



CITY OF GRAND RAPIDS
ENVIRONMENTAL SERVICES DEPARTMENT

**APPLICATION FOR WASTEWATER DISCHARGE PERMIT/
BASELINE MONITORING REPORT (BMR)**

Application Date

SECTION A – GENERAL INFORMATION

Legal Company name		
Facility mailing address	City/State/Zip	
Telephone No.		
Fax No.		
Address of production or manufacturing facility:		
	City/State/Zip	
Telephone No.		
Fax No.		
Does the company have other facilities, warehouses, or property associated with this process? If yes, list all other location types below with address, if no write N/A.		
Start Date of Company		
Permanent Parcel Numbers(s)		
North American Industrial Classification System (NAICS) Code(s)		

Name, Title, and telephone number of person authorized to represent this firm in official dealings with the Industrial Pretreatment Program Representative(s) of the Grand Rapids POTW:			
Designated signatory authority of the facility			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Please fill out the Electronic Signature Agreement located in Appendix A			
Designated facility contact (if different than the designated signatory authority)			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Please fill out the Electronic Signature Agreement located in Appendix A			
Emergency after-hours contact person(s)			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Alternate person to contact concerning information provided herein			
Name			
Title			
Mobile No.			
Office No.			
Email address			

Personnel in charge of discharge operations (sec 2.70.02 of Ordinance)			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Name			
Title			
Mobile No.			
Office No.			
Email address			
Plant manager information (if different than the designated signatory authority)			
Name			
Mobile No.			
Office No.			
Email address			
Billing contact			
Name			
Title			
Address (if different than facility)			
Has there been a change in ownership or facility name change since last application?			
Yes ☐ No ☐			

Nature of business (provide a production process narrative of your manufacturing process from start to finish including material used, each manufacturing process step, and /or finishes and coatings applied to the product)

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Does your business include any of these activities?

Dairy Products	Yes ☐	No ☐
Beverage Bottler	Yes ☐	No ☐
Food/Edible Products Processor	Yes ☐	No ☐
Slaughter/Meat Packing/Rendering	Yes ☐	No ☐
Cannabis Production	Yes ☐	No ☐
Laundry Services	Yes ☐	No ☐
Printing/Corrugator/Packaging	Yes ☐	No ☐
Groundwater Remediation	Yes ☐	No ☐
Pharmaceutical	Yes ☐	No ☐
Soap and Detergent	Yes ☐	No ☐

Is there any known contamination of soils or groundwater at this site? If yes, list the nature of the contamination and contaminants.

Groundwater	
Soil	
Other	

Is there any known PFAS contamination of the soils, groundwater or in the discharge?

Yes ☐ No ☐

If sampling has been completed, attach a copy of the sampling results to the application. If sampling has not been completed, perform sampling and analysis for the parameters listed in appendix C and submit laboratory report with application.

Section B – Facility Operations, Waste and Process

Schedule of Operation							
Days of Operation (check each day of operation)	SUN	MON	TUE	WED	THUR	FRI	SAT
	☐	☐	☐	☐	☐	☐	☐
Average number of employees per shift per day							
1 st							
2 nd							
3 rd							
Shift Start/End (AM/PM)							
1 st		2 nd		3 rd			
Start	End	Start	End	Start	End		
Is production seasonal or intermittent				Yes ☐ No ☐			
If yes, list time frame of season or intermittent production							
Do you have scheduled shutdowns (maintenance/holiday/vacations, etc..)				Yes ☐ No ☐			
If yes, list time frame of scheduled shutdowns							

Source of water supply; enter (GPD) of water usage for each source. NA if not applicable				
Municipal				
Private Well				
Other (describe):				
Facility Water Usage: what types of waste(s) are discharged to the sanitary sewer				
Type	Average Water Usage (GPD)	Measured/Estimated		
Sanitary (domestic waste only)				
Contact cooling water				
Non-contact cooling water				
Onsite wastewater treatment				
Air pollution control				
Groundwater remediation				
Process water				
Air compressor condensate				
Color discharge (dyes, inks, etc.)				
Stormwater				
Cafeteria				
RO				
Water softener regeneration				
Other				
(describe) →				
Other Wastes				
Are any liquid wastes or sludges from this facility disposed of by means other than discharge to the sewer system? Yes ☐ No ☐				
If yes, complete the waste chart below, if no, continue to manufacture process wastewater section located on page 9.				
Waste	Gallons/Year	Disposal Location	Disposal Frequency	Disposal Company
Acids and Alkalies				
Heavy metal Sludges				
Inks/Dyes				

Other Wastes Continued	Gallons/Year	Disposal Location	Disposal Frequency	Disposal Company
Oil and/or Grease				
Organic Compounds				
Paints				
Pesticides				
Plating Wastes				
Pretreatment Sludges				
Solvents/Thinners				
Cleaners				
Soaps				
Floor Scrubbers				
Other Hazardous wastes (specify)				

Other Wastes (Specify)				

For the above wastes, attach a schematic of all on-site storage areas showing location of the waste, and method of storage.

Attach the most recent hauled waste manifests to the application.

List all public and private landfills or land application sites where sludge or biosolids from this facility are disposed.

If this does not apply to your facility, Check the N/A box. **N/A**

Facility Name	Disposal Address	Company Name of Licensed Hauler	Disposal Frequency

Manufacturing Process Wastewater

Process Description	Daily Flows (Gallons/Day)			Type of Discharge (Batch, Continuous, none)	U.S. EPA Category/Subpart	NAICS Code	Date when Process Discharge Started
	Min	Max	Avg				

[illegible]

Flow Diagram: Provide (attach to application) a line diagram of the water flow through your facility or proposed facility from intake to discharge. Show all operations contributing to wastewater, including process production areas, sanitary flows, cooling water, and storm water. Show all significant losses of water to products, atmosphere, and discharge. See example in Appendix D.

Schematics

Engineered sealed prints recommended; hand drawn schematics are not acceptable

Submit current facility schematic to include site plan, floor plan, mechanical and plumbing plan layout for your facility, indicating in detail the location of all sewers, sewer connections, water services, monitoring manholes, cleanouts, floor drains, sumps, blind sumps, trench drains, and pretreatment equipment. Label all areas for their intended use (offices, chemical storage, waste treatment, production, maintenance, etc.) If your facility has multiple laterals exiting the building, include on the schematic where the laterals connect, or if they are separate prior to entering the sewer main See example in Appendix E.

Are there any future planned changes or expansions, if so explain?

Section C – Wastewater Characteristics and Pretreatment

Attach the most recent analytical results for wastewater analyses that has been performed on the wastewater discharge(s) from your facility to the sanitary sewer system. Be sure to include the time, date of sampling, methods of analysis, name of laboratory performing the analysis, and location(s) from which sample(s) were taken (attach a schematic showing the locations of where the samples were taken). **If wastewater discharge(s) have not been sampled, wastewater characterization must be submitted for the parameters listed in Appendix C.**

Pretreatment

Briefly describe the pretreatment system. If no pretreatment is provided, write “no pretreatment” in the space below and continue to section D. **Attach a labeled waste treatment flow schematic showing components, volume of tanks, tank contents, by-products, by product disposal method, waste and by product volumes, including design capacity, and flow rates in the attachments section. See example in appendix F.**

Section D – Environmental Control

Control Plans					
Plan Name	Plan Developed? Yes/No	Date Completed	Submitted to IPP Program?	Approval Date	Date of Last Update
Spill Prevention Control and Countermeasure (SPCC)					
Pollution Incident Prevention Plan (PIPP)					
Slug Control Plan					
Toxic Organic Management Plan (TOMP)					
Integrated Contingency Plan (ICP)					
Stormwater Pollution Prevention Plan (SWPPP)					
Michigan Air Permit System Permit					

Existing and Pending Environmental Control Permits					
Permit Number	Agency (Local, State, U.S. EPA)	Reason for Permit	Existing or Pending	Approval Date	Date of Last Update

Pollutants	
Report all pollutants or materials contained in the Part 5 Spillage of Oil and Polluting Materials, Rule 9, table 1: and U.S. EPA Priority Pollutant Listing that are used, manufactured, or stored at your facility.	
Name of Substance	Process Location
Report any other pollutants or materials that may be present in the facility but are not used in the process.	
Name of Substance	Facility Location

Section E – Certification Statement and Signature

Is any of the enclosed information considered confidential?

Information submitted by a User for which confidentiality is requested shall be clearly marked on each page as to the portion or portions considered by the User to be confidential and shall be accompanied by a written explanation of why the User considers the information to be confidential or why the release of the information would divulge information, processes or methods of production entitled to protection as trade secrets of the User. The User shall demonstrate in accordance with applicable state and federal laws and regulations, that the release of such information would divulge information, processes or methods of production entitled to protection as trade secrets of the User. Information furnished on the volume or characteristics of wastewater or pollutants discharged or proposed to be discharged into the POTW, including production data necessary to determine mass based limits as well as flow measurements and other data used in calculating combined waste stream formulas, shall be made available to the public or other governmental agencies without restriction and is not confidential.

A. Yes ☐ No ☐

Certification by a Qualified Professional

A. Are pretreatment standards, Federal categorical standards if applicable, and Chapter 27 of the City of Grand Rapid code being met on a consistent basis by this facility?

Yes No

B. If answer is “No”, will additional pretreatment and/or operations and maintenance be required for this facility to meet pretreatment standards?

Yes ☐ No ☐ (If “No” explain reason for non-compliance below)

C. Is the sampling and analysis submitted with this application representative of normal work cycles and expected pollutant dischargers to the POTW?

Yes ☐ No ☐ (If “No” explain reason below)

Authorized Representative Statement

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 gathered and evaluated the information submitted. Based on my inquiry of the person or persons who managed the system, or those persons directly responsible for gathering information, the information submitted is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Name (print)	Signature	Title	Date (mm/dd/yyyy)

Note to Certifying Official

In accordance with Title 40 of the Code of Federal Regulations, Part 403, Section 403.14, information, and data provided in this questionnaire which identifies the nature and frequency of discharge shall be available to the public without restriction. Requests for confidential treatment of other information shall be governed by procedures specified in 40 CFR Part 2. These procedures will be provided on request. Should a discharge permit be required for your facility, the information in this questionnaire will be used to issue the permit. Please be aware that your facility is required to resubmit a Discharge Permit Application any time there is a significant change in your discharge.

Definition of substantial change: Substantial change in the volume or character of pollutants in its discharge, or of any facility expansion, production increase, or process modifications that could result in a substantial change in the volume or character of pollutants in its discharge.

1. Change in volume or character of pollutants in its discharge, including all the following if applicable:
 - a. Groundwaters that are purged for remedial action programs.
 - b. Groundwaters containing pollutants that infiltrate into the sewers.
 - c. The listed or characteristic hazardous waste for which the user has submitted under the applicable hazardous waste notification.
 - d. Discharge of a pollutant not disclosed in the permit application.
 - e. Increase the maximum discharge related production capabilities of a facility through equipment or long-term staffing changes.
 - f. Result in a long-term increase in the average daily flow.

Appendix A

SUBSCRIBER AGREEMENT FOR SUBMITTING DATA ELECTRONICALLY TO THE CITY OF GRAND RAPIDS, MI

In accepting the electronic signature credential issued by the City of Grand Rapids, MI, Environmental Services Department, hereafter referred to as the City, to sign electronic reports submitted to the City's Aquatic Compliance Platform system.

Permit # _____ Permittee _____

Located: _____

I _____ (1) understand and agree to submit self-monitoring data required by the Industrial Wastewater Discharge Permit, referenced above, through electronic format, and I agree that the electronic signature (PIN) shall serve as a legally enforceable signature in the same manner as an original signature on a paper document pursuant to the provisions of M.C.L. 450.831 et seq. I will be held legally bound, obligated, or responsible for my use of my electronic signature as I would be using my hand-written signature in submitting an electronic document to the Aquatic Compliance Platform system.

(2) Agree to protect the security of my password and system credentials from compromise and shall take all necessary steps to prevent its loss, disclosure, modification, or unauthorized use. **I agree to protect my electronic signature credential, consisting of my password and answers to my security questions, from use by anyone except me and to change them if they become known to anyone but me. Specifically, I agree to maintain the secrecy of my electronic signature credential; I will not divulge or delegate my electronic signature credential to any other individual; I will not store my electronic signature credential in an unprotected location; and I will not allow my electronic signature credential to be written into computer scripts to achieve automated login.**

(3) Agree not to attempt to use or create automated log-in scripts using my electronic signature credentials.

(4) Agree to report to the City within 24 hours of discovery, any evidence of loss, theft or other compromise of my electronic signature.

(5) Agree to notify the City if I cease to represent the regulated entity specified above as signatory of that organization's electronic submissions to the Aquatic Compliance Platform system as soon as this change in relationship occurs and to sign a surrender certification at that time.

Signatory Name: _____ Signature: _____
(print)

Title: _____ Date: _____

Email: _____

Authorization by immediate supervisor or witnessing official: I _____ acknowledge that the individual named above works at/for _____ and is authorized to submit documents on the company's behalf.

Witness Name: _____ Signature: _____
(print)

Title: _____ Date: _____

Return Forms to:

**City of Grand Rapids ESD
Industrial Pretreatment Program
1300 Market Ave.
Grand Rapids, MI 49503
Tel. 616.456.3633
Fax. 616.456.4423**

Appendix B (GLOSSARY OF TERMS)

Batch - The quantity produced as a result of an operation.

Categorical Standards - (National/Federal Categorical Pretreatment Standards) - Those standards promulgated by the U.S. Environmental Protection Agency (EPA) under the authority of Section 307(b) and (c) of the Clean Water Act (33 U.S.C. 1317) which apply to a specific category or industrial user, and which are published in 40 CFR Chapter I, subchapter N (Parts 405-471).

Continuous - extended or prolonged production without interruption or cessation.

Cooling water - The clean wastewater discharged from any heat transfer system such as condensation, air conditioning, cooling, or refrigeration.

Industrial User - Any POTW user generating or having the potential to generate commercial or industrial wastewater discharges to the POTW.

Discharge - The disposal of any sewage, pollutant(s), water, or any liquid from any sewer user into the sewerage system.

Drywell - Also referred to as a shallow drainage well, is any shallow hole dug or bored in the ground to allow surface storm water runoff, excess irrigation flow, or other drainage to percolate into the ground. It is typically constructed as a 10 to 20 feet deep boring of 2 to 4 feet diameter filled with cobbles and rocks and lined with a perforated corrugated metal pipe. They may be found in parking lots or other areas where drainage of storm water is required.

Flow Proportional Composite - A flow proportional composite sample can be collected using one of two methods. One method consists of collecting a constant sample volume at varying time intervals proportional to the wastewater flow. For the other method, the sample is collected by varying the volume of each individual aliquot proportional to the flow, while maintaining a constant time interval between the aliquots.

Grab Sample - Grab samples consist of either a single discrete sample or individual samples collected over a period not to exceed 15 minutes. The grab sample should be representative of the wastewater conditions at the time of sample collection. The sample volume depends on the type and number of analyses to be performed.

Natural outlet - Any outlet into a watercourse, ditch, or other body of surface or groundwater.

POTW - Publicly Owned Treatment Works and connecting sewer collection system which are owned and/or operated, in whole or in part, by the city and which provide the city with wastewater collection and disposal services.

Pretreatment - The physical, chemical, biological or other treatment of any industrial discharge prior to discharge to the sewer, for the purpose of:

- (a) Reducing the amount or concentration of any pollutant; or
- (b) Eliminating the discharge or any pollutant; or
- (c) Altering the nature of any pollutant characteristic to a less harmful state.

Process Wastewater - Any water which, during manufacturing or processing, comes into direct contact with or results from the production of or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Regulated Wastestream - An industrial process wastestream regulated by a national categorical pretreatment standard and/or the Grand Rapids City Code, Chapter 27.

Sanitary sewer - A sewer which carries sewage and to which storm, surface and groundwaters are not intentionally admitted.

Slug Control Plan - A plan prepared by an industrial user to minimize the likelihood of a spill or slug discharge and to expedite control and cleanup activities should a spill occur.

Storm sewer or storm drain - A sewer which carries storm and surface waters and drainage but excludes sewage and polluted industrial wastes.

Time Composite - A time composite sample consists of equal volume discrete sample aliquots collected at a constant time intervals into one container. A time composite sample can be collected either manually or with an automatic sampler.

Toxic Organic Management Plan - Written plan submitted by industrial users in accordance with some categorical pretreatment standards as an alternative to TTO monitoring which specifies the toxic organic compounds used, the method of disposal used, and procedures for assuring that toxic organics do not routinely spill or leak into wastewater discharged to the POTW.

Unregulated Wastestream - A wastestream that is not regulated by a national categorical pretreatment standard and is not considered a dilute wastestream.

Wastewater - Any liquid or water-carried pollutant, including an industrial discharge, which is introduced into the sewer from any source.

Appendix C – Sampling Parameter List

Prior to Sampling, contact the IPP Office to determine monitoring point and analysis schedule. IPP Office: (616)-456-3633.

The following list contains parameters to be sampled and analyzed by a third-party laboratory using approved methods found in 40 CFR Part 136 and the results included with this application.

Pollutant	Daily Maximum (mg/L) (Local Limits)	Monthly Average (mg/L)	Frequency (number of samples)	Sample type (See Appendix B)
Total Arsenic	1.46	NA	1	Flow proportional composite
Total Cadmium	0.817	NA	1	Flow proportional composite
Total Chromium	4.0	NA	1	Flow proportional composite
Total Copper	1.5	NA	1	Flow proportional composite
Total Lead	1.5	NA	1	Flow proportional composite
Total Mercury	ND ¹	NA	1	Flow proportional composite
Total Molybdenum	3.4	NA	1	Flow proportional composite
Total Nickel	1.5	1.1	1	Flow proportional composite
Total Selenium	2.3	1.67	1	Flow proportional composite
Total Silver	620	NA	1	Flow proportional composite
Total Zinc	2.6	2.0	1	Flow proportional composite
Closed cup flashpoint	>140 F	NA	1	Flow proportional composite
Total Suspended Solids	Surcharge fees above 250 mg/L Limit is site specific	NA	1	Flow proportional composite
Total Phosphorus	Surcharge fees above 15 mg/L Limit is site specific	NA	1	Flow proportional composite
Ammonia as NH ₃ N	Surcharge fees above 15 mg/L Limit is site specific	NA	1	Flow proportional composite
Biological Oxygen Demand (BOD)	Surcharge fees above 250 mg/L Limit is site specific	NA	1	Flow proportional composite
Chemical Oxygen Demand (COD)	NA	NA	1	Flow proportional composite
EPA 625 Semi volatile	NA	NA	1	Flow proportional composite
PCB's (EPA method 608) 1 Grab Sample	ND ⁴	NA	1	Grab sample
PFAS compounds (see list below) 1 Grab Sample	NA ⁵	NA	1	Grab sample
Total Phenols	3.26	NA	4 for categorical industries 1 for non- categorical industries	Grab sample
EPA method 624 Volatiles	NA	NA	4 for categorical industries1 for non- categorical industries	Grab sample

Petroleum oil, nonbiodegradable cutting oil, animal fat, vegetable oil, oil, grease, products of mineral oil or any combination thereof	100	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
MTBE	0.02	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
BTEX	0.02	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
Sulfides	NA	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
Total Cyanide	1.0	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
pH	5.0 - 10.5	NA	4 for categorical industries 1 for non-categorical industries	Grab sample
Hexavalent Chromium	0.72	NA	1	Grab sample

NA: Not Applicable

- (1) Non-detectable (ND) or as specified in Section 2.66(2)(q) of the ordinance.
- (2) Process discharge limit for photo processors at end of silver recovery unit.
- (3) Non-detectable (ND) per EPA Method 608 with a detection limit not to exceed 0.1 µg/L unless higher levels are appropriate due to matrix interference.
- (4) Detection limit not to exceed 0.1µg/L unless the user can demonstrate that matrix interference prevents the attainment of this level.
- (5) Detection limit must be below the Michigan PFOS Water Quality Standard of 12ng/L.

Total Toxic Organics Parameter List:

Required for the following categorical industries have TTO requirements: electroplating and metal finishing, electrical and electronic components, copper forming, aluminum forming, and coil coating.

The following list contains TTO parameters to be sampled and analyzed a minimum of once for BMR and once for the 90 Day Report for Categorical Waste streams that require TTO monitoring. TTO compounds require a detection limit of 0.01 mg/L or 10µg/L; include a TTO compound summation on laboratory report for all TTO compounds greater than 0.01 mg/L.

Acenaphthene	4-Bromophenyl phenyl ether	Fluorene
Acrolein	Bis (2-chloroisopropyl) ether	Phenanthrene
Acrylonitrile	Bis (2-chloroethoxy) methane	1,2,5,6-Dibenzanthracene (dibenzo(a,h)anthracene)
Benzene	Methylene chloride (dichloromethane)	Indeno(1,2,3-cd) pyrene (2,3-o-phenylene pyrene)
Benzidine	Methyl chloride (chloromethane)	Pyrene
Carbon tetrachloride (tetrachloromethane)	Methyl bromide (bromomethane)	Tetrachloroethylene
Chlorobenzene	Bromoform (tribromomethane)	Toluene
1,2,4-Trichlorobenzene	Dichlorobromomethane	Trichloroethylene
Hexachlorobenzene	Chlorodibromomethane	Vinyl chloride (chloroethylene)
1,2-Dichloroethane	Hexachlorobutadiene	Aldrin
1,1,1-Trichloroethane	Hexachlorocyclopentadiene	Dieldrin
Hexachloroethane	Isophorone	Chlordane (technical mixture and metabolites)
1,1-Dichloroethane	Naphthalene	4,4-DDT
1,1,2-Trichloroethane	Nitrobenzene	4,4-DDE (p,p-DDX)
1,1,2,2-Tetrachloroethane	2-Nitrophenol	4,4-DDD (p,p-TDE)
Chloroethane	4-Nitrophenol	Alpha-endosulfan
Bis (2-chloroethyl) ether	2,4-Dinitrophenol	Beta-endosulfan
2-Chloroethyl vinyl ether (mixed)	4,6-Dinitro-o-cresol	Endosulfan sulfate
2-Chloronaphthalene	N-nitrosodimethylamine	Endrin
2,4,6-Trichlorophenol	N-nitrosodiphenylamine	Endrin aldehyde
Parachlorometa cresol	N-nitrosodi-n-propylamine	Heptachlor
Chloroform (trichloromethane)	Pentachlorophenol	Heptachlor epoxide
2-Chlorophenol	Phenol	(BHC-hexachloro-
1,2-Dichlorobenzene	Bis (2-ethylhexyl) phthalate	cyclohexane)
1,3-Dichlorobenzene	Butyl benzyl phthalate	Alpha-BHC
1,4-Dichlorobenzene	Di-n-butyl phthalate	Beta-BHC
3,3-Dichlorobenzidine	Di-n-octyl phthalate	Gamma-BHC
1,1-Dichloroethylene	Diethyl phthalate	Delta-BHC
1,2-Trans-dichloroethylene	Dimethyl phthalate	(PCB-polychlorinated biphenyls)
2,4-Dichlorophenol	1,2-Benzanthracene	PCB-1242 (Arochlor 1242)
1,2-Dichloropropane	(benzo(a)anthracene)	PCB-1254 (Arochlor 1254)
1,3-Dichloropropylene (1,3-dichloropropene)	Benzo(a)pyrene (3,4-benzopyrene)	PCB-1221 (Arochlor 1221)
2,4-Dimethylphenol	3,4-Benzofluoranthene (benzo(b)fluoranthene)	PCB-1232 (Arochlor 1232)
2,4-Dinitrotoluene	11,12-Benzofluoranthene (benzo(k)fluoranthene)	PCB-1248 (Arochlor 1248)
2,6-Dinitrotoluene	Chrysene	PCB-1260 (Arochlor 1260)
1,2-Diphenylhydrazine	Acenaphthylene	PCB-1016 (Arochlor 1016)
Ethylbenzene	Anthracene	Toxaphene
Fluoranthene	1,12-Benzoperylene (benzo(ghi)perylene)	2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)
4-Chlorophenyl phenyl ether		

PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS)

MINIMUM LABORATORY ANALYTE LIST

Below is the minimum laboratory PFAS analyte list for analysis of deer, drinking water, groundwater, surface water, soil, wastewater effluent, and landfill leachate samples collected by Michigan's Departments of Environment, Great Lakes, and Energy, Health and Human Services, Agriculture and Rural Development, and Natural Resources.

This minimum analyte list was developed based on the potential for these chemicals to be found in Michigan, the availability of the chemical standards used for testing, and the ability of available laboratories to test for these PFAS. This list includes PFAS that can be tested for in drinking water using United States Environmental Protection Agency (USEPA) Methods 537 Rev.1.1 or 537.1, which are the only methods that should be used when analyzing drinking water samples. Other testing methodology may be used to test for PFAS in other media (not drinking water). This list is not exhaustive of PFAS in Michigan's environment.

A fish icon () precedes those compounds that are also currently being tested for in fish tissue.

EGLE Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Minimum Laboratory Analyte List

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
Perfluorotetradecanoic acid	PFTeA	C14	C ₁₃ F ₂₇ COOH	376-06-7	X	X
Perfluorotridecanoic acid	PFTriA	C13	C ₁₂ F ₂₅ COOH	72629-94-8	X	X
Perfluorododecanoic acid	PFDaA	C12	C ₁₁ F ₂₃ COOH	307-55-1	X	X
Perfluoroundecanoic acid	PFUnA	C11	C ₁₀ F ₂₁ COOH	2058-94-8	X	X
Perfluorodecanoic acid	PFDA	C10	C ₉ F ₁₉ COOH	335-76-2	X	X
Perfluorononanoic acid	PFNA	C9	C ₈ F ₁₇ COOH	375-95-1	X	X
Perfluorooctanoic acid	PFOA	C8	C ₇ F ₁₅ COOH	335-67-1	X	X
Perfluoroheptanoic acid	PFHpA	C7	C ₆ F ₁₃ COOH	375-85-9	X	X
Perfluorohexanoic acid	PFHxA	C6	C ₅ F ₁₁ COOH	307-24-4	X	X
Perfluoropentanoic acid	PFPeA	C5	C ₄ F ₉ COOH	2706-90-3		
Perfluorobutanoic acid	PFBA	C4	C ₃ F ₇ COOH	375-22-4		
Perfluorodecanesulfonic acid	PFDS	C10	C ₁₀ F ₂₁ SO ₃ H	335-77-3		

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
Perfluorononanesulfonic acid	PFNS	C9	C9F19SO3H	68259-12-1		
 Perfluorooctanesulfonic acid	PFOS	C8	C8F17SO3H	1763-23-1	X	X
Perfluoroheptanesulfonic acid	PFHpS	C7	C7F15SO3H	375-92-8		
 Perfluorohexanesulfonic acid	PFHxS	C6	C6F13SO3H	355-46-4	X	X
Perfluoropentanesulfonic acid	PFPeS	C5	C5F11SO3H	2706-91-4		
 Perfluorobutanesulfonic acid	PFBS	C4	C4F9SO3H	375-73-5	X	X
 Perfluorooctanesulfonamide	PFOSA	C8	C8F17SO2NH2	754-91-6		
Fluorotelomer sulphonic acid 8:2	FtS 8:2	C8	C8F17CH2CH2SO3	39108-34-4		
Fluorotelomer sulphonic acid 6:2	FtS 6:2	C6	C6F13CH2CH2SO3	27619-97-2		
Fluorotelomer sulphonic acid 4:2	FtS 4:2	C4	C4F9CH2CH2SO3	757124-72-4		
2-(N-Ethylperfluorooctanesulfonamido) acetic acid	N-EtFOSAA	C8	C8F17SO2N(C2H5)CH2COOH	2991-50-6	X	X
2-(N-Methylperfluorooctanesulfonamido) acetic acid	N-MeFOSAA	C8	C8F17SO2N(CH3)CH2COOH	2355-31-9	X	X
Hexafluoropropylene oxide dimer acid	HFPO-DA	C6	C6HF11O3	13252-13-6		X
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	C10	C10HF20ClSO4	763051-92-9		X
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	C8	C8HF16ClSO4	756426-58-1		X
4,8-dioxa-3H-perfluorononanoic acid	ADONA	C7	C7H2F12O4	919005-14-4		X

Laboratories Providing PFAS Analytical Services

(The list that turns up in the search results from the following links does not constitute an endorsement of those firms on the list, nor is it a statement against any firm not on the list. Additionally, the capacity of the labs to provide services consistent with EGLE's recommendations above has not been verified and these details should be addressed prior to contracting the laboratories below.)

The United States Environmental Protection Agency (US EPA) has a list of laboratories approved under the UCMR3 program using US EPA Method 537 Rev. 1.1 for PFAS in drinking water:

<https://www.epa.gov/dwucmr/third-unregulated-contaminant-monitoring-rule>

The United States Department of Defense, Environmental Laboratory Accreditation Program (US DoD ELAP) maintains a list of labs for the determination of PFAS in various environmental media other than drinking water on the Defense Environmental Network Information Exchange (DENIX) server:

<http://www.denix.osd.mil/edqw/accreditation/accreditedlabs/Michigan.gov/PFASResponse>

Contact Information

Questions regarding PFAS in general, contact:

MDHHS General Information

(517) 373-3740

EGLE Environmental Assistance Center

(800) 662-9278

Questions regarding laboratory information, contact:

MDHHS Chemistry & Toxicology Division

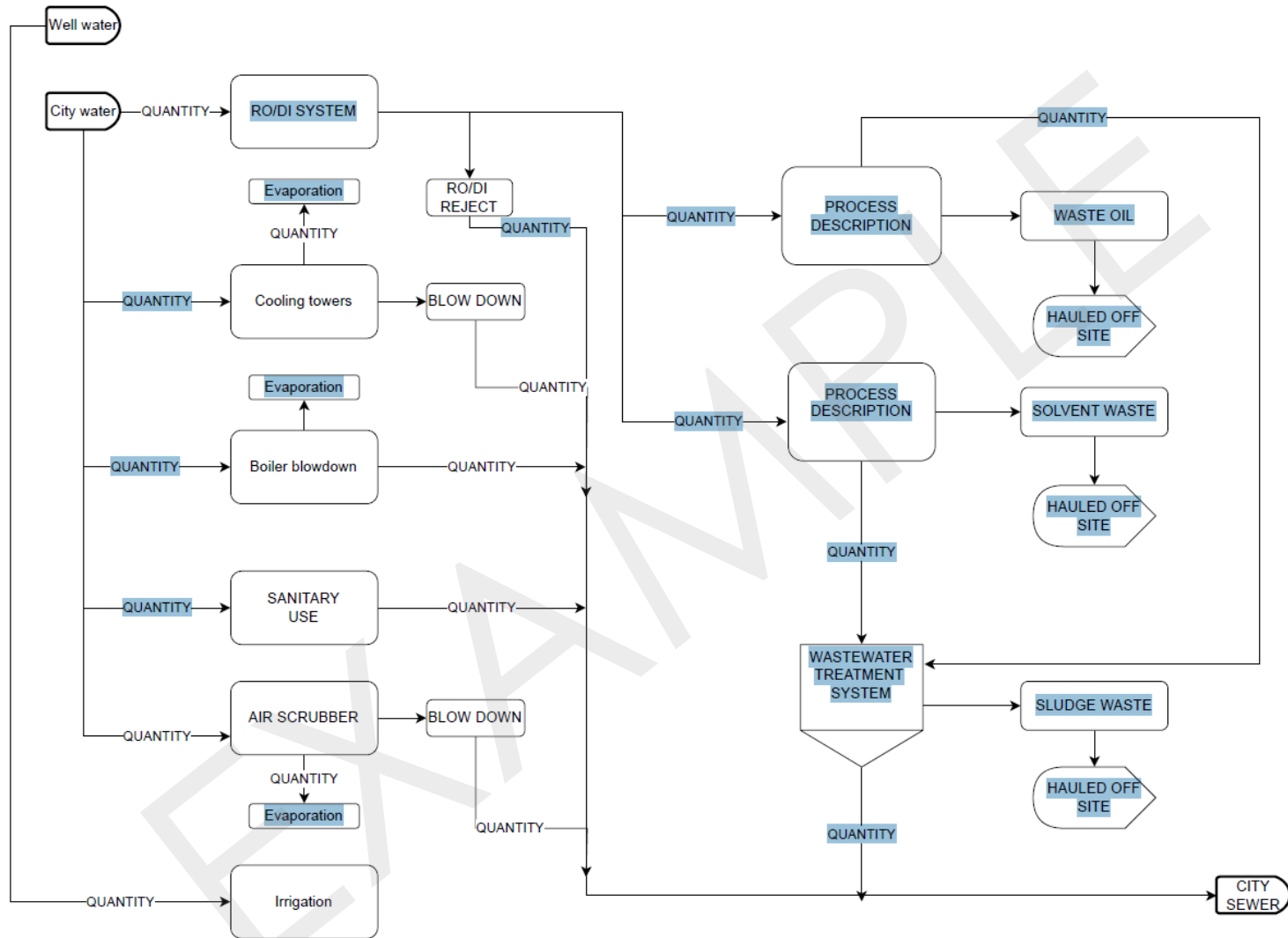
(517) 335-9490

EGLE Drinking Water Analysis Laboratory

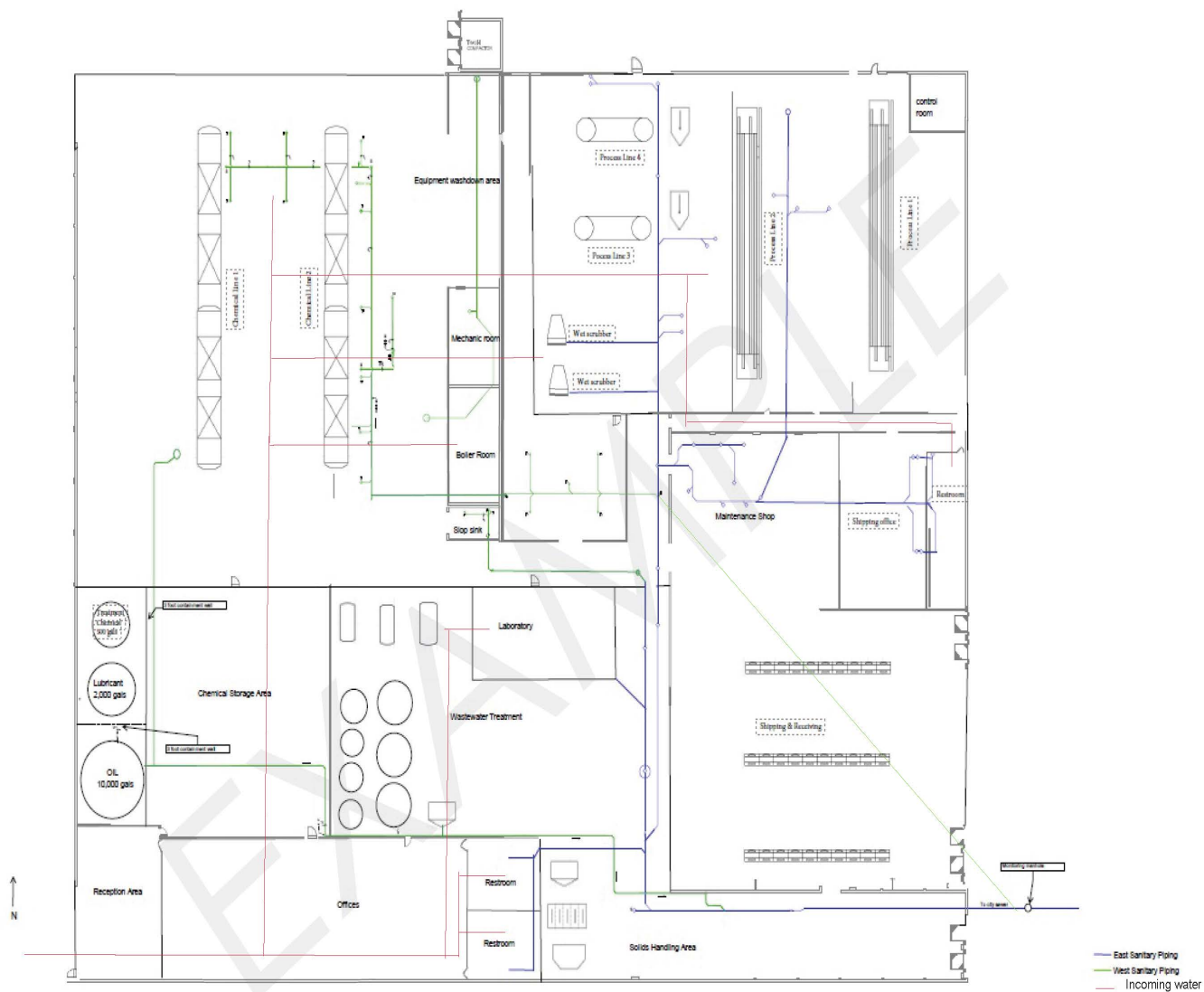
517) 335-8184

Appendix D

Flow Line Diagram Example



Appendix E – Facility Schematic Example



Appendix F

Wastewater Treatment Diagram Example

