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July 14, 2020

Christopher Black
U.S. Environmental Protection Agency Region 5
Land, Chemicals & Redevelopment Division
77 West Jackson Blvd, LR-16J
Chicago, IL 60604-3590

**Subject: *Quarterly Progress Report (April through June 2020)*
Administrative Order on Consent (February 26, 2009)
Tyco Fire Products LP, Stanton Street Facility, Marinette, Wisconsin
WID 006 125 215**

Dear Mr. Black:

In accordance with Section VI, 21, b (Page 10) of the Administrative Order on Consent (AOC), dated February 26, 2009, Tyco Fire Products LP (Tyco) has prepared this quarterly progress report for the U.S. Environmental Protection Agency (EPA) Region 5 and the Wisconsin Department of Natural Resources (WDNR) (collectively referred herein as the Agencies). The reports are required to document activities conducted as part of the Resource Conservation and Recovery Act (RCRA) corrective actions at the Tyco facility on Stanton Street in Marinette, Wisconsin. This report covers the period from April 1 through June 30, 2020 and presents a brief description of the work performed, data collected, problems encountered, and schedule of activities as required by the February 2009 AOC and subsequent agreements.

Work Completed During this Reporting Period

Operation of the groundwater collection and treatment system (GWCTS) continued through second quarter 2020. Attachment 1 summarizes the operational data, and Attachment 2 contains the monthly Discharge Monitoring Reports. Operations still include a bypass of the first two reaction tanks and the lamella and connection of the equalization tank directly to Reaction Tank 3, then Reaction Tank 4, and then to the microfilter. The GWCTS operated continuously except for 3 downtime days each month. This represents a significant operational increase compared to the previous reporting period. The overall volume of groundwater extracted was approximately 859,505 gallons; 2.7 times greater than that reported last quarter. Reject volumes were within a similar range compared to overall volume treated as well.

Pump down operations with the temporary system continued through second quarter 2020 in the former Salt Vault. Modifications were made to the system to allow the collection and storage system to include the former 8th Street Slip area, since prior modifications were only to allow the former Salt Vault area to operate during the winter months because pumping to maintain water levels below the target elevation within the former 8th Street Slip historically had not been required during the winter shutdown period. Startup occurred in the former 8th Street Slip on April 22, 2020, and operations continued under management of Endpoint Solutions of Franklin, Wisconsin. Details of the pump down operations are reported to the Agencies in biweekly summary reports.

Phyto-plot inspections were completed on May 21, 2020 (Figure 1). There were no issues or findings to address, except in the Wetlands Area (Zone 4). The Wetlands Area phyto-plot has had river levels

overtopping the barrier wall since spring 2019, and most of the trees are in areas of standing water, a condition that can decrease tree survivability. Approximately 70% of the poplar trees in a lower lying area approximately 50 feet from the west edge of the Wetland Area are dying or already dead (a tree count could not be conducted because of the river levels limiting access to the area). In subsequent seasons, these areas will be observed and health of the willows, that appear to be in better condition, will be evaluated; if the bulk of the willows in this area remain healthy under these conditions, they may be a good option to replant in the future, if necessary. In Zone 5 in the northwestern corner of the site along the Menominee River that occasionally has had standing water, the trees appeared healthy but will need to be observed in subsequent seasons to see if the water has affected their overall health. Also note that approximately 90 trees have been removed from Zone 1 on the southern end of the site as a result of ChemDesigns' new building construction; a new phyto-plot area (Zone 7; Attachment 3) was planted to replace these trees as further discussed in the following section.

Cover area inspections were completed on June 2, 2020 (Figure 2). There were no issues or findings to address, except in Cover Areas H and I and in the former Salt Vault. These areas had cracking in the asphalt that will be addressed in summer 2020. Also note that Cover Area K near ChemDesigns' new building construction has been disturbed and is being addressed as proposed in the May 28, 2019 Jacobs memorandum *Changes to RCRA Site Components Due to Proposed ChemDesign Building*.

The spring barrier wall groundwater monitoring and sampling event was completed the week of June 15, 2020.

Pressure transducer-related activities were completed on June 18, 2020. These activities included: download of data from each transducer, collection of manual water levels at the time of transducer download, and installation of a non-vented transducer was installed at MW107D.

Additional Activities

The draft Wisconsin Pollutant Discharge and Elimination System (WPDES) variance permit was not received from WDNR in second quarter 2020 as expected based on communications with the WDNR. Because of the delay in receiving the draft permit from WDNR, steps to move forward with the conveyance system construction work for the permanent pump down program approach would likely be initiated in 2021, and design for the GWCTS improvements may be initiated in fall or winter 2020.

The new ChemDesign building construction and related changes to RCRA remedy components continued in second quarter 2020. Work is anticipated to be completed in fall 2020.

Per the request in EPA's December 18, 2019 comment letter on the September 27, 2019 *Vapor Intrusion Assessment and Work Plan*, the second Building 14 vapor intrusion sampling event was conducted on April 9, 2020.

During the week of June 1, 2020, Sand Creek Consultants, Inc. of Rhinelander, Wisconsin planted a new phyto-plot area (Zone 7) north and northwest of Building 52, planting 82 poplar and 89 willow trees. The trees were planted to replace those removed as part of the new ChemDesign building construction on the southern end of the site. Each tree had a compost amendment added, and select plantings had weed fabric and rodent guards installed. An irrigation system also was installed to support watering the trees. A planting layout figure is included as Attachment 3.

Data Collected

Extraction and treatment volumes, analytical testing, and discharge data are required as part of the WPDES permits obtained from WDNR for operating the GWCTS. The GWCTS operates under WPDES Permit WI-0001040-07-0. Attachment 2 includes the GWCTS monthly WPDES Discharge Monitoring

Reports for March 2020 through May 2020. Attachment 1 contains additional data on the GWCTS operations.

Groundwater elevation data were collected from monitoring wells in the former 8th Street Slip and former Salt Vault areas in accordance with the pump down program requirements and have been reported to the Agencies in the biweekly summary reports.

Spring barrier wall groundwater monitoring event data are not yet available and will be included in the annual report. Groundwater elevation data recorded by transducers are being compiled and evaluated. The transducer data will be provided in the annual report.

The second Building 14 vapor intrusion sampling event on April 9, 2020 included collecting five indoor air samples, including one duplicate, and one outdoor air sample at Building 14. The air sample results were nondetect for the analyzed parameters (vinyl chloride; cis-1,2-dichloroethene; and trichloroethene), with reporting limits below applicable indoor air screening levels. Concurrent with the indoor air sampling, the groundwater and wastewater treatment facility influent samples also were nondetect for the same analyzed parameters. Results were submitted on May 4, 2020 in an email to the Agencies. The non-residential building indoor air evaluation form was submitted on May 20, 2020 in an email to the Agencies to accompany the indoor air sampling laboratory reports from samples collected on February 11 and April 9, 2020 for Building 14, as requested by EPA in an April 29, 2020 email.

Problems Encountered

Menomonee River Levels

Menominee River water levels remained high through second quarter 2020, continuing a trend from the last several years, with heavy spring rainfalls and high river and lake levels being the main contributing factors. During the reporting period, the river remained above the top of the vertical barrier wall in the Wetlands Area of the site. Water levels exceeded the weirs in the Main Plant area at the beginning of the reporting period. Tyco evaluated options to help manage potential high river levels that the U.S. Army Corps of Engineers has predicted for Lake Michigan in 2020¹ and installed a Muscle Wall barrier along the Main Plant portion of the sheet pile barrier wall (approximately 1,500 linear feet) the week of April 20, 2020 to limit river water coming onsite. Openings in the Muscle Wall were left at the four weir locations to allow for stormwater management (Figure 3); the openings in the Muscle Wall were constructed so river water could be blocked and allow management of river water and stormwater, as needed.

A vendor is constructing adjustable gates for each of the four weirs that will allow the weirs to be closed off at the sheet pile wall when needed; construction and installation of these gates is anticipated in 2020.

In addition, super sacks filled with clean sand from offsite were temporarily placed on top of three catch basins near Building 29 in the southwestern corner of the site. River water occasionally backs up at these catch basins, and the super sacks help limit river water that surfaces. Tyco is looking at options to further improve the seal.

GWCTS Operations

The GWCTS annual whole effluent toxicity (WET) test collected between May 18 and 21, 2020 did not have passing results. The WET test report form and results are included in Attachment 2. Operations

¹ U.S. Army Corps of Engineers. 2020. Monthly Bulletin of Lakes Levels for the Great Lakes. Available online at <https://www.lre.usace.army.mil/Missions/Great-Lakes-Information/Great-Lakes-Water-Levels/Water-Level-Forecast/Monthly-Bulletin-of-Great-Lakes-Water-Levels/>. April.

appeared normal during the WET test, and the results/parameters before and during the testing were good. Cleaning and maintenance were also conducted after the May 2020 test results were received. The reverse osmosis unit membranes were changed out on June 29, 2020 and a WET test will be conducted the week of July 6, 2020.

Spring Barrier Wall Groundwater Sampling

During the spring 2020 barrier wall groundwater sampling event, the following were encountered:

- MW048S was not accessible because of the dense vegetation and river levels.
- MW047 and MW100 monitoring well nests were only accessible for water levels (because of river levels in the area). No analytical sampling was completed because it was determined that personnel and the necessary sampling equipment could not safely access the area.
- MW040M, MW040S, MW107M, and MW107D are flush-mount wells in areas where water was ponded because of rain and river levels. As such, water level gauging and analytical sampling were not completed at these locations.
- MW108D was purged dry and left to sit overnight. The well did not fully recharge before it was sampled the next day (the final day of the event).
- Although MW107D had a non-vented transducer installed, because of the water standing in the area, an accurate water level was not able to be measured from the well casing, as the water was above the top of the casing on this flush-mount well. Data from the MW107D transducer will be pulled during the next download event; however, the data may not be useable since the installation was conducted when the area was filled with standing water.
- Repairs needed at MW109S and the staff gauge noted in 2019 will be completed when river levels allow for better access to these areas.

Schedule of Upcoming Activities

The following is a summary of activities to be conducted during the next reporting period.

- Submit the quarterly progress report
- Continue constructing new ChemDesign building and related changes to RCRA remedy components
- Complete the vertical barrier wall inspection (delayed until third quarter 2020 when possibly lower river levels may allow for inspection and survey of wall portions that currently are under water)
- Conduct 5-year monitoring well survey
- Repair monitoring well MW109S and the staff gauge
- Conduct transducer data download activities
- Conduct vertical barrier wall inspection
- Address inspection findings for the cover areas (sealing asphalt cracks)
- Address any inspection findings for the vertical barrier wall
- Continue pump down program operations in the former Salt Vault and former 8th Street Slip areas
- Continue operating the GWCTS
- Receive Agency comments or approval on 2019 annual report and arsenic migration pathways evaluation report

- Revised vapor intrusion assessment and work plan responding to Agency comments
- Continue WPDES variance permit options for Agency review that will determine path forward on conveyance and GWCTS improvements

List of Key Correspondence and Document Submittals

Table 1. Documents Submitted

Quarterly Progress Report (April to June 2020), Tyco Fire Products LP Facility, Marinette, Wisconsin

Description of Submittal	Submitted To	Date Submitted
Biweekly Summary Report for Pump Down Program	EPA	April 1, 2020
Biweekly Summary Report for Pump Down Program	EPA	April 15, 2020
Quarterly Progress Report	EPA	April 15, 2020
Monitoring Well Abandonment Exemption Request for MW043S	WDNR	April 15, 2020
Biweekly Summary Report for Pump Down Program	EPA	April 29, 2020
Email – Building 14 April 9, 2020 Vapor Intrusion Sampling Results	EPA	May 4, 2020
Biweekly Summary Report for Pump Down Program	EPA	May 13, 2020
Email – Building 14 Non-residential Building Indoor Air Evaluation Form	EPA	May 20, 2020
Biweekly Summary Report for Pump Down Program	EPA	May 28, 2020
Biweekly Summary Report for Pump Down Program	EPA	June 11, 2020
Biweekly Summary Report for Pump Down Program	EPA	June 24, 2020

Table 2. Correspondence from Agency

Quarterly Progress Report (April through June 2020)

Tyco Fire Products LP Facility, Marinette, Wisconsin

Description of Correspondence	Submitted By	Date Submitted
Review of the February 14, 2020 Tyco Fire Products LP response to the December 19, 2019 Agency comments on Vapor Intrusion Assessment and Work Plan	EPA	April 29, 2020
Change in EPA Project Manager	EPA	May 19, 2020

If you have any questions or require additional information, please contact me at 262-644-6167 or Jeffrey Danko at 414-524-3344.

Respectfully Yours,

Jacobs Engineering Group Inc.

Heather J. Ziegelbauer

Heather Ziegelbauer
Project Manager

cc: Angela Carey, WDNR
Ryan Suennen, Tyco Fire Products
Rick Bethel, Johnson Controls
Jeff Danko, Johnson Controls
Mariel Carter, Stephenson Public Library

Figures

- 1 Site Plan (with phyto-plots)
- 2 Cover Area Location Map
- 3 Vertical Barrier Wall Details (with weir locations)

Attachments

- 1 Groundwater Collection and Treatment System Operation Summary
- 2 Discharge Monitoring Reports for the Groundwater Collection and Treatment System
- 3 New Zone 7 Phyto Site Layout

Document Control No.: D3394600.277



Figures

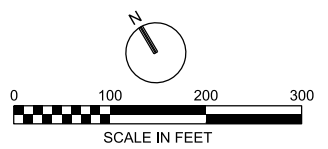
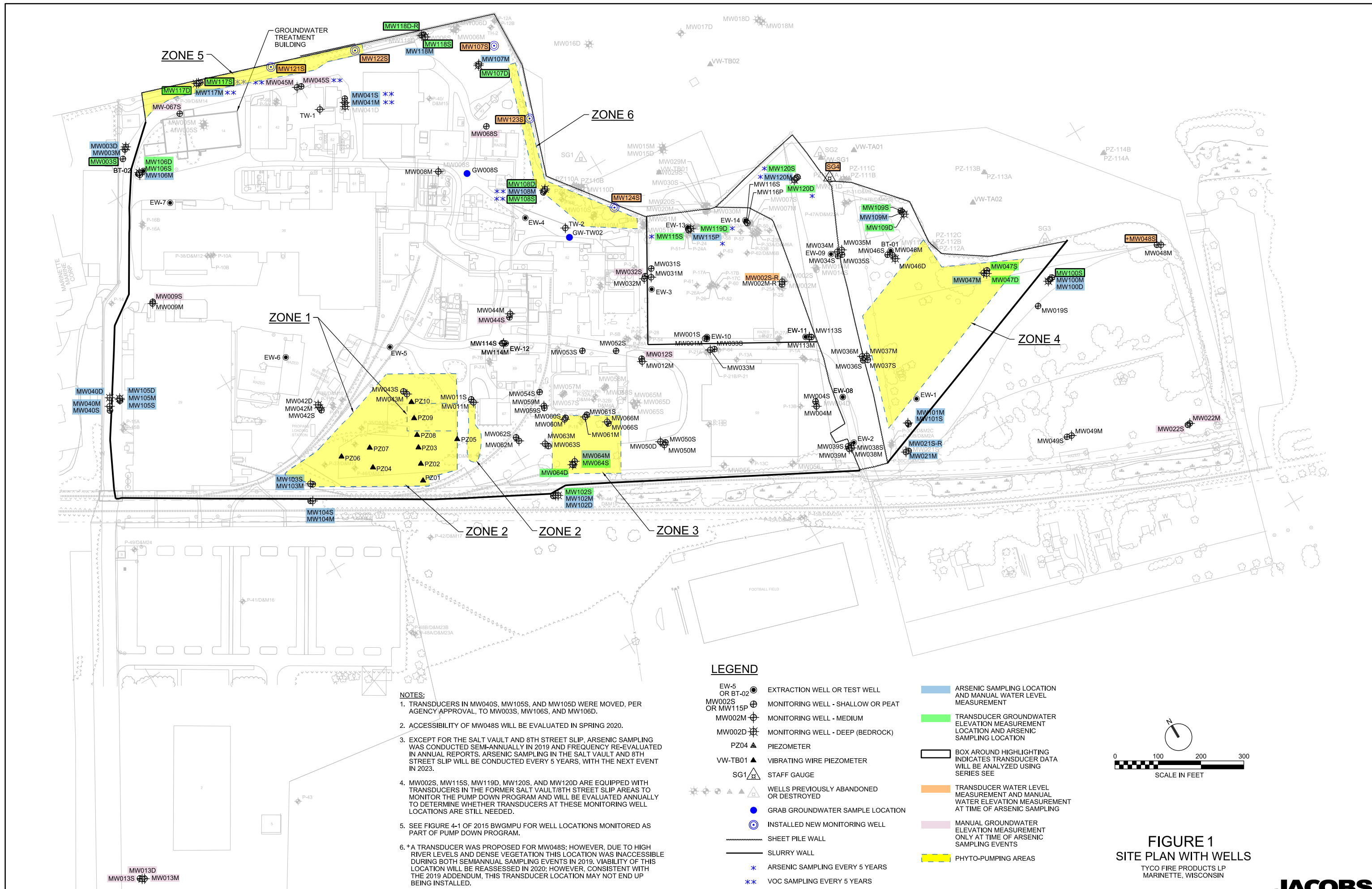
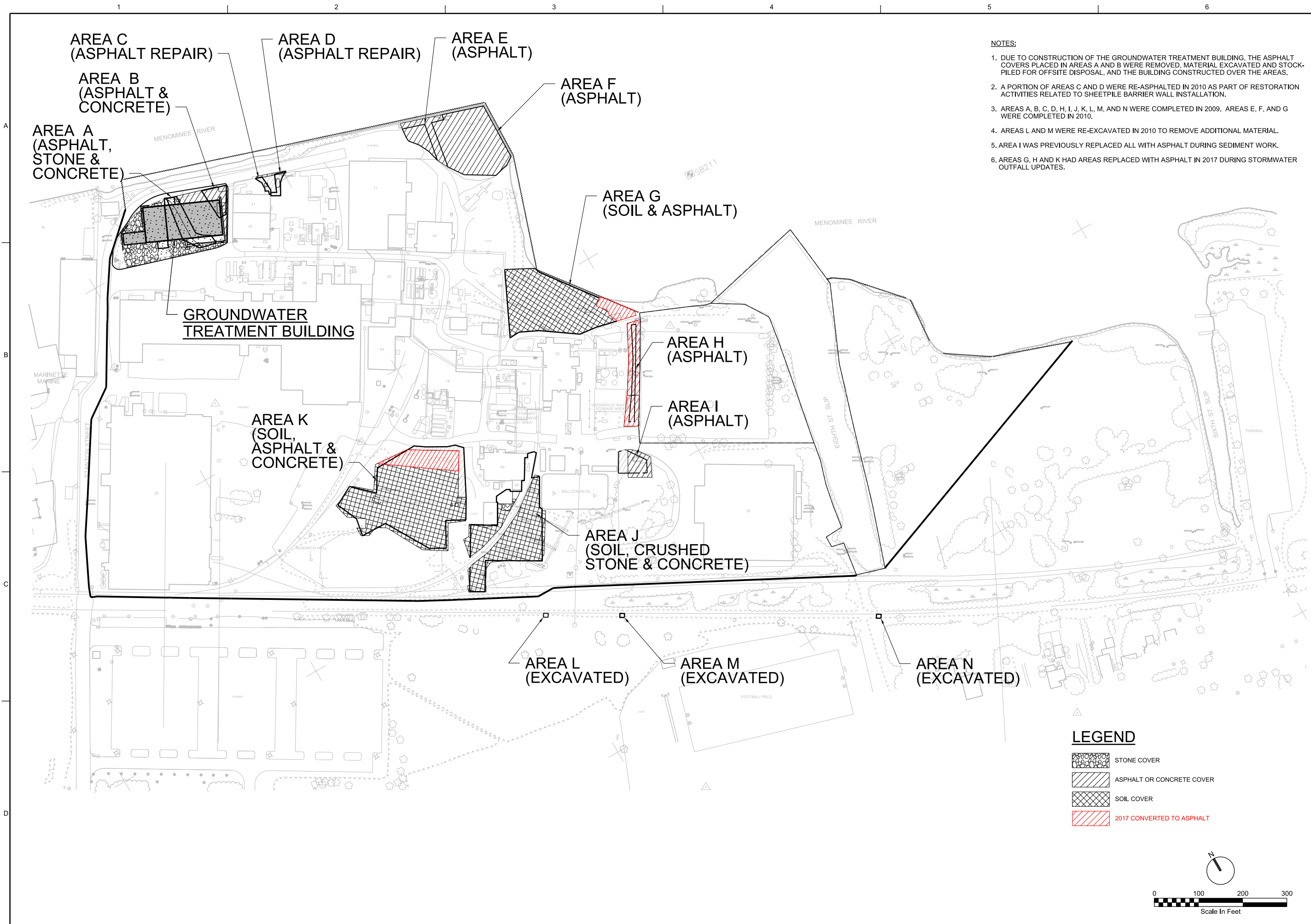


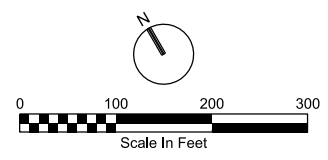
FIGURE 1
SITE PLAN WITH WELLS
TYCO FIRE PRODUCTS LP
MARINETTE, WISCONSIN



- NOTES:**
1. DUE TO CONSTRUCTION OF THE GROUNDWATER TREATMENT BUILDING, THE ASPHALT COVERS PLACED IN AREAS A AND B WERE REMOVED, MATERIAL EXCAVATED AND STOCK-PILED FOR OFFSITE DISPOSAL, AND THE BUILDING CONSTRUCTED OVER THE AREAS.
 2. A PORTION OF AREAS C AND D WERE RE-ASPHALTED IN 2010 AS PART OF RESTORATION ACTIVITIES RELATED TO SHEETPILE BARRIER WALL INSTALLATION.
 3. AREAS A, B, C, D, H, I, J, K, L, M, AND N WERE COMPLETED IN 2009. AREAS E, F, AND G WERE COMPLETED IN 2010.
 4. AREAS L AND M WERE RE-EXCAVATED IN 2010 TO REMOVE ADDITIONAL MATERIAL.
 5. AREA I WAS PREVIOUSLY REPLACED ALL WITH ASPHALT DURING SEDIMENT WORK.
 6. AREAS G, H AND K HAD AREAS REPLACED WITH ASPHALT IN 2017 DURING STORMWATER OUTFALL UPDATES.

LEGEND

-  STONE COVER
-  ASPHALT OR CONCRETE COVER
-  SOIL COVER
-  2017 CONVERTED TO ASPHALT



JACOBS

FIGURE 2
AREA LOCATION MAP

TYCOO FIRE PRODUCTS LP
Cover Maintenance Plan for
Onsite and Offsite Soil Areas at
the Tycoo Fire Products LP Facility
Marquette, Wisconsin

SCALE: 1" = 200'
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: DECEMBER 2018
PROJ: 704683

REVISION 1

PRELIMINARY
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 DSGN: T. CHAPMAN
 DR: G. BOWLES
 CHK: J. DANKO
 APVD: H. ZIEGELBAUER



FIGURE 3
VERTICAL BARRIER WALL DETAILS
 TYCO FIRE PRODUCTS LP
 MARINETTE, WISCONSIN

Attachment 1
Groundwater Collection and Treatment System
Operation Summary

Groundwater Collection and Treatment System Operations for Tyco Fire Products LP, Marinette, Wisconsin, April 1 through June 30, 2020

The following summarizes groundwater collection and treatment system (GWCTS) operations from April 1 through June 30, 2020 at the Tyco Fire Products LP facility on Stanton Street in Marinette, Wisconsin:

- The GWCTS operated for 27 days in April 2020, 28 days in May 2020, and 27 days in June 2020, for a total of 82 days.
- For the reporting period, the precipitation recorded from the weather station in Marinette, Wisconsin was 11.41 inches of rain and 1.0 inch of snow (<http://www.ncdc.noaa.gov/cdo-web/datasets/GHCND/stations/GHCND:USC00475091/detail>).
- An estimated 859,505 gallons of groundwater were extracted (not including volumes extracted as part of the pump down program) from the site during the reporting period. Table 1-1 lists the water volumes extracted from each area of the site for this quarter based on the recorded data.
- During the reporting period, an estimated 920,331 gallons of water were discharged to the Menominee River as effluent under the Wisconsin Pollutant Discharge and Elimination System permit.
- Approximately 429,100 gallons of reject water were produced this reporting period during system operations and subsequently disposed of offsite.

Table 1-1. Extraction Well Data Summary (April through June 2020)

*Groundwater Collection and Treatment System
Tyco Fire Products LP Facility, Marinette, Wisconsin*

Extraction Well	Gallons Run, First Quarter 2020 (April 1 through June 30, 2020)
EW-1	131,920
EW-2	0
EW-3	0
EW-4	8,368
EW-5	394,177
EW-6	165,431
EW-7	159,609
Total	859,505

Attachment 2
Discharge Monitoring Reports for the Groundwater
Collection and Treatment System

Wastewater Discharge Monitoring Long Report

For DNR Use Only

Facility Name: TYCO FIRE PRODUCTS LP
 Contact Address: One Stanton St
 Marinette, WI 54143
 Facility Contact: Mike Elliott, EHS Manager
 Phone Number: 715-735-7411
 Reporting Period: 03/01/2020 - 03/31/2020
 Form Due Date: 04/21/2020
 Permit Number: 0001040

Date Received:
 DOC: 441351
 FIN: 7245
 FID: 438039470
 Region: Northeast Region
 Permit Drafter: Trevor J Moen
 Reviewer: Laura A Gerold
 Office: Green Bay

Sample Point	001	703	001	001	001	
Description	PRIOR TO MENOMINEE RIVER	Intake Water Monitoring	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	
Parameter	211	280	487	374	373	
Description	Flow Rate	Mercury, Total Recoverable	Temperature	pH (Minimum)	pH (Maximum)	
Units	MGD	ng/L	degF	su	su	
Sample Type	CONTINUOUS	GRAB	GRAB	CONTINUOUS	CONTINUOUS	
Frequency	DAILY	MONTHLY	MONTHLY	DAILY	DAILY	
Sample Results	Day 1	0.10779		67	7.3	8.4
	2	0.14226		61	7.2	8.0
	3	0.21722		63	6.9	7.7
	4	0.16138		60	6.9	7.3
	5	0.15920		60	6.8	7.4
	6	0.12986		57	6.9	7.3
	7	0.10060		60	6.9	7.4
	8	0.09143		67	7.0	7.4
	9	0.18544	<0.16	60	6.5	7.0
	10	0.14071		62	6.6	7.1
	11	0.13110		62	6.7	7.0
	12	0.21869		63	6.6	7.0
	13	0.11837		58	6.9	7.2
	14	0.09807		56	7.1	7.8
	15	0.08733			6.9	8.2
	16	0.14125		60	6.8	7.0
	17	0.12706		61	6.9	8.2
	18	0.14517		66	7.4	8.9
	19	0.25492		63	7.1	7.6
	20	0.11321		60	7.2	8.0
	21	0.09466		75	7.1	8.2
	22	0.09136		77	7.3	8.3
	23	0.14498		63	6.9	7.4
	24	0.15318		63	6.9	7.9
	25	0.23054		59	6.6	7.0
	26	0.13907		76	7.0	8.1
	27	0.12719		59	7.4	7.7
	28	0.22461		56	7.3	7.6
	29	0.10493		55	7.4	7.5
	30	0.15391		61	7.4	7.7
	31	0.14220		61	7.5	7.8

	Sample Point	001	703	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	Intake Water Monitoring	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	211	280	487	374	373
	Description	Flow Rate	Mercury, Total Recoverable	Temperature	pH (Minimum)	pH (Maximum)
	Units	MGD	ng/L	degF	su	su
Summary Values	Monthly Avg	0.144441613	0	62.366666667	7.012903226	7.648387097
	Monthly Total					
	Daily Max	0.25492	<0.16	77	7.5	8.9
	Daily Min	0.08733	<0.16	55	6.5	7
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					11 0
	Daily Min				4 0	
	Rolling 12 Month Avg					
QA/QC Information	LOD		0.16			
	LOQ		0.5			
	QC Exceedance	N	N	N	N	N
	Lab Certification		999580010			

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	379	376	388	231	35
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Phosphorus, Total	Hardness, Total as CaCO3	Arsenic, Total Recoverable
	Units	minutes	Number	mg/L	mg/L	ug/L
	Sample Type	CONTINUOUS	CONTINUOUS	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	WEEKLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3			0.41	250	58
	4					
	5					
	6					
	7					
	8					
	9			2.1	280	79
	10					
	11					
	12					
	13					
	14					
	15					
	16			0.33	310	93
	17					
	18					
	19					
	20					
	21					
	22					
	23			0.33	260	85
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	379		376		388		231	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Phosphorus, Total		Hardness, Total as CaCO3	
	Units	minutes		Number		mg/L		mg/L	
Summary Values	Monthly Avg					0.7925		275	
	Monthly Total								
	Daily Max					2.1		310	
	Daily Min					0.33		250	
	Rolling 12 Month Avg					0.5			
Limit(s) in Effect	Monthly Avg								
	Monthly Total	446	0						
	Daily Max			0	0			680	0
	Daily Min								
	Rolling 12 Month Avg					1	0		
QA/QC Information	LOD					0.024		2.1	
	LOQ					0.05		5	
	QC Exceedance	N		N		N		N	
	Lab Certification					999580010		999580010	

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	35	147	147	87	152
	Description	Arsenic, Total Recoverable	Copper, Total Recoverable	Copper, Total Recoverable	Cadmium, Total Recoverable	Cyanide, Amenable
	Units	lbs/day	ug/L	lbs/day	ug/L	ug/L
	Sample Type	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3	0.10498	27	0.04887	0.54	<5.0
	4					
	5					
	6					
	7					
	8					
	9	0.12245	25	0.03875	<0.49	
	10					
	11					
	12					
	13					
	14					
	15					
	16	0.10974	28	0.03304	0.55	
	17					
	18					
	19					
	20					
	21					
	22					
	23	0.10285	23	0.02783	0.95	
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	35		147		147		87	
	Description	Arsenic, Total Recoverable		Copper, Total Recoverable		Copper, Total Recoverable		Cadmium, Total Recoverable	
	Units	lbs/day		ug/L		lbs/day		ug/L	
Summary Values	Monthly Avg	0.110005		25.75		0.0371225		0.51	
	Monthly Total								
	Daily Max	0.12245		28		0.04887		0.95	
	Daily Min	0.10285		23		0.02783		<0.49	
	Rolling 12 Month Avg								
Limit(s) in Effect	Monthly Avg								
	Monthly Total								
	Daily Max	12	0	69	0	0.98	0		
	Daily Min								
	Rolling 12 Month Avg								
QA/QC Information	LOD			1.7				0.49	
	LOQ			5				1	
	QC Exceedance	N		N		N		N	
	Lab Certification			999580010				999580010	

	Sample Point	001	001	101	101	101
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	112	280	211	457	342
	Description	Chlorine, Total Residual	Mercury, Total Recoverable	Flow Rate	Suspended Solids, Total	Oil & Grease (Freon)
	Units	ug/L	ng/L	MGD	mg/L	mg/L
	Sample Type	GRAB	GRAB	CONTINUOUS	24 HR COMP	GRAB
	Frequency	MONTHLY	MONTHLY	DAILY	DAILY	2/WEEK
Sample Results	Day 1					
	2			0.02536	2.0	<1.4
	3			0.02489	<1.9	1.5
	4			0.02393	4.5	
	5			0.02097	8.5	
	6			0.00977	7.5	
	7			0.00807	8.0	
	8					
	9		3.75	0.02506	3.0	2.9
	10			0.02378	2.0	<1.4
	11			0.02366	<1.9	
	12			0.02173	<1.9	
	13			0.00736	3.0	
	14			0.01282	2.0	
	15					
	16			0.02846	3.5	1.4
	17	30		0.01706	3.5	2.5
	18			0.02456	2.0	
	19			0.01477	3.5	
	20			0.00614	6.5	
	21			0.00775	5.0	
	22					
	23			0.02838	4.0	2.1
	24			0.02328	2.5	<1.4
	25			0.02478	<1.9	
	26			0.02212	2.5	
	27			0.01124	2.5	
	28			0.01247	3.0	
	29					
	30			0.03685	2.0	
	31			0.06194	2.0	

	Sample Point	001		001		101		101			
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		Metal Finishing Effluent		Metal Finishing Effluent			
	Parameter	112		280		211		457			
	Description	Chlorine, Total Residual		Mercury, Total Recoverable		Flow Rate		Suspended Solids, Total			
	Units	ug/L		ng/L		MGD		mg/L			
Summary Values	Monthly Avg	30		3.75		0.021046154		3.192307692		1.3	
	Monthly Total										
	Daily Max	30		3.75		0.06194		8.5		2.9	
	Daily Min	30		3.75		0.00614		<1.9		<1.4	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg							31	0	26	0
	Monthly Total										
	Daily Max							60	0	52	0
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD	30		0.16						1.4	
	LOQ	100		0.5						5.4	
	QC Exceedance	N		N		N		N		N	
	Lab Certification			999580010				999580010		999580010	

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	87	133	315	553	155
	Description	Cadmium, Total Recoverable	Chromium, Total Recoverable	Nickel, Total Recoverable	Zinc, Total Recoverable	Cyanide, Total
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	GRAB
	Frequency	2/WEEK	MONTHLY	2/WEEK	2/WEEK	MONTHLY
Sample Results	Day 1					
	2	<0.49	<2.2	12	120	<3.0
	3	<0.49	<2.2	11	67	
	4					
	5					
	6					
	7					
	8					
	9	<0.49	<2.2	14	130	
	10	<0.49	<2.2	17	81	
	11					
	12					
	13					
	14					
	15					
	16	<0.49	<2.2	16	100	
	17	<0.49	<2.2	8.1	81	
	18					
	19					
	20					
	21					
	22					
	23	<0.49	<2.2	13	97	
	24	<0.49	<2.2	11	100	
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Total Recoverable		Chromium, Total Recoverable		Nickel, Total Recoverable		Zinc, Total Recoverable		Cyanide, Total	
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0		0		12.7625		97		0	
	Monthly Total										
	Daily Max	<0.49		<2.2		17		130		<3	
	Daily Min	<0.49		<2.2		8.1		67		<3	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	260	0	1710	0	2380	0	1480	0	650	0
	Monthly Total										
	Daily Max	690	0	2770	0	3980	0	2610	0	1200	0
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD	0.49		2.2		1.5		3.6		3	
	LOQ	1		5		5		10		10	
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010		999580010		999580010	

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	147	264	430	374	373
	Description	Copper, Total Recoverable	Lead, Total Recoverable	Silver, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	ug/L	ug/L	ug/L	su	su
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	2/WEEK	MONTHLY	MONTHLY	DAILY	DAILY
Sample Results	Day 1					
	2	5.5	<1.3	<1.1	7.2	8.1
	3	4.3	1.8	<1.1	7.0	8.0
	4				7.0	8.1
	5				6.8	8.0
	6				6.8	8.4
	7				7.1	8.7
	8					
	9	7.1	2.2	<1.1	7.3	8.4
	10	5.9	2.4	<1.1	7.0	7.9
	11				7.0	8.0
	12				7.1	7.8
	13				6.9	7.5
	14				7.5	8.3
	15					
	16	4.6	<1.3	<1.1	7.3	7.8
	17	4.8	<1.3	<1.1	7.3	7.9
	18				7.1	8.0
	19				7.4	8.1
	20				6.7	7.4
	21				7.6	8.0
	22					
	23	5.3	<1.3	<1.1	7.3	8.0
	24	6.7	<1.3	<1.1	7.1	8.1
	25				7.4	7.9
	26				7.5	7.9
	27				7.4	7.6
	28				7.4	8.4
	29					
	30				7.6	8.1
	31				7.3	8.4

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	147		264		430		374		373	
	Description	Copper, Total Recoverable		Lead, Total Recoverable		Silver, Total Recoverable		pH (Minimum)		pH (Maximum)	
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	5.525		0.8		0		7.196153846		8.030769231	
	Monthly Total										
	Daily Max	7.1		2.4		<1.1		7.6		8.7	
	Daily Min	4.3		<1.3		<1.1		6.7		7.4	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	2070	0	430	0	240	0				
	Monthly Total										
	Daily Max	3380	0	690	0	430	0			11	0
	Daily Min							4	0		
	Rolling 12 Month Avg										
QA/QC Information	LOD	1.7		1.3		1.1					
	LOQ	5		2.5		2.5					
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	379	376	507	40	490
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Total Toxic Organics	Benzene	Tetrachloroethylene
	Units	minutes	Number	ug/L	ug/L	ug/L
	Sample Type	CALCULATED	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	379		376		507		40		490	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Total Toxic Organics		Benzene		Tetrachloroethylene	
	Units	minutes		Number		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg										
	Monthly Total										
	Daily Max										
	Daily Min										
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg										
	Monthly Total	446	0	0	0						
	Daily Max					2130					
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD										
	LOQ										
	QC Exceedance	N		N		N		N		N	
	Lab Certification										

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
Summary Values	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					
	LOQ					
	QC Exceedance					
	Lab Certification					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
	Sample Type	24 HR COMP	CONTINUOUS	24 HR COMP	24 HR COMP	GRAB
	Frequency	MONTHLY	DAILY	WEEKLY	WEEKLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					<0.16
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
Summary Values	Monthly Avg					0
	Monthly Total					
	Daily Max					<0.16
	Daily Min					<0.16
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					0.16
	LOQ					0.5
	QC Exceedance	N	N	N	N	N
	Lab Certification					999580010

	Sample Point	003	003	003	003	003
	Description	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg
	Parameter	211	457	35	374	373
	Description	Flow Rate	Suspended Solids, Total	Arsenic, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	MGD	mg/L	ug/L	su	su
	Sample Type	CONTINUOUS	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	WEEKLY	WEEKLY	DAILY	DAILY
Sample Results	Day 1					
	2	0.015314			7.3	7.8
	3	0.010999	<1.9	57	7.4	7.9
	4	0.012054			7.5	8.5
	5	0.010321			7.5	8.4
	6	0.010051			7.3	8.7
	7	0.008231			7.2	7.5
	8	0.003941			7.3	8.3
	9	0.014840	<1.9	25	7.3	8.8
	10	0.011020			7.1	8.5
	11	0.014691			7.3	8.4
	12	0.013282			7.7	8.0
	13	0.003364			7.9	8.4
	14	0.005316			7.4	8.1
	15					
	16	0.013794	<1.9	50	7.7	8.0
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27	0.006439			7.5	8.6
	28					
	29					
	30	0.007317	2.0	85	7.7	8.2
	31	0.015542			7.6	8.7

	Sample Point	003		003		003		003			
	Description	Future remedial action dischg		Future remedial action dischg		Future remedial action dischg		Future remedial action dischg			
	Parameter	211		457		35		374			
	Description	Flow Rate		Suspended Solids, Total		Arsenic, Total Recoverable		pH (Minimum)		pH (Maximum)	
	Units	MGD		mg/L		ug/L		su		su	
Summary Values	Monthly Avg	0.010383294		0.5		54.25		7.452941176		8.282352941	
	Monthly Total										
	Daily Max	0.015542		2		85		7.9		8.8	
	Daily Min	0.003364		<1.9		25		7.1		7.5	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg										
	Monthly Total										
	Daily Max					680	0			11	0
	Daily Min							4	0		
	Rolling 12 Month Avg										
QA/QC Information	LOD					2.1					
	LOQ					5					
	QC Exceedance	N		N		N		N		N	
	Lab Certification			999580010		999580010					

	Sample Point	003	003
	Description	Future remedial action dischg	Future remedial action dischg
	Parameter	379	376
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes
	Units	minutes	Number
	Sample Type	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	DAILY
Sample Results	Day 1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		

	Sample Point	003		003	
	Description	Future remedial action dischg		Future remedial action dischg	
	Parameter	379		376	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes	
	Units	minutes		Number	
Summary Values	Monthly Avg				
	Monthly Total				
	Daily Max				
	Daily Min				
	Rolling 12 Month Avg				
Limit(s) in Effect	Monthly Avg				
	Monthly Total	446	0		
	Daily Max			0	0
	Daily Min				
	Rolling 12 Month Avg				
QA/QC Information	LOD				
	LOQ				
	QC Exceedance	N		N	
	Lab Certification				

Footnotes (DNR Use Only; Instructions for completing this form that are unique for your facility may be displayed here.)

1. Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for TTO I certify that to the best of my knowledge and belief no dumping of concentrated toxic organics into the wastewaters has
2. occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the solvent management plan submitted to the department.

General Remarks

On March 15th the temperature stopped for some reason so, there will be no temperature for that day. The chart was fix the next day.

Laboratory Quality Control Comments

Submitted by afleury16 on 04/09/2020 1:39:35 PM

Wastewater Discharge Monitoring Long Report

For DNR Use Only

Facility Name: TYCO FIRE PRODUCTS LP
 Contact Address: One Stanton St
 Marinette, WI 54143
 Facility Contact: Mike Elliott, EHS Manager
 Phone Number: 715-735-7411
 Reporting Period: 04/01/2020 - 04/30/2020
 Form Due Date: 05/21/2020
 Permit Number: 0001040

Date Received:
 DOC: 445620
 FIN: 7245
 FID: 438039470
 Region: Northeast Region
 Permit Drafter: Trevor J Moen
 Reviewer: Laura A Gerold
 Office: Green Bay

Sample Point	001	703	001	001	001	
Description	PRIOR TO MENOMINEE RIVER	Intake Water Monitoring	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	
Parameter	211	280	487	374	373	
Description	Flow Rate	Mercury, Total Recoverable	Temperature	pH (Minimum)	pH (Maximum)	
Units	MGD	ng/L	degF	su	su	
Sample Type	CONTINUOUS	GRAB	GRAB	CONTINUOUS	CONTINUOUS	
Frequency	DAILY	MONTHLY	MONTHLY	DAILY	DAILY	
Sample Results	Day 1	0.149410		60	7.5	7.7
	2	0.141340		62	7.5	7.7
	3	0.129630		60	7.0	7.8
	4	0.073920		64	7.3	7.6
	5	0.105920		65	7.2	7.6
	6	0.145390		60	7.1	7.4
	7	0.158600		61	7.0	7.3
	8	0.157070		60	7.0	7.3
	9	0.144290		59	6.8	7.0
	10	0.088200		60	6.9	7.4
	11	0.032590		65	7.4	7.6
	12	0.186460		61	6.6	7.4
	13	0.159590	<0.16	58	6.8	7.1
	14	0.145080		60	6.9	7.1
	15	0.158710		60	6.9	7.4
	16	0.132510		58	7.3	7.4
	17	0.127120		62	7.1	7.3
	18	0.045860		60	7.3	7.6
	19	0.044030		66	7.2	7.7
	20	0.159900		60	6.9	7.4
	21	0.138410		59	7.1	7.3
	22	0.137270		60	6.8	7.2
	23	0.122350		58	6.9	7.4
	24	0.083750		61	7.1	7.5
	25	0.028130		65	7.3	7.5
	26	0.073810		65	7.3	7.5
	27	0.181100		58	6.5	6.9
	28	0.153230		59	6.6	7.1
	29	0.200360		59	6.0	7.1
	30	0.142170		60	6.7	7.2
	31					

	Sample Point	001	703	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	Intake Water Monitoring	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	211	280	487	374	373
	Description	Flow Rate	Mercury, Total Recoverable	Temperature	pH (Minimum)	pH (Maximum)
	Units	MGD	ng/L	degF	su	su
Summary Values	Monthly Avg	0.124873333	0	60.833333333	7	7.383333333
	Monthly Total					
	Daily Max	0.20036	<0.16	66	7.5	7.8
	Daily Min	0.02813	<0.16	58	6	6.9
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					11 0
	Daily Min				4 0	
	Rolling 12 Month Avg					
QA/QC Information	LOD		0.16			
	LOQ		0.5			
	QC Exceedance	N	N	N	N	N
	Lab Certification		999580010			

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	379	376	388	231	35
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Phosphorus, Total	Hardness, Total as CaCO3	Arsenic, Total Recoverable
	Units	minutes	Number	mg/L	mg/L	ug/L
	Sample Type	CONTINUOUS	CONTINUOUS	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	WEEKLY	MONTHLY	MONTHLY
Sample Results	Day 1			0.26	330	110
	2					
	3					
	4					
	5					
	6					
	7					
	8			0.48	280	110
	9					
	10					
	11					
	12					
	13					
	14					
	15			0.27	300	93
	16					
	17					
	18					
	19					
	20					
	21					
	22			0.58	280	96
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	379		376		388		231	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Phosphorus, Total		Hardness, Total as CaCO3	
	Units	minutes		Number		mg/L		mg/L	
Summary Values	Monthly Avg					0.3975		297.5	
	Monthly Total								
	Daily Max					0.58		330	
	Daily Min					0.26		280	
	Rolling 12 Month Avg					0.5			
Limit(s) in Effect	Monthly Avg								
	Monthly Total	446	0						
	Daily Max			0	0			680	0
	Daily Min								
	Rolling 12 Month Avg					1	0		
QA/QC Information	LOD					0.024		2.1	
	LOQ					0.05		5	
	QC Exceedance	N		N		N		N	
	Lab Certification					999580010		999580010	

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	35	147	147	87	152
	Description	Arsenic, Total Recoverable	Copper, Total Recoverable	Copper, Total Recoverable	Cadmium, Total Recoverable	Cyanide, Amenable
	Units	lbs/day	ug/L	lbs/day	ug/L	ug/L
	Sample Type	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1	0.1375	20	0.025	<0.49	
	2					
	3					
	4					
	5					
	6					
	7					
	8	0.1441	19	0.02489	<0.49	<5.0
	9					
	10					
	11					
	12					
	13					
	14					
	15	0.12276	21	0.02772	<0.49	
	16					
	17					
	18					
	19					
	20					
	21					
	22	0.10944	18	0.02052	<0.49	
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	35		147		147		87	
	Description	Arsenic, Total Recoverable		Copper, Total Recoverable		Copper, Total Recoverable		Cadmium, Total Recoverable	
	Units	lbs/day		ug/L		lbs/day		ug/L	
Summary Values	Monthly Avg	0.12845		19.5		0.0245325		0	
	Monthly Total								
	Daily Max	0.1441		21		0.02772		<0.49	
	Daily Min	0.10944		18		0.02052		<0.49	
	Rolling 12 Month Avg								
Limit(s) in Effect	Monthly Avg								
	Monthly Total								
	Daily Max	12	0	69	0	0.98	0		
	Daily Min								
	Rolling 12 Month Avg								
QA/QC Information	LOD			1.7				0.49	
	LOQ			5				1	
	QC Exceedance	N		N		N		N	
	Lab Certification			999580010				999580010	

	Sample Point	001	001	101	101	101
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	112	280	211	457	342
	Description	Chlorine, Total Residual	Mercury, Total Recoverable	Flow Rate	Suspended Solids, Total	Oil & Grease (Freon)
	Units	ug/L	ng/L	MGD	mg/L	mg/L
	Sample Type	GRAB	GRAB	CONTINUOUS	24 HR COMP	GRAB
	Frequency	MONTHLY	MONTHLY	DAILY	DAILY	2/WEEK
Sample Results	Day 1			0.0275	4.5	<1.5
	2			0.0208	3.0	2.0
	3			0.0067	3.0	
	4					
	5					
	6			0.0338	2.0	
	7			0.0208	3.0	
	8			0.0279	<1.9	<1.4
	9			0.0283	2.0	1.5
	10			0.0100	4.0	
	11					
	12					
	13		39.2	0.0342	3.5	
	14			0.0258	3.5	
	15			0.0296	2.5	
	16			0.0188	4.5	<1.4
	17			0.0080	8.5	<1.4
	18					
	19					
	20			0.0267	7.5	
	21			0.0247	2.0	
	22			0.0214	2.0	<1.4
	23			0.0120	6.0	<1.4
	24			0.0044	15.0	
	25					
	26					
	27			0.0289	7.5	
	28	11		0.0254	5.5	
	29			0.0238	3.5	
	30			0.0177	4.0	
	31					

	Sample Point	001		001		101		101		
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		Metal Finishing Effluent		Metal Finishing Effluent		
	Parameter	112		280		211		457		
	Description	Chlorine, Total Residual		Mercury, Total Recoverable		Flow Rate		Suspended Solids, Total		
	Units	ug/L		ng/L		MGD		mg/L		
Summary Values	Monthly Avg	11		39.2		0.021690909		4.409090909		
	Monthly Total									
	Daily Max	11		39.2		0.0342		15		
	Daily Min	11		39.2		0.0044		<1.9		
	Rolling 12 Month Avg									
Limit(s) in Effect	Monthly Avg						31	0	26	0
	Monthly Total									
	Daily Max						60	0	52	0
	Daily Min									
	Rolling 12 Month Avg									
QA/QC Information	LOD	30		1.6				1.4		
	LOQ	100		5				5.6		
	QC Exceedance	N		N		N		N		
	Lab Certification			999580010				999580010		

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	87	133	315	553	155
	Description	Cadmium, Total Recoverable	Chromium, Total Recoverable	Nickel, Total Recoverable	Zinc, Total Recoverable	Cyanide, Total
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	GRAB
	Frequency	2/WEEK	MONTHLY	2/WEEK	2/WEEK	MONTHLY
Sample Results	Day 1	<0.49	<2.2	17	59	
	2	<0.49	<2.2	11	190	
	3					
	4					
	5					
	6					
	7					<3.0
	8	<0.49	<2.2	19	71	
	9	<0.49	<2.2	43	56	
	10					
	11					
	12					
	13					
	14					
	15	<0.49	<2.2	10	83	
	16	<0.49	<2.2	14	68	
	17					
	18					
	19					
	20					
	21					
	22	<0.49	<2.2	26	99	
	23	<0.49	<2.2	69	300	
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Total Recoverable		Chromium, Total Recoverable		Nickel, Total Recoverable		Zinc, Total Recoverable		Cyanide, Total	
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0		0		26.125		115.75		0	
	Monthly Total										
	Daily Max	<0.49		<2.2		69		300		<3	
	Daily Min	<0.49		<2.2		10		56		<3	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	260	0	1710	0	2380	0	1480	0	650	0
	Monthly Total										
	Daily Max	690	0	2770	0	3980	0	2610	0	1200	0
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD	0.49		2.2		1.5		3.6		3	
	LOQ	1		5		5		10		10	
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010		999580010		999580010	

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	147	264	430	374	373
	Description	Copper, Total Recoverable	Lead, Total Recoverable	Silver, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	ug/L	ug/L	ug/L	su	su
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	2/WEEK	MONTHLY	MONTHLY	DAILY	DAILY
Sample Results	Day 1	3.0	<1.3	<1.1	7.0	8.1
	2	3.2	<1.3	<1.1	6.9	7.9
	3				6.8	7.5
	4					
	5					
	6				7.1	7.7
	7				7.3	8.4
	8	4.0	<1.3	<1.1	7.1	8.0
	9	3.3	<1.3	<1.1	7.4	8.2
	10				7.4	7.6
	11					
	12					
	13				7.2	8.6
	14				7.0	7.9
	15	4.7	<1.3	<1.1	7.2	7.8
	16	3.9	<1.3	<1.1	7.0	8.3
	17				6.7	7.4
	18					
	19					
	20				7.0	8.4
	21				7.2	8.3
	22	3.4	1.3	<1.1	7.1	8.4
	23	3.4	1.8	<1.1	6.8	8.2
	24				6.6	7.3
	25					
	26					
	27				6.9	7.9
	28				6.6	7.4
	29				6.6	8.1
	30				6.4	7.2
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	147		264		430		374		373	
	Description	Copper, Total Recoverable		Lead, Total Recoverable		Silver, Total Recoverable		pH (Minimum)		pH (Maximum)	
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	3.6125		0.3875		0		6.968181818		7.936363636	
	Monthly Total										
	Daily Max	4.7		1.8		<1.1		7.4		8.6	
	Daily Min	3		<1.3		<1.1		6.4		7.2	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	2070	0	430	0	240	0				
	Monthly Total										
	Daily Max	3380	0	690	0	430	0			11	0
	Daily Min							4	0		
	Rolling 12 Month Avg										
QA/QC Information	LOD	1.7		1.3		1.1					
	LOQ	5		2.5		2.5					
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	379	376	507	40	490
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Total Toxic Organics	Benzene	Tetrachloroethylene
	Units	minutes	Number	ug/L	ug/L	ug/L
	Sample Type	CALCULATED	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	379		376		507		40		490	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Total Toxic Organics		Benzene		Tetrachloroethylene	
	Units	minutes		Number		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg										
	Monthly Total										
	Daily Max										
	Daily Min										
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg										
	Monthly Total	446	0	0	0						
	Daily Max					2130					
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD										
	LOQ										
	QC Exceedance	N		N		N		N		N	
	Lab Certification										

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
Summary Values	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					
	LOQ					
	QC Exceedance					
	Lab Certification					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
	Sample Type	24 HR COMP	CONTINUOUS	24 HR COMP	24 HR COMP	GRAB
	Frequency	MONTHLY	DAILY	WEEKLY	WEEKLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					<0.16
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
Summary Values	Monthly Avg					0
	Monthly Total					
	Daily Max					<0.16
	Daily Min					<0.16
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					0.16
	LOQ					0.5
	QC Exceedance	N	N	N	N	N
	Lab Certification					999580010

	Sample Point	003	003	003	003	003
	Description	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg
	Parameter	211	457	35	374	373
	Description	Flow Rate	Suspended Solids, Total	Arsenic, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	MGD	mg/L	ug/L	su	su
	Sample Type	CONTINUOUS	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	WEEKLY	WEEKLY	DAILY	DAILY
Sample Results	Day 1	0.012794			7.5	8.7
	2	0.015095	2.0	68	7.5	8.2
	3	0.010647			7.5	8.3
	4	0.007131			7.5	8.3
	5					
	6	0.002910			7.5	8.3
	7	0.015143			7.5	8.4
	8	0.014094	<1.9	69	7.5	8.5
	9	0.013177			7.5	8.4
	10	0.009491			7.5	8.5
	11					
	12					
	13	0.012732			6.0	8.6
	14	0.012700			6.0	8.6
	15	0.011386	<1.9	54	7.5	8.3
	16	0.015799			7.1	8.7
	17	0.012511			7.1	8.7
	18	0.010820			7.5	8.0
	19	0.005545			7.7	8.3
	20	0.004668			7.7	8.0
	21	0.013058			7.6	8.4
	22	0.012837	<1.9	48	7.4	8.3
	23	0.013017			7.7	8.4
	24	0.011787			7.4	8.4
	25	0.009955			7.8	8.3
	26	0.003460			7.3	8.3
	27	0.005802			7.7	8.1
	28	0.014461			7.7	8.1
	29	0.014725			7.8	8.6
	30	0.016691			7.8	8.3
	31					

	Sample Point	003	003	003	003	003	
	Description	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	
	Parameter	211	457	35	374	373	
	Description	Flow Rate	Suspended Solids, Total	Arsenic, Total Recoverable	pH (Minimum)	pH (Maximum)	
	Units	MGD	mg/L	ug/L	su	su	
Summary Values	Monthly Avg	0.011201333	0.5	59.75	7.418518519	8.37037037	
	Monthly Total						
	Daily Max	0.016691	2	69	7.8	8.7	
	Daily Min	0.00291	<1.9	48	6	8	
	Rolling 12 Month Avg						
Limit(s) in Effect	Monthly Avg						
	Monthly Total						
	Daily Max			680	0	11	0
	Daily Min				4	0	
	Rolling 12 Month Avg						
QA/QC Information	LOD			2.1			
	LOQ			5			
	QC Exceedance	N	N	N	N	N	
	Lab Certification		999580010	999580010			

	Sample Point	003	003
	Description	Future remedial action dischg	Future remedial action dischg
	Parameter	379	376
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes
	Units	minutes	Number
	Sample Type	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	DAILY
Sample Results	Day 1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		
	31		

	Sample Point	003		003	
	Description	Future remedial action dischg		Future remedial action dischg	
	Parameter	379		376	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes	
	Units	minutes		Number	
Summary Values	Monthly Avg				
	Monthly Total				
	Daily Max				
	Daily Min				
	Rolling 12 Month Avg				
Limit(s) in Effect	Monthly Avg				
	Monthly Total	446	0		
	Daily Max			0	0
	Daily Min				
	Rolling 12 Month Avg				
QA/QC Information	LOD				
	LOQ				
	QC Exceedance	N		N	
	Lab Certification				

Footnotes (DNR Use Only; Instructions for completing this form that are unique for your facility may be displayed here.)

1. Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for TTO I certify that to the best of my knowledge and belief no dumping of concentrated toxic organics into the wastewaters has
2. occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the solvent management plan submitted to the department.

General Remarks

Laboratory Quality Control Comments

Submitted by Anne Fleury(afleury16) on 5/12/2020 1:54:50 PM

Wastewater Discharge Monitoring Long Report

For DNR Use Only

Facility Name: TYCO FIRE PRODUCTS LP
 Contact Address: One Stanton St
 Marinette, WI 54143
 Facility Contact: Mike Elliott, EHS Manager
 Phone Number: 715-735-7411
 Reporting Period: 05/01/2020 - 05/31/2020
 Form Due Date: 06/21/2020
 Permit Number: 0001040

Date Received:
 DOC: 445621
 FIN: 7245
 FID: 438039470
 Region: Northeast Region
 Permit Drafter: Trevor J Moen
 Reviewer: Laura A Gerold
 Office: Green Bay

Sample Point	001	703	001	001	001	
Description	PRIOR TO MENOMINEE RIVER	Intake Water Monitoring	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	
Parameter	211	280	487	374	373	
Description	Flow Rate	Mercury, Total Recoverable	Temperature	pH (Minimum)	pH (Maximum)	
Units	MGD	ng/L	degF	su	su	
Sample Type	CONTINUOUS	GRAB	GRAB	CONTINUOUS	CONTINUOUS	
Frequency	DAILY	MONTHLY	MONTHLY	DAILY	DAILY	
Sample Results	Day 1	0.10521		60	7.0	7.6
	2	0.07484		66	7.3	7.5
	3	0.08601		66	7.1	7.6
	4	0.15196		62	7.1	7.4
	5	0.14389		61	7.0	7.3
	6	0.15652	<0.16	63	7.0	7.2
	7	0.14716		61	6.8	7.2
	8	0.12582		59	6.8	7.3
	9	0.06926		66	7.2	8.0
	10	0.09230		63	6.8	7.2
	11	0.20078		62	6.7	7.0
	12	0.14146		62	7.0	7.2
	13	0.15017		62	6.7	7.3
	14	0.14468		62	6.8	7.3
	15	0.10692		63	7.2	7.6
	16	0.07939		67	7.4	7.6
	17	0.42501		60	6.4	7.4
	18	0.37333		56	6.6	7.1
	19	0.15465		62	6.8	7.4
	20	0.13958		64	7.2	7.3
	21	0.13446		64	7.1	7.4
	22	0.10129		68	7.0	7.6
	23	0.08180		72	6.9	7.5
	24	0.06096		71	7.0	7.2
	25	0.09340		72	6.8	7.2
	26	0.11974		67	6.8	7.2
	27	0.20376		68	6.4	7.2
	28	0.29316		69	6.4	7.0
	29	0.10451		67	6.9	7.1
	30	0.05559		71	7.1	7.4
	31	0.08171		73	7.0	7.6

	Sample Point	001		703		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		Intake Water Monitoring		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	211		280		487		374		373	
	Description	Flow Rate		Mercury, Total Recoverable		Temperature		pH (Minimum)		pH (Maximum)	
	Units	MGD		ng/L		degF		su		su	
Summary Values	Monthly Avg	0.141913548		0		64.806451613		6.912903226		7.351612903	
	Monthly Total										
	Daily Max	0.42501		<0.16		73		7.4		8	
	Daily Min	0.05559		<0.16		56		6.4		7	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg										
	Monthly Total										
	Daily Max									11	0
	Daily Min							4	0		
	Rolling 12 Month Avg										
QA/QC Information	LOD			0.16							
	LOQ			0.5							
	QC Exceedance	N		N		N		N		N	
	Lab Certification			999580010							

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	379	376	388	231	35
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Phosphorus, Total	Hardness, Total as CaCO3	Arsenic, Total Recoverable
	Units	minutes	Number	mg/L	mg/L	ug/L
	Sample Type	CONTINUOUS	CONTINUOUS	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	WEEKLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4			0.14	300	100
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12			0.22	250	74
	13					
	14					
	15					
	16					
	17					
	18			1.1	120	120
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26			0.30	310	160
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	379		376		388		231	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Phosphorus, Total		Hardness, Total as CaCO3	
	Units	minutes		Number		mg/L		mg/L	
Summary Values	Monthly Avg					0.44		245	
	Monthly Total								
	Daily Max					1.1		310	
	Daily Min					0.14		120	
	Rolling 12 Month Avg					0.5			
Limit(s) in Effect	Monthly Avg								
	Monthly Total	446	0						
	Daily Max			0	0			680	0
	Daily Min								
	Rolling 12 Month Avg					1	0		
QA/QC Information	LOD					0.024		2.1	
	LOQ					0.05		5	
	QC Exceedance	N		N		N		N	
	Lab Certification					999580010		999580010	

	Sample Point	001	001	001	001	001
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
	Parameter	35	147	147	87	152
	Description	Arsenic, Total Recoverable	Copper, Total Recoverable	Copper, Total Recoverable	Cadmium, Total Recoverable	Cyanide, Amenable
	Units	lbs/day	ug/L	lbs/day	ug/L	ug/L
	Sample Type	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4	0.013	30	0.0039	0.50	<5.0
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12	0.08732	22	0.02596	<0.49	
	13					
	14					
	15					
	16					
	17					
	18	0.3732	12	0.03732	<0.49	
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26	0.16	28	0.028	<0.49	
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER	
	Parameter	35		147		147		87	
	Description	Arsenic, Total Recoverable		Copper, Total Recoverable		Copper, Total Recoverable		Cadmium, Total Recoverable	
	Units	lbs/day		ug/L		lbs/day		ug/L	
Summary Values	Monthly Avg	0.15838		23		0.023795		0.125	
	Monthly Total								
	Daily Max	0.3732		30		0.03732		0.5	
	Daily Min	0.013		12		0.0039		<0.49	
	Rolling 12 Month Avg								
Limit(s) in Effect	Monthly Avg								
	Monthly Total								
	Daily Max	12	0	69	0	0.98	0		
	Daily Min								
	Rolling 12 Month Avg								
QA/QC Information	LOD			1.7				0.49	
	LOQ			5				1	
	QC Exceedance	N		N		N		N	
	Lab Certification			999580010				999580010	

	Sample Point	001	001	101	101	101
	Description	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	112	280	211	457	342
	Description	Chlorine, Total Residual	Mercury, Total Recoverable	Flow Rate	Suspended Solids, Total	Oil & Grease (Freon)
	Units	ug/L	ng/L	MGD	mg/L	mg/L
	Sample Type	GRAB	GRAB	CONTINUOUS	24 HR COMP	GRAB
	Frequency	MONTHLY	MONTHLY	DAILY	DAILY	2/WEEK
Sample Results	Day 1			0.00615	6.0	<1.4
	2					
	3					
	4			0.02097	6.5	2.1
	5			0.01591	4.5	
	6		8.99	0.02256	4.0	
	7			0.01296	3.5	
	8			0.00675	9.5	<1.4
	9			0.00334	20.0	
	10					
	11			0.01721	16.0	<1.4
	12			0.01366	6.0	
	13			0.01543	8.0	
	14			0.00836	7.0	
	15			0.00454	3.5	<1.4
	16					
	17					
	18			0.01885	3.5	3.5
	19			0.01401	3.5	
	20			0.01234	4.0	
	21			0.01197	4.0	
	22			0.00386	4.5	1.6
	23					
	24					
	25					
	26			0.01166	3.5	4.0
	27			0.01306	3.5	
	28			0.01077	2.5	
	29		25	0.00759	4.0	
	30					
	31					

	Sample Point	001		001		101		101		
	Description	PRIOR TO MENOMINEE RIVER		PRIOR TO MENOMINEE RIVER		Metal Finishing Effluent		Metal Finishing Effluent		
	Parameter	112		280		211		457		
	Description	Chlorine, Total Residual		Mercury, Total Recoverable		Flow Rate		Suspended Solids, Total		
	Units	ug/L		ng/L		MGD		mg/L		
Summary Values	Monthly Avg	25		8.99		0.011997619		6.071428571		
	Monthly Total									
	Daily Max	25		8.99		0.02256		20		
	Daily Min	25		8.99		0.00334		2.5		
	Rolling 12 Month Avg									
Limit(s) in Effect	Monthly Avg						31	0	26	0
	Monthly Total									
	Daily Max						60	0	52	0
	Daily Min									
	Rolling 12 Month Avg									
QA/QC Information	LOD	30		0.8				1.4		
	LOQ	100		2.5				5.5		
	QC Exceedance	N		N		N		N		
	Lab Certification			999580010				999580010		

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	87	133	315	553	155
	Description	Cadmium, Total Recoverable	Chromium, Total Recoverable	Nickel, Total Recoverable	Zinc, Total Recoverable	Cyanide, Total
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	GRAB
	Frequency	2/WEEK	MONTHLY	2/WEEK	2/WEEK	MONTHLY
Sample Results	Day 1	<0.49	<2.2	22	79	
	2					
	3					
	4	<0.49	5.8	15	220	<3.0
	5					
	6					
	7					
	8	<0.49	<2.2	19	86	
	9					
	10					
	11	0.77	<2.2	120	870	
	12					
	13					
	14					
	15	<0.49	<2.2	7.5	130	
	16					
	17					
	18	<0.49	<2.2	7.4	130	
	19					
	20					
	21					
	22	<0.49	<2.2	12	89	
	23					
	24					
	25					
	26	<0.49	<2.2	11	92	
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Total Recoverable		Chromium, Total Recoverable		Nickel, Total Recoverable		Zinc, Total Recoverable		Cyanide, Total	
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0.09625		0.725		26.7375		212		0	
	Monthly Total										
	Daily Max	0.77		5.8		120		870		<3	
	Daily Min	<0.49		<2.2		7.4		79		<3	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	260	0	1710	0	2380	0	1480	0	650	0
	Monthly Total										
	Daily Max	690	0	2770	0	3980	0	2610	0	1200	0
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD	0.49		2.2		1.5		3.6		3	
	LOQ	1		5		5		10		10	
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010		999580010		999580010	

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	147	264	430	374	373
	Description	Copper, Total Recoverable	Lead, Total Recoverable	Silver, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	ug/L	ug/L	ug/L	su	su
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	2/WEEK	MONTHLY	MONTHLY	DAILY	DAILY
Sample Results	Day 1	5.9	1.3	<1.1	6.2	6.8
	2					
	3					
	4	14.0	1.6	<1.1	6.8	7.6
	5				6.6	7.5
	6				7.0	7.9
	7				6.7	8.0
	8	5.7	<1.3	<1.1	6.8	7.9
	9				6.8	7.8
	10					
	11	31	<1.3	<1.1	6.9	7.9
	12				6.6	7.5
	13				6.4	7.1
	14				6.6	7.8
	15	8.7	1.9	<1.1	6.5	6.7
	16					
	17					
	18	8.2	2.1	<1.1	7.2	8.3
	19				6.9	8.0
	20				6.8	7.6
	21				6.8	8.4
	22	7.7	<1.3	<1.1	7.0	7.8
	23					
	24					
	25					
	26	6.3	<1.3	1.5	7.6	8.3
	27				6.8	7.9
	28				6.5	7.4
	29				6.5	7.1
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	147		264		430		374		373	
	Description	Copper, Total Recoverable		Lead, Total Recoverable		Silver, Total Recoverable		pH (Minimum)		pH (Maximum)	
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	10.9375		0.8625		0.1875		6.761904762		7.680952381	
	Monthly Total										
	Daily Max	31		2.1		1.5		7.6		8.4	
	Daily Min	5.7		<1.3		<1.1		6.2		6.7	
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg	2070	0	430	0	240	0				
	Monthly Total										
	Daily Max	3380	0	690	0	430	0			11	0
	Daily Min							4	0		
	Rolling 12 Month Avg										
QA/QC Information	LOD	1.7		1.3		1.1					
	LOQ	5		2.5		2.5					
	QC Exceedance	N		N		N		N		N	
	Lab Certification	999580010		999580010		999580010					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	379	376	507	40	490
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes	Total Toxic Organics	Benzene	Tetrachloroethylene
	Units	minutes	Number	ug/L	ug/L	ug/L
	Sample Type	CALCULATED	CALCULATED	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	DAILY	DAILY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent		Metal Finishing Effluent	
	Parameter	379		376		507		40		490	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes		Total Toxic Organics		Benzene		Tetrachloroethylene	
	Units	minutes		Number		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg										
	Monthly Total										
	Daily Max										
	Daily Min										
	Rolling 12 Month Avg										
Limit(s) in Effect	Monthly Avg										
	Monthly Total	446	0	0	0						
	Daily Max					2130					
	Daily Min										
	Rolling 12 Month Avg										
QA/QC Information	LOD										
	LOQ										
	QC Exceedance	N		N		N		N		N	
	Lab Certification										

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
	Sample Type	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP	24 HR COMP
	Frequency	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent	Metal Finishing Effluent
	Parameter	500	561	200	508	285
	Description	Toluene	1,1,1-Trichloro- ethane	Ethylbenzene	Trichloro- ethylene	Methylene chloride
	Units	ug/L	ug/L	ug/L	ug/L	ug/L
Summary Values	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					
	LOQ					
	QC Exceedance					
	Lab Certification					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
	Sample Type	24 HR COMP	CONTINUOUS	24 HR COMP	24 HR COMP	GRAB
	Frequency	MONTHLY	DAILY	WEEKLY	WEEKLY	MONTHLY
Sample Results	Day 1					
	2					
	3					
	4					
	5					
	6					<0.16
	7					
	8					
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing Effluent	Future remedial action ww	Future remedial action ww	Future remedial action ww	Mercury Field Blank Results
	Parameter	167	211	35	457	280
	Description	Di-n-butyl phthalate (dibutyl phthalate)	Flow Rate	Arsenic, Total Recoverable	Suspended Solids, Total	Mercury, Total Recoverable
	Units	ug/L	gpd	ug/L	mg/L	ng/L
Summary Values	Monthly Avg					0
	Monthly Total					
	Daily Max					<0.16
	Daily Min					<0.16
	Rolling 12 Month Avg					
Limit(s) in Effect	Monthly Avg					
	Monthly Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
QA/QC Information	LOD					0.16
	LOQ					0.5
	QC Exceedance	N	N	N	N	N
	Lab Certification					999580010

	Sample Point	003	003	003	003	003
	Description	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg
	Parameter	211	457	35	374	373
	Description	Flow Rate	Suspended Solids, Total	Arsenic, Total Recoverable	pH (Minimum)	pH (Maximum)
	Units	MGD	mg/L	ug/L	su	su
	Sample Type	CONTINUOUS	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	WEEKLY	WEEKLY	DAILY	DAILY
Sample Results	Day 1	0.023551			7.6	8.2
	2	0.008566			7.4	8.5
	3	0.006269			7.9	8.5
	4	0.011550	<1.9	45	7.4	7.8
	5	0.013211			7.7	8.5
	6	0.012887			6.0	9.0
	7	0.013686			7.7	8.5
	8	0.008599			7.8	8.5
	9	0.007362			7.3	7.9
	10	0.007565			7.8	8.1
	11	0.009674			7.7	8.4
	12	0.016742	<1.9	41	7.6	8.6
	13	0.008379			8.1	9.0
	14	0.014278			8.4	8.9
	15	0.016238			8.4	9.0
	16	0.002714			8.0	8.2
	17	0.003819			8.0	8.5
	18	0.010755			7.8	8.6
	19	0.013679	<1.9	53	7.2	9.0
	20	0.015954			7.4	8.4
	21	0.014662			7.4	8.1
	22	0.009176			7.0	8.1
	23					
	24					
	25	0.001416			7.4	9.0
	26	0.017301	<1.9	41	7.4	9.0
	27	0.016640			6.5	8.8
	28	0.009351			6.0	9.0
	29	0.010352			8.2	9.0
	30	0.007636			7.7	8.5
	31	0.008173			6.9	7.7

	Sample Point	003	003	003	003	003	
	Description	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	Future remedial action dischg	
	Parameter	211	457	35	374	373	
	Description	Flow Rate	Suspended Solids, Total	Arsenic, Total Recoverable	pH (Minimum)	pH (Maximum)	
	Units	MGD	mg/L	ug/L	su	su	
Summary Values	Monthly Avg	0.011040862	0	45	7.506896552	8.527586207	
	Monthly Total						
	Daily Max	0.023551	<1.9	53	8.4	9	
	Daily Min	0.001416	<1.9	41	6	7.7	
	Rolling 12 Month Avg						
Limit(s) in Effect	Monthly Avg						
	Monthly Total						
	Daily Max			680	0	11	0
	Daily Min				4	0	
	Rolling 12 Month Avg						
QA/QC Information	LOD			2.1			
	LOQ			5			
	QC Exceedance	N	N	N	N	N	
	Lab Certification		999580010	999580010			

	Sample Point	003	003
	Description	Future remedial action dischg	Future remedial action dischg
	Parameter	379	376
	Description	pH Total Exceedance Time Minutes	pH Exceedances Greater Than 60 Minutes
	Units	minutes	Number
	Sample Type	CONTINUOUS	CONTINUOUS
	Frequency	DAILY	DAILY
Sample Results	Day 1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
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	Sample Point	003		003	
	Description	Future remedial action dischg		Future remedial action dischg	
	Parameter	379		376	
	Description	pH Total Exceedance Time Minutes		pH Exceedances Greater Than 60 Minutes	
	Units	minutes		Number	
Summary Values	Monthly Avg				
	Monthly Total				
	Daily Max				
	Daily Min				
	Rolling 12 Month Avg				
Limit(s) in Effect	Monthly Avg				
	Monthly Total	446	0		
	Daily Max			0	0
	Daily Min				
	Rolling 12 Month Avg				
QA/QC Information	LOD				
	LOQ				
	QC Exceedance	N		N	
	Lab Certification				

Footnotes (DNR Use Only; Instructions for completing this form that are unique for your facility may be displayed here.)

1. Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation for TTO I certify that to the best of my knowledge and belief no dumping of concentrated toxic organics into the wastewaters has
2. occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the solvent management plan submitted to the department.

General Remarks

Laboratory Quality Control Comments

Submitted by Anne Fleury(afleury16) on 6/16/2020 8:33:21 AM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT FORM

GENERAL INFORMATION			
FACILITY:	Tyco Fire Protection Products	WPDES PERMIT NO.:	WI-0001040-07-0
OUTFALL NO.:	OF003	LABORATORY NAME:	Pace Analytical Services, LLC
RECEIVING WATER:	Menominee River		

SAMPLE INFORMATION									
SAMPLE NO.	SAMPLE COLLECTION			SAMPLE TEMP °C		pH at LAB	HAND DELIVER? (If Yes, ≤ 4 hr?)	HOLD TIME ≤ 36 HR?	SAMPLE ACCEP- TABLE?
	SAMPLE TYPE	BEGINNING DATE	END DATE	COLLEC TION	AT LAB				
1	EFF-24C	05/18/20	05/19/20	1.0	2.3	6.7	No	Yes	Yes
2	EFF-24C	05/20/20	05/21/20	2.7	0.7	6.6	No	Yes	Yes

Describe any unusual conditions during sampling that may influence test results. (see Part 6.1.2 of the Methods Manual for examples.)

COMMENTS:

TEST INFORMATION			
ACUTE			
Date Test Initiated:	5/20/2020		
Tests Are For:	WPDES Compliance (Required by Permit) ▼		
Date of Initial Test:			
ZID/IWC Info.:	ZID Compliance Concentration =		
Dilution Water:	<i>C.dubia</i>	FHM	Other
	<input type="checkbox"/> RW <input checked="" type="checkbox"/> LW	<input type="checkbox"/> RW <input checked="" type="checkbox"/> LW	<input type="checkbox"/> RW <input type="checkbox"/> LW

QA/QC CONDITIONS		ACUTE
Temperatures maintained during test? (20 ± 1°C or 25 ± 1°C)		Yes
Dissolved oxygen ≥ 4.0 mg/l throughout test?		Yes
Effluent pH maintained within 6.0 - 9.0 s.u. throughout test?		Yes
Concurrent or monthly reference tests within acceptable limits?		Yes
Tests conducted in a carbon dioxide atmosphere throughout test?		Yes
Were effluent samples modified prior to testing?(ex. filtration, aeration, chem addition)		No

COMMENTS:

WATER CHEMISTRY (All values reported in mg/L, except pH)						
SAMPLE TYPE	NO.	HARDNESS	ALKALINITY	TOTAL AMMONIA	pH (s.u.) After Warming	TOTAL RESIDUAL CHLORINE
Effluent	#1	<0.20	<10.0	0.18	6.7	<0.042
	#2	<0.20	<10.0	0.20	6.6	<0.042
Lab Water	LRW 20-026	364	161	<0.028	8.5	<0.042
	TT 050420	45.4	37.6	<0.028	7.8	<0.042

COMMENTS:

ACUTE TEST CONTROL PERFORMANCE

PRIMARY WATER CONTROLS		LRW	LAB WATER CONTROLS (Secondary Control)	
Fathead Minnow		<i>Ceriodaphnia dubia</i>	Fathead Minnow	<i>Ceriodaphnia dubia</i>
Survival \geq 90%		Survival \geq 90%	Survival \geq 90%	Survival \geq 90%
Yes		Yes	Yes	Yes

COMMENTS:

ACUTE TEST DATA

SPECIES	EFFLUENT TREATMENT	Percent Survival By Replicate				Mean Percent Survival
		1	2	3	4	
Fathead Minnow Age of Organism: 8 Days	Lab Water Control - TT	100	90	100	100	98
	Lab Water Control - LRW	100	100	100	100	100
	6.25%	100	100	100	100	100
	12.5%	100	100	100	100	100
	25%	100	100	100	100	100
	50%	100	100	100	100	100
	100%	100	100	100	100	100

FATHEAD MINNOW ACUTE RESULTS: LC₅₀ = **>100%** C.I.% = **Not Calc** TU_a = **1.0**

Please describe any unusual behavior and/or appearance of organisms. (see Part 6.1.2 of the Methods Manual for ex.)

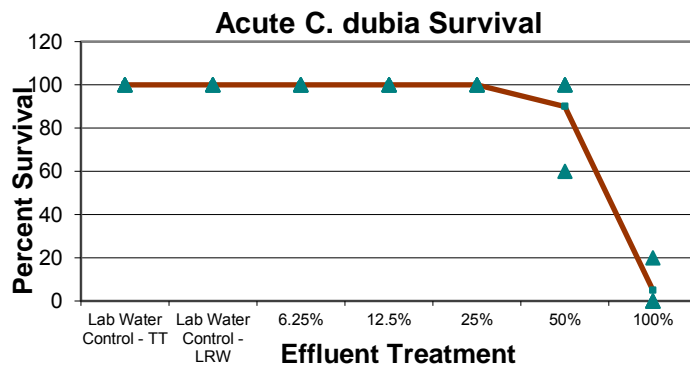
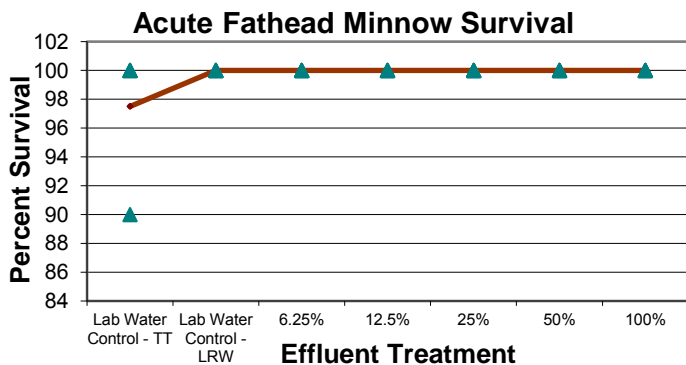
COMMENTS:

SPECIES	EFFLUENT TREATMENT	Percent Survival By Replicate				Mean Percent Survival
		1	2	3	4	
<i>Ceriodaphnia dubia</i> Age of Organism: < 24 Hours Old	Lab Water Control - TT	100	100	100	100	100
	Lab Water Control - LRW	100	100	100	100	100
	6.25%	100	100	100	100	100
	12.5%	100	100	100	100	100
	25%	100	100	100	100	100
	50%	100	60	100	100	90
	100%	0	0	0	20	5

***Ceriodaphnia dubia* ACUTE RESULTS:** LC₅₀ = **68.7** C.I.% = **60.8-77.6** TU_a = **1.5**

Please describe any unusual behavior and/or appearance of organisms. (see Part 6.1.2 of the Methods Manual for ex.)

COMMENTS:

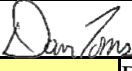


Facility : Tyco Fire Protection Products

Permit # : WI-0001040-07-0

Acute Test Date : 5/20/2020

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

LAB REPRESENTATIVE:	Dan Toms		SIGNATURE:		
PHONE:	218-336-2120	LAB CERT #:	999446800	DATE:	6/16/2020
PERMITTEE REPRESENTATIVE:	Anne Fleury		SIGNATURE:		
PHONE:	715-735-7411	DATE:			

Send **all 3 pages** of this form (plus any attachments or additional information which you believe to be relevant to the test) to: **Biomonitoring Coordinator, Bureau of Watershed Management, Department of Natural Resources, 101 South Webster St., P.O. Box 7921, Madison, WI 53707-7921; according to the timelines specified in your WPDES permit.**

Copies of the State of Wisconsin Aquatic Life Toxicity Testing Methods Manual (Methods Manual) and the WET Guidance Document can be obtained from the Biomonitoring Coordinator at the address given above or at:
<http://dnr.wi.gov/org/water/wm/ww/biomon/biomon.htm>

TO BE COMPLETED BY THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES					
		DID TESTS PASS?			
ACUTE	Fathead Minnow	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Inconclusive	<input type="checkbox"/> Unacceptable
	<i>Ceriodaphnia dubia</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Inconclusive	<input type="checkbox"/> Unacceptable
CHRONIC	Fathead Minnow	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Inconclusive	<input type="checkbox"/> Unacceptable
	<i>Ceriodaphnia dubia</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Inconclusive	<input type="checkbox"/> Unacceptable
Retests Required?	<input type="checkbox"/> Yes <input type="checkbox"/> No	Acute / Chronic: Both Species <i>C.dubia</i> only FHM only			
Due To:	<input type="checkbox"/> Failure <input type="checkbox"/> QA Problem				
WET Limit Violation?	<input type="checkbox"/> Yes <input type="checkbox"/> No limit in permit	Results Entered Into Database?		<input type="checkbox"/> Yes	<input type="checkbox"/> No
COMMENTS:					
REVIEWED BY:				DATE:	
CC:				BASIN ENGINEER	
				PERMIT COORDINATOR	
				PERMIT FILE	

Facility : Tyco Fire Protection Products
 Permit # : WI-0001040-07-0
 Test Date : 5/20/2020



Pace Analytical Services, LLC

Client: Tyco OF003

State: Wisconsin


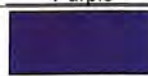
Pace Project # 12144151

Test: Acute Toxicity Evaluation

Tested in CO₂ Enriched Atmosphere

Test Initiation Date: 05/20/2020

Test Termination Date: 05/24/2020

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 3 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

TOXICITY TEST RENEWAL FORM



Client: Tyco OF003 Pace Project #: 12144151

Test: Acute Toxicity Evaluation Test Initiation Date: 05/20/2020

Organism: Ceriodaphnia dubia, Fathead Minnow Test Termination Date: 05/24/2020

EFFLUENT


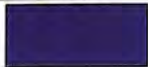
Test Organism		Age	Source	Culture ID	Bath #	
<i>C. dubia</i>		<24 hours	Pace	ACD-209	4	
FHM		8 Days	Aquatox	N/A	4	
Test Day	0 (Test Initiation)	1	2	3	4	
Date	5/20/20	5/21/20	5/22/20	5/23/20	5/24/20	
Renewal/Reading (±1 hour of initiation)	<i>C. dubia</i>	1333	^{1350 KRG} 1327 5/21/20	1316	N/A	N/A
	Initials	KRG	KRG	KRG	N/A	N/A
	FHM	1322	1327	1255	1347	1256
	Initials	KRG	KRG	APR	APR	BEM
Feeding/ Food IDs	<i>C. dubia</i>	0956	N/A	N/A	N/A	N/A
	Initials	KRG	N/A	N/A	N/A	N/A
	FHM	0728	N/A	0744	N/A	N/A
	Initials	KRG	N/A	KRG	N/A	N/A
Control	Primary Control	LRW 20-026	LRW 20-026	LRW 20-026	LRW 20-026	N/A
	Secondary Control	Treated Tap 050420	Treated Tap 050420	Treated Tap 050420	Treated Tap 050420	N/A
	Sample #	#1	#1	#2	#2	N/A
	Effluent Filtered (Yes/No)	NO	NO	NO	NO	N/A
	Initials	APR	APR	APR	BEM for APR	N/A

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 4 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

INITIAL CHEMISTRIES - EFFLUENT

Client: Tyco OF003 Pace Project #: 12144151
 Test: Acute Toxicity Evaluation Test Initiation Date: 05/20/2020
 Organism(s): Ceriodaphnia dubia, Fathead Minnow Test Termination Date: 05/24/2020
 Meter IDs: 13WETA, 13WETB, 13WETC



Date/Time/Initials				
	5/20/20	5/21/20	5/22/20	5/23/20
	APR 1241	APR 1226	APR 1212	APR 1122
CONCENTRATION: (1) SECONDARY CONTROL - TREATED TAP				
DO (mg/L)	9.4	9.0	8.7	8.7
Conductivity (umhos/cm)	129	125	134	133
pH (s.u.)	7.2	7.8	8.0	8.1
CONCENTRATION: (2) PRIMARY CONTROL - LRW				
DO (mg/L)	9.2	9.1	8.9	8.9
Conductivity (umhos/cm)	1016	1014	1030	1038
pH (s.u.)	7.7	8.2	8.2	8.2
CONCENTRATION: (3) 6.25%				
DO (mg/L)	9.1	9.1	9.0	9.0
Conductivity (umhos/cm)	992	1000	1019	1018
pH (s.u.)	8.1	8.3	8.3	8.3
CONCENTRATION: (4) 12.5%				
DO (mg/L)	9.1	9.1	9.0	9.0
Conductivity (umhos/cm)	948	956	973	972
pH (s.u.)	8.3	8.3	8.4	8.3
CONCENTRATION: (5) 25%				
DO (mg/L)	9.1	9.1	8.9	9.0
Conductivity (umhos/cm)	863	869	879	878
pH (s.u.)	8.3	8.3	8.4	8.4
CONCENTRATION: (6) 50%				
DO (mg/L)	9.1	9.1	8.9	9.0
Conductivity (umhos/cm)	687	694	689	691
pH (s.u.)	8.3	8.4	8.4	8.4
CONCENTRATION: (7) 100%				
DO (mg/L)	9.1	9.1	8.9	9.2
Conductivity (umhos/cm)	260	263	212	219
pH (s.u.)	8.4	8.5	8.5	8.5

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 5 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

FINAL CHEMISTRIES - EFFLUENT

Client: Tyco OF003 Pace Project #: 12144151
 Test: Acute Toxicity Evaluation Test Initiation Date: 05/20/2020
 Organism(s): Ceriodaphnia dubia Test Termination Date: 05/22/2020
 Meter IDs: 13WETA, 13WETC


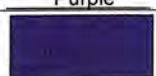
Date/Time/Initials		
	1417 5/21/20 KRG	1322 KRG 5/22/20
CONCENTRATION: (1) SECONDARY CONTROL - TREATED TAP		
DO (mg/L)	9.0	8.7
pH (s.u.)	6.8	6.8
CONCENTRATION: (2) PRIMARY CONTROL - LRW		
DO (mg/L)	9.0	8.8
pH (s.u.)	6.9	6.9
CONCENTRATION: (3) 6.25%		
DO (mg/L)	9.0	8.8
pH (s.u.)	7.0	7.2
CONCENTRATION: (4) 12.5%		
DO (mg/L)	9.1	8.8
pH (s.u.)	7.1	7.3
CONCENTRATION: (5) 25%		
DO (mg/L)	9.0	8.9
pH (s.u.)	7.2	7.3
CONCENTRATION: (6) 50%		
DO (mg/L)	9.0	8.8
pH (s.u.)	7.2	7.4
CONCENTRATION: (7) 100%		
DO (mg/L)	9.1	8.8
pH (s.u.)	7.6	7.7

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 6 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

FINAL CHEMISTRIES - EFFLUENT

Client: Tyco OF003 Pace Project #: 12144151
 Test: Acute Toxicity Evaluation Test Initiation Date: 05/20/2020
 Organism(s): Fathead Minnow Test Termination Date: 05/24/2020
 Meter IDs: 13WETA, 13WETC

Date/Time/Initials				
	5/21/20 1308 KRG	5/22/20 APR 1235	5/23/20 APR 1334	5/24/20 1232 JPH
CONCENTRATION: (1) SECONDARY CONTROL - TREATED TAP				
DO (mg/L)	8.4	8.3	8.3	8.5
pH (s.u.)	7.2	7.0	7.6	7.0
CONCENTRATION: (2) PRIMARY CONTROL - LRW				
DO (mg/L)	8.2	8.1	8.3	8.5
pH (s.u.)	7.1	7.1	7.6	7.7
CONCENTRATION: (3) 6.25%				
DO (mg/L)	8.3	8.2	8.4	8.5
pH (s.u.)	7.1	7.3	7.7	7.8
CONCENTRATION: (4) 12.5%				
DO (mg/L)	8.1	8.1	8.4	8.4
pH (s.u.)	7.2	7.3	7.7	7.8
CONCENTRATION: (5) 25%				
DO (mg/L)	8.2	8.0	8.4	8.5
pH (s.u.)	7.2	7.2	7.7	7.9
CONCENTRATION: (6) 50%				
DO (mg/L)	8.3	8.2	8.2	8.5
pH (s.u.)	7.2	7.2	7.7	7.9
CONCENTRATION: (7) 100%				
DO (mg/L)	8.1	8.1	8.3	8.5
pH (s.u.)	7.5	7.2	8.0	8.0

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 7 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

ACUTE TOXICITY DATA LOG

Client: Tyco OF003
Project #: 12144151
Test: Acute Toxicity Evaluation
Template ID: A
Test Initiation Date: 05/20/2020
Investigator: Toms
Test Duration: 48-hours
Renewal: Daily

Species: <i>Ceriodaphnia dubia</i>
Age: <24 hours
No. Animals/No. Reps: 5/4
Sources of Animals: Pace
Dilution Water/Control: LRW/TREATED TAP
Test Volume: 20 mL
Required Testing Temperature: 19-21 °C
Randomized Board Readings


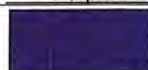
EFFLUENT												
Survival Readings (Randomized):												
(# alive out of # exposed from above unless shown otherwise)												
ROW	24 Hour				48 Hour							
	Column ID				Column ID							
	A	B	C	D	A	B	C	D				
7	¹ 5	³ 5	⁴ 5	⁷ 3	¹ 5	³ 5	⁴ 5	⁷ 1				
6	⁷ 5	² 5	⁵ 5	³ 5	⁷ 0	² 5	⁵ 5	³ 5				
5	⁴ 5	⁴ 5	² 5	¹ 5	⁴ 5	⁴ 5	² 5	¹ 5				
4	² 5	⁷ 2	⁷ 3	² 5	² 5	⁷ 0	⁷ 0	² 5				
3	⁵ 5	¹ 5	³ 5	⁵ 5	⁵ 5	¹ 5	³ 5	⁵ 5				
2	³ 5	⁵ 5	⁶ 5	⁶ 5	³ 5	⁵ 5	⁶ 5	⁶ 5				
1	⁶ 5	⁶ 4	¹ 5	⁴ 5	⁶ 5	⁶ 3	¹ 5	⁴ 5				

2 = Concentration ID

Readings By
(Date/Time/Initials): 5/21/20 KRG 1350

5/22/20 KRG 1316

Comments:



	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21Jun2019 Page 8 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

ACUTE TOXICITY DATA LOG

Client: Tyco OF003
Project #: 12144151
Test: Acute Toxicity Evaluation
Template ID: F
Test Initiation Date: 05/20/2020
Investigator: Toms
Test Duration: 96-hours
Renewal: Daily

Species: Fathead Minnow
Age: 8 day
No. Animals/No. Reps: 10/4
Sources of Animals: Aquatox
Dilution Water/Control: LRW/TREATED TAP
Test Volume: 200 mL
Required Testing Temperature: 19-21 °C
Minimum Control Survival ≥ 90% (Yes / No)

Concentration	EFFLUENT															
	Survival Readings: (# alive out of # exposed from above unless shown otherwise)															
	24 Hour Replicate				48 Hour Replicate				72 Hour Replicate				96 Hour Replicate			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
(1) Treated Tap	10	10	10	10	10	9	10	10	10	9	10	10	10	9	10	10
(2) LRW	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
(3) 6.25%	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
(4) 12.5%	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
(5) 25%	9/9	10	10	10	9/9	10	10	10	9/9	10	10	9/9	9/9	10	10	9/9
(6) 50%	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
(7) 100%	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	Date / Time / Initials KRG 1327 5/21/20				Date / Time / Initials APR 1255 5/22/20				Date / Time / Initials APR 1257 5/23/20				Date / Time / Initials BEM 1256 5/24/20			
Comments:																

	Document Name: WI Acute Toxicity Evaluation	Document Revised: 21 Jun 2019 Page 9 of 9	Client Color Code: Purple
	Document No.: F-DUL-BIO-024A-rev:01	Issuing Authority: Pace Duluth, MN Quality Office	

ACUTE TOXICITY DATA LOG

Client: Tyco OF003
Project #: 12144151
Test: Acute Toxicity Evaluation
Template ID: A
Test Initiation Date: 05/20/2020
Investigator: Toms
Test Duration: 48-hours
Renewal: Daily

Species: <i>Ceriodaphnia dubia</i>
Age: <24 hours
No. Animals/No. Reps: 5/4
Sources of Animals: Pace
Dilution Water/Control: LRW/TREATED TAP
Test Volume: 20 mL
Required Testing Temperature: 19-21 °C
Minimum Control Survival ≥ 90%: (Yes) (No)

Concentration (#) Conc ID	EFFLUENT Survival Readings (# alive out of # exposed from above unless shown otherwise)							
	24 Hour Replicate				48 Hour Replicate			
	A	B	C	D	A	B	C	D
(1) TREATED TAP	5	5	5	5	5	5	5	5
(2) LRW	5	5	5	5	5	5	5	5
(3) 6.25%	5	5	5	5	5	5	5	5
(4) 12.5%	5	5	5	5	5	5	5	5
(5) 25%	5	5	5	5	5	5	5	5
(6) 50%	5	4	5	5	5	3	5	5
(7) 100%	5	2	3	3	0	0	0	1
Deciphered By Date/Initials:	APR 5/28/20							
Comments:								

Data Package Reviewed for Completeness by: APR Date: 5/28/20

CETIS Summary Report

Report Date: 04 Jun-20 21:56 (p 1 of 1)
Test Code/ID: 12144151 CD A / 13-9957-6423

Ceriodaphnia 48-h Acute Survival Test

Pace Analytical

Batch ID: 14-0370-2605 **Test Type:** Survival (48h) **Analyst:** Alex Reynolds
Start Date: 20 May-20 13:33 **Protocol:** EPA/821/R-02-012 (2002) **Diluent:** LRW
Ending Date: 22 May-20 13:16 **Species:** Ceriodaphnia dubia **Brine:** Not Applicable
Test Length: 48h **Taxon:** Branchiopoda **Source:** In-House Culture **Age:** <24

Sample ID: 06-7818-5782 **Code:** 12144151 OF003 **Project:** Effluent Testing
Sample Date: 19 May-20 08:10 **Material:** Effluent **Source:** NPDES Permit #
Receipt Date: 20 May-20 10:35 **CAS (PC):** **Station:**
Sample Age: 29h **Client:** Tyco

Point Estimate Summary

Analysis ID	Endpoint	Point Estimate Method	✓ Level	%	95% LCL	95% UCL	TU	S
07-3419-7067	48h Survival Rate	Trimmed Spearman-Kärber	LC50	68.7	60.8	77.62	1.456	1

Test Acceptability

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits		Overlap	Decision
				Lower	Upper		
07-3419-7067	48h Survival Rate	Control Resp	1	0.9	>>	Yes	Passes Criteria

48h Survival Rate Summary

Conc-%	Code	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	R	4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
6.25		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
12.5		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
25		4	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	0.0000	0.00%	0.00%
50		4	0.9000	0.5818	1.0000	0.6000	1.0000	0.1000	0.2000	22.22%	10.00%
100		4	0.0500	0.0000	0.2091	0.0000	0.2000	0.0500	0.1000	200.00%	95.00%

48h Survival Rate Detail

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	R	1.0000	1.0000	1.0000	1.0000
6.25		1.0000	1.0000	1.0000	1.0000
12.5		1.0000	1.0000	1.0000	1.0000
25		1.0000	1.0000	1.0000	1.0000
50		1.0000	0.6000	1.0000	1.0000
100		0.0000	0.0000	0.0000	0.2000

48h Survival Rate Binomials

Conc-%	Code	Rep 1	Rep 2	Rep 3	Rep 4
0	R	5/5	5/5	5/5	5/5
6.25		5/5	5/5	5/5	5/5
12.5		5/5	5/5	5/5	5/5
25		5/5	5/5	5/5	5/5
50		5/5	3/5	5/5	5/5
100		0/5	0/5	0/5	1/5

June 02, 2020

Anne Fleury
Tyco Fire Protection Products
One Stanton Street
Marinette, WI 54143

RE: Project: Bioassay
Pace Project No.: 12144151

Dear Anne Fleury:

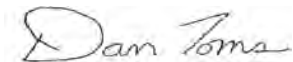
Enclosed are the analytical results for sample(s) received by the laboratory between May 20, 2020 and May 22, 2020. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Duluth
- Pace Analytical Services - Virginia

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Dan J Toms
dan.toms@pacelabs.com
(218) 727-6380
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: Bioassay
Pace Project No.: 12144151

Pace Analytical Services Virginia Minnesota

315 Chestnut Street, Virginia, MN 55792
Alaska Certification UST-107
Montana Certificate #CERT0103
Minnesota Dept of Health Certification #: 027-137-445

North Dakota Certification: # R-203
Wisconsin DNR Certification # : 998027470
WA Department of Ecology Lab ID# C1007

Pace Analytical Services Duluth Minnesota

4730 Oneota St., Duluth, MN 55807
Montana DHHS Certification #: CERT0102
Minnesota Dept of Ag Certification #: Via MN Dept of
Health 027-137-152
Minnesota Dept of Health Certification #: 1733125

Wisconsin Dept of Agriculture Certification #: 480341
Wisconsin DNR Certification # : 999446800
North Dakota Certification #: R-105
Nevada DCNR Certification #: MN000372019-1

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: Bioassay
Pace Project No.: 12144151

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12144151001	Tyco OF003 Effluent #1	Water	05/19/20 08:10	05/20/20 10:35
12144151002	Tyco OF003 Effluent #2	Water	05/21/20 08:15	05/22/20 10:00

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: Bioassay
Pace Project No.: 12144151

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12144151001	Tyco OF003 Effluent #1	EPA 350.1	KJD	1	PASI-DUL
		SM 4500-CI G-2011	AXP	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		SM 2320 B-2011	CSD	1	PASI-V
		SM 2510 B-2011	CSD	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V
12144151002	Tyco OF003 Effluent #2	EPA 350.1	DW1	1	PASI-DUL
		SM 4500-CI G-2011	AXP	1	PASI-DUL
		EPA 200.7	AK1	1	PASI-V
		SM 2320 B-2011	CSD	1	PASI-V
		SM 2510 B-2011	CSD	1	PASI-V
		SM 4500-H+ B-2011	CSD	1	PASI-V

PASI-DUL = Pace Analytical Services - Duluth

PASI-V = Pace Analytical Services - Virginia

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Bioassay
Pace Project No.: 12144151

Sample: Tyco OF003 Effluent #1 **Lab ID: 12144151001** Collected: 05/19/20 08:10 Received: 05/20/20 10:35 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	0.18	mg/L	0.092	0.028	1		05/22/20 14:12	7664-41-7	
4500CL G Chlorine, Residual									
Analytical Method: SM 4500-Cl G-2011 Pace Analytical Services - Duluth									
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		05/26/20 15:14	7782-50-5	H6
200.7 MET ICP									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia									
Total Hardness	<0.20	mg/L	0.68	0.20	1	05/22/20 08:54	05/26/20 11:27		
2320B Alkalinity									
Analytical Method: SM 2320 B-2011 Pace Analytical Services - Virginia									
Alkalinity, Total as CaCO ₃	<10.0	mg/L	10.0	10.0	1		05/22/20 10:35		
2510B Specific Conductance									
Analytical Method: SM 2510 B-2011 Pace Analytical Services - Virginia									
Specific Conductance	226	umhos/cm	10.0	10.0	1		05/22/20 10:35		
4500H+ pH, Electrometric									
Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia									
pH at 25 Degrees C	6.7	Std. Units	0.10	0.10	1		05/22/20 10:35		H6

Sample: Tyco OF003 Effluent #2 **Lab ID: 12144151002** Collected: 05/21/20 08:15 Received: 05/22/20 10:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia									
Analytical Method: EPA 350.1 Pace Analytical Services - Duluth									
Nitrogen, Ammonia	0.20	mg/L	0.092	0.028	1		05/26/20 14:52	7664-41-7	
4500CL G Chlorine, Residual									
Analytical Method: SM 4500-Cl G-2011 Pace Analytical Services - Duluth									
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		05/26/20 15:16	7782-50-5	H6
200.7 MET ICP									
Analytical Method: EPA 200.7 Preparation Method: EPA 200.7 Pace Analytical Services - Virginia									
Total Hardness	<0.20	mg/L	0.68	0.20	1	05/29/20 11:15	06/01/20 11:25		
2320B Alkalinity									
Analytical Method: SM 2320 B-2011 Pace Analytical Services - Virginia									
Alkalinity, Total as CaCO ₃	<10.0	mg/L	10.0	10.0	1		05/26/20 19:52		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Bioassay
Pace Project No.: 12144151

Sample: Tyco OF003 Effluent #2 **Lab ID: 12144151002** Collected: 05/21/20 08:15 Received: 05/22/20 10:00 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
2510B Specific Conductance	Analytical Method: SM 2510 B-2011 Pace Analytical Services - Virginia								
Specific Conductance	184	umhos/cm	10.0	10.0	1		05/26/20 19:52		
4500H+ pH, Electrometric	Analytical Method: SM 4500-H+ B-2011 Pace Analytical Services - Virginia								
pH at 25 Degrees C	6.6	Std. Units	0.10	0.10	1		05/26/20 19:52		H6

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189668	Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1	Analysis Description: 350.1 Ammonia
	Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 12144151001

METHOD BLANK: 746384 Matrix: Water

Associated Lab Samples: 12144151001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.028	0.10	05/22/20 13:41	

LABORATORY CONTROL SAMPLE: 746383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	9.9	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746385 746386

Parameter	Units	746385		746386		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12144218001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, Ammonia	mg/L	<0.028	10	10	10.0	10	100	90-110	0	10	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746387 746388

Parameter	Units	746387		746388		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12144089003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, Ammonia	mg/L	<0.028	10	10	9.9	9.9	99	90-110	0	10	

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189812	Analysis Method: EPA 350.1
QC Batch Method: EPA 350.1	Analysis Description: 350.1 Ammonia
	Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 12144151002

METHOD BLANK: 746864 Matrix: Water

Associated Lab Samples: 12144151002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.028	0.10	05/26/20 14:35	

LABORATORY CONTROL SAMPLE: 746863

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.2	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 746865 746866

Parameter	Units	746865		746866		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		12144292002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result						
Nitrogen, Ammonia	mg/L	ND	10	10	10.4	10.1	103	100	90-110	3	10

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189759	Analysis Method: SM 4500-Cl G-2011
QC Batch Method: SM 4500-Cl G-2011	Analysis Description: 4500CL G Chlorine, Total Residual
	Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 12144151001

METHOD BLANK: 746678 Matrix: Water

Associated Lab Samples: 12144151001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	<0.042	0.10	05/26/20 15:10	H6

LABORATORY CONTROL SAMPLE: 746677

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1.0	101	90-110	H6

SAMPLE DUPLICATE: 746679

Parameter	Units	12143760001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	<0.042	<0.042		10	H6

SAMPLE DUPLICATE: 746680

Parameter	Units	12143887001 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	<0.042	<0.042		10	H6

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189760	Analysis Method: SM 4500-Cl G-2011
QC Batch Method: SM 4500-Cl G-2011	Analysis Description: 4500CL G Chlorine, Total Residual
	Laboratory: Pace Analytical Services - Duluth

Associated Lab Samples: 12144151002

METHOD BLANK: 746682 Matrix: Water

Associated Lab Samples: 12144151002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorine, Total Residual	mg/L	<0.042	0.10	05/26/20 15:15	H6

LABORATORY CONTROL SAMPLE: 746681

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorine, Total Residual	mg/L	1	1.0	100	90-110	H6

SAMPLE DUPLICATE: 746683

Parameter	Units	12144089003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chlorine, Total Residual	mg/L	0.043J	0.043J		10	H6

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189672	Analysis Method: SM 2320 B-2011
QC Batch Method: SM 2320 B-2011	Analysis Description: 2320B Alkalinity
	Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151001

METHOD BLANK: 746402 Matrix: Water

Associated Lab Samples: 12144151001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.0	10.0	05/22/20 10:20	

LABORATORY CONTROL SAMPLE: 746403

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	mg/L	100	99.7	100	90-110	

SAMPLE DUPLICATE: 746404

Parameter	Units	12144151001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	<10.0	<10.0		20	

SAMPLE DUPLICATE: 746405

Parameter	Units	12144303003 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	mg/L	209	230	10	20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189850	Analysis Method: SM 2320 B-2011
QC Batch Method: SM 2320 B-2011	Analysis Description: 2320B Alkalinity
	Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151002

METHOD BLANK: 746955 Matrix: Water

Associated Lab Samples: 12144151002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<10.0	10.0	05/26/20 17:15	

LABORATORY CONTROL SAMPLE: 746956

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	100	102	102	90-110	

SAMPLE DUPLICATE: 746957

Parameter	Units	12144394002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	121	125	3	20	

SAMPLE DUPLICATE: 746958

Parameter	Units	12144151002 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO ₃	mg/L	<10.0	<10.0		20	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189671	Analysis Method: SM 2510 B-2011
QC Batch Method: SM 2510 B-2011	Analysis Description: 2510B Specific Conductance
	Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151001

METHOD BLANK: 746398 Matrix: Water

Associated Lab Samples: 12144151001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	<10.0	10.0	05/22/20 10:14	

LABORATORY CONTROL SAMPLE: 746399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1000	1001	100	90-110	

SAMPLE DUPLICATE: 746400

Parameter	Units	12144151001 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	226	227	0	20	

SAMPLE DUPLICATE: 746401

Parameter	Units	12144303003 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	861	846	2	20	

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QUALITY CONTROL DATA

Project: Bioassay
Pace Project No.: 12144151

QC Batch: 189849	Analysis Method: SM 2510 B-2011
QC Batch Method: SM 2510 B-2011	Analysis Description: 2510B Specific Conductance
	Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151002

METHOD BLANK: 746951 Matrix: Water

Associated Lab Samples: 12144151002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Specific Conductance	umhos/cm	<10.0	10.0	05/26/20 17:08	

LABORATORY CONTROL SAMPLE: 746952

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Specific Conductance	umhos/cm	1000	996	100	90-110	

SAMPLE DUPLICATE: 746953

Parameter	Units	12144394002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	2170	2180	0	20	

SAMPLE DUPLICATE: 746954

Parameter	Units	12144151002 Result	Dup Result	RPD	Max RPD	Qualifiers
Specific Conductance	umhos/cm	184	185	0	20	

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QUALITY CONTROL DATA

Project: Bioassay

Pace Project No.: 12144151

QC Batch: 189670

Analysis Method: SM 4500-H+ B-2011

QC Batch Method: SM 4500-H+ B-2011

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151001

LABORATORY CONTROL SAMPLE: 746393

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 746394

Parameter	Units	12144151001 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.7	6.7	0	10	H6

SAMPLE DUPLICATE: 746395

Parameter	Units	12144303003 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.4	8.4	0	10	H6

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QUALITY CONTROL DATA

Project: Bioassay

Pace Project No.: 12144151

QC Batch: 189848

Analysis Method: SM 4500-H+ B-2011

QC Batch Method: SM 4500-H+ B-2011

Analysis Description: 4500H+B pH

Laboratory: Pace Analytical Services - Virginia

Associated Lab Samples: 12144151002

LABORATORY CONTROL SAMPLE: 746946

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	7	7.0	100	98-102	H6

SAMPLE DUPLICATE: 746947

Parameter	Units	12144394002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	8.2	8.1	0	10	H6

SAMPLE DUPLICATE: 746948

Parameter	Units	12144151002 Result	Dup Result	RPD	Max RPD	Qualifiers
pH at 25 Degrees C	Std. Units	6.6	6.6	0	10	H6

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: Bioassay
Pace Project No.: 12144151

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

H6 Analysis initiated outside of the 15 minute EPA required holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Bioassay
Pace Project No.: 12144151

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12144151001	Tyco OF003 Effluent #1	EPA 350.1	189668		
12144151002	Tyco OF003 Effluent #2	EPA 350.1	189812		
12144151001	Tyco OF003 Effluent #1	SM 4500-CI G-2011	189759		
12144151002	Tyco OF003 Effluent #2	SM 4500-CI G-2011	189760		
12144151001	Tyco OF003 Effluent #1	EPA 200.7	189653	EPA 200.7	189787
12144151002	Tyco OF003 Effluent #2	EPA 200.7	190113	EPA 200.7	190165
12144151001	Tyco OF003 Effluent #1	SM 2320 B-2011	189672		
12144151002	Tyco OF003 Effluent #2	SM 2320 B-2011	189850		
12144151001	Tyco OF003 Effluent #1	SM 2510 B-2011	189671		
12144151002	Tyco OF003 Effluent #2	SM 2510 B-2011	189849		
12144151001	Tyco OF003 Effluent #1	SM 4500-H+ B-2011	189670		
12144151002	Tyco OF003 Effluent #2	SM 4500-H+ B-2011	189848		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

MO#: 12144151

PH: DJT Due Date: 06/01/20
 CLIENT: 13_TYCO

Page: 1 Of 1

Required Client Information:	Required Project Information:	Invoice Information:
Company: Johnson Controls	Report To: Arne Fleury	Company: _____
Address: One Stanton Street	Copy To: _____	Address: _____
Mantoloking, Wisconsin 54143	Purchase Order No: _____	Attention: _____
Email To: arne.fleury@jci.com	Client Project ID: _____	Email To: _____
Phone: 715-735-7411	Cell 715-587-6602	Page Project Manager: DJT
Requested Due Date: _____	Page Profile #: 3961	Regulatory Agency: _____
		State/Location: Wisconsin

Sample #	SAMPLE ID	MATRIX Drinking Water Waste Water Product Sewage Other Tissue	CODE DW WW P SL OL AR OT TS	COLLECTED		SAMPLE TEMP AT COLLECTION °C	# OF CONTAINERS	Preservatives						Analysis				Corrected Temp at Time of Receipt at Lab
				DATE	TIME			DATE	TIME	Unpreserved	H2SO4	HNO3	HCl	Cubitainer	pH, Cond, Alkalinity	Total Residual Chlorine	Hardness	
1	Tyco OF003 Effluent #2			ww	c	5-20-20 8:15	5-21-20 8:15	2-7	5	2	1	1	1	X	X	X	X	0.7
2																		
3																		
4																		

Client Comments: _____

Sampler Name / Signature / Date: Arne W. Fleury Arne W. Fleury 5-21-20

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITION ON RECEIPT																				
<u>TYCO / EHS Tech.</u>	<u>5-21-20</u>	<u>8:30</u>	<u>Stelarch Pace</u>	<u>5/21/20</u>	<u>10:00</u>	Samples Intact	Y	N	Samples Received on Ice	Y	N	Custody Seals Intact	Y	N	Temperatures 0-6 °C	Y	N	Signs of Ice formation	Y	N	PM Need to Notify?	Y	N	COC Dates and Times Match Sample Containers?	Y	N

Lab Use Only

Thermometer Used 01339252/1710

Correction Factor 122639816

Other _____

Uncorrected Temps Effluent 0.8

Receiving Water _____

Lab Comments: _____

Completed By: Stelarch Reviewed By: AP & DJT 5-26-20

Attachment 3
New Zone 7 Phyto Site Layout



Building 52

NOTES:

1. ALL WILLOWS PLACED IN A RECURRING PATTERN AT A 2.5 FOOT INTERVAL PER TREE.

LEGEND

- ◆ DN POPLAR
- NM POPLAR
- SX67 WILLOW
- SAND BAR WILLOW
- ALLEGHENY WILLOW
- IOWA WILLOW
- FISH CREEK WILLOW



PHOTOSOURCE: BING IMAGERY
DATE ACCESSED JULY 2020.



SITE LAYOUT

**CHEM DESIGN
2 STANTON STREET
MARINETTE, WI**

DATE:	JULY 2020	DRAWN BY:	ASR
SCALE:	AS NOTED	APPROVED BY:	BS

FIGURE 1