physical state such that it will separate by gravity from wastewater.
312. Garbage - Means solid wastes from the domestic and commercial preparation, cooking and dispensing of food, and from the handling, storage and sale of food.
313. General Manager - Means the Chief Executive Officer of the Green Bay Metropolitan Sewerage District or the authorized designee of the Chief Executive Officer.
314. Grease - Means a group of substances including fats, waxes, free fatty acids, calcium and magnesium soaps, mineral oils, and certain other non-fatty materials as analyzed for in accordance with Standard Methods.
315. Grit - Means the heavy suspended mineral matter in wastewater such as, but not limited to, sand, gravel and cinders.
316. Groundwater - Means sub-surface water occupying the zone of saturation, from which wells and springs are fed. In a strict sense, the term applies only to water below the water table.
317. Industrial Wastes; Industrial Wastewater - Means the wastes dischargeable to sanitary sewers from industrial manufacturing processes, trade or business, or from the development, recovery or processing of natural resources, as distinct from sanitary or normal domestic wastewater.
318. Infiltration - Means the water unintentionally entering sanitary sewers, building drains and building sewers, from the ground, through such means as, but not limited to, defective pipes, pipe joints, connections, or manhole walls. (Infiltration does not include and is distinguished from inflow).

319. Infiltration/Inflow - Means the total quantity of water from both infiltration and inflow without distinguishing the source.
320. Inflow - Means the water discharge into the sanitary sewers, building drains and building sewers, from such sources as, but not limited to, roof leaders, cellar, yard & area drains, foundation drains, unpolluted cooling water discharges, drains from springs and swampy areas, manhole covers, cross connections from storm sewers and combined sewers, catch basins, storm waters, surface runoff, street wash waters or drainage. (Inflow does not include, and is distinguished from, infiltration.)
321. Interceptor - Means any sewer which receives the flow from a number of sanitary sewers or outlets.
322. Interference; Interfere with - Means any inhibition or disruption of METRO's treatment or other processes or operations, or its sludge processes, use or disposal, which is a cause in whole or in part of either a violation of any requirement of METRO's NPDES/WPDES Permit (including an increase in the magnitude or duration of a violation) or to the prevention of sewage sludge use or disposal by METRO in accordance with the following statutory provisions and regulations or permits issued thereunder: Section 405 of the Act; the Solid Waste Disposal Act (SWDA) (including Title II more commonly referred to as the Resource Conservation and Recovery Act (RCRA)); state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA; the Clean Air Act; and the Toxic Substances Control Act (TOSCA).
323. METRO - Means the Green Bay Metropolitan Sewerage District.
324. Municipality - Means any City, Village, Town or Sanitary District wholly or partly within the boundaries of the Green Bay Metropolitan Sewerage District and such others as METRO serves in whole or part, by contract.
325. NPDES Permit - Means a permit issued to POTW pursuant to Section 402 of the Act, under the National Pollutant Discharge Elimination System, regulating discharge of wastewater to navigable waters of the United States. WPDES Permit is a permit issued by WDNR pursuant to the Act and authority granted by the U.S. EPA, and pursuant to Wis. Stats. Chapter 147 and applicable regulations, Wis. Administrative Code Chapter 200. NPDES/WPDES Permit is used in reference to METRO's permit to acknowledge both state and federal interest in and regulation of METRO's discharge of final effluent into waters of the state.
326. Pass Through - Means the discharge of pollutants through METRO into navigable waters in quantities or concentrations, which, alone or in conjunction with discharges from other sources, is a cause of a violation of any requirement of METRO's WPDES Permit (including an increase in the magnitude or duration of a violation).
327. Person - Means any individual, firm, company, association, society, corporation or group.

328. pH - Means the logarithm (to the base 10) of the reciprocal of the concentration of hydrogen ions in grams per liter of solution.
329. Pollutant - Means any dredged spoil, solid waste, incinerator residue, garbage, refuse, oil, solvents and flammables, munitions, chemical wastes, biological materials, radioactive substance, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, agricultural waste, toxic substance, and any substance or substance/quantity in violation of Categorical Pretreatment Standards, a provision of this Ordinance or order issued pursuant thereto, which, accidentally or intentionally, entirely without regard to culpability or preventability, is discharged directly to indirectly, into the METRO Sewerage System in concentration or mass at least greater than minimum analytical detection limit.
330. Pollution - Means:
- (a) the presence of any noxious or deleterious substance in quantities which are or may be potentially harmful or injurious to human health or welfare, animal or aquatic life, or property, or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation; or
 - (b) the man-made or man-induced degradation of the chemical, physical, biological or radiological integrity of water.
331. POTW - Means Publicly Owned Treatment Works; a wastewater treatment facility treating wastewater after it enters the METRO Sewerage System; a treatment works as defined in Section 212 of the Act (33 USC §1292); the METRO Sewerage System; or that portion of the METRO Sewerage System designed to provide treatment to wastewater; generally, METRO or METRO's Wastewater Treatment Facilities.
332. Pretreatment - Means the reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties prior to discharge or introduced into the METRO sewerage system.
333. Properly Shredded - Means having processed solid materials to such a degree that all particles will be carried freely under flow conditions normally prevailing in sanitary sewers with no particle greater than 1/2 inch in any dimension.
334. Scum - Means the layer or film of extraneous or foreign matter that rises to the surface of a liquid and is formed there, a residue deposited on a container or channel at the water surface, or a mass of matter that floats on the surface of wastewater.
335. Sewer - Means a pipe or conduit for the transportation of domestic wastewater, industrial wastewater, and/or storm water, and unless modified, herein means a sanitary sewer.
- (a) Sanitary sewer: means any sewer which receives domestic wastewater and industrial wastewater without the intentional admixture of storm water.

- (b) Storm sewer: means any sewer which carries storm water but excludes domestic wastewater and industrial wastewater.
 - (c) Combined sewer: means a sewer intended to receive both wastewater and storm water.
 - (d) Building sewer: means the extension from the building drain to the sanitary sewer or interceptor or other place of disposal.
 - (e) Private sewer: means a sanitary sewer which is owned by a person.
 - (f) Existing sewer: means any sanitary sewer or sewerage system for which construction approval was not granted by the Commission prior to its construction. Existing sewers may occur through annexations to METRO, public dedications of private sewers or sewerage systems, or construction undertaken in violation of this Ordinance.
336. Sewerage System - Means all facilities including sewers and appurtenances for collecting, transporting, pumping, treating, and disposing of wastewater. The METRO Sewerage System means the sewerage system and each part thereof located within the boundaries of METRO and such other as delivers wastewater thereto or which METRO serves under contract, or both.
337. Sludge - means any solid, semi-solid or liquid waste generated from the POTW. Activated Sludge - Means a mixture of aerobic bacteria and mineral substances found in aerated sewage, having the effect of purifying other sewage brought into contact with it; sludge settled out of sewage previously agitated in the presence of abundant atmospheric oxygen.
338. Slug - Means any substance including biological material and/or oxygen demanding pollutants (BOD, etc.) released in a discharge at a flow rate and/or concentration which causes or reasonably might be expected to cause Interference.
339. Standard Methods - Means the latest State of Wisconsin approved edition of Standard Methods for the Examination of Water and Wastewater prepared, approved and published jointly by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation.
340. Storm Water - Means not only surface runoff from snow, rain, sleet, hail, flood, or other natural causes; but also roof water and overflow water from tank, cistern well, or sump pump. Storm water does not include, and is distinguished from, industrial and domestic wastewater.
341. Toxic Substance - Means:
- (a) those pollutants or combinations of pollutants, including disease-causing agents, which, after discharge and upon exposure, ingestion, inhalation or assimilation into any organism, either directly from the environment or indirectly by ingestion through food chains, will, on the basis of the best available information, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions, including malfunctions in reproduction or physical deformations, in such organisms or their offspring; and also
 - b. any pollutant or combination of pollutants identified pursuant to Section 307 (a) of the Act or under other federal law or pursuant to Wisconsin Statute Section 147.07(1).

342. Unpolluted Water - Means water not containing any pollutants limited or prohibited by the effluent standards in effect, or water whose discharge will not cause any violation of receiving water quality standards.
343. U.S. EPA - Means United States Environmental Protection Agency.
344. Waters of the State - Means those portions of Lake Michigan and Lake Superior within the boundaries of Wisconsin, all lakes, bays, rivers, streams, springs, ponds, wells, impounding reservoirs, marshes, water courses, drainage systems and other surface or ground water, natural or artificial, public or private within the state or under its jurisdiction, except those waters which are entirely confined and retained completely upon the property of a person.
345. Wastewater; Waste - Means industrial wastewater or domestic wastewater or both, whether treated or untreated, which enters the METRO Sewerage System.
346. Wastewater Treatment Facilities - Means the structures, equipment and processes for the treatment or pretreatment of domestic and industrial wastewater and disposal of the effluent and accumulated residual solids.
347. Watercourse - Means a natural or artificial channel for the passage of water either continuously or intermittently.
348. WDNR - Means the Wisconsin Department of Natural Resources.
398. DEFINITIONS FROM OTHER SOURCES
- 398.01 - Billing Procedures Ordinance (METRO General Ordinance 79-1 as amended) - To the extent applicable (and not inconsistent with the Definitions in this METRO Sewer Use Ordinance) the definitions set forth in the Billing Procedures Ordinance definitional Section (Part II, Section 19-28) are made part hereof.
- 398.02 - The Standard Methods definitions of terms shall be applicable unless context implies that a dictionary, legal or other definition is intended.
399. GENERAL RULES OF INTERPRETATION: The following shall apply throughout this Ordinance:
- 399.01 - Feminine-Masculine - Use of masculine shall include the feminine and vice versa. This Ordinance is gender neutral.
- 399.02 - Mandatory - Use of "shall" means the prescription or direction is mandatory. Use of "may" generally implies the availability of more than one choice or option.
- 399.03 - Singular and Plural - When permitted by the context, use of the singular shall be construed to include the plural and of the plural to include the singular.

399.04 - General Manager's Interpretations -

- (a) Any interested party, including (without limiting the generality of the foregoing) any discharger, against which (or whom) there is no pending unresolved citation for violation of this Ordinance or of a METRO Pretreatment Order and against which there is no outstanding Order for Hearing pursuant to Paragraph 1506(a), may request in writing the General Manager's construction, interpretation or ruling on any matter within this Ordinance or a METRO Pretreatment Order. The General Manager will make a prompt written reply. If the inquiry is by a discharger and deals with any matter of performance or compliance with this Ordinance or with a METRO Pretreatment Order, receipt of the discharger's request shall stay any potential or contemplated but not yet commenced enforcement proceedings against that discharger with respect to the matter or matters of the inquiry, until issuance of the General Manager's written opinion and its delivery to the discharger.
- (b) The General Manager may when he/she deems appropriate and without request from anyone, withdraw or revise in writing any previous written construction, interpretation or ruling given pursuant to this section including any part thereof or revision thereto.
- (c) Every written construction, interpretation, ruling, revision, and withdrawal made by the General Manager pursuant to this Section will be delivered by regular mail to the one requesting or originally requesting the same and to each other interested party who has timely (that is, within the preceding 24 months) requested placement on METRO's Sec. 399.04 Mailing List and paid the fee therefor; and it shall be effective from and after such mailing.

PART IV: SEWER CONNECTIONS

- 401. Every connection to the METRO SEWERAGE System shall be subject to this Ordinance.
- 402. No private sewer shall be directly connected to a METRO interceptor. No Municipality shall make direct connection except as provided herein.
- 403. No connection to the METRO Sewerage System shall be made without written connection authorization from METRO.
- 404. No municipality proposing to construct a sanitary sewer or sewerage system or an extension of any sanitary sewer shall commence construction of any part thereof without first:
 - (a) submitting applications for connection authorization in accordance with the provisions of this Ordinance, and

- (b) obtaining construction approval from the Commission.
405. Application for connection authorization shall include the following:
- (a) A minimum of three (3) complete sets of plans and specifications which shall include the following: a location map; size and type of sewer pipe; grades; elevations of the inverts at manholes; elevations of manhole tops; distances between manholes; complete details of all appurtenances. One additional complete set is required for each of the following situations: (i) if the project includes a lift station and; (ii) if flow will be tributary to a POTW not operated by METRO.
 - (b) A map of the service area of the sanitary sewer or sewerage system proposed to be connected, except this requirement shall not be applicable if the proposed connection involves only sewers less than 10 inches in diameter.
 - (c) A statement of the location or locations at which connection to the METRO Sewerage System is desired.
 - (d) A statement of the estimated character of the wastewater expected, including type and size of development.
 - (e) An estimate of the quantity of wastewater flow generated or to be generated by the proposed development.
 - (f) A copy of design data.
 - (g) Applications requiring project or plan approval by WDNR will be transmitted to WDNR by METRO on METRO's receipt in good order of all attachments and data in the number required by the WDNR.
 - (h) A request for construction approval unless the application is for connection of an existing sewer.
406. All applications for connection authorization submitted to METRO will be forwarded by METRO to the Brown County Planning Commission Executive Director for review and comment with respect to whether or not the proposed connections are consistent with adopted local and regional plans.
407. Where connection application requests construction approval a written statement of the Commission's approval or denial will be given the applicant Municipality. Denial statements will include reasons for denial.
408. No construction approval or connection authorization will be granted if the applicant Municipality does not have a current comprehensive plan or alternative data acceptable to the Commission on file with METRO or if, in the judgement of the Commission, the proposed connection is not consistent with adopted local and regional plans.
409. No connection authorization shall be granted for any existing sewer nor for any construction approved sewer if the sewer is defective in operation, construction, design or maintenance.

410. Connection authorization will be granted to a Municipality in accordance with its application therefor if and when the Municipality satisfies METRO by a clear preponderance of the evidence presented that:
- (a) the rate of infiltration/inflow into the sanitary sewer or sewerage system proposed to be connected (including appurtenances) is not in excess of 200 gallons per inch diameter per mile of sewer per day; and
 - (b) the rate of infiltration/inflow between any two adjacent manholes is not greater than 200% of the maximum rate of infiltration set forth in paragraph (a) of this Section 410; and
 - (c) visible leaks, if any, have been repaired (even if the infiltration limitations of paragraphs (a) and (b) were met without such repair); and
 - (d) no inflow connections exist.
411. If construction approval has been granted by the Commission, the written certificate of the Professional Engineer who sealed the construction plans or supervised the construction project or both is sufficient to establish prima facie compliance with the requirements of Section 410 provided it certifies that:
- (a) construction has been completed in accordance with approved plans; and
 - (b) sewers proposed to be connected to the METRO Sewerage System have been inspected by the Professional Engineer or under his direct supervision; and
 - (c) infiltration or other approved tests have been run (e.g., air testing may be considered in lieu of infiltration testing if procedures therefor, submitted in writing, are approved by the General Manager prior to testing); and
 - (d) the construction and every part thereof meets the infiltration and inflow standards prescribed in Section 410.
412. METRO may investigate existing sewers for which connection application has been made and if any existing sewer appears to be defective in operation, construction, design or maintenance, the applicant Municipality will be so notified. The General Manager may suggest specified alterations, new construction or changes in supervision or operation. Any Municipality aggrieved by the investigation, if any, made pursuant to this section or by the suggestions of the General Manager may request a Commission hearing upon its application for connection authorization. Following such hearing, the Commission may make findings and issue orders as it deems appropriate. With respect to existing sewers, the Commission may waive or modify the standards prescribed by Section 410 if the public health or safety requires such action or for other good cause shown.
413. Notice shall be given to the General Manager at least twenty-four (24) hours before proceeding with any authorized manhole construction or any authorized connection to a METRO interceptor. If the General Manager requests, the

actual construction or connection shall be made in the presence of a METRO inspector.

PART V: PLANS AND CONSTRUCTIONS

A. Plans and Specifications

501. All plans presented to METRO must be prepared and sealed by a Professional Engineer registered in Wisconsin.
502. All plans and specifications shall be prepared following the guidelines established by the latest edition of Standards for Sewer Works adopted by the great Lakes Upper Mississippi River Board of State Sanitary Engineers and following appropriate Wisconsin State Administrative Codes.
503. Plans submitted to METRO shall be of a plan size not to exceed 36" long by 24" wide.
504. All elevations given on plans submitted to METRO shall be based upon datum of METRO. The following conversions apply: U.S. Geodetic Survey Elevation = METRO Datum + 483.79 feet. International Great Lakes Datum Elevation = METRO Datum + 482.55 feet.
505. Before construction work is started on any alteration or replacement of any sanitary sewer within the METRO Sewerage System, plans and specifications of the proposed construction shall be submitted to METRO. METRO may request or require changes thereto if the plans and specifications do not comply with METRO rules and regulations.

B. Manhole constructions, connections.

506. No manhole over an existing METRO interceptor shall be constructed without prior written approval of the General Manager who shall prescribe the conditions thereof. METRO shall own all such manholes after construction.
507. Sewer connections to the METRO Sewerage System made at a manhole shall be with the flow line of the connecting sewer being at or below the manhole shelf (not to exceed 24" above invert) or the connection shall be made through an approved drop.
508. Manholes located in ditches, gutters or in possible flood plains shall be flood-proofed. All other manholes shall be provided with self-sealing type covers with concealed pickholes.
509. There shall be no inside drop connection in any METRO manhole except with written authorization.

C. Construction supervision, inspection

510. Every Municipality, in the construction of sanitary sewers or sewerage systems within its jurisdiction, shall require that such construction be under the direct

supervision of a professional engineer and have a fulltime inspector on such construction. The said engineer shall keep accurate records of the location, depth, and length of the sewers as built and of the location of the wye branches and tees.

511. During construction of any sanitary sewer or sewerage system or of any extension or replacement of any sanitary sewer or of any alteration of any sanitary sewer given written construction approval as provided by Section 407, METRO may, from time to time, make inspections to see if the construction work is being done in accordance with the approval grant and the plans and specifications submitted. Failure of METRO to make inspections shall not affect METRO's right to deny connection authorization or require reconstruction whenever non-adherence to approved plans is discovered.

PART VI: STORM AND OTHER UNPOLLUTED WATERS

601. No person and no Municipality shall connect any combined sewer to the METRO Sewerage System.
602. Connection of existing or proposed storm sewers, catch basins or curb inlets to the METRO Sewerage System is prohibited.
603. No discharger shall discharge or cause to be discharged any storm water, surface water and/or runoff groundwater, roof runoff, subsurface drainage, or other unpolluted water to the METRO Sewerage System without METRO's prior approval.
604. Except where expressly authorized to do so by an applicable Categorical Pretreatment Standard, no industrial discharger shall ever increase the use of process water or in any other way attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with a Categorical Pretreatment Standard, Pretreatment Order or discharge limitation contained in this Ordinance.

PART VII: RECORDS OF SEWER PLANS

701. A copy of an up-to-date general sewer plan from each municipality conforming to construction records of a scale not smaller than 1" = 600' shall be on file with METRO. Said plan shall show manhole invert and rim elevations, distances between manholes, pipe sizes and pipe grades. All sewer construction projects completed by January 1st of each year shall be incorporated in said plan prior to April 1st of that year. If any connection to the METRO Sewerage System requires modifications to be made or new structures built, an accurate and complete plan of the unit as constructed shall be furnished to METRO.
702. Records of connections, such as lateral wye and tee connections, to local sewerage systems shall be kept by the Municipality in which the connections are made and such records shall be available for inspection by METRO.

PART VIII: METRO INTERCEPTORS

801. No building, structure, wall or other above-ground obstruction, including additional fill material, shall be placed, erected, installed or permitted over any METRO interceptor without prior written approval of the General Manager.
802. No municipality having territory annexed to METRO pursuant to Annexation Order of the Commission or of the Court which Order in any manner restricts the volume of discharges to or other use of the METRO sewerage system shall violate the restrictions contained in such Order; provided, however, upon written request of the Municipality the Commission may grant permission for temporary use in excess of the limitation contained in the Annexation Order, in accordance with the provisions of the following Section 803.
803. The Commission, in its discretion, may permit a municipality the temporary use of existing service facilities useful to such municipality. This section describes the rules and charges for the temporary use of service facilities by Municipalities. Nothing contained herein prohibits METRO from issuing other orders pursuant to this Ordinance or from, taking such other limiting or enforcing actions, when appropriate, as may be authorized by law.
- (A) Service facilities is hereby defined to include each of the following:
- (I) Interceptors - Every interceptor built or acquired by METRO whether or not the interceptor is subject to transfer under Rule 80-1.
 - (II) Interceptor related facilities such as manholes and appurtenances.
 - (III) Pumping stations.
 - (IV) Force mains.
 - (V) Local as differentiated from regional treatment works: a local treatment works is a treatment works which serves one and only one community. The fact that a local treatment works has long range plans to expand to serve a larger region does not make it a regional treatment works prior to the beginning of the expansion project. No such expansion shall occur without METRO's approval to expand.
- (B) For authorized temporary use of service facilities, a Municipality shall pay to METRO, as billed, an annual rental surcharge in addition to METRO's user charges. The annual surcharge shall include a capital charge calculated as a part of the total capital cost calculated in the same ratio as the requested additional temporary capacity bears to the total design capacity of the service facility, then divided by the useful life of the service facility but in no event greater than thirty years. The total capital cost is the total of all construction or acquisition costs of the service facility plus any actual debt service costs incurred less any amount of that sum which METRO recovers through State or Federal grants.

- (C) Temporary use of service facilities may be granted by METRO's Commission for a period not to exceed three years. Such grant may be renewed by METRO's Commission upon written request of the Municipality for additional three year terms but each such renewal shall require separate written requests and separate approval action by METRO's Commission. No Municipality shall deliver wastewater to any METRO service facility exceeding in volume (c.f.s.) or in any other limited parameter the capacity allocated to said Municipality permanently plus such additional capacity as METRO's Commission has granted to the Municipality on a temporary use — rental surcharge basis. That total capacity is hereinafter referred to as the "permitted capacity."
- (D) There shall be levied against any Municipality violating the provisions of the foregoing paragraph (C) a surcharge called "unreasonable endangerment surcharge."
- (E) Although the unreasonable endangerment surcharge is intended to be applied regardless of fault, each Municipality being required to govern its wastewater dischargers to secure METRO and the public from unreasonable endangerment, the unreasonable endangerment surcharge shall not apply if the excess loading results from revolution or other similarly extensive civil disorder, from war, from act of national enemies, from major fire, from flood or earthquake or other natural disaster of substantial proportion or from any other similar cause entirely beyond the control of the Municipality and which with the exercise of its utmost diligence and best effort the Municipality was unable to prevent or to significantly minimize. Failure of a Municipality to foresee and take preventive action with respect to any depreciation or deterioration related cause is failure to exercise utmost diligence and failure to foresee and take preventive action regarding any other cause that has a statistical incidence in this geographic area of at least one similar occurrence in twenty years is failure to exercise utmost diligence. Except as otherwise provided in this subsection, the unreasonable endangerment surcharge shall apply, regardless of fault, whenever any loading exceeds the permitted capacity.
- (F) The unreasonable endangerment surcharge shall be calculated at a rate exactly three times METRO's municipal rate — the rate METRO is then currently charging its Municipal customers. It shall be applicable to the entire daily loading if any parameter exceeds the permitted capacity. It is in addition to and not in lieu of other METRO charges and of any fines or other penalties that may be applicable by or pursuant to this Ordinance. It is an element of billing in the same manner as other elements of billing.

PART IX: USE OF METRO SEWERAGE SYSTEM

A. GENERAL PROHIBITIONS

901. a) No person shall cause, in whole or part, the presence in the METRO Sewerage System of any pollutant which will detrimentally affect or have a detrimental effect as defined herein.

- b) No discharger shall suffer or permit to enter the METRO Sewerage System from its premises any pollutant which will detrimentally affect or have a detrimental effect as defined herein.
- c) Every discharge to the METRO Sewerage System which will detrimentally affect or have a detrimental effect is hereby prohibited.
- d) For every violation of Section 901(b) and for every violation of Section 901(c) each violator, together with each proprietor of the place from which the violation originated, and each discharger therefrom and each chief executive officer thereof at time of violation or his/her local designee is personally and severally guilty of the violation and liable therefor regardless of fault. These, together with "persons" who have violated Section 901(a) as a part of the same occurrence are herein collectively and severally referred to as "Section 901(d) person."
- e) Each Section 901(d) person is liable to imposition of the maximum penalty and to all penalties to the same extent as if no other Section 901(d) person existed. METRO's actual collection of a fine or imposition of other penalties, or both, with regard to one or more Section 901(d) persons is neither mitigation nor any (partial or complete) defense to liability of any other Section 901(d) person, notwithstanding that liability is predicated upon the same occurrence violating any of Sections 901(a)-(c).

B. SPECIFIC PROHIBITIONS

902. No discharger shall discharge or cause to be discharged any of the following into the METRO Sewerage System:
- a) Any liquid or vapor having a temperature higher than 150°F (65°C) or lower than 32°F (0°C).
 - b) Any liquids, solids or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion or detrimentally affect in any other way METRO or the operation of the POTW. At no time shall two successive readings on an explosion hazard meter, at the point of discharge into the system (or at any point in the system), be more than five percent (5%) nor any single reading over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides, and sulfides and any other substances which METRO, WDNR or U.S. EPA has notified the discharger are a fire hazard or a hazard to the system.
 - c) Garbage from other than homes, hotels, restaurants, institutions, hospitals, catering establishments or similar places where garbage originates from the preparation of food in kitchens for the purpose of consumption on the premises or for consumption off the premises when served by caterers.
 - d) Any garbage that has not been properly shredded.

e) Any ashes, grit, mud, straw, shavings, metal, glass, rags, feathers, hair, tar, plastics, wax, wood, fleshings, hides, animal guts, spent lime, spent grain, spent hops, paunch manure, whole blood, entrails, paper dishes, cups, milk containers, or any other solid or viscous substance which the discharger knows or in the exercise of due care should know is likely to cause obstruction to the flow in sewers or other interference with the proper operation of the METRO Sewerage System or any part thereof. Discharger's knowledge or reasonable foreseeability shall be held to be that of a professional engineer in the field of the transportation and treatment of wastewater and not that of a reasonably prudent layman or industrialist.

f) Any wastes having a pH lower than 5.0 or higher than 9.0 except:

(1) pH excursions from the 5.0 - 9.0 range will be permitted by written order or written authorization of METRO and not otherwise to a discharger making application therefor but only if:

(i) the discharger continuously monitors the pH of the wastewater it discharges to the METRO sewerage system in a manner and with equipment approved by METRO, and

(ii) it is satisfactorily demonstrated that the sewerage system is specifically designed to accommodate such discharges and that no corrosion or structural damage is occurring to the receiving sewers.

(2) Notwithstanding any broader inference in the foregoing subsection (1) of Section 902(f), where METRO, pursuant thereto, in writing permits pH excursions outside the 5.0 - 9.0 range, the total time during which the pH values are outside said range shall never exceed (i) seven (7) hours twenty-six (26) minutes in any calendar month, nor (ii) sixty (60) consecutive minutes.

(3) Two or more dischargers that each

(i) deliver wastewater directly to the METRO sewerage system through a common private sewer that is continuously maintained and repaired at the expense of said dischargers, and

(ii) continuously monitor the pH of said wastewater in a manner and with equipment approved by METRO,

may collectively elect compliance based on the pH values of the combined wastestream; and, upon filing their collective election with METRO, shall be deemed in compliance with the 5.0 - 9.0 pH range if the pH value of the combined wastestream is within said range; PROVIDED that if the combined wastestream pH is found to be outside the 5.0 - 9.0 range then the continuous monitoring records of the individual dischargers into the combined wastestream will be examined as related to the time or times of the combined wastestream violation and the discharger or

dischargers found to be outside the 5.0 - 9.0 range will be conclusively deemed to have violated Section 902(f). Nevertheless, METRO may withdraw combined wastestream authorization granted hereunder if repeated combined wastestream excursions outside the 5.0 - 9.0 range occur or if any of the conditions set forth at (i) and (ii) herein cease to exist.

- g) Wastes having any property capable of causing damage or hazard to structures, equipment, or personnel of the sewerage system.
- h) Any wastes having color, the discharge of which is prohibited by the Wisconsin Department of Natural Resources' regulations.
- i) Any waste containing toxic pollutants or poisonous substances in sufficient quantity, either singly or by interaction to injure or interfere with any treatment process, to create a hazard to humans or animals.
- j) Any waste which exceeds the limitations set forth in the Categorical Pretreatment Standards. Upon the promulgation of the Federal Categorical Pretreatment Standards for a particular industrial subcategory, the Federal Standard, if more stringent than limitations imposed under this Ordinance for sources in that subcategory, shall immediately supersede the limitations imposed under this Ordinance.
- k) Any waste which, as to any discharger to which such standard applies, violates Wisconsin requirements or limitations on discharges to the METRO Sewerage System in every instance in which such standard is the most stringent when compared with applicable Federal requirements and limitations or with specific standards.
- l) Any non-toxic material in sufficient quantity to create a hazard to personnel working on the sewers, to injure or interfere with any wastewater treatment process, or to constitute a hazard to humans, animals or fish or create a hazard in any waters of the state.
- m) Any noxious or malodorous liquids, gases, or solids which either singly or by interaction are sufficient to create a public nuisance or hazard to life and/or health or are sufficient to prevent entry into sewers for their maintenance and repair, or detrimentally affect the METRO Sewerage System, its processes, operations, or final effluent.
- n) Any radioactive wastes or isotopes of such half-life or concentration that they do not comply with the National Pollutant Discharge Elimination System or are likely to cause damage or hazards to the sewerage system or personnel operating the system.
- o) Any slug.
- p) Any substance which causes, significantly contributes to, or has the potential to cause METRO to violate its WPDES and/or other Disposal System Permits.

- q) Any waste which contains fat, oil or grease, exclusive of soap, which may solidify or become viscous at temperatures between 32°F and 150°F at their point of discharge or in concentrations of the equivalent of 100 mg/l as analyzed by the ether extraction method.
- r) Any other substances which are not compatible to the treatment processes employed.

903. Without limiting or qualifying the prohibitions contained in the foregoing Sections 901-902, the following substances or materials are hereby declared to be toxic or so deleterious in nature as to require specific limitations on their concentration or quantity in any discharge to the METRO Sewerage System, whether or not such discharge has been subjected to any form of pretreatment. Such substances or materials and their allowable concentrations or quantities at the point of discharge are as follows:

<u>Substance or Material</u>	<u>Concentration mg/l*</u>	<u>Quantity Pounds/24 hrs.</u>
Arsenic	0.5	0.2
Cadmium	2.0	0.8
Chromium	10.0	4.0
Copper (Total)	5.0	2.0
Cyanide (Total)	5.0	2.0
Lead	0.5	0.2
Mercury	0.1	.04
Nickel	10.0	4.0
Zinc	15.0	6.3

*Based on 24-hour composite sample

No Discharger shall discharge or cause to be discharged within any 24-hour period wastes or wastewaters containing any of the above substances or materials in amounts exceeding for such 24-hour period both the concentration and quantity limits stated. Where State or Federal regulatory agency regulations require a specific pretreatment concentration for a specific industry, the more stringent concentration level between this Ordinance and such regulations shall apply.

904. No person in the business of gathering and disposing of septic tank sludge, holding tank sludge, or liquid industrial wastes shall transfer such material to any disposal area or sewer manhole without the approval of the appropriate municipality. The location, times, and conditions of disposal shall be designated by the appropriate municipality.

905. Each discharger shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent accidental discharge or prohibited materials shall be provided and maintained at the Owner or discharger's own cost and expense. Detailed plans showing facilities and operating procedures to provide this protection shall be submitted to METRO for review; and shall be approved by METRO before construction

of the facility. Review and approval of such plans and operating procedures shall not relieve the industrial discharger from the responsibility to modify the discharger's facility as necessary to meet the requirements of this Ordinance.

906. Dischargers of industrial wastes shall make available to their appropriate employees copies of these rules and regulations together with such other wastewater information and notices as may be furnished by METRO from time to time directed toward more effective water pollution control. All dischargers of industrial wastes shall furnish and permanently post a notice in a conspicuous place advising appropriate employees whom to call in case of any discharge in violation of these rules and regulations.

907. All dischargers to the METRO Sewerage system shall notify METRO and the appropriate Municipality upon accidentally discharging wastes in violation of this Ordinance. The notification shall be made as soon after the accidental discharge as possible, but in no case more than 30 minutes after the accidental discharge is discovered. To the extent the information is reasonably available, the notification shall include location of discharge, time of occurrence, type of waste, concentration and volume, and corrective action. This notification shall be followed within fifteen (15) days by a detailed, written report to METRO and the appropriate Municipality describing the causes of the accident and measures being taken to prevent future occurrence, including a timetable for completion of such measures; and the completion shall be reported to the General Manager. Notification does not relieve the discharger of liabilities for any expense, loss or damage to the METRO Sewerage System or features downstream therefrom, or for any fines imposed on METRO on account thereof.

PART X: GREASE, OIL AND SAND TRAPS

1001. Grease, oil and sand traps shall be provided when required by appropriate Wisconsin Administrative Codes or when the General Manager determines they are necessary for the proper handling of liquid wastes containing excessive amounts of grease, or any flammable wastes, sand or other harmful ingredients, and so notifies the discharger, except that such traps shall not be required for private living quarters or dwelling units. All traps shall be of a type and capacity approved by State and Local plumbing codes, and shall be located so as to be readily and easily accessible for cleaning and inspection.

1002. Grease and oil traps shall be constructed of impervious materials capable of withstanding abrupt and extreme changes in temperature. They shall be of substantial construction, watertight, and equipped with easily removeable covers.

1003. Where installed, all grease, oil and sand traps shall be maintained by the discharger, at discharger's expense, in continuously efficient operation at all times.

PART XI: PRETREATMENT REQUIREMENTS

1101. In lieu of or in addition to such enforcement actions, if any, as may be available to METRO under Part XV of this Ordinance or under the laws of Wisconsin, the General Manager, in the name of the Commission, by authority of this Ordinance and without the necessity for specific or additional advance action by the Commission, will issue a written Pretreatment Order directing an industrial discharger to provide pretreatment and/or pretreatment facilities when:
- (a) the industrial discharger is a Significant Industrial Discharger as determined by the General Manager from its Disclosure Statement and/or other evidence; or
 - (b) the industrial discharger is subject to specific Categorical Pretreatment Standard; or
 - (c) the industrial discharger discharges an industrial waste in violation of any one or more prohibition of Paragraph 901 (a-c); or
 - (d) the industrial discharger discharges in violation of Paragraph 902(a)-(r) or Section 903; or
 - (e) METRO is ordered to issue a Pretreatment Order by governmental authorities, either by the terms of an applicable NPDES/WPDES Permit or by a condition of a financial grant; or
 - (f) METRO is required to do so by virtue of any other of its legal obligations or duties.
1102. The Pretreatment Order will fix the parameters and discharge limitations reasonable or necessary to control (i) pollutants, (ii) toxic substances and (iii) any discharge that reasonably might have a detrimental effect. The Pretreatment Order will contain not less than every provision reasonable or necessary for METRO compliance with the Act, its regulations (40 CFR Part 403), with Wisconsin law and with lawful regulation of WDNR. In addition, it may contain, without limitation, any other provision or order the General Manager believes to be relevant including every provision and order the General Manager believes to be reasonable or necessary to effect timely compliance. The General Manager will develop a METRO Standard Form Pretreatment Order containing, without limitation, standard reporting, monitoring, record keeping, and fee payment schedules.
1103. The discharger may, by petition, appeal the General Manager's Pretreatment Order to the Commission. On such appeal, the Commission shall hear and consider relevant evidence and may hear and consider relevant expert opinion and recommendations. Thereafter, the Commission shall issue its written decision and may issue such Pretreatment Order, if any, as it deems appropriate.
1104. A discharger desiring to appeal to the Commission from the General Manager's Pretreatment Order shall file petition for appeal with the President or Secretary of the Commission not more than twenty (20) days after the discharger receives the General Manager's Pretreatment Order in writing. If the discharger does not file petition for appeal within said time, the General Manager's Pretreatment Order is final and is the order of the Commission.

1105. Every discharger required to provide Pretreatment Facilities pursuant to METRO Pretreatment Order shall submit plans and specifications of its proposed pretreatment facilities to the General Manager for review and comment. It shall be the obligation of the discharger, notwithstanding such review and comment, to construct pretreatment facilities adequate for compliance with the Pretreatment Order.
1106. Pretreatment facilities shall be maintained continuously in satisfactory and effective operation. In the event that a failure occurs in said facilities, both METRO and the appropriate Municipality shall be immediately notified by the most expeditious means possible.
1107. (a) All costs incident to Pretreatment and all expenses incident to the acquisition, installation, operation and maintenance, and repair of pretreatment facilities shall be borne by the discharger.
- (b) Every industrial discharger under METRO Pretreatment Order shall pay fees and charges as established by METRO, to compensate METRO and the affected municipality for the cost and administration of the Pretreatment program. A statement of established fees and charges relative to the administration of the Pretreatment program will be available from METRO during normal business hours. In addition, applicable parts of the schedule will be noted on the Disclosure Declaration Form and in the Pretreatment Order. The Schedule of Fees and Charges may be amended from time to time as appropriate, to reflect then current costs of administration of the Pretreatment program. Unless otherwise directed by METRO, such fees and charges shall be paid by the discharger to the affected municipality which shall transmit the same or METRO's portion thereof to METRO in accordance with the provisions of the METRO Billing Procedures Ordinance 79-1.
- (c) In addition, any extraordinary administrative or investigative expenses incurred by METRO as a result of the installation and use of Pretreatment facilities, or of promulgation, institution or enforcement of any Pretreatment Order shall be borne by the discharger.
1108. Pretreatment facilities of every discharger under a Pretreatment Order shall, at all times, be subject to inspection by METRO.
1109. Unless otherwise provided therein, pretreatment orders issued pursuant to provisions of this Ordinance (See e.g., Part IX, also §1301(b), etc.) shall take effect from and after delivery to the discharger to whom addressed and shall remain in full force and effect until modified, replaced or superceded by a subsequent pretreatment order. A pretreatment order may become effective or expire, require renewal or become modified other than as provided in the preceding sentence but only if and to the extent it shall expressly so state.

PART XII MEASUREMENTS, MONITORING, ANALYSIS AND INSPECTION

1201. MONITORING FACILITIES - On order of the General Manager to the discharger or to the affected Municipality and to the discharger, subject to Commission

review as provided by Section 1203 and 1204, the discharger shall provide and operate at the discharger's own expense a facility containing flow measuring, recording and sampling equipment and which will allow the affected Municipality and/or METRO inspection, sampling and flow monitoring useful or required by METRO to demonstrate compliance with this Ordinance or any METRO Pretreatment Order. The facility or inspection-sampling manhole shall be on the discharger's premises whenever practical. It maybe located elsewhere only upon METRO's direction or METRO's written approval of specific request of the affected municipality and the discharger. It shall be constructed and maintained in accordance with all applicable METRO and local construction standards and specifications, and it shall be continuously so maintained at all times in a safe and proper operating condition at the discharger's own expense.

1202. Any property serviced by a building sewer carrying wastes shall be subject to flow measurements, laboratory tests and analyses of the wastewater to illustrate compliance with this Ordinance and any special condition for discharge established by METRO or regulatory agencies having jurisdiction over the discharge.
1203. All flow measurements, laboratory tests and analyses of said wastewater shall be under the direction and control of METRO.
1204. The number, type, and frequency of laboratory analyses to be performed shall be determined by METRO to assure compliance with Federal, State, and Local standards.
1205. All measurements, tests and analyses of the characteristics of wastewater to which reference is made in this Ordinance shall be determined in accordance with standard procedures (as set forth in Standard Methods and "Guidelines Establishing test Procedures for Analysis of Pollutants," 40 CFR 136) from suitable samples taken at the access structure. Where no special structure has been required, the samples will be collected as directed by the General Manager. If METRO's measurements, tests and analyses disclose that the discharger has violated Section 901 or 903, the reasonable cost of making such measurements, tests and analyses shall be borne by said discharger.
1206. CONFIDENTIAL INFORMATION
- (a) Information and data on a discharger furnished by the discharger to METRO pursuant to this Ordinance or a Pretreatment Order will be available to the public or other governmental agency without restriction unless the Discharger specifically requests and is able to demonstrate to the satisfaction of METRO that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets or proprietary information of the Discharger.
- (b) When requested by a person furnishing a report (including information or data in any form), the portions of a report which might disclose trade secrets or a secret process shall not be made available for public inspection

but will be made available to a governmental agency upon its written request for uses related to this Ordinance, METRO's NPDES/WPDES Permit, or METRO's Pretreatment Programs. However, the report and every part thereof shall be available for use by METRO, the State or any state agency in judicial review or enforcement proceedings involving the discharger furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information.

- (c) Information accepted by METRO as confidential, shall not be transmitted to any governmental agency until and unless a ten day notification is given to the Discharger.

XIII. INDUSTRIAL DISCHARGER DISCLOSURE DECLARATION

- 1301. (a) Every Significant Industrial Discharger and every other industrial discharger that is currently subject to a METRO Pretreatment Order or that might reasonably be subject to METRO Pretreatment requirements now or in the foreseeable future or that METRO, in writing, expressly requests to do so, shall complete and file with METRO a Disclosure Declaration, sometimes referred to as a 180 day baseline report 40 CFR Sec. 403.12, in the form prescribed by METRO, and accompanied by METRO's prescribed Disclosure Declaration administrative fee, if any.
- (b) Every discharger described in Section 1301(a) that was discharging to the METRO Sewerage System on or before May 31, 1985, and that therefore is required to file a Disclosure Declaration shall file the same on or before its due date stated in the Order for Pretreatment Disclosure Declaration issued by METRO to that discharger. That due date will be at least 90 days after issue date of said Order.
- (c) New industrial dischargers, that is, industrial dischargers not discharging to the METRO Sewerage System on May 31, 1985, shall file a Disclosure Declaration at least 90 days prior to connecting to the METRO Sewerage System. New industrial dischargers shall supply estimates in regard to wastewater flows and characteristics where actual discharge data is not available.
- (d) Existing industrial dischargers that are subject to a newly promulgated Categorical Pretreatment Standard and that are currently discharging to or scheduled to discharge to METRO shall file a Disclosure Declaration with METRO (i) within 180 days after the effective date of the Categorical Pretreatment Standard or (ii) where applicable and resulting in a later deadline date, within 180 days after WDNR's Chief Administrative Officer or other appropriate administrative person, after submittal from METRO or a discharger or both, as provided by law, issues a written certificate determining that the Categorical Pretreatment Standard is applicable to the discharger. That Disclosure Declaration shall comply fully with 40 CFR Section 403.12 and shall contain the information listed in 403.12(b) (1)-(7).

1302. To complete its Disclosure Declaration, in addition to other information required by METRO's form, discharger shall provide a full and fair disclosure as to each of the following:
- (a) Disclosure of name, address, and location of the discharger;
 - (b) Disclosure of Standard Industrial Classification (SIC) number according to the Standard Industrial Classification Manual, Bureau of the Budget, 1972, as amended;
 - (c) Disclosure of wastewater constituents and characteristics including but not limited to those mentioned in this Ordinance, as determined by bonafide chemical and biological analysis. Sampling and analysis shall be performed in accordance with procedures established by the U.S. EPA and contained in 40 CFR, Part 136, as amended. The use of any alternate sampling or analytical procedures would require prior WDNR approval and prior METRO approval;
 - (d) Disclosure of any environmental control permits held by or for discharger relative to any area governed by METRO.
 - (e) Disclosure of time and duration of discharges;
 - (f) Disclosure of average daily and instantaneous peak wastewater flow rates, in gallons per day, including daily, monthly and seasonal variations, if any. All flows shall be measured unless other verifiable techniques are approved by METRO due to cost or nonfeasibility;
 - (g) Disclosure of site plans, floor plans, mechanical and plumbing plans and details to show all sewers, sewer connections, inspection manholes, sampling chambers and appurtenances by size, location and elevation;
 - (h) Description of activities, facilities and plant processes on the premises including all materials which are or may be discharged to the METRO Sewerage System;
 - (i) Description (brief) of the nature, average rate of production and operations carried out by the discharger including a Schematic Process Diagram which indicates points of discharge to the METRO Sewerage System from the regulated processes.
 - (j) Disclosure of the nature and concentration of any pollutants or materials prohibited by this Ordinance in the discharge, together with a statement regarding whether or not compliance with this Ordinance is being achieved on a consistent basis and if not, whether additional operation and maintenance activities and/or additional pretreatment is required for the discharger to comply with this Ordinance.
 - (k) Where additional pretreatment and/or operation and maintenance activities will be required to comply with this Ordinance, the discharger shall provide a declaration of the shortest schedule by which the Discharger will provide such additional pretreatment and/or implementation of additional operational and maintenance activities.

- (i) The schedule shall contain milestone dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the discharger to comply with the requirements of this Ordinance including, but not limited to dates relating to hiring an engineer, completing preliminary plans, completing final plans, executing contract for major components, commencing construction, completing construction, and all other acts necessary to achieve compliance with this Ordinance. No single step directed toward compliance shall require a time increment which exceeds 9 months.
 - (ii) Not later than 14 days following each milestone date in the schedule and the final date for compliance, the discharger shall submit a progress report to METRO, including no less than a statement as to whether or not it complied with the increment of progress represented by that milestone date and, if not, the data on which it expects to comply with this increment of progress, the reason for delay, and the steps being taken by the discharger to return the construction to the approved schedule. In no event shall more than 9 months elapse between such progress reports to METRO.
- (l) Disclosure of each product produced by type, amount, process or processes and rate of production;
 - (m) Disclosure of the type and amount of raw materials utilized (average and maximum per day).
 - (n) Every Disclosure Declaration shall be signed and certified to by a principal executive officer of the discharger, and a qualified Professional Engineer.
1303. METRO will evaluate the complete Disclosure Declaration and data furnished by the discharger and may require additional information.
1304. Every discharger that has filed a Disclosure Declaration with METRO and every discharger required to file a Disclosure Declaration pursuant to a METRO Order for Pretreatment Disclosure Declaration or any provision of this Ordinance or of state or federal law shall give notice to METRO following the provisions of Section 907, whether accidental or not, of any of the following:
- (a) Any introduction of pollutants into the METRO Sewerage System from any new source; or
 - (b) Any types or volumes of pollutants being introduced into the METRO Sewerage System which were not described fully and accurately in the most recent Disclosure Declaration filed with METRO by the discharger.
1305. (a) No person shall knowingly make any false statement, representation or certification in any application, Disclosure Declaration, record, report, plan or other document filed or required to be maintained pursuant to this Ordinance or a METRO Pretreatment Order.

- (b) Clear and convincing proof that a statement, representation or certification is false is prima facie proof that the maker thereof violated (a); and to avoid liability the maker of the false statement, representation or certification shall then have the burden to prove by the greater weight of the evidence that the falsification was not knowingly made.
- (c) No person shall falsify, tamper with or knowingly render inaccurate any monitoring device or method required under this Ordinance.

PART XIV RIGHT OF ACCESS

1401. (a) At any reasonable time METRO representatives, who exhibit proper credentials and identification and who are otherwise legally entitled, shall have premises access without delay in and to those areas and parts of any premises in which any source of wastewater entering the METRO sewerage system was, is or may reasonably be located or in which are located any records required to be maintained pursuant to this METRO Sewer Use Ordinance or any METRO Pretreatment Order.
- (b) Premises access as provided by the foregoing Section 1401(a) will be limited as follows:
- 1) To matters of wastewater and to matters wastewater related including but not limited to pretreatment facilities and operations, inspection, observation, measurement, sampling and testing.
 - 2) To setting up, observing and operating such devices as METRO deems appropriate to conduct wastewater and wastewater related sampling, inspection, compliance monitoring and/or metering.
 - 3) To inquiry into any process having a direct or otherwise material bearing on the kind or source or both of discharge to the METRO sewerage system.
- (c) Authorized personnel of a discharger the premises of which are accessed by METRO representatives pursuant to Section 1401(a) may be present, in reasonable numbers and with reasonable conduct not interfering with the lawful activities of the METRO representatives, at all times during such premises access.
- (d) No person shall obstruct, hamper or interfere with any lawful premises entry, access or activity by METRO representatives.
- (e) When a discharger has security measures in force which would require proper identification and clearance before entry onto the premises of the discharger, the discharger, as part of those measures, shall have made necessary arrangements with the applicable security or other personnel in order to assure METRO representatives premises access without delay in accordance with the provisions and conditions herein.

1402. Opening or entering METRO manholes and/or monitoring facilities for any purpose whatever is strictly prohibited, except by persons duly authorized by METRO to do so.

PART XV PENALTIES

1501. Any discharger found to be violating any provision of Sections 501-504, 508, 601-603, 701-702, 902(f) and (g), 1001-1002, or any Section, Part or requirement thereof, or any order made pursuant thereto, shall be served by METRO with written notice stating the nature of the violation and providing a reasonable time limit for the satisfactory correction thereof or compliance therewith. Within the period of time stated in such notice, the discharger shall permanently cease all violations.
1502. Every violator of any provision of Sections 401-413, 505-507, 509-511, 604, 801-803, 901(a-c), 902(a-e) (h-r), 907, 1003, 1101-1109, 1201-1203, 1301, 1302, 1304, 1401-1402, or 1601 or any order made pursuant thereto of which the violator has notice, actual or constructive, and every discharger who shall continue any violation beyond the time limit provided for in the notice issued pursuant to Section 1501, shall be fined in an amount not exceeding \$10,000 for each violation. Each day in which any such violation continues shall be deemed a separate offense.
1503. A violator of any provision of this Ordinance or any order issued pursuant thereto of which the violator has notice, actual or constructive, shall reimburse METRO and otherwise hold METRO harmless for any expense, loss or damage occasioned by METRO directly or consequentially by reason of such violation.
1504. Notwithstanding the fines which may be levied under Section 1502 and the expenses from losses and damages which may be collected under Section 1503 METRO may issue (or obtain judicially) and enforce any one of more of the following orders:
- (a) An order to the offending discharger to immediately cease and desist from the violations.
 - (b) An order requiring the offending discharger to cease and desist from any or all operations and activities at and about the premises which could reasonably be contributing in any manner, however remote, to the violation.
 - (c) An order terminating service to the offending discharger (or requiring the Municipality to terminate service, at METRO's option) but permitting reinstatement after evidence satisfactory to METRO that further violations are not likely to occur.
 - (d) An order terminating service to the violator, forthwith or at any future date stated in the order (or, if the violator is a discharger, requiring the Municipality to so terminate service, at METRO's option) and permitting reinstatement only upon entry by an appropriate Court of a consent decree under which the Court may impose immediate sanctions in the event of future violations, the sanctions to include not only assessment of fines

and damages but also punishments for contempt where appropriate, and temporary or permanent termination of sewerage service. This paragraph shall not be construed as a limitation on the remedies or sanctions which the Court may fashion.

- (e) An order permanently terminating service to the offending discharger (or requiring the Municipality to terminate service, at METRO's option).

1505. The penalties provided by Sections 1502, 1503 and 1504 are and are intended to be cumulative and not mutually exclusive; nor shall the penalties and enforcement provisions contained in this Ordinance be construed to prohibit METRO from taking other additional or alternative indemnification or enforcement actions as are permitted by law.

1506. Hearing Procedures

- (a) No order shall issue under Section 1504, no reimbursement or indemnity shall be assessed under Section 1503, and no fine shall be levied under Section 1502 except upon due hearing regarding the violation permitting the alleged violator to show cause, if any there be, before the Commission why an order should not be entered pursuant to Section 1504, why assessment should not be made pursuant to Section 1503 or why a fine should not be imposed pursuant to Section 1502 or any combination of the three. An Order for Hearing issued by the Commission shall be served upon the alleged violator in the same manner as a summons is served under Wisconsin Statutes; and it shall be returnable before the Commission at a time certain not sooner than 5 days after service.
- (b) The Order for Hearing may contain ex parte interim orders pendente lite as may appear (by testimony or appropriate documents filed with the Commission or both) necessary to protect the public health, welfare or safety on an emergency basis including but not limited to temporary termination of service.
- (c) Testimony taken before the Commission will be under oath or affirmation and recorded stenographically. A transcript thereof will be made available to any member of the public, including but not limited to any party to the hearing, upon payment of the usual charges therefor.
- (d) After the Commission has reviewed the evidence, it may make any order authorized by Section 1503 or 1504 or both and may impose any fine authorized by Section 1502 as, in the judgement of the Commission, is warranted by the evidence. The Commission may issue such further orders and directives as it deems appropriate, including orders requiring the violator to pay the full costs of the proceedings including METRO's technical, administrative and other costs in developing its proofs, and reasonable attorney fees.
- (e) A violator may avoid the hearing herein provided by written waiver stipulating guilt presented to METRO at least 24 hours prior to the hearing time. The Commission will meet nevertheless, will make no stenographic transcript, will give the violator an opportunity to be heard in mitigation and

may then act in accordance with paragraph (d), except that the violator shall not be required to pay any costs of the proceeding.

PART XVI: COMPLIANCE WITH CODES

1601. All construction, connection, and use of the sewers shall be in accordance with provisions of the State Plumbing Code and the additional codes, rules and regulations not inconsistent therewith.

PART XVII VALIDITY

1701. All METRO resolutions and ordinances, or parts thereof, in conflict herewith are to the extent of such conflict hereby modified or repealed.
1702. If any provision, paragraph, section, sentence or article of this Ordinance is invalidated by any Court of competent jurisdiction, the remaining provisions, paragraphs, sections, sentences and articles shall continue in full force and effect; severability is expressly intended.

PART XVIII: EFFECTIVE DATE

This Ordinance amending METRO's Sewer Use Ordinance 78-1 (as previously amended) shall take effect and be in force from and after its passage and publication as provided by law EXCEPT THAT paragraph (f)(1) of Section 902 permitting limited pH discharge excursions beyond the 5.0-9.0 range and part of paragraph (f)(2) of Section 902, including the final proviso thereof, permitting, under limited conditions, pH excursions beyond the 5.0-9.0 range by eligible dischargers collectively electing combined wastestream pH compliance, notwithstanding passage and publication herewith, shall take effect on January 1, 1986, and shall be in force from and after that date.

Attachment 2

**Chapter Seven of the Municipal Code of the City of Appleton,
Sections 7.05 to 7.09, as amended**

ADOPTED JUN 21 1989

PUBLISHED JUN 24 1989

74 - 89

OFFICE OF THE
CITY CLERK

AN ORDINANCE AMENDING SECTION 7.05 OF
CHAPTER SEVEN OF THE MUNICIPAL CODE
OF THE CITY OF APPLETON, RELATING TO
REGULATIONS OF SEWERAGE TREATMENT.
(Public Works Recommendation)


The Common Council of the City of Appleton do ordain as
follows:

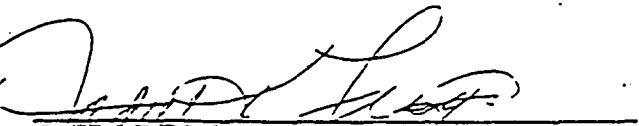
Section 1. That Section 7.05(2)(c) of Chapter Seven of the
Municipal Code of the City of Appleton, relating to Discharge
Prohibitions, is hereby amended as follows:

- 1. The discharge limit of 2.0 mg/l nickel be changed to:
5.0 mg/l nickel.
- 2. The discharge limit of 1.0 mg/l arsenic be added.

Section 2. This Ordinance shall be in full force and effect
from and after its passage and publication.

Dated: JUN 22 1989


Dorothy C. Johnson, Mayor


Jacell K. Ferge, City Clerk

OFFICE OF THE

CITY CLERK

AN ORDINANCE AMENDING CHAPTER SEVEN OF THE MUNICIPAL CODE OF THE CITY OF APPLETON, RELATING TO PUBLIC HEALTH AND SANITATION.

The Common Council of the City of Appleton do ordain as follows:

Section 1

That Section 7.05 of Chapter Seven of the Municipal Code of the City of Appleton relating to dumping deleterious substances into sewers is hereby repealed and recreated and Sections 7.06 to 7.09 are created as follows:

7.05. REGULATIONS OF SEWERAGE SYSTEM

(1) GENERAL DISCHARGE PROHIBITIONS

- (a) Stormwater and all other unpolluted drainage shall be discharged to such sewers as are specifically designated storm sewers, or to a natural outlet approved by the Director of Public Works. Industrial cooling water or unpolluted process waters may be discharged on approval of the Director of Public Works, to a storm sewer, or natural outlet provided the industrial user has obtained the necessary WPDES discharge permits from the state.
- (b) No user shall contribute or cause to be contributed, directly or indirectly, any pollutant or wastewater which will interfere with the operation or performance of the POTW. These general prohibitions apply to all such users of a POTW whether or not the User is subject to national categorical pretreatment standards or any other national, state, or local pretreatment standards or requirements. A user may not contribute the following substances to any POTW:
1. Any liquids, solids or gases which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion or be injurious in any other way to the POTW or to the operation of the POTW. At no time, shall two successive readings on an explosion hazard meter, at the point of discharge into the system (or at any point in the system), be more than five percent (5%) nor any single reading over ten percent (10%) of the Lower Explosive Limit (LEL) of the meter. Prohibited materials include, but are not limited to, gasoline, kerosene, naphtha, benzene, toluene, xylene, ethers, alcohols, ketones, aldehydes, peroxides, chlorates, perchlorates, bromates, carbides, hydrides and sulfides and any other substances which the City, the state or EPA has notified the user is a fire hazard or a hazard to the system.
 2. Solid or viscous substances which may cause obstruction to the flow in a sewer or other interference with the operation of the wastewater treatment facilities such as, but not limited to: grease, garbage with particles greater than one-half inch ($\frac{1}{2}$ ") in any dimension, animal guts or tissues, paunch manure, bones, hair, hides or fleshings, entrails, whole blood, feathers, ashes, cinders,

sand, spent lime, stone or marble dust, metal, glass, straw, shavings, grass clippings, rags, spent grains, spent hops, waste paper (including paper dishes, cups, milk containers, etc.), wood, plastics, gas, tar, asphalt residues, residues from refining, or processing of fuel or lubricating oil, mud, or glass grinding or polishing wastes.

3. Any wastewater having a pH less than 5.5, or wastewater having any other corrosive property capable of causing damage or hazard to structures, equipment, and/or personnel of the POTW. The pH measurement shall be taken at a convenient point closest to the point of discharge.
4. Any wastewater having a pH in excess of 9.5. The pH measurement shall be taken at a convenient point closest to the point of discharge.
5. Any wastewater containing toxic pollutants in sufficient quantity either singly or by interaction with other pollutants to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals, create a toxic effect in the receiving waters of the POTW, or to exceed the limitation of applicable pre-treatment standards set forth in this chapter. A toxic pollutant shall include but not be limited to any pollutant identified pursuant to Section 307(a) of the Act.
6. Any noxious or malodorous liquids, gases, or solids which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the sewers for maintenance and repair.
7. Any substance which may cause the POTW's effluent or any other product of the POTW such as residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process. In no case shall a substance discharged to the POTW cause the POTW to be in non-compliance with sludge use or disposal criteria, guidelines or regulations developed under Section 405 of the Act; or any criteria, guidelines, or regulations affecting sludge use or disposal developed pursuant to the Solid Waste Disposal Act, the Clean Air Act, the Toxic Substances Control Act, or state criteria applicable to the sludge management method being used.
8. Any substance which will cause the POTW to violate its WPDES Permit or the receiving water quality standards.
9. Any wastewater with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions.
10. Any wastewater entering the POTW having a temperature which will inhibit biological activity in the POTW treatment plant resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW which exceeds 65°C (150°F) unless the

POTW is designed to accommodate such temperature. The temperature shall not exceed 40°C (104°F) at the POTW wastewater treatment plant.

11. Any pollutants, including oxygen demanding pollutants (BOD, etc.) released at a flow rate and/or pollutant concentration which a user knows or has reason to know will cause interference to the POTW. In no case shall the wastewater volume exceed three times the previous monthly average of daily wastewater volumes from that discharge point. In no case shall the BOD, suspended solids, or phosphorus mass loadings exceed two and one-half times the previous monthly average of daily mass loadings of these pollutants from that discharge point.
12. No person shall discharge or cause to be discharged any stormwater, surface water, groundwater, roof run-off, uncontaminated cooling water, or unpolluted industrial process waters to any sanitary sewer.
13. Any wastewater containing fats, wax, grease, or oils, whether emulsified or not, in excess of 100 mg/l or containing substances which may solidify or become viscous at temperatures between 0°C (32°F) and 65°C (150°F); and any wastewater containing oil and grease concentrations of mineral origin of greater than 25 mg/l whether emulsified or not.
14. Wastewater containing inert suspended solids (such as, but not limited to, Fullers earth, lime slurries, and lime residues) or dissolved solids (such as, but not limited to, sodium chloride and sodium sulfate) in such quantities that they would cause interference with the wastewater disposal system.
15. Any wastewater containing any radioactive wastes or isotopes of such half-life or concentration as may exceed limits established by the Director of Public Works in compliance with applicable state or federal regulations.
16. Any wastewater which causes a hazard to human life or creates a public nuisance.
17. Any garbage that has not been properly shredded. The installation and operation of any garbage grinder equipped with a motor of three-fourths (3/4) horsepower (0.76 hp metric) or greater shall be subject to the review and approval of the Director of Public Works.
18. Any waters or wastes containing strong acid iron pickling wastes, or concentrated plating solutions whether neutralized or not.
19. Any waters or wastes containing phenols or other taste-or-odor producing substances, in such concentrations exceeding limits which may be established by the Director of Public Works as necessary after treatment of the composite sewage, to meet the requirements of the State, Federal, or other public agencies of jurisdiction for such discharge to the receiving waters.

20. Any unusual volume of flow or concentration of wastes constituting a slug as defined herein.

(c) If any waters or wastes are discharged, or are proposed to be discharged to the public sewers, which waters contain the substances or possess the characteristics enumerated in Section 7.05(1)(b), of this Article, and which in the judgment of the Director of Public Works, may have a deleterious effect upon the sewage works, processes, equipment, or receiving waters, or which otherwise create a hazard to life or constitute a public nuisance, the Director of Public Works, may:

1. Reject the wastes.
2. Require pretreatment to an acceptable condition for discharge to the public sewers.
3. Require control over the quantities and rates of discharge and/or
4. Require payment to cover the added cost of handling and treating the wastes not covered by existing taxes or sewer charges under the provisions of Section 7.05(1)(d) of this Article.

If the Director of Public Works permits the pretreatment or equalization of waste flow, the design and installation of the plants and equipment shall be subject to the review of the Director of Public Works, and subject to the requirement of all applicable codes, ordinances, and laws.

(d) Septage Disposal Program

Septage disposers shall not discharge into any part of Appleton's sewerage system without a valid septage disposal permit obtained from the Director of Public Works. The septage disposers shall follow the program procedures as provided by the Director of Public Works for application for permits, payment of fees, and procedures for disposal of septage. Any septage disposer failing to comply with the procedures set forth by the Director of Public Works or Chapter 7 of the Municipal Code may be subject to permit revocation, may be turned down for permit renewal in subsequent years, and/or may be subject to procedures outlined in this Chapter.

(e) No statement contained in this Article shall be construed as preventing any special agreement or arrangement between the City and any industrial concern whereby an industrial waste of unusual strength or character may be accepted by the City for treatment, subject to payment therefore, by the industrial concern. However, the special agreement or arrangement shall not allow any user to exceed any applicable pretreatment standards or cause the City to violate its WPDES Permit.

(2) ADDITIONAL DISCHARGE PROHIBITIONS FOR INDUSTRIAL USERS.
This subsection includes additional discharge prohibitions for industrial users.

(a) National Categorical Pretreatment Standards

Upon the promulgation of the categorical pretreatment standards for a particular industrial subcategory, the categorical pretreatment standards, if more stringent than limitations imposed under this Chapter for sources in that subcategory, shall immediately supersede the limitations imposed under this Chapter and shall be enforceable under this Chapter. The Director of Public Works shall notify all affected users of the applicable reporting requirements under 40 CFR, Part 403.12.

(b) Modification of National Categorical Pretreatment Standards

Where the City's wastewater treatment system achieves consistent removal of pollutants limited by categorical pretreatment standards, the City may apply to the Approval Authority for modification of specific limits in the categorical pretreatment standards. "Consistent Removal" shall mean reduction in the amount of a pollutant or alteration of the nature of a pollutant in the influent to a POTW to a less toxic or harmless state in the effluent which is achieved by that POTW. The City may modify pollutant discharge limits in the categorical pretreatment standards if the requirements contained in 40 CFR, Part 403.7, are fulfilled and prior approval from the Approval Authority is obtained.

(c) Specific Pollutant Limitations

No person shall discharge wastewater at any outfall entering the City sewer system containing the following pollutants in excess of the following maximum 24-hour average concentrations or the maximum average concentration during the period of discharge if less than 24 hours.

200 mg/l aluminum
1.3 mg/l cadmium
7.0 mg/l total chromium
5.0 mg/l copper
2.0 mg/l lead
0.1 mg/l mercury
2.0 mg/l nickel
10.0 mg/l zinc
1.0 mg/l cyanide

(d) State Requirements

State requirements and limitations on discharges, as specified in Section NR 211 of the Wisconsin Administrative Code, shall apply in any case where they are more stringent than Federal requirements and limitations or those in this ordinance.

(e) Excessive Discharge

No user shall ever increase the use of process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in

any applicable categorical pretreatment standards, or in any other pollutant-specific limitation developed by the City or state. (Comment: Blending may be an acceptable means of complying with some of the prohibitions set forth in Section 7.05(1) e.g. the pH prohibition.)

(f) Accidental Discharges

Each user shall provide protection from accidental discharge of prohibited materials or other substances regulated by this Ordinance. Facilities to prevent accidental discharge of prohibited materials shall be provided and maintained at the owner or user's own cost and expense.

Employees of an industrial user shall know whom to call in the event of a discharge of materials controlled by this Ordinance. Employers shall insure that all employees who may cause such a dangerous discharge to occur, or who may suffer from such a discharge, are advised of the emergency notification procedure.

7.06 ADMINISTRATION OF SEWERAGE SYSTEM

(1) WASTEWATER DISCHARGE PERMITS

(a) General Permits

All existing significant users shall obtain a wastewater discharge permit as required by this Section. All new significant users proposing to connect to or to contribute to the POTW shall obtain a wastewater discharge permit before connecting to or contributing to the POTW.

(b) Permit Application

Users required to obtain a wastewater discharge permit shall complete and file with the City, an application in the form prescribed by the City, and pay a permit fee as specified in Section 2.12 of Chapter 2. Existing significant users shall submit a completed permit application for a wastewater discharge permit within 90 days after the effective date of this ordinance. Proposed new users shall submit a completed permit application at least 90 days prior to connecting to or contributing to the POTW. Existing non-significant users who plan to change their wastewater volume and/or characteristics shall submit a completed permit application at least 90 days before the proposed process wastewater is discharged to the sewerage system. The City will review the permit application of proposed new users and existing users changing their wastewater to determine if they will be significant users as defined by Section 7.09(1)(11). If so, the user will be required to pay the permit fee and will be issued a wastewater discharge permit. A 180-day baseline report can be submitted with the permit application to provide some of the data required for the permit application by industries subject to categorical standards. Users subject to a promulgated federal categorical pretreatment standard shall supply the City and Wisconsin DNR information required in 40 CFR, Part 403.12, within 180 days after the effective date of the standard. New sources shall be required to submit the applicable information as specified in 40 CFR; Part 403.12. New users shall submit estimates for those required items where actual

data is not yet available. The permit application shall be signed by an authorized representative of the industrial user, and certified by a qualified professional. In support of the application, the user shall submit, in units and terms appropriate for evaluation, the following information:

1. Name, address, and location, (if different from the address);
2. SIC number according to the Standard Industrial Classification Manual, Bureau of the Budget, 1972, as amended;
3. Wastewater constituents and characteristics including but not limited to those standards mentioned in Section 7.05 of this Chapter as determined by a reliable analytical laboratory; sampling and analysis shall be performed in accordance with procedures established by the EPA pursuant to Section 304(h) of the Act and contained in 40 CFR, Part 136, as amended;
4. Time and duration of wastewater contribution (including hours of operation of pretreatment system if any);
5. Average daily wastewater flow rates, including daily, monthly and seasonal variations if any;
6. Site plans showing sewers, sewer connections, and appurtenances by the size and location;
7. General description of activities, facilities, products produced, and plant processes on the premises including all materials which are or could be discharged;
8. The nature and concentration of any pollutants in the discharge which are limited by any City, State, or national pretreatment standards, and a statement regarding whether or not the pretreatment standards are being met and if not, whether additional operation and maintenance and/or additional pretreatment is required for the user to meet applicable City, State, or national pretreatment standards;
9. If additional pretreatment and/or operation and maintenance will be required to meet the City, state, or national pretreatment standards, the user shall submit the shortest schedule by which the user will provide such additional pretreatment. The completion date in this schedule shall not be later than the compliance date established for the applicable pretreatment standard:

The following conditions shall apply to this schedule:

- a. The schedule shall contain increments of progress in the form of dates for the commencement and completion of major events leading to the construction and operation of additional pretreatment required for the user to meet the applicable City, state, or national pretreatment standards (e.g., hiring an engineer, completing preliminary plans, completing final plans,

executing contract for major components, commencing construction, completing construction, etc.). No increment shall exceed nine months.

- b. Not later than 14 days following each date in the schedule and the final date for compliance, the user shall submit a progress report to the Superintendent including, as a minimum, whether or not the user complied with the increment of progress to be met on such date and, if not, the date on which the user expects to comply with this increment of progress, the reason for delay, and the steps being taken by the user to return the construction to the schedule established. In no event shall more than nine (9) months elapse between such progress reports to the Superintendent. Nor shall the schedule exceed 36 months in length.

10. Type and amount of raw materials processed.

The City will evaluate the data furnished by the user and may require additional information. After evaluation and acceptance of the data furnished, the City may issue a wastewater discharge permit subject to terms and conditions provided herein.

(c) Permit Modifications and Reissuance

Within 270 days of the effective date of a City, State, or national pretreatment standard or requirement, the wastewater discharge permit of users subject to such standards or requirements shall be revised to require compliance with such standard within the time frame prescribed by such standards.

The user with an existing wastewater discharge permit shall submit to the Director of Public Works within 180 days after the effective date of an applicable City, state, or national pretreatment standards the information required by Paragraphs 8 and 9 of Section 7.06(1)(b). Where a user, subject to pretreatment standards, has not previously submitted an application for a wastewater discharge permit as required by Section 7.06(1)(b), the user shall submit a completed wastewater discharge permit application within 180 days after the effective date of the applicable City, state, or national pretreatment standards.

Existing permitted industrial users who plan on changing their wastewater volume and/or characteristics shall submit a completed permit application at least 90 days before the proposed process wastewater is discharged to the sewerage system.

The wastewater discharge permits shall be issued to the users within 90 days after receipt of the wastewater discharge permit application. The terms and conditions of the permit may be subject to modification by the City during the term of the permit as limitations or requirements identified in Section 7.05 are modified or as other just causes exist. The user shall be informed of any proposed changes in his permit at least 30 days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

Modification and reissuance of an existing permit shall require the user to pay the permit reissuance fee in effect as specified in Section 2.12 of Chapter 2 of the Municipal Code.

(d) Permit Conditions

Wastewater discharge permits shall be expressly subject to all provisions of this Chapter and all other applicable regulations, user charges and fees established by the City. Permits may contain the following:

1. The schedule of charges and fees as listed in Section 2.12 for the wastewater to be discharged to the POTW;
2. Limits on the average and maximum wastewater constituents and characteristics;
3. Limits on average and maximum rate and time of discharge or requirements for flow regulations and equalization.
4. Requirements for installation and maintenance of inspection and sampling facilities;
5. Requirements for installation and maintenance of pretreatment facilities;
6. Specifications for monitoring programs which may include sampling locations, frequency and method of sampling, number, types, and standards for tests and reporting schedule;
7. Compliance schedules;
8. Requirements for submission of technical reports or discharge reports (see Section 7.06(2));
9. Requirements for notification to the City of any new introduction of wastewater constituents or any substantial change in the volume or character of the wastewater constituents being introduced into the wastewater treatment system.
10. Requirements for maintaining and retaining plant records relating to wastewater discharge as specified by the City, and affording City access thereto;
11. Other conditions as deemed appropriate by the City to ensure compliance with this Chapter.

(e) Permits Duration

Permits shall be issued for three year periods. The user shall apply for permit reissuance a minimum of 90 days prior to the expiration of the user's existing permit. During the three-year period, the permits could

be subject to modification and reissuance based on the conditions specified in Section 7.06(1)(c). Users subject to modification of an existing permit during the three-year issuance period would be so notified by the City at least 30 days prior to the effective date of any proposed changes.

(f) Permit Transfer

Wastewater discharge permits are issued to a specific user for a specific operation. A wastewater discharge permit shall not be reassigned or transferred or sold to a new owner, new user, different premises, or a new or changed operation without the approval of the City. Any succeeding owner or user shall also comply with the terms and conditions of the existing permit.

(g) Appeals Procedure

A user desiring to appeal to the Public Works Board regarding the wastewater discharge permit shall file petition for appeal with the Public Works Board not more than 20 days after the user receives the wastewater discharge permit or modification thereof. If the user does not file petition for appeal within said time, the wastewater discharge permit is final.

(2) REPORTING REQUIREMENTS FOR PERMITEE

(a) Compliance Date Report

Within 90 days following the date for final compliance with applicable City, state, or national pretreatment standards or, in the case of a new source, following commencement of the introduction of wastewater into the POTW, any user subject to pretreatment standards and pretreatment requirements shall submit to the Director of Public Works a report indicating the nature and concentration of all pollutants in the discharge from the regulated process which are limited by City, state, or national pretreatment standards and requirements and the average and maximum daily flow for these process units in the user's facility which are limited by such pretreatment standards and requirements. The report shall state whether the applicable City, state, or national pretreatment standards and requirements are being met on a consistent basis and, if not, what additional operation and maintenance and/or pretreatment is necessary to bring the user into compliance with the pretreatment standards and pretreatment requirements. This statement shall be signed by an authorized representative of the user, and certified to by a qualified professional.

(b) Periodic Compliance Reports

1. Any user subject to an applicable federal, state, or local pretreatment standard, after the compliance date of such pretreatment standards, or, in the case of a new source, after commencement of the discharge into the POTW, shall submit to the Director of Public

Works during the months of June and December, unless required more frequently in the City, state, or national pretreatment standard or by the Director of Public Works, a report indicating the nature and concentration of pollutants in the effluent which are limited by such pretreatment standards. In addition, this report shall include a record of average daily flows and maximum daily flows during the reporting period. At the discretion of the Director of Public Works and in consideration of such factors as local high or low flow rates, holidays, budget cycles, etc., the Director of Public Works may agree to alter the months during which the above reports are to be submitted. These statements shall be signed by an authorized representative of the user, and certified to by a qualified professional.

2. The Director of Public Works may impose mass limitations on users which are using dilution to meet applicable City, state, or national pretreatment standards or pretreatment requirements, or in other cases where the imposition of mass limitations are appropriate. In such cases, the report required by Subparagraph 1 of this paragraph shall indicate the mass of pollutants regulated by pretreatment standards in the effluent of the user. These reports shall contain the results of sampling and analysis of the discharge, including the flow and the nature and concentration, or production and mass where requested by the Director of Public Works, of pollutants contained therein which are limited by the applicable City, state, or national categorical pretreatment standards. The frequency of monitoring shall be prescribed by the DNR. All analyses shall be performed in accordance with procedures established in Section NR 219 of the Wisconsin Administrative Code and/or established in Standard Methods for the Examination of Water and Wastewater, 15th Edition, 1981, as amended, and/or established by the Administrator pursuant to Section 304(h) of the Act and contained in 40 CFR, Part 136 and amendments thereto or with any other test procedures approved by the Administrator. Sampling shall be performed in accordance with the techniques approved by the Administrator. (Comment: Where 40 CFR, Part 136 does not include a sampling or analytical technique for the pollutant in question sampling and analysis shall be performed in accordance with the procedures set forth in the EPA publication "Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants, April, 1977," and amendments thereto, or with any other sampling and analytical procedures approved by the Administrator.)

(3) MONITORING FACILITIES. The City shall require to be provided and operated at the user's own expense, monitoring facilities to allow inspection, sampling, and flow measurement of the building sewer and/or internal drainage systems. The monitoring facility should normally be situated on the user's premises, but the City may, when such a location would be impractical or cause undue hardship on the user, allow the facility to be constructed in the public street or sidewalk area and located so that it will not be obstructed by landscaping or parked vehicles.

There shall be ample room in or near such sampling manhole or facility to allow accurate sampling and preparation of samples for analysis. The facility, sampling, and measuring equipment shall be maintained at all times in a safe and proper operating condition at the expense of the user.

Whether constructed on public or private property, the sampling and monitoring facilities shall be provided in accordance with the City's requirements and all applicable local construction standards and specifications. Detailed plans showing the monitoring facilities and operating procedures shall be submitted to the City for review, and shall be acceptable to the City before construction of the facility. Construction shall be completed within 90 days following written notification by the City, unless a time extension is otherwise granted by the City.

In the event that no special manhole has been required, the control manhole shall be considered to be the nearest downstream manhole in the public sewer to the point at which the building sewer is connected. Sampling shall be carried out by customarily accepted methods to reflect the effect of constituents upon the sewage works and to determine the existence of hazards to life, limb, and property.

(4) INSPECTION AND SAMPLING. The City shall inspect the facilities of any user to ascertain whether the purpose of this Chapter is being met and all requirements are being complied with. Persons or occupants of premises where wastewater is created or discharged shall allow the City or their representative ready access at all reasonable times to all parts of the premises for the purposes of inspection, sampling, records examination or in the performance of any of their duties. The City, DNR, and EPA shall have the right to set up on the user's property such devices as are necessary to conduct sampling inspection, compliance monitoring and/or metering operations. Where a user has security measures in force which would require proper identification and clearance before entry into their premises, the user shall make necessary arrangements with his security guards so that upon presentation of suitable identification, personnel from the City, DNR, and EPA will be permitted to enter, without delay, for the purposes of performing their specific responsibilities.

(5) PRETREATMENT. Users shall provide necessary wastewater treatment as required to comply with this Chapter and shall achieve compliance with all national pretreatment standards or pretreatment requirements within the time limitations as specified by the federal pretreatment regulations. Users shall also achieve compliance with all applicable local limits and conditions as specified in the wastewater discharge permit and/or this Chapter within the time limitations as specified in the wastewater discharge permits, but in no case greater than three years from the date that the user was notified to comply with those limits and conditions. New sources will be required to meet applicable limits set forth in this Chapter upon initiation of discharge to the sewerage system.

Any facilities required to pretreat wastewater to a level acceptable to the City shall be provided, operated, and maintained at the user's expense. Detailed plans showing the pretreatment facilities and operating procedures shall be submitted to the City for review, and shall be acceptable to the City before

construction of the facility. The review of such plans and operating procedures will in no way relieve the user from the responsibility of modifying the facility as necessary to produce an effluent acceptable to the City under the provisions of this Chapter. Any subsequent changes in the pretreatment facilities or method of operation shall be reported to and be acceptable to the City prior to the user's initiation of the changes.

All records relating to compliance with any applicable pretreatment standards or pretreatment requirements shall be made available to officials of the EPA or Approval Authority upon request.

(6) CONFIDENTIAL INFORMATION. Information and data on a user obtained from reports, questionnaires, permit applications, permits and monitoring programs and from inspections shall be available to the public or other governmental agencies without restriction unless the user specifically requests and is able to demonstrate to the satisfaction of the City that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the user.

When requested by the person furnishing a report, the portions of a report which might disclose trade secrets or secret processes shall not be made available for inspection by the public, but shall be made available upon written request to governmental agencies for uses related to this Chapter, the Wisconsin Pollutant Discharge Elimination System (WPDES) Permit, State Disposal System permit and/or the pretreatment programs; provided, however, that such portions of a report shall be available for use by the state or any state agency in judicial review or enforcement proceedings involving the person furnishing the report. Wastewater constituents and characteristics will not be recognized as confidential information.

Information accepted by the City as confidential, shall not be transmitted to any governmental agency or to the general public by the City until and unless a ten-day notification is given to the user.

(7) SLUDGES GENERATED. Sludges, floats, skimmings, etc., generated by an industrial or commercial pretreatment system shall not be placed into the Appleton POTW without the approval of the Director of Public Works. Such sludges shall be contained, transported, and disposed of by haulers in accordance with all federal, state, and local regulations.

7.07 ENFORCEMENT

(1) SLUG OR ACCIDENTAL DISCHARGES. User shall notify the City immediately upon having a slug or accidental discharge of substances or wastewater in violation of this Chapter in order to enable countermeasures to be taken by the City to minimize damage to the POTW and the receiving waters. The notification shall include location of discharge, type of waste, concentration and volume, and corrective actions. The City may choose to immediately take action pursuant to Section 7.07(4).

Within five days following an accidental discharge, the user shall submit to the Director of Public Works a detailed written report describing the cause of the discharge and the measures to be taken by the user to prevent similar

future occurrences. Such notification shall not relieve the user of any expense, loss, damage, or other liability which may be incurred as a result of damage to the POTW, fish kills, or any other damage to person or property; nor shall such notification relieve the user of any fines, civil penalties, or other liability which may be imposed by this ordinance or other applicable law. After receipt and review of the written report, the City may choose to take no further action or to take action in accordance with Section 7.07(2) and/or Section 7.07(3) and/or Section 7.07(4).

(2) NOTIFICATION OF VIOLATION. Whenever the City finds that any user has violated or is violating this Chapter, wastewater discharge permit, or any prohibition, limitation, or requirements contained herein, the City may serve upon such person a written notice stating the nature of the violation. Within 30 days of the date of the notice, a plan for the satisfactory correction thereof shall be submitted to the City by the user. If the plan is satisfactory to the City and the user complies with the plan, the City may not take further action against the user. If the user does not comply with the plan, the City may take action in accordance with Section 7.07(4).

(3) SHOW CAUSE HEARING

(a) Notice of the Hearing. The City may order any user who causes or allows an unauthorized discharge to enter the POTW to show cause before the City Council why the proposed enforcement action should not be taken. A notice shall be served on the user specifying the time and place of a hearing to be held by the City Council regarding the violation, the reasons why the action is to be taken, the proposed enforcement action, and directing the user to show cause before the City Council why the proposed enforcement action should not be taken. The notice of the hearing shall be served personally or by registered or certified mail (return receipt requested) at least (ten) days before the hearing. The notice of the hearing may be served on any agent or officer of a corporation.

(b) Hearing Officials. The City Council may itself conduct the hearing and take the evidence, or may designate any of its members or any officer or employee of the (assigned department) to:

1. Issue in the name of the City Council notices of hearings requesting the attendance and testimony of witnesses and the production of evidence relevant to any matter involved in such hearings;
2. Take the evidence;
3. Transmit a report of the evidence and hearing, including transcripts and other evidence, together with recommendations to the City Council for action thereon.

(c) Transcripts. At any hearing held pursuant to this Ordinance, testimony taken must be under oath and recorded stenographically. The transcript, so recorded, will be made available to any member of the public or any party to the hearing upon payment of the usual charges thereof.

(d) Issuance of Orders. After the City Council has reviewed the evidence, it may issue an order to the user responsible for the discharge directing that, following a specified time period, sewer service be discontinued unless adequate treatment facilities, devices or other related appurtenances shall have been installed on existing treatment facilities, and such devices or other related appurtenances are being properly operated. Further orders and directives as are necessary and appropriate may be issued. If the user violates an order, the City may take action in accordance with Section 7.07(4).

(4) LEGAL ACTION. If any user discharges sewage, industrial wastes or other wastes into the City's POTW contrary to the provisions of this Chapter, Federal or state pretreatment requirements, or any order of the City, the City Attorney may commence an action for appropriate legal and/or equitable relief in the county (Circuit) Court. The City may take further action pursuant to Section 7.07(5) and/or Section 7.08.

(5) REVOCAION OF WASTEWATER DISCHARGE PERMIT. Any user who violates the conditions or parts of this Chapter, or applicable state and federal regulations, is subject to having his permit revoked in accordance with the procedures of Section 7.07 of this Chapter.

The City may also suspend the wastewater treatment service and/or a wastewater discharge permit when such suspension is necessary, in the opinion of the City, in order to stop an actual or threatened discharge which presents or may present an imminent or substantial endangerment to the health or welfare of persons, to the environment, causes interference to the POTW or causes the City to violate any condition of its WPDES permit.

Any user notified of a suspension of the wastewater treatment service and/or the wastewater discharge permit shall immediately stop or eliminate the contribution. In the event of a failure of the user to comply voluntarily with the suspension order, the City shall take such steps as deemed necessary including immediate severance of the sewer connection, to prevent or minimize damage to the POTW system or endangerment to any individuals. The City shall reinstate the wastewater discharge permit and/or the wastewater treatment service upon proof of the elimination of the non-complying discharge.

(6) RECORDS RETENTION. All dischargers subject to this ordinance shall retain and preserve for no less than three years, any records, books, documents, memoranda, reports, correspondence, and any and all summaries thereof, relating to monitoring, sampling, and chemical analyses made by or on behalf of a discharger in connection with its discharge. All records which pertain to matters which are subject to any enforcement or litigation activities brought by the City pursuant hereto shall be retained and preserved by the discharger until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

7.08 PENALTIES OF SEWERAGE SYSTEM

(1) CIVIL PENALTIES. Any user who is found to have violated an order of the City Council or who willfully or negligently failed to comply with any provision of this Chapter, and orders, rules, regulations and permits issued

hereunder, shall be fined not less than \$100 nor more than \$1,000 for each offense. Each day on which a violation shall occur or continue shall be deemed a separate and distinct offense. In addition to the penalties provided herein, the City may recover reasonable attorneys' fees, court costs, court reporters' fees, and other expenses of litigation by appropriate suit at law against the person found to have violated this Chapter or the orders, rules, regulations, and permits issued hereunder. In default of payment of such forfeiture and costs by said violators within 30 days, delinquent forfeiture and costs shall become a lien on the user's property as specified in Section 211(7) of Chapter 2.

(2) **COSTS OF DAMAGE.** Any user violating any of the provisions of this Chapter or who has a discharge which causes a deposit, obstruction, damage or other impairment to the Appleton POTW shall become liable to the City for any expense, loss, or damage caused by the violation or discharge. The City may add to the user's charges and fees the costs assessed for any cleaning, repair, or replacement work caused by the violation or discharge. Any refusal to pay the assessed costs shall constitute a violation of this Chapter.

(3) **FALSIFYING INFORMATION.** Any person who knowingly makes any false statements, representation or certification in any application, record, report, plan or other document filed or required to be maintained pursuant to this Chapter, or wastewater discharge permit, or who falsifies, tampers with, or knowingly renders inaccurate any monitoring device, samples, or method required under this Chapter, shall, upon conviction, be punished by a fine of not less than \$100 nor more than \$1,000. In default of payment of such fine and costs by said violator within 30 days, the fine shall become a lien on the user's property as specified in Section 211(7) of Chapter 2.

7.09 DEFINITIONS AND ABBREVIATIONS

(1) **DEFINITIONS.** Unless the text specifically indicates otherwise, the following terms and phrases, as used in this Chapter, shall have the meanings hereinafter designated:

- (a) Act or "the Act". The Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et. seq.
- (b) Approval Authority. The Secretary of the Wisconsin Department of Natural Resources.
- (c) Authorized Representative of Industrial User. An authorized representative of an industrial user may be:
 - 1. A principal executive officer of at least the level of vice president, if the industrial user is a corporation;
 - 2. A general partner or proprietor if the industrial user is a partnership or proprietorship, respectively;
 - 3. A duly authorized representative of the individual designated above if such representative is responsible for the overall operation of the facilities from which the indirect discharge originates.

- (d) Biochemical Oxygen Demand (BOD). The quantity of oxygen utilized in the biochemical oxidation of organic matter under standard laboratory procedures, five (5) days at 20°C expressed in terms of weight and concentration (milligrams per liter (mg/l)).
- (e) Building Drain. That part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of the building and conveys it to the building sewer, beginning five (5) feet (1.5 meters) outside the inner face of the building wall.
- (f) Building Sewer. A sewer conveying wastewater from the premises of a user to the POTW.
- (g) Categorical Standards or Categorical Pretreatment Standards. National categorical pretreatment standards or pretreatment standards.
- (h) Chlorine Requirement. The amount of chlorine, in parts per million by weight, which must be added to sewage to produce a specified residual chlorine content, or to meet the requirements of some other objective, in accordance with procedures set forth in "Standard Methods".
- (i) City. The City of Appleton or the City Council of Appleton.
- (j) Cooling Water. The water discharged from any use such as air conditioning, cooling or refrigeration, or to which the only pollutant added is heat.
- (k) Direct Discharge. The discharge of treated or untreated wastewater directly to the waters of the State of Wisconsin.
- (l) Director of Public Works. The person designated by the City to supervise the operation of the publicly owned treatment works and who is charged with certain duties and responsibilities by this article, or his/her duly authorized representative.
- (m) Environmental Protection Agency, or EPA. The U.S. Environmental Protection Agency, or where appropriate, the term may also be used as a designation for the Administrator or other duly authorized official of said agency.
- (n) Garbage. Solid wastes from the domestic and commercial preparation, cooking, and dispensing of food, and from the handling, storage, and sale of produce.
- (o) Grab Sample. A sample which is taken from a waste stream on a one-time basis with no regard to the flow in the waste stream and without consideration of time.
- (p) Holding Tank Waste. Any waste from holding tanks such as vessels, chemical toilets, campers, trailers, septic tanks, and vacuum-pump tank trucks.

- (q) Indirect Discharge. The discharge or the introduction of non-domestic pollutants from any source regulated under Section 307(b) or (c) of the Act, (33 U.S.C. 1317), into the POTW (including holding tank waste discharged into the system).
- (r) Industrial User. A source of indirect discharge.
- (s) Industrial Wastes. The liquid waste from industrial manufacturing processes, trade, or business as distinct from sanitary sewage.
- (t) Interference. The inhibition or disruption of the POTW treatment processes or operations which contributes to a violation of any requirement of the City's WPDES permit. The term includes prevention of sewage sludge use or disposal by the POTW in accordance with Section 405 of the Act, (33 U.S.C. 1345) or any criteria, guidelines, or regulations developed pursuant to the Solid Waste Disposal Act (SWDA), the Clean Air Act, the Toxic Substances Control Act, or more stringent state criteria (including those contained in any state sludge management plan prepared pursuant to Title IV of SWDA) applicable to the method of disposal of use employed by the POTW.
- (u) National Categorical Pretreatment Standards or Pretreatment Standards. Any regulation containing pollutant discharge limits promulgated by the EPA in accordance with Section 307(b) and (c) of the Act (33 U.S.C. 1347) which applies to a specific category of Industrial Users.
- (v) National Prohibitive Discharge Standard or Prohibitive Discharge Standard. Any regulation developed under the authority of Section 307(b) of the Act and 40 CFR, Part 403.5.
- (w) Natural Outlet. Any outlet into a watercourse, pond, ditch, lake, or other body of surface or groundwater.
- (x) New Source. Any source, the construction of which is commenced after the publication of proposed regulations which are prescribed by Section 307(c) of the Act (33 U.S.C. 1317 i.e., categorical pretreatment standards) which will be applicable to such source, if such standard is thereafter promulgated within 120 days of proposal in the Federal Register. Where the standard is promulgated later than 120 days after proposal, a new source means any source, the construction of which is commenced after the date of promulgation of the standard.
- (y) Person. The State or any agency or institution thereof, any municipality, governmental subdivision, public or private corporation, individual, partnership, or other entity, including, but not limited to, association, commission or any interstate body, and including any officer or governing or managing body of any municipality, governmental subdivision or public or private corporation, or other entity.
- (z) pH. The logarithm (Base 10) of the reciprocal of the hydrogen-ion concentration expressed in moles per liter. It shall be determined by one of the procedures outlined in "Standard Methods".

- (aa) Pollution. The man-made or man-induced alteration of the chemical, physical, biological, and radiological integrity of water.
- (bb) Pollutant. Any solid waste, incinerator residue; sewage; garbage; sewage sludge; chemical wastes; biological materials; radioactive materials; heat; rock; sand; industrial, municipal, and agricultural waste; and other materials and substances that would contaminate water as it is discharged into water.
- (cc) Pretreatment or Treatment. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater to a less harmful state prior to or in lieu of discharging or otherwise introducing such pollutants into a POTW. The reduction or alteration can be obtained by physical, chemical or biological processes, or process changes or by other means, except as prohibited by 40 CFR, Part 403.6(d).
- (dd) Pretreatment Requirements. Any substantive or procedural requirement related to pretreatment, other than a categorical pretreatment standard imposed on an industrial user.
- (ee) Properly Shredded Garbage. The wastes from the preparation, cooking, and dispensing of food that have been shredded to such a degree that all particles will be carried freely under the flow conditions normally prevailing in public sewers, with no particles greater than one-half (1/2) inch (1.27 centimeters) in any dimension.
- (ff) Publicly Owned Treatment Works (POTW). A treatment works as defined by Section 212 of the Act, (33 U.S.C. 1292) which is owned by a State or the City. This definition includes any devices and systems used in the storage treatment, recycling and reclamation of municipal sewerage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW treatment plant. For the purposes of this ordinance, POTW shall also include any sewers that convey wastewaters to the POTW from persons outside Appleton who are, by contract or agreement with Appleton, users of the Appleton POTW.
- (gg) POTW Treatment Plant. That portion of the POTW designed to provide treatment of wastewater.
- (hh) Public Sewer. A sewer provided by or subject to the jurisdiction of the City of Appleton. It shall also include sewers within or outside the city boundaries that serve one or more persons and ultimately discharge into the city sanitary or combined sewer systems, even though those sewers may not have been constructed with city funds.
- (ii) Sanitary Sewer. A sewer which carries sewage and to which storm, surface, and groundwaters are not intentionally admitted.
- (jj) Sewage. A combination of the water-carried wastes from residences, business buildings, institutions, and industrial establishments, together with such ground, surface, and stormwaters as may be present.

(kk) Shall is mandatory; May is permissive.

(ll) Significant Industrial User or Significant User. Any Industrial User of the City's wastewater disposal system who:

1. has a discharge flow of 50,000 gallons or more per average work day, or
2. has a flow greater than 5 percent of the flow in the City's wastewater treatment system, or
3. is subject to national categorical pretreatment standards and/or discharges toxic pollutants in amounts potentially or actually exceeding limits set forth in this Chapter, or
4. has a significant impact, either singly or in combination with other contributing industries, on the wastewater treatment system, the quality of sludge, the system's effluent quality, or air emissions generated by the system.

(mm) Slug. Any discharge of water, sewage, or industrial waste which in concentration of any given constituent or in quantity of flow exceeds for any period of duration longer than 15 minutes more than 5 times the average 24-hour concentration or 5 times the average 24-hour flows that occur during normal operations, or which causes interference to a POTW. "Average 24-hour" shall be defined as total average daily values of operating days from the previous operating month divided by the number of operating days in that month.

(nn) State. State of Wisconsin.

(oo) Standard Industrial Classification (SIC). A classification pursuant to the Standard Industrial Classification Manual issued by the Executive Office of the President, Office of Management and Budget, 1972.

(pp) Storm Drain. (Sometimes termed Storm Sewer.) A sewer which carries storm and surface waters and drainage, but excludes sewage and industrial wastes, other than unpolluted cooling water.

(qq) Storm Water. Any flow occurring during or following any form of natural precipitation and resulting therefrom.

(rr) Superintendent. The Superintendent of the Wastewater Division of the City of Appleton, or his/her authorized deputy, agent, or representative.

(ss) Suspended Solids. Solids that either float on the surface of, or are in suspension in water, sewage, or industrial waste, and which are removable by a laboratory filtration device. Quantitative determination of suspended solids shall be made in accordance with procedures set forth in "Standard Methods".

(tt) Toxic Pollutant. Any pollutant or combination of pollutants listed as toxic in regulations promulgated by the Administrator of the Environmental Protection Agency under the provision of Section 307(a) of the Act or other Acts.

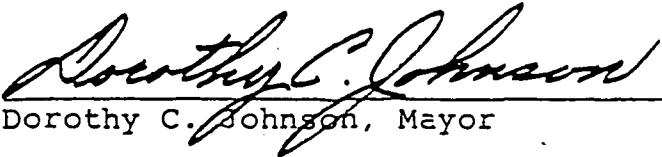
(uu) User. Any person who contributes, causes or permits the contribution of wastewater into the City's POTW.

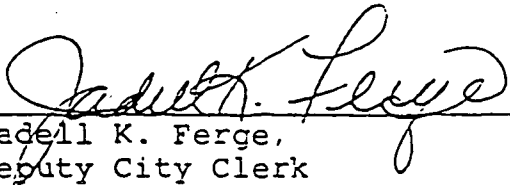
(l) USC - United States Code.

(m) WPDES - Wisconsin Pollutant Discharge Elimination System.

Section 2. This Ordinance shall be in full force and effect from and after its passage and publication.

Dated: MAY 3 1984


Dorothy C. Johnson, Mayor


Jadell K. Ferge,
Deputy City Clerk



Appendix B

Baseline Risk Assessment Plan

Appendix B

Baseline Risk Assessment Plan N.W. Mauthe Company RI/FS Appleton, Wisconsin

OBJECTIVE

The overall objective of the RI/FS process is to arrive at remedies which mitigate threats to human health and the environment posed by Site contamination. The Baseline Risk Assessment (BRA) is an essential component of the evaluation of remedial options. By assuming no further remedial activities take place at the Site, risks identified in the BRA provide a basis for comparing the efficacy of each alternative in reducing Site risks.

Detailed guidance for conducting BRA at Superfund sites is described in U.S. EPA documents entitled Risk Assessment Guidance for Superfund, Volume 1 - Human Health Evaluation Manual and Volume 2 - Environmental Evaluation Manual (1989).

General Description

The BRA is performed concurrently with the RI/FS and begins at the project scoping stage with identification of potential exposure pathways and determination of the appropriate types and quantities of data necessary for risk assessment. In subsequent steps, characteristics of potentially exposed populations are determined and estimates of contaminant intake are derived. This exposure information is then integrated with information on the toxicology of contaminants, to arrive at an estimate of risk. Because the depth of scientific information pertaining to the effects of chemicals on human health is much greater than for the effects of chemicals on the natural environment, the BRA generally emphasizes the quantitative evaluation of human health impacts. Evaluation of the environmental impacts of Site contaminants is usually less detailed and more qualitative in scope.

The BRA includes evaluation of risks as they presently exist, assuming current land use conditions prevail at the Site, as well as evaluation of potential future risks by assuming plausible future land use changes at the Site.

The risk assessment process is organized into the following components:

- Human Health Evaluation
 - Contaminants of Potential Concern
 - Exposure Assessment
 - Toxicity Assessment
 - Risk Characterization
- Environmental Evaluation

A brief description of each component is described below.

Contaminants of Potential Concern

In this component of the risk assessment, the results of chemical analysis of environmental samples are evaluated to determine the nature and magnitude of contamination at the Site. These data are compared to background samples, as well as sampling and analysis quality control data, to distinguish Site contamination from naturally occurring chemicals and those which may be artifacts of sample collection and analysis. Chemicals considered to be Site contaminants are further evaluated as "chemicals of potential concern" in the BRA.

Exposure Assessment

The aim of the exposure assessment is to estimate the types and magnitude of exposure to chemicals of potential concern at and migrating from the Site. Pathways of potential exposure (e.g. contaminant contact via groundwater ingestion) are characterized, as are populations potentially exposed (e.g., location and activity patterns). For pathways which present realistic exposures, estimates of contaminant intake for exposed populations are calculated.

Contaminant intake estimates incorporate information such as contaminant concentration, frequency of exposure, and exposure duration, and are calculated for applicable routes of contaminant entry into the body (e.g. ingestion, dermal absorption or inhalation). When available, Site-specific exposure information is used. When not available, standard exposure assumptions are applied (e.g., 70 kg person consumes 2 L water per day). The contaminant intake estimates are intended to represent

^reasonable maximum exposures" which are greater than average exposures, but within the range of possible exposures. Contaminant intake estimates are subsequently evaluated with toxicological information to estimate risk.

Toxicity Assessment

In this section, the toxicological characteristics of the chemicals of potential concern are presented. The potential adverse health effects of chemical exposures are described, as well as information on the relationship between the magnitude of the exposure (dose, frequency and duration) and the toxic response it produces (dose-response relationship). The dose-response relationship for each chemical is addressed in the risk assessment by considering toxicity values, developed by the U.S. EPA. Toxicity values have been derived for noncarcinogenic effects and carcinogenic effects of the chemicals and are termed reference doses (RFD) and slope factors (SF), respectively. Specific toxicity values have been developed for varying exposure conditions including chronic versus subchronic duration and oral versus inhalation exposure routes. Appropriate toxicity values are identified for contaminants of potential concern.

Risk Characterization

The risk characterization process integrates findings from the exposure assessment and toxicity assessment. Risks are estimated for potential carcinogenic and noncarcinogenic effects of the chemicals by comparing estimated contaminant intakes with appropriate toxicity values. Calculated risks from multiple chemicals are then summed to obtain a total exposure pathway risk. Essential to the appropriate interpretation of calculated risks is consideration of the numerous assumptions and uncertainties inherent in the risk assessment process. These are described and presented with risk estimates.

Environmental Evaluation

The objective of this component of the BRA is to appraise the actual or potential adverse effects of Site contaminants on the ecology of the Site or adjacent areas influenced by the Site. This assessment may only apply were appreciable natural habitats occur; however, evaluation of adverse effects on domesticated animals is also appropriate in this section.

Relative to the human health evaluation described in the previous four components, the concepts for ecological assessments are much less defined. The overall approach to environmental assessment is analogous to that of human health assessment and includes identifying contaminants of potential concern, pathways of contamination migration and populations (flora and fauna) potentially affected by Site contamination. To the extent possible, actual adverse impacts to natural habitats are determined. Similarly, the potential for future environmental impact is also described. In addition, contaminant concentration data may be compared to available regulatory criteria (e.g., sediment and water quality criteria).

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