

From: [Danko, Jeff](#)
To: [DuFresne, Kristin I - DNR](#); [Johnson, Dave M - DNR](#)
Cc: [Suennen, Ryan](#); [Janeczek, Joseph](#); [Mator, Richard](#); mikulka.michael@epa.gov
Subject: High Capacity Dewatering Well Application - Tyco Fire Products LP site
Date: Monday, May 23, 2016 10:17:36 AM
Attachments: [HighCapWellapplication_signed_final.pdf](#)

Kristin/Dave:

Attached per WDNR request is the High Capacity Dewatering Well Application for the Tyco Fire Products LP site in Marinette, WI. The information is being provided for your review and approval to allow Tyco to complete the USEPA-required pump down program at a portion of the site. The attached application includes:

- Cover letter providing background information on the project
- High Capacity Dewatering Well Application (Form 3300-258)
- Site figures document property boundaries and location of site extraction and monitoring wells
- Documentation of site extraction well construction and withdrawal capacities
- Details of the engineered groundwater collection and treatment system manifold and outfall
- Copy of the existing WPDES permit

In accordance with the requirement to implement pump down, Tyco has procured a contractor who is standing by to commence the pump down operation immediately, so your expeditious review and approval is appreciated. A hard copy of this document and the necessary review fee (\$500) will be forwarded to the WDNR Madison office under separate covers. It is anticipated that the fee will arrive on approximately May 31, 2016.

Should you have any questions, or require additional information, during your review, please do not hesitate to contact me.

Jeff Danko
(262) 951-6888

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May 20, 2016

Ms. Kristin DuFresne
Wisconsin DNR
2984 Shawano Avenue
Green Bay, WI 54343

Re: High Capacity Dewatering Well Application
Tyco Fire Products LP Site
One Stanton Street, Marinette, WI
EPA# WID 006 125 215
WDNR BRRTS #02-38-000011

Dear Ms. DuFresne:

The purpose of this correspondence is to supplement information provided in the attached High Capacity Dewatering Well Application to conduct an aquifer pump down program for a portion of the Tyco Fire Products LP (Tyco) site located in Marinette, WI. The pump down program is required pursuant to an Administrative Order on Consent between Tyco and the U.S. Environmental Protection Agency (USEPA).

Tyco has completed several components of required remedial actions at the site including:

- Installation of a barrier wall system surrounding the bulk of the facility to contain impacted groundwater, including separate barrier wall installations around the former Salt Vault and 8th Street Slip as part of an interim remedial action.
- Installation of a groundwater extraction and treatment system to recover and treat impacted groundwater within the contained area to prevent flooding of the facility.
- Installation of soil or asphalt covers over impacted soils.
- Installation of phyto-pumping plots to aid in extraction of groundwater to prevent flooding of the facility.
- Dredging and off-site disposal of impacted sediments in the Menominee River.

The barrier system consists of vibrated beam slurry and sheet pile installed to glacial till or bedrock (approximately 40 feet below surface grade) underlying the site. The glacial till and bedrock are low permeability materials. The combination of the barrier system and glacial till and bedrock prevent, to the extent practical, the off-site migration of impacted groundwater as well as migration of off-site groundwater and surface water (Menominee River) into the site.

The groundwater extraction and treatment system referenced above collects groundwater from 7 extraction wells located throughout the site that extract groundwater from

unconsolidated fill and soils within the contained area. The engineered system is augmented by approximately 4 acres of trees (phyto-pumping plots) located throughout the site. The purpose of the extraction system is to maintain groundwater levels within the contained area at levels that prevent flooding of the plant. Extracted groundwater is conveyed to and treated through an on-site engineered system with a flow through capacity of approximately 30 gallons per minute. Actual operational processing rates are approximately 12-15 gallons per minute. A portion of the treated groundwater is discharged under an existing WPDES permit (attached); concentrate (reject water) is transported from the site for off-site disposal at a permitted waste disposal facility.

A remaining component of the remedial action includes the implementation of the pump down program, which is a requirement to reduce water levels in the former Salt Vault and 8th Street Slip areas to an elevation of 577.5 feet above mean seal. The purpose of the pump down program is to reduce the water levels in an attempt to create an inward hydraulic gradient within these areas to minimize the potential for off-site migration of impacted groundwater. Once the target water level is reached, Tyco is required to maintain groundwater levels within these areas at, or below, the target water level. Based on current water levels and estimated subsurface conditions (porosity, permeability, etc.), an estimated 1,200,000 gallons of impacted groundwater requires removal to reach the target level within the former Salt Vault and 8th Street Slip. Actual withdrawal quantities will be based on site conditions and ability to meet the target level.

A total of six additional extraction wells have been installed to depths ranging from 19 to 43 feet below ground surface in the former Salt Vault and 8th Street Slip for use in performance of the pump down program. An estimated total of 12 gallons per minute will be extracted from the six extraction wells using a temporary pumping system consisting of above-ground suction pumps and conveyance hosing. Extracted groundwater will be conveyed to temporary storage tanks to be located on site during the pump down program. A portion (approximately 6,000 gallons per day) will be transferred to the on-site treatment plant for treatment. A portion of this treated water will be discharged under the WPDES permit while the concentrate will be transported from the site for offsite disposal. The remaining groundwater extracted from the area that cannot be treated in the onsite system (due to treatment capacity limitations) will be transported from the site for offsite disposal. At this time, upon completion of the pump down program to the target level, the temporary system will be decontaminated, disassembled, and removed from the site.

Tyco is required to complete the pump down program prior to year end 2017; however, Tyco is ready to commence implementation of the pump down program upon receipt of approval of the high capacity dewatering well application with the intent to complete the pump down program during the 2016 field season.

Although, WDNR is already in receipt of the following documents, attached are:



One Stanton Street
Marinette, WI 54143-2542
Tele: 715-735-7411

- Site figure depicting the property boundary, barrier wall location and location of former Salt Vault and 8th Street Slip areas
- Site figure showing location of all wells (including extraction wells) and WPDES discharge point
- Tables of available on-site extraction well construction details.
- Available extraction well construction logs (Note: Extraction well EW-7 construction log and data are note available).
- Drawing of the manifold system for the on-site engineered groundwater treatment system.
- Extraction well pumping capacities.
- Existing WPDES permit.
- Outfall construction figure.
- Pump down program scope of work provided to contractors.

I trust the information will allow for expedient review and approval of the application. Should you have any questions or require additional information, please do not hesitate to contact me at 715-735-7411.

Sincerely,

A handwritten signature in black ink that reads "Ryan Lueman". The signature is written in a cursive style.

Tyco Fire Protection Products

Attachments

cc: Joseph Janeczek - Tyco International
Rich Mator - Tyco International
Jeff Danko - Tyco International
Michael Mikulka - USEPA

Notice: Prior department approval is required for the construction, reconstruction or operation of a high capacity well or system of high capacity wells in accordance with Section NR 812.09(4)(a), Wisconsin Administrative Code. Personally identifiable information collected on this form, including such data as your name, address and phone number, will be used for management of department programs and is unlikely to be used for other purposes. This information will be addressable under Wisconsin's Open Records Laws, ss. 19.32 - 19.39, Wis. Stats.

Project Name and Description

Project Name and Description *Tyco Fire Products L.P. - USEPA - required a tighter draw down within contained area of the site to minimize potential for off-site migration of impacted groundwater*

Dewatering System Property Owner

Name and Title <i>Ryan Suennen - Environmental Specialist</i>		Company <i>Tyco Fire Products L.P.</i>		
Street Address <i>One Stanton St</i>	City <i>Marinette</i>	State <i>WI</i>	ZIP Code <i>54113</i>	Contact Person <i>Ryan Suennen</i>
Telephone Number <i>715-735-7411</i>	Fax Number <i>N/A</i>	E-Mail Address <i>Ryansuennen@tycoint.com</i>		

Dewatering System Operator

Name and Title <i>Kirk Kapfhammer - Principal Consultant</i>		Company <i>Endpoint Solutions</i>		
Street Address <i>6871 S. Lowers Lane</i>	City <i>Franklin</i>	State <i>WI</i>	ZIP Code <i>53132</i>	Contact Person <i>Kirk Kapfhammer</i>
Telephone Number <i>414-427-1200</i>	Fax Number <i>414-427-1259</i>	E-Mail Address <i>kirk@endpointcorporation.com</i>		

Proposed Dewatering System Location

Quarter of the Quarter <i>NW</i>	Quarter or Government Lot Number	Section Number or French Long Lot Number <i>5</i>		
Township <i>T 30 N</i>	Range <i>R 24</i>	<input checked="" type="checkbox"/> East <input type="checkbox"/> West	<input checked="" type="checkbox"/> City <input type="checkbox"/> Village <input type="checkbox"/> Civil Town	County <i>Marinette</i>

Street or Grid Address (fire number)
Stanton St.

Dewatering System Operation

Name of Nearest Public Utility Well <i>City water obtained from Lake Michigan (Green Bay)</i>	Proposed Total Average Pumpage per Day <i>37500 gallons</i>	Proposed Total Maximum Pumpage per Day <i>~ 50,000 gallons</i>
Distance from Public Utility Well <i>Intake in Green Bay ~3 North of Menominee MI</i>	Discharge Location Description (e.g. storm sewer, drainage swale, settling basin, etc.) <i>~ 19000 gpd to Menominee River via WRDES permit for GW collection/treatment system, ~ 15,500 gpd to permitted disposal facility</i>	
Direction (e.g. WNW) to Public Utility Well <i>N</i>	Total Number of Dewatering Wells/Points in Project <i>13</i>	
Proposed Pump (Dewatering System) Capacity <i>~ 35</i> gallons per minute	Number of Wells/Points in Use at Any Given Time <i>13</i>	
Dewatering Project Start Date (MM/DD/YYYY) <i>06/06/16</i>	Dewatering Project Completion Date (MM/DD/YYYY) <i>11/30/2017</i>	
Proposed Aquifer Formation <i>Unconsolidated Fill and Alluvium</i>	At a Depth of: <i>< 30</i>	Static Water Level <i>Varies ~ 5'81' AMSL</i>
Proposed Dewatering Water Level <i>5'77.5' AMSL</i>		

Well Construction

Total well depth (feet) <i>See attached tables</i>	Borehole diameter (inches)	Drilling method (e.g. rotary, jetting, percussion, etc.) <i>Rotary and HSA</i>	
Geologic formations to be penetrated by well (e.g. sand, gravel, clay, sandstone, limestone, etc.) <i>Misc. Fill and Sands, Gravel, Clay</i>			
Casing depth (feet) <i>Varies</i>	Well casing wall thickness (in.) <i>~ 1/2"</i>	Casing material (e.g. steel, schedule 40 PVC) <i>Steel</i>	Casing diameter (inches) <i>6"</i>

Well Construction (continued)

Method of connecting well casing segments <input checked="" type="checkbox"/> weld <input type="checkbox"/> solvent weld <input type="checkbox"/> threaded/mechanical	Height of well casing termination above local ground elevation (in) <i>Flush-manual completions</i>	
Well screen material (e.g. wire wound steel, slotted PVC) <i>Stainless</i>	Well screen length (ft) <i>Varies</i>	Well screen diameter (in) <i>6"</i>
Method of attaching screen to well casing or placing screen <i>Weld</i>	Type of well screen <input checked="" type="checkbox"/> wire wound <input type="checkbox"/> slotted pipe	Engineered gravel pack around screen <input checked="" type="checkbox"/> yes <input type="checkbox"/> no
Annular space seal material (e.g. bentonite, cement, native material) <i>Site-specific cement mixture</i>	Method of placing annular seal (e.g. tremie pipe) <i>Tremie</i>	

Pump Installation

Pump type (e.g. submersible, vacuum) <i>Engineered system - submersible Temp System - suction</i>	Individual pump capacity (gpm) <i>~12 gpm</i>	Well seal type and design <i>Site specific cement</i>	Check valve location
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Well Abandonment

Well abandonment method (e.g. fill with bentonite, collapsing formation, etc.)
Site-specific cement mixture

Enclosures

- Plat map (project location marked)
- Engineering plan map of project (do not submit complete set of plans)
- Contamination sites (BRRTS information) with well locations and discharge location (www.dnr.state.wi.us/org/aw/rr/brrts/index.htm)
- Well construction diagram with dimensions
- Drawing of manifold design if multiple wells are connected together
- Discharge drawing
- If WPDES permit already issued, attach copy

Variance Request Signature

Are you requesting a variance for the proposed well(s) to have less than 25 feet of casing or for a variance to any part of ch. NR 812, Wis. Adm. Code? If yes, property owner signature required. *Yes*

Property Owner Signature <i>Andrew May</i> <i>ANDREW MAY</i>	Date Signed <i>5/20/2016</i>
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Applicant

Name: Last <i>Suennen</i>	First <i>Ryan</i>	MI <i>F</i>	Signature <i>Ryan J. Suennen</i>
Street Address <i>One Stanton St.</i>	City <i>Marinette</i>	State <i>WI</i>	ZIP Code <i>54143</i>
Company Name <i>Tyco Fire Products</i>		(Area Code) Telephone Number <i>(715) 735-7411</i>	Date (mm/dd/yyyy) <i>5/20/2016</i>
			E-Mail Address <i>Ryan.Suennen@tycoint.com</i>

Department Use Only

Receipt Date (mm/dd/yyyy)	Response Date (mm/dd/yyyy)
Review Engineer	Authorized Signature
Calculated Public Utility Well Drawdown Value or No Expected Impact Judgement Feet <input type="checkbox"/> No Expected Significant Impact	Action: Conditions of approval are attached if approved. <input type="checkbox"/> Approved <input type="checkbox"/> Denied

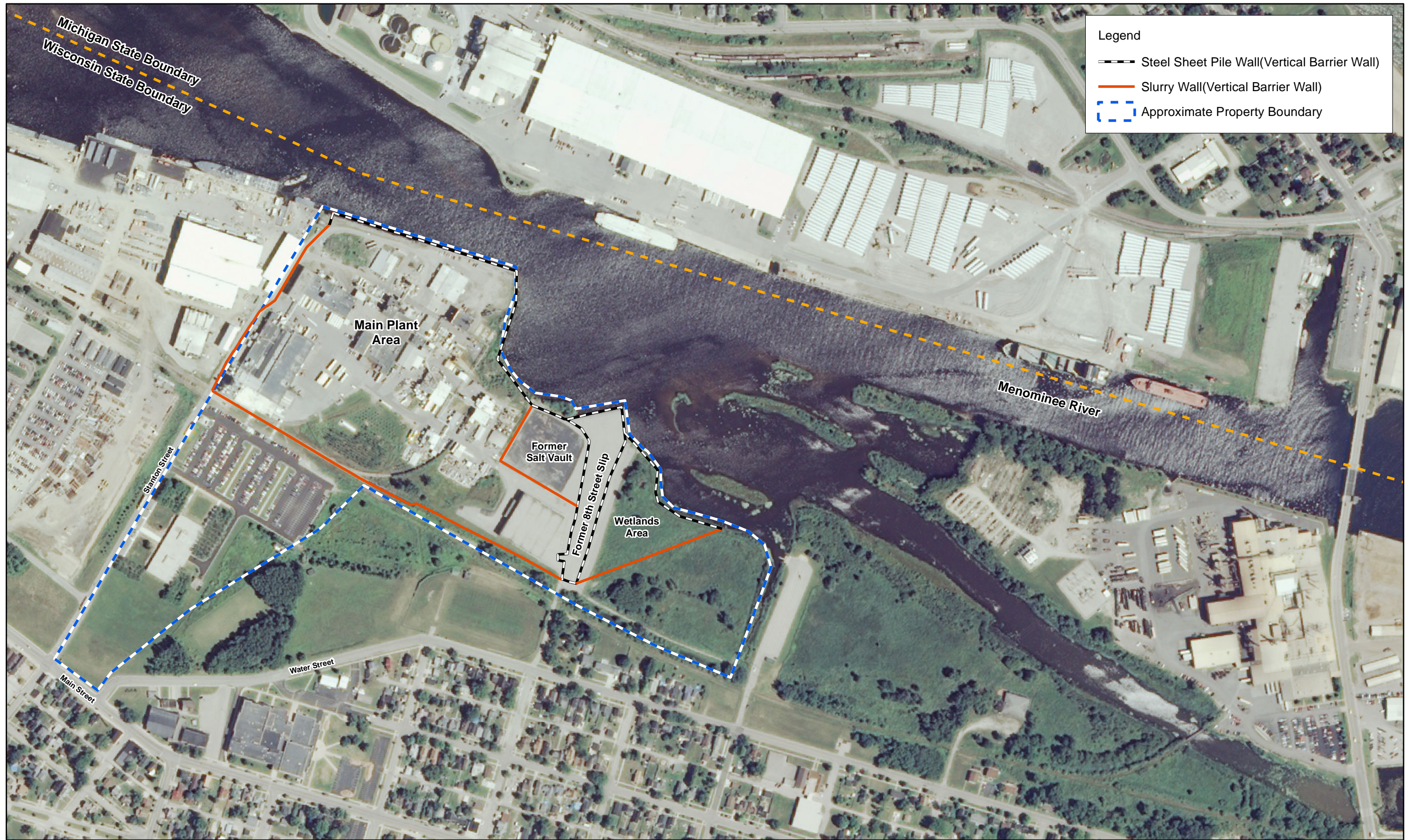
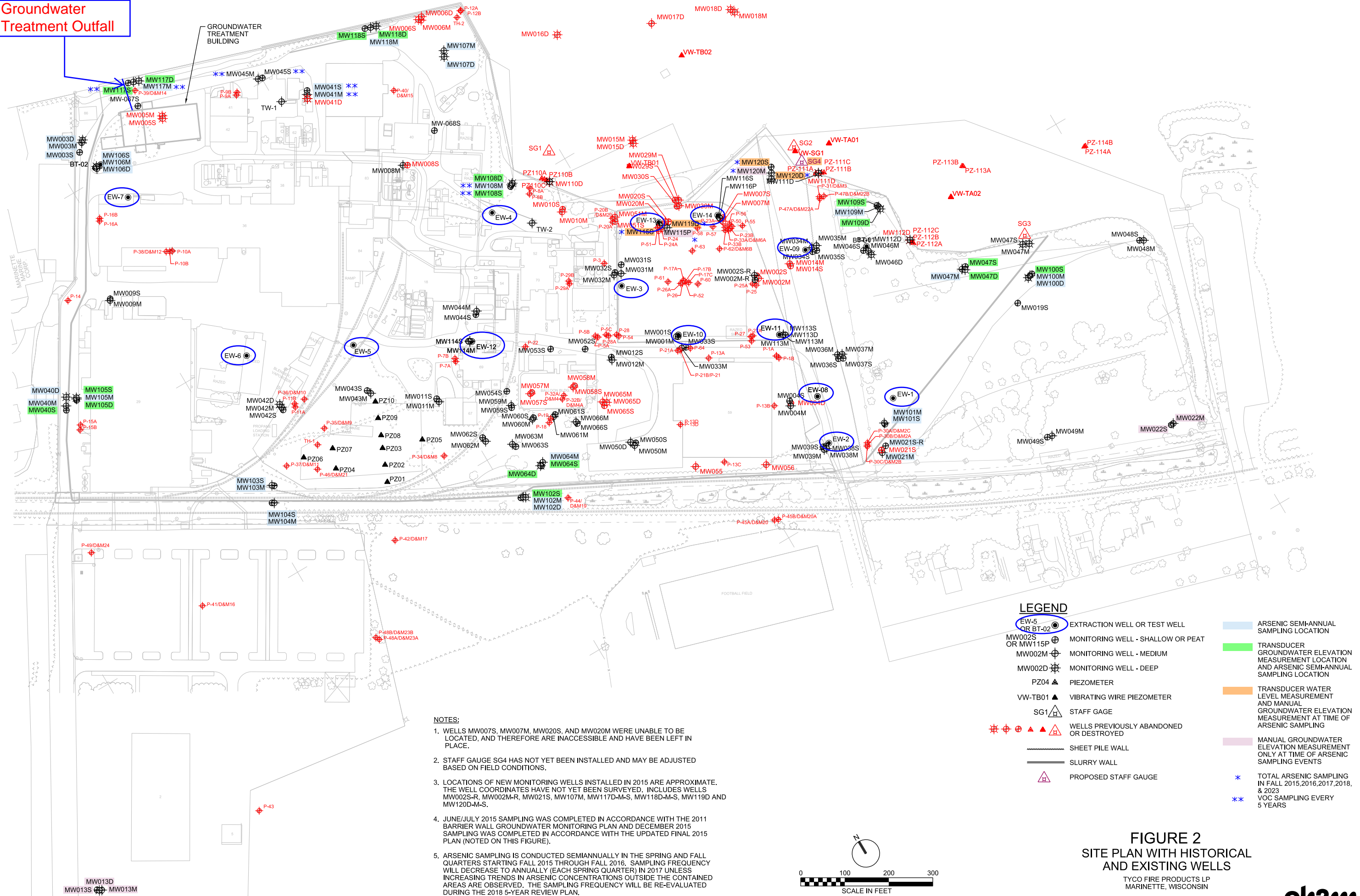


Figure 1
 Site Map
 Tyco Fire Products LP Facility
 Marinette, WI

Groundwater Treatment Outfall



NOTES:

1. WELLS MW007S, MW007M, MW020S, AND MW020M WERE UNABLE TO BE LOCATED, AND THEREFORE ARE INACCESSIBLE AND HAVE BEEN LEFT IN PLACE.
2. STAFF GAUGE SG4 HAS NOT YET BEEN INSTALLED AND MAY BE ADJUSTED BASED ON FIELD CONDITIONS.
3. LOCATIONS OF NEW MONITORING WELLS INSTALLED IN 2015 ARE APPROXIMATE. THE WELL COORDINATES HAVE NOT YET BEEN SURVEYED. INCLUDES WELLS MW002S-R, MW002M-R, MW021S, MW107M, MW117D-M-S, MW118D-M-S, MW119D AND MW120D-M-S.
4. JUNE/JULY 2015 SAMPLING WAS COMPLETED IN ACCORDANCE WITH THE 2011 BARRIER WALL GROUNDWATER MONITORING PLAN AND DECEMBER 2015 SAMPLING WAS COMPLETED IN ACCORDANCE WITH THE UPDATED FINAL 2015 PLAN (NOTED ON THIS FIGURE).
5. ARSENIC SAMPLING IS CONDUCTED SEMIANNUALLY IN THE SPRING AND FALL QUARTERS STARTING FALL 2015 THROUGH FALL 2016. SAMPLING FREQUENCY WILL DECREASE TO ANNUALLY (EACH SPRING QUARTER) IN 2017 UNLESS INCREASING TRENDS IN ARSENIC CONCENTRATIONS OUTSIDE THE CONTAINED AREAS ARE OBSERVED. THE SAMPLING FREQUENCY WILL BE RE-EVALUATED DURING THE 2018 5-YEAR REVIEW PLAN.

LEGEND

	EXTRACTION WELL OR TEST WELL		ARSENIC SEMI-ANNUAL SAMPLING LOCATION
	MONITORING WELL - SHALLOW OR PEAT		TRANSDUCER GROUNDWATER ELEVATION MEASUREMENT LOCATION AND ARSENIC SEMI-ANNUAL SAMPLING LOCATION
	MONITORING WELL - MEDIUM		TRANSDUCER WATER LEVEL MEASUREMENT AND MANUAL GROUNDWATER ELEVATION MEASUREMENT AT TIME OF ARSENIC SAMPLING
	MONITORING WELL - DEEP		MANUAL GROUNDWATER ELEVATION MEASUREMENT ONLY AT TIME OF ARSENIC SAMPLING EVENTS
	PIEZOMETER		TOTAL ARSENIC SAMPLING IN FALL 2015, 2016, 2017, 2018, & 2023
	VIBRATING WIRE PIEZOMETER		VOC SAMPLING EVERY 5 YEARS
	STAFF GAGE		
	WELLS PREVIOUSLY ABANDONED OR DESTROYED		
	SHEET PILE WALL		
	SLURRY WALL		
	PROPOSED STAFF GAGE		

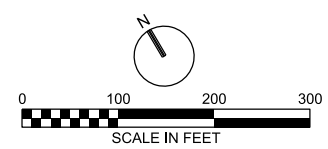


FIGURE 2
SITE PLAN WITH HISTORICAL AND EXISTING WELLS

TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN



TABLE 2
Extraction Well Information & Recommended Drawdown Optimization Settings
Tyco - Marinette, Wisconsin

Well ID	Northing*	Easting*	Construction Completion Well Information									Measured Pump Configuration					
			Total Depth (ftbgs)	TOS (ftbgs)	BOS (ftbgs)	TOFP (ftbgs)	BOFP (ftbgs)	Protective Cover Elevation (ft)	Top of Casing Elev.(ft)	Height of Lid above Pipe (ft.)	Well Materials	Height of Pump above Base of Well (ft) (according to const. completion drawings)	Measured Depth of Well from top of pipe (ft)	¹ Estimated Depth to Top of Pump Below Top of Pipe (ft)	¹ Elevation of top of Pump	Specific Capacity as Measured 1/4-1/6/12 (gpm/ft of drawdown)	Static DTW below Top of Pipe Prior to Specific Capacity Testing (ft)
EW-1	469152.551	2585365.392	21.5	10.5	20.5	8	21.5	583.00	582.00	1.00	6-inch dia. stainless 0.10 slot	1.0	19.70	16.4	563.3	2.46	1.8
EW-2	469135.433	2585191.571	21.5	10.5	20.5	8.5	21.5	586.46	584.79	1.67	6-inch dia. stainless 0.10 slot	1.0	18.88	15.6	567.6	0.20	3.8
EW-3	469685.583	2584964.146	21.5	10.5	20.5	7.8	21.5	586.56	585.11	1.45	6-inch dia. stainless 0.10 slot	1.0	19.06	15.8	567.5	0.16	2.5
EW-4	469980.764	2584796.251	21.5	10.5	20.5	8.5	21.5	584.25	583.51	0.74	6-inch dia. stainless 0.10 slot	1.0	20.23	16.9	564.0	0.12	2.5
EW-5	469879.336	2584367.177	21.5	10.5	20.5	8.5	21.5	585.95	585.41	0.54	6-inch dia. stainless 0.10 slot	1.0	20.02	16.7	565.9	3.69	4.1
EW-6	469977.483	2584153.341	21.5	10.5	20.5	8.5	21.5	586.23	585.68	0.55	6-inch dia. stainless 0.10 slot	1.0	20.05	16.8	566.2	6.72	4.5
EW-7	470428.749	2584101.342						584.56	582.90	1.66		1.0	13.63	10.3	570.9	2.32	2.0

NOTES:

ft amsl: feet above mean sea level in Wisconsin State Plane Coordinate System, North American Vertical Datum (NAVD) 1988

* Wisconsin State Plane Coordinates, Central Zone, US Survey Feet TOS: Top of Screen BOS: Bottom of Screen

ft bgs: feet below ground surface

TOS: Top of Screen

BOS: Bottom of Screen

TOFP: Top of Filter Pack

TOFP: Top of Filter Pack

BOFP: Bottom of Filter Pack

DTW: Depth to Water

1: Based on the top of pump being 2.3 feet long and 1 foot above the bottom of the well (as measured 1/4/12)

TABLE 1

Extraction Test Well and Associated Monitoring Well Construction Summary

Tyco Fire Products LP, Marinette, Wisconsin

Well ID	Well Info					Total Drilling Depth (ft bgs)	Construction Details					Location Information					Notes	
	Well Type	Diameter (inches)	Screen Material	Screen Size (slot size)	Sand Pack		Target Stratigraphic Interval	TOS (ft bgs)	BOS (ft bgs)	Screen Length (ft)	Sump (ft)	Sump Completion	Site Area	Northing	Eastings	TOC (ft amsl)		Ground Elevation (ft amsl) ¹
EW-08	Extraction	6	SS wire-wrap	30	Red Flint Gravel Pack #30	25	Fill/alluvium	10	20	10	5	filter pack	Former 8th St. Slip	469243.368	2585219.605	586.75	586.93	--
EW-09	Extraction	6	SS wire-wrap	15	Red Flint Gravel Pack #15	25	Fill/alluvium	10	20	10	5	filter pack	Former 8th St. Slip	469543.795	2585365.254	585.67	585.98	Repaired in May 2014
EW-11 ²	Extraction	6	SS wire-wrap	Shallow - 30 Deep - 10	Shallow - Red Flint Gravel Pack #30 Deep - Red Flint Gravel Pack #10	43	Shallow - Fill/peat/alluvium Deep - Till	Shallow - 9 Deep - 38	Shallow - 24 Deep - 43	Shallow - 15 Deep - 5	none/6inch	filter pack	Former Salt Vault	469408.018	2585216.340	587.28	587.85	Repaired in May 2014
MW113S	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	19	Alluvium	14	19	5	none/6inch	filter pack	Former Salt Vault	469400.836	2585227.650	587.27	587.78	Repaired in May 2014
MW113M	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	43	Till	38	43	5	none/6inch	filter pack	Former Salt Vault	469403.190	2585223.942	587.21	587.72	Repaired in May 2014
EW-10	Extraction	6	SS wire-wrap	30	Red Flint Gravel Pack #30	27	Fill/alluvium	7	22	15	5	filter pack	Former Salt Vault	469524.379	2585018.537	587.75	588.15	Repaired in May 2014
EW-12 ²	Extraction	6	SS wire-wrap	Shallow - 30 Deep - 10	Shallow - Red Flint Gravel Pack #30 Deep - Red Flint Gravel Pack #10	35	Shallow - Fill/Alluvium Deep - Till	Shallow - 10 Deep - 30	Shallow - 20 Deep - 35	Shallow - 10 Deep - 10	none/6inch	filter pack	Main Plant	469749.828	2584607.386	584.76	585.05	--
MW114S	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	17.5	Alluvium	12.5	17.5	5	none/6inch	filter pack	Main Plant	469754.155	2584600.974	584.64	584.93	--
MW114M	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	35	Till	30	35	5	none/6inch	filter pack	Main Plant	469752.481	2584603.420	584.65	584.91	--
EW-13	Extraction	6	SS wire-wrap	20	Red Flint Gravel Pack #20	28	Fill/peat/alluvium	8	23	15	5	filter pack	Former Salt Vault	469767.609	2585110.396	585.73	586.34	Near former MW020 series wells; screen to cover alluvium and extend up above peat layer; Repaired in May 2014
MW115P	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	13	Fill/top of peat	3	13	10	none/6inch	filter pack	Former Salt Vault	469759.939	2585108.442	586.22	586.62	For measuring shallow perched water above peat
MW115S	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	23	Alluvium	13	23	10	none/6inch	filter pack	Former Salt Vault	469763.021	2585108.851	586.2	586.55	For measuring alluvium (f-c sand) below peat; Repaired in May 2014
EW-14	Extraction	6	SS wire-wrap	20	Red Flint Gravel Pack #20	24	Fill/peat/alluvium	4	19	15	5	filter pack	Former Salt Vault	469713.079	2585233.562	586.7	587.06	Near MW007 series wells; screen to cover alluvium and extend up above peat layer; Repaired in May 2014
MW116P	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	10	Fill/top of peat	3	10	7	none/6inch	filter pack	Former Salt Vault	469704.978	2585234.456	587.13	587.52	For measuring shallow perched water above peat
MW116S	Monitoring	2	slotted Sch 40 PVC	10	Red Flint Gravel Pack #10	18	Alluvium	13	18	5	none/6inch	filter pack	Former Salt Vault	469708.276	2585233.888	586.99	587.43	For measuring alluvium (f-c sand) below peat
BT-01	Test Well	6	Open Hole	NA	NA	68	Bedrock	48	68	20	NA	NA	Wetland	469480.172	2585488.957	584.26	584.65	Bedrock open hole well, casing grouted into bedrock from 43 to 48 feet; Repaired in May 2014
BT-02	Test Well	6	Open Hole	NA	NA	61	Bedrock	41	61	20	NA	NA	Main Plant	470524.270	2584085.491	583.63	583.87	Bedrock open hole well, casing grouted into bedrock from 36-41 feet

Notes:

ID - identification

EW - extraction well

bgs - below ground surface

ft - feet

amsl - above mean sea level in Wisconsin State Plane Coordinate System North American Vertical Datum of 1988

NA - not applicable

TOS - top of screen

BOS - bottom of screen

TOC - top of casing

SS - stainless steel

PVC - polyvinyl chloride

Sch - Schedule

¹ Ground elevation at well taken from the top of the lid.² Well is double screened with a shallow and a deeper screened interval.

TABLE 2
Extraction Well Information & Recommended Drawdown Optimization Settings
Tyco - Marinette, Wisconsin

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			Total Depth (ftbgs)	TOS (ftbgs)	BOS (ftbgs)	TOFP (ftbgs)	BOFP (ftbgs)	Protective Cover Elevation (ft)	Top of Casing Elev.(ft)	Height of Lid above Pipe (ft.)	Well Materials	Height of Pump above Base of Well (ft) (according to const. completion drawings)	Measured Depth of Well from top of pipe (ft)	¹ Estimated Depth to Top of Pump Below Top of Pipe (ft)	¹ Elevation of top of Pump	Specific Capacity as Measured 1/4-1/6/12 (gpm/ft of drawdown)	Static DTW below Top of Pipe Prior to Specific Capacity Testing (ft)
EW-1	469152.551	2585365.392	21.5	10.5	20.5	8	21.5	583.00	582.00	1.00	6-inch dia. stainless 0.10 slot	1.0	19.70	16.4	563.3	2.46	1.8
EW-2	469135.433	2585191.571	21.5	10.5	20.5	8.5	21.5	586.46	584.79	1.67	6-inch dia. stainless 0.10 slot	1.0	18.88	15.6	567.6	0.20	3.8
EW-3	469685.583	2584964.146	21.5	10.5	20.5	7.8	21.5	586.56	585.11	1.45	6-inch dia. stainless 0.10 slot	1.0	19.06	15.8	567.5	0.16	2.5
EW-4	469980.764	2584796.251	21.5	10.5	20.5	8.5	21.5	584.25	583.51	0.74	6-inch dia. stainless 0.10 slot	1.0	20.23	16.9	564.0	0.12	2.5
EW-5	469879.336	2584367.177	21.5	10.5	20.5	8.5	21.5	585.95	585.41	0.54	6-inch dia. stainless 0.10 slot	1.0	20.02	16.7	565.9	3.69	4.1
EW-6	469977.483	2584153.341	21.5	10.5	20.5	8.5	21.5	586.23	585.68	0.55	6-inch dia. stainless 0.10 slot	1.0	20.05	16.8	566.2	6.72	4.5
EW-7	470428.749	2584101.342						584.56	582.90	1.66		1.0	13.63	10.3	570.9	2.32	2.0

NOTES:

ft amsl: feet above mean sea level in Wisconsin State Plane Coordinate System, North American Vertical Datum (NAVD) 1988

* Wisconsin State Plane Coordinates, Central Zone, US Survey Feet TOS: Top of Screen BOS: Bottom of Screen

ft bgs: feet below ground surface

TOS: Top of Screen

BOS: Bottom of Screen

TOFP: Top of Filter Pack

TOFP: Top of Filter Pack

BOFP: Bottom of Filter Pack

DTW: Depth to Water

1: Based on the top of pump being 2.3 feet long and 1 foot above the bottom of the well (as measured 1/4/12)

TABLE 3
Extraction Well Information
Tyco - Marinette, Wisconsin

Well	Area	Specific Capacity (gpm/ft of drawdown)	Calculated	Aquifer Test		Max Pump/ Well Capacity ²	2014 Max	2014 Average	2014 Average GWCTS Flow Rate (gpm) ³
			Maximum Well Pumping Rate (gpm) ¹	Final Pumping Rate (gpm)	Instantaneous GWCTS Flow Rate (gpm)		Instantaneous GWCTS Flow Rate (gpm)		
EW-1*	WA	2.46	28.5	11.7	12	11.4	5.4	2.7	
EW-2*	8SS	0.2	1.8	1.8	1.8	3.9	0.8	0.6	
EW-3*	SV	0.16	1.6	1.6	1.6	2.7	0.4	0.1	
EW-4*	MP	0.12	1.4	1.3	1.4	7	0.5	0.3	
EW-5*	MP	3.69	35.4	12.1	12	11.3	2.7	1.5	
EW-6*	MP	6.72	62.5	11.9	14	12.3	6.1	4.0	
EW-7*	MP	2.32	12.3	13	14	14	6.2	2.4	
EW-8	8SS	1.03	12.9	4.8	12				
EW-9	8SS	0.41	6.4	2.4	6.4				
EW-10	SV	2.06	36.5	11.5	12				
EW-11-U	SV	1.16	39.4	12.9	12				
EW-13	SV	0.7	12.2	5.3	12				
EW-14	SV	0.72	10.6	5.7	10.6				
EW-12U	MP	0.36	9.6	2.7	9.6				
Total			271.1	98.7	131.4		22.1	11.6	

¹ Calculated maximum pumping rate was calculated by multiplying previously calculated specific capacities times the available drawdown

² Either the pump capacity with average estimate of 12 (EW-1 to EW-5) or 14 (EW-6 and EW-7) gpm or the estimated maximum well pumping rate estimated from the specific capacity

³ Pumping averages are calculated as if the system were operating 24-hours a day, 7-days a week

gpm = gallons per minute

gpm/ft = gallons per minute per foot

Area Definitions - SV - Salt Vault, MP - Main Plant, 8SS - 8th Street Slip, WA - Wetland Area

Max design capacity of the groundwater collection and treatment system (GWCTS) is 30 gpm but typically runs 25 gpm or less

*EW-1 to EW-7 are connected to the GWCTS



COLEMAN ENGINEERING COMPANY



635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.
IRONWOOD, MICHIGAN 49938
BORING NO. EW-1 PAGE 1 OF 1

FIELD BORING LOG

PROJECT Tyco JOB NO. 10235
 SURFACE ELEVATION: Same BENCH MARK _____ DRILLER: DL HELPER: JF RIG NO. D-120
 DATE START: 7-13-10 BORING LOCATION: as marked OFFSET: _____
 DATE END: 7-13-10

HSA; SIZE 9 1/4 FROM 0.0 TO 21.5 5" CFA FROM _____ TO _____
 CASING; SIZE _____ FROM _____ TO _____ CASING ADVANCER; SIZE _____ FROM _____ TO _____
 RB; SIZE _____ FROM _____ TO _____ MUD TYPE _____ FROM _____ TO _____
 ROCK CORE; SIZE _____ FROM _____ TO _____ OTHER _____ FROM _____ TO _____

SAMPLE					SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6"	DEPTH	TYPE	REC.			
1	Spind drill	0.0 21.5			E.O.B 21.5	21.5	See well diagrams

THICKNESS OF:	DEPTH TO:
TOPSOIL _____	WEATHERED ROCK _____
CONCRETE _____	SOLID ROCK _____
ASPHALT _____	BOTTOM OF WELL _____
BASE COURSE _____	BOTTOM OF BORING <u>21.5</u>
FROST _____	

BACKFILLING INFORMATION:

See well diagrams FROM _____ TO _____

NATURAL MATERIAL _____

BENTONITE _____

NEAT CEMENT _____

CEMENT/BENTONITE _____

GROUT (RATIO); _____

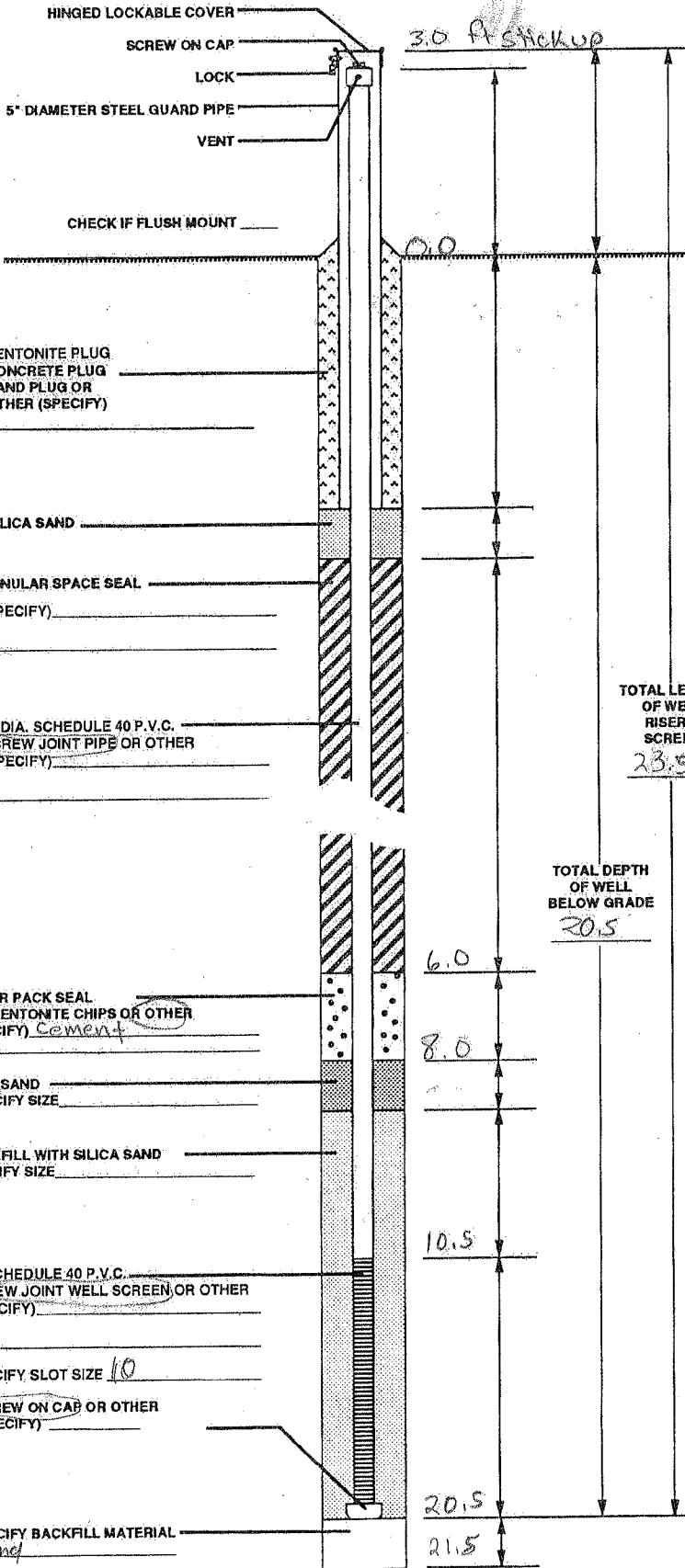
HARD DRILLING:

FROM _____ TO _____

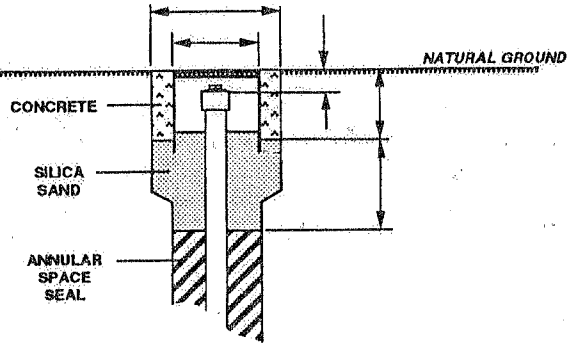
GROUNDWATER MEASUREMENTS	SAMPLE WET FROM TO	COBBLES AND/OR BOULDERS			
		FROM	TO	FROM	TO
DEPTH DURING DRILLING _____	_____	_____	_____	_____	_____
DEPTH AT COMPLETION _____	_____	_____	_____	_____	_____
AFTER _____ HRS. _____ FT.	_____	_____	_____	_____	_____
AFTER _____ DAYS _____ FT.	_____	_____	_____	_____	_____
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED	_____	_____	_____	_____	_____

TYPICAL GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

WELL NO. ED-1



FLUSH MOUNT DETAIL



NOTES:

Was well developed on this date by well installation crew? YES _____ NO X

Water Level _____
Crew DL JF

JOB NO. G-10235
DATE 7-13-10
JOB NAME Tyco



COLEMAN ENGINEERING COMPANY



635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.
IRONWOOD, MICHIGAN 49938
BORING NO. EW-2 PAGE 1 OF 1

FIELD BORING LOG

PROJECT Tyco JOB NO. 10235

SURFACE ELEVATION: Same BENCH MARK _____ DRILLER: DL HELPER: JF RIG NO. D-120

DATE START: 7-14-10 BORING LOCATION: as marked OFFSET: _____

DATE END: 7-14-10
 HSA; SIZE 9 1/4 FROM 0.0 TO 21.5 5" CFA _____ FROM _____ TO _____
 CASING; SIZE _____ FROM _____ TO _____ CASING ADVANCER; SIZE _____ FROM _____ TO _____
 RB; SIZE _____ FROM _____ TO _____ MUD TYPE _____ FROM _____ TO _____
 ROCK CORE; SIZE _____ FROM _____ TO _____ OTHER _____ FROM _____ TO _____

SAMPLE					SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6"	DEPTH	TYPE	REC.			
1	Blind drill	0.0 21.5			E.O. 21.5	21.5	See well diagram

THICKNESS OF:	DEPTH TO:
TOPSOIL _____	WEATHERED ROCK _____
CONCRETE _____	SOLID ROCK _____
ASPHALT _____	BOTTOM OF WELL _____
BASE COURSE _____	BOTTOM OF BORING <u>21.5</u>
FROST _____	

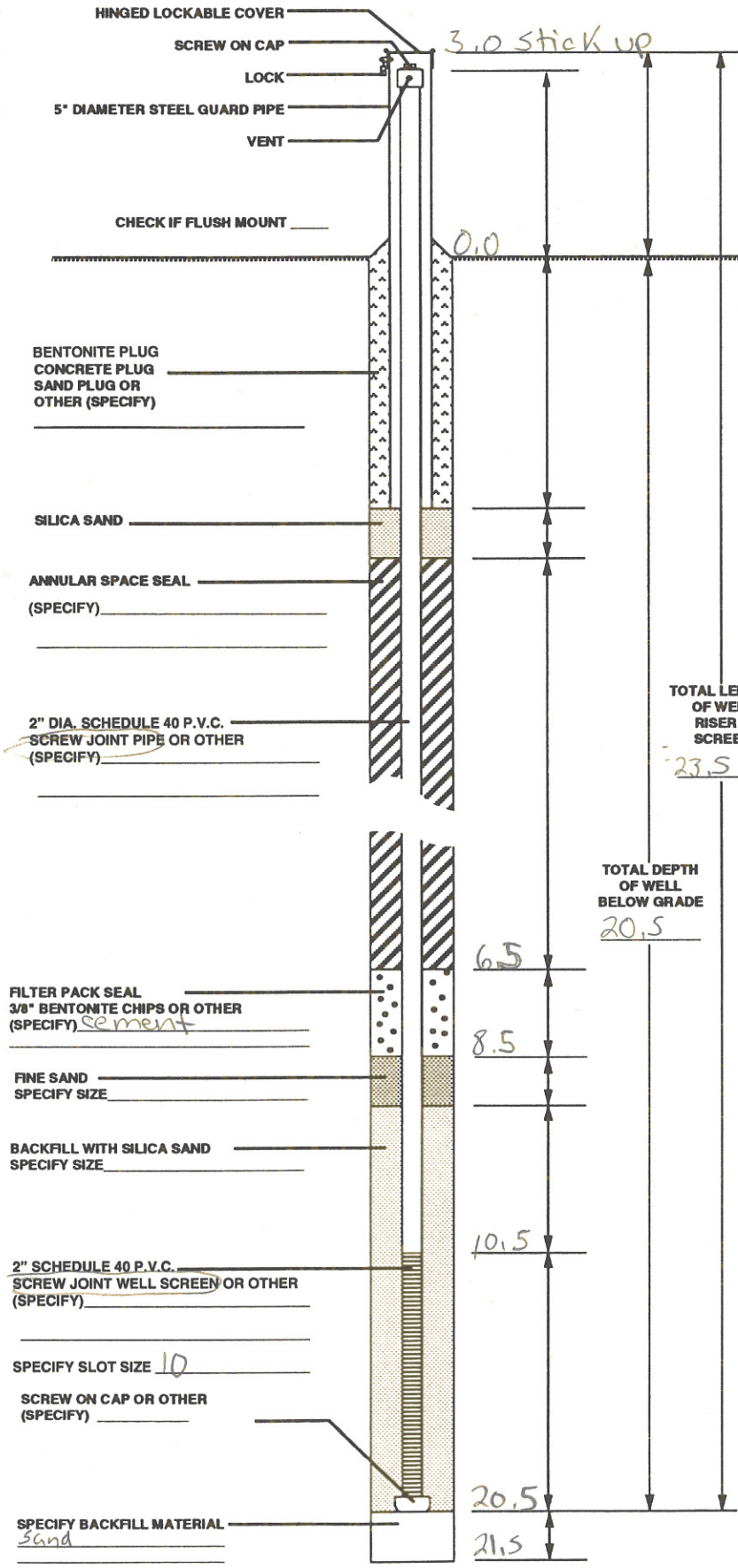
BACKFILLING INFORMATION:	
See well diagram	FROM TO
NATURAL MATERIAL _____	
BENTONITE _____	
NEAT CEMENT _____	
CEMENT/BENTONITE _____	
GROUT (RATIO); _____	

HARD DRILLING:	
FROM	TO
_____	_____
_____	_____
_____	_____
_____	_____

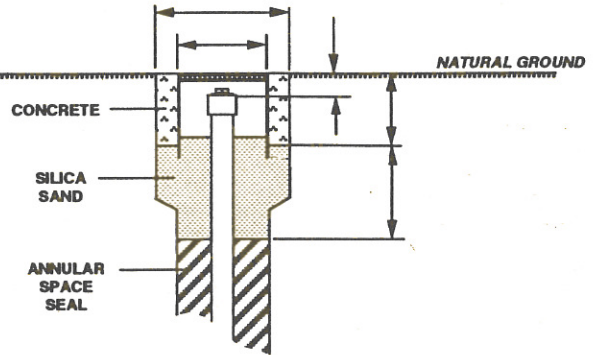
GROUNDWATER MEASUREMENTS	SAMPLE WET FROM TO	COBBLES AND/OR BOULDERS			
		FROM	TO	FROM	TO
DEPTH DURING DRILLING _____	_____	_____	_____	_____	_____
DEPTH AT COMPLETION _____	_____	_____	_____	_____	_____
AFTER _____ HRS. _____ FT.	_____	_____	_____	_____	_____
AFTER _____ DAYS _____ FT.	_____	_____	_____	_____	_____
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED	_____	_____	_____	_____	_____

TYPICAL GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

WELL NO. FW-2



FLUSH MOUNT DETAIL



NOTES:

Was well developed on this date by well installation crew? YES _____ NO X

Water Level _____

Crew DL JF

JOB NO. G-10235

DATE 7-14-10

JOB NAME Tyco



COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.
IRONWOOD, MICHIGAN 49938
BORING NO. EW-3



PAGE 1 OF 1

FIELD BORING LOG

PROJECT Tyco

JOB NO. 10235

SURFACE ELEVATION: Same

BENCH MARK DESCRIBE _____

DRILLER: PL

HELPER: JF

RIG NO. D-120

DATE START: 7-21-10

BORING LOCATION: 45 marked

OFFSET: _____

DATE END: 7-21-10

- HSA; SIZE 96 FROM 0.0 TO 21.5 5" CFA FROM _____ TO _____
- CASING; SIZE _____ FROM _____ TO _____ CASING ADVANCER; SIZE _____ FROM _____ TO _____
- RB; SIZE _____ FROM _____ TO _____ MUD TYPE _____ FROM _____ TO _____
- ROCK CORE; SIZE _____ FROM _____ TO _____ OTHER _____ FROM _____ TO _____

SAMPLE						SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6"	DEPTH	TYPE	REC.				
1	Blind drill	<u>0.0</u> <u>21.5</u>				<u>21.5</u> E.O.B 21.5	See idel diagram	

THICKNESS OF:	DEPTH TO:
TOPSOIL _____	WEATHERED ROCK _____
CONCRETE _____	SOLID ROCK _____
ASPHALT <u>1.3</u>	BOTTOM OF WELL _____
BASE COURSE _____	BOTTOM OF BORING <u>21.5</u>
FROST _____	

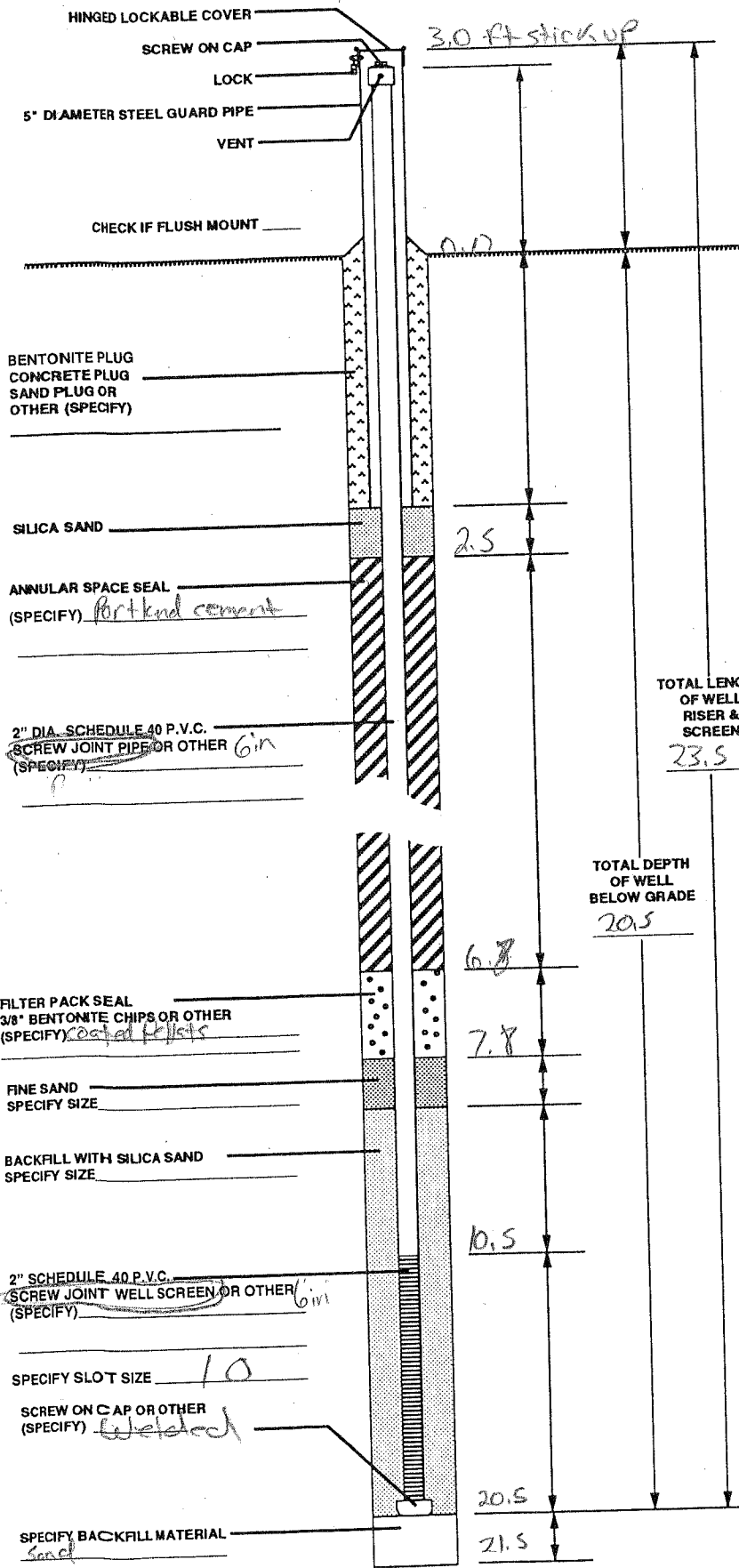
BACKFILLING INFORMATION:	
	FROM TO
NATURAL MATERIAL _____	_____
BENTONITE _____	_____
NEAT CEMENT _____	_____
CEMENT/BENTONITE _____	_____
GROUT (RATIO); _____	_____

HARD DRILLING:	
FROM _____	TO _____
_____	_____
_____	_____
_____	_____

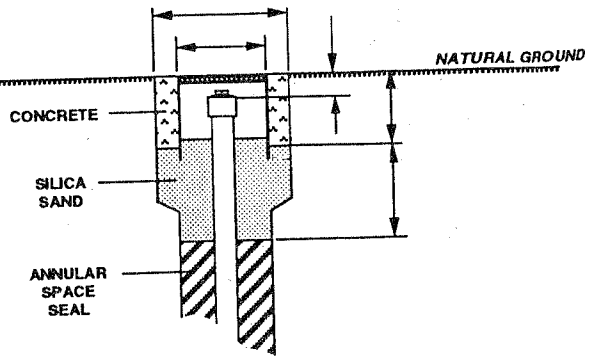
GROUNDWATER MEASUREMENTS	COBBLES AND/OR BOULDERS			
	SAMPLE WET FROM TO	FROM TO	FROM TO	FROM TO
DEPTH DURING DRILLING _____	_____	<u>1.3</u> <u>6.0</u>	_____	_____
DEPTH AT COMPLETION _____	_____	_____	_____	_____
AFTER _____ HRS. _____ FT.	_____	_____	_____	_____
AFTER _____ DAYS _____ FT.	_____	_____	_____	_____
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED	_____	_____	_____	_____

TYPICAL GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

WELL NO. FW-3



FLUSH MOUNT DETAIL



NOTES:

Was well developed on this date by well installation crew? YES NO

Water Level _____

Crew DL JF

JOB NO. G-16235

DATE 7-21-10

JOB NAME Tyco



COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.

IRONWOOD, MICHIGAN 49938

BORING NO. BW-4 PAGE 1 OF 1



FIELD BORING LOG

PROJECT Fyco JOB NO. 10235

SURFACE ELEVATION: Some BENCH MARK _____ DESCRIBE _____ DRILLER: DL HELPER: JP RIG NO. D-120

DATE START: 7-15-10 BORING LOCATION: AS marked OFFSET: _____

DATE END: 7-15-10

HSA; SIZE 9/4 FROM 0.0 TO 21.5 5" CFA FROM _____ TO _____
 CASING; SIZE _____ FROM _____ TO _____ CASING ADVANCER; SIZE _____ FROM _____ TO _____
 RB; SIZE _____ FROM _____ TO _____ MUD TYPE _____ FROM _____ TO _____
 ROCK CORE; SIZE _____ FROM _____ TO _____ OTHER _____ FROM _____ TO _____

SAMPLE					SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6"	DEPTH	TYPE	REC.			
1	Blind drill	00 21.5			E.O.B 21.5	21.5	See well diagram

THICKNESS OF: TOPSOIL _____ CONCRETE _____ ASPHALT _____ BASE COURSE _____ FROST _____

DEPTH TO: WEATHERED ROCK _____ SOLID ROCK _____ BOTTOM OF WELL _____ BOTTOM OF BORING 21.5

BACKFILLING INFORMATION:

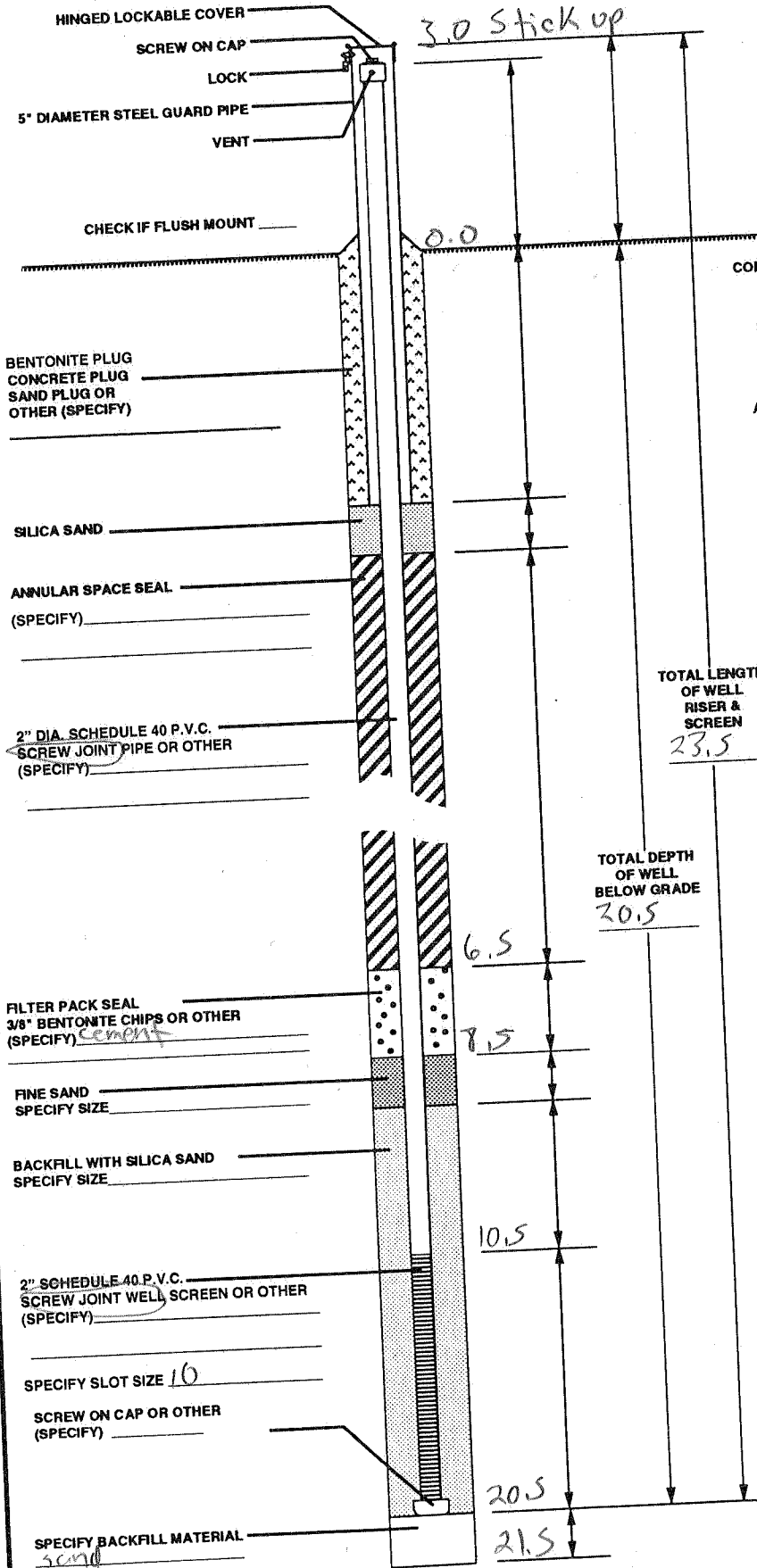
NATURAL MATERIAL _____ BENTONITE _____ NEAT CEMENT _____ CEMENT/BENTONITE _____ GROUT (RATIO); _____

HARD DRILLING: FROM _____ TO _____

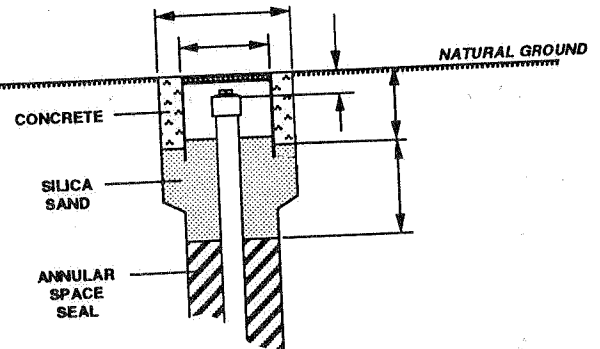
GROUNDWATER MEASUREMENTS	SAMPLE WET		COBBLES AND/OR BOULDERS			
	FROM	TO	FROM	TO	FROM	TO
DEPTH DURING DRILLING	_____	_____	_____	_____	_____	_____
DEPTH AT COMPLETION	_____	_____	_____	_____	_____	_____
AFTER _____ HRS. _____ FT.	_____	_____	_____	_____	_____	_____
AFTER _____ DAYS _____ FT.	_____	_____	_____	_____	_____	_____
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED	_____	_____	_____	_____	_____	_____

TYPICAL GROUNDWATER MONITORING WELL CONSTRUCTION DETAIL

WELL NO. EW-4



FLUSH MOUNT DETAIL



NOTES:

Was well developed on this date by well installation crew? YES NO

Water Level _____

Crew DL JF

JOB NO. G-10235

DATE 7-15-10

JOB NAME Tyco



COLEMAN ENGINEERING COMPANY
635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801



COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.
IRONWOOD, MICHIGAN 49938
BORING NO. EW-6 PAGE 1 OF 1



FIELD BORING LOG

PROJECT Tyco JOB NO. 10235

SURFACE ELEVATION: Same BENCH MARK _____ DRILLER: DL HELPER: JF RIG NO. 0720

DATE START: 7-16-10 BORING LOCATION: AS marked OFFSET: _____

DATE END: 7-16-10

HSA; SIZE 94 FROM 0.0 TO 21.5 5" CFA FROM _____ TO _____
 CASING; SIZE _____ FROM _____ TO _____ CASING ADVANCER; SIZE _____ FROM _____ TO _____
 RB; SIZE _____ FROM _____ TO _____ MUD TYPE _____ FROM _____ TO _____
 ROCK CORE; SIZE _____ FROM _____ TO _____ OTHER _____ FROM _____ TO _____

SAMPLE					SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6'	DEPTH	TYPE	REC.			
1	Blind drill	0.0 21.5			E.O.B 21.5	21.5	See well diagram

THICKNESS OF:	DEPTH TO:
TOPSOIL _____	WEATHERED ROCK _____
CONCRETE _____	SOLID ROCK _____
ASPHALT _____	BOTTOM OF WELL _____
BASE COURSE _____	BOTTOM OF BORING <u>21.5</u>
FROST _____	

BACKFILLING INFORMATION:	
	FROM TO
NATURAL MATERIAL _____	_____
BENTONITE _____	_____
NEAT CEMENT _____	_____
CEMENT/BENTONITE _____	_____
GROUT (RATIO); _____	_____

HARD DRILLING:	
FROM	TO
_____	_____
_____	_____
_____	_____
_____	_____

GROUNDWATER MEASUREMENTS	SAMPLE WET FROM TO	COBBLES AND/OR BOULDERS			
		FROM TO	FROM TO	FROM TO	FROM TO
DEPTH DURING DRILLING _____	_____	_____	_____	_____	_____
DEPTH AT COMPLETION _____	_____	_____	_____	_____	_____
AFTER _____ HRS. _____ FT.	_____	_____	_____	_____	_____
AFTER _____ DAYS _____ FT.	_____	_____	_____	_____	_____
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED	_____	_____	_____	_____	_____



COLEMAN ENGINEERING COMPANY

635 CIRCLE DRIVE
IRON MOUNTAIN, MICHIGAN 49801

OFFICE ALSO LOCATED AT:
200 E. AYER ST.

IRONWOOD, MICHIGAN 49938

BORING NO. EW-46 PAGE 1 OF 1



FIELD BORING LOG

PROJECT Tyco JOB NO. 10235

SURFACE ELEVATION: Same BENCH MARK _____ DRILLER: DL HELPER: JP RIG NO. D-120

DATE START: 7-15-10 BORING LOCATION: as marked OFFSET: _____

DATE END: 7-15-10

HSA; SIZE 9 1/4 FROM 0.0 TO 21.5 5" CFA FROM _____ TO _____
 CASING; SIZE FROM _____ TO _____ CASING ADVANCER; SIZE FROM _____ TO _____
 RB; SIZE FROM _____ TO _____ MUD TYPE FROM _____ TO _____
 ROCK CORE; SIZE FROM _____ TO _____ OTHER FROM _____ TO _____

SAMPLE					SOIL DESCRIPTION	DEPTH	DRILLING AND SAMPLE NOTES
NO.	BLOW COUNTS / 6"	DEPTH	TYPE	REC.			
1	Blind drill	0.0 21.5			E.O.B 21.5	21.5	See well diagram

THICKNESS OF:	DEPTH TO:
TOPSOIL _____	WEATHERED ROCK _____
CONCRETE _____	SOLID ROCK _____
ASPHALT _____	BOTTOM OF WELL _____
BASE COURSE _____	BOTTOM OF BORING <u>21.5</u>
FROST _____	

BACKFILLING INFORMATION:	
	FROM TO
NATURAL MATERIAL _____	
BENTONITE _____	
NEAT CEMENT _____	
CEMENT/BENTONITE _____	
GROUT (RATIO); _____	

HARD DRILLING:	
	FROM TO

GROUNDWATER MEASUREMENTS	SAMPLE WET FROM TO	COBBLES AND/OR BOULDERS			
		FROM TO	FROM TO	FROM TO	FROM TO
DEPTH DURING DRILLING _____					
DEPTH AT COMPLETION _____					
AFTER _____ HRS. _____ FT.					
AFTER _____ DAYS _____ FT.					
<input type="checkbox"/> GROUNDWATER NOT ENCOUNTERED					

Facility/Project Name Tyco Fire Protection Products	Local Grid Location of Well ft. <input type="checkbox"/> N. <input type="checkbox"/> S. <input type="checkbox"/> E. <input type="checkbox"/> W.	Well Name SBO 1/EW-08
Facility License, Permit or Monitoring No.	Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/>) or Well Location Lat. _____ " Long. _____ " or	Wis. Unique Well No. _____ DNR Well ID No. _____
Facility ID	St. Plane _____ ft. N. _____ ft. E. S/C/N	Date Well Installed 02/20/2014 m m d d y y
Type of Well Well Code 26 EW	Section Location of Waste/Source 1/4 of _____ 1/4 of Sec. 11 , T. 31 N, R. 27 <input checked="" type="checkbox"/> E <input type="checkbox"/> W	Well Installed By: Name (first, last) and firm Chris Heather Cascade Drilling
Distance from Waste/Source _____ ft. Apply <input type="checkbox"/>	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidgradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known	

A. Protective pipe, top elevation _____ ft. MSL
 B. Well casing, top elevation _____ ft. MSL
 C. Land surface elevation _____ ft. MSL
 D. Surface seal, bottom _____ ft. MSL or _____ ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

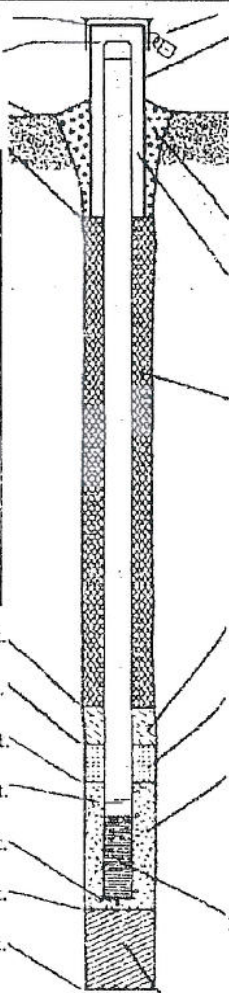
13. Sieve analysis performed? Yes No

14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
VO to source Other

15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99

16. Drilling additives used? Yes No
 Describe _____

17. Source of water (attach analysis, if required):
hydrant



- Cap and lock? Yes No
- Protective cover pipe:
 - Inside diameter: _____ in.
 - Length: _____ ft.
 - Material: Steel 14
Other
 - Additional protection? Yes No
If yes, describe: _____
- Surface seal:
 - Bentonite 10
 - Concrete 11
 - Other
- Material between well casing and protective pipe:
 - Bentonite 10
 - Other
 - #40 Sand
- Annular space seal:
 - Granular/Chipped Bentonite 13
 - Lbs/gal mud weight Bentonite-sand slurry 15
 - Lbs/gal mud weight Bentonite slurry 11
 - % Bentonite Bentonite-cement grout 10
 - 4 Ft³ volume added for any of the above
 - How installed: Tremie 11
Tremie pumped 12
Gravity 18
- Bentonite seal:
 - Bentonite granules 13
 - 1/4 in. 3/8 in. 1/2 in. Bentonite chips 12
 - Other
- Fine sand material: Manufacturer, product name & mesh size
 - Oriman 4070
 - Volume added .75 ft³
- Filter pack material: Manufacturer, product name & mesh size
 - red dirt #30
 - Volume added 7.5 ft³
- Well casing:
 - Flush threaded PVC schedule 40 13
 - Flush threaded PVC schedule 80 14
 - SS. Other
- Screen material: Stainless Steel
 - Screen type: Factory cut 11
Continuous slot 11
Other
 - Manufacturer Johnson
 - Slot size: 0.030 in.
 - Slotted length: 10 ft.
- Backfill material (below filter pack):
 - None 14
 - #40 Other

E. Bentonite seal, top 9 ft. MSL or _____ ft.
 F. Fine sand, top 12 ft. MSL or _____ ft.
 G. Filter pack, top 13 ft. MSL or _____ ft.
 H. Screen joint, top 15 ft. MSL or _____ ft.
 I. Well bottom 25 ft. MSL or _____ ft.
 J. Filter pack, bottom 25 ft. MSL or _____ ft.
 K. Borehole, bottom 25 ft. MSL or _____ ft.
 L. Borehole, diameter 10 in.
 M. O.D. well casing 6.625 in.
 N. I.D. well casing 6.357 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature _____ Firm Cascade Drilling L.P.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name: Tyco Fire Protection Products Local Grid Location of Well: _____ ft. N. _____ ft. E. _____ ft. S. _____ ft. W.
 Facility License, Permit or Monitoring No.: _____ Local Grid Origin (estimated:) or Well Location
 Lat. _____ "Long. _____ or _____
 Facility ID: _____ St. Plane _____ ft. N. _____ ft. E. S/C/N _____
 Type of Well: _____ Section Location of Waste/Source: _____
 Well Code: 26, FW 1/4 of _____ 1/4 of Sec. 11, T. 31 N., R. 27 E. W.
 Distance from Waste/Source _____ ft. Location of Well Relative to Waste/Source: u Upgradient s Sidgradient d Downgradient n Not Known
 Enf. Stds. Apply Gov. Lot Number _____
 Well Installed By: Name (first, last) and Firm: Chris Hether
Cascade Drilling

A. Protective pipe, top elevation _____ ft. MSL
 B. Well casing, top elevation _____ ft. MSL
 C. Land surface elevation _____ ft. MSL
 D. Surface seal, bottom _____ ft. MSL or _____ ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

13. Sieve analysis performed? Yes No
 14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
rotary sonic Other

15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99
 16. Drilling additives used? Yes No
 Describe _____
 17. Source of water (attach analysis, if required):
hydrant

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: _____ in.
 b. Length: _____ ft.
 c. Material: Steel 14
 Other
 d. Additional protection? Yes No
 If yes, describe: _____
 3. Surface seal: Bentonite 10
 Concrete 11
 Other
 4. Material between well casing and protective pipe:
#40 sand Bentonite 10
 Other
 5. Annular space seal: a. Granular/Chipped Bentonite 13
 b. _____ Lbs/gal mud weight . . . Bentonite-sand slurry 15
 c. _____ Lbs/gal mud weight . . . Bentonite slurry 11
 d. _____ % Bentonite Bentonite-cement grout 10
 e. 4 Ft³ volume added for any of the above
 f. How installed: Tremie 11
 Tremie pumped 12
 Gravity 18
 6. Bentonite seal: a. Bentonite granules 13
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 12
 c. _____ Other
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Uniman 4030
 b. Volume added 5 ft³
 8. Filter pack material: Manufacturer, product name & mesh size
 a. red lint #15
 b. Volume added 7 ft³
 9. Well casing: Flush threaded PVC schedule 40 13
 Flush threaded PVC schedule 80 14
SS Other
 10. Screen material: Stainless Steel
 a. Screen type: Factory cut 11
 Continuous slot 11
 Other
 b. Manufacturer Johnson
 c. Slot size: 0.015 in.
 d. Slotted length: 10 ft.
 11. Backfill material (below filter pack):
#40 None 14
 Other

E. Bentonite seal, top 0 ft. MSL or _____ ft.
 F. Fine sand, top 12 ft. MSL or _____ ft.
 G. Filter pack, top 13 ft. MSL or _____ ft.
 H. Screen joint, top 25.4 ft. MSL or _____ ft.
 I. Well bottom 25.4 ft. MSL or _____ ft.
 J. Filter pack, bottom 25.4 ft. MSL or _____ ft.
 K. Borehole, bottom 25.4 ft. MSL or _____ ft.
 L. Borehole, diameter 10 in.
 M. O.D. well casing 6.625 in. 5' sump
 N. I.D. well casing 6.357 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: [Signature] Firm: Cascade Drilling L.P.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name: Tyco Fire Protection Products
 Facility License, Permit or Monitoring No.: _____
 Facility ID: _____
 Type of Well: _____
 Well Code: 261EW
 Distance from Waste/Source: _____ ft.
 Enf. Stds. Apply

Local Grid Location of Well: _____ ft. N. E. S. W.
 Local Grid Origin (estimated:) or Well Location
 Lat. _____ Long. _____
 St. Plane _____ ft. N. _____ ft. E. S/C/N
 Section Location of Waste/Source: 1/4 of _____ 1/4 of Sec. 11, T. 31 N, R. 27 E W
 Location of Well Relative to Waste/Source: u Upgradient s Sidegradient d Downgradient n Not Known
 Gov. Lot Number: _____

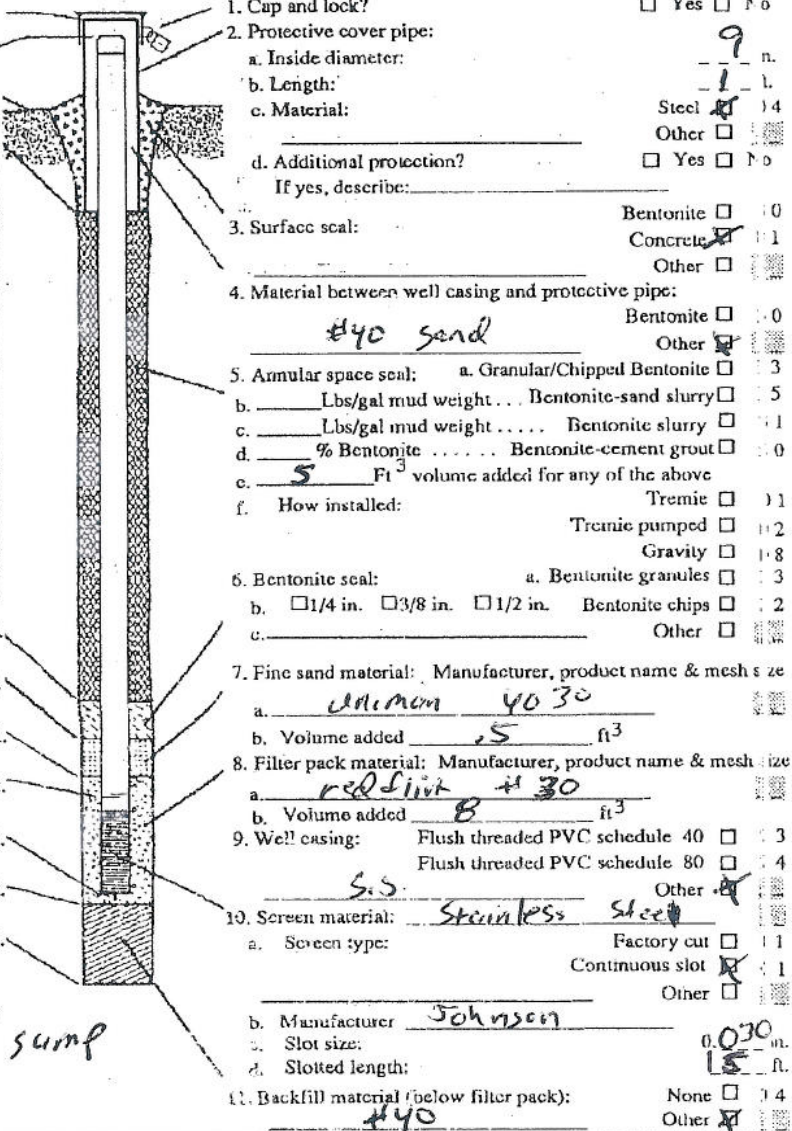
Well Name: SB09/EW-10
 Wis. Unique Well No.: _____ DNR Well ID No.: _____
 Date Well Installed: 02/21/2014
 Well Installed By: Name (first, last) and firm: Chris Heithaus - Cascade Drilling

A. Protective pipe, top elevation: 0 ft. MSL
 B. Well casing, top elevation: -5 ft. MSL
 C. Land surface elevation: _____ ft. MSL
 D. Surface seal, bottom: 2 ft. MSL or _____ ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock

13. Sieve analysis performed? Yes No
 14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
Note sieve Other

15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99
 16. Drilling additives used? Yes No
 Describe: _____
 17. Source of water (attach analysis, if required): hydro



E. Bentonite seal, top: _____ ft. MSL or _____ ft.
 F. Fine sand, top: 194 ft. MSL or _____ ft.
 G. Filter pack, top: 155 ft. MSL or _____ ft.
 H. Screen joint, top: 177 ft. MSL or _____ ft.
 I. Well bottom: 27 ft. MSL or _____ ft.
 J. Filter pack, bottom: 27 ft. MSL or _____ ft.
 K. Borehole, bottom: 27 ft. MSL or _____ ft.
 L. Borehole, diameter: 10 in.
 M. O.D. well casing: 6.625 in.
 N. I.D. well casing: 6.357 in.

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: 9 in.
 b. Length: 1 ft.
 c. Material: Steel
 d. Additional protection? Yes No
 If yes, describe: _____
 3. Surface seal: Concrete
 4. Material between well casing and protective pipe: #40 sand
 5. Annular space seal:
 a. Granular/Chipped Bentonite 3
 b. _____ Lbs/gal mud weight ... Bentonite-sand slurry 5
 c. _____ Lbs/gal mud weight ... Bentonite slurry 1
 d. _____ % Bentonite ... Bentonite-cement grout 0
 e. 5 Ft³ volume added for any of the above
 f. How installed: Tremie 11
 Tropic pumped 12
 Gravity 18
 6. Bentonite seal:
 a. Bentonite granules 3
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 2
 c. _____ Other
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Union 4030
 b. Volume added .5 ft³
 8. Filter pack material: Manufacturer, product name & mesh size
 a. red dirt #30
 b. Volume added 8 ft³
 9. Well casing: Flush threaded PVC schedule 40 3
 Flush threaded PVC schedule 80 4
 Other
 10. Screen material: Stainless Steel
 a. Screen type: Factory cut 1
 Continuous slot 1
 Other
 b. Manufacturer Johnson
 c. Slot size: 0.030 in.
 d. Slotted length: 15 ft.
 11. Backfill material (below filter pack): #40
 None 4
 Other

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: _____ Firm: Cascade Drilling L.P.

Please complete both forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name
Tyco Fire Protection Products
Facility License, Permit or Monitoring No.

Local Grid Location of Well
ft. N. E. S. W.

Well Name
SBO 3/EW-11

Facility ID

Local Grid Origin (estimated:) or Well Location
Lat. _____ Long. _____

Wis. Unique Well No. _____ DNR Well ID No. _____

Type of Well

Well Code **26, EW**

Section Location of Waste/Source
1/4 of _____ 1/4 of Sec. **11**, T. **31** N, R. **27** E W

Date Well Installed **02/21/2019**

Well Installed By: Name (first, last) and firm
Chris Hothe

Distance from Waste/Source _____ ft.

Enf. Stds. Apply

Location of Well Relative to Waste/Source
u Upgradient s Sidegradient
d Downgradient n Not Known

Gov. Lot Number _____

Cascade Drilling

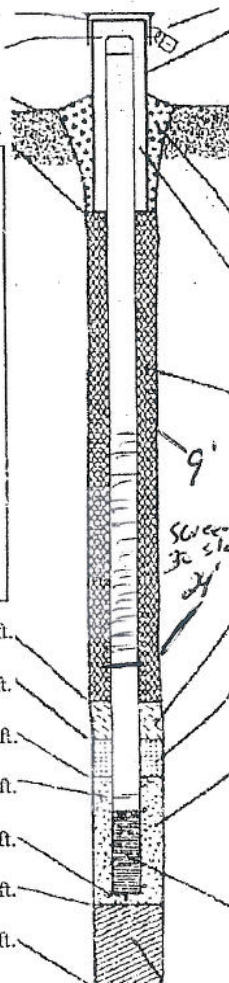
- A. Protective pipe, top elevation _____ ft. MSL
- B. Well casing, top elevation **-0.5** ft. MSL
- C. Land surface elevation _____ ft. MSL
- D. Surface seal, bottom **2** ft. MSL or _____ ft.

12. USCS classification of soil near screen:
- GP GM GC GW SW SP
SM SC ML MH CL CH
Bedrock

13. Sieve analysis performed? Yes No
14. Drilling method used: Rotary 50
Hollow Stem Auger 41
rotasonic Other
15. Drilling fluid used: Water 02 Air 01
Drilling Mud 03 None 99
16. Drilling additives used? Yes No

Describe _____
17. Source of water (attach analysis, if required):
hydrovent

- E. Bentonite seal, top _____ ft. MSL or _____ ft.
- F. Fine sand, top **35** ft. MSL or _____ ft.
- G. Filter pack, top **36** ft. MSL or _____ ft.
- H. Screen joint, top **38** ft. MSL or _____ ft.
- I. Well bottom **43** ft. MSL or _____ ft.
- J. Filter pack, bottom **43** ft. MSL or _____ ft.
- K. Borehole, bottom **43** ft. MSL or _____ ft.
- L. Borehole, diameter **10** in.
- M. O.D. well casing **6.625** in.
- N. I.D. well casing **6.357** in.



- 1. Cap and lock? Yes No
- 2. Protective cover pipe:
 - a. Inside diameter: **9** in.
 - b. Length: **1** ft.
 - c. Material: Steel 14
Other
- d. Additional protection? Yes No
If yes, describe: _____
- 3. Surface seal: Bentonite 0
Concrete 1
Other
- 4. Material between well casing and protective pipe: Bentonite 0
Other
- 5. Annular space seal:
 - a. Granular/Chipped Bentonite 3
 - b. _____ Lbs/gal mud weight ... Bentonite-sand slurry 5
 - c. _____ Lbs/gal mud weight ... Bentonite slurry 1
 - d. _____ % Bentonite ... Bentonite-cement grout 0
 - e. **3** Ft³ volume added for any of the above
 - f. How installed: Tremie 11
Tremie pumped 12
Gravity 18
- 6. Bentonite seal:
 - a. Bentonite granules 3
 - b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 2
 - c. _____ Other
- 7. Fine sand material: Manufacturer, product name & mesh size
 - a. **Common 40/30**
 - b. Volume added **1** ft³
- 8. Filter pack material: Manufacturer, product name & mesh size
 - a. **red flat #10**
 - b. Volume added **2.5** ft³
- 9. Well casing: Flush threaded PVC schedule 40 3
Flush threaded PVC schedule 80 4
SS Other
- 10. Screen material: **stainless steel**
 - a. Screen type: Factory cut 1
Continuous slot 1
Other
 - b. Manufacturer **Johnson**
 - c. Slot size: top: **0.030 in** bottom: **0.010 in**
 - d. Slotted length: top: **15'** bottom: **5'**
- 11. Backfill material (below filter pack): None 14
#40 Other

top screen
275 #3
705 #10
#30
7.5 #13

2 screen zones

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature _____

Firm

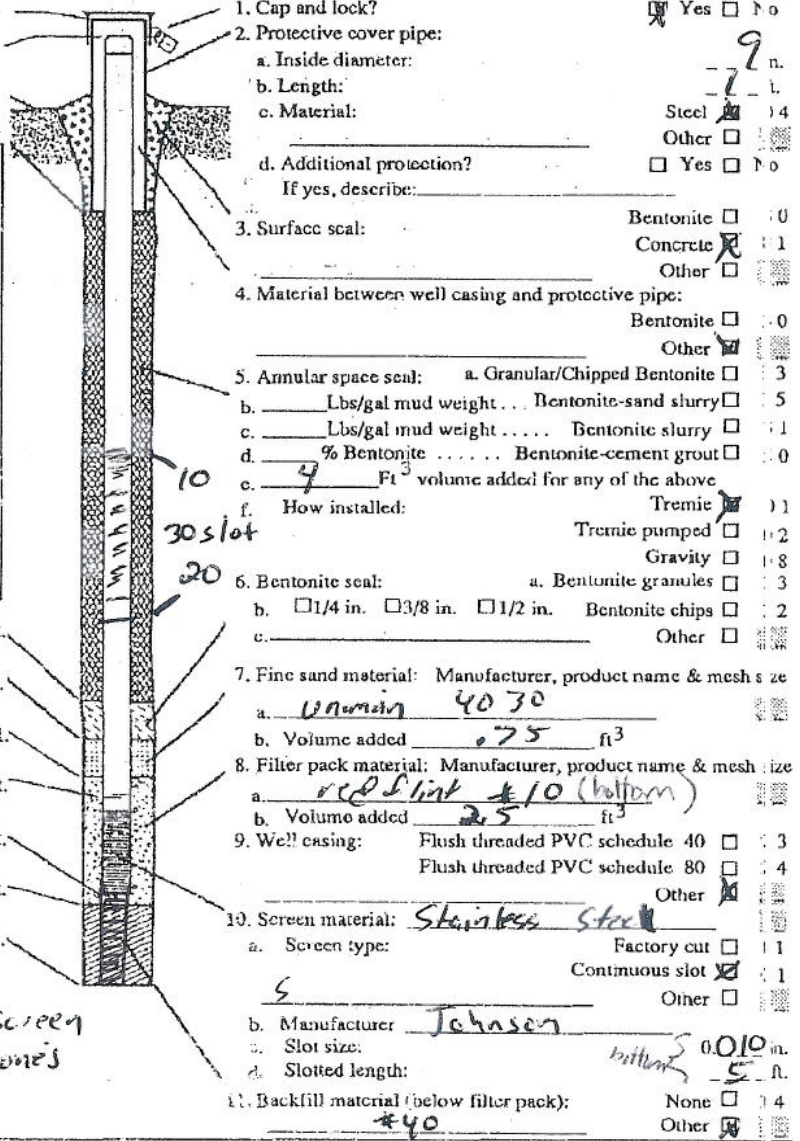
Cascade Drilling L.P.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

5' screen on bottom 19' visor in between
15' screen on top
grout 35'-26'
cement/sand

Facility/Project Name: Tyco Fire Protection Products Local Grid Location of Well: _____ ft. N. _____ ft. E. _____ ft. S. _____ ft. W.
 Facility License, Permit or Monitoring No.: _____ Local Grid Origin (estimated:) or Well Location
 Lat. _____ " Long. _____ " or _____
 Facility ID: _____ St. Plane _____ ft. N. _____ ft. E. S/C/N
 Section Location of Waste/Source: _____
 Type of Well: _____ 1/4 of _____ 1/4 of Sec. 11 T. 31 N. R. 27 W
 Well Code: 261 EW Well Installed: 02/22/2014
 Date Well Installed: 02/22/2014
 Well Installed By: Name (first, last) and firm: Chris Heather Cascade Drilling
 Distance from Waste/Source _____ ft. Enf. Stds. Apply Location of Well Relative to Waste/Source: u Upgradient s Sidegradient d Downgradient n Not Known Gov. Lot Number _____

A. Protective pipe, top elevation _____ ft. MSL
 B. Well casing, top elevation _____ ft. MSL
 C. Land surface elevation _____ ft. MSL
 D. Surface seal, bottom 2 ft. MSL or _____ ft.
 12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock
 13. Sieve analysis performed? Yes No
 14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
Auto sonic Other
 15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99
 16. Drilling additives used? Yes No
 Describe _____
 17. Source of water (attach analysis, if required): hydrant



E. Bentonite seal, top _____ ft. MSL or _____ ft.
 F. Fine sand, top 27 ft. MSL or _____ ft.
 G. Filter pack, top 28 ft. MSL or _____ ft.
 H. Screen joint, top 30 ft. MSL or _____ ft.
 I. Well bottom 35 ft. MSL or _____ ft.
 J. Filter pack, bottom 35 ft. MSL or _____ ft.
 K. Borehole, bottom 35 ft. MSL or _____ ft.
 L. Borehole, diameter 10 in.
 M. O.D. well casing 8.525 in.
 N. I.D. well casing 6.357 in.

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: _____ in.
 b. Length: _____ ft.
 c. Material: Steel 14
 Other
 d. Additional protection? Yes No
 If yes, describe: _____
 3. Surface seal: Bentonite 10
 Concrete 11
 Other
 4. Material between well casing and protective pipe: Bentonite 10
 Other
 5. Annular space seal: a. Granular/Chipped Bentonite 3
 b. _____ Lbs/gal mud weight _____ Bentonite-sand slurry 5
 c. _____ Lbs/gal mud weight _____ Bentonite slurry 1
 d. _____ % Bentonite _____ Bentonite-cement grout 10
 e. 4 Ft³ volume added for any of the above
 f. How installed: Tremie 11
 Tremie pumped 12
 Gravity 18
 6. Bentonite seal: a. Bentonite granules 3
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 2
 c. _____ Other
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Unimin 4030
 b. Volume added 0.75 ft³
 8. Filter pack material: Manufacturer, product name & mesh size
 a. red slint #10 (bottom)
 b. Volume added 2.5 ft³
 9. Well casing: Flush threaded PVC schedule 40 3
 Flush threaded PVC schedule 80 4
 Other
 10. Screen material: Stainless Steel
 a. Screen type: Factory cut 11
 Continuous slot 1
 Other
 b. Manufacturer Johnson
 c. Slot size: 5 without 0.010 in.
 d. Slotted length: _____ ft.
 11. Backfill material (below filter pack): #40 None 14
 Other

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: _____ Firm: Cascade Drilling L.P.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

5' 10 slot on bottom 10' riser in between
 10' 30 slot on top
 grad cement/sand 27'-22'

Facility/Project Name: Tyco Fire Protection Products
 Facility License, Permit or Monitoring No. _____
 Facility ID _____
 Type of Well: _____
 Well Code: 26 EW
 Distance from Waste/Source _____ ft.
 Local Grid Location of Well: _____ ft. N. _____ ft. E. _____ ft. S. _____ ft. W.
 Local Grid Origin (estimated) or Well Location
 Lat. _____ Long. _____
 St. Plane _____ ft. N. _____ ft. E. S/C/N _____
 Section Location of Waste/Source: _____
 Location of Well Relative to Waste/Source: u Upgradient s Sidegradient d Downgradient n Not Known
 Gov. Lot Number _____
 Well Name: EW 13
 Wis. Unique Well No. _____ DNR Well ID No. _____
 Date Well Installed: 8/3/04/2014
 Well Installed By: Name (first, last) and firm: Chris Heather Cascade Drilling

A. Protective pipe, top elevation: 0 ft. MSL
 B. Well casing, top elevation: -0.4 ft. MSL
 C. Land surface elevation: _____ ft. MSL
 D. Surface seal, bottom: 2 ft. MSL or _____ ft.

12. USCS classification of soil near screen:
 GP GM GC GW SW SP
 SM SC ML MH CL CH
 Bedrock
 13. Sieve analysis performed? Yes No
 14. Drilling method used: Rotary 50
 Hollow Stem Auger 41
rotogenic Other
 15. Drilling fluid used: Water 02 Air 01
 Drilling Mud 03 None 99
 16. Drilling additives used? Yes No
 Describe: _____
 17. Source of water (attach analysis, if required): hydrant

1. Cap and lock? Yes No
 2. Protective cover pipe:
 a. Inside diameter: _____ in.
 b. Length: 9 ft.
 c. Material: Steel 14
 Other
 d. Additional protection? Yes No
 If yes, describe: _____
 3. Surface seal: Bentonite 10
 Concrete 11
 Other
 4. Material between well casing and protective pipe: Bentonite 10
 Other
 5. Annular space seal:
 a. Granular/Chipped Bentonite 13
 b. _____ Lbs/gal mud weight _____ Bentonite-sand slurry 15
 c. _____ Lbs/gal mud weight _____ Bentonite slurry 11
 d. _____ % Bentonite _____ Bentonite-cement grout 10
 e. 2 Ft³ volume added for any of the above
 f. How installed: Tremie 11
 Tremie pumped 12
 Gravity 18
 6. Bentonite seal:
 a. Bentonite granules 13
 b. 1/4 in. 3/8 in. 1/2 in. Bentonite chips 12
 c. _____ Other
 7. Fine sand material: Manufacturer, product name & mesh size
 a. Uniman 40/30
 b. Volume added 1.5 ft³
 8. Filter pack material: Manufacturer, product name & mesh size
 a. red Hint #20
 b. Volume added 9.5 ft³
 9. Well casing: Flush threaded PVC schedule 40 13
S.S. Flush threaded PVC schedule 80 14
 Other
 10. Screen material: Stainless Steel
 a. Screen type: Factory cut 11
 Continuous slot 11
 Other
 b. Manufacturer: Johnson
 c. Slot size: 0.020 in.
 d. Slotted length: 15 ft.
 11. Backfill material (below filter pack): None 14
 Other

E. Bentonite seal, top: _____ ft. MSL or _____ ft.
 F. Fine sand, top: 5 ft. MSL or _____ ft.
 G. Filter pack, top: 6 ft. MSL or _____ ft.
 H. Screen joint, top: 8 ft. MSL or _____ ft.
 I. Well bottom: 28 ft. MSL or _____ ft.
 J. Filter pack, bottom: 28 ft. MSL or _____ ft.
 K. Borehole, bottom: 28 ft. MSL or _____ ft.
 L. Borehole, diameter: 10 in.
 M. O.D. well casing: 6.625 in. 5' samp
 N. I.D. well casing: 6.357 in.

I hereby certify that the information on this form is true and correct to the best of my knowledge.
 Signature: [Signature] Firm: Cascade Drilling L.P.

Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

Facility/Project Name Tyco Fire Protection Products		Local Grid Location of Well ft. <input type="checkbox"/> N <input type="checkbox"/> S <input type="checkbox"/> E <input type="checkbox"/> W		Well Name FW 14	
Facility License, Permit or Monitoring No.		Local Grid Origin (estimated: <input type="checkbox"/>) or Well Location <input type="checkbox"/>		Wis. Unique Well No. DNR Well ID No.	
Facility ID		Lat. " Long. " or		Date Well Installed 03/04/2014 m m d d y y v v	
Type of Well Well Code 26, EW		Section Location of Waste/Source 1/4 of 1/4 of Sec. 11, T. 31 N, R. 27 <input checked="" type="checkbox"/> W		Well Installed By: Name (first, last) and firm Chris Heather Cascade Drilling	
Distance from Waste/Source ft.	Enf. Stds. Apply <input type="checkbox"/>	Location of Well Relative to Waste/Source u <input type="checkbox"/> Upgradient s <input type="checkbox"/> Sidegradient d <input type="checkbox"/> Downgradient n <input type="checkbox"/> Not Known		Gov. Lot Number	

<p>A. Protective pipe, top elevation 0 ft. MSL</p> <p>B. Well casing, top elevation 4 ft. MSL</p> <p>C. Land surface elevation _____ ft. MSL</p> <p>D. Surface seal, bottom 1 ft. MSL or _____ ft.</p>	<p>1. Cap and lock? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>2. Protective cover pipe: a. Inside diameter: 9 in. b. Length: 1 ft. c. Material: <input checked="" type="checkbox"/> Steel <input type="checkbox"/> Other <input type="checkbox"/> d. Additional protection? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes, describe: _____</p> <p>3. Surface seal: <input type="checkbox"/> Bentonite <input type="checkbox"/> Concrete <input checked="" type="checkbox"/> Other <input type="checkbox"/></p> <p>4. Material between well casing and protective pipe: <input type="checkbox"/> Bentonite <input type="checkbox"/> Other <input checked="" type="checkbox"/></p> <p>5. Annular space seal: a. Granular/Chipped Bentonite <input type="checkbox"/> b. _____ Lbs/gal mud weight Bentonite-sand slurry <input type="checkbox"/> c. _____ Lbs/gal mud weight Bentonite slurry <input type="checkbox"/> d. _____ % Bentonite Bentonite-cement grout <input type="checkbox"/> e. _____ Ft³ volume added for any of the above f. How installed: <input type="checkbox"/> Tremie <input type="checkbox"/> Tremie pumped <input type="checkbox"/> <input type="checkbox"/> Gravity <input checked="" type="checkbox"/></p> <p>6. Bentonite seal: a. Bentonite granules <input type="checkbox"/> b. <input type="checkbox"/> 1/4 in. <input checked="" type="checkbox"/> 3/8 in. <input type="checkbox"/> 1/2 in. Bentonite chips <input checked="" type="checkbox"/> c. _____ Other <input type="checkbox"/></p> <p>7. Fine sand material: Manufacturer, product name & mesh size a. Ulman 4030 b. Volume added 0.5 ft³</p> <p>8. Filter pack material: Manufacturer, product name & mesh size a. red slit #20 b. Volume added 9 ft³</p> <p>9. Well casing: Flush threaded PVC schedule 40 <input type="checkbox"/> Flush threaded PVC schedule 80 <input type="checkbox"/> S.S. Other <input checked="" type="checkbox"/></p> <p>10. Screen material: Stainless Steel a. Screen type: <input type="checkbox"/> Factory cut <input type="checkbox"/> <input checked="" type="checkbox"/> Continuous slot <input type="checkbox"/> Other <input type="checkbox"/> b. Manufacturer Johnson c. Slot size: 0.020 in. d. Slotted length: 15 ft.</p> <p>11. Backfill material (below filter pack): <input checked="" type="checkbox"/> None <input type="checkbox"/> Other <input type="checkbox"/></p>
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<p>12. USCS classification of soil near screen: GP <input type="checkbox"/> GM <input type="checkbox"/> GC <input type="checkbox"/> GW <input type="checkbox"/> SW <input type="checkbox"/> SP <input type="checkbox"/> SM <input type="checkbox"/> SC <input type="checkbox"/> ML <input type="checkbox"/> MH <input type="checkbox"/> CL <input type="checkbox"/> CH <input type="checkbox"/> Bedrock <input type="checkbox"/></p> <p>13. Sieve analysis performed? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>14. Drilling method used: Rotary <input type="checkbox"/> 50 Hollow Stem Auger <input type="checkbox"/> 41 rotasonic Other <input checked="" type="checkbox"/></p> <p>15. Drilling fluid used: Water <input checked="" type="checkbox"/> 02 Air <input type="checkbox"/> 01 Drilling Mud <input type="checkbox"/> 03 None <input type="checkbox"/> 99</p> <p>16. Drilling additives used? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Describe _____</p> <p>17. Source of water (attach analysis, if required): hydrant</p>	
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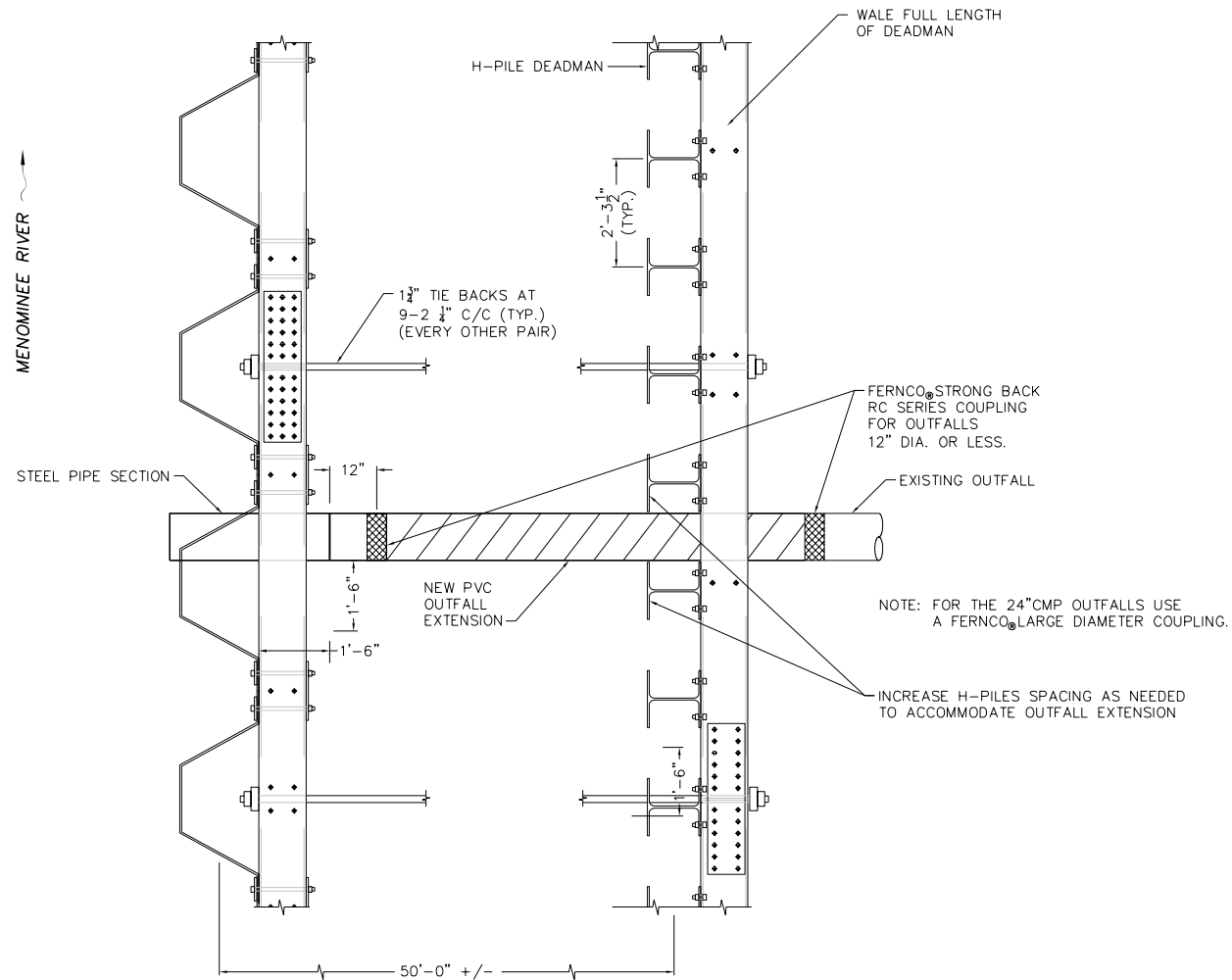
<p>E. Bentonite seal, top 1 ft. MSL or _____ ft.</p> <p>F. Fine sand, top 2 ft. MSL or _____ ft.</p> <p>G. Filter pack, top 3 ft. MSL or _____ ft.</p> <p>H. Screen joint, top 4 ft. MSL or _____ ft.</p> <p>I. Well bottom 24 ft. MSL or _____ ft.</p> <p>J. Filter pack, bottom 24 ft. MSL or _____ ft.</p> <p>K. Borehole, bottom 24 ft. MSL or _____ ft.</p> <p>L. Borehole, diameter 10 in.</p> <p>M. O.D. well casing 6.625 in.</p> <p>N. I.D. well casing 6.357 in.</p>	
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I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Firm **Cascade Drilling L.P.**

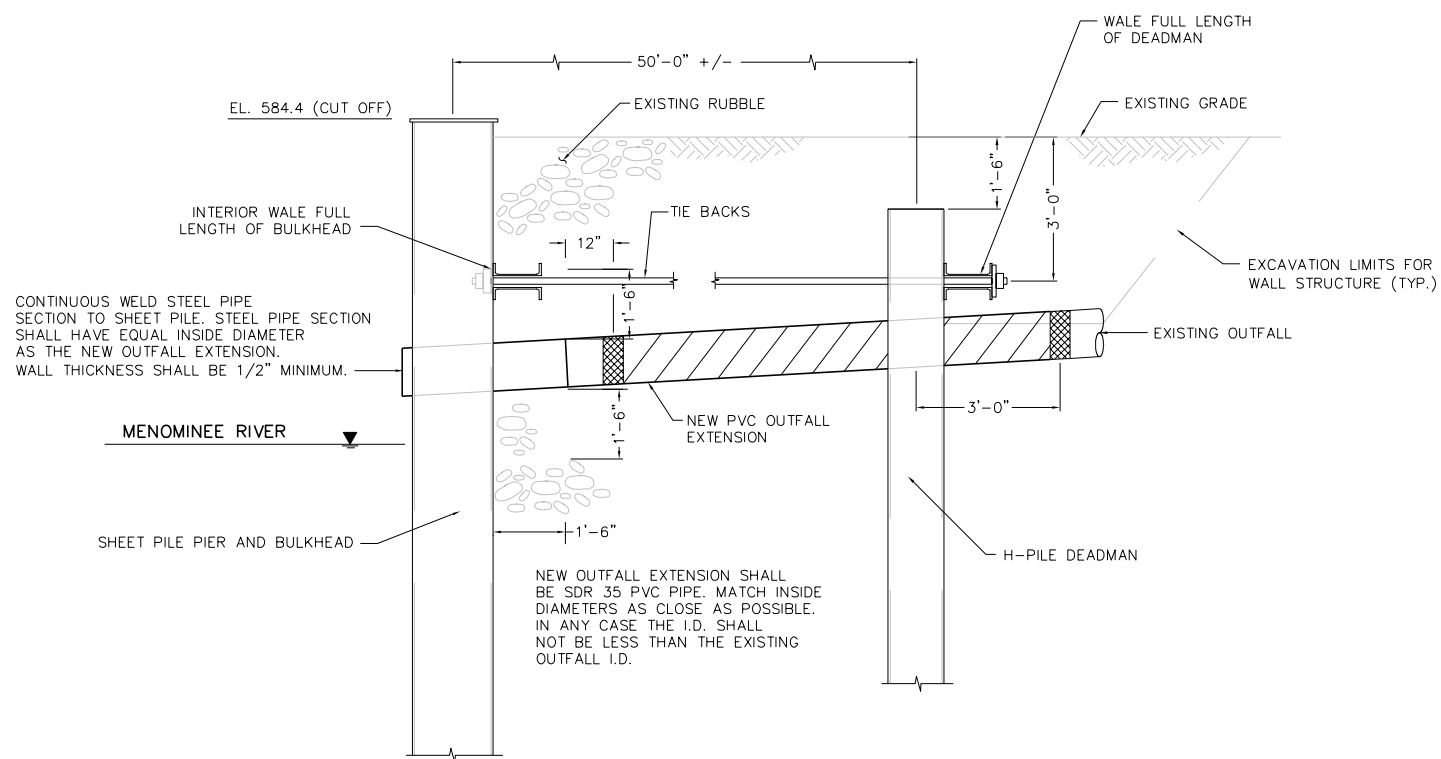
Please complete both Forms 4400-113A and 4400-113B and return them to the appropriate DNR office and bureau. Completion of these reports is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file these forms may result in a forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on these forms is not intended to be used for any other purpose. NOTE: See the instructions for more information, including where the completed forms should be sent.

File: L:\work\99045\CADD\ADDENDUM D\BARRIER WALL\C-9.dwg Time: Jan 20, 2010 - 3:29pm



TYPICAL SHEET PILE SECTION ALONG RIVER WITH OUTFALL PENETRATION

N.T.S.



TYPICAL SHEET PILE SECTION INLAND

N.T.S.

CONTINUOUS WELD STEEL PIPE SLEEVE TO SHEET PILE WALL. I.D. OF SLEEVE SHALL BE EXISTING UNDERGROUND PIPING O.D. PLUS 3 INCHES MINIMUM. WALL THICKNESS SHALL BE 1/2" MINIMUM. EXTEND SLEEVE BEYOND CONCRETE COLLAR 2' EACH SIDE.

EXTEND NEW PIPE SECTION BEYOND SLEEVE 2' EACH SIDE.

BRACE NEW PIPE SECTION AS REQUIRED AND FILL ANNULAR SPACE WITH CELLULAR CONCRETE CONFORMING TO SECTION 8.35.5 OF THE STANDARD SPECIFICATIONS.

PACK WITH NON-HARDENING DUCT SEAL MINIMUM 3"

EXISTING UNDERGROUND PIPING

FERRO-STRONG BACK RC SERIES COUPLING FOR 12" DIA. PIPE OR LESS.

NOTE: FOR PRESSURE PIPE USE TIE-IN-SLEEVE IN PLACE OF FERRO-STRONG COUPLING. ON ONE END AND AN EXISTING JOINT ON THE OPPOSITE END.

SHEBOYGAN, WISCONSIN		REVISIONS		DRN	CHK	DATE
DRN	CLL	JAN., 2010	D	CLL	TJH	01/22/10
DES	TJH	JAN., 2010	B	WAT	TJH	02/29/08
CHK	RJO	JAN., 2010	A	CLL	RJO	12/17/07
APP	TRJ	JAN., 2010				

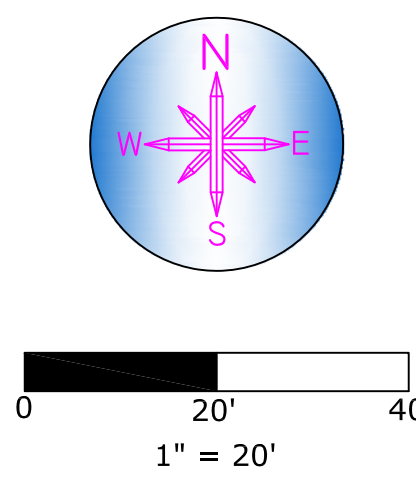
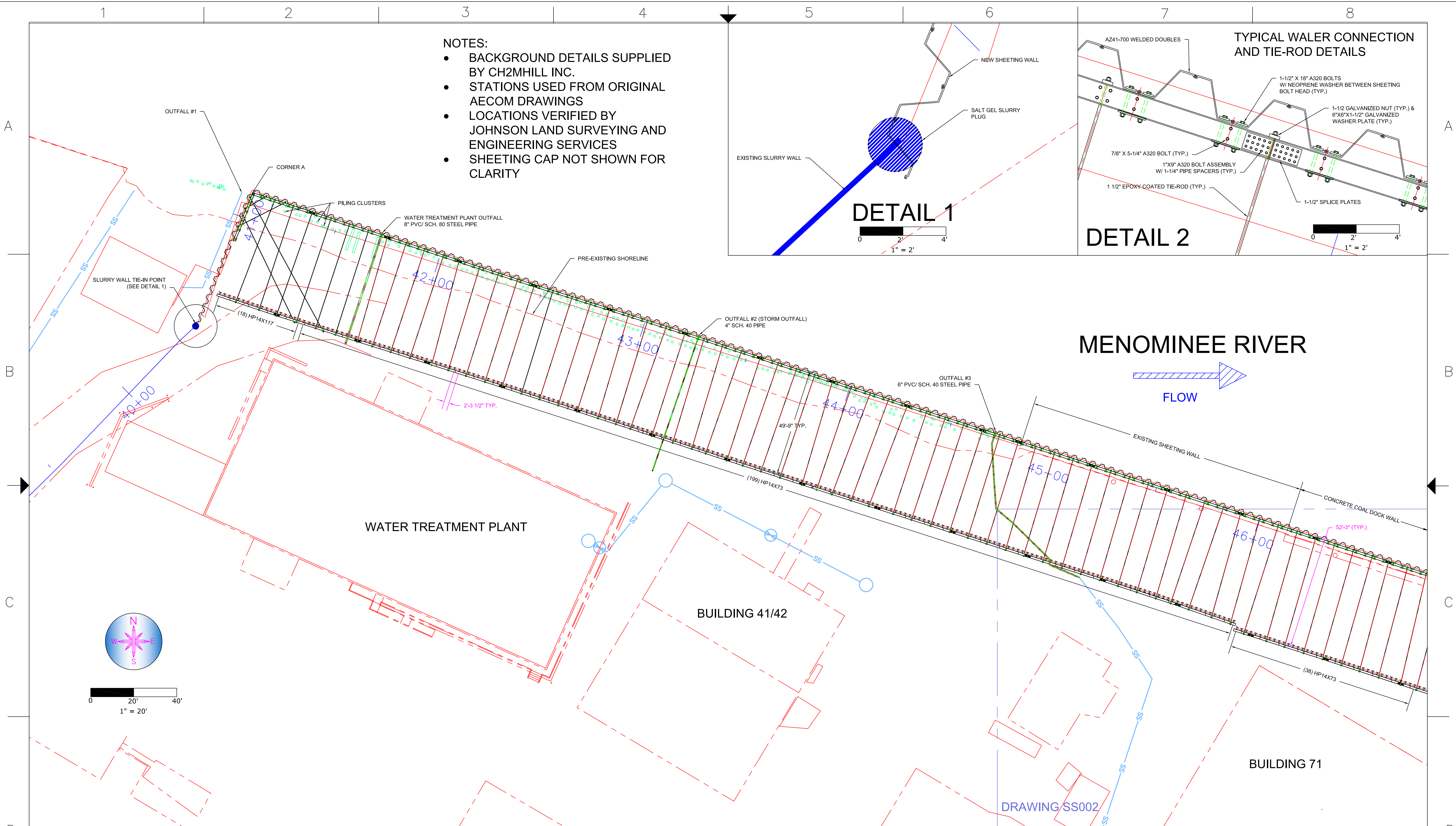
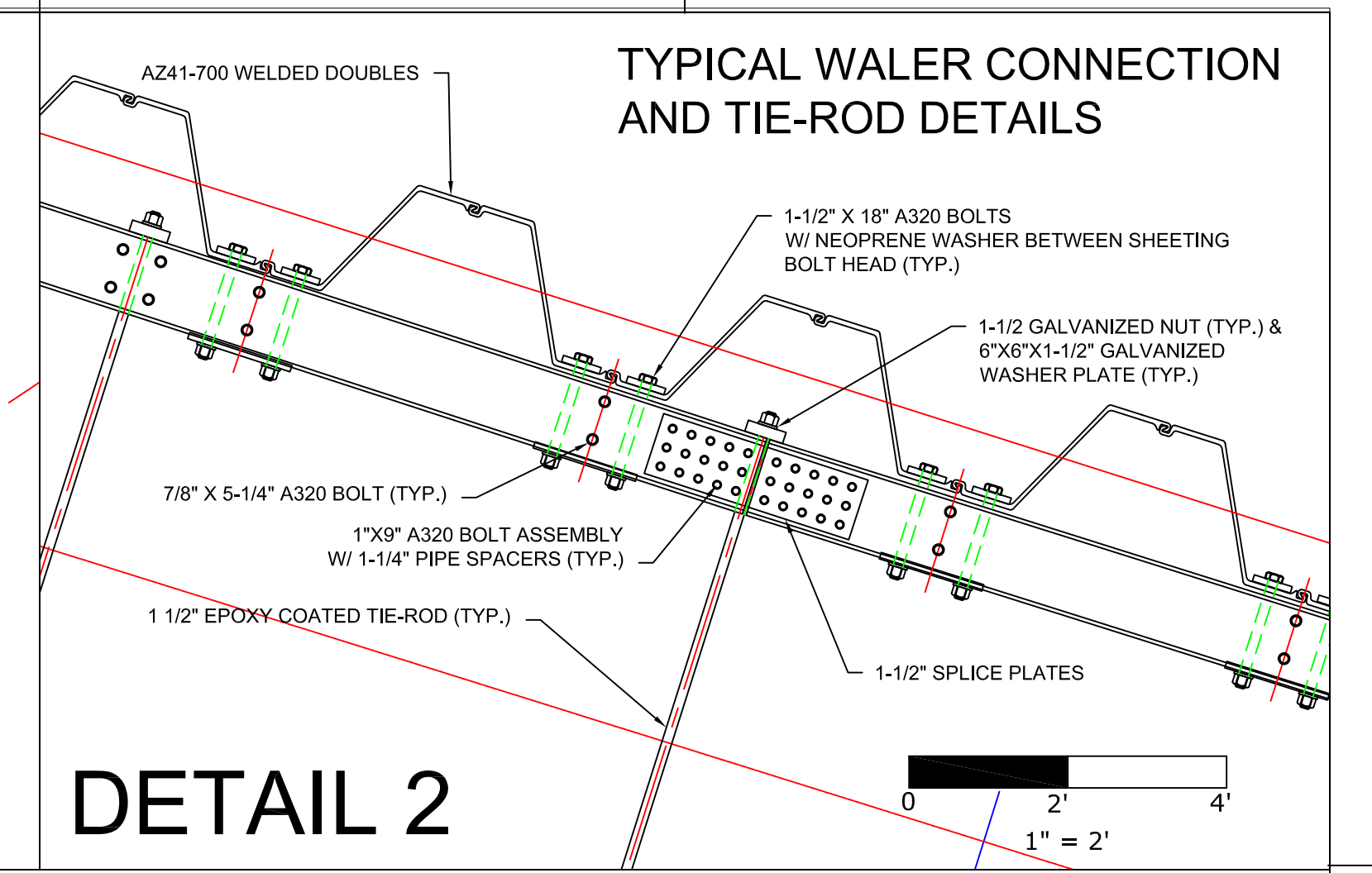
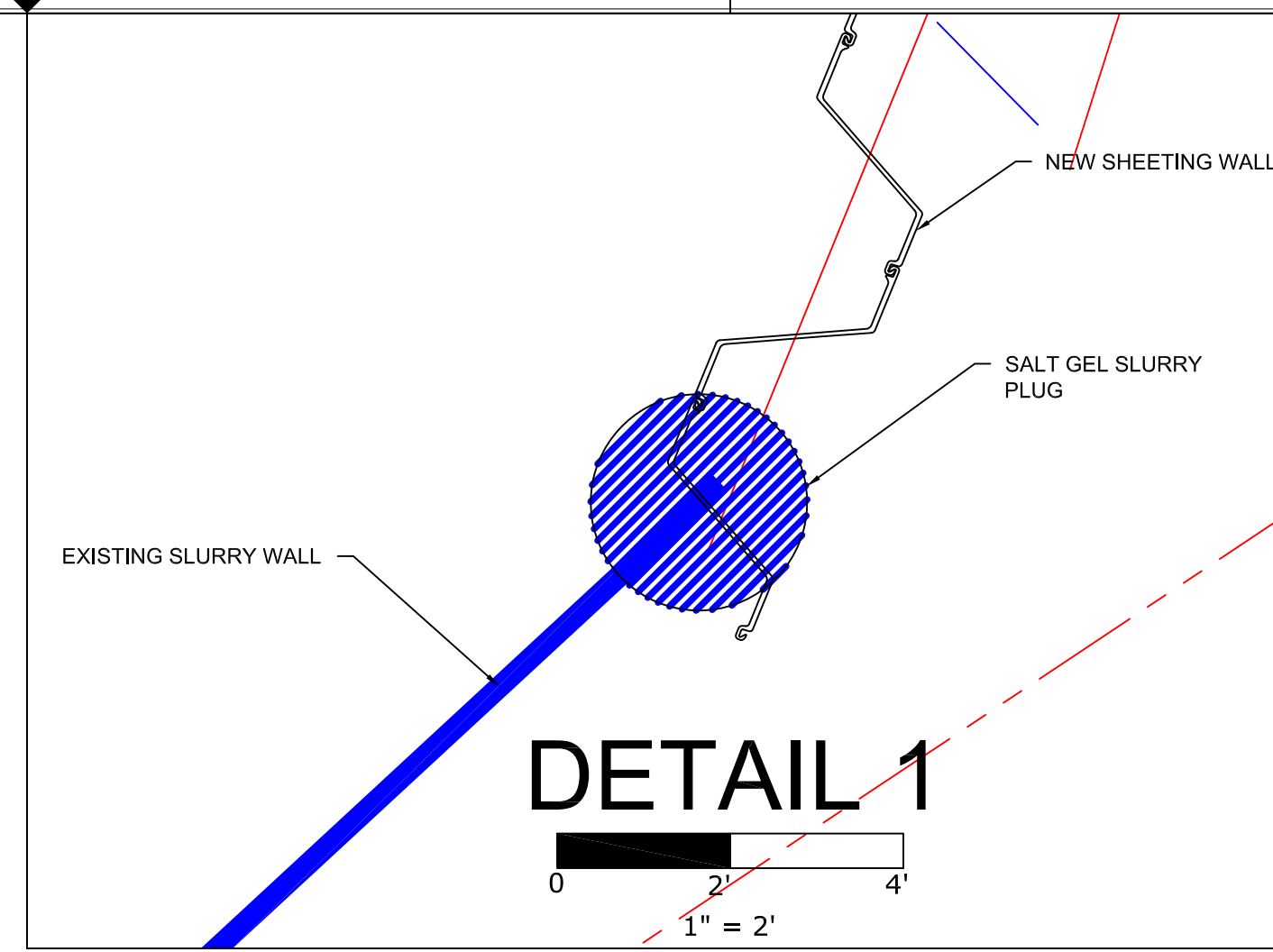
AECOM

TYCO SAFETY PRODUCTS
ANSUL PHASE 1 VERTICAL BARRIER WALL
MARINETTE, WISCONSIN

CIVIL DETAILS

DATE	JANUARY, 2010
PROJECT NO	99045
FILE	C-9.DWG
FILE NO	A-80129
SHEET NO	1
DRAWING NO	C-9

- NOTES:**
- BACKGROUND DETAILS SUPPLIED BY CH2MHILL INC.
 - STATIONS USED FROM ORIGINAL AECOM DRAWINGS
 - LOCATIONS VERIFIED BY JOHNSON LAND SURVEYING AND ENGINEERING SERVICES
 - SHEETING CAP NOT SHOWN FOR CLARITY



J.F. BRENNAN CO.
820 BAINBRIDGE ST.
LA CROSSE, WI 54602
PHONE (608) 784-7173
FAX (608) 785-2090

TYCO BARRIER WALL INSTALLATION

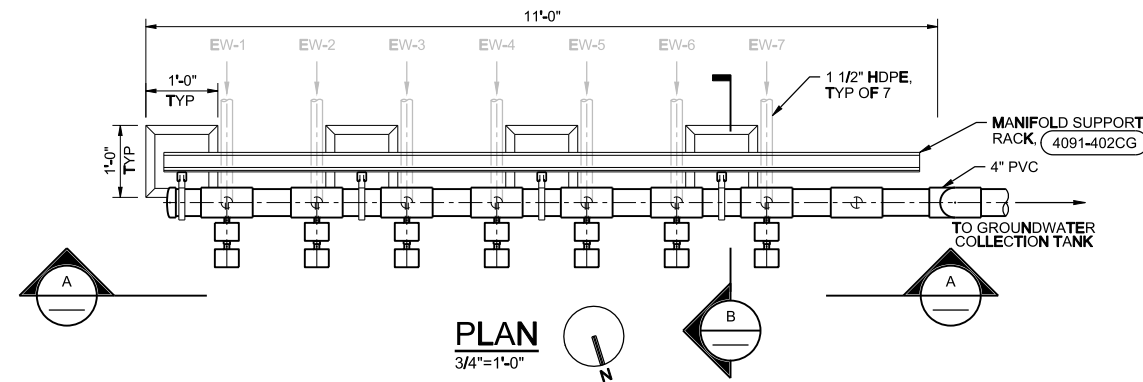
MARINETTE, WI

TITLE: **STRUCTURAL STEEL DETAILS**

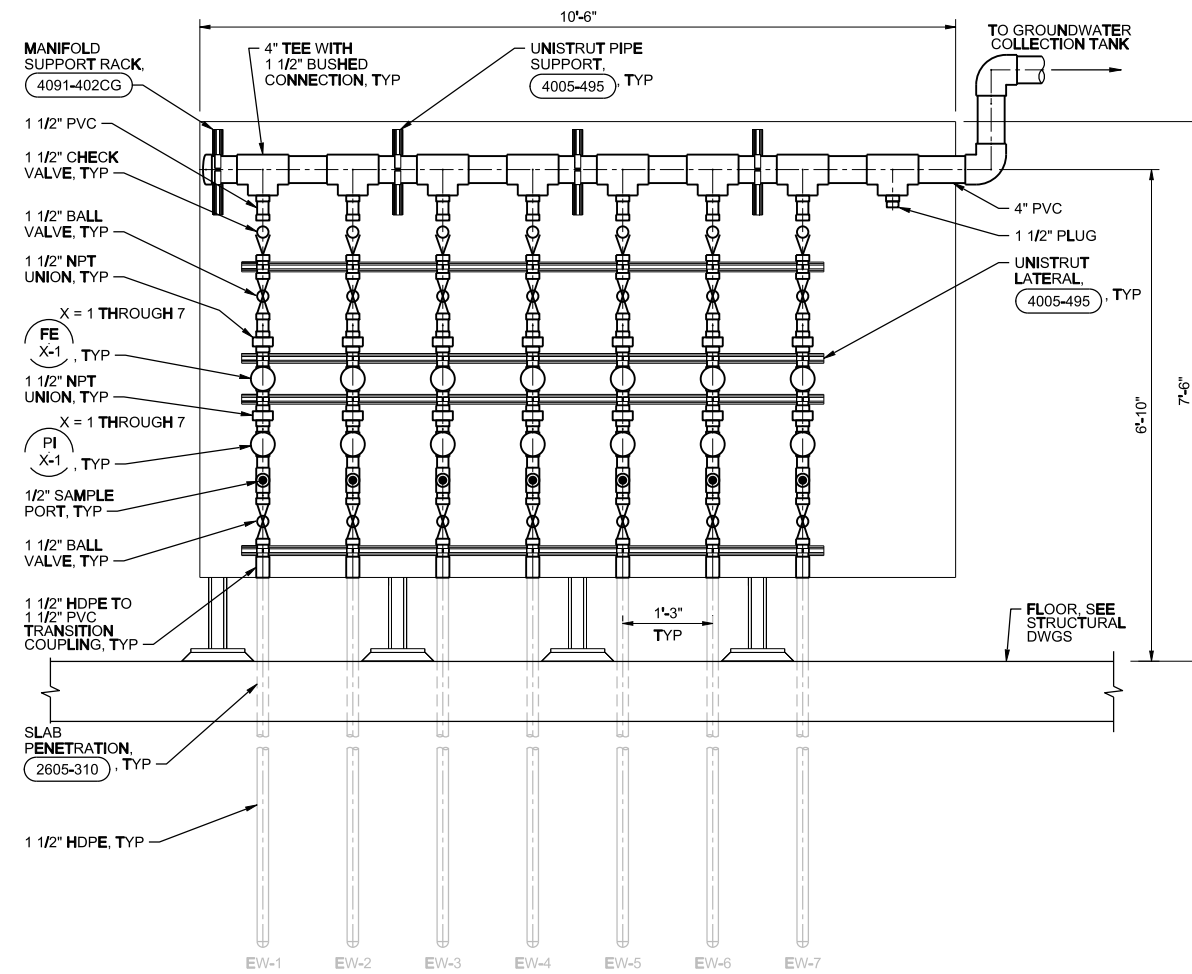
DRAWN BY:	MAB	DATE:	12/10/10	SIZE:	ARCH. D
CHECKED BY:	MAB	DWG #:	SS001	REV:	

GENERAL SHEET NOTE

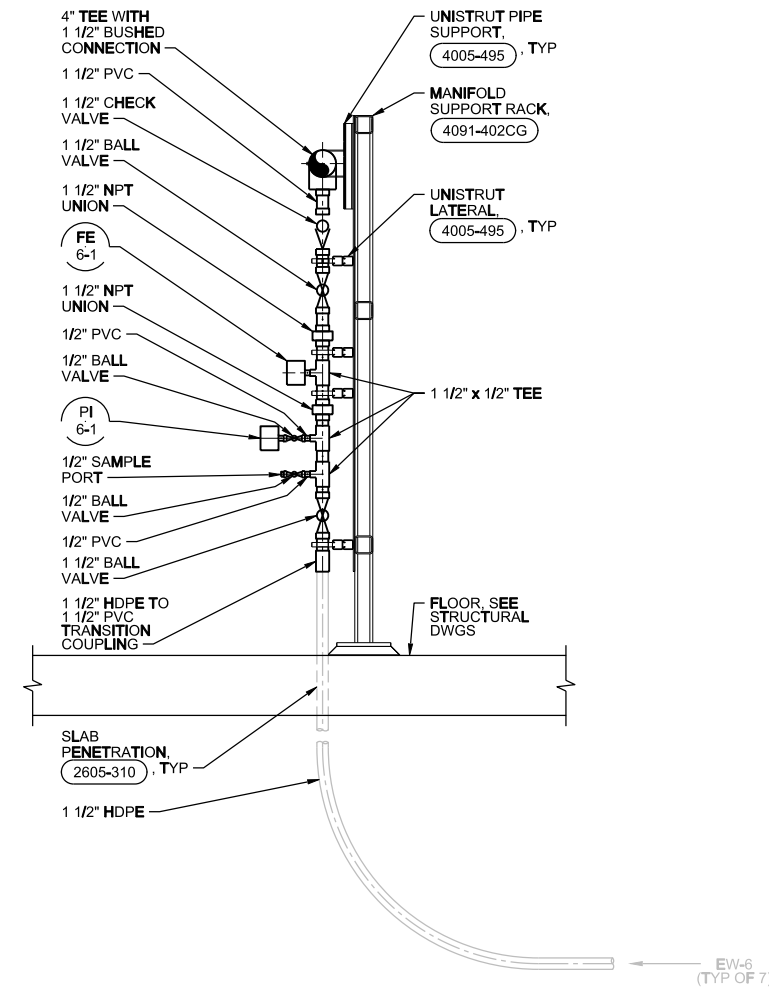
1. REFER TO DWG N-7 FOR INSTRUMENT LIST.



PLAN
3/4"=1'-0"



A SECTION
3/4"=1'-0"



B SECTION
3/4"=1'-0"

CH2MHILL

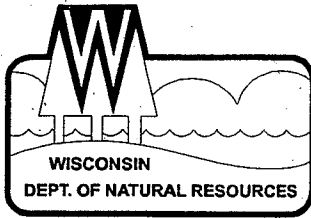
PROCESS MECHANICAL
**INFLUENT PIPING MANIFOLD STATION
PLAN AND SECTIONS**

TYCO FIRE PRODUCTS LP
GWCT SYSTEM
PHASE II: TREATMENT BUILDING DESIGN
MARINETTE, WISCONSIN

RECORD DRAWINGS	PK	SL	NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD
03/2011							C. WALKER	R. WILLIAMS		M. JURY

3/4"=1'-0"	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JUNE 2010
PROJ	388522
DWG	M-2
SHEET	31

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State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary

COPY

101 South Webster Street
P.O. Box 7921
Madison, WI 53707-7921
Telephone (608) 266-2621
FAX (608) 267-3579
TDD (608) 267-6897

RECEIVED

JUL 15 2003

Dean Lafleur
Environmental Control Manager
Tyco Safety Products - Ansul
One Stanton St.
Marinette, WI 54143

SUBJECT: WPDES Permit Reissuance No. WI-0001040-07-0
Tyco Safety Products - Ansul

Dear Mr. Lafleur:

Your Wisconsin Pollutant Discharge Elimination System (WPDES) Permit is enclosed. The conditions of the attached permit reissuance were determined using the permit application, information from your WPDES permit file, other information available to the Department, comments received during the public notice period, and applicable Wisconsin Administrative Codes. All discharges from this facility and actions or reports relating thereto shall be in accordance with the terms and conditions of this permit.

This permit requires you to submit monitoring results to the Department on a periodic basis. Blank copies of the appropriate monitoring forms and instructions for completing them will be mailed to you under separate cover.

The WPDES permit program has been approved by the Administrator of the U.S. Environmental Protection Agency pursuant to Section 402(b) of the Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. Section 1342 (b)). The terms and conditions of this permit are accordingly subject to enforcement under ss. 283.89 and 283.91, Stats., and Section 309 of the Federal Act (33 U.S.C. Section 1319).

The Department has the authority under chs. 160 and 283, Stats., to establish effluent limitations, monitoring requirements, and other permit conditions for discharges to groundwater and surface waters of the State. The Department also has the authority to issue, reissue, modify, suspend or revoke WPDES permits under ch. 283, Stats.

The attached permit contains water quality based effluent limitations which are necessary to ensure that the water quality standards for the Menominee River in Marinette are met. You may apply for a variance from the water quality standard used to derive the limitations pursuant to s. 283.15, Stats. by submitting an application to the Director of the Bureau of Watershed Management, P.O. Box 7921, Madison, Wisconsin 53707 within 60 days of the date the permit was issued (see "Date Permit Signed/Issued" after the signature on the front page of the attached permit). Subchapter III of chapter NR 200, Wis. Adm. Code, specifies the procedures that must be followed and the information that must be included when submitting an application for a variance.

To challenge the reasonableness of or necessity for any term or condition of the attached permit, s. 283.63, Stats, and ch. NR 203, Wis. Adm. Code require that you file a verified petition for review with the Secretary of the Department of Natural Resources within 60 days of the date the permit was issued (see "Date Permit Signed/Issued" after the signature on the front page of the attached permit).

www.dnr.state.wi.us
www.wisconsin.gov

Quality Natural Resources Management
Through Excellent Customer Service



- Judy Post
- AL Wronker

Sincerely,



Al Shea
Director, Bureau of Watershed Management

Dated: _____

7/14/03

cc: Permit File - Region & Central Office
U.S. Fish and Wildlife Service (Electronic Copy via Email)
Bruce Oman
EPA - Region V (Electronic Copy via Email)

RE Tyco-Ansul .txt

From: Brauer, Jeff W - DNR [Jeff.Brauer@wisconsin.gov]
Sent: Friday, October 03, 2008 12:23 PM
To: Goan, Maritsa
Cc: Howald, Brenda L - DNR; Oman, Bruce S - DNR
Subject: RE: Tyco-Ansul

Hi Maritsa. Here is a copy of a recent contact we had regarding the permit application for Tyco Safety Products - Ansul:

On January 18th, 2008, Steve Leutbecher called Mike Hammers (DNR Madison) to ask whether or not Central Office had received Tyco's application for permit reissuance. Mike returned the call to confirm that the application had been received on January 2, 2008. Mike encouraged Steve to submit all missing monitoring data as soon as reasonably possible. (Note that the blank application was sent to Tyco in November or December of 2007 and the completed application was due in early January 2008. The current permit expires June 30, 2008.)

We received the updated application on February 20, 2008 that contained all of the missing monitoring data for Part C. We consider your permit application to be complete and timely, therefore your existing permit remains in effect until the Department can reissue your WPDES permit.

For the near future, I will be your permit renewal contact for this facility. Also, you can always use your primary DNR contact - Bruce Oman, the Peshtigo DNR basin engineer (715 582-5012).

From: Howald, Brenda L - DNR
Sent: Thursday, October 02, 2008 2:57 PM
To: Brauer, Jeff W - DNR
Cc: Goan, Maritsa
Subject: Tyco-Ansul

Hello Jeff

You are getting this message because you are listed as the permit drafter in SWAMP. I hope you can help Maritsa Goan at Tyco in Marinette. They have sent in an application but they have not received any verification from the Department that we received said application. Her corporate offices want physical documentation that the application was received and that the permit conditions continue in effect until a new permit is issued. Can you follow up on this for Maritsa?

Brenda

P Brenda Howald

Wastewater Specialist, Senior

Wastewater Section

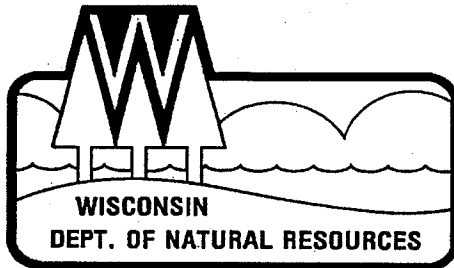
Bureau of Watershed Management

Wisconsin Department of Natural Resources

(*) phone: (608) 275-3285

(*) fax: (608) 275-3338

(*) e-mail: brenda.howald@wisconsin.gov



WPDES PERMIT

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
PERMIT TO DISCHARGE UNDER THE
WISCONSIN POLLUTANT DISCHARGE ELIMINATION SYSTEM

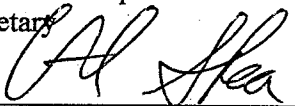
Tyco Safety Products - Ansul

is permitted, under the authority of Chapter 283, Wisconsin Statutes, to discharge from a facility
located at
One Stanton St., Marinette
to
the Menominee River

in accordance with the effluent limitations, monitoring requirements and other conditions set
forth in this permit.

The permittee shall not discharge after the date of expiration. If the permittee wishes to continue to discharge after
this expiration date an application shall be filed for reissuance of this permit, according to Chapter NR 200, Wis.
Adm. Code, at least 180 days prior to the expiration date given below.

State of Wisconsin Department of Natural Resources
For the Secretary

By 

Al Shea
Director, Bureau of Watershed Management

7/04/03
Date Permit Signed/Issued

PERMIT TERM: EFFECTIVE DATE - August 01, 2003

EXPIRATION DATE - June 30, 2008

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1 Influent Requirements

1.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
703	Intake Water Monitoring

1.2 Monitoring Requirements

The permittee shall comply with the following monitoring requirements.

1.2.1 Sampling Point 703 - Intake Water Monitoring

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Monthly	Grab	

1.2.1.1 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The permittee shall collect a mercury field blank for each mercury sampling event (day when samples for mercury are collected). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

1.2.1.2 Reduction in Monthly Mercury Monitoring Frequency

The permittee may request a reduction in the monthly monitoring frequency. The Department shall review the available results, including the intake and effluent variability, and may allow a monitoring frequency reduction to once every 3 months, semiannually or annually by notifying the permittee in writing. The Department may reduce the intake monitoring frequency to coincide with the effluent monitoring frequency or less frequent as appropriate. This action may take place without further public notification.

2 In-Plant Requirements

2.1 Sampling Point(s)

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
101	Treated metal finishing wastewater sampled after the physical chemical process wastewater treatment system prior to mixing with other wastewater and discharging through Outfall 001
106	If an additional remedial action is implemented and Ansul proposes to discharge treated remedial action wastewater through Outfall 001 and obtains all necessary approvals, sampling will be required at a sample point designated as 106, after a remedial action wastewater treatment system prior to mixing with other wastewater
107	Sample Point for reporting results of field blanks for Mercury

2.2 Monitoring Requirements and Limitations

The permittee shall comply with the following monitoring requirements and limitations.

2.2.1 Sampling Point 101 - Metal Finishing Effluent

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
Suspended Solids, Total	Daily Max	60 mg/L	Daily	24-Hr Comp	
Suspended Solids, Total	Monthly Avg	31 mg/L	Daily	24-Hr Comp	
Oil & Grease (Freon)	Daily Max	52 mg/L	2/Week	Grab	
Oil & Grease (Freon)	Monthly Avg	26 mg/L	2/Week	Grab	
Cadmium, Total Recoverable	Daily Max	690 µg/L	2/Week	24-Hr Comp	
Cadmium, Total Recoverable	Monthly Avg	260 µg/L	2/Week	24-Hr Comp	
Chromium, Total Recoverable	Daily Max	2,770 µg/L	Monthly	24-Hr Comp	
Chromium, Total Recoverable	Monthly Avg	1,710 µg/L	Monthly	24-Hr Comp	
Nickel, Total Recoverable	Daily Max	3,980 µg/L	2/Week	24-Hr Comp	
Nickel, Total Recoverable	Monthly Avg	2,380 µg/L	2/Week	24-Hr Comp	
Zinc, Total Recoverable	Daily Max	2,610 µg/L	2/Week	24-Hr Comp	
Zinc, Total Recoverable	Monthly Avg	1,480 µg/L	2/Week	24-Hr Comp	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Cyanide, Total	Daily Max	1,200 µg/L	Monthly	Grab	
Cyanide, Total	Monthly Avg	650 µg/L	Monthly	Grab	
Copper, Total Recoverable	Daily Max	3,380 µg/L	2/Week	24-Hr Comp	
Copper, Total Recoverable	Monthly Avg	2,070 µg/L	2/Week	24-Hr Comp	
Lead, Total Recoverable	Daily Max	690 µg/L	Monthly	24-Hr Comp	
Lead, Total Recoverable	Monthly Avg	430 µg/L	Monthly	24-Hr Comp	
Silver, Total Recoverable	Daily Max	430 µg/L	Monthly	24-Hr Comp	
Silver, Total Recoverable	Monthly Avg	240 µg/L	Monthly	24-Hr Comp	
pH (Minimum)	Daily Min	4.0 su	Daily	Continuous	
pH (Maximum)	Daily Max	11 su	Daily	Continuous	
pH Total Exceedance Time Minutes	Monthly Total	446 minutes	Daily	Calculated	
pH Exceedances Greater Than 60 Minutes	Monthly Total	0 Number	Daily	Calculated	
Total Toxic Organics	Daily Max	2,130 µg/L	Monthly	24-Hr Comp	
Benzene		µg/L	Monthly	24-Hr Comp	
Tetrachloro- ethylene		µg/L	Monthly	24-Hr Comp	
Toluene		µg/L	Monthly	24-Hr Comp	
1,1,1-Trichloro-ethane		µg/L	Monthly	24-Hr Comp	
Ethylbenzene		µg/L	Monthly	24-Hr Comp	
Trichloroethylene		µg/L	Monthly	24-Hr Comp	
Methylene chloride		µg/L	Monthly	24-Hr Comp	
Di-n-butyl phthalate		µg/L	Monthly	24-Hr Comp	

2.2.1.1 Metals Analyses

Unless specified otherwise in the table above, metals analyses shall measure metals as total recoverable. Measurements of total metals and total recoverable metals shall be considered as equivalent.

2.2.1.2 Continuous pH Monitoring

Whenever continuous pH monitoring is specified, the permittee shall maintain the pH of this wastewater within the range of 6.0 to 9.5 s.u. except, pursuant to ss. NR 205.06 and NR 102.05(3)(h), Wis. Adm. Code, excursions from the limits are permitted subject to the following conditions.

The total time during which the pH values are outside the required range shall not exceed 446 minutes in any calendar month.

No individual excursion from the range shall exceed 60 minutes.

No individual excursions shall be outside the range of 4.0 to 11.0 s.u., inclusive.

On a daily basis, the permittee is required to report the total time the pH limits are exceeded and the number of times any individual excursion exceeds 60 minutes in duration or is outside the range of 4.0 to 11.0 s.u., inclusive.

2.2.1.3 Total Toxic Organics Requirements

TTO Summation: Total Toxic Organics (TTO) means the sum of all quantifiable effluent concentrations greater than 10 ug/L of the toxic organic pollutants listed s. NR 215.03(1)-(5), Wis. Adm. Code.

TTO Certification: The permittee shall make a TTO certification statement monthly as printed on the Discharge Monitoring Report form, in accordance with s. NR 261.13(1)(a), Wis. Adm. Code, which states the following: "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for total toxic organics (TTO), I certify that to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the Department of Natural Resources."

Identified Toxic Organics: When monitoring TTO, the permittee may limit testing to the toxic organic(s) identified in the table above as a TTO parameter.

Process Modification/Planned Changes: Use of a toxic organic other than those identified in the table above as a TTO parameter, that is listed in s. NR 215.03(1)-(5) and that has the potential for entering wastewaters discharged, is classified by the Department as a process modification. The permittee shall report such process modifications in accordance with the Standard Requirements section herein (see "Planned Changes" in the "System Operating Requirements" subsection of Standard Requirements); and include the toxic organic with those listed in the above table when monitoring TTO.

2.2.1.4 Flow Augmentation

The permittee shall not augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with the above effluent limitations for inplant sample point 101.

2.2.2 Sampling Point 106 - Future Remedial Action Wastewater

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		gpd	Daily	Continuous	
Arsenic, Total Recoverable		µg/L	Weekly	24-Hr Comp	
Suspended Solids, Total		mg/L	Weekly	24-Hr Comp	

2.2.2.1 Conditions for Any Proposed Discharge of Treated Remedial Action Wastewater

If discharge of wastewater from an additional remedial action is proposed through Outfall 001, monitoring for flow, arsenic and TSS will be required after the remedial action wastewater treatment system prior to mixing with other wastewater at a sample point designated as 106. Startup monitoring will also be required as specified below.

Prior to initiating discharge of remedial action wastewater through Outfall 001, the permittee must submit a notification report or permit application including the information specified in the standard requirement condition - Planned changes. Complete projections of influent and effluent quality from the proposed remedial action wastewater treatment system shall be included. The basis for all predictions of effluent quality shall be submitted including detailed treatability study results and the design basis of the proposed treatment train. In addition to the monitoring and limits specified in the Table (2.2.2), a startup monitoring plan shall be submitted including more frequent and

comprehensive monitoring of treatment system effluent for all pollutants of concern which may be reduced through time depending on evaluation of data. The startup plan shall also include proposed influent monitoring of arsenic and any other key contaminants used to evaluate treatment system performance. Upon review of this report or application, the Department will notify the permittee of approval to begin discharge without further public notice or of the need for permit modification as specified in the standard requirement condition - Planned changes.

2.2.3 Sampling Point 107 - Mercury Field Blank Results

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Monthly	Grab	

2.2.3.1 Mercury Field Blanks Reporting

The permittee shall collect a mercury field blank for each mercury sampling event (day when samples for mercury are collected). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3 Surface Water Requirements

3.1 Sampling Point(s)

The discharge(s) shall be limited to the waste type(s) designated for the listed sampling point(s).

Sampling Point Designation	
Sampling Point Number	Sampling Point Location, Waste Type/Sample Contents and Treatment Description (as applicable)
001	Combined discharge of treated process wastewater, NCCW, groundwater infiltration and infrequent discharge of NCCW from Specialty Chem (under WPDES permit No. WI-0045918)
003	Permit Outfall 003 is included for potential future discharges of remedial action wastewater directly to the Menominee River if proposed and approved

3.2 Monitoring Requirements and Effluent Limitations

The permittee shall comply with the following monitoring requirements and limitations.

3.2.1 Sampling Point (Outfall) 001 - PRIOR TO MENOMINEE RIVER

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	
Temperature		deg F	Monthly	Grab	
Phosphorus, Total	Rolling 12 Month Avg	1.0 mg/L	Weekly	24-Hr Comp	
Hardness, Total as CaCO ₃		mg/L	Monthly	24-Hr Comp	
Arsenic, Total Recoverable	Daily Max	680 µg/L	Monthly	24-Hr Comp	
Arsenic, Total Recoverable	Daily Max	12 lbs/day	Monthly	Calculated	A daily maximum limit of 12 lbs/day applies to the total lbs of Arsenic discharged thru Outfall 001 and future Outfall 003.
Copper, Total Recoverable	Daily Max	69 µg/L	Monthly	24-Hr Comp	
Copper, Total Recoverable	Daily Max	0.98 lbs/day	Monthly	24-Hr Comp	
Cadmium, Total Recoverable		µg/L	Monthly	24-Hr Comp	
Cyanide, Amenable		µg/L	Monthly	24-Hr Comp	
Chlorine, Total Residual		µg/L	Monthly	Grab	
Mercury, Total Recoverable		ng/L	Monthly	Grab	See footnotes 3.2.1.2, 3.2.1.3 and 3.2.1.4 below

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Acute WET		TU _a	Quarterly	24-Hr Comp	Acute WET tests are required in calendar quarters in 3.2.1.7 below. If the first 4 Acute tests pass, the Dept. may approve annual testing.
pH (Continuous)			Daily	Continuous	See "Continuous pH Monitoring" below for categorical pH limits and allowed excursions

3.2.1.1 Total Metals Analyses

Measurements of total metals and total recoverable metals shall be considered as equivalent.

3.2.1.2 Mercury Monitoring

The permittee shall collect and analyze all mercury samples according to the data quality requirements of ss. NR 106.145(9) and (10), Wisconsin Administrative Code. The permittee shall collect a mercury field blank for each mercury sampling event (day when samples for mercury are collected). The permittee shall report results of samples and field blanks to the Department on Discharge Monitoring Reports.

3.2.1.3 Reduction in Monthly Mercury Monitoring Frequency

After at least 12 representative effluent results have been generated, the permittee may request a reduction in the monthly monitoring frequency. The Department shall review the results, including the effluent variability, and may allow a monitoring frequency reduction to once every 3 months by notifying the permittee in writing. This action may take place without further public notification.

3.2.1.4 Mercury Pollutant Minimization Plan

The permittee shall plan and implement the pollutant minimization program listed in the compliance schedule part of this permit with the following exception. After the first 24 months of mercury monitoring, the permittee may submit a data evaluation that demonstrates there is not a reasonable potential to exceed mercury limitations derived according to s. NR 106.145(2), Wis. Adm. Code. If the Department agrees, it will inform the permittee in writing that the compliance schedule for the mercury pollutant minimization program will not become effective. This action may take place without further public notification.

3.2.1.5 Continuous pH Monitoring

Whenever continuous pH monitoring is specified, the permittee shall maintain the pH of this wastewater within the range of 6.0 to 9.0 s.u. except, pursuant to ss. NR 205.06 and NR 102.05(3)(h), Wis. Adm. Code, excursions from the limits are permitted subject to the following conditions.

The total time during which the pH values are outside the required range shall not exceed 446 minutes in any calendar month.

No individual excursion from the range shall exceed 60 minutes.

No individual excursions shall be outside the range of 4.0 to 11.0 s.u., inclusive.

On a daily basis, the permittee is required to report the total time the pH limits are exceeded and the number of times any individual excursion exceeds 60 minutes in duration or is outside the range of 4.0 to 11.0 s.u., inclusive.

3.2.1.6 Total Toxic Organics Requirements

- **TTO Summation:** Total Toxic Organics (TTO) means the sum of all quantifiable effluent concentrations greater than 10 ug/L of the toxic organic pollutants listed s. NR 215.03(1)-(5), Wis. Adm. Code.
- **TTO Certification:** The permittee shall make a TTO certification statement monthly as printed on the Discharge Monitoring Report form, in accordance with s. NR 261.13(1)(a), Wis. Adm. Code, which states the following: "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for total toxic organics, I certify that to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing the last discharge monitoring report. I further certify that this facility is implementing the solvent management plan submitted to the Department".
- **Identified Toxic Organics:** When monitoring TTO, the permittee may limit testing to the toxic organic(s) identified in the table above as a TTO parameter.
- **Process Modification/Planned Changes:** Use of a toxic organic other than those identified in the table above as a TTO parameter, that is listed in s. NR 215.03(1)-(5) and that has the potential for entering wastewaters discharged, is classified by the Department as a process modification. The permittee shall report such process modifications in accordance with the Standard Requirements section herein (see "Planned Changes" in the "System Operating Requirements" subsection of Standard Requirements), and include the toxic organic with those listed in the above table when monitoring TTO.

3.2.1.7 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Menominee River

WET Testing Frequency: Tests are required during the following quarters except if the first four acute tests pass, the Department may approve annual testing without further public notification.

- **Acute:** 10/01/2003 to 12/31/2003; 04/01/2004 to 6/30/2004; 01/01/2005 to 03/31/2005; 07/01/2005 to 9/30/2005; 04/01/2006 to 6/30/2006; 10/01/2006 to 12/31/2006; 04/01/2007 to 6/30/2007; 10/01/2007 to 12/31/2007; 04/01/2008 to 06/30/2008

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (page 40 of the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, Edition 1"), for each test. A copy of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, WT/2, Bureau of Watershed Management, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit – Acute (TU_a) is >1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100/LC_{50}$. An $LC_{50} \geq 100$ equals a TU_a of 1.0.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The retests shall be completed in accordance with the same requirements specified for the original test (see the Standard Requirements section herein).

3.2.2 Sampling Point (Outfall) 003 - Future Remedial Action Discharge

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Continuous	

Monitoring Requirements and Effluent Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Suspended Solids, Total		mg/L	Weekly	24-Hr Comp	
Arsenic, Total Recoverable	Daily Max	680 µg/L	Weekly	24-Hr Comp	A daily maximum limit of 12 lbs/day applies to the total lbs of Arsenic discharged thru Outfalls 001 and 003.
Acute WET		TU _a	Annual	24-Hr Comp	Acute WET testing is required annually in rotating quarters starting in the first quarter after discharge commences.
pH (Continuous)			Daily	Continuous	See "Continuous pH Monitoring" below for categorical pH limits and allowed excursions

3.2.2.1 Continuous pH Monitoring

Whenever continuous pH monitoring is specified, the permittee shall maintain the pH of this wastewater within the range of 6.0 to 9.0 s.u. except, pursuant to ss. NR 205.06 and NR 102.05(3)(h), Wis. Adm. Code, excursions from the limits are permitted subject to the following conditions.

The total time during which the pH values are outside the required range shall not exceed 446 minutes in any calendar month.

No individual excursion from the range shall exceed 60 minutes.

No individual excursions shall be outside the range of 4.0 to 11.0 s.u., inclusive.

On a daily basis, the permittee is required to report the total time the pH limits are exceeded and the number of times any individual excursion exceeds 60 minutes in duration or is outside the range of 4.0 to 11.0 s.u., inclusive.

3.2.2.2 Whole Effluent Toxicity (WET) Testing

Primary Control Water: Menominee River

WET Testing Frequency: Tests are required during the following quarters.

- **Acute:** Annually during periods of discharge in rotating quarters beginning in the first quarter after discharge commences from Outfall 003

Reporting: The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form" (page 40 of the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, Edition 1"), for each test. A copy of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator, WT/2, Bureau of Watershed Management, 101 S. Webster St., P.O. Box 7921, Madison, WI 53707-7921, within 45 days of test completion.

Determination of Positive Results: An acute toxicity test shall be considered positive if the Toxic Unit - Acute (TU_a) is >1.0 for either species. The TU_a shall be calculated as follows: $TU_a = 100/LC50$. An $LC50 \geq 100$ equals a TU_a of 1.0.

Additional Testing Requirements: Within 90 days of a test which showed positive results, the permittee shall submit the results of at least 2 retests to the Biomonitoring Coordinator on "Whole Effluent Toxicity Test Report Forms". The retests shall be completed in accordance with the same requirements specified for the original test (see the Standard Requirements section herein).

3.2.2.3 Requirements Prior to Initiating Discharge Thru Outfall 003

Prior to initiating discharge thru Outfall 003, the permittee must submit a notification report or permit application including information as specified in the standard requirement condition for planned changes (using EPA Form 2D or another approved form). Complete projections of influent and effluent quality from the proposed remedial action wastewater treatment system shall be included. The basis for all predictions of effluent quality shall be submitted including detailed treatability study results and the design basis of the proposed treatment train. In addition to the monitoring and limits specified in Table 3.2.2 above, a startup monitoring plan shall be submitted including more frequent and comprehensive monitoring of treatment system effluent for all pollutants of concern which may be reduced through time depending on evaluation of data. The startup plan shall also include proposed influent monitoring of arsenic and any other key contaminants used to evaluate treatment system performance. Upon review of this report or application, the Department will notify the permittee of approval to begin discharge without further public notice or of the need for permit modification.

4 Schedules of Compliance

4.1 Mercury Pollutant Minimization Program

Required Action	Date Due
Submit a Mercury Pollutant Minimization Program: The permittee shall develop and submit to the Department a plan for a cost-effective pollutant minimization program (PMP) that has as its goal the reduction of mercury for the purpose of maintaining the effluent at or below the water quality based effluent limitation or potential limitation. The PMP shall meet the requirements of s. NR 106.145(7), Wis. Adm. Code.	12/31/2005
Implement the Mercury Pollutant Minimization Program: The permittee shall implement the PMP as submitted or as amended by agreement of the permittee and the Department.	12/31/2006
Submit Annual Status Reports: The permittee shall submit to the Department an annual status report on the progress of the PMP as required by s. NR 106.145(7), Wis. Adm. Code. Submittal of the first annual status report is required by the Date Due.	01/31/2008

5 Standard Requirements

NR 205, Wisconsin Administrative Code (Conditions for Industrial Dischargers): The conditions in ss. NR 205.07(1) and NR 205.07(3), Wis. Adm. Code, are included by reference in this permit. The permittee shall comply with all of these requirements. Some of these requirements are outlined in the Standard Requirements section of this permit. Requirements not specifically outlined in the Standard Requirement section of this permit can be found in ss. NR 205.07(1) and NR 205.07(3).

5.1 Reporting and Monitoring Requirements

5.1.1 Monitoring Results

Monitoring results obtained during the previous month shall be summarized and reported on a Department Wastewater Discharge Monitoring Report Form. This report form is to be returned to the Department no later than the date indicated on the form. The original and one copy of the Wastewater Discharge Monitoring Report Form shall be submitted to your DNR regional office. A copy of the Wastewater Discharge Monitoring Report Form shall be retained by the permittee.

If the permittee monitors any pollutant more frequently than required by this permit, the results of such monitoring shall be included on the Wastewater Discharge Monitoring Report Form.

The permittee shall comply with all limits for each parameter regardless of monitoring frequency. For example, monthly, weekly, and/or daily limits shall be met even with monthly monitoring. The permittee may monitor more frequently than required for any parameter.

Monitoring reports shall be signed by a principal executive officer, a ranking elected official, or other duly authorized representative.

5.1.2 Sampling and Testing Procedures

Sampling and laboratory testing procedures shall be performed in accordance with Chapters NR 218 and NR 219, Wis. Adm. Code and shall be performed by a laboratory certified or registered in accordance with the requirements of ch. NR 149, Wis. Adm. Code. Groundwater sample collection and analysis shall be performed in accordance with ch. NR 140, Wis. Adm. Code. The analytical methodologies used shall enable the laboratory to quantitate all substances for which monitoring is required at levels below the effluent limitation. If the required level cannot be met by any of the methods available in NR 219, Wis. Adm. Code, then the method with the lowest limit of detection shall be selected. Additional test procedures may be specified in this permit.

5.1.3 Recording of Results

The permittee shall maintain records which provide the following information for each effluent measurement or sample taken:

- the date, exact place, method and time of sampling or measurements;
- the individual who performed the sampling or measurements;
- the date the analysis was performed;
- the individual who performed the analysis;
- the analytical techniques or methods used; and
- the results of the analysis.

5.1.4 Reporting of Monitoring Results

The permittee shall use the following conventions when reporting effluent monitoring results:

- Pollutant concentrations less than the limit of detection shall be reported as < (less than) the value of the limit of detection. For example, if a substance is not detected at a detection limit of 0.1 mg/L, report the pollutant concentration as < 0.1 mg/L.
- Pollutant concentrations equal to or greater than the limit of detection, but less than the limit of quantitation, shall be reported and the limit of quantitation shall be specified.
- For the purposes of calculating an average or a mass discharge value, the permittee may substitute a 0 (zero) for any pollutant concentration that is less than the limit of detection. However, if the effluent limitation is less than the limit of detection, the department may substitute a value other than zero for results less than the limit of detection, after considering the number of monitoring results that are greater than the limit of detection and if warranted when applying appropriate statistical techniques.

5.1.5 Records Retention

The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by the permit, and records of all data used to complete the application for the permit for a period of at least 3 years from the date of the sample, measurement, report or application, except for sludge management forms and records, which shall be kept for a period of at least 5 years.

5.1.6 Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Department, it shall promptly submit such facts or correct information to the Department.

5.2 System Operating Requirements

5.2.1 Noncompliance Notification

- The permittee shall report the following types of noncompliance by a telephone call to the Department's regional office within 24 hours after becoming aware of the noncompliance;
 - any noncompliance which may endanger health or the environment;
 - any violation of an effluent limitation resulting from an unanticipated bypass;
 - any violation of an effluent limitation resulting from an upset; and
 - any violation of a maximum discharge limitation for any of the pollutants listed by the Department in the permit.
- A written report describing the noncompliance shall also be submitted to the Department's regional office within 5 days after the permittee becomes aware of the noncompliance. On a case-by-case basis, the Department may waive the requirement for submittal of a written report within 5 days and instruct the permittee to submit the written report with the next regularly scheduled monitoring report. In either case, the written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the steps taken or planned to reduce, eliminate and prevent reoccurrence of the noncompliance; and if the noncompliance has not been corrected, the length of time it is expected to continue.
- The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

5.2.2 Unscheduled Bypassing

Any unscheduled bypass or overflow of wastewater at the treatment works or from the collection system is prohibited, and the Department may take enforcement action against a permittee for such occurrences under s. 283.89, Wis. Stats., unless:

- The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
- There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
- The permittee notified the Department as required in this Section.

Whenever there is an unscheduled bypass or overflow occurrence at the treatment works or from the collection system, the permittee shall notify the Department within 24 hours of initiation of the bypass or overflow occurrence by telephoning the wastewater staff in the regional office as soon as reasonably possible (FAX, email or voice mail, if staff are unavailable).

In addition, the permittee shall within 5 days of conclusion of the bypass or overflow occurrence report the following information to the Department in writing:

- Reason the bypass or overflow occurred, or explanation of other contributing circumstances that resulted in the overflow event. If the overflow or bypass is associated with wet weather, provide data on the amount and duration of the rainfall or snow melt for each separate event.
- Date the bypass or overflow occurred.
- Location where the bypass or overflow occurred.
- Duration of the bypass or overflow and estimated wastewater volume discharged.
- Steps taken or the proposed corrective action planned to prevent similar future occurrences.
- Any other information the permittee believes is relevant.

5.2.3 Scheduled Bypassing

Any construction or normal maintenance which results in a bypass of wastewater from a treatment system is prohibited unless authorized by the Department in writing. If the Department determines that there is significant public interest in the proposed action, the Department may schedule a public hearing or notice a proposal to approve the bypass. Each request shall specify the following minimum information:

- proposed date of bypass;
- estimated duration of the bypass;
- estimated volume of the bypass;
- alternatives to bypassing; and
- measures to mitigate environmental harm caused by the bypass.

5.2.4 Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control which are installed or used by the permittee to achieve compliance with the conditions of this permit. The wastewater treatment facility shall be under the direct supervision of a state certified operator as required in s. NR 108.06(2), Wis. Adm. Code. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training as required in ch. NR 114, Wis. Adm. Code, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

5.2.5 Spill Reporting

The permittee shall notify the Department in accordance with ch. NR 706 (formerly NR 158), Wis. Adm. Code, in the event that a spill or accidental release of any material or substance results in the discharge of pollutants to the waters of the state at a rate or concentration greater than the effluent limitations established in this permit, or the spill or accidental release of the material is unregulated in this permit, unless the spill or release of pollutants has been reported to the Department in accordance with s. NR 205.07 (1)(s), Wis. Adm. Code.

5.2.6 Planned Changes

In accordance with ss. 283.31(4)(b) and 283.59, Stats., the permittee shall report to the Department any facility expansion, production increase or process modifications which will result in new, different or increased discharges of pollutants. The report shall either be a new permit application, or if the new discharge will not violate the effluent limitations of this permit, a written notice of the new, different or increased discharge. The notice shall contain a description of the new activities, an estimate of the new, different or increased discharge of pollutants and a description of the effect of the new or increased discharge on existing waste treatment facilities. Following receipt of this report, the Department may modify this permit to specify and limit any pollutants not previously regulated in the permit.

5.2.7 Duty to Halt or Reduce Activity

Upon failure or impairment of treatment facility operation, the permittee shall, to the extent necessary to maintain compliance with its permit, curtail production or wastewater discharges or both until the treatment facility operations are restored or an alternative method of treatment is provided.

5.2.8 Flow Augmentation Prohibited

The permittee shall not augment the use of process wastewater or otherwise dilute the wastewater as a partial or total substitute for adequate treatment to achieve compliance with metal finishing technology based limitations

5.3 Surface Water Requirements

5.3.1 Permittee-Determined Limit of Quantitation Incorporated into this Permit

For pollutants with water quality-based effluent limits below the Limit of Quantification (LOQ) in this permit, the LOQ calculated by the permittee and reported on the Discharge Monitoring Reports (DMRs) is incorporated by reference into this permit. The LOQ shall be reported on the DMRs, shall be the lowest quantifiable level practicable, and shall be no greater than the minimum level (ML) specified in or approved under 40 CFR Part 136 for the pollutant at the time this permit was issued, unless this permit specifies a higher LOQ.

5.3.2 Appropriate Formulas for Effluent Calculations

The permittee shall use the following formulas for calculating effluent results to determine compliance with average limits and mass limits:

Weekly/Monthly average concentration = the sum of all daily results for that week/month, divided by the number of results during that time period.

Weekly Average Mass Discharge (lbs/day)

Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34

Average the daily mass values for the week.

Monthly Average Mass Discharge (lbs/day)

Daily mass = daily concentration (mg/L) x daily flow (MGD) x 8.34

Average the daily mass values for the month.

5.3.3 Visible Foam or Floating Solids

There shall be no discharge of floating solids or visible foam in other than trace amounts.

5.3.4 Compliance with Phosphorus Limitation

Compliance with the concentration limitation for phosphorus shall be determined as a rolling twelve-month average and shall be calculated as follows:

Total lbs of P discharged (most recent 12 months) = Average conc of P in mg/L

Total flow in MGD (most recent 12 months) X 8.34

(Note: Determine the pounds of phosphorus for an individual month by multiplying the average of all the concentration values for phosphorus in mg/L for that month by the total flow for the month in MGD times the conversion factor of 8.34. The pounds of phosphorus determined in this manner shall be summed for the most recent 12 months and inserted into the numerator of the above equation.)

The compliance calculation shall be performed each monthly reporting period after substituting data from the most recent month for the oldest month. A calculated value in excess of the concentration limitation will be considered equivalent to a violation of a monthly average.

5.3.5 Additives

In the event that the permittee wishes to commence use of a water treatment additive, or increase the usage of the additives greater than indicated in the permit application, the permittee must get a written approval from the Department prior to initiating such changes. This written approval shall provide authority to utilize the additives at the specific rates until the permit can be either reissued or modified in accordance with s. 283.53, Stats. Restrictions on the use of the additives may be included in the authorization letter.

5.3.6 Whole Effluent Toxicity (WET) Monitoring Requirements

In order to determine the potential impact of the discharge on aquatic organisms, static-renewal toxicity tests shall be performed on the effluent in accordance with the procedures specified in the "State of Wisconsin Aquatic Life Toxicity Testing Methods Manual, Edition 1" (PUBL-WW-033-096, as required by NR 219.04, Table A, parameters 9 & 10, footnote 8, Wis. Adm. Code). Receiving water samples shall not be collected from any point in contact with the permittee's mixing zone and every attempt shall be made to avoid contact with any other discharge's mixing zone.

5.3.7 Whole Effluent Toxicity (WET) Reporting Requirements

The permittee shall report test results on the Discharge Monitoring Report form, and also complete the "Whole Effluent Toxicity Test Report Form". A copy of the Whole Effluent Toxicity Test Report Form shall be sent to the Biomonitoring Coordinator within 45 days of test completion.

5.3.8 Whole Effluent Toxicity (WET) Identification

In the event of serious or repeated toxicity, the permittee may obtain approval from the Department to postpone retests in order to investigate the source(s) of toxicity. In order to postpone these tests, the permittee must provide the following information to the Department in writing, within 30 days of the end of the test which showed a positive result:

- a description of the investigation to be used to identify potential sources of toxicity. Treatment efficiency, housekeeping practices, and chemicals used in operation of the facility should be included in the investigation.
- who will conduct a toxicity identification evaluation (TIE), if required.

Once the above investigation has been completed, the permittee must conduct the postponed test(s) to demonstrate that toxicity has been reduced/eliminated.

6 Summary of Reports Due

FOR INFORMATIONAL PURPOSES ONLY

Description	Date	Page
Mercury Pollutant Minimization Program -Submit a Mercury Pollutant Minimization Program	December 31, 2005	11
Mercury Pollutant Minimization Program -Implement the Mercury Pollutant Minimization Program	December 31, 2006	11
Mercury Pollutant Minimization Program -Submit Annual Status Reports	January 31, 2008	11
Wastewater Discharge Monitoring Report Form	no later than the date indicated on the form	12
Whole Effluent Toxicity Test Report Form	within 45 days of test completion	16

All submittals required by this permit shall be submitted to the Northeast Region, 1125 N. Military Avenue, P.O. Box 10448, Green Bay, WI 54307-0448, except as follows. Report forms shall be submitted to the address printed on the report form. Any facility plans or plans and specifications for municipal, industrial pretreatment and non industrial wastewater systems shall be submitted to the Regional Plan Reviewer (as designated at www.dnr.state.wi.us/org/water/wm/consultant.html). Any construction plans and specifications for industrial wastewater systems shall be submitted to the Bureau of Watershed Management, P.O. Box 7921, Madison, WI 53707-7921.