

1610 North 2nd Street
Suite 201
Milwaukee, Wisconsin 53212
United States
T +1.414.272.2426
F +1.414.272.4408
www.jacobs.com

October 15, 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 (July through September 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 July 1 through September 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

Attachment 1 summarizes the operational data for the groundwater collection and treatment system (GWCTS) during the third quarter 2020, 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 weekend and holiday downtime days and two longer downtimes (one the week of July 27, 2020 to reallocate waste truck resources to support an onsite water main break and one from September 15 to September 23, 2020 to source and replace the effluent pH probes that were not working properly and were replaced on September 24, 2020). While this resulted in a slightly lower total volume extracted and treated during the reporting period when compared to the prior quarter, the average volume treated per operating day increased by approximately 1,500 gallons. The overall volume of groundwater extracted was approximately 708,576 gallons. Reject volume rates were also decreased by approximately 10%. In addition, extraction well EW-1 (in the Wetlands Area) was turned off temporarily in early September 2020 to allow the focus to be on the Main Plant extraction wells. EW-1 will be turned back on in fourth quarter.

Pump down operations with the temporary system continued through third quarter 2020 in the former Salt Vault and former 8th Street Slip areas. Operations continued under management of Endpoint Solutions of Franklin, Wisconsin. From July 4 to September 25, 2020, approximately 409,300 gallons were extracted and disposed of offsite as part of the pump down program. Details of the pump down operations are reported to the Agencies in biweekly summary reports.

Asphalt at cover areas H and I and the former Salt Vault and former 8th Street Slip areas that had cracking observed during their spring 2020 inspection were sealed during the week of September 28, 2020 to limit infiltration of rain water in these areas.

Pressure transducer-related activities were completed on August 26, 2020. These activities included downloading data from each transducer and collecting manual water levels at the time of transducer download. Monitoring well nests MW047 and MW100 were not accessible because of dense vegetation and river levels, and MW107D was not accessible because of ponded water in the well area.

The vertical barrier wall (VBW) inspection (landside and water side above the water line) were completed on September 21 and September 22, 2020. The sheet pile VBW survey was conducted on September 23, 2020. No major issues were identified other than continued high river levels. The following observations were made:

- Minor erosion on the landside from the high river levels to be addressed when river levels allow; anticipated to be in 2021.
- The same sheet pile wall cap welds that had cracks in 2019 these are on top of the sheet pile wall and are not a concern regarding VBW integrity; the cracks will continue to be monitored.
- Missing VBW markers along the slurry wall portion replacement markers have been ordered and will be addressed in 2021.

The VBW inspection details will be provided in the annual report.

The sitewide monitoring well survey required every 5 years as part of the barrier wall groundwater monitoring plan was started on September 1 and completed on September 21 through September 23, 2020. The updated survey coordinates will be provided in the annual report.

Agency comments were received in an email with two letters from EPA Project Manager Christopher Black on September 30, 2020 for both the 2019 Barrier Wall Groundwater Monitoring Annual Report and Arsenic Migration Pathways Evaluation Report. These draft documents were originally submitted to the Agencies on March 17, 2020 and March 9, 2020, respectively.

Additional Activities

The draft Wisconsin Pollutant Discharge and Elimination System (WPDES) variance permit was received from WDNR on July 1, 2020 and went to public comment on August 6, 2020. Because of the later date in getting the permit to public comment, a final permit is anticipated on December 1, 2020. The associated design efforts for the GWCTS improvements will be initiated in winter 2020/2021 and conveyance system construction work for the permanent pump down program is anticipated to begin in 2021.

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

Coleman Engineering Company (located in Iron Mountain, Michigan) completed repairs needed at MW109S and the staff gauge on August 27, 2020.

A project status teleconference meeting was held on August 27, 2020 with EPA, WDNR, Tyco, and Jacobs Engineering Group Inc. Sufficient time was not available to cover all agenda items; a follow-up meeting to complete this status update will be needed in fourth quarter 2020.

MJB Industries, Inc. (MJB; located in Marinette, Wisconsin) completed test pits in the former Salt Vault area on September 1 and September 2, 2020 to evaluate the top of slurry wall elevations on the western and southern boundaries of the former Salt Vault. A limited area was identified where groundwater from the Main Plant has the potential to overtop the former Salt Vault slurry wall when groundwater elevations are elevated. This condition may have contributed to the difficulties associated with achieving pump down targets in the former Salt Vault groundwater in 2019 and 2020 and portions of 2018. The location was identified in the southwestern corner where an approximately 125-foot-long section of the south wall has a top elevation of approximately 584 feet above mean sea level (amsl), and a buried electrical line with aggregate was notched into the wall down to an elevation of 583.3 feet amsl. Past water levels in the Main Plant in this area had periods where groundwater levels were higher than 584 feet amsl in 2018 to 2020. Tyco is evaluating options to extend the slurry wall to at least an elevation of 585 feet amsl along this portion of the south wall; it is anticipated that modifications would be implemented in 2021, if it is deemed necessary. As of the end of this reporting period and beginning in mid-August 2020, groundwater elevations in the Main Plant adjacent to the former Salt Vault had fallen below an elevation of 583.3 feet amsl indicating that overtopping is not currently a concern.

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 June through August 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.

Groundwater elevation data recorded by transducers are being compiled and evaluated. The transducer data will be provided in the annual report.

Survey data collected in August and September 2020 for the sitewide monitoring well and VBW surveys is being compiled by the surveyor. The survey data will be provided in the annual report.

Problems Encountered

Menomonee River Levels

Menominee River water levels remained high through third quarter 2020. During the reporting period, the river remained above the top of the VBW in the Wetlands Area of the site. Water levels exceeded the weirs in the Main Plant area throughout the reporting period. Temporary weir gates were installed at the two western most weirs in August 2020, and the eastern most weir had a gate installed in September 2020.

The second weir in the east does not require a gate. Permanent gates to replace the temporary ones have been constructed and are onsite; MJB is scheduled to install the gates in October 2020.

In addition to the super sacks temporarily placed on top of three catch basins near Building 29 in the southwestern corner of the site, a bypass was installed in one of the catch basins to better manage river water that occasionally backs up at these catch basins. The super sacks and bypass help limit river water that surfaces. The bypass and super sacks were removed in mid-September as river levels were low enough that back ups were no longer a concern. Long term, Tyco will be implementing a stormwater improvement plan as part of the WPDES permit that will abandon the subsurface stormwater lines and manage stormwater through above ground surface flow, as needed.

Also because of the high water levels, during the VBW survey, dimple points D-42 to D-53 (essentially the Wetlands Area or from just east of staff gauge SG-4 to the east) was not able to be surveyed nor was the wall able to be inspected from the land side. Portions of the slurry wall in the Wetlands Area also were not able to be inspected.

Sitewide Monitoring Well Survey

The following wells were not able to be surveyed as part of the site wide monitoring well survey. As conditions allow, these locations will be attempted during the 2021 VBW survey.

- MW047 nest Not accessible because of dense wetlands vegetation overgrowth and high river levels. Not only is access to these wells difficult, but the site lines needed for surveying are not clear because of the height of the vegetation (this applies to all wells noted below with this issue).
- MW048S Not accessible because of dense wetlands vegetation overgrowth and high river levels (proposed transducer location has been inaccessible in 2019 and 2020, consistent with the June 2019 Addendum to 2015 Barrier Wall Groundwater Monitoring Plan Update, this transducer location may not end up being installed).
- MW100 nest Not accessible because of dense wetlands vegetation overgrowth and high river levels.
- EW-1 Not accessible because of dense wetlands vegetation overgrowth and high river levels.
- EW-2 Unable to open the flush-mount well vault, which is stuck shut, and may need to break the lid to obtain access, if needed. EW-2 is in the former 8th Street Slip, is not being used, and is not planned to be used for future extraction.

GWCTS Operations

Follow-up whole effluent toxicity (WET) test sampling was completed because of the GWCTS annual WET test collected in May 2020 that did not have passing results. The required follow-up WET tests were conducted the weeks of July 6 and July 20, 2020. Both follow-up tests passed, and no additional testing is required. Attachment 2 contains the follow-up WET test report forms and results.

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

- Conduct fourth quarter 2020 semiannual barrier wall groundwater monitoring water levels
- Conduct transducer data download activities
- Continue pump down program operations in the former Salt Vault and former 8th Street Slip areas
- Continue operating the GWCTS
- Attend continuation of project status meeting to complete review of remaining agenda items
- Submit responses to Agency comments on the 2019 Barrier Wall Groundwater Monitoring Annual Report and Arsenic Migration Pathways Evaluation Report by November 29, 2020 (60 days from receipt of comments).
- Submit revised vapor intrusion assessment and work plan responding to Agency comments
- Receive final WPDES variance permit
- Submit conveyance improvements design
- Initiate GWCTS improvements design

Table 1. Documents Submitted

List of Key Correspondence and Document Submittals

... ...

Quarterly Progress Report (July to September 2020), Tyco Fire Products LP Facility, Marinette, WI

Description of Submittal	Submitted To	Date Submitted
Email – Comments on Draft WPDES Permit	WDNR	July 8, 2020
Biweekly Summary Report for Pump Down Program	EPA	July 9, 2020
Quarterly Progress Report (Second Quarter 2020)	EPA	July 14, 2020
Biweekly Summary Report for Pump Down Program	EPA	July 29, 2020
Biweekly Summary Report for Pump Down Program	EPA	August 5, 2020
Biweekly Summary Report for Pump Down Program	EPA	August 19, 2020
Email – Presentation Materials from August 27, 2020 Project Status Meeting	EPA	August 31, 2020
Biweekly Summary Report for Pump Down Program	EPA	September 9, 2020
Biweekly Summary Report for Pump Down Program	EPA	September 16, 2020

Table 2. Correspondence from Agency

Quarterly Progress Report (July through September 2020), Tyco Fire Products LP Facility, Marinette, WI

Description of Correspondence	Submitted By	Date Submitted
Draft WPDES Variance Permit for Tyco Review	WDNR	July 1, 2020
Public Notice for WPDES Variance Permit	WDNR	August 6, 2020
EPA and WDNR Review of 2019 Barrier Wall Groundwater Monitoring Annual Report	EPA	September 30, 2020
EPA and WDNR Review of Arsenic Migration Pathways Evaluation Report	EPA	September 30, 2020

If you have any questions or require additional information, please contact me at 262-644-6167 or Jeffrey Danko at 262-349-2528.

Respectfully Yours,

Jacobs Engineering Group Inc.

Heather Ziegelbauer Project Manager

cc: Angela Carey, WDNR

Huther J. Miegelbauer

Ryan Suennen, Tyco Fire Products Jeff Danko, Johnson Controls

Mariel Carter, Stephenson Public Library

Attachments

1 Groundwater Collection and Treatment System Operation Summary

Discharge Monitoring Reports and WET Test Results for the Groundwater Collection and Treatment System

Attachment 1
Groundwater Collection and Treatment System
Operation Summary

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

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

- The GWCTS operated for 22 days in July 2020, 24 days in August 2020, and 13 days in September 2020, for a total of 59 days.
- For the reporting period, the precipitation recorded from the weather station in Marinette, Wisconsin
 was 11.8 inches of rain (http://www.ncdc.noaa.gov/cdo-web/datasets/GHCND/stations/
 GHCND:USC00475091/detail).
- An estimated 708,576 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 768,507 gallons of water were discharged to the Menominee River as effluent under the Wisconsin Pollutant Discharge and Elimination System permit.
- Approximately 269,805 gallons of reject water were produced this reporting period during system
 operations and subsequently disposed of offsite.

Table 1-1. Extraction Well Data Summary (July through September 2020)

GWCTS Operations, Tyco Fire Products LP Facility, Marinette, WI

Extraction Well	Gallons Run, Third Quarter 2020 (July 1 through September 30, 2020)
EW-1	57,171
EW-2	0
EW-3	0
EW-4	8,476
EW-5	168,387
EW-6	218,907
EW-7	255,635
Total	708,576

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

Wastewater Discharge Monitoring Long Report

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: 06/01/2020 - 06/30/2020

Form Due Date: 07/21/2020 Permit Number: 0001040

For DNR Use Only

Date Received:

DOC: 445622 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	0.16982		67	6.5	7.1
	2	0.12866		70	7.1	7.3
	3	0.12196		73	7.0	7.1
	4	0.10334		73	7.1	7.2
	5	0.07538		71	6.7	7.4
	6	0.01369		75	7.4	7.5
	7	0.04309		74	7.1	7.8
	8	0.13494		72	7.1	7.3
	9	0.20342		72	6.6	7.4
	10	0.25792		75	6.4	6.8
	11	0.13534		70	6.8	7.3
	12	0.11968		71	7.1	7.3
	13	0.08587		72	7.2	7.6
	14	0.06525		72	7.2	7.6
	15	0.13838		70	7.0	7.3
	16	0.15059	<0.16	73	6.8	7.1
	17	0.14318		74	6.8	7.0
	18	0.13952		72	7.0	7.2
	19	0.09617		72	7.1	7.5
	20	0.10526		76	6.6	7.1
	21	0.08774		77	6.9	7.1
	22	0.37191		73	6.3	7.1
	23	0.11409		73	6.7	7.1
	24	0.14357		73	6.9	7.2
	25	0.12489		75	6.9	7.1
	26	0.08588		75	6.9	7.3
	27	0.03965		77	7.3	7.5
	28	0.08410		81	7.2	7.8
	29	0.11665		78	7.2	7.6
	30	0.11693		77	7.2	7.4
	31					

Permit: 0001040

	Sample Point	001	703	001	001	001
	Description	PRIOR TO	Intake Water	PRIOR TO	PRIOR TO	PRIOR TO
		MENOMINEE RIVER	Monitoring	MENOMINEE RIVER	MENOMINEE RIVER	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	0.123895667	0	73.433333333	6.936666667	7.303333333
	Monthly Total					
	Daily Max	0.37191	<0.16	81	7.4	7.8
	Daily Min	0.01369	<0.16	67	6.3	6.8
	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			

				·	·	1
	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			0.86	270	130
	2					
	3					
	4					
	5					
	6					
	7				270	400
	8 9				370	120
	10					
	11					
	12					
	13					
	14					
	15			0.26	380	110
	16					
	17					
	18					
	19					
	20					
	21					
	22					
	23			1.4	340	84
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001	001	
	Description	PRIOR TO MENOMINEE R	\/CD	PRIOR TO	\/CD	PRIOR TO		PRIOR TO	PRIOR TO	
		MENOMINEE R	IVER	MENOMINEE RI	IVER	MENOMINEE R	IVER	MENOMINEE RIVE	R MENOMINEE RI	IVER
	Parameter	379		376		388		231	35	
	Description	pH Total Exceed Time Minute		pH Exceedand Greater Than Minutes		Phosphorus, T	otal	Hardness, Total as CaCO3	Arsenic, Tota Recoverable	
	Units	minutes		Number		mg/L		mg/L	ug/L	
Summary	Monthly					0.84		340	111	
Values	Avg									
	Monthly Total									
	Daily Max					1.4		380	130	
	Daily Min					0.26		270	84	
	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		ļ		·Į	0.024	<u> </u>		2.1	
	LOQ					0.05			5	
	QC Exceedance	N		N		N		N	N	
	Lab Certification					99958001	0	999580010	99958001	0

	Comple Dairt	001	001	004	001	004
	Sample Point	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO
	Description	MENOMINEE RIVER			MENOMINEE RIVER	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	0.1846	23	0.03266	<0.49	<5.0
	2					
	3					
	4					
	5 6					
	7					
	8	0.1344	23	0.02576	0.72	
	9	0.1011		0.020.0	52	
	10					
	11					
	12					
	13					
	14					
	15	0.1265	27	0.03105	0.58	
	16					
	17					
	18					
	19					
	20					
	21 22					
	22	0.0798	25	0.02375	<0.49	
	24	0.0790	20	0.02373	\0. 4 8	
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point			001		001		001	001
	Description	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RI	\/ED	PRIOR TO MENOMINEE RIVER	PRIOR TO MENOMINEE RIVER
		WILHOWINEL KI	VLK	WILHOWINEL KI	VLK	WENOWINEE KI	VLIX	WENOWINE RIVER	WENOWINE RIVER
	Danamatan	35		147		147		0.7	450
	Parameter Description	Arsenic, Total	1	Copper, Total	1	Copper, Tota		87 Cadmium, Total	152 Cyanide, Amenable
	Description	Recoverable		Recoverable		Recoverable		Recoverable	Cyanide, Amenable
	Units	lbs/day		ug/L		lbs/day		ug/L	ug/L
Summary	Monthly	0.131325		24.5		0.028305		0.325	0
Values	Avg								
	Monthly Total								
	Daily Max	0.1846		27		0.03266		0.72	<5
	Daily Min	0.0798		23		0.02375		<0.49	<5
	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	5
	LOQ			5				1	10
	QC Exceedance	N		N		N		N	N
	Lab Certification			999580010)			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			0.02233	4.0	1.5
	2			0.01548	3.5	2.5
	3			0.02382	3.0	
	4			0.01932	<1.9	
	5			0.00752	3.5	
	6					
	7					
	8			0.02189	4.0	<1.5
	9			0.02209	4.0	<1.4
	10			0.02206	3.0	
	11			0.01425	2.0	
	12			0.00596	3.0	
	13			0.00639	2.5	
	14					
	15	22		0.02042	3.0	<1.5
	16		3.2	0.02186	3.5	<1.5
	17			0.02035	4.0	
	18			0.01579	3.0	
	19			0.00571	4.0	
	20					
	21					
	22			0.02794	4.0	<1.4
	23			0.03029	3.5	2.1
	24			0.02244	2.0	
	25			0.01576	4.5	
	26			0.00902	7.5	
	27					
	28					
	29			0.01557	10.0	
	30			0.01036	6.5	
	31					

	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
		MENOMINEE RIVER	MENOMINEE RIVER	Ellidelit	Eillueilt	Emident
		110	200	211		0.10
	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
Summary Values	Monthly Avg	22	3.2	0.017244348	3.826086957	0.7625
	Monthly Total					
	Daily Max	22	3.2	0.03029	10	2.5
	Daily Min	22	3.2	0.00571	<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			5.7
	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
ample Results	Day 1	<0.49	<2.2	12	120	<3.0
	2	<0.49	<2.2	8.4	86	
	3					
	4					
	5					
	6					
	7					
	8	<0.49	<2.2	4.8	130	
	9	<0.49	<2.2	5.2	70	
	10					
-	11					
-	12					
-	13					
-	14					
-	15	<0.49	<2.2	5.8	140	
-	16	<0.49	<2.2	10.0	76	
	17					
-	18					
-	19					
	20					
-	21					
-	22	<0.49	<2.2	6.8	97	
-	23	<0.49	<2.2	5.9	46	
	24	<u> </u>		-	-	
-	25					
ļ	26					
-	27					
-	28					
-	29					
-	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishir Effluent	ng	Metal Finishii Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
		Lindent		Lindent		Lilidelit		Lilident		Lindent	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Tot	tal	Chromium, To	ata l	Nickel, Tota	.1	Zinc, Total		Cyanide, To	tal
	Description	Recoverable		Recoverable		Recoverable		Recoverabl		Cyanide, 10	lai
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0		0		7.3625		95.625		0	
	Monthly Total										
	Daily Max	<0.49		<2.2		12		140		<3	
	Daily Min	<0.49		<2.2		4.8		46		<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	99958001	0	99958001	0	99958001	0	99958001	0	99958001	0

	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
ample Results	Day 1	7.7	<1.3	2.1	6.7	7.8
	2	5.8	1.8	<1.1	6.8	8.2
	3				6.7	7.9
	4				6.6	7.0
	5				6.3	6.5
	6					
	7					
	8	5.9	2.5	<1.1	7.0	8.9
	9	5.6	<1.3	<1.1	6.7	7.9
	10				6.8	7.6
	11				6.6	7.2
	12				6.3	6.5
	13				6.8	7.2
	14					
	15	5.6	2.8	<1.1	7.1	8.5
	16	6.0	1.4	<1.1	6.7	8.0
	17				6.8	7.6
	18				6.7	7.5
	19				6.7	6.8
	20					
	21					
	22	5.2	1.5	<1.1	7.0	8.4
	23	4.2	1.4	<1.1	6.9	7.5
	24	·· -	***		6.8	7.6
	25				7.0	7.6
	26				6.8	7.1
	27				0.0	7.1
	28					
	29				7.0	8.2
	30				6.9	7.8
	31				0.9	1.0

	Sample Point	101		101		101		101		101	
	Description	Metal Finishir Effluent	ng	Metal Finishir Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
	Parameter	147		264		430		374		373	
	Description	Copper, Tota Recoverable		Lead, Total Recoverable		Silver, Tota Recoverabl		pH (Minimur	n)	pH (Maximui	m)
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	5.75		1.425		0.2625		6.7695652	17	7.6217391	13
	Monthly Total										
	Daily Max	7.7		2.8		2.1		7.1		8.9	
	Daily Min	4.2		<1.3		<1.1		6.3		6.5	
	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	0	99958001	0	99958001	0				

,	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 Finishi Effluent	ng	Metal Finishir Effluent	ng	Metal Finishin Effluent	g	Metal Finishing Effluent	9	Metal Finishin Effluent	g
		Lindent		Lilident		Lindent		Lilidelit		Lindent	
	Parameter	379		376		507		40		490	
	Description	pH Total Exceed	lance	pH Exceedand	200	Total Toxic Orga	nice	Benzene		Tetrachloroethyle	one
	Description	Time Minute		Greater Than Minutes		Total Toxic Orga	11103	Benzene		rendemorecary	SIIC
	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				
	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				
Sample Results	Frequency Day 1	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
	2					
	3 4					
	5					
	6 7					
	8					
	9					
	11		+			
	12 13					
	14					
	15 16					
	17					
	18 19					
	20					
	21					
	22		+			
	24					
	25 26		+			
	27					
	28 29					
	30					
	31					

	Sample Point	101	101	101	101	101
	Description	Metal Finishing	Metal Finishing	Metal Finishing	Metal Finishing	Metal Finishing
		Effluent	Effluent	Effluent	Effluent	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	Monthly					
Values	Avg					
	Monthly					
	Total					
	Daily Max					
	Daily Min					
	Rolling 12 Month Avg					
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
Limit(s) in Effect	Monthly Avg					
LifeCt						
	Monthly Total					
	Daily Max					
	Daily Wax					
	Daily Min					
	Rolling 12					
	Month Avg					
QA/QC	LOD	I				
Information						
	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
ŀ	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					
	14					
	15					
	16					<0.16
	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
		Ellidelit	ww	ww.	ww	Results
		407	011	0.5	457	000
	Parameter	167 Di-n-butyl phthalate	211 Flow Rate	35	457	280
	Description	(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

Parameter		Sample Point	003	003	003	003	003
Description Flow Rate Units Suspended Solids, Total Total Total Recoverable Arsenic, Total Recoverable pH (Minimum) PH (Minimum) Recoverable Units MGD mg/L ug/L sug/L Suspended PM (Minimum) PH (M		_	Future remedial action	Future remedial action	Future remedial action	Future remedial action	
Description Flow Rate Units Suspended Solids, Total Total Total Recoverable Arsenic, Total Recoverable pH (Minimum) PH (Minimum) Recoverable Units MGD mg/L ug/L sug/L Suspile Type CONTINUOUS Frequency DAILY WEEKLY WEEKLY DAILY DAILY </th <td></td> <th></th> <td>044</td> <td>457</td> <td>0.5</td> <td>074</td> <td>0.70</td>			044	457	0.5	074	0.70
Units MGD mg/L ug/L su	-						373 pH (Maximum)
Sample Type CONTINUOUS 24 HR COMP 24 HR COMP CONTINUOUS		Description	Flow Rate			pn (Minimum)	pn (Maximum)
Prequency DAILY WEEKLY WEEKLY DAILY		Units	MGD	mg/L	ug/L	su	su
Day 1	[Sample Type	CONTINUOUS	24 HR COMP	24 HR COMP	CONTINUOUS	CONTINUOUS
2 0.013370 7.0 3 0.011336 6.3 4 0.013553 6.9 5 0.007729 7.0 6 0.007522 6.9 7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 6.0 10 0.015697 6.8 6.5 11 0.013472 6.5 6.5 12 13 0.006703 6.0 6.0 14 0.000741 6.0 6.0 6.0 15 0.011057 <1.9 23 6.0 6.0 16 0.014183 6.1 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.3 6.6 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.0 6.0 6.0 6.0 6.0 6.0 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.2 6.4 6.4 6.4		Frequency	DAILY	WEEKLY	WEEKLY	DAILY	DAILY
3 0.011336 6.3 4 0.013553 6.9 5 0.007729 7.0 6 0.007522 6.9 7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 6.0 10 0.015697 6.8 6.5 11 0.013472 6.5 6.5 12 13 0.006703 6.0 6.0 14 0.000741 6.0 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 6.3 18 0.011743 6.3 6.3 19 0.006667 6.6 6.6 20 0.007029 6.2 2 21 0.003430 6.0 6.0 22 0.015031 2.0 47 6.0 23 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.8 6.8	ample Results	Day 1	0.015127	<1.9	42	6.9	8.6
4 0.013553 6.9 5 0.007729 7.0 6 0.007522 6.9 7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 6.0 10 0.015697 6.8 6.5 11 0.013472 6.5 6.5 12 13 0.006703 6.0 6.0 14 0.000741 6.0 6.0 6.0 15 0.011057 <1.9 23 6.0 6.1 16 0.014183 6.1 6.3 6.3 6.3 18 0.011743 6.3 6.3 6.6 6.6 20 0.007029 6.2 6.2 6.0 6.0 21 0.003430 6.0 6.1 6.1 6.1 6.1 6.1 24 0.015675 6.2 6.2 6.2 6.4 6.4 6.4 6.4 6.4 6.4 6.8 6.8 6.8 6.8 6.8 6.8 6.		2	0.013370			7.0	8.3
5 0.007729 7.0 6 0.007522 6.9 7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 6.8 10 0.015697 6.8 6.5 12 6.5 6.5 12 6.0 6.0 6.0 14 0.006703 6.0 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 6.3 17 0.011680 6.3 6.3 18 0.011743 6.3 6.3 19 0.006667 6.6 6.2 20 0.007029 6.2 6.2 21 0.003430 6.0 6.0 22 0.015031 2.0 47 6.0 23 0.015675 6.2 6.2 25 0.015675 6.2 6.4 26 6.7		3	0.011336			6.3	8.1
6 0.007522 6.9 7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 6.8 10 0.015697 6.8 6.5 11 0.013472 6.5 6.5 12 13 0.006703 6.0 6.0 14 0.000741 6.0 6.0 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 6.1 6.3 18 0.011743 6.3 6.3 19 0.006667 6.6 6.2 20 0.007029 6.2 6.0 21 0.003430 6.0 6.0 23 0.015744 6.1 6.1 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.4 6.8		4	0.013553			6.9	8.1
7 0.005986 6.7 8 0.020688 2.0 40 6.0 9 0.012522 6.0 10 0.015697 6.8 11 0.013472 6.5 12		5	0.007729			7.0	7.6
8 0.020688 2.0 40 6.0 9 0.012522 6.0 10 0.015697 6.8 11 0.013472 6.5 12		6	0.007522			6.9	8.2
9 0.012522 6.0 10 0.015697 6.8 11 0.013472 6.5 12 13 0.006703 6.0 14 0.000741 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 6.1 17 0.011680 6.3 6.3 18 0.011743 6.3 6.3 19 0.006667 6.6 6.6 20 0.007029 6.2 6.2 21 0.003430 6.0 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 25 0.015135 6.4 26 27 6.4 28 29 0.021070 6.8		7	0.005986			6.7	8.0
10 0.015697 6.8 11 0.013472 6.5 12		8	0.020688	2.0	40	6.0	6.7
11 0.013472 6.5 12 6.0 13 0.006703 6.0 14 0.000741 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 6.1 17 0.011680 6.3 6.3 18 0.011743 6.3 6.6 20 0.007029 6.2 6.2 21 0.003430 6.0 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 25 0.015135 6.4 6.4 26 27 6.4 6.8 29 0.021070 6.8		9	0.012522			6.0	7.3
12 6.0 13 0.006703 6.0 14 0.000741 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.8 6.8		10	0.015697			6.8	7.0
13 0.006703 6.0 14 0.000741 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.8 6.8			0.013472			6.5	6.7
14 0.000741 6.0 15 0.011057 <1.9 23 6.0 16 0.014183 6.1 17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.4 6.8 29 0.021070 6.8							
15 0.011057 <1.9 23 6.0 16 0.014183 6.1 17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.2 24 0.015675 6.2 6.4 26 6.4 6.4 6.4 26 6.4 6.8 6.8							6.6
16 0.014183 6.1 17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 24 0.015675 6.2 25 0.015135 6.4 26 27 28 29 0.021070 6.8							6.4
17 0.011680 6.3 18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.1 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 6.2 6.4 6.8				<1.9	23		7.5
18 0.011743 6.3 19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.1 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.8 6.8			0.014183			6.1	7.6
19 0.006667 6.6 20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.1 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 6.4 6.4 6.8 29 0.021070 6.8		17	0.011680			6.3	6.8
20 0.007029 6.2 21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 6.1 24 0.015675 6.2 6.2 25 0.015135 6.4 6.4 26 27 6.8 6.8		18	0.011743			6.3	6.9
21 0.003430 6.0 22 0.015031 2.0 47 6.0 23 0.015744 6.1 24 0.015675 6.2 25 0.015135 6.4 26 6.4 27 6.8 29 0.021070 6.8		19	0.006667			6.6	9.0
22 0.015031 2.0 47 6.0 23 0.015744 6.1 24 0.015675 6.2 25 0.015135 6.4 26 27 28 29 0.021070 6.8		20	0.007029			6.2	9.0
23 0.015744 6.1 24 0.015675 6.2 25 0.015135 6.4 26 27 28 9 0.021070 6.8		21	0.003430			6.0	6.6
24 0.015675 6.2 25 0.015135 6.4 26 27 28 29 0.021070 6.8		22	0.015031	2.0	47	6.0	7.3
25 0.015135 6.4 26 27 28 29 0.021070 6.8		23	0.015744			6.1	6.7
26 27 28 29 0.021070 6.8		24	0.015675			6.2	7.1
27 28 29 0.021070 6.8			0.015135			6.4	7.3
28 29 0.021070 6.8							
29 0.021070 6.8	-						
	_		0.004070			0.0	7.0
	-						7.2
31	-		0.008377			6.8	7.3

	Sample Point	003	003	003	003	003
	Description	Future remedial action dischg				
		disorig	disorig	disorig	disorig	uiscrig
	Parameter	211	457	35	374	373
	Description	Flow Rate	Suspended Solids,	Arsenic, Total	pH (Minimum)	pH (Maximum)
			Total	Recoverable		
	Units	MGD	mg/L	ug/L	su	su
Summary Values	Monthly Avg	0.011587192	1	38	6.415384615	7.457692308
	Monthly Total					
	Daily Max	0.02107	2	47	7	9
	Daily Min	0.000741	<1.9	23	6	6.4
	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
		2-2	2=2
	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 a	ction					
		dischg	dischg					
	Parameter	379	376					
	Description	pH Total Exceeda		pH Exceedance				
		Time Minutes	Greater Than 60 Minutes					
	Units	minutes		Number				
Summary	Monthly							
Values	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							
04/00								
QA/QC Information	LOD							
	LOQ	N						
	QC Exceedance			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 compiliance 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
For the second week of sampling at OF001 we are missing the Total P reading because the Lab missed it and I didn't notice it wasn't done until now so, it was past it's holding time.
Laboratory Quality Control Comments
Submitted by Anne Fleury(afleury16) on 7/9/2020 12:48:40 PM

Wastewater Discharge Monitoring Form
Facility Name: TYCO FIRE PRODUCTS LP
Reporting Period: 06/01/2020 to 06/30/2020

Permit: 0001040 DOC: 445622

Wastewater Discharge Monitoring Long Report

Facility Name: TYCO FIRE PRODUCTS LP

Contact Address: One Stanton St

Marinette, WI 54143

Facility Contact: Mike Elliott, EHS Manager

Phone Number: 715-735-7415

Reporting Period: 07/01/2020 - 07/31/2020

Form Due Date: 08/21/2020 Permit Number: 0001040

For DNR Use Only

Date Received:

DOC: 452766 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	0.11117		78	7.1	7.4
	2	0.08796		77	7.0	7.6
	3	0.05141		81	7.5	7.6
	4	0.09892		80	7.4	7.6
	5	0.11531		76	7.2	7.7
	6	0.17946		78	6.5	7.4
	7	0.14166		80	7.1	7.4
	8	0.15398		79	6.8	7.4
	9	0.30529		81	6.6	7.3
	10	0.15345		80	6.6	7.5
	11	0.06815		84	7.4	7.8
	12	0.09152		82	7.2	7.5
	13	0.19835	0.16	79	7.0	7.3
	14	0.31364		81	6.6	7.3
	15	0.20010		77	6.6	7.1
	16	0.14339		77	6.7	7.4
	17	0.11202		78	7.0	7.6
	18	0.27707		80	7.2	7.7
	19	0.11062		82	6.8	7.4
	20	0.13241		75	7.2	7.3
	21	0.32072		73	6.6	7.3
	22	0.17559		75	6.7	7.0
	23	0.15050		76	6.9	7.1
	24	0.09170		78	7.1	7.4
	25	0.06233		83	7.1	7.4
	26	0.19098		80	6.7	7.1
	27	0.18228		80	6.8	7.0
	28	0.14826		77	6.9	7.2
	29	0.14167		78	7.1	7.3
	30	0.13854		75	7.2	7.5
ļ	31	0.07125		84	7.3	7.5

Permit: 0001040

	Sample Point	001	703	001	001	001	
	Description	PRIOR TO	Intake Water	PRIOR TO	PRIOR TO	PRIOR TO	
		MENOMINEE RIVER	Monitoring	MENOMINEE RIVER	MENOMINEE RIVER	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	0.152248387	0.16	78.838709677	6.964516129	7.390322581	
	Monthly Total						
	Daily Max	0.32072	0.16	84	7.5	7.8	
	Daily Min	0.05141	0.16	73	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				0.34	290	130
	2					
	3					
	4					
	5 6					
	7					
	8			0.48	340	130
	9					
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17			0.29	300	130
	18 19					
	20					
	21					
	22				310	140
	23					
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001 PRIOR TO		001	
	Description	PRIOR TO MENOMINEE RI	VED	PRIOR TO			PRIOR TO MENOMINEE RIVER			PRIOR TO MENOMINEE RIVER	
		WENOWINEE RI	VER	WENOWINEE RI	VER	MENOMINEE R	IVER	MENOMINEE RIVE		WENOWINE RI	VER
	Parameter	379		376		388		231 Hardness, Total as	\dashv	35	
	Description	pH Total Exceed Time Minutes		pH Exceedand Greater Than		Phosphorus, I	Phosphorus, Total		S	Arsenic, Total Recoverable	
				Minutes							
	Units	minutes		Number		mg/L		mg/L		ug/L	
Summary Values	Monthly Avg					0.37		310		132.5	
Values	Monthly										$\overline{}$
	Total										
	Daily Max					0.48		340		140	
	Daily Min					0.29		290		130	
	Rolling 12 Month Avg			0.5		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		N		N		
	Lab Certification					999580010		999580010		999580010	

	Comple Deint	004	004	004	004	004
	Sample Point	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO	001 PRIOR TO
	Description	MENOMINEE RIVER	MENOMINEE RIVER	MENOMINEE RIVER	MENOMINEE RIVER	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		0.1209	38	0.03534	0.53	
	2					
	3					
	4					
	5					
	6					
	8	0.1664	24	0.02060	<0.40	<5.0
	9	0.1004	31	0.03968	<0.49	<5.0
	10					
	11					
	12					
	13					
	14					
	15					
	16					
	17	0.1209	25	0.02325	<0.49	
	18					
	19					
	20					
	21					
	22	0.2044	29	0.02697	0.52	
	23					
	24					
	25					
	26 27					
	28					
	29					
	30					
	31					
	<u>31</u>					

	Sample Point	001		001		001		001	001
	Description	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RI	\/ED	PRIOR TO MENOMINEE RIVER	PRIOR TO R MENOMINEE RIVER
		WILINOWINEL KI	VLI	WILHOWINEL KI	VLK	WENOWINEE KI	VLI	WILINOWINEL RIVER	WILMOWINEL RIVER
	Parameter	35		147		147		87	152
	Description	Arsenic, Total Recoverable		Copper, Total Recoverable		Copper, Tota Recoverable		Cadmium, Total Recoverable	Cyanide, Amenable
	Units	lbs/day		ug/L		lbs/day		ug/L	ug/L
Summary	Monthly	0.15315		30.75		0.03131		0.2625	0
Values	Avg								
	Monthly Total								
	Daily Max	0.2044		38		0.03968		0.53	<5
	Daily Min	0.1209		25		0.02325		<0.49	<5
	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	5
	LOQ			5				1	10
	QC Exceedance	N		N		N		N	N
	Lab Certification			999580010)			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			0.00784	9.0	<1.3
	2			0.00309	9.0	1.5
	3					
	4					
	5					
	6			0.02049	5.5	
	7			0.02455	2.0	
	8			0.01186	2.0	<1.3
	9			0.02339	3.0	<1.3
	10			0.00532	5.0	
	11					
	12					
	13		4.04	0.03216	3.0	
	14			0.01220	2.0	
	15			0.01296	3.5	
	16			0.01939	7.5	<1.3
	17	46		0.00694	3.0	<1.3
	18					
	19					
	20			0.02110	3.5	
	21			0.02355	2.0	
	22			0.01927	2.0	1.7
	23			0.02656	<1.9	<1.3
	24			0.00473	2.5	
	25					
	26				1	
	27			0.03855	2.5	
	28			0.02368	2.0	
	29			0.01822	2.5	
	30			0.01287	2.0	
	31			0.00340	3.0	<u> </u>

	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
		MENOMINEE RIVER	WENOWINEE RIVER	Ellidelit	Eillueilt	Emuent
	<u> </u>	112	280	044	457	0.40
	Parameter	112 Chlorine, Total		211 Flow Rate	457	342
	Description	Residual	Mercury, Total Recoverable	Flow Rate	Suspended Solids, Total	Oil & Grease (Freon)
	Units	ug/L	ng/L	MGD	mg/L	mg/L
Summary Values	Monthly Avg	46	4.04	0.016914545	3.477272727	0.4
	Monthly Total					
	Daily Max	46	4.04	0.03855	9	1.7
	Daily Min	46	4.04	0.00309	<1.9	<1.3
	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	•	•	1.3
	LOQ	100	0.5			5.3
	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
ample Results	Day 1	<0.49	<2.2	13	150	
	2	<0.49	<2.2	8.9	160	
	3					
	4					
	5					
	6					
-	7					
	8	<0.49	<2.2	6.2	78	4.5
	9	<0.49	<2.2	8.3	69	
	10					
	11					
	12					
	13					
	14					
	15	<0.49	<2.2	9.1	65	
	16	<0.49	<2.2	8.1	68	
	17					
	18					
	19					
	20					
	21					
	22	<0.49	<2.2	4.2	64	
	23	<0.49	<2.2	14	110	
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishir Effluent	ng	Metal Finishii Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
		Lillaent		Liliaelit		Lilidelit		Liliuciit		Liliuelit	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Tot	tal	Chromium, To	ntal	Nickel, Tota	nl l	Zinc, Total		Cyanide, Tot	al
	2000	Recoverable		Recoverable		Recoverabl		Recoverable		Sydinas, rotal	
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0	0		0			95.5		4.5	
	Monthly Total										
	Daily Max	<0.49		<2.2		14		160		4.5	
	Daily Min	<0.49		<2.2		4.2		64		4.5	
	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	99958001	999580010		0	99958001	0	99958001	0	99958001	0

	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
ample Results	Day 1	10	2.9	<1.1	7.0	8.2
	2	7.7	2.7	<1.1	7.2	8.0
	3					
	4					
	5					
	6				6.9	8.1
	7				6.7	7.8
	8	5.6	1.5	<1.1	6.6	7.9
	9	7.1	2.6	<1.1	7.0	8.1
	10				6.6	7.3
	11					
	12					
	13				7.3	8.0
	14				6.6	7.4
	15	7.6	<1.3	<1.1	6.4	8.2
	16	6.2	2.5	<1.1	7.0	8.2
	17				6.6	7.7
	18					
	19					
	20				6.4	7.7
	21				6.5	8.3
	22	4.6	1.6	<1.1	6.6	8.4
	23	3.4	2.8	<1.1	6.8	8.6
	24				6.2	8.6
	25					
	26					
	27				6.8	7.7
	28				6.6	7.2
	29				6.3	7.0
	30				6.6	7.9
	31				6.4	7.8

	Sample Point	101		101		101		101		101	
	Description	Metal Finishir Effluent	ng	Metal Finishir Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
		Lindent		Lilident		Lilident		Lilidelit		Lindon	
	Parameter	147		264		430		374		373	
	Description	Copper, Tota	,ı	Lead, Total		Silver, Tota	J.	pH (Minimur	m)	pH (Maximu	m)
	Description	Recoverable		Recoverable		Recoverabl		pri (iviiriiriui	11)	pri (Maximum)	
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	6.525	6.525			0		6.6863636	36	7.9136363	64
	Monthly Total										
	Daily Max	10		2.9		<1.1		7.3		8.6	
	Daily Min	3.4		<1.3		<1.1		6.2		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	99958001	999580010		0	99958001	0				

	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					
ŀ	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishi Effluent	ng	Metal Finishir Effluent	ng	Metal Finishin Effluent	g	Metal Finishing Effluent	9	Metal Finishin Effluent	g
		Lindent		Lilident		Lindent		Lilidelit		Lindon	
	Parameter	379		376		507		40		490	
	Description	pH Total Exceed	lance	pH Exceedand	200	Total Toxic Orga	nice	Benzene		Tetrachloroethyle	one
	Description	Time Minute			Greater Than 60		11103	Benzene		Tetracinoroethylene	
	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				
	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				
Sample Results	Frequency Day 1	MONTHLY	MONTHLY	MONTHLY	MONTHLY	MONTHLY
	2					
	3 4					
	5					
	6 7					
	8					
	9					
	11		+			
	12 13					
	14					
	15 16					
	17					
	18 19					
	20					
	21					
	22		+			
	24					
	25 26		+			
	27					
	28 29					
	30					
	31					

	Sample Point	101	101	101	101	101	
	Description	Metal Finishing	Metal Finishing	Metal Finishing	Metal Finishing	Metal Finishing Effluent	
		Effluent	Effluent	Effluent	Effluent	Ellident	
	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
		Lilidelit	WW W		vv vv	resuits
	Damanatan	407	044	0.5	457	280
	Parameter Description	167 Di-n-butyl phthalate	211 Flow Rate	35 Arsenic, Total	457	Mercury, Total
	Description	(dibutyl phthalate)	Flow Rate	Recoverable	Suspended Solids, 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	<u> </u>			•	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	dischg	dischg	dischg	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	0.012617	2.0	38	6.4	7.8
	2	0.003600			6.8	7.8
	3					
	4					
	5					
	6	0.009410			6.0	7.5
	7	0.014177			6.5	7.4
	8	0.011809	<1.9	31	6.0	7.3
	9	0.016455			6.0	6.8
	10	0.009589			6.0	7.0
	11	0.006100			6.6	8.1
	12	0.003871			6.0	7.7
	13	0.015990			6.0	7.9
	14	0.013170			6.0	7.0
	15	0.011070			6.0	6.8
	16	0.015576	<1.9	17	6.5	8.0
	17	0.010985			7.5	8.0
	18	0.007870			7.6	8.0
	19	0.002306			8.1	8.4
	20	0.020910			7.6	8.6
	21	0.013548			6.0	7.8
	22	0.006027	<1.9	30	6.0	9.0
	23	0.012723			7.6	8.6
	24	0.012800			6.1	8.7
	25	0.001778			6.0	6.8
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	003	003	003	003	003	
	Description	Future remedial action dischg					
			3		3		
	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	0.010562773	0.5	29	6.513636364	7.772727273	
	Monthly Total						
	Daily Max	0.02091	2	38	8.1	9	
	Daily Min	0.001778	<1.9	17	6	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			

2 3 4 5 6 7 8 9 10 11 12 13 14 15				
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 ample Results Day 1 2				
Description PH Total Exceedance Time Minutes Greater Than 60 Minutes Units minutes Number Sample Type CONTINUOUS CONTINUOUS Frequency DAILY DAILY ample Results Day 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		Description	Future remedial action dischg	
Description PH Total Exceedance Time Minutes Greater Than 60 Minutes Units minutes Number Sample Type CONTINUOUS CONTINUOUS Frequency DAILY DAILY ample Results Day 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		Parameter	370	376
Minutes Number				
Sample Type CONTINUOUS CONTINUOUS		2 cccp.iic.ii	Time Minutes	Greater Than 60 Minutes
Frequency DAILY DAILY Day 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		Units	minutes	
ample Results 2 3 4 5 6 7 8 9 10 11 12 13 14 15		Sample Type	CONTINUOUS	CONTINUOUS
2 3 4 5 6 7 8 9 10 11 12 13 14 15		Frequency	DAILY	DAILY
3 4 5 6 7 8 9 10 11 12 13 14 15	Sample Results	s Day 1		
4 5 6 7 8 9 10 11 12 12 13 14 15		2		
5 6 7 8 9 10 11 12 13 14		3		
6 7 8 9 10 11 12 13 14 15		4		
7 8 9 10 11 12 13 14		5		
8 9 10 11 12 13 14 15		6		
9 10 11 12 13 14 15		7		
10 11 12 13 14 15		8		
11 12 13 14 15		9		
12 13 14 15		10		
13 14 15		11		
14 15		12		
15		13		
		14		
16		15		
10		16		
17		17		
18		18		
19		19		
20		20		
21		21		
22		22		
23		23		
24		24		
25		25		
26		26		
27		27		
28		28		
29		29		
30		30		
31		31		

	Sample Point	003		003		
	Description	Future remedial a dischg	ction	Future remedial a	ction	
		discrig		discrig		
		0.70		070		
	Parameter Description	379 pH Total Exceeda		376 pH Exceedance		
	Description	Time Minutes		Greater Than 6 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 compiliance 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
 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
The lab at Test America forgot to run the fourth weeks sample at OF001 for Total P so, we are missing that one only.
Laboratory Quality Control Comments
Submitted by Anne Fleury(afleury16) on 8/17/2020 12:59:43 PM

Wastewater Discharge Monitoring Long Report

Facility Name: TYCO FIRE PRODUCTS LP

Contact Address: One Stanton St

Marinette, WI 54143

Facility Contact: Mike Elliott, EHS Manager

Phone Number: 715-735-7415

Reporting Period: 08/01/2020 - 08/31/2020

Form Due Date: 09/21/2020 Permit Number: 0001040

For DNR Use Only

Date Received:

DOC: 452767 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	0.069780		83	7.5	7.7
	2	0.091610		83	7.3	7.7
	3	0.160820		79	7.2	7.5
	4	0.154570		79	7.1	7.4
	5	0.154490		80	7.0	7.2
	6	0.119680		84	7.2	7.8
	7	0.074380		84	7.0	7.8
	8	0.212980		84	6.3	7.4
	9	0.125660		82	6.6	7.0
	10	0.177000		79	6.6	8.0
	11	0.153810		77	7.3	7.6
	12	0.155270		79	7.3	7.6
	13	0.134170		78	7.4	7.6
	14	0.080990		82	7.6	7.8
	15	0.067860		81	7.6	7.7
	16	0.161020		81	7.1	7.9
	17	0.144480		78	6.9	7.2
	18	0.142830		77	7.0	7.1
	19	0.159040	0.41	78	6.9	7.8
	20	0.103600		82	6.9	7.6
	21	0.078990		88	7.0	7.9
	22	0.067790		84	7.0	7.8
	23	0.083380		85	7.6	7.8
	24	0.147380		80	7.2	7.5
	25	0.184710		81	6.5	8.0
	26	0.151370		80	6.5	7.0
	27	0.136370		83	6.4	6.8
	28	0.109490		78	6.4	7.0
	29	0.083580		84	7.1	7.5
	30	0.083080		86	7.1	7.8
	31	0.151820		80	6.5	7.1

Permit: 0001040

	Sample Point	001	703	001	001	001
	Description	PRIOR TO	Intake Water	PRIOR TO	PRIOR TO	PRIOR TO
		MENOMINEE RIVER	Monitoring	MENOMINEE RIVER	MENOMINEE RIVER	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	0.126516129	0.41	81.258064516	7.003225806	7.535483871
	Monthly Total					
	Daily Max	0.21298	0.41	88	7.6	8
	Daily Min	0.06779	0.41	77	6.3	6.8
	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			

			201	1 201	204	004
	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			0.23	320	55
	4					
	5					
	7					
	8					
	9					
	10			0.51	210	76
	11					
	12					
	13					
	14					
	15					
	16			0.00	000	0.7
	17 18			0.29	280	67
	19					
	20					
	21					
	22					
	23					
	24			0.22	340	64
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	001		001		001		001		001	
	Description	PRIOR TO		PRIOR TO		PRIOR TO		PRIOR TO		PRIOR TO	
		MENOMINEE F	RIVER	MENOMINEE R	IVER	MENOMINEE RIVER		MENOMINEE RIVER		MENOMINEE RI	VER
	Parameter	379		376		388		231		35	
	Description	pH Total Exceed Time Minute		pH Exceedand Greater Than Minutes		Phosphorus, 7	Total	Hardness, Total as CaCO3	S	Arsenic, Tota Recoverable	
	Units	minutes		Number		mg/L		mg/L	\dashv	ug/L	
Summary Values	Monthly Avg					0.3125		287.5		65.5	
	Monthly Total										
	Daily Max					0.51		340		76	
	Daily Min					0.22		210		55	
	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		Į.			0.024				2.1	
	LOQ					0.05				5	
	QC Exceedance	N		N		N		N		N	
	Lab Certification					99958001	10	999580010		999580010)

	r					·
	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	0.0737	33	0.04422	<0.49	<5.0
	4					
	5					
	6 7					
	8					
	9					
	10	0.11248	24	0.03552	<0.49	
	11	0.11210		0.00002	-0.10	
	12					
	13					
	14					
	15					
	16					
	17	0.0804	28	0.0336	1.2	
	18					
	19					
	20					
	21					
	22					
	23	0.07070	0=	0.04554		
	24	0.07872	37	0.04551	1.3	
	25					
	26					
	27					
	28					
	29					
	30					
L	31					

	Sample Point	001		001		001		001	001
	Description	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RIV	/ED	PRIOR TO MENOMINEE RI	VED	PRIOR TO MENOMINEE RIVER	PRIOR TO R MENOMINEE RIVER
		WILINOWINEL KI	VLIX	WENOWINEE KI	VLK	WENOWINEE KI	VLK	WENOWINE RIVER	WILNOWINEL RIVER
	<u> </u>	35		4.47		4.47		0.7	450
	Parameter	35 Arsenic, Total		147 Copper, Total		147 Copper, Tota		87 Cadmium, Total	152 Cyanide, Amenable
	Description	Recoverable		Recoverable		Recoverable		Recoverable	Cyanide, Amenable
	Units	lbs/day		ug/L		lbs/day		ug/L	ug/L
Summary	Monthly	0.086325		30.5		0.0397125	5	0.625	0
Values	Avg								
	Monthly Total								
	Daily Max	0.11248		37		0.04551		1.3	<5
	Daily Min	0.0737		24		0.0336		<0.49	<5
	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	5
	LOQ			5				1	10
	QC Exceedance	N		N		N		N	N
	Lab Certification			999580010)			999580010	999580010

	Sample Point	001	001	101	101	101
	Description	PRIOR TO	PRIOR TO	Metal Finishing	Metal Finishing	Metal Finishing
	2 coonpact	MENOMINEE RIVER	MENOMINEE RIVER	Effluent	Effluent	Effluent
	Parameter	112	280	211	457	342
	Description	Chlorine, Total	Mercury, Total	Flow Rate	Suspended Solids,	Oil & Grease (Freon)
		Residual	Recoverable		Total	
	Units	ug/L	ng/L	MGD	mg/L	mg/L
	Sample Type	GRAB	GRAB	CONTINUOUS	24 HR COMP	GRAB
	F	MONTHLY	MONITHIN	DAILY	DAHAY	ONNEEL
Sample Results	Frequency	MONTHLY	MONTHLY	DAILY	DAILY	2/WEEK
dilipie Results	Day 1					
	3			0.028735	2.5	<1.3
	4			0.020753	3.5	<1.4
	5			0.025547	2.5	×1. 4
	6			0.018172	<1.9	
	7			0.000160	6.5	
	8			0.000100	0.0	
	9					
	10	20		0.022480	3.0	
	11			0.025283	2.0	<1.4
	12			0.025611	<1.9	<1.3
	13			0.014653	<1.9	
	14			0.000227	3.0	
	15					
	16					
	17			0.026413	<1.9	<1.3
	18			0.021897	3.0	5.3
	19			0.026365	2.5	
	20			0.016975	2.0	
	21			0.002649	3.0	
	22					
	23					
	24		1.89	0.028207	<1.9	<1.3
	25			0.024421	2.0	<1.3
	26			0.027823	2.0	
	27			0.018781	<1.9	
	28			0.008103	<1.9	
	29					
	30					
	31			0.027435	2.5	

	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
		WILINOWINEL RIVER	WENOWINEE RIVER	Lilident	Lilluent	Lilidelit
		112	280	044	457	240
	Parameter	Chlorine, Total		211 Flow Rate	457 Suspended Solids,	342 Oil & Grease (Freon)
	Description	Residual	Mercury, Total Recoverable	Flow Rate	Total	Oil & Grease (Fleori)
	Units	ug/L	ng/L	MGD	mg/L	mg/L
Summary Values	Monthly Avg	20	1.89	0.020080476	1.904761905	0.6625
	Monthly Total					
	Daily Max	20	1.89	0.031753	6.5	5.3
	Daily Min	20	1.89	0.00016	<1.9	<1.3
	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		·	1.3
	LOQ	100	0.5			5.2
	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
ample Results	Day 1					
	3	<0.49	<2.2	6.6	61	<3.0
	4	<0.49	<2.2	6.0	46	₹3.0
	5	~0.49	~2.2	0.0	40	
	6					
	7					
	8					
	9					
	10	<0.49	<2.2	11	94	
	11	<0.49	<2.2	3.8	170	
	12					
	13					
	14					
	15 16					
	17	<0.49	<2.2	4.3	66	
	18	<0.49	<2.2	7.6	80	
	19	0.10		7.0		
	20					
	21					
	22					
	23					
	24	<0.49	<2.2	9.3	95	
	25	<0.49	<2.2	9.0	81	
	26					
	27					
	28					
	29					
	30 31					
	ગ					

	Sample Point	101		101		101		101		101	
	Description	Metal Finishir Effluent	ng	Metal Finishii Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
		Lindent		Lindent		Lindent		Lilidelit		Lindent	
	Parameter	87		133		315		553		155	
	Description	Cadmium, Tot	hal	Chromium, To	ata l	Nickel, Tota	ı	Zinc, Total		Cyanide, To	tal
	Description	Recoverable		Recoverable		Recoverable		Recoverable		Cyanide, 10	lai
	Units	ug/L		ug/L		ug/L		ug/L		ug/L	
Summary Values	Monthly Avg	0		0		7.2		86.625		0	
	Monthly Total										
	Daily Max	<0.49		<2.2		11		170		<3	
	Daily Min	<0.49		<2.2		3.8		46		<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	99958001	0	99958001	0	99958001	0	99958001	0	99958001	0

	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
ample Results	Day 1					
	3	7.7	1.9	<1.1	7.0	8.1
	4	5.6	<1.3	<1.1	6.7	8.2
	5	5.0	>1.3	<u> </u>	6.9	8.0
	6				6.8	8.2
	7 8				6.6	6.9
	9					
	10	6.7	<1.3	<1.1	6.7	7.8
	11	4.8	2.4	<1.1	6.5	6.9
	12				6.2	8.5
	13				6.3	6.9
	14				6.2	6.8
	15					
	16					
	17	3.3	<1.3	<1.1	6.7	7.4
	18	4.7	1.6	<1.1	6.7	7.5
	19				6.4	7.3
	20				6.5	7.2
	21				6.4	7.1
	22					
	23					
	24	3.4	<1.3	<1.1	6.7	7.0
	25	3.2	2.5	<1.1	6.4	7.2
	26				6.2	6.8
	27				6.4	7.0
	28				6.4	7.0
	29					
	30				0.0	7.4
	31				6.6	7.1

	Sample Point	101		101		101		101		101	
	Description	Metal Finishin Effluent	ng	Metal Finishir Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng	Metal Finishi Effluent	ng
	Parameter	147		264		430		374		373	
	Description	Copper, Tota Recoverable		Lead, Total Recoverable		Silver, Tota Recoverabl		pH (Minimur	n)	pH (Maximu	n)
	Units	ug/L		ug/L		ug/L		su		su	
Summary Values	Monthly Avg	4.925		1.05		0		6.5380952	38	7.3761904	76
	Monthly Total										
	Daily Max	7.7		2.5		<1.1		7		8.5	
	Daily Min	3.2		<1.3		<1.1		6.2		6.8	
	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	0	99958001	0	99958001	0				

	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					
ŀ	27					
	28					
	29					
	30					
	31					

	Sample Point	101		101		101		101	101	
	Description	Metal Finishi	ng	Metal Finishi	ng	Metal Finishin	ıg	Metal Finishing	Metal Finishin	g
		Effluent		Effluent		Effluent		Effluent	Effluent	
	Parameter	379		376		507		40	490	
	Description	pH Total Exceed Time Minute		pH Exceedand Greater Than Minutes	ces 60	Total Toxic Orga	inics	Benzene	Tetrachloroethyle	ene
	Units	minutes		Number		ug/L		ug/L	ug/L	\neg
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									

			1		1	
	Sample Point	101	101	101	101	101
	Description	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				
	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	Metal Finishing	Metal Finishing	Metal Finishing	Metal Finishing
		Effluent	Effluent	Effluent	Effluent	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	Monthly					
Values	Avg					
	Monthly					
	Total					
	Daily Max					
	Daile Miss					
	Daily Min					
	Rolling 12					
	Month Avg					
Limit(s) in	Monthly					
Effect	Avg					
	Monthly					
	Total					
	Daily Max					
	Daily Min					
	Rolling 12					
	Month Avg					
QA/QC Information	LOD					
Illiorillation	100					
	LOQ					
	QC					
	Exceedance					
	Lab					
	Certification					

	0	404	100	400	400	407
	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					
	14					
	15					
	16					
	17					
	18					
	19					0.25
	20					
	21					
	22 23					
	23					
	25					
	26					
	27					
	28					
	29					
	30					
	31					

	Sample Point	101	106	106	106	107
	Description	Metal Finishing		Future remedial action		Mercury Field Blank
		Effluent	ww	ww	ww	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					0.25
	Monthly Total					
	Daily Max					0.25
	Daily Min					0.25
	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	dischg	dischg	dischg	dischg
	Parameter	211	457	35	374	373
	Description	Flow Rate	Suspended Solids,	Arsenic, Total	pH (Minimum)	pH (Maximum)
	·		Total	Recoverable	, , ,	, , ,
	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	0.011924			8.1	8.5
	2	0.010946			8.1	8.5
	3	0.012106			8.4	8.9
	4	0.013352			8.2	8.6
	5	0.010679	<1.9	60	7.7	8.1
	6	0.018250			7.8	8.2
	7	0.005189			7.4	8.1
	8					
	9					
	10	0.029028	<1.9	30	6.0	8.3
	11	0.014240			7.9	8.7
	12	0.016336			7.4	8.8
	13	0.014144			6.0	7.8
	14	0.013509			6.7	7.5
	15	0.007938			6.5	7.8
	16	0.004760			6.4	6.5
	17	0.011357	2.0	25	6.5	6.5
	18	0.016667			6.5	6.5
	19	0.018425			7.9	8.1
	20	0.014530			7.8	8.2
	21	0.008515			8.2	8.5
	22	0.012063			6.5	8.1
	23	0.002965			7.1	7.8
	24	0.016790	<1.9	25	6.0	8.0
	25	0.014466			6.9	7.8
	26	0.018943			6.8	8.1
	27					
	28					
	29					
	30					
	31	0.016280			7.3	8.5

	Sample Point	003	003	003	003	003	
	Description	Future remedial action discha	Future remedial action discha	Future remedial action dischg	Future remedial action discha	Future remedial action discha	
			2.25.19		2.20.19	3	
	Parameter	211	457	457 35		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	0.01333608	0.5	35	7.204	8.016	
	Monthly Total						
	Daily Max	0.029028	2	60	8.4	8.9	
	Daily Min	0.002965	<1.9	25	6	6.5	
	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	pH Exceedances
		Time Minutes	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 a dischg	ction	Future remedial action discha		
		discrig		aiscng		
		0.70		070		
	Parameter Description	379 pH Total Exceeda		376		
	Description	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 compiliance 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 8-11-20 and 8-12-20 the TSS samples were past the 7 day hold time because the cooler was lost in transit by UPS.
Laboratory Quality Control Comments
Submitted by Anne Fleury(afleury16) on 9/15/2020 1:45:14 PM

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT FORM

			GENERA	LINFORMA					
7	FACILITY:	Tyco Fire Protect	tion Products				: WI-0001040		
	FALL NO.:			LABC	RATORY	NAME:	Pace Analy	tical Services, l	LC
RECEIVING	WATER:	Menominee River							
	X.		SAMPLE	INFORMA					
		SAMPLE CO	OLLECTION	SAMPLE		pH at	HAND	HOLD TIME	SAMPLE
SAMPLE	SAMPLE	BEGINNING	END	COLLEC	AT LAB	LAB	DELIVER?	< 36 HR2	ACCEP-
NO.	TYPE	DATE	DATE	TION	2 10 mm		(If Yes, ≤ 4 hr?)		TABLE?
1	EFF-24C	07/06/20	07/07/20	2.7	1.1	10.2	No	Yes	No
2	EFF-24C	07/08/20	07/09/20	3.7	1.6	6.9	No	Yes	Yes
CO	MMENTS:	unusual conditions during The pH of sample upon this instance, the WIDN	n receipt was >9.0. The NR has accepted the re	e WIDNR was esults of this t	contacted a test.	nt 6.1.2 or about this	the Methods ivi s situation afte	anual for examples r the testing was	i.) completed. In
				INFORMAT	ION				
			ACUTE						
Date Test	t Initiated:		7/8/2020			Ĺ			
Tes	ts Are For:	#1 Retest of Failure From			*				
111000000000000000000000000000000000000	Initial Test:		5/20/2020			ĺ.			
ZID/	/IWC Info.:	ZID Compliance				ſ			
		C.dubia	FHM	Oth	her	j			
Dilut	tion Water:		RW		RW				
		✓ LW	✓ LW		LW				
			QA/QC	CONDITIO	ONS		- 1		
						P	ACUTE		
		ned during test? (20 :					Yes	4	
Dissolved o	xygen ≥ 4.	0 mg/l throughout tes	st?				Yes	4	
		d within 6.0 - 9.0 s.u.					No*	4	
		reference tests withi					No*	4	
		carbon dioxide atmos			thousand thou		Yes	4	
Were efflue	nt samples	modified prior to tes *The pH value of the eff	sting?(ex. filtration, aer	ation, chem a	ddition)		No	1	www.myjeej
20.20	Wilvier 1 5.	contacted about the pH	H. The concurrent fath	nead minnow	RTT LC ₅₀ wa	ras 6.83 g/	/L which is out	side the limits of	6.86-7.20 g/L.
SAMPLE TYPE	NO.	HARDNESS	ALKALINITY	MANUFACTURE OF THE PARTY OF THE	AINOMMA	pl	H (s.u.) r Warming	District Cold Strain	ESIDUAL DRINE
	#1	<0.20	40.6	0.0	36 J		10.2	<0.	042
	#2	<0.20	<10.0	<0.	.028		6.9		042
Effluent		338	135	<0.	.028		8.3		042
Effluent	LRW 20-034			-0	.028		8.5	<0.	042
Effluent Lab Water		384	158 47.9		.028		7.4		042

	ACUTE TEST CONT	ROL PERFORMANCE	
PRIMARY WATER CONT	ROLS LRW	LAB WATER CONTRO	OLS (Secondary Control)
Fathead Minnow	Ceriodaphnia dubia	Fathead Minnow	Ceriodaphnia dubia
Survival ≥ 90%	Survival ≥ 90%	Survival ≥ 90%	Survival ≥ 90%
Yes	Yes	Yes	Yes

COMMENTS:

AOI	A series have	TEST	- L V	T 4
Δ(.1	111	1 5 5 1	1114	IA

SPECIES	EFFLUENT TREATMENT	Percent Survival By Replicate			Mean Percen Survival	
		1	2	3	4	
	Lab Water Control - TT	100	100	90	100	98
Fathead Minnow	Lab Water Control - LRW	100	90	90	100	95
	6.25%	90	100	100	100	98
Age of Organism:	12.5%	100	80	100	100	95
8 Days	25%	100	100	100	100	100
	50%	100	100	100	100	100
	100%	100	100	100	100	100
HEAD MINNOW ACUTE	RESULTS: LC ₅₀ =	>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.)

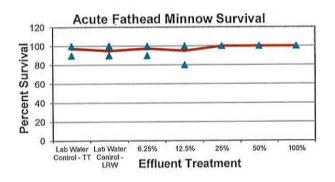
COMMENTS:

EFFLUENT TREATMENT					Mean Percent Survival
	1	2	3	4	
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	80	80	90
50%	60	60	100	100	80
100%	80	80	80	100	85
	TREATMENT Lab Water Control - TT Lab Water Control - LRW 6.25% 12.5% 25% 50%	TREATMENT 1 Lab Water Control - TT 100 Lab Water Control - LRW 100 6.25% 100 12.5% 100 25% 100 50% 60	TREATMENT 1 2 Lab Water Control - TT 100 100 Lab Water Control - LRW 100 100 6.25% 100 100 12.5% 100 100 25% 100 100 50% 60 60	TREATMENT 1 2 3 Lab Water Control - TT 100 100 100 Lab Water Control - LRW 100 100 100 6.25% 100 100 100 12.5% 100 100 100 25% 100 100 80 50% 60 60 100	TREATMENT 1 2 3 4 Lab Water Control - TT 100 100 100 100 Lab Water Control - LRW 100 100 100 100 6.25% 100 100 100 100 12.5% 100 100 100 100 25% 100 100 80 80 50% 60 60 100 100

Ceriodaphnia dubia 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:



Acute C. dubia Survival

Acute C. dubia Survival

Acute C. dubia Survival

Lab Water Lab Water 6.25% 12.5% 25% 50% 100%

Eab Water Lab Water Control LRW Effluent Treatment

Facility: Tyco Fire Protection Products

Permit #: WI-0001040-07-0

Acute Test Date: 7/8/2020

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 'o manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my swledge 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		Dan Toms SIGNATURE:			DanTons	
PHONE:	218-336-2120	LAB CERT#:	999446800		DATE:	8/13/2020	
PERMITTEE REPRESENTATIVE:	Anné Fleury		SIG	NATURE:			
PHONE:	715-73	35-7411	DATE:				

Send <u>all 3 pages</u> 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

TOI	BE COMPLETED BY THE WISC	CONSIN DE	PARTMENT			
				DID TESTS PA	SS?	
ACUTE _	Fathead Minnow	Yes	☐ No	☐ Inconclusive	Unacceptable	
ACGIL	Ceriodaphnia dubia	☐ Yes	□ No	☐ Inconclusive	Unacceptable	
CHRONIC	Fathead Minnow	☐ Yes	□ No	☐ Inconclusive	Unacceptable	
CHRONIC	Ceriodaphnia dubia	☐ Yes	□ No	☐ Inconclusive	Unacceptable	
tetests Required?	Yes No A	cute / Chron	ic: Both Sp	ecies C.dubia only	FHM only	
Due To:	☐ Failure ☐ QA Problem					TEL
WET Limit Violation?	Yes No limit in permit	Result	s Entered Ir	to Database?	Yes No	
COMMENTS:	territorio dell'interna	han				
REVIEWED BY:			DAT	E:		
CC:			BASI	N ENGINEER		
			PERI	MIT COORDINATOR	?	
			PER	MIT FILE		Yele

Facility: Tyco Fire Protection Products

Permit #: WI-0001040-07-0

Test Date: 7/8/2020







Pace Analytical Services, LLC

Client:	Тусо О	F003	
State:	Wiscon	nsin	
Pace Projec	t# 12146	5752	
Test: Acu	te Toxicity	Evaluation	
Tested in C	CO2 Enric	ched Atm	osphere
Test Initiati	on Date <u>:</u>	07/08/2020	
Test Termir	nation Date:_	07/12/2020	1



Document Name: WI Acute Toxicity Evaluation

Document No.: Issuing Authority:
F-DUL-BIO-024A-rev:01 Pace Duluth, MN Quality Office

Document Revised: 21Jun2019 Page 2 of 9

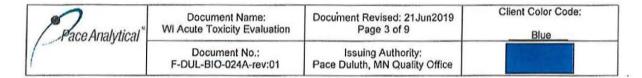
Client Color	oode.
Blue	_

ENVIRONMENTAL SAMPLE TEST INFORMATION

Date:	07/08/2020	
Client:	Tyco OF003	
Pace Project #:	12146752	
Dilution Water:	Laboratory Reconstituted Water (LRW)	
Test Chamber:	loz plastic, 250 mL plastic	
Food:	Artemia for fish before 48-hour renewal - IDs 205981	
Required Temperature Setting:	19- 21°C	

Concentration/Solution	LRW (mL)	Effluent (mL)
(1) Treated Tap	0	0
(2) LRW	900'	0
(3) 6.25%	844	56
(4) 12.5%	788	112
(5) 25%	. 675	225
(6) 50%	450	450
(7) 100%	. 0	900
Daily Totals	~3.7 Liter	~1.8 Liter

Comments: Tested in CO ₂ enriched atm	nosphere.		
Retest #1	district the second sec		
	a the annual control of	*	
and her	- A000-		
- Committee - Comm			



TOXICITY TEST RENEWAL FORM

Client: Tyco OF003	Pace Project #: 12146752	
Test: Acute Toxicity Evaluation	Test Initiation Date: 07/08/2020	
Organism: Ceriodaphnia dubia, Fathead Minnow	Test Termination Date: 07/12/2020	

EFFLUENT

			Age	Source	Culture ID	Bath #
Test (Organism	C. dubia	<24 hours	Pace	ACD - 218	4
		FHM	8 Days	Aquatox	N/A	4
Te	st Day	0 (Test Initiation)	1	2	3	4
1	Date	7/8/20	7/9/20	7/10/20	7/11/20	7/12/20
60 E	C. dubia	1345	1400	1307	N/A	N/A
Readi our of tion)	Initials	CHAH	BEM	KRG	. N/A	N/A
Renewal/Reading (±1 hour of initiation)	FHM	1341	1358	1321	1327	1323
Rei	Initials	OFFIC	KRG	KR6	KRG	PEM
	C. dubia	0937	N/A	N/A	N/A	N/A
Feeding / Food IDs	Initials	294	N/A	N/A	N/A	N/A
Feed	FHM	0721	N/A	0145	N/A	N/A
	Initials	SPAR	N/A	BEM	N/A	N/A
	Primary Control	20-034	20- 034	LRW 20- 037	20- 037	N/A
	Secondary Control	Treated Tap	Treated Tap	Treated Tap	Treated Tap	N/A
	Sample #	#1	#1	#2	#2	N/A
	Effluent Filtered (Yes / No)	No	No	No	. No	N/A
	Initials	SPAR	KRG	XRG	KRG	N/A



Document Name: WI Acute Toxicity Evaluation

Document Revised: 21Jun2019 Page 4 of 9 Client Color Code:

Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority; Pace Duluth, MN Quality Office

INITIAL CHEMISTRIES - EFFLUENT

Client: Tyco OF003	Pace Project #:	12146752
Test: Acute Toxicity Evaluation	Test Initiation Date:	07/08/2020
Organism(s): Ceriodaphnia dubia, Fathead Minnow	Test Termination Date:	07/12/2020
Meter IDs: 13WETA, 13WETB, 13WETC		

Date/Time/Initials 7/8/20 7/9/20 7/10/20 7/11/20 KRG 1240 OFF 1158 1006 KRG 0837 CONCENTRATION: (1) SECONDARY CONTROL - TREATED TAP 8.5 8.5 8.4 8.4 DO (mg/L) 155 Conductivity (umhos/cm) 49 151 134 7.4 pH (s.u.) 7.0 CONCENTRATION: (2) PRIMARY CONTROL - LRW 8.10 8.8 8.8 8.8 DO (mg/L) 710 900 1053 1054 Conductivity (umhos/cm) 8.1 pH (s.u.) 7. 8.2 CONCENTRATION: (3) 6.25% 8.8 8.9 DO (mg/L) 8.8 8.9 90 Conductivity (umhos/cm) 884 011 1024 pH (s.u.) 8.0 CONCENTRATION: (4) 12.5% 8.8 8.9 9.0 DO (mg/L) 856 Conductivity (umhos/cm) 863 9608 985 8.1 pH (s.u.) CONCENTRATION: (5) 25% 9.0 9.0 DO (mg/L) 8.9 Sido 897 199 803 Conductivity (umhos/cm) pH (s.u.) CONCENTRATION: (6) 50% 9.0 9.1 9.2 8.9 DO (mg/L) 695 Conductivity (umhos/cm) 095 706 pH (s.u.) 8.6 CONCENTRATION: (7) 100% 9.5 9. 9.4 9.4 DO (mg/L) 283 Conductivity (umhos/cm) 461 461 273 8.6 9.9 8.60 pH (s.u.)



Document Name: WI Acute Toxicity Evaluation

Document Revised: 21Jun2019 Page 5 of 9 Issuing Authority: Pace Duluth, MN Quality Office Document No.: F-DUL-BIO-024A-rev:01

Clion	Color Code:
Client	Color Code.
	Blue
	Diue

FINAL CHEMISTRIES - EFFLUENT

Client:	Tyco OF003	Pace Project #:	12146752	
Test:	Acute Toxicity Evaluation	Test Initiation Date:	07/08/2020	
Organis	m(s); <u>Ceriodaphnia dubia</u>	Test Termination Date:	07/10/2020	
Meter II	Ds: 13WETA, 13WETC			

	Date/Tin	ne/Initials
	7/9/20 BEM 1431	7/10/20 1314 KRG
CONCENTRA	TION: (I) SECONDARY CONT	ROL - TREATED TAP
DO (mg/L)	8.6	8.3
pH (s.u.)	68	ω.7
CONCENTRA	ΓΙΟΝ: (2) PRIMARY CONTRO	L-LRW
DO (mg/L)	8.6	8.6
pH (s.u.)	72	7.1
CONCENTRAT	TION: (3) 6.25%	
DO (mg/L)	8.6	8.6
pH (s.u.)	1.2	7.1
CONCENTRAT	TION: (4) 12.5%	
DO (mg/L)	8.6	8.6
pH (s.u.)	72	7.2
CONCENTRAT	TION: (5) 25%	
DO (mg/L)	86	8.7
pH (s.u.)	7.3	7.2
CONCENTRAT	ION: (6) 50%	
DO (mg/L)	8.6	8.7
pH (s.u.)	7.3	7.2
CONCENTRAT	ION: (7) 100%	
DO (mg/L)	8.5	8.7
pH (s.u.)	7.2	. 7.6

Pace Analytical

Document Name: WI Acute Toxicity Evaluation

Document Revised: 21Jun2019 Page 6 of 9 Client Color Code: Blue

Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority: . Pace Duluth, MN Quality Office

FINAL CHEMISTRIES - EFFLUENT

Client:	Tyco OF003	Pace Project #:	12146752	
Test:	Acute Toxicity Evaluation	Test Initiation Date:	07/08/2020	0.00
Organis	m(s): Fathead Minnow	Test Termination Date:	07/12/2020	
Meter II	os: 13WETA 13WETC			

	Date/Time/Initials			
	7/9/20 BEM 1422	7/10/20 KRG 1259	7/11/20 K/26	7/12/20 BEM 1329
CONCENTRATIO	ON: (1) SECONDARY CO	ONTROL - TREATE		
DO (mg/L)	8.1	8.1	8.3	8,3
pH (s.u.)	4.7	6.8	7.3	6.9
CONCENTRATIO	ON: (2) PRIMARY CONT	rol-LRW		
DO (mg/L)	8.1	8.0	8.3	83
pH (s.u.)	7.1	7.2	7.2	7.4
CONCENTRAT	TON: (3) 6.25%			
DO (mg/L)	7.9	8.0	8.2	8.2
pH (s.u.)	7.1	7.2	7.3	7.4
CONCENTRAT	ION: (4) 12.5%	- Committee		
DO (mg/L)	8./	8.0	8.2	8.3
pH (s.u.)	7.1	7.2	7.4	7.4
CONCENTRAT	ION: (5) 25%			BEM 7/12/20
DO (mg/L)	8.1	7.9	8.2	7.528.3
pH (s.u.)	7.2	7.2	7,4	7.4
CONCENTRAT	ION: (6) 50%	3.77.11.11.11.11.11.11.11.11.11.11.11.11.	110000000	
DO (mg/L)	8.0	8.0	8.3	8.2
pH (s.u.)	7.1	7.3	7.4	7.5
CONCENTRAT	ION: (7) 100%			
DO (mg/L)	8.1	7.5	8.1	8.2
pH (s.u.)	7.1	7.6	7.7	7.1



Document Name: WI Acute Toxicity Evaluation

Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority: Pace Duluth, MN Quality Office

Document Revised: 21Jun2019

Page 7 of 9

Client Color	Code:
Blue	
Pr.	

ACUTE TOXICITY DATA LOG

Client: Tyco OF003
Project #: 12146752
Test: Acute Toxicity Evaluation
Template ID: A
Test Initiation Date: 07/08/2020
Investigator: Toms
Test Duration: 48-hours
Renewal: Daily

Species: Ceriodaphnia dubia
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) 48 Hour ROW 24 Hour Column ID Column ID D В В C D A A 5 5 5 7 5 5 6 5 5 5 5 4 4 5 5 5. 5 3 5 5 5 5 2 S 5 5 5 1

	_
2	2 = Concentration ID

Readings By (Date/Time/Initials):

BEM 7/9/20 1400

KRG 7/10/20 /307

Comments:	and the second s	A STREET STREET	need a me	



Document Name: WI Acute Toxicity Evaluation

Document Revised: 21Jun2019 Page 8 of 9 Client Color Code:
Blue

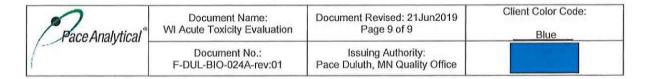
Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority: Pace Duluth, MN Quality Office

ACUTE TOXICITY DATA LOG

Client: Tyco OF003	
Project #: 12146752	
Test: Acute Toxicity Evaluation	
Template ID: F	
Test Initiation Date: 07/08/2020	
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 TA	P
Test Volume: 200 mL	
Required Testing Temperature: 19-21°C	
Minimum Control Survival ≥ 90%: (Yes)/ No)

	EFFLUENT Survival Readings: (# alive out of # exposed from above unless shown otherwise)				
Concentration	24-Hour Replicate A B C D	48-Hour Replicate A B C D	72-Hour Replicate A B C D	96-Hour Replicate A B C D	
(1) Treated Tap	10 10 10 10	10 10 10 10	10 109 10	1010 9 10	
(2) LRW	10 10 10 10	10 9 10 10	10 9 9 10	109910	
(3) 6.25%	10 10 10 10	10 10 10 10	9 10 10 10	9 10 10 10	
(4) 12.5%	10 10 10 10	10 8 10 10	10 8 10 10	10 8 10 10	
(5) 25%	10 10 10 10	10 10 10 10	10 10 10 10	10 10 10 10	
(6) 50%	10 10 10 10	1010 10 10	10 10 10 10	101091910	
(7) 100%	10 10 10 10	9/9/10/10/10	9/9/10/10/10	91910 10 10	
	Pate (Time / Initials 3 4 26 1358 7 9 70 KR6	Date/Time/Initials KI2G [32] 7 [10 20	Date/Time/Initials 1327 KR6 7/11/20	Date/Time/Initials 7/12/20 BEM 1323	
Comments:			2		



ACUTE TOXICITY DATA LOG

Client: Tyco OF003
Project #: 12146752
Test: Acute Toxicity Evaluation
Template ID: A
Test Initiation Date: 07/08/2020
Investigator: Toms
Test Duration: 48-hours
Renewal: Daily

Species: Ceriodaphnia dubia	
Age: <24 hours	
No. Animals/No. Reps: 5/4	
Sources of Animals: Pace	F
Dilution Water/Control: LRW/TR	EATED TAP
Test Volume: 20 mL	
Required Testing Temperature: 1	9-21 °C
Minimum Control Survival ≥ 90%	6: (Yes/No)

		(# aliv	e out of#	Surviv	LUENT al Readings om above unless	shown othe	erwise)	
Concentration (#) Conc ID	A		Iour icate C	D	A		Iour icate 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	4	5	5	5	4	4
(6) 50%	4	5	5	5	3	3	5	5
(7) 100%	5	5	4	5	4	4	4	5
Deciphered By Date/Initials:				DJ	Т 7/13/20	(AS	(4 <u>)</u>)	
Comments:								

Data Package Reviewed for Completeness by: D31 Date: 7/15/20	Data	Package Reviewed for C	Completeness by:	DJT	Date:	7/13/20	
--	------	------------------------	------------------	-----	-------	---------	--





August 06, 2020

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

RE:

Project:

Bioassay

Pace Project No.: 12146752

Dear Anne Fleury:

Enclosed are the analytical results for sample(s) received by the laboratory between July 08, 2020 and July 10, 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







CERTIFICATIONS

Project:

Bioassay

Pace Project No.:

12146752

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





SAMPLE SUMMARY

Project:

Bioassay

Pace Project No.: 12146752

Lab ID	Sample ID	Matrix	Date Collected	Date Received
12146752001	Tyco OF 003 Effluent #1	Water	07/07/20 07:40	07/08/20 10:50
12146752002	Tyco OF003 Effluent #2	Water	07/09/20 08:00	07/10/20 11:15

REPORT OF LABORATORY ANALYSIS



SAMPLE ANALYTE COUNT

Project:

Bioassay

Pace Project No.:

12146752

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
12146752001	Tyco OF 003 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	BE1	1	PASI-V
		SM 2510 B-2011	BE1	1	PASI-V
		SM 4500-H+ B-2011	BE1	1	PASI-V
2146752002	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	BE1	1	PASI-V
		SM 2510 B-2011	BE1	1	PASI-V
		SM 4500-H+ B-2011	BE1	1	PASI-V

PASI-DUL = Pace Analytical Services - Duluth PASI-V = Pace Analytical Services - Virginia



ANALYTICAL RESULTS

Project:

Bioassay

rojoot.	Diodoody
Pace Project No.:	12146752

Sample: Tyco OF 003 Effluent #1	Lab ID:	12146752001	Collected	07/07/20	07:40	Received: 07/	08/20 10:50 Ma	trix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia	ACCOUNT ACCOUNT	Method: EPA 3							
Nitrogen, Ammonia	0.036J	mg/L	0.092	0.028	1		07/10/20 14:19	7664-41-7	
4500CL G Chlorine, Residual		Method: SM 45		1					
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		07/28/20 14:02	7782-50-5	H6
200.7 MET ICP	TO THE PARTY OF TH	Method: EPA 2		ation Meth	od: EP/	A 200.7			
Total Hardness	<0.20	mg/L	0.68	0.20	1	07/10/20 08:40	07/13/20 11:45		
2320B Alkalinity		Method: SM 23 dytical Services							
Alkalinity, Total as CaCO3	40.6	mg/L	10.0	10.0	1		07/14/20 15:23		
2510B Specific Conductance	NAME OF STREET	Method: SM 25 lytical Services							
Specific Conductance	427	umhos/cm	10.0	10.0	1		07/14/20 15:23		
4500H+ pH, Electrometric	114 4	Method: SM 45 llytical Services		11					
pH at 25 Degrees C	10.2	Std. Units	0.10	0.10	1		07/14/20 15:23		H6
Sample: Tyco OF003 Effluent #2	Lab ID:	12146752002	Collected	07/09/20	00:80	Received: 07/	10/20 11:15 Ma	ıtrix: Water	
Parameters	Results	Units .	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
350.1 Ammonia	CONTRACTOR RESIDENCE	Method: EPA 3							
Nitrogen, Ammonia	<0.028	mg/L	0.092	0.028	1		07/15/20 16:56	7664-41-7	
4500CL G Chlorine, Residual	Annual State of the same	l Method: SM 45 llytical Services		1					
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		07/28/20 14:02	7782-50-5	H6
200.7 MET ICP		l Method: EPA 2 alytical Services		ation Meth	od: EP/	A 200.7			
Total Hardness	<0.20	mg/L	0.68	0.20	1	07/17/20 09:14	07/20/20 13:03		
2320B Alkalinity		Method: SM 23							
	Pace Ana	lytical Services	- Virginia						

REPORT OF LABORATORY ANALYSIS





ANALYTICAL RESULTS

Project:

Bioassay

Pace Project No.:

12146752

Sample: Tyco OF003 Effluent #2

Lab ID: 12146752002

Collected: 07/09/20 08:00 Received: 07/10/20 11:15

Matrix: Water

cample. Tyou of too Lindon #2	Lub ID.	12110102001	. Golicoto	u. 01/00/2	00.00		11111		
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
2510B Specific Conductance	The state of the s	l Method: SM 2 alytical Services						N.	
Specific Conductance	250	umhos/cm	10.0	10.0	1		07/14/20 15:06		
4500H+ pH, Electrometric	The state of the s	l Method; SM 4 alytical Services		011					
pH at 25 Degrees C	6.9	Std. Units	0.10	0.10	1		07/14/20 15:06		H6



Project:

Bioassay

Pace Project No.:

12146752

QC Batch:

193283

Analysis Method:

EPA 350.1

QC Batch Method:

EPA 350.1

Analysis Description:

350.1 Ammonia

Laboratory:

Pace Analytical Services - Duluth

Associated Lab Samples:

12146752001

Matrix: Water

METHOD BLANK: 762166 Associated Lab Samples:

12146752001

Units

mg/L

Blank Result

Reporting Limit

Analyzed

Qualifiers

Nitrogen, Ammonia

Units

0.028J

07/10/20 13:02 0.10

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

762165

Spike

LCS Result

LCS % Rec % Rec

Nitrogen, Ammonia

Units

mg/L

mg/L

Conc. 10

Limits

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

MSD

MS

% Rec

Max

RPD Qual

MS

MSD

Spike Conc.

% Rec

97

MSD

RPD

Parameter Nitrogen, Ammonia

12146818002 Result

< 0.10

Spike Conc.

10 10

MS Result 10.1

762168

9.7

Result 9.9

% Rec 101

90-110

Limits 99 90-110

2 10





Project.	Project	t:
----------	---------	----

Bioassay

Pace Project No.:

12146752

QC Batch:

193664

Analysis Method:

EPA 350.1

QC Batch Method:

EPA 350.1

Analysis Description:

350.1 Ammonia

Associated Lab Samples:

12146752002

Matrix: Water

Associated Lab Samples:

METHOD BLANK: 763979

Parameter

12146752002

Blank Result

Laboratory:

Reporting Limit

Analyzed

Pace Analytical Services - Duluth

Qualifiers

Nitrogen, Ammonia

Units mg/L

mg/L

12145071001

Result

< 0.028

0.10 07/15/20 16:25

LABORATORY CONTROL SAMPLE:

Parameter

763978

Spike Conc.

LCS Result

LCS % Rec % Rec Limits

Qualifiers

Nitrogen, Ammonia

Parameter

Units

10

9.9

99

90-110

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

763980 MS

Spike

Conc.

MSD

10

763981 MSD

MS

% Rec

101

MSD % Rec

98

% Rec Limits

90-110

Max RPD RPD

3

Qual

Qual

10 H2

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

Units

mg/L

Units

mg/L

764217

764218

MS

Result

10.4

MSD

Spike

Conc.

MS

MSD Result

Result

10.0

MS MSD % Rec

104

% Rec Limits

Max **RPD RPD**

Parameter Nitrogen, Ammonia

Nitrogen, Ammonia

12146507001

ND

Result

0.24

MS Spike Conc.

10

Spike Conc. 10 10

Result 10.4

% Rec 10.2

102

90-110

2 10

Date: 08/06/2020 07:41 AM





Project:

Bioassay

Pace Project No.:

QC Batch Method:

12146752

QC Batch:

194577

SM 4500-CI G-2011

Analysis Method:

SM 4500-CI G-2011

Analysis Description:

Matrix: Water

Laboratory:

4500CL G Chlorine, Total Residual Pace Analytical Services - Duluth

Associated Lab Samples:

12146752001, 12146752002

METHOD BLANK: 768483

Associated Lab Samples:

12146752001, 12146752002

Blank

Reporting Limit

Analyzed

Qualifiers

Chlorine, Total Residual

Units mg/L

Units

mg/L

Units

mg/L.

Result < 0.042

0.10 07/28/20 14:01 H6

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

768482

Spike Conc. LCS

LCS % Rec % Rec

Chlorine, Total Residual

Result

1

< 0.042

102

Limits 90-110 H6

Qualifiers

10 H6

SAMPLE DUPLICATE: 768484

Parameter

12146719001 Result

Dup Result

1.0

RPD

Max RPD

Qualifiers

Chlorine, Total Residual SAMPLE DUPLICATE:

768485

Parameter

12147131002 Result

Dup Result

RPD

Max RPD

Qualifiers

Chlorine, Total Residual

Units mg/L

ND

< 0.042

< 0.042

10 H6





Project:

Bioassay

Pace Project No.:

QC Batch Method:

12146752

QC Batch:

193541

SM 2320 B-2011

Analysis Method:

SM 2320 B-2011

Analysis Description:

Matrix: Water

2320B Alkálinity

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12146752001, 12146752002

METHOD BLANK: 763357

Associated Lab Samples:

12146752001, 12146752002

Blank

Reporting Limit

Analyzed

Qualifiers

Alkalinity, Total as CaCO3

Units mg/L

Units

mg/L

Result <10.0

07/14/20 14:24 10.0

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

763358

Spike Conc.

LCS Result

LCS % Rec % Rec

Limits

Qualifiers

Alkalinity, Total as CaCO3

SAMPLE DUPLICATE: 763359

12147060001

100

Dup

96.2

Max

90-110

Alkalinity, Total as CaCO3

Units mg/L Result

Result

RPD

0

96

RPD

20

20

Qualifiers

SAMPLE DUPLICATE: 763360

Parameter

Parameter

12146752002 Result

Dup Result

RPD

Max

Qualifiers

Alkalinity, Total as CaCO3

mg/L

Units

<10.0

158

<10.0

159

RPD





Project:

Bioassay

Pace Project No.:

12146752

QC Batch:

193542

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:

12146752001, 12146752002

METHOD BLANK: 763368

Associated Lab Samples:

12146752001, 12146752002

Matrix: Water

Parameter

Blank Result Reporting Limit

Analyzed

Qualifiers

Specific Conductance

Units umhos/cm

<10.0

10.0 07/14/20 14:39

LABORATORY CONTROL SAMPLE:

Parameter

763369

Spike

LCS

LCS

% Rec

20

20

Specific Conductance

Units umhos/cm

Units

umhos/cm

Conc. 1000 Result

% Rec 101 Limits

Qualifiers

SAMPLE DUPLICATE:

763370

Parameter

12147060001 Result

Dup Result

1002

1010

RPD

Max RPD

90-110

Qualifiers

SAMPLE DUPLICATE:

Specific Conductance

763371

Parameter

12146752002 Result

Dup Result

RPD

Max

Specific Conductance

Units umhos/cm

250

994

249

0

RPD

Qualifiers





Project:

Bioassay

Pace Project No.:

12146752

QC Batch:

193543

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:

12146752001, 12146752002

LABORATORY CONTROL SAMPLE:

Parameter

763372

Spike

LCS Result

LCS % Rec % Rec Limits

Qualifiers

pH at 25 Degrees C

Units Std. Units

Units

Std. Units

Units

Conc.

7.0

99

98-102 H6

SAMPLE DUPLICATE: 763373

12147060001 Result

8.5

Dup Result

RPD

0

Max **RPD**

Qualifiers

SAMPLE DUPLICATE:

Date: 08/06/2020 07:41 AM

pH at 25 Degrees C

763374

Parameter

Parameter

12146752002 Result

Dup Result 8.5

RPD

Max RPD

Qualifiers

pH at 25 Degrees C 6.9 6.9 Std. Units

0

10 H6

10 H6





QUALIFIERS

Project:

Bioassay

Pace Project No.:

12146752

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

H2 Extraction or preparation was conducted outside of the recognized method holding time.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Bioassay

Pace Project No.: 12146752

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
12146752001	Tyco OF 003 Effluent #1	EPA 350.1	193283		
12146752002	Tyco OF003 Effluent #2	EPA 350.1	193664		
12146752001	Tyco OF 003 Effluent #1	SM 4500-CI G-2011	194577		
12146752002	Tyco OF003 Effluent #2	SM 4500-CI G-2011	194577		
12146752001	Tyco OF 003 Effluent #1	EPA 200.7	193279	EPA 200.7	193411
12146752002	Tyco OF003 Effluent #2	EPA 200.7	193841	EPA 200.7	193970
12146752001	Tyco OF 003 Effluent #1	SM 2320 B-2011	193541		
12146752002	Tyco OF003 Effluent #2	SM 2320 B-2011	193541		
12146752001	Tyco OF 003 Effluent #1	SM 2510 B-2011	193542		
12146752002	Tyco OF003 Effluent #2	SM 2510 B-2011	193542		
12146752001	Tyco OF 003 Effluent #1	SM 4500-H+ B-2011	193543		
12146752002	Tyco OF003 Effluent #2	SM 4500-H+ B-2011	193543		

Required Client Information:

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

Required Project Information:

WO#:12146752

PM: DJT

Due Date: 07/20/20

CLIENT: 13_TYCO

Company	y: Johnson Controls	Report To;			Anne Fleury			Company:									-		_						
Address:		Copy To:						Address:							_	_		_	+	_	_		-		
	Marinette, Wisconsin 54143		-																_	_			Reg	ulatory Agency	
Email To	, G	Purchase C						Attention:											_		_				
Phone:	715-735-7411 Cell 715-587-660							Email To:											_					ate / Location	
Request	ed Due Date;	Pace Profile	e集		3961			Pace Project	Mana	iger: D	JT													Wisconsin	_
	MATRO Drinking Water Water	WT	rd codes to lah)	(G=GRAB C=COMP)		COLL	ECTED		ognorada	CECTION C		Pre	eserv	rativi	ıs	1	ine	T	Ar	nalys	is		T	Corrected Temp a Receipt at L	
	SAMPLE ID Soleson	SL OL	(see va	10:08	STA	ART	Е	ND	1	VI COL	EB3					alinity	Chtor		1						
Sample #	Wipe Air Other Tenue	AR OT TS	MATRIX CODE (see yaird codes to left)	SAMPLETYPE	DATE	TIME	DATE	TIME		SAMPLE TEMP AT COLLECTION O	# OF CONTAINERS	Unpreserved	HZSO,	HCI	Cubitainer	pH, Cond, Alkalinity	Total Residual Chlorine	Hardness	Ammonia	Acute CO				Cubitainer Ter Take Temp of Cubitainer	Each
1	Tyco OF 003 Effluent #1		w	c	7-6-20	7:40	7-7-20	7:40	20	1	5	2	1 1		1	X	X	X	X :	x >	1	Ц	_	11.1	
2									_	_	4	4	1	1	Ц		4	4	4	+	\perp	Н	\perp		- 4/1
3			-	_					<u> </u>	_	4	4	+	1	Ц		4	4	1	+	+	H	+		
4				1					h		- 1	1													
SAMPI	LER NAME / SIGNATURE / Date:	ame: Au	ne	И	1. Fle	ury		Signature:	On	no	7	M		ll	e	e	ı	y			Dati	e: _	7-	7-20	
Client	Comments:					J					•		/			-,	0	1							
_	RELINQUISHED BY / AFFILIATION		DATE	_	TIME	ACCE	PTED BY / AFFI	LIATION		DATE	_		TIME		_		-	-	-	SAN	IPLE (COND	поп	ON RECEIPT	
_	ACCIMINATION OF THE PROPERTY O		_	_	-	0.5.54		113	-	SCHOOL STATE	-		28082		Н	_	_		_	1	_	$\overline{}$		v ·	
1	VCD/EHS Tech	. 7-	7-0	0	7:40	Wel	ecich	Face	71	8/20		10):5	0	San	nples	Inta	ect		1	N		Samp	les Received on Ice	YUN
	/							,			- 1				Cus	tody	Sea	is in	tact	A	(i)N	1	Temp	eratures 0-6 °C	NY
						Received for Let	oratory By:								Г				ation	, ,	(IN) ,	PM N	eed to Notified?	XIN
Lab U	se Only Thermometer Used	1339252/1	710			Uncorrecte					_				cod	Dat	es ar	d Tin	nes N	latch	Sampi	le Cont	tainers	?	YIN
		22639816				Effluent	1.8					_													
1	-U11°C 0	iner	_			Receiving V	Vater		_		_	_													
Lab C	comments:																								
	ACCOMMUNE.																-								
																			- 0.000						
									C	pleted i	Di-		Sio	n	n i	1	4	-	an in	und	Bir	di	21	or DIT 7	8-21
1									Com	ו נישושותו	uy.	-	NIL	NW	1		1	- 0	CAIC	HCU	J.	111		211	

Invoice Information:

Due Date: 07/20/20



Required Client Information:

Company: Johnson Controls

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

Required Project Information:

Anne Fleury

Report To:

WO#: 12146752

PM: DJT

Page: 1 Of 1

CLIENT: 13_TYCO

Address:	One Stanton Street		Copy To:						Address:											1000						
	Marinette, Wisconsin 54143																							Regu	latory Agency	
Email To	anne.fleury@jci.com		Purchase On		D.		-		Attention:																	
Phone:		587-6602							Email To:			164-14	NC PARTIES											Sta	te / Location	
Requeste	d Due Date:		Pace Profile	#	- 3	3961			Pace Projec	t Manager;	דנס								T					W	fisconsin	
								No.								i de la constante de la consta								106		
		MATRIX	CODE	es to teft)	«СОМР)		COLL	ECTED		ON "C		P	rese	rvati	ves				Ai	naly	sis				Corrected Temp a Receipt at L	
Sample #	SAMPLE ID	Donning Water Water Waste Water Product Solifold OI Wipe Air Other Tobut	WT	MATRIX CODE (see valid codes to let)	SAMPLE TYPE (G.GRAB C.COMP)	ST/ DATE	ART	EN DATE	ND TIME	SAMPLE TEMP AT COLLECTION °C	# OF CONTAINERS	Unpreserved	H2SO _A	HNO3	Cubitainer	pH, Cond, Alkalinity	Total Residual Chioring	Hardness	Ammonia	Acute CD	Acute FHM				Cubitainer Tei Take Temp of Cubitainei	Each
1	Tyco OF003 Effluent #2					7-8-20	0.	7-9-20	Sam	370	5	2	1	1	1	x			x	1		\top	T	П	16	
١,	Tyco Orous Enident #2			ww	C	1-0-20	Sam	1-1-20	Dam	2.1	-	H	H	+	+	+	-	-	-	+	+	+	+	\vdash	1.60	
2																										
3																1					T	Т	Т	П		
				T	H						Н	Н		+	+	+	\vdash	H	+	+	+	+	+	H		
4		Drie Nam			Ш				Sant of	1		ليا		J	1	Ļ					Ц	\perp	\perp	\perp		
SAMPL	ER NAME / SIGNATURE / Date:	An	ne de	M		Fleu	evu		Signature:	MUO	, -	n	1_	-	1	0	u		4			Date:	-	7.	-9-20	
Client (Comments:						7					,,	-	1					-					<u>~</u>	7	
Onem	Johnneins,												_	/_	_		-	_(/		_		_			
_	RELINQUISHED BY / AFFILIATIO	N	I D	ATE	П	TIME	ACCE	PTED BY / AFFIL	IATION	DATE		Г	TIN	IF.	Т	-	_		-	54	MPI	F CO	NDITI	ON O	N RECEIPT	
1	1 1	0	_	_			- A	11 1	7	-	_	\vdash	1.00	-	+	_				1		1	ROTTIN	JIE CI	II NECEL I	1=
1/4	colets lea	h	4-9	-2	0	Barns	Siela	cich to	aco	7/10/2	0	Ш	1.1	5	Sa	ample	es int	act		(Y)	N	Sa	mple	s Received on Ice	(Y /)N
	aurem. Z	lawy												0-0-0-0-0	Ci	ıstod	y Se	als In	tact	1	(Y	N	Te	mper	ratures 0-6 °C	Y) N
		0					Received for Labo	oratory By:							Si	ons c	of Ice	form	ation	1	Y	N	PN	/ Ner	ed to Notified?	Y /(N
Lab Us	e Only Thermometer Used	013	39252/171	10			Uncorrected	d Temps				_			_					_	-		Contain			YIN
	- Correction Factor		639816				Effluent (7.							Г											
	-0.\ °c	Other	033010	_	_		1 -	. 1					- 1		1											
			_	_			Receiving W	Vater			_	_	_													
Lab Co	mments:																				_					
		-	7.00							71110000	_			_	_			_		_				_		
_												_		Ł											1141	
										Completed	By		N	la	Ci.	الا	1	R	evie	wer	By		40	fo	DJT 7	- 13-30

Invoice Information:

Company:

WHOLE EFFLUENT TOXICITY (WET) TEST REPORT FORM

	FACILITY:	Tyco Fire Protect	ion Products	WPDE	S PERM	IT NO.:	WI-0001040)-07-0	
OUT	FALL NO.:	OF003		LABOR	RATORY	NAME:	Pace Analyt	ical Services, L	LC
ECEIVING	WATER:	Menominee River							
			SAMPLE	INFORMAT	ION				
		SAMPLE CO	LLECTION	SAMPLE TO	EMP °C		HAND	LIOLD TIME	SAMPLE
SAMPLE	SAMPLE	BEGINNING	END	COLLEC	AT AD	pH at	DELIVER?	HOLD TIME	ACCEP-
NO.	TYPE	DATE	DATE	TION	AT LAB	LAB	(If Yes, ≤ 4 hr?)	≤ 36 HR?	TABLE?
1	EFF-24C	07/20/20	07/21/20	3.5	2.0	8.7	No	Yes	Yes
2	EFF-24C	07/22/20	07/23/20	3.7	2.0	6.9	No	Yes	Yes
	MMENTS:	unusual conditions during	sampling that may infl	uence test result	ts. (see Par	t 6.1.2 of	the Methods M	anual for examples	
			TEST	INFORMATIC	ON				
			ACUTE						
Date Tes	t Initiated:		7/22/2020						
11909-923	ts Are For:	#2 Retest of Failure From			_				
	Initial Test:	- 11 40 H	5/20/2020						
ZID	/IWC Info.:	ZID Compliance		<u></u>					
		C.dubia	FHM	Othe					
Dilu	tion Water:	The state of the s	RW	R					
		✓ LW	✓ LW	u					
			QA/QC	CONDITION	VS.				
						A	CUTE		
		ned during test? (20					Yes		
		0 mg/l throughout tes					Yes		
		d within 6.0 - 9.0 s.u. reference tests with		.2			Yes Yes	-	
		carbon dioxide atmos					Yes	-	
		modified prior to tes			lition)		No		
vere emue	NAME AND ADDRESS OF TAXABLE PARTY.		ting r (ex. ilitiation, aei	ation, chem add	ildon)	0.005.0	140	#198115979 955550FF2	degree vec
A	MMENTS:								
		WAT	ER CHEMISTRY				oH) H (s.u.)	TOTAL R	ESIDUAL
SAMPLE TYPE	NO.	WAT HARDNESS	ALKALINITY	TOTAL AM	АІИОМІ	pl	l (s.u.) Warming	CHLC	RINE
CC SAMPLE	NO. #1	WAT HARDNESS <0.20	ALKALINITY 15.1	TOTAL AM	1MONIA 4	pl	H (s.u.) Warming 8.7	CHLC <0.	RINE 042
SAMPLE TYPE	NO. #1 #2	WAT HARDNESS <0.20 <0.20	ALKALINITY 15.1 <10.0	TOTAL AM 0.54 0.052	MONIA 4 2 J	pl	H (s.u.) Warming 8.7 6.9	CHLC <0. <0.	042 042
SAMPLE TYPE	NO. #1 #2 LRW 20-038	WAT HARDNESS <0.20	ALKALINITY 15.1	TOTAL AM	MONIA 4 2 J 28	pl	H (s.u.) Warming 8.7	<0. <0. <0.	042 042

	ACUTE TEST CONT	ROL PERFORMANCE			
PRIMARY WATER CONTROLS LRW		LAB WATER CONTROLS (Secondary Control)			
Fathead Minnow	Ceriodaphnia dubia	Fathead Minnow	Ceriodaphnia dubia		
Survival ≥ 90%	Survival ≥ 90%	Survival ≥ 90%	Survival ≥ 90%		
Yes	Yes	Yes	Yes		

COMMENTS:

	ACUTE	TEST D	ATA			
SPECIES	EFFLUENT TREATMENT	Percent Survival By Replicate				Mean Percent Survival
		1	2	3	4	
Fathead Minnow	Lab Water Control - TT	100	100	100	100	100
	Lab Water Control - LRW	100	100	100	100	100
	6.25%	100	100	90	100	98
Age of Organism:	12.5%	100	90	90	100	95
8 Days	25%	100	100	100	100	100

100

100

100% **FATHEAD MINNOW ACUTE RESULTS:** $LC_{50} =$ >100% C.I.% = **Not Calc**

50%

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

100

89

100

100

100

90

TUa =

95

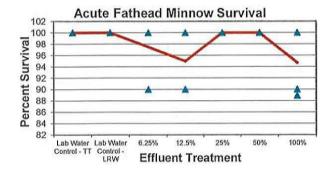
1.0

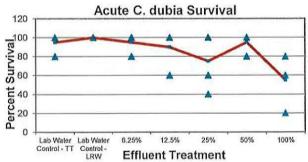
COMMENTS:

SPECIES	EFFLUENT TREATMENT	Percent Survival By Replicate			Mean Percen Survival	
		1	2	3	4	
	Lab Water Control - TT	100	100	100	80	95
Ceriodaphnia dubia	Lab Water Control - LRW	100	100	100	100	100
	6.25%	80	100	100	100	95
Age of Organism:	12.5%	100	60	100	100	90
< 24 Hours Old	25%	100	100	40	60	75
	50%	100	100	80	100	95
	100%	80	60	60	20	55
odaphnia dubia ACUTE	RESULTS: LC ₅₀ =	>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:





Facility: Tyco Fire Protection Products

Permit #: WI-0001040-07-0 Acute Test Date: 7/22/2020

1 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 on manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my owledge 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	SIG	NATURE:		Dan Toma	
PHONE:	218-336-2120	LAB CERT#:		99	99446800	DATE:	8/13/2020
PERMITTEE REPRESENTATIVE:	Anne	Fleury	SIG	NATURE:			
PHONE:	715-73	35-7411	DATE:				

Send <u>all 3 pages</u> 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

TOI	BE COMPLETED BY THE WIS	SCONSIN DEPARTMENT OF NATURAL RESOURCES
		DID TESTS PASS?
ACUTE	Fathead Minnow	☐ Yes ☐ No ☐ Inconclusive ☐ Unacceptable
ACOIL	Ceriodaphnia dubia	Yes No Inconclusive Unacceptable
CHRONIC	Fathead Minnow	☐ Yes ☐ No ☐ Inconclusive ☐ Unacceptable
CHRONIC	Ceriodaphnia dubia	Yes No Inconclusive Unacceptable
tetests Required?	Yes No	Acute / Chronic: Both Species C.dubia only FHM only
Due To:	☐ Failure ☐ QA Problem	
WET Limit Violation?	Yes No limit in permit	Results Entered Into Database? Yes No
COMMENTS:		
REVIEWED BY:		DATE:
CC:		BASIN ENGINEER
		PERMIT COORDINATOR
		PERMIT FILE

Facility: Tyco Fire Protection Products

Permit #: WI-0001040-07-0 Test Date: 7/22/2020





Pace Analytical Services, LLC

Client:	Tyco C	DF003	
State:	Wisco	nsin	
Pace Projec	et <u># 1214</u>	7653	
Test: Acu	ite Toxicity	Evaluation	
Tested in (CO2 Enri	ched Atmospher	e
Test Initiati	on Date <u>:</u>	07/22/2020	
Test Termin	nation Date:	07/26/2020	



Document Revised: 21Jun2019 Page 2 of 9 Client Color Code:

Document No.: F-DUL-BIO-024A-rev:01

Issuing Authority: Pace Duluth, MN Quality Office

ENVIRONMENTAL SAMPLE TEST INFORMATION

Date:	07/22/2020		
Client:	Tyco OF003		
Pace Project #:	12147653		
Dilution Water:	Laboratory Reconstituted Water (LRW)		
Test Chamber:	1oz plastic, 250 mL plastic		
Food:	Artemia for fish before 48-hour renewal - IDs 205981		
Required Temperature Setting:	19- 21°C		

Concentration/Solution	LRW (mL)	Effluent (mL)	
(1) Treated Tap	0	0	
(2) LRW	900	0	
(3) 6.25%	844	56	
(4) 12.5%	788	112	
(5) 25%	675	225	
(6) 50%	450	450	
(7) 100%	0	900	
Daily Totals	~3.7 Liter	~1.8 Liter	

Comments: Tested in CO ₂ enriched atmosphere.	
Retest #2	The state of the s
	And the second of the second o
And the second s	



Document Revised: 21Jun2019 Page 3 of 9 Client Color Code:

Blue

Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority: . Pace Duluth, MN Quality Office

TOXICITY TEST RENEWAL FORM

Client: Tyco OF003	Pace Project #: 1214	7653
Test: Acute Toxicity Evaluation	Test Initiation Date:	07/22/2020
Organism: Ceriodaphnia dubia, Fathead Minnow	Test Termination Date:	07/26/2020

EFFLUENT

			Age	Source	Culture ID	Bath #
Test (Organism	C. dubia	<24 hours	Pace	ACD-2.22	4
		FHM	8 Days	Aquatox	N/A	4
Te:	st Day	(Test Initiation)	1	2	, 3	4
I	Date	7/22/20	7/23/20	7/24/20	7/25/20	7/4/20
ing	C. dubia	1250	1244	1253	N/A	N/A
Renewal/Reading (±1 hour of initiation)	Initials	SHAK	KRG	KRG	N/A	N/A
newal (±1 ho initia	FHM	1305	1305	1320	1335	1315
Re	Initials	SHAK	KRG	KRG	CANA	BEM
	C. dubia	0947	N/A	N/A	N/A	N/A
Feeding / Food IDs	Initials	KRG	N/A	N/A	N/A	N/A
Feed	FIIM	0718	N/A	0648	N/A	N/A
	Initials	CATAR	N/A	KKG	N/A	N/A
	Primary Control	LRW 20- O'365	LRW 20- 0 3 g	LRW 20- 038	LRW 20- 0 3 S	N/A
	Secondary Control	Treated Tap 0~106/20	Treated Tap	Treated Tap	Treated Tap	N/A
	Sample #	#1	#1	#2	#2	N/A
	Effluent Filtered (Yes / No)	No	No	NO	No	N/A
	Initials	APR	KRG	APR	SIFI	N/A



Document Revised: 21Jun2019 Page 4 of 9 Client Color Code:

Blue

Document No.: F-DUL-BIO-024A-rev:01 ' Issuing Authority: Pace Duluth, MN Quality Office

INITIAL CHEMISTRIES - EFFLUENT

Client: Tyco OF003	Pace Project #:	12147653
Test: Acute Toxicity Evaluation	Test Initiation Date:	07/22/2020
Organism(s): Ceriodaphnia dubia, Fathead Minnow	Test Termination Date:	07/26/2020
Meter IDs: 13WETA, 13WETB, 13WETC		

	Date/Time/Initials			
	7/22/20	7/23/20	7/24/20	7/25/20
	1200 KRG	APR 1024	APR. 1215	APR 1325
CONCENTRATION: (1	THE RESERVE OF THE PERSON NAMED IN COLUMN 1		ED TAP	
DO (mg/L)	8.10	8.7	5.9/8.7	8.6
Conductivity (umhos/cm)	123	124	127	127
pH (s.u.)	7.1	8.0.	6.9	7.2
CONCENTRATION: (2)	PRIMARY CON	rrol - LRW		
DO (mg/L)	9.0	9,1	8.8	8.8
Conductivity (umhos/cm)	1032	1021	1034	1059
pH (s.u.)	8.1	8.2	7.9	7. 8.1
CONCENTRATION: (3)	6.25%		With the second	NPA 7/75/12
DO (mg/L)	9.0	9,2	8.9	8.9
Conductivity (umhos/cm)	991	997	949	1025
pH (s.u.)	8.3	8.3	8.3	8.3
CONCENTRATION: (4)		I Maria	12 1/800WAID	2 ALC WARRIED AND ARRIVED
DO (mg/L)	9.1	9,2	9.0	8,9
Conductivity (umhos/cm)	945	956	955	973
pH (s.u.)	8.4	8.4	8.4	8.3
CONCENTRATION: (5)	25%			
DO (mg/L)	9.1	9.1	9.0	9.0
Conductivity (umhos/cm)	854	8.4	860	873
pH (s.u.)	8.4	8.4	8,4	8.4
CONCENTRATION: (6)	50%	•		
DO (mg/L)	9.1	90	9.0	9,0
Conductivity (umhos/cm)	676	691	676	680
pH (s.u.)	8.5	8.4	8.4	8.4
CONCENTRATION: (7)				
DO (mg/L)	9.4	9.1	8.9	9.3
Conductivity (umhos/cm)	232	241	196	191
pH (s.u.)	6.7	8.6	8.6	8.5



Client: Tyco OF003

pH (s.u.)

Document Name: WI Acute Toxicity Evaluation

Document Revised: 21Jun2019 Page 5 of 9 Client Color Code:

Blue

Document No.: F-DUL-BIO-024A-rev:01 Issuing Authority: Pace Duluth, MN Quality Office

7.7

12147653

Pace Project #:

FINAL CHEMISTRIES - EFFLUENT

Test: Acute Tox	icity Evaluation	Test Initiation Date:	07/22/2020
Organism(s): <u>Cerio</u>	daphnia dubia	Test Termination Date:	07/24/2020
Meter IDs: 13WE	TA, 13WETC		
	Date/Time	e/Initials	
	7/23/20 1311 APR 130 AR (121)20	7/24/20 KRG 1305	
CONCENTRAT	TION: (1) SECONDARY CONT		P
DO (mg/L)	8.8	8.7	
pH (s.u.)	7.6	6.6	
CONCENTRAT	TION: (2) PRIMARY CONTROL	L - LRW	
DO (mg/L)	8.9	8.8	
pH (s.u.)	7.3	7.2	
CONCENTRAT	TION: (3) 6.25%		
DO (mg/L)	8.9	8.9	
pH (s.u.)	7.3	7.2	
CONCENTRAT	TION: (4) 12.5%		
DO (mg/L)	8,9	8.9	
pH (s.u.)	7,4	7.2	
CONCENTRAT	TION: (5) 25%	1	
DO (mg/L)	8,9	8.9	
pH (s.u.)	7.4	7.2	
CONCENTRAT	TION: (6) 50%		
DO (mg/L)	8.9	8.9	
pH (s.u.)	7.4	7.3	
CONCENTRAT	TION: (7) 100%		Oranista 2007
DO (mg/L)	8,9	8.8	



Document Revised: 21Jun2019 Page 6 of 9

Client Color Code:
Blue

Document No.: F-DUL-BIO-024A-rev:01

Issuing Authority: Pace Duluth, MN Quality Office

FINAL CHEMISTRIES - EFFLUENT

Client:	Tyco OF003	Pace Project #:	12147653	
Test:	Acute Toxicity Evaluation	Test Initiation Date:	07/22/2020	- lo
Organism(s): Fathead Minnow		Test Termination Date:	07/26/2020	
Meter II	Ds: 13WETA, 13WETC			

	Date/Time/Initials				
	7/23/20 APR 1326	7/24/20 KRG 1314	7/25/20 APR 1309	7/26/20 8EM 1335	
CONCENTRATIO	ON: (1) SECONDARY C		D TAP		
DO (mg/L)	8.1	7.6	8,1	8.0	
pH (s.u.)	7.3	7.5	6.7	6.7	
CONCENTRATIO	N: (2) PRIMARY CON	TROL – LRW	E	0,10	
DO (mg/L)	8.2	7.0	8.1	7.9	
pH (s.u.)	7.3	7.2	7.2	7.2	
CONCENTRAT	ION: (3) 6.25%				
DO (mg/L)	8.1	7.2	8,0	11.8	
pH (s.u.)	7.4	7.3	7.3	1.2	
CONCENTRAT	ION: (4) 12.5%				
DO (mg/L)	8.2	7.5	8.1	8.0	
pH (s.u.)	7.4	7.3	7.3	1.2	
CONCENTRAT	ION: (5) 25%	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
DO (mg/L)	8.1	7.5	8.1	7.9	
pH (s.u.)	7.3	7.3	7,3	7.2	
CONCENTRAT	ION: (6) 50%			7 - 1	
DO (mg/L)	8.1	7.4	8.1	7.8	
pH (s.u.)	7.3	7.3	7.3	7.3	
CONCENTRAT	ION: (7) 100%		*		
DO (mg/L)	8,0	7.4	7.5	7.8	
pH (s.u.)	7.4	7.7	7.4	7.4	

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

ACUTE TOXICITY DATA LOG

Client:	Tyco OF003
Project #:	12147653
Test: Ac	ute Toxicity Evaluation
Template	ID: A
Test Initia	ation Date: 07/22/2020
Investigat	tor: Toms
Test Dura	tion: 48-hours
Renewal:	Daily

·Species: Ceriodaphnia dubia
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

				FFLUE ival Readin	NT gs (Randon	nized):		
			48]	otherwise) Hour umn ID				
Ÿ	Α	В	С	D	Α	В	С	D
7	5	3 5	5	5	5	3 5	⁴ 5	7
6	1 5	² 5	5 5	3 S	7 4	² 5	5 2	3 5
5	4 5	4 4	² 5	孝母	⁴ 5	4 3	² 5	' 4
4	24/4	7 5	5	² S	244	7 3	3	² 5
3	5 5	5	³· 5	5 3	5	5	3 5	5 3
2	3 5	⁵ 5	64	6 5	3 4	ŝ	4 X 114	⁶ 5
1	The state of the s	°5	5	15	65	° 5	5	45

2 = Concentration ID

Readings By	
(Date/Time/Initials)	•

7/23/20 KRG 1244 . 7/24/20 KRG 1253

Comments:	



Document No.: F-DUL-BIO-024A-rev:01

Document Rev	vised: 21Jun2019
Pag	e 8 of 9

. Issuing Authority: Pace Duluth, MN Quality Office

Client Color C	ode:
Blue	
5,00	

ACUTE TOXICITY DATA LOG

Client: Tyco OF003	
Project #: 12147653	
Test: Acute Toxicity Evaluation	
Template ID: B	
Test Initiation Date: 07/22/2020	
Investigator: Toms	
Test Duration: 96-hours	
Renewal: Daily	

Species:	Fathead Minnow	
Age: 8 da	ıy	
No. Anin	nals/No. Reps: 10/4	
Sources of	of Animals: Aquatox	
Dilution '	Water/Control: LRW/TRE	EATED TAP
Test Volu	ime: 200 mL	
Required	Testing Temperature: 19	-21 °C
Minimum	Control Survival ≥ 90%	(Yes/No)
Minimum	Control Survival ≥ 90%	(Yes/No)

C	EFFLUENT Survival Readings: (# alive out of # exposed from above unless shown otherwise)																	
Concentration	A	24-F		D	Α	48-I Repl B	lour licate C	D	٨	72-H	Iour icate C	D	Λ		Hou plicate C			
(1) Treated Tap	10	10	10	10	10	1.0	10	10	10	ID	10	10	10	10	10	10		
(2) LRW	10	10	10	10	10	10	9/9	10	10	10	9/9	10	10	719	10	9/0		
(3) 6.25%	16	16	10	10	10	l	9	10	10	10	9	10	10	W	9	10		
(4) 12.5%	10	10	10	10	10	10	9	10	10	10	9	10	10	9	9	10		
(5) 25%	10	10	10	10	10	10	10	10	ID	10	10	0)	ID	10	10	10		
(6) 50%	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10		
(7) 100%	10	9		10	10		10				1 10				9%			
	7	Date/Time/Initials 7(23/26 1305 KR6			Date/Time/Initials 7/24/20 1320 KRG				7/2	251	e / Init 2.00 5 (34)		Date/Time/Initials 7 226/20 8EM 1315					
Comments:																		



Document Revised: 21Jun2019 Page 9 of 9

Client Color Code:

Blue

Document No.: F-DUL-BIO-024A-rev:01

Issuing Authority: Pace Duluth, MN Quality Office

ACUTE TOXICITY DATA LOG

Client: Tyco OF003	
Project #: 12147653	
Test: Acute Toxicity Evaluation	
Template ID: A	
Test Initiation Date: 07/22/2020	
Investigator: Toms	
Test Duration: 48-hours	
Renewal: Daily	

Species: Ceriodaphnia dubia
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)												
	Α		lour licate C	А	48-Hour Replicate A B C D								
(1) TREATED TAP	5	5	5	4	5	5	5	4					
(2) LRW	4/4	5	5	5	4/4	5	5	5					
(3) 6.25%	5	5	5	5	4	5	5	5					
(4) 12.5%	5	4	5	. 5	5	3	5	5					
(5) 25%	5	5	5	3	5	5	2	3					
(6) 50%	5	5	4	5	5	5	4	5					
(7) 100%	5	5	5	5	4	3	3	1					
Deciphered By Date/Initials:			0-11411	DJT	7/27/20								
Comments:													

Data Package Reviewed for Completeness by: APR Date: 8/6/20





August 06, 2020

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

RE:

Project:

Bioassay

Pace Project No.: 12147653

Dear Anne Fleury:

Enclosed are the analytical results for sample(s) received by the laboratory between July 22, 2020 and July 24, 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







CERTIFICATIONS

Project:

Bioassay

Pace Project No .:

12147653

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





SAMPLE SUMMARY

Project:

Bioassay

Pace Project No.:

12147653

Lab ID 12147653001	Sample ID	Matrix	Date Collected	Date Received
12147653001	Tyco OF003 Effluent #1	Water	07/21/20 07:40	07/22/20 11:00
12147653002	Tyco OF003 Effluent #2	Water	07/23/20 12:00	07/24/20 10:30



SAMPLE ANALYTE COUNT

Project:

Bioassay

Pace Project No.:

12147653

Lab ID	Sample ID	Analysts	Analytes Reported	Laboratory	
12147653001	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
12147653002	Tyco OF003 Effluent #2	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

PASI-DUL = Pace Analytical Services - Duluth PASI-V = Pace Analytical Services - Virginia



ANALYTICAL RESULTS

Project:

Bioassay

Pace Project No.:

12147653

Sample: Tyco OF003 Effluent #1	Lab ID:	12147653001	Collected:	07/21/20	07:40	Received: 07/	22/20 11:00 Ma	ıtrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia	VI. X C. W. C.	Method: EPA 3 lytical Services							
Nitrogen, Ammonia	0.54	mg/L	0.092	0.028	1		08/01/20 10:33	7664-41-7	
4500CL G Chlorine, Residual		Method: SM 45 lytical Services		1					
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		07/28/20 14:08	7782-50-5	H6
200.7 MET ICP	0	Method: EPA 2 lytical Services	The same of the sa	ation Meth	od: EPA	¥200.7			
Total Hardness	<0.20	mg/L	0.68	0.20	1	07/24/20 09:00	07/27/20 11:36		
2320B Alkalinity		Method: SM 23 lytical Services							
Alkalinity, Total as CaCO3	15.1	mg/L	10.0	10.0	1		07/24/20 10:51		
2510B Specific Conductance		Method: SM 25 lytical Services							
Specific Conductance	216	umhos/cm	10.0	10.0	1		07/24/20 10:51		
4500H+ pH, Electrometric		Method: SM 45 lytical Services		11					
pH at 25 Degrees C	8.7	Std. Units	0.10	0.10	1		07/24/20 10:51		H6
Sample: Tyco OF003 Effluent #2	Lab ID:	12147653002	Collected:	07/23/20	12:00	Received: 07/	24/20 10:30 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qua
350.1 Ammonia		Method: EPA 3 lytical Services							
Nitrogen, Ammonia	0.052J	mg/L	0.092	0.028	1		08/01/20 11:03	7664-41-7	BL
4500CL G Chlorine, Residual		Method: SM 45 lytical Services		1					
Chlorine, Total Residual	<0.042	mg/L	0.14	0.042	1		07/28/20 14:10	7782-50-5	H6
200.7 MET ICP		Method: EPA 2 lytical Services	Second Market Market	ation Meth	od: EP	A 200.7			
Total Hardness	<0.20	mg/L	0.68	0.20	1	07/31/20 09:20	07/31/20 14:41		
2320B Alkalinity		Method: SM 2: lytical Services							
Alkalinity, Total as CaCO3	<10.0	mg/L	10.0	10.0	1		07/28/20 17:42		

REPORT OF LABORATORY ANALYSIS



ANALYTICAL RESULTS

Project:

Bioassay

Pace Project No.:

12147653

Sample: Tyco OF003 Effluent #2	Lab ID:	12147653002	Collecte	d: 07/23/20	12:00	Received: 07	7/24/20 10:30 Ma	atrix: Water	
Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
2510B Specific Conductance	100	il Method: SM 25 alytical Services							
Specific Conductance	167	umhos/cm	10.0	10.0	1		07/28/20 12:03		
4500H+ pH, Electrometric		l Method; SM 45 alytical Services		011					
pH at 25 Degrees C	6.9	Std. Units	0.10	0.10	1	36	07/28/20 12:03		H6



Project:

Bioassay

Pace Project No.:

12147653

QC Batch:

194980

Analysis Method:

EPA 350.1

QC Batch Method:

EPA 350.1

Analysis Description:

350.1 Ammonia

Laboratory:

Pace Analytical Services - Duluth

Associated Lab Samples:

12147653001, 12147653002

METHOD BLANK: 770250

Matrix: Water

Associated Lab Samples:

12147653001, 12147653002

Blank Result Reporting Limit

Analyzed

Qualifiers

Nitrogen, Ammonia

Units mg/L

< 0.028

0.10 08/01/20 10:21

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

770249

Spike

LCS Result

LCS % Rec % Rec

90-110

Nitrogen, Ammonia

Units mg/L

12147697002

Result

Conc. 10

10

770256

MS

Result

76.1

Limits 100

Qualifiers

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

MS

Spike

Conc.

MSD

Spike

Conc.

50

MSD

Result

76.3

MS

101

% Rec

MSD % Rec

% Rec Limits

Max RPD RPD

Nitrogen, Ammonia

Parameter

25.7

50

770258

101

90-110 0

10

Qual

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:

770257

MS

MSD

MSD

MS MSD

% Rec Limits

Max RPD Qual

Parameter Nitrogen, Ammonia

Units mg/L

Units

mg/L

12147701001 Result 0.13

Spike Conc.

Spike Conc. 10 10

MS Result 10.2

Result 10.4 % Rec 101

% Rec 103 90-110

RPD 2

10

Date: 08/06/2020 07:47 AM





Project:

Bioassay

Pace Project No.:

12147653

QC Batch:

194578

Analysis Method:

SM 4500-CI G-2011

QC Batch Method: SM 4500-CI G-2011 Analysis Description: Laboratory:

4500CL G Chlorine, Total Residual Pace Analytical Services - Duluth

Associated Lab Samples:

12147653001, 12147653002

METHOD BLANK: 768487 Associated Lab Samples:

12147653001, 12147653002

Matrix: Water

Blank Result Reporting Limit

Analyzed

Qualifiers

Chlorine, Total Residual

Units mg/L

< 0.042

0.10 07/28/20 14:06 H₆

98

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

768486

Spike

LCS Result LCS

% Rec

Chlorine, Total Residual

Units mg/L Conc. 1

0.98

% Rec

Limits

Qualifiers

10 H6

10 H6

768488

12147129004

Dup

Max

90-110 H6

Chlorine, Total Residual

SAMPLE DUPLICATE:

Units mg/L Result < 0.042

< 0.042

Result

< 0.042

< 0.042

RPD

RPD

Qualifiers

SAMPLE DUPLICATE:

Chlorine, Total Residual

768489

Parameter

Units mg/L 12147651002 Result

Dup Result

RPD

Max RPD

Qualifiers





Project:

Bioassay

Pace Project No.:

12147653

QC Batch:

194360

QC Batch Method:

SM 2320 B-2011

Analysis Method:

SM 2320 B-2011

Analysis Description:

2320B Alkalinity

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653001

METHOD BLANK: 767311

12147653001

Matrix: Water

Associated Lab Samples:

Blank Result

Reporting Limit

Analyzed

Qualifiers

Alkalinity, Total as CaCO3

Units mg/L

<10.0

10.0 07/24/20 09:36

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

767312

Spike

LCS

LCS % Rec % Rec

0

2

20

Alkalinity, Total as CaCO3

Units mg/L

Units

mg/L

Conc. 100 Result 96.9

97

Limits 90-110

Qualifiers

SAMPLE DUPLICATE: 767313

12147595005

Result

147

Dup Result

147

RPD

Max **RPD**

Qualifiers

SAMPLE DUPLICATE: 767314

Alkalinity, Total as CaCO3

Parameter

12147817006 Units Result

Dup

Max

Qualifiers

Alkalinity, Total as CaCO3

mg/L

Result 198

RPD 202

RPD

20



Project:

Bioassay

Pace Project No.:

12147653

QC Batch:

194625

QC Batch Method:

Analysis Method:

SM 2320 B-2011

SM 2320 B-2011

Analysis Description:

2320B Alkalinity

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653002

Matrix: Water

METHOD BLANK: 768757 Associated Lab Samples:

12147653002

Parameter

Blank Result Reporting Limit

Analyzed

Qualifiers

Alkalinity, Total as CaCO3

Units mg/L

<10.0

10.0 07/28/20 16:02

LABORATORY CONTROL SAMPLE:

Parameter

768758

Spike

LCS

LCS

% Rec

20

20

Parameter Alkalinity, Total as CaCO3 Units

mg/L

Conc. 100

Result

302

% Rec

Limits

1

2

Qualifiers

SAMPLE DUPLICATE: 768759

Units

mg/L

Units

mg/L

12148055003 Result

Dup Result

300

295

95.2

RPD

95

Max RPD

90-110

Qualifiers

Date: 08/06/2020 07:47 AM

Alkalinity, Total as CaCO3

Parameter Alkalinity, Total as CaCO3

SAMPLE DUPLICATE: 768768

12148055006 Result 299

Dup Result

RPD

Max RPD

Qualifiers





Project:

Bioassay

Pace Project No.:

QC Batch Method:

12147653

QC Batch:

194362

SM 2510 B-2011

Analysis Method:

SM 2510 B-2011

Analysis Description:

2510B Specific Conductance

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653001

Matrix: Water

METHOD BLANK: 767318 Associated Lab Samples:

12147653001

Parameter

Blank Result Reporting Limit

Analyzed

Qualifiers

Specific Conductance

Units umhos/cm

<10.0

10.0 07/24/20 09:29

LABORATORY CONTROL SAMPLE:

767319

Spike

990

LCS

99

% Rec

Parameter Specific Conductance

Units umhos/cm Conc.

1000

LCS Result

% Rec

Limits

Qualifiers

SAMPLE DUPLICATE: 767320

12147595005

Dup

Max

20

90-110

Parameter Specific Conductance

Date: 08/06/2020 07:47 AM

umhos/cm

Units

Result 522 Result

528

RPD

RPD

Qualifiers



Project:

Bioassay

Pace Project No.:

QC Batch Method:

12147653

QC Batch:

194565

Analysis Method:

SM 2510 B-2011

SM 2510 B-2011

Analysis Description:

2510B Specific Conductance

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653002

METHOD BLANK: 768434

Matrix: Water

Associated Lab Samples:

12147653002

Blank Result

Reporting Limit

Analyzed

Qualifiers

Specific Conductance

Units umhos/cm

<10.0

07/28/20 11:28 10.0

LABORATORY CONTROL SAMPLE:

Parameter

Parameter

Parameter

768435

Spike

LCS

LCS

% Rec

Specific Conductance

Units umhos/cm

Units

Conc.

1000

Result

% Rec

Limits

1

0

Qualifiers

SAMPLE DUPLICATE:

768436

12147653002

Dup

997

100

Max

90-110

Specific Conductance

umhos/cm

Result

167

46

Result 165

RPD

RPD

20

20

Qualifiers

SAMPLE DUPLICATE:

Specific Conductance

768437

Parameter

Units umhos/cm 12147920003 Result

Dup Result

46

RPD

Max RPD

Qualifiers





Project:

Bioassay

Pace Project No.:

QC Batch Method:

12147653

QC Batch:

194361

Analysis Method:

SM 4500-H+ B-2011

SM 4500-H+ B-2011

Analysis Description:

4500H+B pH

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653001

767316

LCS

LCS

% Rec

98-102 H6

LABORATORY CONTROL SAMPLE: Parameter

Units Std. Units Spike Conc.

Result

% Rec

Limits

Qualifiers

pH at 25 Degrees C

SAMPLE DUPLICATE: 767317

12147595005 Result

Dup Result

7.0

RPD

100

Max RPD

Qualifiers

Parameter

pH at 25 Degrees C

Units

Std. Units

7.7

7.7

0

10 H6





Project:

Bioassay

Pace Project No.:

QC Batch Method:

12147653

QC Batch:

194561

014 4500 11. D 004

Analysis Method: Analysis Description: SM 4500-H+ B-2011

SM 4500-H+ B-2011

4500H+B pH

Laboratory:

Pace Analytical Services - Virginia

Associated Lab Samples:

12147653002

LABORATORY CONTROL SAMPLE: 7684

Spike LCS

7

% F

% Rec

Qualifiers

Parameter pH at 25 Degrees C Units Std. Units Conc.

Result 7.0

% Rec

LCS

Limits

Qualifie

SAMPLE DUPLICATE:

768429

12147653002 Result

Dup Result

RPD

Max RPD

98-102 H6

Qualifiers

Parameter pH at 25 Degrees C Units Std. Units

6.9

6.9

0

10 H6





QUALIFIERS

Project:

Bioassay

Pace Project No.:

12147653

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

BL Analyte was detected in an instrument blank at a negative value. The result may be biased low.

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



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project:

Bioassay

Pace Project No.:

12147653

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytica Batch
12147653001	Tyco OF003 Effluent #1	EPA 350.1	194980		
12147653002	Tyco OF003 Effluent #2	EPA 350.1	194980		
12147653001	Tyco OF003 Effluent #1	SM 4500-CI G-2011	194578		
12147653002	Tyco OF003 Effluent #2	SM 4500-CI G-2011	194578		
12147653001	Tyco OF003 Effluent #1	EPA 200.7	194359	EPA 200.7	194460
12147653002	Tyco OF003 Effluent #2	EPA 200.7	194900	EPA 200.7	194939
12147653001	Tyco OF003 Effluent #1	SM 2320 B-2011	194360		
12147653002	Tyco OF003 Effluent #2	SM 2320 B-2011	194625		
12147653001	Tyco OF003 Effluent #1	SM 2510 B-2011	194362		
12147653002	Tyco OF003 Effluent #2	SM 2510 B-2011	194565		
12147653001	Tyco OF003 Effluent #1	SM 4500-H+ B-2011	194361		
12147653002	Tyco OF003 Effluent #2	SM 4500-H+ B-2011	194561		

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

WO#: 12147653

Reviewed By: AP & DIT

M: DJT

Due Date: 08/02/20

CLIENT: 13_TYCO

rage: 1 Ut 1 Invoice Information: Required Project Information: Required Client Information: Report To: Anne Fleury Company: Johnson Controls Address: Copy To: One Stanton Street Regulatory Agency Marinette, Wisconsin 54143 anne.fleury@jci.com Purchase Order No. Attention: Email To: Email To: State / Location Cell 715-587-6602 Client Project ID: hane: 715-735-7411 Wisconsin Pace Project Manager: DJT Pace Profile #: Requested Due Date: 3961 Corrected Temp at Time of MATRIX CODE (see valid codes to ten) SAMPLE TYPE (G=GRAB G=COMP) SAMPLE TEMP AT COLLECTION "C Receipt at Lab Analysis Preservatives COLLECTED Drinking Water WT Fotal Residual Chlorine P SL OL WP AR OT TS Product SAMPLE ID START END Sample # Cubitainer Temp °C cute CD Take Temp of Each HNO Cubitainer TIME DATE TIME DATE 2 X X 7:40 7-21-20 Tyco OF003 Effluent #1 2 3 Anne M. Fleury 7-21-20 SAMPLER NAME / SIGNATURE / Date: Client Comments: SAMPLE CONDITION ON RECEIPT ACCEPTED BY / AFFILIATION DATE RELINCUISHED BY / AFFILIATION DATE TIME 20 (Y) N 11:00 YIN Samples Received on Ice Samples Intact Y) N Temperatures 0-6 °C Custody Seals Intact Received for Laboratory By. YIN PM Notified? Signs of Ice formation MY N Lab Use Only Thermometer Used 01339252/1710 Uncorrected Temps COC Dates and Times Match Sample Containers? 122639816 Correction Factor Receiving Water Lab Comments:

Required Client Information:

Johnson Controls

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

Required Project Information:

Anne Fleury

Report To:

WO#: 12147653

PM: DJT

Due Date: 08/03/20

CLIENT: 13_TYCO

Address:	One Stanton Street	Copy To:						Address:											7								
	Marinette, Wisconsin 54143		suphran Order No.															80	Regulatory Agency								
Email To:	anne.fleury@jci.com	Purchase Or		la.				Attention:		1																	
Phone:	715-735-7411 Cell 715-587-6602							Email To:		1									State / Location								
Requeste	d Due Date:	Pace Profile	#.	1 8	3961			Pace Project	Mana	ager: DJT								Wisconsin									
										1															- N		
	MATRIX Denkine to	CODE Vater DW	des to left)	с»соме)		COLI	LECTED		6	o No		Preservation			es				Ana	alysi	s				ted Tem Receipt a		me of
Sample #	SAMPLE ID SAMPLE ID Solidad Gr Wipe Ar Other Trissue	WT	MATRIX CODE (see valid codes to left)		\$T DATE	TIME	E)	ND TIME	accent to the second se	SAMPLE TEMP AT COLLECTION OF	# OF CONTAINERS	Unpreserved	H2SO4	HNO ₃	Cubitainer	pH, Cond, Alkalinity	Total Residual Chlorine	Hardness	Acute CD	Acute FHM					ubitainer ke Temp Cubita	of Eac	
1	Tyco OF003 Effluent #2		I	1	7 22-20	1220	7-23-20	17.	7	70	5	2	1	1	1	х	$\overline{}$	x >	$\overline{}$				П	j	0		
	Tyco Or 003 Emident #2		ww	C	10000	10 par	1-23-20	100 Park	J	-	ľ	-	-	-	+	-	-	-	+	-	\vdash	_	\vdash	0	.0		
2								•							1												
6 5			\vdash	П										\neg		П	\neg	$^{+}$	1	T		\top	+				\neg
3			_	Ш								Ш					_		_	_			\perp				
4						1		1	h			П											11				
	Print No.	me A	_			-		Signature	1	-	-	щ	-	2 4	_		9	4	_	_	Date:		ᆜ	100		187	
SAMPLE	R NAME / SIGNATURE / Date:	HIN	W	e	M/V -	tleu	r4	0.5.12.19	PA	11	. /	າ ໂ	V	n	(4	1	01		111	Date.		1.	-2	3-	21)
	2 1607	1850			1				VV	1	-		-	-		7		سمه	7	7							_
Client C	omments:									1					_/	_		1									
															•			'		A.							
			de la constitución de la constit		\$4000 C					- Borne			100000		_					HI CO			-				
	RELINQUISHED BY / AFFILIATION	D	ATE		TIME	ACCE	PTED BY / AFFIL	LIATION		DATE			TIM	E						SAMP	LE CO	ONDITIO	אס אכ	N RECEIP	T		
11	CALEKTOR	1.2	2:	10	1200	Sila	· 1 10	En	7/24	th.	_	200	11/	30			100,000			n				1 C A		1	1
11	coper jean.	100	00	C	100,m	New ON	uch ta	龙义	11/2	2	/	C	١,,	2	Sai	mple	s Inta	ct		Y	N	Sar	mples	Receive	ed on Ice) N
				- 1			•							•		-1		ls Inta		1	N	700		atures 0-6	- 00	7	'y N
		_	_	\neg		Received for Lab	oratory By.			1	_	_		-	100	stouy	Sea	is inte	ici	4	N N	161	lihete	HUICS U-	, ,	11	/
	The second secon									1					Sig	ns of	Ice f	ormat	tion	Y	(N)	PM	A Notif	fied?		Ly	(N)
Lab Us	e Only Thermometer Used 7 01	339252/171	10			Uncorrecte	d Temps								co	C Dat	es an	d Time	s Ma	ich S	amole	Contain	ners?			TIV	IN
The same		2222242				1	21								-	000			-5 1410		in pro	DO: NOI!				U.	, .,
l		2639816		-		Effluent	٠١١			1					1												
	<u>0.1</u> ∘ <u>_</u>		_			Receiving V	Vater			1			_		1												
l																											
l ah Co	mments:																										
Lab ou	uniono.		_							1							-									_	
										1																	
	The distance of the second									1	_											1					
	Heat.									1																	
									Comp			X	VA	lina	30	6.		-			a jiki	MP	C	ים -	ST T	1-7-	
									Comi	pieted	BV.	1	N NV	X LUL	AL.	-		Re	view	ed B	N /		100		1 1	1	(-/()

Invoice information:

Company: