June 27, 2018

Mr. Robert J. Case
Water Pollution Control Supervisor
City of Flint Water Pollution Control
Water Pollution Control Facilities
G-4652 Beecher Road
Flint, Michigan 48532

RE: ***Discharge Permit Modification and Pretreatment Plan***
Permit No.: 6-08-04-04-GML1

FILE: 15388/64737/Docs

Dear **Mr. Case:**

In response to the letter from City of Flint Water Pollution Control dated May 29, 2018, and in accordance with requirements of the above referenced discharge permit, included as **Attachment 1**, O'Brien & Gere Engineers, Inc. (OBG), on behalf of the Revitalizing Auto Communities Environmental Response (RACER) Trust, is submitting this discharge modification notification and Pretreatment Plan for the Coldwater Road Landfill Facility, located at 6220 Horton Avenue, Flint, Michigan. The details of this letter specifically address the requirements of the City of Flint Water Pollution Control letter, which specifies that a Pretreatment Plan must be submitted to the City of Flint Water Pollution Control supervisor within 30 days, and as set forth in Part I, Section C Notification Requirements, paragraph 2 Change Discharge Notification of the current discharge permit, which is also in accordance with City of Flint Publicly-Owned Treatment Works Regulations, New Source section, paragraph (3), which indicates that adding to an existing process or production equipment is a modification, not a new source.

The current permit indicates that RACER Trust "is authorized to discharge surface and subsurface drainage from an inactive hazardous waste landfill located at: 6220 Horton Avenue" (in Flint, Michigan). This includes landfill leachate and water that accumulates in the landfill leak detection system vaults.

As previously communicated to City of Flint Water Pollution Control through various notifications over the last year and a half, OBG and RACER Trust have determined, through sampling, that the discharge from the landfill contains per- and polyfluoroalkyl substances (PFAS). A sample was collected on February 15, 2017 for PFAS analysis, and the results are included as **Attachment 2**. The detec xtion of PFAS does not constitute a new source, as the source of the discharge is still surface and subsurface drainage from the landfill. The permitted source was analyzed for new compounds (*i.e.,* PFAS) and they were detected, including perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS).

As indicated in the letter from City of Flint Water Pollution Control, the PFAS impacts in the landfill discharge contribute to a prohibited exceedance of the recently-instituted State of Michigan water quality standards (WQS) and Lifetime Health Advisory (LHA); therefore, it is RACER Trust's intent to add a pretreatment system to remove PFAS constituents from the landfill's discharged water. The pretreatment system is proposed to be installed as a pilot study to confirm the effectiveness and identify opportunities to enhance PFAS removal in the future, should it be needed, to meet the WQS of 11 nanograms per liter (ng/L) for PFOS and 420 ng/L for PFOA,

and the LHA of 70 ng/L for PFOA and PFOS individually or in combination, as specified in the City of Flint Water Pollution Control letter. This pilot study approach will allow timely implementation of the pretreatment system.

Granular activated carbon (GAC) has been demonstrated to effectively remove PFAS from water (*Recommendation on Perfluorinated Compound Treatment Options for Drinking Water*, New Jersey Drinking Water Quality Institute Treatment Subcommittee June 2015) and has been selected as the treatment media for this pretreatment system. GAC consumption rates were estimated to design the system, and are included as **Attachment 3**. Two estimates were calculated, one based on PFAS concentrations and the other based on total organic carbon (TOC) concentrations. The estimated consumption rate based on PFAS is 150 pounds of GAC per year (lb GAC/year), or 37.5 lb GAC per quarterly discharge event, and the estimated consumption rate based on TOC is 310 lb GAC/year (77.5 lb GAC per quarter). These consumptions rates were used to conservatively design the pretreatment system described below. Observations made during the pilot study will be used to refine these calculations and potentially enhance the system, should it not reduce concentrations of PFOA and PFOS to below the WQSs and LHA.

A Process Flow Diagram and a General Arrangement Diagram for the proposed pretreatment system are included as **Attachment 4**. The major components of the pretreatment system are three Calgon Carbon Corporation (Calgon) FLOWSORB F400 GAC vessels, each containing approximately 180 pounds of GAC (total of approximately 540 lbs of GAC), that will be operated in series, as shown on the Process Flow Diagram included in **Attachment 4**. A specification sheet for the Calgon GAC vessels is included as **Attachment 5**. As shown on the General Arrangement Diagram included in **Attachment 4**, the GAC vessels are proposed to be located in the control building and operated and stored on a secondary containment pallet within the existing accumulation tank's secondary containment system. System components were carefully selected to avoid the use of components containing PFAS and Teflon. The existing discharge from the accumulation tank on site will be modified to allow connection to the pretreatment system via 1-inch industrial hosing, a centrifugal pump, and "dry" quick disconnects. This configuration will allow the change out of GAC vessels when breakthrough occurs. A fourth GAC vessel will generally be maintained on site, such that when breakthrough occurs on the primary GAC vessel, it will be removed from service and the secondary GAC vessel will become the new primary GAC vessel, the tertiary GAC vessel will become the new secondary vessel, and the spare or fourth vessel will be placed into service as the new tertiary vessel. The spent primary vessel will be returned to Calgon for reactivation in a high-temperature process. PFAS that are stripped from the GAC during reactivation are ultimately destroyed in a thermal oxidation process. After reactivation, the GAC vessel will be returned to the site to become the new spare or fourth vessel.

Calgon recommends a downward flow through the GAC vessels (*i.e.*, water enters the top of the vessels and exits the bottom of the vessels), and a flow rate up to approximately 10 gallons per minute (gpm). It is proposed to operate the system at approximately 5 gpm, which is less than the permitted 30 gpm discharge rate. This reduced flow rate will increase the residence time in the GAC vessels to enhance adsorption of the PFAS.

Sample ports will be installed before the pretreatment system and after each GAC vessel to allow monitoring of the influent, breakthrough, and discharged PFOA and PFOS concentrations. Based on the pilot study results, a routine sampling plan will be established to monitor breakthrough and assess GAC consumption, such that system operation can be enhanced and refined. Long-term the effluent discharge from the GAC pretreatment system will be monitored for PFOA and PFOS, and will be reported to City of Flint Water Pollution Control with the other permit requirements.

RACER Trust and OBG are prepared to install the pretreatment system described above within 60 days of approval of the system design by City of Flint Water Pollution Control, in accordance with the timeline set forth in the City of Flint Water Pollution Control letter.

Please call me at 313.333.0211 if you have any questions concerning this requested modification to the discharge process currently utilized at the landfill.

Best regards,

O'Brien & Gere Engineers, Inc.

Clifford S. Yantz
Senior Hydrogeologist

O'Brien & Gere Engineers, Inc.

Joseph R. Ridgway, PE
Managing Engineer

STATE OF MICHIGAN
JOSEPH R. RIDGWAY
ENGINEER
No. 6201058475
LICENSED PROFESSIONAL ENGINEER

Enclosures:

Attachment 1 Beecher Metropolitan Distract Sewer Use Permit
Attachment 2 Analytical Data
Attachment 3 GAC Consumption Estimates
Attachment 4 Pretreatment System Diagrams
Attachment 5 Specification Sheet—Flowsorb® Liquid Phase Adsorption Canister

cc: Mr. Tom Hutchings – City of Flint Water Pollution Control
Mr. Kevin Forbes – Beecher Metropolitan District, Flint, MI
Mr. Richard Conforti – Michigan Department of Environmental Quality
Mr. David Favero – RACER Trust
Mr. Kevin Schneider – O'Brien & Gere Engineers, Inc.

ATTACHMENTS

ATTACHMENT 1

Beecher Metropolitan Distract Sewer Use Permit

BEECHER METROPOLITAN DISTRICT
SEWER USE PERMIT

TYPE III – ENVIRONMENTAL REMEDIATION WASTEWATER

Permit Number 6-08-04-04-GML1

In accordance with certain provisions of the Federal Water Pollution Control Act, as amended (33 U.S.C. 1241 et seq; the "Act"), the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, as amended; the "State Act"), AND Ordinance Number 9 (the "Ordinance") of the Beecher Metropolitan District (the "BMD" or "District"), the following sewer user:

RACER Trust - Coldwater Road Landfill Facility

is authorized to discharge surface and subsurface drainage from an inactive hazardous waste landfill located at:

6220 Horton Avenue

subject to the effluent limitations/monitoring requirements specified in Part I.A.2, through the outfalls and into the sanitary sewer identified in part I.A.3, and in accordance with other conditions set forth in Parts I, II and III herein. Compliance with this permit does not relieve the permittee of its obligation to comply with any or all applicable pretreatment laws, regulations, standards or requirements under District, State, and Federal laws; this includes any and all such laws, regulations, standards, or requirements that may become effective during the term of this permit and which shall apply to the permittee subsequent to modification of this permit and a reasonable period to achieve compliance. This does not include laws, regulations, standards or requirements that are subject to Genesee Township Municipal Codes; such as plumbing and electrical.

Noncompliance with any term or condition of this permit shall constitute a violation of the Ordinance and may subject the permittee to appropriate enforcement action, including legal action and termination of service.

This permit shall become effective on ***October 15, 2016*** and shall expire at midnight on ***October 14, 2021.***

If the permittee wishes to continue to discharge after the expiration date of this permit, a written application in accordance with the requirements of the POTW Regulations must be submitted to the City a minimum of one hundred and eighty (180) days prior to the expiration date. Approval or denial of the application for discharge will be in accordance with POTW Regulations.

This permit is based on the permittee's application (by letter) dated Dec 19, 2013. The BMD will establish appropriate fees for reimbursement of costs to administer this permit and the associated Industrial Pretreatment Program.

Signed this 11th day of October 2016 by the BMD and City of Flint.

Kevin Forbes, Superintendent
Beecher Metropolitan District

Robert J. Cast
Water Pollution Control Supervisor

PART I

A. DISCHARGE PROHIBITIONS AND MONITORING REQUIREMENTS

1. General and Specific Discharge Prohibitions

a. In addition to the specific pollutant limitations stated in Part I.A.2, the permittee shall not contribute or cause to be contributed, directly or indirectly, any pollutant or substance which will interfere with the operation or performance of the City of Flint's Publicly Owned Treatment Works (POTW).

b. The permittee shall fully comply with the discharge regulations contained in the Ordinance. Pursuant to the discharge regulations, except as authorized in Part I.A.2, the permittee shall not contribute or cause to be contributed, directly or indirectly, any of the following substances:

i. ***explosive or flammable substances*** which by reason of their nature or quantity are, or may be, sufficient either alone or by interaction with other substances to cause fire or explosion or be injurious in any other way to the POTW or to its operation;
i. ***solid or viscous substances*** which may cause obstructions to the flow in a sewer or other interference with the operation of the POTW;
ii. ***corrosive substances or wastewaters*** having a pH less than 6.0 or greater than 10.5 or having any other corrosive property capable of causing damage or hazard to structures, equipment, and/or personnel of the POTW;
iii. ***toxic substances*** in sufficient quantity, either singly or by interaction with other pollutants, to injure or interfere with any wastewater treatment process, constitute a hazard to humans or animals or create a toxic effect in the receiving waters of the POTW;
iv. ***noxious or malodorous substances*** which either singly or by interaction with other wastes are sufficient to create a public nuisance or hazard to life or are sufficient to prevent entry into the POTW;
v. ***interfering substances*** which may cause the POTW's effluent or any other product of the POTW, such as residues, sludges, or scums, to be unsuitable for reclamation and reuse or to interfere with the reclamation process; and which in no case shall cause the POTW to be in non-compliance with applicable State or Federal environmental laws or regulations;
vi. ***colored substances or wastewaters*** with objectionable color not removed in the treatment process, such as, but not limited to, dye wastes and vegetable tanning solutions;
vii. ***hot wastewaters*** which will inhibit sewage treatment processes resulting in interference, but in no case wastewater with a temperature at the introduction into the POTW treatment plant which exceeds 104° F, or any discharge of sufficient heat to cause the POTW to violate its wastewater discharge permit;
viii. ***oxygen demanding substances*** released at a flow rate and/or concentration which will cause interference to the POTW;
ix. ***radioactive substances***;
x. ***nuisance substances or wastewaters*** which cause a hazard to human life or create a public nuisance;
xi. ***other incompatible substances*** which will cause the POTW to violate its wastewater discharge permit, including those which will pass through the POTW into the receiving stream.

c. All discharges shall also comply with any applicable BMD, State, and Federal pretreatment laws, regulations, standards, and requirements; this includes any and all such laws, regulations, standards, or requirements that may become effective during the term of this permit and which shall apply to the permittee subsequent to modification of this permit and a reasonable period to achieve compliance.

c. The permittee shall not increase the use of potable or process water, or in any way attempt to

dilute an effluent, as a partial or complete substitute for adequate treatment to achieve compliance with the specific limitations or general prohibitions contained in this permit.

e. Except as authorized herein, the permittee shall not discharge or cause to be discharged any surface water, precipitation runoff, ground water, or subsurface drainage to any sanitary sewer.

2. Summary of Limitations and Monitoring Requirements

The permittee shall monitor the composition, characteristics, volume, and/or flow rate of the discharge from the permittee's facility to the outfall(s) identified below and submit the resulting monitoring data in complete accordance with the following requirements; and pursuant to the Ordinance and the authority vested in the BMD Administrator thereunder, the discharge shall be made in full compliance with the following limitations. The location of the wastewater treatment plant and outfall are identified in the site map in the Appendix.

Discharge Pollutant Limitations and Monitoring Requirements* Outfall 001

Parameter	Monitoring Frequency	Sampling Procedure	Discharge Limit	Limit Type
pH @ 25°C	Per Batch	Grab sample	6.0-10.5 SU	Min-Max
Ammonia-N	Per Batch	Grab sample	110 mg/l	Maximum
Arsenic	Per Batch	Grab sample	0.051 mg/l	Maximum
BOD5	Per Batch	Grab sample	1196 mg/l	Maximum
Chromium	Per Batch	Grab sample	1.273 mg/l	Maximum
Copper	Per Batch	Grab sample	1.797 mg/l	Maximum
Cyanide, available	Per Batch	Grab sample	0.165 mg/L	Maximum
HEM	Per Batch	Grab sample	100 mg/l	Maximum
Mercury	Per Batch	Grab sample	0.000012** mg/l	Maximum
Nickel	Per Batch	Grab sample	0.543 mg/l	Maximum
Phosphorus	Per Batch	Grab sample	14 mg/l	Maximum
TSS	Per Batch	Grab sample	570 mg/l	Maximum
Zinc	Per Batch	Grab sample	2.626 mg/l	Maximum
Flow, total***	Sample on one (1) day per quarter.		5000 gpd	Daily Maximum

*Submit the test data for each sample collected during each calendar month in a Periodic Report on Continued Compliance (PRCC) **within twenty-eight (28) calendar days of the end of each quarterly monitoring period.**

**Test results shall be less than the quantification level of 0.2 µg/L (expressed as <0.2 µg/L), unless a lower quantification level has been established; and any amount of the pollutant quantified at a level exceeding the limitation shall constitute a violation.

***Report the average volume of all daily discharges for each calendar month in the quarterly PRCC, and report the total volume of the discharge for each day of the quarter that discharge occurs in an attachment to the PRCC.

B. REPORTING REQUIREMENTS

1. Periodic Report on Continued Compliance

In accordance with the Ordinance, the permittee shall submit to the BMD a Periodic Report on Continued Compliance (PRCC) presenting monitoring data obtained by the permittee in accordance with the self-monitoring requirements stipulated in Part I.A.2. This report shall be submitted on the standard reporting form contained herein (see Appendix A). The report shall be complete and include the measured discharge volume and the monitoring data for each parameter listed in Part I.A.2., including each individual target analyte for all multiple analyte tests. The monitoring data presented shall have been obtained by measuring the discharge and/or collecting samples that are representative of the discharge at the location(s) specified and identified in Part I.A. The report shall also clearly identify the analytical methods used, the date on which each analysis was performed, the date on which each sample was collected, and the sampling method used; and it shall also indicate the total number of samples collected and the total number of reported values that exceeded the limitations established in Part I.A.2 for each parameter specified thereunder.

In addition, the PRCC shall be accompanied by sample custody records and a quality assurance/quality control (QA/QC) report. The sample custody records shall include the following information:

- the exact place, date, and time of sampling;
- the individual(s) who performed the sampling measurements;
- the dates analyses were performed; and
- the person(s) who performed the analyses.

The QA/QC report shall include all data needed for assessing the validity of the monitoring data presented in the PRCC, which shall specifically include individual test results and statistical data for the analysis of:

- reagent blanks,
- standards and samples spiked with standards, and
- replicate samples.

The completed PRCC shall be submitted ***within twenty-eight (28) calendar days of the end of the specified monitoring period***. Failure to properly submit this report ***within thirty (30) days*** after the due date shall constitute significant noncompliance on the part of the permittee. The submitted report shall be signed by an Authorized Representative of the Industrial User as defined in the Ordinance, and certified with the following statement as established by the Ordinance:

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

If the permittee monitors any pollutant more frequently than required by this permit, using procedures corresponding to those specified in this permit, the result of such monitoring must be utilized in the calculations of average/maximum pollutant discharge and included in the discharge report.

C. NOTIFICATION REQUIREMENTS

1. Notification of Intent to Discharge

The permittee shall notify the BMD, orally or in writing, of its intent to discharge ***at least seven (7) calendar days prior to commencing any discharge.*** This notification shall include the anticipated date, time, rate and total volume of discharge.

2. Changed Discharge Notification

This permit only authorizes the permittee to discharge surface and subsurface drainage from the hazardous waste landfill located at the permittee's facility. This permit does not authorize the discharge of any other substance originating from any other source. The limits and/or monitoring requirements of this permit have been developed on this case-specific basis, using information provided by the permittee. The permittee shall report to the BMD, ***in advance***, any anticipated facility, procedural, or other modifications which may result in new, different, or increased discharges of pollutants or flow volumes, including any anticipated change in monitoring location. This shall be via written notice to the BMD of such changes and, if required by the BMD, submission of a new permit application. Following such notice, this permit may be modified to specify limits and/or monitoring for parameters not previously required or to revise limits and/or monitoring requirements for parameters already addressed herein.

PART II

A. PERMIT PROGRAM ADMINISTRATION

1. Written/Verbal Submittals

On the behalf of the BMD, the City of Flint Water Pollution Control Facilities administers the BMD Industrial Pretreatment Program, under which this permit has been established. All written submittals shall be submitted to the following address:

Environmental Compliance Supervisor
City of Flint Water Pollution Control Facilities
G-4652 Beecher Road
Flint, Michigan 48532

In addition, a copy of each written submittal shall be submitted to the following address:

Administrator
Beecher Metropolitan District
G-1057 Louis Avenue
Flint, Michigan 48505

All verbal reports/notices should be directed to the Environmental Compliance Supervisor (8:00 a.m. to 5:00 p.m., Monday through Friday) or to the Operations Foreman on duty, via the Water Pollution Control Facilities' 24-hour telephone number, (810) 766-7210.

B. GENERAL RESPONSIBILITIES

1. Monitoring Procedures

a. Representative Sampling

The discharge monitoring data presented in any report required herein shall be representative of the true volume and nature of the actual discharge. The permittee shall not dilute the discharge or conduct the required monitoring in any manner that causes the monitoring data to be misleading.

b. Methods

In accordance with the Ordinance, the sampling and sample testing shall be performed in accordance with the standard procedures prescribed by the U.S. Environmental Protection Agency in 40 CFR 136, and amendments thereto, which have been published in the following references:

i. Methods for Chemical Analysis of Water and Wastes, April 1974, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, 1014 Broadway, Cincinnati, OH 45202, as amended.

ii. Standard Methods for the Examination of Water and Wastewater, 20th edition, 1998, American Public Health Association, New York, New York 10019, as amended.

c. Sample Types

i. "Grab Sample" shall mean a single sample collected with no regard to flow or time, other than that the sample shall be collected during period of normal operation.

ii. "4-grab Composite" shall mean the combination of at least four appropriately spaced equal-volume grab samples over a 24-hour period.

iii. "24-hour Composite" shall mean the combination of a series of equal-volume aliquots collected via an automatic sampler over a 24-hour period; or over the normal operating period if operations are not continuous. In the latter case, the period of operation shall be identified in submitted reports.

iv. "Flow-based Composite" shall mean the combination of a series of equal-volume aliquots collected at a rate proportional to the sampled stream flow. Both the total flow and the flow interval shall be identified in submitted reports.

d. Maintenance Responsibility

The permittee shall calibrate and perform Original Equipment Manufacturer maintenance procedures on all monitoring equipment and analytical instrumentation, where applicable, at intervals appropriate to ensuring accuracy of measurements.

2. Containment for Slug Discharges

In accordance with the Ordinance, the permittee shall provide protection against accidental discharge of substances which are prohibited in Part I.A.1 or exceed any limitation stipulated in Part I.A.2.

3. Systems Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of control, and related appurtenances, which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes, but is not limited to the following: effective performance, adequate funding, adequate operator staffing and training, as well as adequate laboratory and process controls including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities, or a similar system, only when necessary to achieve compliance with the conditions of the permit.

4. Duty to Halt or Reduce Discharge

Notwithstanding the flow limitations stipulated in Part I.A.2, the permittee shall not discharge at a flow rate which will cause, or contribute to, hydraulic overloading of the receiving sewer or POTW. The permittee shall temporarily halt or reduce its discharge to the extent necessary for preventing or reducing such overloading, as directed orally or in writing by the BMD or City of Flint. Such control shall be maintained until deemed to be no longer necessary by the BMD or City of Flint.

5. Retention of Records

In accordance with the Ordinance, the permittee shall retain all general permit-related records (e.g., monitoring information, calibration and maintenance records, original strip chart recordings for continuous monitoring instrumentation, copies or reports required by this permit, and records of all data used to complete the application for this permit) for a period of ***at least three (3) years*** from the date of the sample, measurement, report, or application. This period may be extended by order of the BMD at any time.

All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the BMD shall be retained and preserved by the permittee until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.

C. GENERAL CONDITIONS

1. Definitions

Unless the context specifically indicates otherwise, the meaning of terms used in this permit shall be in accordance with definitions established under the Ordinance.

2. Right of Entry

The permittee shall allow BMD and City of Flint personnel, upon the presentation of credentials, access at all reasonable times to all parts of the premises for the purposes of inspection, sampling, records examination, copying, or the performance of any of their duties related to the administration of this permit, the administration of the Ordinance, and/or the associated Industrial Pretreatment Program.

3. Transfer of Ownership or Control

This permit shall not be assigned, transferred, or sold to a new owner without approval of the BMD. As described in the Ordinance, in the event of any change in ownership of facilities from which the authorized discharge emanates, written notification of proposed permit transfer must be provided to the BMD. Included shall be an agreement specifying a date for transfer of permit responsibility, and coverage between the current and new permittees which acknowledges liability for any violation which occurs before and after that date.

4. Permit Modification

In accordance with the Ordinance, the BMD reserves the right to modify this permit, in whole or in part, during its term in order to reflect new or revised National Pollutant Discharge Elimination System requirements; Federal or State water quality standards; Federal, State, or BMD pretreatment standards; and/or the objectives of the BMD's Industrial Pretreatment Program.

5. Revocation of Permit

Violation of the conditions of this permit, or any applicable BMD, State, or Federal regulations, may lead to revocation of the permit and suspension of service in accordance with the enforcement procedures set forth in the Ordinance. This action may result from, but is not limited to, the following:

a. failure of the permittee to factually report the wastewater constituents and characteristics of his discharge;

b. failure of the permittee to report significant changes in operations, or wastewater constituents and characteristics of his discharge;

c. refusal of reasonable access to the permittee's premises for the purpose of inspection or monitoring;

d. violation of a permit requirement.

6. Property Rights Exclusion

The issuance of this permit conveys neither any property rights in either real or personal property, nor any exclusive privileges. It also authorizes neither any injury to private property or invasion of personal rights, nor infringement of Federal, State, or local laws or regulations.

7. Severability

If any provision, paragraph, word, or section of this permit is invalidated by any Ordinance revision or any court of competent jurisdiction, the remaining provisions, paragraphs, words and sections shall not be affected and shall continue in full force and effect.

8. **Monitoring/Inspection Fees**

The permittee shall reimburse the BMD for any and all expenses incurred as a result of any monitoring or inspection conducted by or for the BMD at the permittee's facility.

9. **Penalties for Violations**

If sewage, industrial wastes, or other wastes are discharged into the BMD's wastewater disposal system contrary to the provisions of this permit, the Ordinance, or any order of the BMD, the BMD may commence an action for appropriate legal and/or equitable relief in the Circuit Court of Genesee County in accordance with the Ordinance:

a. Civil Penalties

In addition to any other penalty which may be assessed pursuant to applicable Federal or State laws, any sewer user who has violated any order of the BMD or who has willfully or negligently violated this permit or the Ordinance shall be liable for a civil penalty not exceeding $500 for each violation. Each day in which any such violation shall continue shall be deemed a separate offense.

In addition to any other penalty which may be assessed pursuant to applicable Federal or State laws, any sewer user violating any of the provisions of the Ordinance shall become liable for any expense, loss, or damage occasioned by the BMD and/or the City of Flint by reason of such violation, including payment of any fines or penalties assessed against the BMD and/or City of Flint as a result of such violations.

b. Criminal Penalties

In addition to any other penalty which may be assessed pursuant to applicable Federal or State laws, any person who knowingly misrepresents or falsifies information required by this permit and/or the Ordinance, shall, upon conviction, be punished by a fine of not more than $500 or by imprisonment for not more than ninety (90) days or by both. This includes anyone who knowingly makes any false statements, representations, or certifications in any application, record, report, plan, or other document filed or required to be maintained; also included is anyone who knowingly falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required.

PART III

A. SPECIAL TERMS AND/OR REQUIREMENTS

Future Use of Landfill

The limitations and requirements stipulated in this permit have been established on the basis of the current inactive status of the hazardous waste landfill at the permittee's facility. Should the permittee intend to deposit any additional waste within this landfill, advance notification shall be given to the BMD, in accordance with Part I.C.2.

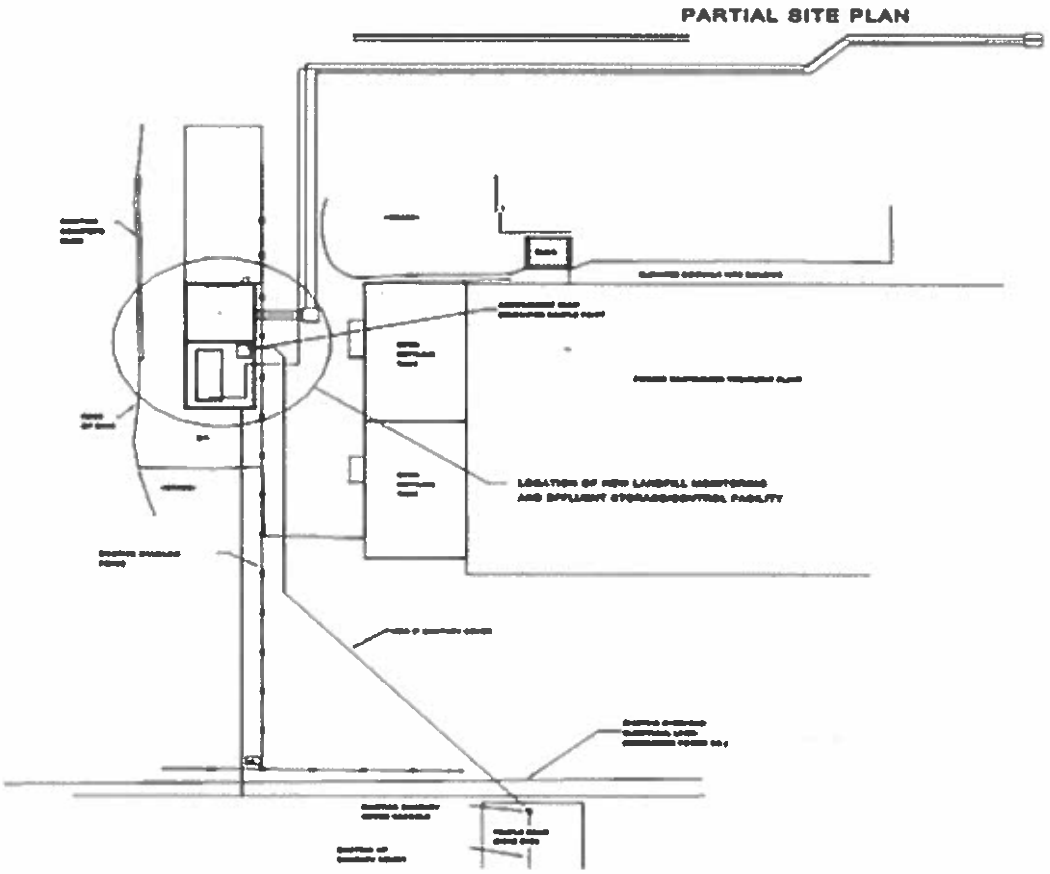
B. Appendices

Facility Treatment System Diagram

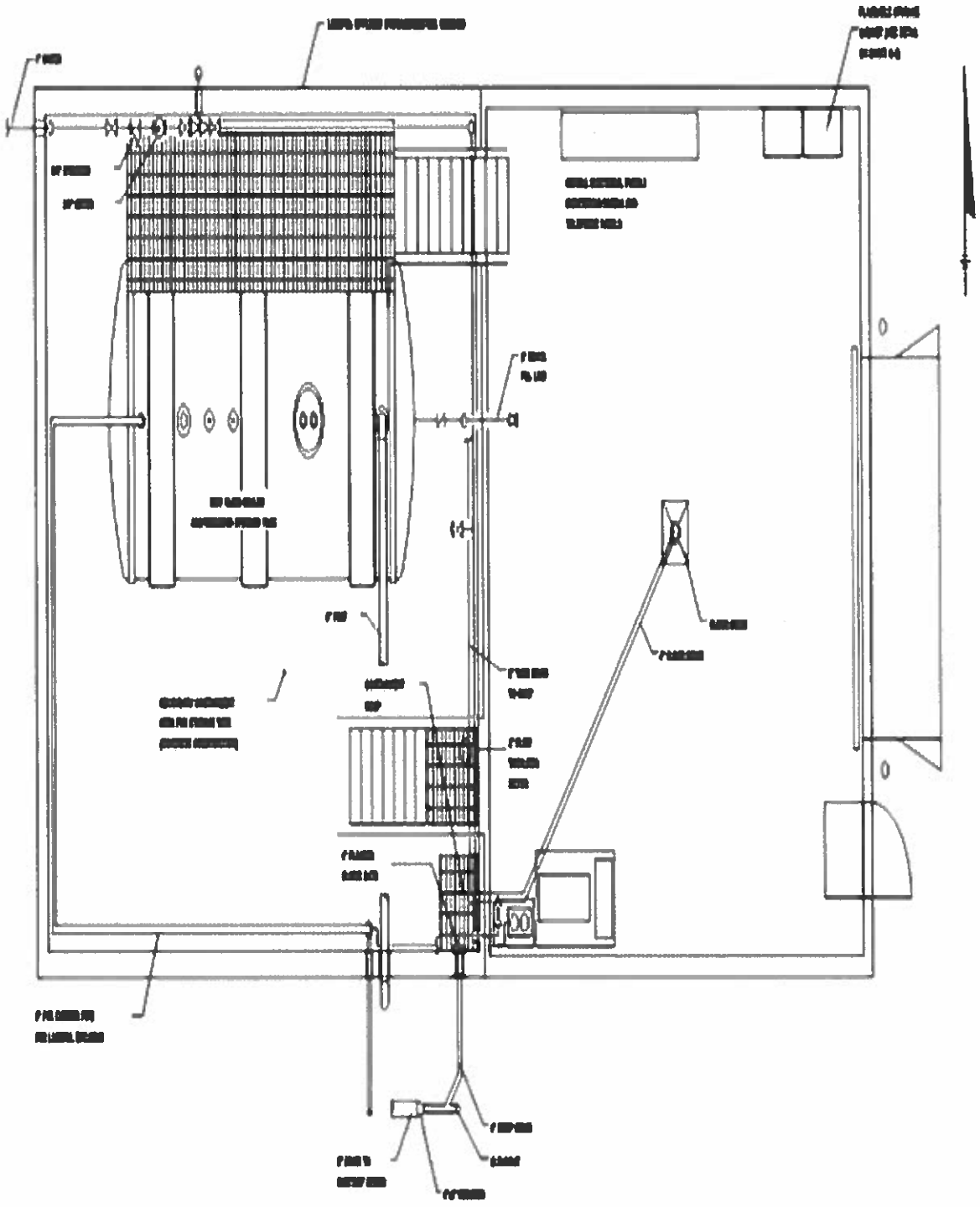
Site Map

Generally Applicable Prohibitions and Limits

Register of Potentially Harmful Substances



landfill_facility



City of Flint Publicly-Owned Treatment Works Regulations
Discharge Prohibitions and Limits (with Definitions)

§ 46-143 DEFINITIONS.

For the purposes of this Division, the following words and phrases shall have the meanings described in this section, unless the context in which they are used specifically indicates otherwise.

ACT. The term "act" means the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251, et seq., and all rules promulgated thereunder.

BIOCHEMICAL OXYGEN DEMAND. Shall mean the quantity of oxygen utilized in the biochemical oxidation of organic matter and biologically oxidizable inorganic matter under standard laboratory procedures for 5 days, at 20 degrees celsius, expressed in milligrams per liter concentration, using US EPA test method number 405.1.

BYPASS. The intentional diversion of waste streams away from any portion of a user's treatment facility needed for compliance with pretreatment standards to a point of discharge.

CATEGORICAL PRETREATMENT STANDARDS (CPS). Pollutant limits for discharges to POTWs, promulgated by US EPA in 40 CFR Chapter I, Subchapter N, Parts 405, et seq., in accordance with 307(b) and (c) of the Act, which are applicable to a non-domestic user which engages in a category or categories of industry that are subject to the following regulations:

Effluent Guidelines and Standards for Electroplating (40 CFR 413)
Effluent Guidelines and Standards for Organic Chemicals Plastics, and Synthetic Fibers (40 CFR 414)
Effluent Guidelines and Standards for Inorganic Chemicals (40 CFR 415)
Effluent Guidelines and Standards for Fertilizer Manufacturing (40 CFR 418)
Effluent Guidelines and Standards for Petroleum Refining (40 CFR 419)
Effluent Guidelines and Standards for Iron and Steel Manufacturing (40 CFR 420)
Effluent Guidelines and Standards for Nonferrous Metals (40 CFR 421)
Effluent Guidelines and Standards for Steam Electric Power Generating (40 CFR 423)
Effluent Guidelines and Standards for Leather Tanning and Finishing (40 CFR 425)
Effluent Guidelines and Standards for Glass Manufacturing (40 CFR 426)
Effluent Guidelines and Standards for Rubber Processing (40 CFR 428)
Effluent Guidelines and Standards for Timber Products (40 CFR 429)
Effluent Guidelines and Standards for Pulp, Paper and Paper Board (40 CFR 430)
Effluent Guidelines and Standards for Metal Finishing (40 CFR 433)
Effluent Guidelines and Standards for Centralized Waste Treatment (40 CFR 437)
Effluent Guidelines and Standards for Pharmaceutical Manufacturing (40 CFR 439)
Effluent Guidelines and Standards for Transportation Equipment Cleaning (40 CFR 442)
Effluent Guidelines and Standards for Waste Combustors (40 CFR 444)
Effluent Guidelines and Standards for Landfills (40 CFR 445)
Effluent Guidelines and Standards for Pesticide Chemicals Manufacturing (40 CFR 455)
Effluent Guidelines and Standards for the Battery Manufacturing Point Source Category (40 CFR 461)
Effluent Guidelines and Standards for Metal Molding And Casting (40 CFR 464)
Effluent Guidelines and Standards for Coil Coating (40 CFR 465)
Effluent Guidelines and Standards for Porcelain Enameling (940 CFR 466)
Effluent Guidelines and Standards for Aluminum Forming (40 CFR 467)
Effluent Guidelines and Standards for Copper Forming (40 CFR 468)

Effluent Guidelines and Standards for Electrical and Electronic Components (40 CFR 469)
Effluent Guidelines and Standards for Nonferrous Metals Forming and Metal Powders (40 CFR 471)

CFR. The Code of Federal Regulations.

CITY. The City of Flint, Michigan, a Municipal Corporation.

CITY DIRECTOR. The Director of the Department of Utilities of the City or other person or persons designated by that person or by the City Administrator to exercise control over City Collection System and the POTW Treatment Plant or certain matters relating to the City Collection System or the POTW Treatment Plant.

CITY ENFORCEMENT OFFICER. Any employee of the Water Pollution Control Division of the Department of Utilities of the City of Flint holding the title of Water Pollution Control Supervisor, Assistant Water Pollution Control Supervisor, Environmental Compliance Supervisor, Environmental Compliance Inspector, Senior Environmental Compliance Analyst, Environmental Compliance Analyst, Water Quality Supervisor, or any other person authorized by the City Director to issue municipal civil infraction citations for violations of this Division.

CODE. The Code of the City of Flint.

COLLECTION SYSTEM. All of the sanitary sewers, lift stations, pumps, and other equipment of the City and of a municipality, drainage district, or other political subdivision of the state which has a contract with the City for discharge to the POTW Treatment Plant which are primarily installed to receive wastewater and pollutants directly from users for transmission to the POTW Treatment Plant.

CONSTRUCTION. Any placement, assembly, or installation of facilities or equipment (including contractual obligations to purchase such facilities or equipment) at the premises where such equipment will be used, including preparation work at such premises, if such equipment will in any way actually or potentially affect the quality or quantity of discharges or the measurement or analysis of a discharge.

COOLING WATER. The water discharged from any use in which the only pollutant added is heat, shall be considered non-contract cooling water. Water discharged from any use in which heat and other pollutants have been added, shall be considered as contact cooling water.

CPS. Categorical Pretreatment Standards.

DAILY CONCENTRATION. The sum of all concentration measurements for any 24-hour period divided by the number of such measurements.

DISCHARGE. The introduction (including infiltration) of pollutants into the POTW which is either intentional or unintentional.

FLASHPOINT. The minimum temperature at which vapor combustion will spread away from its source of ignition.

FOOD SERVICE FACILITY. Any facility primarily engaged in activities of preparing or serving food or otherwise making food available for consumption by the public, such as a restaurant, commercial kitchen, hotel, school, hospital, church, prison, or correctional, civic, convention, banquet, recreational, or convalescent facility, which use one or more of the following food preparation activities: frying, boiling, blanching, roasting, toasting, poaching, infrared heating, searing, barbecuing, or any other food preparation activity that produces a hot, non-drinkable food product in or on a receptacle that requires washing.

GARBAGE. Solid wastes from domestic or commercial preparation, cooking or dispensing of food, and from the handling, storage, or sale of produce.

GRAB SAMPLE. A sample which is taken from a discharge with no regard to the flow which is collected over a period of time not exceeding 15 minutes.

GROUNDWATER. Water which is pumped or otherwise captured from the ground and which is not used in a process. Mere treatment of groundwater is not use in a process.

HEXANE-EXTRACTABLE MATERIAL. Any material, such as fat, oil, or grease, which is recoverable from wastewater by extraction with n-hexane, using EPA test method 1664, Revision A, and as defined therein.

HAZARDOUS SUBSTANCE. Any substance as defined in Part 201 of the Michigan Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended, or the Federal Comprehensive Environmental Response, Compensation and Liability Act Of 1980, as amended.

INSTANTANEOUS CONCENTRATION. The concentration in any grab sample.

INTERCEPTOR. A structure or device designed for removing floating or suspended hexane-extractable material and other viscous or dense substances from wastewater, by physical separation, prior to discharging the wastewater into the POTW.

INTERFERENCE. A discharge which, alone or in conjunction with a discharge or discharges from other sources, both: (I) inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and, (II) therefore is a cause of a violation of any requirement of the NPDES permit for the POTW, the Act, or State Act (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or any more stringent state or local regulations): Section 405 of the Act, the Solid Waste Disposal Act (SWDA) (including Title II, more commonly referred to as the Resource Conservation And Recovery Act (RCRA), and including state regulations contained in any state sludge management plan prepared pursuant to Subtitle D of the SWDA, the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research, and Sanctuaries Act.

MAXIMUM ALLOWABLE INDUSTRIAL LOADING. The daily maximum mass of a pollutant, in pounds per day, which may be allowed by the City to be discharged to the POTW by the aggregate of all non-domestic users.

MDEQ. The Michigan Department of Environmental Quality or its successor.

MG/L. Milligrams per liter.

UG/L. Micrograms per liter.

NEW SOURCE. Any building, structure, facility, or installation from which there is or may be a discharge, the construction of which commenced after the publication of proposed pretreatment standards under Section 307(c) of the Act which will be applicable to such source if such standards are thereafter promulgated in accordance with that section, provided that:

(1) The building, structure, facility, or installation is con-structed at a site at which no other source is located; or

(2) The building, structure, facility, or installation totally replaces the process or production equipment that causes the discharge at an existing source; or

(3) The production or wastewater generating processes of the building, structure, facility, or installation are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the extent to which the new facility is integrated with the existing plant and the extent to which the new facility is engaged in the same general type of activity as the existing source shall be considered.

Construction on a site at which an existing source is located results in a modification rather than a new source if the construction does not create a new building, structure, facility, or installation meeting the criteria of (2) or (3) but otherwise alters, replaces, or adds to existing process or production equipment.

Construction of a new source has commenced if the owner or operator has:

(1) Begun, or caused to begin, as part of a continuous on-site construction program:

a. Any placement, assembly, or installation of facilities or equipment, or

b. Significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

c. Entered into a binding contractual obligation for the purchase of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase, contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engi-neering, and design studies do not constitute a contractual obligation under this paragraph.

NON-DOMESTIC USER. A user that discharges pollutants other than, or in addition to, sanitary sewage, but not including a user that is a municipality, drainage district, or other political subdivision of the state that only discharges from its own collection system to the City's Collection System.

NPDES PERMIT. A permit issued pursuant to the National Pollutant Discharge Elimination System to regulate the discharge of wastewater into the surface waters of the state.

PASS THROUGH. A discharge which exits the POTW into waters of the state in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, cause a violation of any requirement of the Act or state act.

PERSON. Any individual, firm, municipality, company, association, society, corporation, partnership, or group, including their officers and employees who have responsibility for or actual involvement in the matters regulated by this Division.

pH. The logarithm (Base 10) of the reciprocal of the concentration of hydrogen ions in moles per liter of solution.

POLLUTANT. Any material which is discharged to the POTW or is proposed for discharge to the POTW. The term also includes properties of such materials such as pH and heat.

POTW. Publicly owned treatment works, as defined by Section 212 of the Act, which are owned by the City and the collection system. The term also means the City or its authorized representative. This term includes any devices, processes, and systems used by or for the City in the storage, treatment, recycling, or reclamation of wastewater or sludge from the treatment works or the collection system.

POTW TREATMENT PLANT. The POTW exclusive of the collection system.

PREMISES. A lot or parcel of land, generally, or each lot or parcel of land, or building, having any connection, direct or indirect, to the POTW, as the context of the word within this Division dictates.

PRETREATMENT. The reduction of the amount of pollutants, the elimination of pollutants, or the alteration of the nature of pollutant properties in wastewater prior to or in lieu of discharging or otherwise introducing such pollutants into the POTW. The reduction or alteration may be obtained by physical, chemical, or biological processes, process changes, or by other means, except for the use of dilution, unless expressly authorized by an applicable pretreatment standard or requirement.

SANITARY SEWAGE. Wastewater or pollutants from toilet, kitchen, laundry, bathing, or other facilities all of which are used for household purposes or for non-commercial purposes at a commercial location.

SEVERE PROPERTY DAMAGE. Substantial physical damage to property, damage to the treatment facilities of a user which causes them to become all or partially inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

SEWER. A pipe or conduit for carrying wastewater, storm water, surface runoff, or groundwater.

SIGNIFICANT NON-DOMESTIC USER. Any non-domestic user of the POTW that:

(1) Has a monthly average discharge to the POTW of 25,000 gallons or more per day, excluding sanitary sewage, non-contact cooling water, and blowdown from heating or air conditioning systems; or

(2) Discharges or has a reasonable potential to discharge any toxic pollutant as defined pursuant to Section 307 of the Act, unless the actual or potential effect on the POTW is determined by the City Director to be insignificant; or

(3) Is found by the City Director to have a reasonable potential for adversely affecting the POTW, or for violating any limit, discharge prohibition, pretreatment standard or requirement; or

(4) Is subject to a CPS; or

(5) Discharges wastewater, other than sanitary sewage, non-contact cooling water, and blowdown from heating or air conditioning systems, which makes up 5% or more of the average dry weather hydraulic or organic capacity of the POTW.

SLUDGE. Solids or other residue, either of which are separated from wastewater and generated by any treatment process, or solids or other residue directly separated from a production process.

SLUG DISCHARGE. A discharge of a nonroutine, episodic nature, including, but not limited to, an accidental spill or a non-customary batch discharge.

SOURCE. Any building, structure, facility, vehicle, or installation from which there is or may be a discharge to the POTW.

STATE ACT. Part 31 Water Resources Protection of the Michigan Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended, and all rules promulgated thereunder.

TOTAL SUSPENDED SOLIDS. Solids that either float on the surface of, or are in suspension in, wastewater and which can be recovered by standard laboratory filtering, using US EPA method number 106.2.

UPSET. An exceptional incident in which there is unintentional and temporary non-compliance with categorical pretreatment standards or other limits applicable to the user because of factors beyond the reasonable control of the user. An upset does not include non-compliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

US EPA. The United States Environmental Protection Agency or its successor.

USER. A person who discharges into the POTW and a municipality or drainage district whose collection system discharges into the POTW.

WASTEWATER. Water discharged to the POTW by a user which may or may not contain other pollutants. This term does not include storm water, surface runoff, or non-

contaminated groundwater and non-contact cooling water.

§ 46-146 DISCHARGE PROHIBITIONS AND LIMITS.

(a) *Discharge Prohibitions.* The provisions in this section are intended to:

(1) Prohibit the discharge to the POTW of wastewater which may cause pass-through or interference or which could have detrimental effects on the physical structures or operating personnel of the POTW, or on the general public or the environment, and

(2) Restrict the discharge to the POTW of storm water, groundwater, and non-contact cooling water.

(b) *Prohibited Discharges.* No user shall discharge, cause to be discharged, or allow to be discharged into the POTW any of the following:

(1) Pollutants which may or do create a fire or explosion hazard in the POTW, including, but not limited to, pollutants or wastewater with a closed cup flashpoint of less than 140° fahrenheit (60° celsius), as determined by a Pensky-Martens closed cup tester, using the test method specified in ATSM Standard D-93-79 or D-93-80K (incorporated by reference, see 40 CFR § 260.21) or a Setaflash closed cup tester, using the test method specified in ATSM Standard D-3278-78 (incorporated by reference, see 40 CFR § 260.21), and pollutants which exceed 10% of the lower explosive limit (LEL) at any point within the POTW;

(2) Pollutants which result in the presence of toxic gases, vapors, or fumes within the POTW in a quantity that may cause acute or chronic health and safety problems for workers or exceed any applicable occupational health or safety standard;

(3) Pollutants which may or do cause corrosive or abrasive structural damage to the POTW;

(4) Solid or viscous pollutants in amounts which may or do obstruct flow or cause interference in the POTW;

(5) Wastewater having an instantaneous pH less than 6.0 or greater than 10.5;

(6) Any pollutant, including oxygen-demanding pollutants, re-leased in a discharge at a flow rate and/or pollutant concentration which may or do cause interference in the POTW;

(7) Pollutants which may or do cause:

A. Restriction of hydraulic capacity of structures in the POTW;

B. Unsafe conditions to personnel in the operation, inspection, or maintenance of the POTW or unsafe conditions to the general public, with respect to the collection system;

C. Exceptional or unreasonably burdensome effort, attention, or expense in the operation or maintenance of the POTW.

D. Heat in amounts which will inhibit biological activity in the POTW, resulting in interference, but in no case heat such that the temperature at the discharge to the collection system exceeds 150° Fahrenheit (66° Celsius) or the influent at the POTW treatment plant exceeds 104° Fahrenheit (40° Celsius).

(8) Pollutants which may or do cause pass-through or interference.

(9) Any pollutants which exceed, for that user, the limitations set forth in a categorical pretreatment standard, as adjusted under the combined wastestream formula in Michigan Rule R 323.2311(7), which may be expressed as concentration limits, mass limits, or both, as provided in Michigan Rule R 323.2311(5). A categorical pretreatment standard shall be adjusted if 40 CFR 403.15 applies and the criteria of 40 CFR 403.15(b) and (c) are met (net/gross calculation).

(10) Any liquids, gases, or solids which either singly or by interaction with other substances may or do create a public nuisance.

(11) Any pollutant introducing colors not removed in the POTW treatment process, such as but not limited to, dye wastes and vegetable tanning solutions.

(12) Any unpolluted water, non-contact cooling water, storm water, groundwater or surface water, unless the City Director gives written permission to the user for the discharge of such waters based on available hydraulic capacity and potential impacts on the POTW treatment capability. The scope and duration of the discharge of such waters shall be determined at the sole discretion of the City Director.

(13) Any radioactive wastes in harmful quantities as such quantities are defined by applicable state and federal regulations.

(14) Any grease or other pollutants that will become solid or viscous at a temperature of 140° Fahrenheit (60° Celsius) or below after being discharged into the POTW.

(15) Hazardous substances that were not listed or disclosed in the user's application for a use permit that:

A. May or do cause or contribute to a violation of state or federal water quality standards in the receiving waters to which the POTW discharges; or

B. Result in or contribute to a liability of the City under Part 201 of the Michigan Natural Resources and Environmental Protection Act, Act 451 of 1994, as amended, or the Federal Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA). Nothing in this paragraph determines the percentage share or allocation share amount of a user's Part 201 or CERCLA liability.

(16) Hazardous substances in quantities exceeding the numerical limit in a user's use permit which:

A. May or do cause or contribute to a violation of state or federal water quality standards in the receiving waters to which the POTW discharges; or

B. Result in or contribute to a liability of the City under Part 201 of the Michigan Natural Resources and Environmental Protection Act, Aact 451 of 1994, as amended, or the Federal Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (CERCLA). Nothing in this paragraph determines the percentage share or allocation share amount of a user's Part 201 or CERCLA liability.

(17) Sludge, unless the City Director has determined that it is amenable to treatment by the POTW and does not otherwise violate any discharge prohibition.

(18) Any new or used petroleum oil or grease, non-biodegradable cutting oil, or products of mineral oil origin, in amounts that may or do cause interference or pass-through. Concentration limits for specific pollutants.

(c) Pollutant Concentration Limits.

(1) Discharges made by non-domestic users having concentra-tions of specific pollutants greater than the pollutant concentration limits described in Table 46-146(c) in the Appendix at the end of this Chapter are prohibited, except as regulated under Subsection D of this Section.

(2) *Measurement of Pollutant Concentrations.*

A. The instantaneous concentration limit for a specific pollutant shall apply to the instantaneous concentration of the pollutant measured by sampling in accordance with § 46-149(A)(3)a.

B. The daily concentra-tion limit for a specific pollutant shall apply to the daily concentra-tion of the pollutant measured by sampling in accordance with § 46-149(A)(3)b.

(d) *Special Alternative Limit.* The City Director may grant a special alternative limit (SAL) to a user in a use permit or an order that allows discharges to the POTW that are otherwise prohibited by this section. The SAL may include other special arrangements between the City and the user including, but not limited to, limits less than the discharge limits in Subsection C of this Section. The decision to grant a SAL shall be made at the sole discretion of the City Director. The SAL or special arrangement may be terminated or modified at will at any time by the City. A SAL or other special arrangement shall not create any vested rights or property rights in the user. A SAL or other special arrangement shall create no rights to discharge to the POTW which the user would not have in the absence of a SAL or special arrangement. Provisions relating to termination or modification of a SAL or special arrangement may be more fully set forth in the SAL or special arrangement document. As a condition precedent to the grant of a SAL or entry into a special arrangement, the City shall require the user to sign an acknowledgment and acceptance of the provisions of this subsection. Any SAL or special arrangement may contain provisions for the user to pay a compensatory charge to the City. A SAL shall not be higher than a categorical pretreatment standard unless a removal credit or a fundamentally different factor variance applies to allow the user to exceed the otherwise applicable categorical pretreatment standard. In such case, the SAL shall not exceed the limit allowed by the removal credit or variance. A violation of a SAL or of the terms of a special arrangement shall be a violation of this Division.

(1) *Procedures for Establishing Special Alternative Limits.* In determining a SAL or a special arrangement, the City Drector shall allocate a share of the maximum allowable industrial loading for the pollutant of concern set forth in Paragraph 2 of this Subsection among one or more non-domestic users in amounts and on terms and conditions deemed appropriate by the City Director.

(2) *Maximum Allowable Industrial Loadings.* The total mass of a pollutant of concern used by or allocated to all non-domestic users, including mass allocated by the City Director in establishing SALs for the pollutant, shall not exceed in the aggregate for all non-domestic users the maximum allowable industrial loadings described in Table 46-146(D)2 in the Appendix at the end of this Chapter.

(e) *Local Initiative Limits.* The City Director may impose limits on a user for pollutants not specifically listed in Table 46-146(c) in the Appendix at the end of this Chapter, which may be in a use permit or in an order. In determining a local initiative limit (LIL), the City Director shall consider available data on acceptable POTW pollutant loading based on POTW design, treatability of the pollutant, the potential for pass-through or interference, current POTW pollutant loading, the properties of the pollutant, and other relevant factors deemed appropriate by the City Director. The City Director may also establish generally applicable LILs by rulemaking. A generally applicable LIL may be established and shall be enforceable as a discharge prohibition, provided the City Director first publishes notice of the proposed LILs in the newspaper in the City with the largest circulation, provides written notice to users who are known to the City Director to discharge a significant mass or concentration of the pollutant, and provides for an opportunity to interested persons to submit written comments. If significant public comments are received, the City Director shall hold a public hearing to take additional oral and written comments. After these procedures are completed, the City Director shall publish the final enforceable LILs in the same newspaper along with the effective date of the LILs.

(f) *Categorical Pretreatment Standards.* A user shall comply with all categorical pretreatment standards and any other pretreatment requirements established under

307(B), 307(C), or 402(B)(8) of the Act that are applicable to that user, as adjusted under the combined wastestream formula in Michigan Rule R 323.2311(7). If a categorical pretreatment standard and another limit contained in this Division or in an applicable state of Michigan pretreatment requirement regulate the same pollutant, then the more restrictive of them shall apply. If a user requests that a removal credit be applicable to that user, then such user shall pay all costs associated with supporting, obtaining, and administering the removal credit so that the City incurs no costs. It shall be at the sole discretion of the City whether or not a removal credit shall be established and how a removal credit shall be allocated.

(g) *Trucked Wastes.* No wastes or wastewater shall be discharged by any user or person into the POTW from a vehicle which transported the waste or wastewater to the point of discharge. The preceding sentence does not prohibit a user from trucking wastes or wastewater to the user's treatment facility.

(h) *Future Conditions.* Future conditions imposed on the City by government agencies with proper jurisdiction may require subsequent amendment of this ordinance by the City. Where federal- or state-promulgated pretreatment standards require limits on parameters not covered in this ordinance or limits more stringent than those specified in the ordinance, the state or federal limits shall have precedence and take effect with respect to the applicable user on the later of their promulgation date or the date specified for compliance with such standards.

(i) *Reserved Right of Revision.* The City reserves the right to establish by ordinance, rule, order, or use permit more stringent limitations or requirements on discharges to the POTW.

Appendix

Table 46-146(c) Pollutant Concentration Limits
Table 46-146(d)(2) Maximum Allowable Industrial Loadings

Table 46-146(c)

Pollutant	Daily Concentration Limits
Biochemical Oxygen Demand	1,196 mg/L
Hexane-Extractable Material	100 mg/L 500 [3] mg/L
Ammonia-Nitrogen	110 mg/L
Total Phosphorus	14 mg/L
Total Suspended Solids	570 mg/L
Total Arsenic	51 ug/L
Total Cadmium	44 ug/L
Total Chromium	1,273 ug/L
Total Copper	896 ug/L
Available Cyanide	3300 ug/L
Total Lead	247 ug/L
Total Mercury	ND [1]
Total Nickel	543 ug/L
Total Silver	19 ug/L
Total Zinc	2,626 ug/L
Total PCB	ND [2]
Benzene	190 ug/L
Toluene	5600 ug/L
Ethylbenzene	4100 ug/L
Total Xylenes	6800 ug/L

[1] Mercury sample collection, preservation, and handling procedures and analytical protocol for compliance monitoring shall be in accordance with US-EPA Method 245.1 or 245.2 or Method 1631, as determined by the City Director. Whenever the quantification level is above the discharge limit, the discharge of mercury at or above the quantification level shall represent an exceedance of the limit. The quantification level under Methods 245.1 and 245.2 shall be 0.2 ug/L, unless a higher level is appropriate due to matrix interference. If the concentration of the discharge sample is less than the quantification level when Method 245.1 or 245.2 are applicable, the user shall be considered to be in compliance with the mercury limit for the period that the sample represents, provided that the user is also in full compliance with any mercury minimization requirements applicable to that user. However, the discharge of mercury at or above the quantification level shall represent a violation of §46-146(c). The quantification level under Method 1631 shall be 0.5 ng/L, unless a higher level is appropriate due to matrix interference. Justification for higher quantification levels shall be submitted to the City Director within 30 days of such determination. This footnote does not authorize the discharge of mercury at levels which interfere with the POTW or which constitute a threat to public health, welfare, or the waters of the State.

[2] Total PCB shall be defined as the sum of the concentrations of Aroclors 1016, 1221, 1232, 1242, 1248, 1254, and 1260. In addition, any detected Aroclor-specific measurements shall be reported. Total PCB sample collection, preservation and handling procedures and analytical protocol for compliance monitoring shall be in accordance with US EPA Method 608. The quantification level shall not exceed 0.2 ug/L, unless a higher level is appropriate due to sample matrix interference. Whenever the quantification level is less than or equal to the discharge limit, the discharge limit shall apply directly; however, whenever the quantification level is above the discharge limit, the discharge of Total PCB at or above the quantification level shall represent an exceedance of the limit. If the concentration of the discharge sample is less than the quantification level, the user shall be considered to be in compliance with the Total PCB limit for the period that the sample represents, provided that the user is also in full compliance with any Total PCB minimization requirements applicable to that user. However, the discharge of total PCB at or above the quantification level shall represent a violation of §46-146(c). Any Aroclor analytical result which is less than the quantification level shall be considered as a zero in the summation of the Aroclor results for the sample. This footnote does not authorize the discharge of total PCB at levels which interfere with the POTW or which constitute a threat to public health, welfare or the waters of the State.

[3] The Standard Ordinance Limit of 500 mg/L for Hexane extractable material is applicable only to discharges of petroleum – based HEM, as determined by the City Director. The 100 mg/L Standard Ordinance Limit is applicable to all food waste HEM and all other discharges.

Table 46-146(d)(2)

Maximum Allowable Industrial Loadings	
Pollutant	Maximum Allowable Industrial Loading
Biochemical Oxygen Demand	35,900 Pounds/Day
Ammonia Nitrogen	3,300 Pounds/Day
Total Phosphorus	418 Pounds/Day
Total Suspended Solids	17,100 Pounds/Day
Total Arsenic	1.53 Pounds/Day
Total Cadmium	1.31 Pounds/Day
Total Chromium	38.2 Pounds/Day
Total Copper	26.9 Pounds/Day
Available Cyanide	2.06 Pounds/Day
Total Lead	7.40 Pounds/Day
Total Nickel	16.3 Pounds/Day
Total Silver	0.559 Pounds/Day
Total Zinc	78.8 Pounds/Day
Benzene	8.95 Pounds/Day
Toluene	116 Pounds/Day
Ethylbenzene	6.71 Pounds/Day
Total Xylenes	12.9 Pounds/Day

City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the user's establishment including any mixtures, and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNDU" (Significant Non-domestic User) at the bottom of each page.

	Potentially Harmful Substance Present			Regulatory Classification				Amount Present		Amount to Drains	
				USEPA		MDEQ	MIOSHA				
	PHS #	Name	CAS RN	Haz Sub	Prior Pol	Crit Mat	Air Cont				
___	1	Abate	3383-96-8				Yes	___small	___large	___some	___none
___	2	Acenaphthene	83-32-9		Yes			___small	___large	___some	___none
___	3	Acenaphthylene	208-96-8		Yes			___small	___large	___some	___none
___	4	Acetaldehyde	75-07-0	Yes			Yes	___small	___large	___some	___none
___	5	Acetic Acid	64-19-7	Yes			Yes	___small	___large	___some	___none
___	6	Acetic Anhydride	108-24-7	Yes				___small	___large	___some	___none
___	7	Acetone Cyanohydrin	75-86-5	Yes				___small	___large	___some	___none
___	8	2-Acetylaminofluorene	53-96-3				Yes	___small	___large	___some	___none
___	9	Acetyl Bromide	506-96-7	Yes				___small	___large	___some	___none
___	10	Acetyl Chloride	75-36-5	Yes				___small	___large	___some	___none
___	11	Acetylene Tetrabromide	79-27-6				Yes	___small	___large	___some	___none
___	12	Acrolein	107-02-8	Yes	Yes		Yes	___small	___large	___some	___none
___	13	Acrylamide	79-06-1				Yes	___small	___large	___some	___none
___	14	Acrylonitrile	107-13-1	Yes	Yes		Yes	___small	___large	___some	___none
___	15	Adipic Acid	124-04-9	Yes				___small	___large	___some	___none
___	16	Aldrin	309-00-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	17	Allyl Alcohol	107-18-6	Yes			Yes	___small	___large	___some	___none
___	18	Allyl Chloride	107-05-1	Yes			Yes	___small	___large	___some	___none
___	19	Allyl Glycidyl Ether (AGE)	106-92-3				Yes	___small	___large	___some	___none
___	20	Allyl Propyl Disulfide	2179-59-1				Yes	___small	___large	___some	___none
___	21	Alpha-BHC	319-84-6		Yes			___small	___large	___some	___none
___	22	Aluminum Sulfate	10043-01-3	Yes				___small	___large	___some	___none
___	23	4-Aminobiphenyl	92-67-1				Yes	___small	___large	___some	___none
___	24	Amiotle	61-82-5				Yes	___small	___large	___some	___none
___	25	Ammonia	7664-41-7	Yes			Yes	___small	___large	___some	___none
___	26	Ammonium Acetate	631-61-8	Yes				___small	___large	___some	___none
___	27	Ammonium Benzoate	1863-63-4	Yes				___small	___large	___some	___none
___	28	Ammonium Bicarbonate	1066-33-7	Yes				___small	___large	___some	___none
___	29	Ammonium Bichromate	7789-09-5	Yes				___small	___large	___some	___none
___	30	Ammonium Bifluoride	1341-49-7	Yes				___small	___large	___some	___none
___	31	Ammonium Bisulfite	10192-30-0	Yes				___small	___large	___some	___none
___	32	Ammonium Carbamate	1111-78-0	Yes				___small	___large	___some	___none
___	33	Ammonium Carbonate	506-87-6	Yes				___small	___large	___some	___none
___	34	Ammonium Chloride	12125-02-9	Yes			Yes	___small	___large	___some	___none
___	35	Ammonium Chromate	7788-98-9	Yes				___small	___large	___some	___none
___	36	Ammonium Citrate, Dibasic	3012-65-5	Yes				___small	___large	___some	___none
___	37	Ammonium Fluoborate	13826-83-0	Yes				___small	___large	___some	___none
___	38	Ammonium Fluoride	12125-01-8	Yes				___small	___large	___some	___none
___	39	Ammonium Hydroxide	1336-21-6	Yes				___small	___large	___some	___none
___	40	Ammonium Oxalate	6009-70-7	Yes				___small	___large	___some	___none
___	41	Ammonium Silicofluoride	16919-19-0	Yes				___small	___large	___some	___none
___	42	Ammonium Sulfamate	7773-06-0	Yes			Yes	___small	___large	___some	___none
___	43	Ammonium Sulfide	12135-76-1	Yes				___small	___large	___some	___none
___	44	Ammonium Sulfite	10196-04-0	Yes				___small	___large	___some	___none
___	45	Ammonium Tartrate	3164-29-2	Yes				___small	___large	___some	___none
___	46	Ammonium Thiocyanate	1762-95-4	Yes				___small	___large	___some	___none
___	47	Amyl Acetate	628-63-7	Yes			Yes	___small	___large	___some	___none
___	48	sec-Amyl Acetate	626-38-0				Yes	___small	___large	___some	___none
___	49	Aniline	62-53-3	Yes			Yes	___small	___large	___some	___none
___	50	Anisidine (o- and p-isomers)	29191-52-4				Yes	___small	___large	___some	___none
___	51	Anthracene	120-9-7		Yes			___small	___large	___some	___none
___	52	Antimony (and all compounds)	7440-36-0		Yes			___small	___large	___some	___none
___	53	Antimony Pentachloride	7647-18-9	Yes	Yes			___small	___large	___some	___none
___	54	Antimony Pentafluoride	7783-70-2		Yes			___small	___large	___some	___none
___	55	Antimony Potassium Tartrate	28300-74-5	Yes	Yes			___small	___large	___some	___none
___	56	Antimony Trioxide	7782-61-9	Yes	Yes			___small	___large	___some	___none
___	57	Antimony Trichloride	10025-91-9	Yes	Yes			___small	___large	___some	___none
___	58	Antimony Trifluoride	7783-56-4	Yes	Yes			___small	___large	___some	___none
___	59	Antimony Trioxide	1309-64-4	Yes	Yes			___small	___large	___some	___none
___	60	Arsenic (and all compounds)	7440-38-2		Yes	Yes	Yes	___small	___large	___some	___none
___	61	Arsenic Acid	7778-39-4		Yes	Yes	Yes	___small	___large	___some	___none
___	62	Arsenic Disulfide	1303-32-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	63	Arsenic Pentoxide	1303-28-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	64	Arsenic Trioxide	1327-53-3	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	65	Arsenic Trisulfide	1303-33-9	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	66	Arsenous Trichloride	7784-34-1	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	67	Arsine	7784-42-1		Yes	Yes	Yes	___small	___large	___some	___none
___	68	Asbestos (friable)	1332-21-4		Yes		Yes	___small	___large	___some	___none
___	69	Azinphos	1912-24-9				Yes	___small	___large	___some	___none
___	70	Azinphos-Ethyl	2642-71-9				Yes	___small	___large	___some	___none
___	71	Azinphos-Methyl	86-50-0	Yes				___small	___large	___some	___none
___	72	Barium Cyanide	542-62-1	Yes				___small	___large	___some	___none
___	73	Benomyl	17804-35-2				Yes	___small	___large	___some	___none
___	74	Benz[A]Anthracene	56-55-3		Yes	Yes		___small	___large	___some	___none
___	75	Benzene	71-43-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	76	Benzidine	92-87-5		Yes		Yes	___small	___large	___some	___none
___	77	3,4-Benzofluoranthene	205-99-2		Yes			___small	___large	___some	___none
___	78	Benzo(GHI)Perylene (1,12-Benzoperylene)	191-24-2		Yes			___small	___large	___some	___none
___	79	Benzo(K)Fluoranthene (11,12-Benzofluoranthene)	207-08-9		Yes			___small	___large	___some	___none
___	80	Benzoic Acid	65-85-0	Yes				___small	___large	___some	___none
___	81	Benzonitrile	100-47-0	Yes				___small	___large	___some	___none
___	82	Benzoyl Chloride	98-88-4	Yes				___small	___large	___some	___none
___	83	Benzoyl Peroxide	94-36-0				Yes	___small	___large	___some	___none

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City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the users establishment(including any air releases), and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNDU" (Significant Non-domestic User) at the bottom of each page.

	84 Benzo(A)Pyrene	50-32-8		Yes	Yes	Yes	___small	___large	___some	___none
	85 p-Benzoquinone	106-51-4				Yes	___small	___large	___some	___none
	86 Benzyl Chloride	100-44-7	Yes			Yes	___small	___large	___some	___none
	87 Beryllium (and all compounds)	7440-41-7		Yes	Yes	Yes	___small	___large	___some	___none
	88 Beryllium Chloride	7787-47-5	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	89 Beryllium Fluoride	7787-49-7	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	90 Beryllium Nitrate	13597-99-4	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	91 Beta-Bhc	319-85-7		Yes			___small	___large	___some	___none
	92 Biphenyl	92-52-4				Yes	___small	___large	___some	___none
	93 Bis(2-Chloro-1-Methylethyl)Ether	108-60-1		Yes			___small	___large	___some	___none
	94 Bis(2-Chloroethoxy)Methane	111-91-1		Yes			___small	___large	___some	___none
	95 Bis(2-Chloroethyl)Ether	111-44-4		Yes		Yes	___small	___large	___some	___none
	96 Bis(2-Ethylhexyl)Phthalate	117-81-7		Yes		Yes	___small	___large	___some	___none
	97 Boron Trifluoride	7637-07-2				Yes	___small	___large	___some	___none
	98 Bromacil	314-40-9				Yes	___small	___large	___some	___none
	99 Bromine	7726-95-6				Yes	___small	___large	___some	___none
	100 Bromine Pentafluoride	7789-30-2				Yes	___small	___large	___some	___none
	101 4-Bromophenyl Phenyl Ether	101-55-3		Yes	Yes		___small	___large	___some	___none
	102 1,3-Butadiene	106-99-0		Yes		Yes	___small	___large	___some	___none
	103 Butane	106-97-8				Yes	___small	___large	___some	___none
	104 2,6-Di-tert Butyl-p-Cresol	128-37-0				Yes	___small	___large	___some	___none
	105 Butyl Acetate	123-86-4	Yes			Yes	___small	___large	___some	___none
	106 Butyl Acrylate	141-32-2				Yes	___small	___large	___some	___none
	107 Butyl Benzyl Phthalate	85-68-7		Yes			___small	___large	___some	___none
	108 Butyl Mercaptan	109-79-5				Yes	___small	___large	___some	___none
	109 Butylamine	109-73-9	Yes			Yes	___small	___large	___some	___none
	110 Di-n-Butyl Phthalate	84-74-2		Yes		Yes	___small	___large	___some	___none
	111 n-Butyl Glycidyl Ether (BGE)	2426-08-6				Yes	___small	___large	___some	___none
	112	138-22-7				Yes	___small	___large	___some	___none
	113 o-sec-Butylphenol	89-72-5				Yes	___small	___large	___some	___none
	114 p-tert-Butyltoluene	98-51-1				Yes	___small	___large	___some	___none
	115 sec-Butyl Acetate	105-46-4				Yes	___small	___large	___some	___none
	116 sec-Butyl Alcohol	78-92-2				Yes	___small	___large	___some	___none
	117 tert-Butyl Acetate	540-88-5				Yes	___small	___large	___some	___none
	118 tert-Butyl Chromate	1189-85-1				Yes	___small	___large	___some	___none
	119 Butyric Acid	107-92-6	Yes				___small	___large	___some	___none
	120 Cadmium (and all compounds)	7440-43-9		Yes	Yes		___small	___large	___some	___none
	121 Cadmium Acetate	543-90-8	Yes	Yes	Yes		___small	___large	___some	___none
	122 Cadmium Bromide	7789-42-6	Yes	Yes	Yes		___small	___large	___some	___none
	123 Cadmium Chloride	10108-64-2	Yes	Yes		Yes	___small	___large	___some	___none
	124 Cadmium Oxide	1306-19-0		Yes	Yes		___small	___large	___some	___none
	125 Cadmium Stearate	2223-93-0		Yes	Yes		___small	___large	___some	___none
	126 Calcium Arsenate	7778-44-1	Yes				___small	___large	___some	___none
	127 Calcium Arsenite	52740-16-6	Yes				___small	___large	___some	___none
	128 Calcium Carbide	75-20-7	Yes				___small	___large	___some	___none
	129 Calcium Chromate	13765-19-0	Yes				___small	___large	___some	___none
	130 Calcium Cyanamide	156-62-7				Yes	___small	___large	___some	___none
	131 Calcium Cyanide	592-01-8	Yes	Yes			___small	___large	___some	___none
	132 Calcium Dodecylbenzenesulfonate	26264-06-2	Yes				___small	___large	___some	___none
	133 Calcium Hypochlorite	7778-54-3	Yes				___small	___large	___some	___none
	134 Camphor, Synthetic	76-22-2				Yes	___small	___large	___some	___none
	135 Caprolactam	105-60-2				Yes	___small	___large	___some	___none
	136 Captafol	2425-06-1				Yes	___small	___large	___some	___none
	137 Captan	133-06-2	Yes			Yes	___small	___large	___some	___none
	138 Carbaryl	63-25-2	Yes			Yes	___small	___large	___some	___none
	139 Carbofuran	1563-66-2	Yes			Yes	___small	___large	___some	___none
	140 Carbon Disulfide	75-15-0	Yes			Yes	___small	___large	___some	___none
	141 Carbon Tetrabromide	558-13-4				Yes	___small	___large	___some	___none
	142 Carbon Tetrachloride	56-23-5	Yes	Yes		Yes	___small	___large	___some	___none
	143 Catechol	120-80-9				Yes	___small	___large	___some	___none
	144 1-Chloro-1-Nitropropane	600-25-9				Yes	___small	___large	___some	___none
	145 2-Chloroacetophenone	532-27-4				Yes	___small	___large	___some	___none
	146 2-Chloroethyl Vinyl Ether (mixed)	110-75-8		Yes			___small	___large	___some	___none
	147 2-Chloronaphthalene	91-58-7		Yes			___small	___large	___some	___none
	148 2-Chlorophenol	95-57-8		Yes			___small	___large	___some	___none
	149 4-Chlorophenyl Phenyl Ether	7005-72-3		Yes			___small	___large	___some	___none
	150 Chlordane	57-74-9	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	151 Chlorinated Diphenyl Oxide	55720-99-5				Yes	___small	___large	___some	___none
	152 Chlorine	7782-50-5	Yes			Yes	___small	___large	___some	___none
	153 Chlorine Dioxide	10049-04-4				Yes	___small	___large	___some	___none
	154 Chlorine Trifluoride	7790-91-2				Yes	___small	___large	___some	___none
	155 Chloroacetyl Chloride	79-04-9				Yes	___small	___large	___some	___none
	156 Chlorobenzene	108-90-7	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	157 Chlorobromomethane	74-97-5				Yes	___small	___large	___some	___none
	158 Chlorodibromomethane	124-48-1		Yes			___small	___large	___some	___none
	159 Chlorodifluoromethane	75-45-6				Yes	___small	___large	___some	___none
	160 Chloroethane	75-00-3		Yes		Yes	___small	___large	___some	___none
	161 Chloroform	67-66-3	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	162 Chloromethyl Methyl Ether	107-30-2				Yes	___small	___large	___some	___none
	163 Chloropicrin	76-06-2				Yes	___small	___large	___some	___none
	164 Chloroprene	126-99-8				Yes	___small	___large	___some	___none
	165 Chlorosulfonic Acid	7790-94-5	Yes				___small	___large	___some	___none
	166 Chlorpyrifos	2921-88-2	Yes			Yes	___small	___large	___some	___none
	167 o-Chlorobenzylidene Malononitrile	2698-41-1				Yes	___small	___large	___some	___none
	168 o-Chlorostyrene	2039-87-4				Yes	___small	___large	___some	___none
	169 o-Chlorotoluene	95-49-8				Yes	___small	___large	___some	___none

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City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the user's establishment including any in mixtures, and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNDU" (Significant Non-domestic User) at the bottom of each page.

	170 p-Chloro-m-Cresol	59-50-7		Yes			___small	___large	___some	___none
	171 Chromic Acetate	1066-30-4	Yes	Yes	Yes		___small	___large	___some	___none
	172 Chromic Acid	11115-74-5	Yes	Yes	Yes		___small	___large	___some	___none
	173 Chromic Chloride	10025-73-7		Yes	Yes		___small	___large	___some	___none
	174 Chromic Sulfate	10101-53-8	Yes	Yes	Yes		___small	___large	___some	___none
	175 Chromium (and all compounds)	7440-47-3		Yes	Yes		___small	___large	___some	___none
	176 Chromium (VI)	1333-82-0		Yes	Yes		___small	___large	___some	___none
	177 Chromous Chloride	10049-05-5	Yes	Yes	Yes		___small	___large	___some	___none
	178 Chrysene	218-01-9		Yes			___small	___large	___some	___none
	179 Coal Tar Pitch Volatiles	65996-93-2				Yes	___small	___large	___some	___none
	180 Cobalt Carbonyl	10210-68-1				Yes	___small	___large	___some	___none
	181 Cobalt Hydrocarbonyl (as Co)	16842-03-8				Yes	___small	___large	___some	___none
	182 Cobaltous Bromide	7789-43-7	Yes				___small	___large	___some	___none
	183 Cobaltous Formate	544-18-3	Yes				___small	___large	___some	___none
	184 Cobaltous Sulfamate	14017-41-5	Yes				___small	___large	___some	___none
	185 Copper (and all compounds)	7440-50-8		Yes	Yes		___small	___large	___some	___none
	186 Copper Cyanide	544-92-3		Yes	Yes	Yes	___small	___large	___some	___none
	187 Coumaphos	56-72-4	Yes				___small	___large	___some	___none
	188 Cresol	1319-77-3	Yes			Yes	___small	___large	___some	___none
	189 Crotonaldehyde	4170-30-3	Yes			Yes	___small	___large	___some	___none
	190 Crotonaldehyde,(E)	123-73-9				Yes	___small	___large	___some	___none
	191 Cruformate	299-86-5				Yes	___small	___large	___some	___none
	192 Cumene	98-82-8				Yes	___small	___large	___some	___none
	193 Cupric Acetate	142-71-2	Yes	Yes			___small	___large	___some	___none
	194 Cupric Acetoarsenite	12002-03-8	Yes	Yes	Yes		___small	___large	___some	___none
	195 Cupric Chloride	7447-39-4	Yes	Yes	Yes		___small	___large	___some	___none
	196 Cupric Nitrate	3251-23-8	Yes	Yes	Yes		___small	___large	___some	___none
	197 Cupric Oxalate	5893-66-3	Yes	Yes	Yes		___small	___large	___some	___none
	198 Cupric Sulfate	7758-98-7	Yes	Yes	Yes		___small	___large	___some	___none
	199 Cupric Sulfate, Ammoniated	10380-29-7	Yes	Yes	Yes		___small	___large	___some	___none
	200 Cupric Tartrate	815-82-7	Yes	Yes	Yes		___small	___large	___some	___none
	201 Cyanide Compounds			Yes		Yes	___small	___large	___some	___none
	202 Cyanogen	460-19-5				Yes	___small	___large	___some	___none
	203 Cyanogen Chloride	506-77-4				Yes	___small	___large	___some	___none
	204 Cyclohexane	110-82-7	Yes			Yes	___small	___large	___some	___none
	205 Cyclohexanol	108-93-0				Yes	___small	___large	___some	___none
	206 Cyclohexanone	108-94-1				Yes	___small	___large	___some	___none
	207 Cyclohexene	110-83-8				Yes	___small	___large	___some	___none
	208 Cyclohexylamine	108-91-8				Yes	___small	___large	___some	___none
	209 Cydrin	121-82-4				Yes	___small	___large	___some	___none
	210 Cyclopentadiene	542-92-7				Yes	___small	___large	___some	___none
	211 Cyclopentane	287-92-3				Yes	___small	___large	___some	___none
	212 Cythrin	13121-70-5				Yes	___small	___large	___some	___none
	213 2,4-Dichlorophenoxy Acetic Acid (2,4-D)	94-75-7	Yes			Yes	___small	___large	___some	___none
	214 4,4'-DDE (P,P'-DDE)	72-55-9		Yes	Yes		___small	___large	___some	___none
	215 DDT (P,P',O,P' And Technical Grade)	50-29-3	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	216 Decaborane(14)	17702-41-9				Yes	___small	___large	___some	___none
	217 Delta-BHC	319-86-8		Yes			___small	___large	___some	___none
	218 Demeton	8065-48-3				Yes	___small	___large	___some	___none
	219 Diazinon	333-41-5	Yes			Yes	___small	___large	___some	___none
	220 Diazomethane	334-88-3				Yes	___small	___large	___some	___none
	221 Dibenz(A,H)Anthracene	53-70-3		Yes	Yes		___small	___large	___some	___none
	222 Diborane	19287-45-7				Yes	___small	___large	___some	___none
	223 1,2-Dibromoethane	106-93-4	Yes			Yes	___small	___large	___some	___none
	224 2-n-Dibutylaminoethanol	102-81-8				Yes	___small	___large	___some	___none
	225 Dibutyl Phosphate	107-66-4				Yes	___small	___large	___some	___none
	226 Dicamba	1918-00-9	Yes				___small	___large	___some	___none
	227 1,1-Dichloro-1-Nitroethane	594-72-9				Yes	___small	___large	___some	___none
	228 1,1-Dichloroethane	75-34-3		Yes		Yes	___small	___large	___some	___none
	229 1,1-Dichloroethylene	75-35-4	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	230 1,2-Dichlorobenzene	95-50-1		Yes		Yes	___small	___large	___some	___none
	231 1,2-Dichloroethane	107-06-2	Yes	Yes	Yes		___small	___large	___some	___none
	232 1,2 Dichloroethylene	156-60-5		Yes		Yes	___small	___large	___some	___none
	233 1,2-Dichloropropane	78-87-5		Yes		Yes	___small	___large	___some	___none
	234 1,3-Dichloro-5,5-Dimethyl Hydantoin	118-52-5				Yes	___small	___large	___some	___none
	235 1,3-Dichlorobenzene	541-73-1		Yes	Yes		___small	___large	___some	___none
	236 1,3-Dichloropropylene (1,3-Dichloropropene)	542-75-6		Yes		Yes	___small	___large	___some	___none
	237 1,4-Dichlorobenzene	106-46-7		Yes	Yes	Yes	___small	___large	___some	___none
	238 2,2-Dichloropropionic Acid	75-99-0	Yes			Yes	___small	___large	___some	___none
	239 2,4-Dichlorophenol	120-83-2		Yes			___small	___large	___some	___none
	240 2,4-Dichlorophenoxyacetic Acid (2,4-D) Esters	94-11-1	Yes				___small	___large	___some	___none
	241 3,3-Dichlorobenzidine	91-94-1		Yes	Yes	Yes	___small	___large	___some	___none
	242 Dichlobenil	1194-65-6	Yes				___small	___large	___some	___none
	243 Dichlone	117-80-6	Yes				___small	___large	___some	___none
	244 Dichloroacetylene	7572-29-4				Yes	___small	___large	___some	___none
	245 Dichlorobenzene	25321-22-6	Yes				___small	___large	___some	___none
	246 Dichlorobromomethane	75-27-4		Yes			___small	___large	___some	___none
	247 Dichlorodifluoromethane (CFC-12)	75-71-8				Yes	___small	___large	___some	___none
	248 Dichloromethyl Ether	542-88-1				Yes	___small	___large	___some	___none
	249 Dichloromonofluoromethane	75-43-4				Yes	___small	___large	___some	___none
	250 Dichloropropane	26638-19-7	Yes				___small	___large	___some	___none
	251 Dichloropropene	26952-23-8	Yes				___small	___large	___some	___none
	252 Dichloropropene - Dichloropropane (mixture)	8003-19-8	Yes				___small	___large	___some	___none
	253 Dichlorotetrafluoroethane (CFC-114)	76-14-2				Yes	___small	___large	___some	___none
	254 Dichlorvos	62-73-7	Yes			Yes	___small	___large	___some	___none
	255 Dicofol	115-32-2	Yes				___small	___large	___some	___none

Application Number

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City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the user's establishment,including any in mixtures, and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNDU" (Significant Non-domestic User) at the bottom of each page

___	256 Dicrotophos	141-66-2				Yes	___small	___large	___some	___none
___	257 Dicyclopentadiene	77-73-6				Yes	___small	___large	___some	___none
___	258 Dieldrin	60-57-1	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	259 Diethanolamine	111-42-2				Yes	___small	___large	___some	___none
___	260 Diethyl Phthalate	84-66-2		Yes		Yes	___small	___large	___some	___none
___	261 Diethylamine	109-89-7	Yes			Yes	___small	___large	___some	___none
___	262 o,o-Diethyl o-Pyrazinyl Phosphorothioate	297-97-2		Yes			___small	___large	___some	___none
___	263 Difluorodibromomethane	75-61-6				Yes	___small	___large	___some	___none
___	264 Diglycidyl Ether	2238-07-5				Yes	___small	___large	___some	___none
___	265 Diisobutyl Ketone	108-83-8				Yes	___small	___large	___some	___none
___	266 Diisopropylamine	108-18-9				Yes	___small	___large	___some	___none
___	267 2,4-Dimethylphenol	105-67-9		Yes			___small	___large	___some	___none
___	268 4-Dimethylaminoazobenzene	60-11-7				Yes	___small	___large	___some	___none
___	269 Dimethyl Phthalate	131-11-3		Yes		Yes	___small	___large	___some	___none
___	270 Dimethyl Sulfate	77-78-1				Yes	___small	___large	___some	___none
___	271 Dimethylamine	124-40-3	Yes			Yes	___small	___large	___some	___none
___	272 n,n-Dimethylaniline	121-69-7				Yes	___small	___large	___some	___none
___	273 2,4-Dinitrophenol	51-28-5	Yes	Yes			___small	___large	___some	___none
___	274 2,4-Dinitrotoluene	121-14-2		Yes			___small	___large	___some	___none
___	275 4,6-Dinitro-o-Cresol	534-52-1		Yes		Yes	___small	___large	___some	___none
___	276 Dinitrolmide (3,5-Dinitro-o-Toluamide)	148-01-6				Yes	___small	___large	___some	___none
___	277 Dinitrotenzene (mixed isomers)	25154-54-5	Yes				___small	___large	___some	___none
___	278 Dinitrophenol	25550-58-7	Yes				___small	___large	___some	___none
___	279 Dinitrotoluene (mixed isomers)	25321-14-6		Yes		Yes	___small	___large	___some	___none
___	280 m-Dinitrobenzene	99-65-0				Yes	___small	___large	___some	___none
___	281 o-Dinitrobenzene	528-29-0				Yes	___small	___large	___some	___none
___	282 p-Dinitrobenzene	100-25-4				Yes	___small	___large	___some	___none
___	283 Dioxathion	78-34-2				Yes	___small	___large	___some	___none
___	284 1,2-Diphenylhydrazine	122-66-7		Yes			___small	___large	___some	___none
___	285 Diphenylamine	122-39-4				Yes	___small	___large	___some	___none
___	286 Dipropyl Ketone	123-19-3				Yes	___small	___large	___some	___none
___	287 Diquat	85-00-7	Yes			Yes	___small	___large	___some	___none
___	288 Disulfiram	97-77-8				Yes	___small	___large	___some	___none
___	289 Disulfoton	298-04-4	Yes			Yes	___small	___large	___some	___none
___	290 Diuron	330-54-1	Yes			Yes	___small	___large	___some	___none
___	291 Divinyl Benzene	1321-74-0				Yes	___small	___large	___some	___none
___	292 Dodecylbenzenesulfonic Acid	27176-87-0	Yes				___small	___large	___some	___none
___	293 Endosulfan	115-29-7	Yes	Yes		Yes	___small	___large	___some	___none
___	294 Endosulfan Sulfate	1031-07-8		Yes			___small	___large	___some	___none
___	295 Endrin	72-20-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	296 Endrin Aldehyde	7421-93-4		Yes			___small	___large	___some	___none
___	297 Epichlorohydrin	106-89-8	Yes			Yes	___small	___large	___some	___none
___	298 EPN	2104-64-5				Yes	___small	___large	___some	___none
___	299 Ethion	563-12-2	Yes			Yes	___small	___large	___some	___none
___	300 2-Ethoxyethyl Acetate (Cellosolve Acetate)	111-15-9				Yes	___small	___large	___some	___none
___	301 Ethyl Acetate	141-78-6				Yes	___small	___large	___some	___none
___	302 Ethyl Acrylate	140-88-5				Yes	___small	___large	___some	___none
___	303 Ethyl Amyl Ketone (5-Methyl-3 Heptanone)	541-85-5				Yes	___small	___large	___some	___none
___	304 Ethyl Bromide	74-96-4				Yes	___small	___large	___some	___none
___	305 Ethyl Butyl Ketone (3-Heptanone)	106-35-4				Yes	___small	___large	___some	___none
___	306 Ethyl Ether	60-29-7				Yes	___small	___large	___some	___none
___	307 Ethyl Formate	109-94-4				Yes	___small	___large	___some	___none
___	308 Ethyl Mercaptan	75-08-1				Yes	___small	___large	___some	___none
___	309 Ethyl Silicate	78-10-4				Yes	___small	___large	___some	___none
___	310 Ethylbenzene	100-41-4	Yes	Yes		Yes	___small	___large	___some	___none
___	311 Ethylene Glycol Dinitrate	628-96-6				Yes	___small	___large	___some	___none
___	312 Ethylenediamine	107-15-3	Yes			Yes	___small	___large	___some	___none
___	313 Ethylenediamine-Tetraacetic Acid (EDTA)	60-00-4	Yes				___small	___large	___some	___none
___	314 Ethylene Norbornene	16219-75-3				Yes	___small	___large	___some	___none
___	315 Fenamiphos	22224-92-6				Yes	___small	___large	___some	___none
___	316 Fensulfothion	115-90-2				Yes	___small	___large	___some	___none
___	317 Fenthion	55-38-9				Yes	___small	___large	___some	___none
___	318 Ferric Ammonium Citrate	1185-57-5	Yes				___small	___large	___some	___none
___	319 Ferric Ammonium Oxalate	2944-67-4	Yes				___small	___large	___some	___none
___	320 Ferric Ammonium Oxalate	55488-87-4	Yes				___small	___large	___some	___none
___	321 Ferric Chloride	7705-08-0	Yes				___small	___large	___some	___none
___	322 Ferric Fluoride	7783-50-8	Yes				___small	___large	___some	___none
___	323 Ferric Nitrate	10421-48-4	Yes				___small	___large	___some	___none
___	324 Ferric Sulfate	10028-22-5	Yes				___small	___large	___some	___none
___	325 Ferrous Ammonium Sulfate	10045-89-3	Yes				___small	___large	___some	___none
___	326 Ferrous Chloride	7758-94-3	Yes				___small	___large	___some	___none
___	327 Ferrous Sulfate	7720-78-7	Yes				___small	___large	___some	___none
___	328 Fluoranthene	206-44-0		Yes			___small	___large	___some	___none
___	329 Fluorene	86-73-7		Yes			___small	___large	___some	___none
___	330 Fluorine	7782-41-4				Yes	___small	___large	___some	___none
___	331 Fonofos	944-22-9				Yes	___small	___large	___some	___none
___	332 Formaldehyde	50-00-0	Yes				___small	___large	___some	___none
___	333 Fumaric Acid	110-17-8	Yes				___small	___large	___some	___none
___	334 Furfural	98-01-1	Yes			Yes	___small	___large	___some	___none
___	335 Gasoline	8006-61-9				Yes	___small	___large	___some	___none
___	336 Germanium Tetrahydride	7782-65-2				Yes	___small	___large	___some	___none
___	337 Heptachlor	76-44-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	338 Heptachlor Epoxide	1024-57-3		Yes	Yes		___small	___large	___some	___none
___	339 Hexachlorobenzene	118-74-1		Yes	Yes		___small	___large	___some	___none
___	340 Hexachlorobutadiene	87-68-3		Yes	Yes	Yes	___small	___large	___some	___none
___	341 Hexachlorocyclohexane	608-73-1		Yes	Yes		___small	___large	___some	___none

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City of Flint Sanitary Sewer Use Permit Application
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Worksheet A

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___	342 Hexachlorocyclopentadiene	77-47-4	Yes	Yes		Yes	___small	___large	___some	___none
___	343 Hexachloroethane	67-72-1		Yes	Yes	Yes	___small	___large	___some	___none
___	344 Hexachloronaphthalene	1335-87-1				Yes	___small	___large	___some	___none
___	345 Hexane	110-54-3				Yes	___small	___large	___some	___none
___	346 Hydrochloric Acid	7647-01-0	Yes			Yes	___small	___large	___some	___none
___	347 Hydrogen Cyanide	74-90-8	Yes			Yes	___small	___large	___some	___none
___	348 Hydrogen Fluoride	7664-39-3	Yes			Yes	___small	___large	___some	___none
___	349 Hydrogen Selenide	7783-07-5				Yes	___small	___large	___some	___none
___	350 Hydrogen Sulfide	7783-06-4	Yes			Yes	___small	___large	___some	___none
___	351 Hydroquinone	123-31-9				Yes	___small	___large	___some	___none
___	352 Indeno(1,2,3-CD)Pyrene (2,3-o-Phenylenepyrene)	193-39-5		Yes			___small	___large	___some	___none
___	353 Iron Pentacarbonyl-	13463-40-6				Yes	___small	___large	___some	___none
___	354 Iso-Amyl Acetate	123-92-2				Yes	___small	___large	___some	___none
___	355 Iso-Butyl Acetate	110-19-0				Yes	___small	___large	___some	___none
___	356 Isobutanol	78-83-1				Yes	___small	___large	___some	___none
___	357 Isophorone	78-59-1		Yes		Yes	___small	___large	___some	___none
___	358 Isophorone Diisocyanate	4098-71-9				Yes	___small	___large	___some	___none
___	359 Isoprene	78-79-5	Yes				___small	___large	___some	___none
___	360 Isopropanolamine Dodecylbenzene Sulfonate	42504-46-1	Yes				___small	___large	___some	___none
___	361 Kepone	143-50-0	Yes				___small	___large	___some	___none
___	362 Lead (and all compounds)	7439-92-1		Yes	Yes		___small	___large	___some	___none
___	363 Lead Acetate	301-04-2	Yes				___small	___large	___some	___none
___	364 Lead Arsenate	3687-31-8	Yes				___small	___large	___some	___none
___	365 Lead Chloride	7758-95-4	Yes				___small	___large	___some	___none
___	366 Lead Fluoborate	13814-96-5	Yes				___small	___large	___some	___none
___	367 Lead Fluoride	7783-46-2	Yes				___small	___large	___some	___none
___	368 Lead Iodide	13101-63-0	Yes				___small	___large	___some	___none
___	369 Lead Nitrate	10099-74-8	Yes				___small	___large	___some	___none
___	370 Lead Stearate	1072-35-1	Yes				___small	___large	___some	___none
___	371 Lead Sulfate	7446-14-2	Yes				___small	___large	___some	___none
___	372 Lead Sulfide	1314-87-0	Yes				___small	___large	___some	___none
___	373 Lead Thiocyanate	592-87-0	Yes				___small	___large	___some	___none
___	374 Lindane	58-89-9	Yes	Yes		Yes	___small	___large	___some	___none
___	375 Lithium Chromate	14307-35-8	Yes				___small	___large	___some	___none
___	376 Lithium Hydride	7580-67-8				Yes	___small	___large	___some	___none
___	377 Malathion	121-75-5	Yes				___small	___large	___some	___none
___	378 Maleic Acid	110-16-7	Yes				___small	___large	___some	___none
___	379 Maleic Anhydride	108-31-6	Yes				___small	___large	___some	___none
___	380 Manganese	7439-96-5				Yes	___small	___large	___some	___none
___	381 Manganese, Tricarbonyl Methylcyclopentadienyl	12108-13-3				Yes	___small	___large	___some	___none
___	382 MBOCA	101-14-4			Yes		___small	___large	___some	___none
___	383 Mercaptodimethur	2032-65-7	Yes				___small	___large	___some	___none
___	384 Mercuric Acetate	1600-27-7		Yes	Yes	Yes	___small	___large	___some	___none
___	385 Mercuric Chloride	7487-94-7		Yes	Yes	Yes	___small	___large	___some	___none
___	386 Mercuric Cyanide	592-04-1	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	387 Mercuric Nitrate	10045-94-0	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	388 Mercuric Oxide	21908-53-2		Yes	Yes	Yes	___small	___large	___some	___none
___	389 Mercuric Sulfate	7783-35-9	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	390 Mercuric Thiocyanate	592-85-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	391 Mercurous Nitrate	7782-86-7	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	392 Mercury (and all compounds)	7439-97-6		Yes	Yes	Yes	___small	___large	___some	___none
___	393 Mercury Fulminate	628-86-4		Yes	Yes	Yes	___small	___large	___some	___none
___	394 Methacrylonitrile	126-98-7				Yes	___small	___large	___some	___none
___	395 Methomyl	16752-77-5				Yes	___small	___large	___some	___none
___	396 Methoxychlor	72-43-5	Yes		Yes	Yes	___small	___large	___some	___none
___	397 Methyl Acrylate	96-33-3				Yes	___small	___large	___some	___none
___	398 Methyl Bromide (Bromomethane)	74-83-9		Yes		Yes	___small	___large	___some	___none
___	399 Methyl Chloride (Chloromethane)	74-87-3		Yes		Yes	___small	___large	___some	___none
___	400 Methyl Ethyl Ketone	78-93-3				Yes	___small	___large	___some	___none
___	401 Methyl Ethyl Ketone Peroxide	1338-23-4				Yes	___small	___large	___some	___none
___	402 Methyl Iodide	74-88-4				Yes	___small	___large	___some	___none
___	403 Methyl Isobutyl Ketone	108-10-1				Yes	___small	___large	___some	___none
___	404 Methyl Isocyanate	624-83-9				Yes	___small	___large	___some	___none
___	405 Methyl Mercaptan	74-93-1	Yes			Yes	___small	___large	___some	___none
___	406 Methyl Methacrylate	80-62-6	Yes				___small	___large	___some	___none
___	407 Methyl Parathion	298-00-0	Yes			Yes	___small	___large	___some	___none
___	408 Methylene Chloride (Dichloromethane)	75-09-2		Yes	Yes	Yes	___small	___large	___some	___none
___	409 Methylenebis (Phenylisocyanate)	101-68-8				Yes	___small	___large	___some	___none
___	410 Mevinphos	7786-34-7	Yes			Yes	___small	___large	___some	___none
___	411 Mexacarbate	315-18-4	Yes				___small	___large	___some	___none
___	412 Mirex	2385-85-5		Yes	Yes		___small	___large	___some	___none
___	413 Monochloropentafluoroethane (CFC-115)	76-15-3				Yes	___small	___large	___some	___none
___	414 Monoethylamine	75-04-7	Yes			Yes	___small	___large	___some	___none
___	415 Monomethylamine	74-89-5	Yes			Yes	___small	___large	___some	___none
___	416 Naled	300-76-5	Yes			Yes	___small	___large	___some	___none
___	417 1-Naphthylamine	134-32-7				Yes	___small	___large	___some	___none
___	418 Naphthalene	91-20-3	Yes	Yes		Yes	___small	___large	___some	___none
___	419 Naphthenic Acid	1338-24-5	Yes				___small	___large	___some	___none
___	420 Wm & P Naphtha	8032-32-4				Yes	___small	___large	___some	___none
___	421 Nickel (and all compounds)	7440-02-0		Yes	Yes		___small	___large	___some	___none
___	422 Nickel Ammonium Sulfate	15699-18-0	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	423 Nickel Carbonyl	13463-39-3		Yes	Yes	Yes	___small	___large	___some	___none
___	424 Nickel Chloride	7718-54-9	Yes	Yes	Yes		___small	___large	___some	___none
___	425 Nickel Cyanide	557-19-7		Yes	Yes		___small	___large	___some	___none
___	426 Nickel Hydroxide	12054-48-7	Yes	Yes	Yes		___small	___large	___some	___none
___	427 Nickel Nitrate	14216-75-2	Yes	Yes	Yes		___small	___large	___some	___none

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___	428 Nickel Sulfate	7786-81-4	Yes	Yes	Yes		___small	___large	___some	___none
___	429 Nitric Acid	7697-37-2	Yes			Yes	___small	___large	___some	___none
___	430 Nitric Oxide	10102-43-9				Yes	___small	___large	___some	___none
___	431 1-Nitropropane	108-03-2				Yes	___small	___large	___some	___none
___	432 2-Nitrophenol	88-75-5		Yes			___small	___large	___some	___none
___	433 2-Nitropropane	79-46-9				Yes	___small	___large	___some	___none
___	434 4-Nitrobiphenyl	92-93-3				Yes	___small	___large	___some	___none
___	435 4-Nitrophenol	100-02-7	Yes	Yes			___small	___large	___some	___none
___	436 m-Nitrotoluene	99-08-1	Yes			Yes	___small	___large	___some	___none
___	437 n-Nitrosodimethylamine	62-75-9		Yes		Yes	___small	___large	___some	___none
___	438 n-Nitrosodiphenylamine	86-30-6		Yes			___small	___large	___some	___none
___	439 Nitrobenzene	98-95-3	Yes	Yes		Yes	___small	___large	___some	___none
___	440 Nitroethane	79-24-3				Yes	___small	___large	___some	___none
___	441 Nitrogen Dioxide	13132-44-0	Yes			Yes	___small	___large	___some	___none
___	442 Nitrogen Trifluoride	7783-54-2				Yes	___small	___large	___some	___none
___	443 Nitroglycerin	55-63-0				Yes	___small	___large	___some	___none
___	444 Nitromethane	75-52-5				Yes	___small	___large	___some	___none
___	445 Nitrophenol (mixed isomers)	25154-55-6	Yes				___small	___large	___some	___none
___	446 Nitrotoluene	1321-12-6	Yes				___small	___large	___some	___none
___	447 p-Nitroaniline	100-01-6				Yes	___small	___large	___some	___none
___	448 p-Nitrochlorobenzene	100-00-5				Yes	___small	___large	___some	___none
___	449 p-Nitrotoluene	99-99-0				Yes	___small	___large	___some	___none
___	450 Nonane	111-84-2				Yes	___small	___large	___some	___none
___	451 Octachloronaphthalene	2234-13-1				Yes	___small	___large	___some	___none
___	452 Octachlorostyrene	29082-74-7		Yes	Yes		___small	___large	___some	___none
___	453 Octane	111-65-9				Yes	___small	___large	___some	___none
___	454 Di-n-Octyl Phthalate	117-84-0		Yes	Yes		___small	___large	___some	___none
___	455 Osmium Tetroxide	20816-12-0				Yes	___small	___large	___some	___none
___	456 Oxalic Acid	144-62-7				Yes	___small	___large	___some	___none
___	457 Oxygen Difluoride	7783-41-7				Yes	___small	___large	___some	___none
___	458 Ozone	10028-15-6				Yes	___small	___large	___some	___none
___	459 Paraformaldehyde	30525-89-4	Yes				___small	___large	___some	___none
___	460 Parathion	56-38-2	Yes			Yes	___small	___large	___some	___none
___	461 2-Pentanone (Methyl Propyl Ketone)	107-87-9				Yes	___small	___large	___some	___none
___	462 Pentaborane	19624-22-7				Yes	___small	___large	___some	___none
___	463 Pentachloronaphthalene	1321-64-8				Yes	___small	___large	___some	___none
___	464 Pentachlorophenol	87-86-5	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	465 Pentane	109-66-0				Yes	___small	___large	___some	___none
___	466 Perchloryl Fluoride	7616-94-6				Yes	___small	___large	___some	___none
___	467 Petroleum Distillates (Naphta)	8030-30-6				Yes	___small	___large	___some	___none
___	468 Phenanthrene	85-01-8		Yes			___small	___large	___some	___none
___	469 Phenol	108-95-2	Yes	Yes		Yes	___small	___large	___some	___none
___	470 Phenothrazine	92-84-2				Yes	___small	___large	___some	___none
___	471 p-Phenylenediamine	106-50-3				Yes	___small	___large	___some	___none
___	472 Phenyl Ether	101-84-8				Yes	___small	___large	___some	___none
___	473 Phenyl Ether-Biphenyl Mixture					Yes	___small	___large	___some	___none
___	474 Phenyl Glycidyl Ether (PGE)	122-60-1				Yes	___small	___large	___some	___none
___	475 Phenylhydrazine	100-63-0				Yes	___small	___large	___some	___none
___	476 Phenylphosphine	638-21-1				Yes	___small	___large	___some	___none
___	477 Phorate	298-02-2				Yes	___small	___large	___some	___none
___	478 Phosgene	75-44-5	Yes			Yes	___small	___large	___some	___none
___	479 Phosphine	7803-51-2				Yes	___small	___large	___some	___none
___	480 Phosphoric Acid	7664-38-2	Yes				___small	___large	___some	___none
___	481 Phosphorus	7723-14-0	Yes			Yes	___small	___large	___some	___none
___	482 Phosphorus Oxychloride	10025-87-3	Yes			Yes	___small	___large	___some	___none
___	483 Phosphorus Pentachloride	10026-13-8				Yes	___small	___large	___some	___none
___	484 Phosphorus Trichloride	7719-12-2	Yes			Yes	___small	___large	___some	___none
___	485 m-Phthalodinitrile	626-17-5				Yes	___small	___large	___some	___none
___	486 Picric Acid	88-89-1				Yes	___small	___large	___some	___none
___	487 Pindone (2-Pivalyl-1,3-indandione)	83-26-1				Yes	___small	___large	___some	___none
___	488 Piperazine Dihydrochloride	142-64-3				Yes	___small	___large	___some	___none
___	489 Polybrominated Biphenyls (PBB)	67774-32-7			Yes		___small	___large	___some	___none
___	490 Polychlorinated Biphenyls (PCB)	1336-36-3	Yes	Yes	Yes		___small	___large	___some	___none
___	491 Polychlorinated Naphthalenes	CLASS-06-6			Yes		___small	___large	___some	___none
___	492 Potassium Arsenite	10124-50-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	493 Potassium Bichromate	7778-50-9	Yes	Yes	Yes		___small	___large	___some	___none
___	494 Potassium Chromate	7789-00-6	Yes	Yes	Yes		___small	___large	___some	___none
___	495 Potassium Cyanide	151-50-8	Yes	Yes			___small	___large	___some	___none
___	496 Potassium Hydroxide	1310-58-3	Yes				___small	___large	___some	___none
___	497 Potassium Permanganate	7722-64-7	Yes				___small	___large	___some	___none
___	498 Propane	74-98-6				Yes	___small	___large	___some	___none
___	499 Propargite	2312-35-8	Yes				___small	___large	___some	___none
___	500 Propargyl Alcohol	107-19-7				Yes	___small	___large	___some	___none
___	501 Beta Propiolactone	57-57-8				Yes	___small	___large	___some	___none
___	502 Propionic Acid	79-09-4	Yes			Yes	___small	___large	___some	___none
___	503 Propionic Anhydride	123-62-6	Yes				___small	___large	___some	___none
___	504 Propoxur	114-26-1				Yes	___small	___large	___some	___none
___	505 Di-n-Propylnitrosamine	621-64-7		Yes			___small	___large	___some	___none
___	506 n-Propyl Acetate	109-60-4				Yes	___small	___large	___some	___none
___	507 n-Propyl Nitrate	627-13-4				Yes	___small	___large	___some	___none
___	508 Propylene Glycol Dinitrate	6423-43-4				Yes	___small	___large	___some	___none
___	509 Propylene Glycol Monomethyl Ether	107-98-2				Yes	___small	___large	___some	___none
___	510 Propylene Oxide	75-56-9	Yes			Yes	___small	___large	___some	___none
___	511 Pyrene	129-00-0		Yes			___small	___large	___some	___none
___	512 Pyrethrins	8003-34-7	Yes			Yes	___small	___large	___some	___none
___	513 Quinoline	91-22-5	Yes				___small	___large	___some	___none

Application Number:

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City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the user's establishment *including any in mixtures* and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNDU" (Significant Non-domestic User) at the bottom of each page.

___	514	Resorcinol	108-46-3	Yes			Yes	___small	___large	___some	___none
___	515	Rennel	299-84-3				Yes	___small	___large	___some	___none
___	516	Rotenone	83-79-4				Yes	___small	___large	___some	___none
___	517	Selenium (and all compounds)	7782-49-2		Yes	Yes	Yes	___small	___large	___some	___none
___	518	Selenium Hexafluoride	7783-79-1		Yes	Yes	Yes	___small	___large	___some	___none
___	519	Selenium Oxide	7446-08-4	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	520	Selenium Oxychloride	7791-23-3		Yes	Yes	Yes	___small	___large	___some	___none
___	521	Selenium Sulfide	7488-56-4		Yes	Yes	Yes	___small	___large	___some	___none
___	522	Silicon Tetrahydride	7803-62-5				Yes	___small	___large	___some	___none
___	523	Silver (all compounds)	7440-22-4		Yes	Yes		___small	___large	___some	___none
___	524	Silver Cyanide	506-64-9		Yes	Yes	Yes	___small	___large	___some	___none
___	525	Silver Nitrate	7761-88-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	526	Silvex (2,4,5-Trichlorophenoxy Acid, 2,4,5-TP)	93-72-1	Yes				___small	___large	___some	___none
___	527	Silvex Esters (2,4,5-TP Esters)	32534-95-5	Yes				___small	___large	___some	___none
___	528	Sodium	7440-23-5	Yes				___small	___large	___some	___none
___	529	Sodium Arsenate	7631-89-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	530	Sodium Arsenite	7784-46-5	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	531	Sodium Bichromate	10588-01-9	Yes	Yes	Yes		___small	___large	___some	___none
___	532	Sodium Bifluoride	1333-83-1	Yes				___small	___large	___some	___none
___	533	Sodium Bisulfite	7631-90-5	Yes				___small	___large	___some	___none
___	534	Sodium Chromate	7775-11-3	Yes	Yes	Yes		___small	___large	___some	___none
___	535	Sodium Cyanide (Na[CN])	143-33-9	Yes	Yes			___small	___large	___some	___none
___	536	Sodium Dodecylbenzenesulfonate	25155-30-0	Yes				___small	___large	___some	___none
___	537	Sodium Fluoride	7681-49-4	Yes				___small	___large	___some	___none
___	538	Sodium Hydrosulfide	16721-80-5	Yes				___small	___large	___some	___none
___	539	Sodium Hydroxide	1310-73-2	Yes				___small	___large	___some	___none
___	540	Sodium Hypochlorite	7681-52-9	Yes				___small	___large	___some	___none
___	541	Sodium Hypochlorite	13022-70-5	Yes				___small	___large	___some	___none
___	542	Sodium Methylate	124-41-4	Yes				___small	___large	___some	___none
___	543	Sodium Nitrite	7632-00-0	Yes				___small	___large	___some	___none
___	544	Sodium Phosphate, Dibasic	7558-79-4	Yes				___small	___large	___some	___none
___	545	Sodium Phosphate, Tribasic	7601-54-9	Yes				___small	___large	___some	___none
___	546	Sodium Selenite	10102-18-8	Yes	Yes	Yes	Yes	___small	___large	___some	___none
___	547	Stibine	7803-52-3				Yes	___small	___large	___some	___none
___	548	Stoddard Solvent	8052-41-3				Yes	___small	___large	___some	___none
___	549	Strontium Chromate	7789-06-2	Yes	Yes	Yes		___small	___large	___some	___none
___	550	Strychnine	57-24-9	Yes			Yes	___small	___large	___some	___none
___	551	Styrene	100-42-5	Yes		Yes	Yes	___small	___large	___some	___none
___	552	Sulfur Dioxide	7446-09-5				Yes	___small	___large	___some	___none
___	553	Sulfur Hexafluoride	2551-62-4				Yes	___small	___large	___some	___none
___	554	Sulfur Monochloride	10025-67-9	Yes			Yes	___small	___large	___some	___none
___	555	Sulfur Pentafluoride	5714-22-7				Yes	___small	___large	___some	___none
___	556	Sulfur Phosphide	1314-80-3	Yes			Yes	___small	___large	___some	___none
___	557	Sulfur Tetrafluoride	7783-60-0				Yes	___small	___large	___some	___none
___	558	Sulfuric Acid	7664-93-9	Yes			Yes	___small	___large	___some	___none
___	559	Sulfuryl Fluoride	2699-79-8				Yes	___small	___large	___some	___none
___	560	2,4,5-T Amines	1319-72-8	Yes				___small	___large	___some	___none
___	561	2,4,5-T Amines	3813-14-7	Yes				___small	___large	___some	___none
___	562	2,4,5-T Amines	6369-96-6	Yes				___small	___large	___some	___none
___	563	2,4,5-T Amines	6369-97-7	Yes				___small	___large	___some	___none
___	564	2,4,5-T Esters	1928-47-8	Yes				___small	___large	___some	___none
___	565	2,4,5-T Esters	2545-59-7	Yes				___small	___large	___some	___none
___	566	2,4,5-T Esters	25168-15-4	Yes				___small	___large	___some	___none
___	567	2,4,5-T Esters	61792-07-2	Yes				___small	___large	___some	___none
___	568	2,3,7,8-TCDF (and all congeners)	51207-31-9			Yes		___small	___large	___some	___none
___	569	TDE	72-54-8	Yes	Yes	Yes		___small	___large	___some	___none
___	570	Tellurium (and all compounds)	13494-80-9				Yes	___small	___large	___some	___none
___	571	Tellurium Hexafluoride	7783-80-4				Yes	___small	___large	___some	___none
___	572	Terphenyls	26140-60-3				Yes	___small	___large	___some	___none
___	573	1,1,1,2-Tetrachloro-2,2 -Difluoroethane	76-11-9				Yes	___small	___large	___some	___none
___	574	1,1,2,2-Tetrachloro-1,2-Difluoroethane	76-12-0				Yes	___small	___large	___some	___none
___	575	1,1,2,2-Tetrachloroethane	79-34-5		Yes		Yes	___small	___large	___some	___none
___	576	1,2,3,4-Tetrachlorobenzene	634-66-2			Yes		___small	___large	___some	___none
___	577	1,2,3,5-Tetrachlorobenzene	634-90-2			Yes		___small	___large	___some	___none
___	578	1,2,4,5-Tetrachlorobenzene	95-94-3			Yes		___small	___large	___some	___none
___	579	2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD)	1746-01-6		Yes	Yes		___small	___large	___some	___none
___	580	Tetrachloroethylene (Perchloroethylene)	127-18-4		Yes	Yes	Yes	___small	___large	___some	___none
___	581	Tetrachloronaphthalene	1335-88-2				Yes	___small	___large	___some	___none
___	582	Tetraethyl Lead	78-00-2	Yes			Yes	___small	___large	___some	___none
___	583	Tetraethyl Pyrophosphate	107-49-3	Yes			Yes	___small	___large	___some	___none
___	584	Tetraethyl thiopyrophosphate	3689-24-5				Yes	___small	___large	___some	___none
___	585	Tetramethyl Succinonitrile	3333-52-6				Yes	___small	___large	___some	___none
___	586	Tetramethyllead	75-74-1				Yes	___small	___large	___some	___none
___	587	Tetranitromethane	509-14-8				Yes	___small	___large	___some	___none
___	588	Tetryl (2,4,6-Trinitro-Phenyl-Methyl Nitramine)	479-45-8				Yes	___small	___large	___some	___none
___	589	Thallic Oxide	1314-32-5		Yes		Yes	___small	___large	___some	___none
___	590	Thallium	7440-28-0		Yes			___small	___large	___some	___none
___	591	Thallium Sulfate	10031-59-1	Yes	Yes		Yes	___small	___large	___some	___none
___	592	Thallium(I) Acetate	563-68-8		Yes		Yes	___small	___large	___some	___none
___	593	Thallium(I) Nitrate	10102-45-1		Yes		Yes	___small	___large	___some	___none
___	594	Thallous Carbonate	6533-73-9		Yes		Yes	___small	___large	___some	___none
___	595	Thallous Chloride	7791-12-0		Yes		Yes	___small	___large	___some	___none
___	596	Thallous Malonate	2757-18-8		Yes		Yes	___small	___large	___some	___none
___	597	Thallous Sulfate	7446-18-6	Yes	Yes		Yes	___small	___large	___some	___none
___	598	Thionyl Chloride	7719-09-7				Yes	___small	___large	___some	___none
___	599	Thiophenol	108-98-5				Yes	___small	___large	___some	___none

Application Number:

City of Flint Sanitary Sewer Use Permit Application
Potentially Harmful Substances on Premises

Worksheet A

Instructions: Check the appropriate spaces below to identify the following Potentially Harmful Substances present at the user's establishment/including any in mixtures, and to report the maximum amount (either "small" or "large") of each one present at any time and the amount (either "some" or "none") of each one known, assumed or expected to normally enter at any time any drain that ultimately empties into any sanitary sewer. A "small" amount is less than 55 gallons for any liquid substance or less than 100 pounds for any solid substance. Also enter the name of the user in the space after "SNOU" (Significant Non-domestic User) at the bottom of each page.

	630 Thiourea, 1-Naphthalenyl-	86-88-4				Yes	___small	___large	___some	___none
	631 Thiram	137-26-8				Yes	___small	___large	___some	___none
	632 Toluene	108-88-3	Yes	Yes	Yes		___small	___large	___some	___none
	633 Toluene 2,4-Diisocyanate	584-84-9				Yes	___small	___large	___some	___none
	634 m-Toluidine	108-44-1				Yes	___small	___large	___some	___none
	635 o-Toluidine	95-53-4				Yes	___small	___large	___some	___none
	636 Toxaphene	8001-35-2	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	637 Tribromomethane	75-25-2		Yes		Yes	___small	___large	___some	___none
	638 Tributyl Phosphate	126-73-8				Yes	___small	___large	___some	___none
	639 Tributyltin and salts and esters				Yes		___small	___large	___some	___none
	640 1,1,1-Trichloroethane	71-55-6		Yes		Yes	___small	___large	___some	___none
	641 1,1,2-Trichloroethane	79-00-5		Yes		Yes	___small	___large	___some	___none
	642 1,2,3-Trichlorobenzene	87-61-6			Yes		___small	___large	___some	___none
	643 1,2,3-Trichloropropane	96-18-4				Yes	___small	___large	___some	___none
	644 1,2,4-Trichlorobenzene	120-82-1		Yes	Yes	Yes	___small	___large	___some	___none
	645 2,4,5-T Amines, Esters and Salts		Yes				___small	___large	___some	___none
	646 2,4,5-Trichloroacetic Acid (2,4,5-T)	93-76-5	Yes			Yes	___small	___large	___some	___none
	647 2,4,5-Trichlorophenol	95-95-4	Yes		Yes		___small	___large	___some	___none
	648 2,4,5-Trichlorotoluene	6639-30-1			Yes		___small	___large	___some	___none
	649 2,4,6-Trichlorophenol	88-06-2	Yes	Yes			___small	___large	___some	___none
	650 Trichlorfon	52-68-6	Yes				___small	___large	___some	___none
	651 Trichloroacetic Acid	76-03-9				Yes	___small	___large	___some	___none
	652 Trichloroethylene	79-01-6	Yes	Yes	Yes	Yes	___small	___large	___some	___none
	653 Trichloromethanesulfenyl Chloride	594-42-3				Yes	___small	___large	___some	___none
	654 Trichloronaphthalene	1321-65-9				Yes	___small	___large	___some	___none
	655 Trichlorophenol	25167-82-2	Yes				___small	___large	___some	___none
	656 Triethanolamine Dodecylbenzene Sulfonate	27323-41-7	Yes				___small	___large	___some	___none
	657 Triethylamine	121-44-8	Yes			Yes	___small	___large	___some	___none
	658 Trifluralin	1582-09-8			Yes		___small	___large	___some	___none
	659 Trimellitic Anhydride	552-30-7				Yes	___small	___large	___some	___none
	660 Trimethyl Benzene	25551-13-7				Yes	___small	___large	___some	___none
	661 Trimethyl Phosphite	121-45-9				Yes	___small	___large	___some	___none
	662 Trimethylamine	75-50-3	Yes			Yes	___small	___large	___some	___none
	663 2,4,6-Trinitrotoluene (TNT)	118-96-7				Yes	___small	___large	___some	___none
	664 Triorthocresyl Phosphate	78-30-8				Yes	___small	___large	___some	___none
	665 Triphenyl Amine	603-34-9				Yes	___small	___large	___some	___none
	666 Triphenyl Phosphate	115-86-6				Yes	___small	___large	___some	___none
	667 Turpentine	8006-64-2				Yes	___small	___large	___some	___none
	668 Uranyl Acetate	541-09-3	Yes				___small	___large	___some	___none
	669 Uranyl Nitrate	10102-06-4	Yes				___small	___large	___some	___none
	670 n-Valeraldehyde	110-62-3				Yes	___small	___large	___some	___none
	671 Vanadium Pentoxide	1314-62-1	Yes				___small	___large	___some	___none
	672 Vanadyl Sulfate	27774-13-6	Yes				___small	___large	___some	___none
	673 Vinyl Acetate Monomer	108-05-4	Yes			Yes	___small	___large	___some	___none
	674 Vinyl Bromide	593-60-2				Yes	___small	___large	___some	___none
	675 Vinyl Chloride	75-01-4		Yes	Yes	Yes	___small	___large	___some	___none
	676 Vinyl Cyclohexane Dioxide	106-87-6				Yes	___small	___large	___some	___none
	677 Vinyl Toluene	25013-15-4				Yes	___small	___large	___some	___none
	678 Warfarin & Salts, Conc >0.3%	81-81-2				Yes	___small	___large	___some	___none
	679 Xylene	1330-20-7	Yes		Yes	Yes	___small	___large	___some	___none
	680 Xylenol	1300-71-6	Yes				___small	___large	___some	___none
	681 Xylidine	1300-73-8				Yes	___small	___large	___some	___none
	682 Zinc (and all compounds)	7440-66-6		Yes	Yes		___small	___large	___some	___none
	683 Zinc Acetate	557-34-6	Yes	Yes	Yes		___small	___large	___some	___none
	684 Zinc Ammonium Chloride	52628-25-8	Yes	Yes	Yes		___small	___large	___some	___none
	685 Zinc Borate	1332-07-6	Yes	Yes	Yes		___small	___large	___some	___none
	686 Zinc Bromide	7699-45-8	Yes	Yes	Yes		___small	___large	___some	___none
	687 Zinc Carbonate	3486-35-9	Yes	Yes	Yes		___small	___large	___some	___none
	688 Zinc Chloride	7646-85-7		Yes	Yes	Yes	___small	___large	___some	___none
	689 Zinc Cyanide	557-21-1	Yes	Yes	Yes		___small	___large	___some	___none
	690 Zinc Fluoride	7783-49-5	Yes	Yes	Yes		___small	___large	___some	___none
	691 Zinc Formate	557-41-5	Yes	Yes	Yes		___small	___large	___some	___none
	692 Zinc Hydrosulfite	7779-86-4	Yes	Yes	Yes		___small	___large	___some	___none
	693 Zinc Nitrate	7779-88-6	Yes	Yes	Yes		___small	___large	___some	___none
	694 Zinc Phenolsulfonate	127-82-2	Yes	Yes	Yes		___small	___large	___some	___none
	695 Zinc Phosphide	1314-84-7	Yes	Yes	Yes		___small	___large	___some	___none
	696 Zinc Silicofluoride	16871-71-9	Yes	Yes	Yes		___small	___large	___some	___none
	697 Zinc Sulfate	7733-02-0	Yes	Yes	Yes		___small	___large	___some	___none
	698 Zinc, Dichloro(4,4-Dimethyl 5((((Methylamino)Carbonyl)Oxy)Im	58270-08-9		Yes	Yes		___small	___large	___some	___none
	699 Zirconium Nitrate	13746-89-9	Yes				___small	___large	___some	___none
	670 Zirconium Potassium Fluoride	16923-95-8	Yes				___small	___large	___some	___none
	671 Zirconium Sulfate	14644-61-2	Yes				___small	___large	___some	___none
	672 Zirconium Tetrachloride	10026-11-6	Yes				___small	___large	___some	___none

Application Number

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ATTACHMENT 2

Analytical Data

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Tel: (916)373-5600

TestAmerica Job ID: 320-25843-1
Client Project/Site: PFC Analysis

For:
O'Brien & Gere Inc of North America
37000 Grand River Ave
Suite 260
Farmington Hills, Michigan 48335

Attn: Mr. Clifford Yantz

Authorized for release by:
3/9/2017 9:53:53 AM

Jill Kellmann, Manager of Project Management
(916)374-4402
jill.kellmann@testamericainc.com

Table of Contents

Definitions/Glossary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Qualifiers

LCMS

Qualifier	Qualifier Description
*	Isotope Dilution analyte is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 320-25843-1

Laboratory: TestAmerica Sacramento

Narrative

Receipt
The samples were received on 2/16/2017 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2º C.

LCMS
Method(s) 537 (modified): The following sample was diluted to bring the concentration of target analytes within the calibration range: 01-PRCC-17 (320-25843-1). Elevated reporting limits (RLs) are provided.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recovery for Perfluorobutanoic acid (PFBA) in the following sample is below the method recommended limit: 01-PRCC-17 (320-25843-1). Generally, data quality is not considered affected if the IDA signal-to-noise ratio is greater than 10:1, which is achieved for all IDA in the sample.

Method(s) 537 (modified): The Isotope Dilution Analyte (IDA) recoveries for several analytes are above the method recommended limit for the following samples: Field Blank-1 (320-25843-2), (LCS 320-152744/2-A), (LCSD 320-152744/3-A) and (MB 320-152744/1-A). Quantitation by isotope dilution generally precludes any adverse effect on data quality due to elevated IDA recoveries.

Method(s) 537 (modified): The continuing calibration verification (CCV) associated with batch 320-153012 recovered above the upper control limit for M2-6:2FTS. The samples associated with this CCV were non-detects for the affected analyte; therefore, the data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
Method(s) 3535: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-152744.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Client Sample ID: 01-PRCC-17 — Lab Sample ID: 320-25843-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	53		18	6.6	ng/L	10		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	100		18	8.0	ng/L	10		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	260		18	7.6	ng/L	10		537 (modified)	Total/NA
Perfluoroheptanesulfonic Acid (PFHpS)	63		18	6.2	ng/L	10		537 (modified)	Total/NA
Perfluorooctane Sulfonamide (FOSA)	12	J B	18	5.6	ng/L	10		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS) - DL	4000		180	110	ng/L	100		537 (modified)	Total/NA

Client Sample ID: Field Blank-1 — Lab Sample ID: 320-25843-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctane Sulfonamide (FOSA)	0.76	J B	1.8	0.58	ng/L	1		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: 01-PRCC-17

Date Collected: 02/15/17 12:00
Date Received: 02/16/17 09:40

Lab Sample ID: 320-25843-1

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		18	4.0	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluoropentanoic acid (PFPeA)	ND		18	8.7	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorohexanoic acid (PFHxA)	ND		18	6.9	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluoroheptanoic acid (PFHpA)	ND		18	7.0	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorooctanoic acid (PFOA)	**53**		18	6.6	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorononanoic acid (PFNA)	ND		18	5.7	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorodecanoic acid (PFDA)	ND		18	3.9	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluoroundecanoic acid (PFUnA)	ND		18	6.6	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorododecanoic acid (PFDoA)	ND		18	5.1	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorotridecanoic Acid (PFTriA)	ND		18	4.8	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorotetradecanoic acid (PFTeA)	ND		18	1.7	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorobutanesulfonic acid (PFBS)	**100**		18	8.0	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorohexanesulfonic acid (PFHxS)	**260**		18	7.6	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluoroheptanesulfonic Acid (PFHpS)	**63**		18	6.2	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorodecanesulfonic acid (PFDS)	ND		18	11	ng/L		03/01/17 14:04	03/06/17 14:30	10
Perfluorooctane Sulfonamide (FOSA)	**12**	**J B**	18	5.6	ng/L		03/01/17 14:04	03/06/17 14:30	10
6:2FTS	ND		180	33	ng/L		03/01/17 14:04	03/06/17 14:30	10

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*27*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C4 PFBA	*22*	*	*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C2 PFHxA	*64*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C4 PFOA	*70*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C5 PFNA	*81*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C2 PFDA	*86*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C2 PFUnA	*85*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C2 PFDoA	*82*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
18O2 PFHxS	*81*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C4-PFHpA	*64*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
13C5 PFPeA	*43*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*
M2-6:2FTS	*114*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:30*	*10*

Method: 537 (modified) - Perfluorinated Hydrocarbons - DL

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	**4000**		180	110	ng/L		03/01/17 14:04	03/06/17 14:22	100

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C4 PFOS	*128*		*25 - 150*	*03/01/17 14:04*	*03/06/17 14:22*	*100*

Client Sample ID: Field Blank-1

Date Collected: 02/15/17 12:10
Date Received: 02/16/17 09:40

Lab Sample ID: 320-25843-2

Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	0.42	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.90	ng/L		03/01/17 14:04	03/02/17 22:28	1

Client Sample ID: Field Blank-1
Date Collected: 02/15/17 12:10
Date Received: 02/16/17 09:40

Lab Sample ID: 320-25843-2
Matrix: Water

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorohexanoic acid (PFHxA)	ND		1.8	0.71	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.73	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorooctanoic acid (PFOA)	ND		1.8	0.68	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorononanoic acid (PFNA)	ND		1.8	0.59	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.40	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.68	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.53	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorotridecanoic Acid (PFTriA)	ND		1.8	0.50	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.8	0.18	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.83	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.79	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.65	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	1.1	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorooctanesulfonic acid (PFOS)	ND		1.8	1.2	ng/L		03/01/17 14:04	03/02/17 22:28	1
Perfluorooctane Sulfonamide (FOSA)	**0.76**	**J B**	1.8	0.58	ng/L		03/01/17 14:04	03/02/17 22:28	1
6:2FTS	ND		18	3.5	ng/L		03/01/17 14:04	03/02/17 22:28	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*89*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C4 PFBA	*140*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C2 PFHxA	*145*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C4 PFOA	*157*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C5 PFNA	*138*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C2 PFDA	*137*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C2 PFUnA	*136*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C2 PFDoA	*128*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
18O2 PFHxS	*149*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C4 PFOS	*139*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C4-PFHpA	*161*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
13C5 PFPeA	*150*		*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*
M2-6:2FTS	*186*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 22:28*	*1*

Isotope Dilution Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Method: 537 (modified) - Perfluorinated Hydrocarbons

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	3C8 FOSA (25-150)	3C4 PFBA (25-150)	3C2 PFHxA (25-150)	3C4 PFOA (25-150)	3C5 PFNA (25-150)	3C2 PFDA (25-150)	3C2 PFUnA (25-150)	3C2 PFDoA (25-150)
320-25843-1	01-PRCC-17	27	22 *	64	70	81	86	85	82
320-25843-1 - DL	01-PRCC-17								
320-25843-2	Field Blank-1	89	140	145	157 *	138	137	136	128
LCS 320-152744/2-A	Lab Control Sample	101	152 *	165 *	159 *	147	145	147	145
LCSD 320-152744/3-A	Lab Control Sample Dup	68	153 *	162 *	164 *	148	150	142	146
MB 320-152744/1-A	Method Blank	86	153 *	160 *	166 *	152 *	153 *	149	146

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	18O2 PFHxS (25-150)	13C4 PFOS (25-150)	13C4-PFHpA (25-150)	13C5 PFPeA (25-150)	M2-6:2FTS (25-150)			
320-25843-1	01-PRCC-17	81		64	43	114			
320-25843-1 - DL	01-PRCC-17		128						
320-25843-2	Field Blank-1	149	139	161 *	150	186 *			
LCS 320-152744/2-A	Lab Control Sample	151 *	149	171 *	158 *	209 *			
LCSD 320-152744/3-A	Lab Control Sample Dup	154 *	146	169 *	158 *	209 *			
MB 320-152744/1-A	Method Blank	153 *	146	177 *	154 *	224 *			

Surrogate Legend

13C8 FOSA = 13C8 FOSA
13C4 PFBA = 13C4 PFBA
13C2 PFHxA = 13C2 PFHxA
13C4 PFOA = 13C4 PFOA
13C5 PFNA = 13C5 PFNA
13C2 PFDA = 13C2 PFDA
13C2 PFUnA = 13C2 PFUnA
13C2 PFDoA = 13C2 PFDoA
18O2 PFHxS = 18O2 PFHxS
13C4 PFOS = 13C4 PFOS
13C4-PFHpA = 13C4-PFHpA
13C5 PFPeA = 13C5 PFPeA
M2-6:2FTS = M2-6:2FTS

Method: 537 (modified) - Perfluorinated Hydrocarbons

Lab Sample ID: MB 320-152744/1-A
Matrix: Water
Analysis Batch: 153012

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 152744

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	0.46	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.99	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.79	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.80	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorooctanoic acid (PFOA)	ND		2.0	0.75	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorononanoic acid (PFNA)	ND		2.0	0.65	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.44	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.75	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.58	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorotridecanoic Acid (PFTriA)	ND		2.0	0.55	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.20	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.92	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.87	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.71	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	1.2	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorooctanesulfonic acid (PFOS)	ND		2.0	1.3	ng/L		03/01/17 14:04	03/02/17 21:58	1
Perfluorooctane Sulfonamide (FOSA)	0.683	J	2.0	0.64	ng/L		03/01/17 14:04	03/02/17 21:58	1
6:2FTS	ND		20	3.8	ng/L		03/01/17 14:04	03/02/17 21:58	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*86*		*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C4 PFBA	*153*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C2 PFHxA	*160*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C4 PFOA	*166*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C5 PFNA	*152*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C2 PFDA	*153*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C2 PFUnA	*149*		*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C2 PFDoA	*146*		*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
18O2 PFHxS	*153*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C4 PFOS	*146*		*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C4-PFHpA	*177*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
13C5 PFPeA	*154*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*
M2-6:2FTS	*224*	*	*25 - 150*	*03/01/17 14:04*	*03/02/17 21:58*	*1*

Lab Sample ID: LCS 320-152744/2-A
Matrix: Water
Analysis Batch: 153012

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152744

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	41.7		ng/L		104	74 - 138
Perfluoropentanoic acid (PFPeA)	40.0	40.7		ng/L		102	69 - 134
Perfluorohexanoic acid (PFHxA)	40.0	38.9		ng/L		97	70 - 136
Perfluoroheptanoic acid (PFHpA)	40.0	37.9		ng/L		95	63 - 135
Perfluorooctanoic acid (PFOA)	40.0	39.2		ng/L		98	63 - 141
Perfluorononanoic acid (PFNA)	40.0	39.1		ng/L		98	71 - 140
Perfluorodecanoic acid (PFDA)	40.0	39.6		ng/L		99	66 - 141
Perfluoroundecanoic acid (PFUnA)	40.0	33.2		ng/L		83	68 - 139

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCS 320-152744/2-A
Matrix: Water
Analysis Batch: 153012

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 152744

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorododecanoic acid (PFDoA)	40.0	36.1		ng/L		90	71 - 139
Perfluorotridecanoic Acid (PFTriA)	40.0	38.3		ng/L		96	51 - 139
Perfluorotetradecanoic acid (PFTeA)	40.0	41.9		ng/L		105	47 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	39.7		ng/L		112	55 - 147
Perfluorohexanesulfonic acid (PFHxS)	36.4	34.4		ng/L		95	58 - 138
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	38.8		ng/L		102	32 - 170
Perfluorodecanesulfonic acid (PFDS)	38.6	35.9		ng/L		93	35 - 157
Perfluorooctanesulfonic acid (PFOS)	37.1	35.1		ng/L		95	47 - 162
Perfluorooctane Sulfonamide (FOSA)	40.0	39.8		ng/L		99	59 - 163
6:2FTS	37.9	41.3		ng/L		109	60 - 140

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*101*		*25 - 150*
13C4 PFBA	*152*	*	*25 - 150*
13C2 PFHxA	*165*	*	*25 - 150*
13C4 PFOA	*159*	*	*25 - 150*
13C5 PFNA	*147*		*25 - 150*
13C2 PFDA	*145*		*25 - 150*
13C2 PFUnA	*147*		*25 - 150*
13C2 PFDoA	*145*		*25 - 150*
18O2 PFHxS	*151*	*	*25 - 150*
13C4 PFOS	*149*		*25 - 150*
13C4-PFHpA	*171*	*	*25 - 150*
13C5 PFPeA	*158*	*	*25 - 150*
M2-6:2FTS	*209*	*	*25 - 150*

Lab Sample ID: LCSD 320-152744/3-A
Matrix: Water
Analysis Batch: 153012

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152744

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	40.0	42.5		ng/L		106	74 - 138	2	30
Perfluoropentanoic acid (PFPeA)	40.0	41.7		ng/L		104	69 - 134	2	30
Perfluorohexanoic acid (PFHxA)	40.0	39.2		ng/L		98	70 - 136	1	30
Perfluoroheptanoic acid (PFHpA)	40.0	38.5		ng/L		96	63 - 135	2	30
Perfluorooctanoic acid (PFOA)	40.0	38.1		ng/L		95	63 - 141	3	30
Perfluorononanoic acid (PFNA)	40.0	40.0		ng/L		100	71 - 140	2	30
Perfluorodecanoic acid (PFDA)	40.0	39.9		ng/L		100	66 - 141	1	30
Perfluoroundecanoic acid (PFUnA)	40.0	35.0		ng/L		88	68 - 139	5	30
Perfluorododecanoic acid (PFDoA)	40.0	36.8		ng/L		92	71 - 139	2	30

Method: 537 (modified) - Perfluorinated Hydrocarbons (Continued)

Lab Sample ID: LCSD 320-152744/3-A
Matrix: Water
Analysis Batch: 153012

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 152744

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorotridecanoic Acid (PFTriA)			40.0	38.4		ng/L		96	51 - 139	0	30
Perfluorotetradecanoic acid (PFTeA)			40.0	41.8		ng/L		104	47 - 130	0	30
Perfluorobutanesulfonic acid (PFBS)			35.4	39.5		ng/L		112	55 - 147	0	30
Perfluorohexanesulfonic acid (PFHxS)			36.4	34.3		ng/L		94	58 - 138	0	30
Perfluoroheptanesulfonic Acid (PFHpS)			38.1	39.8		ng/L		105	32 - 170	3	30
Perfluorodecanesulfonic acid (PFDS)			38.6	36.6		ng/L		95	35 - 157	2	30
Perfluorooctanesulfonic acid (PFOS)			37.1	36.4		ng/L		98	47 - 162	4	30
Perfluorooctane Sulfonamide (FOSA)			40.0	39.0		ng/L		98	59 - 163	2	30
6:2FTS			37.9	40.5		ng/L		107	60 - 140	2	30

Isotope Dilution	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
13C8 FOSA	*68*		*25 - 150*
13C4 PFBA	*153*	*	*25 - 150*
13C2 PFHxA	*162*	*	*25 - 150*
13C4 PFOA	*164*	*	*25 - 150*
13C5 PFNA	*148*		*25 - 150*
13C2 PFDA	*150*		*25 - 150*
13C2 PFUnA	*142*		*25 - 150*
13C2 PFDoA	*146*		*25 - 150*
18O2 PFHxS	*154*	*	*25 - 150*
13C4 PFOS	*146*		*25 - 150*
13C4-PFHpA	*169*	*	*25 - 150*
13C5 PFPeA	*158*	*	*25 - 150*
M2-6:2FTS	*209*	*	*25 - 150*

QC Association Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

LCMS

Prep Batch: 152744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-25843-1 - DL	01-PRCC-17	Total/NA	Water	3535	
320-25843-1	01-PRCC-17	Total/NA	Water	3535	
320-25843-2	Field Blank-1	Total/NA	Water	3535	
MB 320-152744/1-A	Method Blank	Total/NA	Water	3535	
LCS 320-152744/2-A	Lab Control Sample	Total/NA	Water	3535	
LCSD 320-152744/3-A	Lab Control Sample Dup	Total/NA	Water	3535	

Analysis Batch: 153012

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-25843-2	Field Blank-1	Total/NA	Water	537 (modified)	152744
MB 320-152744/1-A	Method Blank	Total/NA	Water	537 (modified)	152744
LCS 320-152744/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	152744
LCSD 320-152744/3-A	Lab Control Sample Dup	Total/NA	Water	537 (modified)	152744

Analysis Batch: 153464

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-25843-1 - DL	01-PRCC-17	Total/NA	Water	537 (modified)	152744
320-25843-1	01-PRCC-17	Total/NA	Water	537 (modified)	152744

Lab Chronicle

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Client Sample ID: 01-PRCC-17

Lab Sample ID: 320-25843-1

Date Collected: 02/15/17 12:00

Matrix: Water

Date Received: 02/16/17 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535	DL		285.3 mL	0.50 mL	152744	03/01/17 14:04	JER	TAL SAC
Total/NA	Analysis	537 (modified)	DL	100			153464	03/06/17 14:22	SBC	TAL SAC
Total/NA	Prep	3535			285.3 mL	0.50 mL	152744	03/01/17 14:04	JER	TAL SAC
Total/NA	Analysis	537 (modified)		10			153464	03/06/17 14:30	SBC	TAL SAC

Client Sample ID: Field Blank-1

Lab Sample ID: 320-25843-2

Date Collected: 02/15/17 12:10

Matrix: Water

Date Received: 02/16/17 09:40

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			275.8 mL	0.50 mL	152744	03/01/17 14:04	JER	TAL SAC
Total/NA	Analysis	537 (modified)		1			153012	03/02/17 22:28	SBC	TAL SAC

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Certification Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Oregon	NELAP	10	4040	01-28-18

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537 (modified)	3535	Water	6:2FTS
537 (modified)	3535	Water	Perfluorobutanesulfonic acid (PFBS)
537 (modified)	3535	Water	Perfluorobutanoic acid (PFBA)
537 (modified)	3535	Water	Perfluorodecanesulfonic acid (PFDS)
537 (modified)	3535	Water	Perfluorodecanoic acid (PFDA)
537 (modified)	3535	Water	Perfluorododecanoic acid (PFDoA)
537 (modified)	3535	Water	Perfluoroheptanesulfonic Acid (PFHpS)
537 (modified)	3535	Water	Perfluoroheptanoic acid (PFHpA)
537 (modified)	3535	Water	Perfluorohexanesulfonic acid (PFHxS)
537 (modified)	3535	Water	Perfluorohexanoic acid (PFHxA)
537 (modified)	3535	Water	Perfluorononanoic acid (PFNA)
537 (modified)	3535	Water	Perfluorooctane Sulfonamide (FOSA)
537 (modified)	3535	Water	Perfluorooctanesulfonic acid (PFOS)
537 (modified)	3535	Water	Perfluorooctanoic acid (PFOA)
537 (modified)	3535	Water	Perfluoropentanoic acid (PFPeA)
537 (modified)	3535	Water	Perfluorotetradecanoic acid (PFTeA)
537 (modified)	3535	Water	Perfluorotridecanoic Acid (PFTriA)
537 (modified)	3535	Water	Perfluoroundecanoic acid (PFUnA)

Method Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Method	Method Description	Protocol	Laboratory
537 (modified)	Perfluorinated Hydrocarbons	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: O'Brien & Gere Inc of North America
Project/Site: PFC Analysis

TestAmerica Job ID: 320-25843-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-25843-1	01-PRCC-17	Water	02/15/17 12:00	02/16/17 09:40
320-25843-2	Field Blank-1	Water	02/15/17 12:10	02/16/17 09:40

TestAmerica Sacramento
880 Riverside Parkway
West Sacramento, CA 95605
Phone: 916.373.5600 Fax:

Chain of Custody Record

167364

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	Project Manager: Clifford Yantz	Site Contact: Kevin Schneider	Date: 2/15/17	COC No:
Company Name: O'Brien & Gere	Tel/Fax: 248-477-5701	Lab Contact: Pat Abe	Carrier: FEDEX	1 of 1 COCs
Address: 37000 Grand River ste 260	Analysis Turnaround Time			Sampler:
City/State/Zip: Farmington Hills, MI 48335	☒ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 248-477-5701	TAT if different from Below _____			Walk-in Client:
Fax: 248-477-5960	☒ 2 weeks			Sampling:
Project Name: RACER Trust	☐ 1 week			
Site: Coldwater Rd Landfill	☐ 2 days			/ SDG No.:
PO# 11700138	☐ 1 day			

320-25843 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PFCs	Sample Specific Notes:
01-PRCC-17	2/15/17	1200	G	WW	2	N	M	X	
Field Blank-1	2/15/17	1210	G	QC	2	N	M	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: PFAs / PFOs Tracking # 785621491752

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 1.2 Corr'd: _____ | Therm ID No.: AC

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	O'Brien & Gere	2/15/17 1528	FEDEX OVERNIGHT	FEDEX	2/15/17 1528
Relinquished by:	Company:	Date/Time: 2/15/17 FBS	Received by: [signature]	Company: [signature]	Date/Time: 2/16/17 940
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Login Sample Receipt Checklist

Client: O'Brien & Gere Inc of North America

Job Number: 320-25843-1

Login Number: 25843
List Number: 1
Creator: Nelson, Kym D

List Source: TestAmerica Sacramento

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	False	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATTACHMENT 3

GAC Consumption Estimates

Attachment 3
PFAS-Based GAC Consumption Estimate
RACER Trust - Coldwater Road Landfill Facility

Notes:
Detected PFAS from Sample 01-PRCC-017 were summed to determine the total PFAS concentration.

Concentration of Detected PFAS in Effluent Sample 01-PRCC-017

	Concentration (ng/L)
Perfluorooctanoic acid (PFOA)	53
Perfluorobutanesulfonic acid (PFBS)	100
Perfluorohexanesulfonic acid (PFHxS)	260
Perfluoroheptanesulfonic Acid (PFHpS)	63
Perfluorooctane Sulfonamide (FOSA)	12 J B
Perfluorooctanesulfonic acid (PFOS)	4000
Sum of Detected PFAS	4,488

A PFAS mass load was caclulated using an annual flow rate and concentration. The flow rate for 2017 was approx. 18,500 gal/year. Consumption was estimated using a conservative PFAS/GAC rate and a safety factor.

GAC Consumption Estimate

Annual Flow Rate	20,000 gal/year
PFAS Mass Load	339,742 µg PFAS/year
Assumed PFAS/GAC Consumption Rate	10 µg PFAS/g GAC
Estimated Annual GAC Consumption	75 lb GAC/year
Factor of Safety	2
Adjusted Annual GAC Consumption	150 lb GAC/year

Attachment 3
RACER Trust - Coldwater Road Landfill Facility
TOC-Based GAC Consumption Estimate

Notes:
TOC concentrations from 2016 and 2017 presented on page 3 were averaged for each sump. Because flow from each sump is not metered, the pump run time presented on page 4 was used to estimate a proportioned average TOC concentration.

A TOC mass load was caclulated using an annual flow rate and concentration. The flow rate for 2017 was approx. 18,500 gal/year. Consumption was estimated using a conservative TOC/GAC rate and a safety factor.

Average TOC Concentrations and Pump Run Times from June 2016 to June 2017

	TOC (mg/L)	Pump Run Time (min)
Sump A	40	347
Sump B	78	117
Sump C	156	127
Sump D	301	80
Sump E	16	58
Sump F	42	0.40

Pump Run Time Proportioned Average TOC	93 mg/L

GAC Consumption Estimate

Annual Flow Rate	20,000 gal/year
TOC Mass Load	7,028 g TOC/year
Assumed TOC/GAC Consumption Rate	0.1 g TOC/g GAC
Estimated Annual GAC Consumption	155 lb GAC/year
Factor of Safety	2
Adjusted Annual GAC Consumption	310 lb GAC/year

Attachment 3 RACER Trust - Coldwater Road Landfill Facility Landfill Leak Detection Sumps - Historical Water Quality Parameter		
	Sample Date	**TOC (mg/L)**
Sump A	21-Jun-16	39.8
Duplicate	21-Jun-16	39.9
	19-Jun-17	40.1
Sump B	21-Jun-16	86.0
	19-Jun-17	69.6
Sump C	21-Jun-16	203.0
	19-Jun-17	108.0
Sump D	21-Jun-16	334.0
	19-Jun-17	268.0
Sump E	21-Jun-16	19.1
	19-Jun-17	13.7
Duplicate	19-Jun-17	13.8
Sump F	21-Jun-16	44.0
	19-Jun-17	40.4

Attachment 3
RACER Trust - Coldwater Road Landfill Facility
Landfill Leak Detection Sumps - Pump Run Times

Total Pump Run Time

Date 2016	Minutes Sump A	Minutes Sump B	Minutes Sump C	Minutes Sump D	Minutes Sump E	Minutes Sump F
18-Feb-16	8,462.2	12,380.1	22,557.2	14,001.0	5,720.7	8,529.1
17-Mar-16	8,486.0	12,380.1	22,557.2	14,001.0	5,720.7	8,529.1
21-Apr-16	8,550.1	12,474.9	22,557.5	14,036.5	5,720.7	8,529.1
17-May-16	8,680.8	12,507.3	22,646.7	14,057.5	5,855.0	8,529.2
27-Jun-16	8,803.5	12,529.5	22,677.8	14,082.8	5,857.7	8,529.2
26-Jul-16	8,841.1	12,556.7	22,697.1	14,111.1	5,857.7	8,529.2
17-Aug-16	8,841.1	12,556.7	22,707.7	14,111.2	5,857.7	8,529.2
26-Sep-16	8,847.4	12,568.4	22,727.3	14,125.5	5,857.7	8,529.2
16-Oct-16	8,871.7	12,568.4	22,740.8	14,125.5	5,857.7	8,529.2
15-Nov-16	8,871.7	12,568.4	22,740.8	14,125.5	5,857.7	8,529.2
21-Dec-16	8,884.7	12,576.3	22,752.7	14,132.6	5,857.7	8,529.6
Date 2017	**Minutes Sump A**	**Minutes Sump B**	**Minutes Sump C**	**Minutes Sump D**	**Minutes Sump E**	**Minutes Sump F**
11-Jan-17	8,892.0	12,576.3	22,752.7	14,132.6	5,857.7	8,529.6
15-Feb-17	8,949.4	12,593.1	22,772.0	14,149.4	5,862.7	8,529.6
24-Mar-17	8,999.9	12,593.1	22,780.6	14,149.4	5,862.7	8,529.6
27-Apr-17	9,075.6	12,638.4	22,791.1	14,162.7	5,862.7	8,529.6
17-May-17	9,101.7	12,645.9	22,797.2	14,162.7	5,862.7	8,529.6
21-Jun-17	9,150.9	12,646.0	22,804.5	14,162.7	5,915.6	8,529.6
13-Jul-17	9,150.9	12,653.2	22,804.5	14,170.8	5,915.6	8,529.6
24-Aug-17	9,184.1	12,670.7	22,826.3	14,217.0	5,915.6	8,529.6
20-Sep-17	9,184.1	12,670.7	22,838.3	14,227.4	5,915.6	8,529.6
16-Oct-17	9,194.7	12,670.7	22,838.3	14,227.4	5,915.6	8,529.6
6-Nov-17	9,205.4	12,682.3	22,861.7	14,239.3	5,918.8	8,529.6
21-Dec-17	9,215.6	12,682.3	22,869.5	14,239.3	5,918.8	8,529.6

ATTACHMENT 4

Pretreatment System Diagrams

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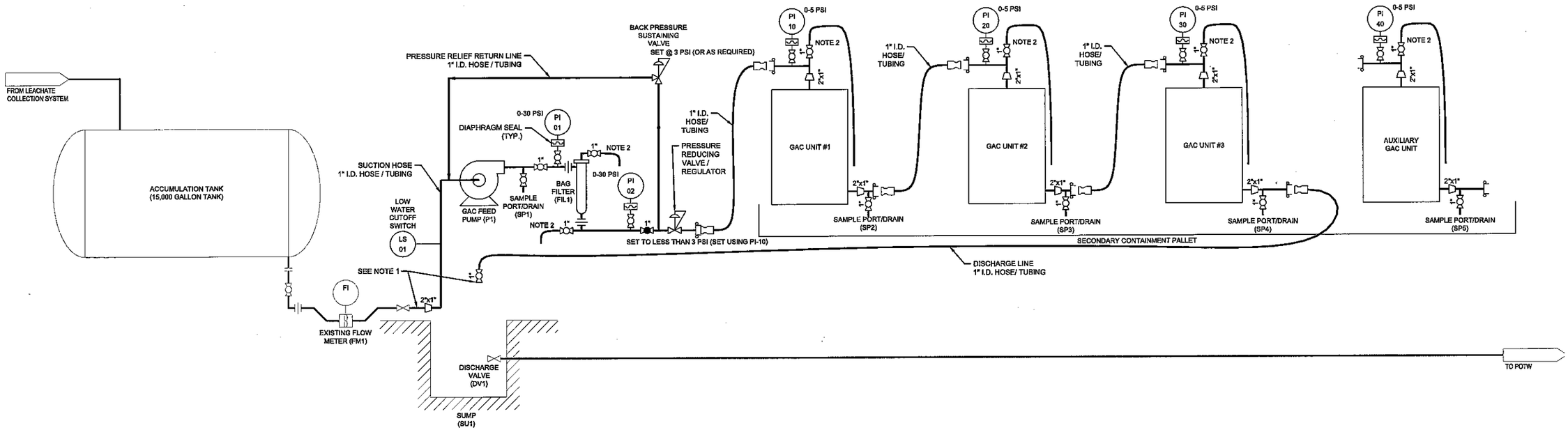
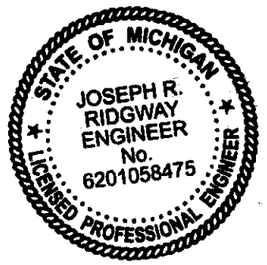
NOTES
1. REFER TO DRAWING G-01 FOR EQUIPMENT LAYOUT AND SYSTEM CONNECTION POINTS.
2. PURGE WATER DURING WETTING OR RE-WETTING FROM AIR RELIEF / VENTS SHALL BE COLLECTED IN A 5 GALLON BUCKET (OR SIMILAR) AND RETURNED TO THE ACCUMULATION TANK FOR TREATMENT.
3. PRETREATMENT SYSTEM WILL BE WETTED OR RE-WETTED PRIOR TO EACH USE WITH MUNICIPAL POTABLE WATER AND COMPLETELY DRAINED AT THE END OF EACH QUARTERLY DISCHARGE EVENT.





IN CHARGE OF C. YANTZ				
DESIGNED BY J. RIDGWAY				
CHECKED BY T. KOMAR				
DRAWN BY B. WELLS	A	02/08/2018	ISSUED FOR REVIEW	JRR
	NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

RACER TRUST
COLDWATER ROAD LANDFILL FACILITY
6220 HORTON AVENUE FLINT, MICHIGAN

GENERAL

PROCESS FLOW DIAGRAM

FILE NO. 15388.64737
DATE 02/08/2018

PFD-01

\\SYRACUSES\RPROJECTS\RACER-TRUST-15388\64737.COLDWATER-RD-LF\DOCS\DWG\SHEETS\64737-PFD001.DWG

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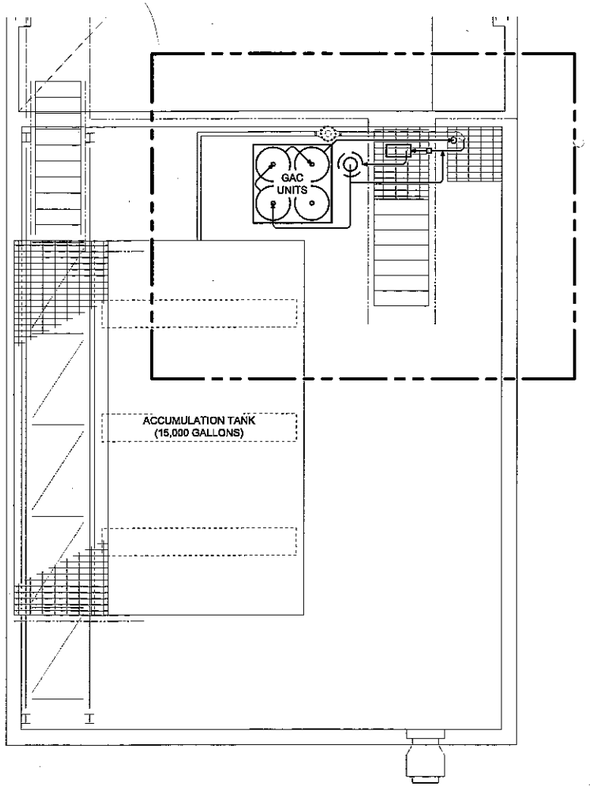
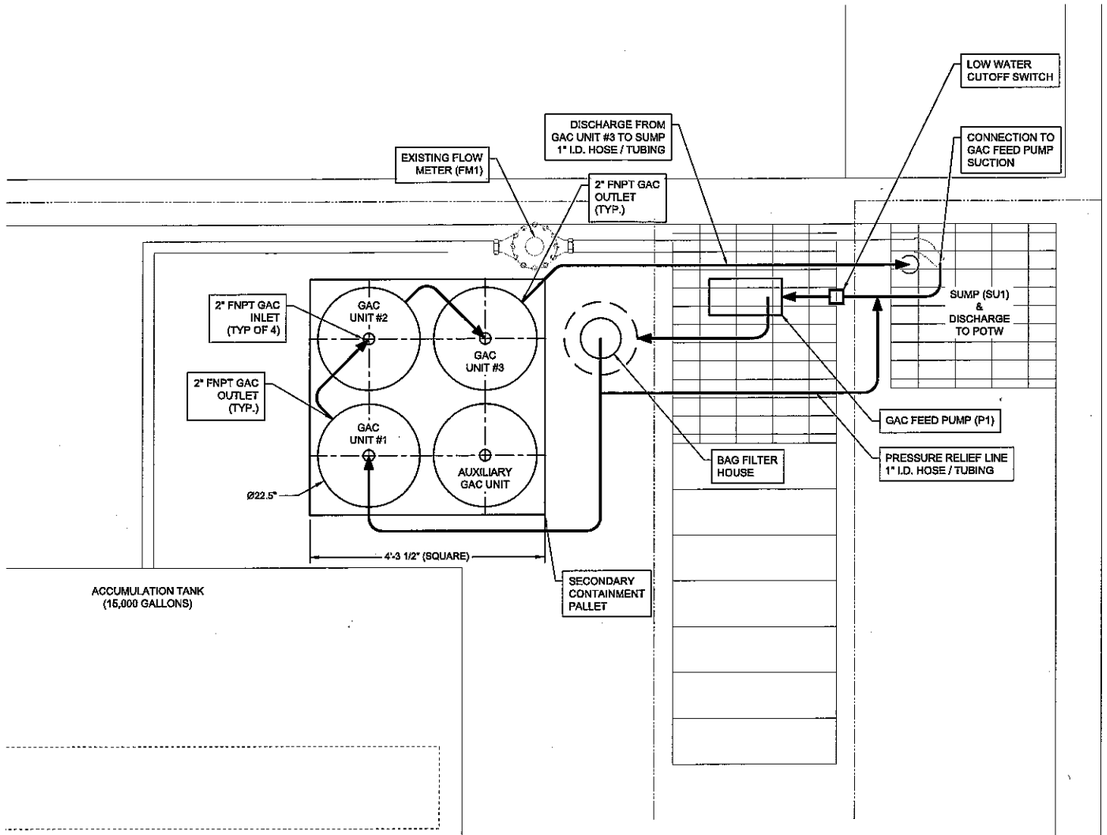


PLAN NORTH

1 PLAN - OVERALL

1/4"=1'-0"



PLAN NORTH

2 PLAN - ENLARGEMENT

3/4"=1'-0"

STATE OF MICHIGAN
JOSEPH R. RIDGWAY
ENGINEER
No. 6201058475
LICENSED PROFESSIONAL ENGINEER

THIS DRAWING WAS PREPARED AT THE SCALE INDICATED. INACCURACIES IN THE STATED SCALE MAY BE INTRODUCED WHEN DRAWINGS ARE REPRODUCED BY ANY MEANS. USE THE GRAPHIC SCALE BAR TO DETERMINE THE ACTUAL SCALE. DRAWING IS NOT SCALABLE IF NO SCALE BAR IS PRESENT.

IN CHARGE OF C. YANTZ				
DESIGNED BY J. RIDGWAY				
CHECKED BY T. KOMAR				
DRAWN BY B. WELLS	A	02/08/2018	ISSUED FOR REVIEW	JRR
	NO.	DATE	REVISION	INT.

O'BRIEN & GERE ENGINEERS, INC

RACER TRUST
COLDWATER ROAD LANDFILL FACILITY
6220 HORTON AVENUE FLINT, MICHIGAN

GENERAL

GENERAL ARRANGEMENT

FILE NO. 15388.64737

DATE 02/08/2018

G-01

I:\SYRACUSES\WPROJECTS\RACER-TRUST\15388\64737.COLDWATER-RD-LF\DOCS\DWGS\SHEETS\64737-G-100.DWG

ATTACHMENT 5

Specification Sheet— Flowsorb® Liquid Phase Adsorption Canister

FLOWSORB®

Liquid Phase Adorption Canister

Description

Designed for low-flow water treatment applications, prefabricated 55-gallon FLOWSORB canisters contain all the operating elements found in a full-scale adsorption system. These small, economical treatment systems hold 180 pounds of granular activated carbon for applications including:

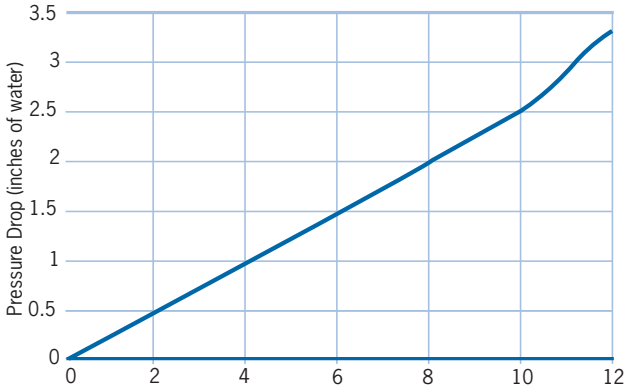
- Small wastewater streams
- Groundwater remediation
- Underground storage tank leaks
- Well pump tests
- Product purification or de-colorization
- Tank cleaning water treatment
- Batch water or product treatment
- Carbon adsorption pilot testing
- Emergency spill treatment
- Monitoring well water treatment

Features

FLOWSORB offers several features and benefits to industrial, commercial, and municipal users including:

- Low cost per unit makes carbon treatment economical
- Simple installation and operation
- Space above carbon bed facilitates flow distribution or back-flushing
- Flexibility to be used in series or parallel operation
- Supplied with virgin or reactivated carbon
- Practical disposal option: pre-approved spent carbon canisters may be returned to Calgon Carbon Corporation for safe carbon reactivation
- Continuous treatment at various flow rates and concentrations

Pressure Drop



Specifications	FLOWSORB
Vessel	Open head steel canister
Cover	Removable steel cover, 12 gauge bolt ring
Internal Coating	Heat-cured phenolic epoxy
External Coating	Baked enamel (white)
Temperature Limit	140°F (60°C) continuous 180°F (82°C) maximum
Inlet	2" FNPT
Outlet	2" FNPT
Carbon	180 lbs. granular activated carbon: Specify FILTRASORB 300 or reactivated grade
Ship Weight	219 lbs. (99.4 kg)
Identification	Sequentially numbered for traceability

Typical Operating Parameters	FLOWSORB
Flow Rate	10 gpm (37.8 l/m)
Contact Time	4.5 minutes
Pressure Drop	< 1 psi (clean water and carbon)
Operating Pressures	3 psig maximum no vacuum

Installation

FLOWSORB canisters should be set on a flat, level surface and piped as recommended in the installation illustration. The influent pipe connection should be attached to the unit by using a flexible connection. Some minor deflection of the lid may occur if pressure builds due to filtration or other flow blockage downstream.

FLOWSORB discharge piping should include a piping loop elevated above the top of the canister to ensure that the canister remains flooded with water at all times. In addition to the piping loop, a drain connection is recommended on the discharge piping; this allows drainage of the unit prior to disconnection or temporary shutdown.

Pipe connections to the canister are the responsibility of the customer. It is recommended that influent and discharge pipe connections be made using fittings that are of good quality and have un-damaged threads. Application of sealant tape to the pipe thread ensures better contact with the limited depth of the fittings on the canister. Over tightening of the pipe fitting will damage the canister fittings and cause leaks.

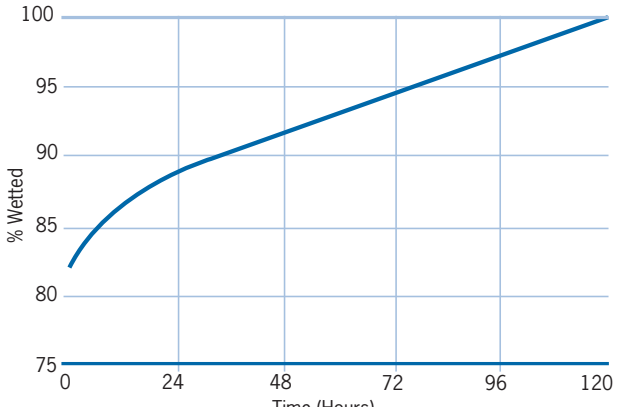
FLOWSORB canisters are shipped with dry activated carbon; the carbon must be wetted and de-aerated prior to use. This procedure displaces air from the internal structure of the carbon granule, thus assuring that the liquid to be treated is in contact with the carbon surface.

Prior to operation each canister must be filled with clean water; the water should be introduced into the bottom outlet connection. The unit should sit for approximately 48 hours to allow most of the carbon's internal surface to become wetted as shown on the wetting curve.

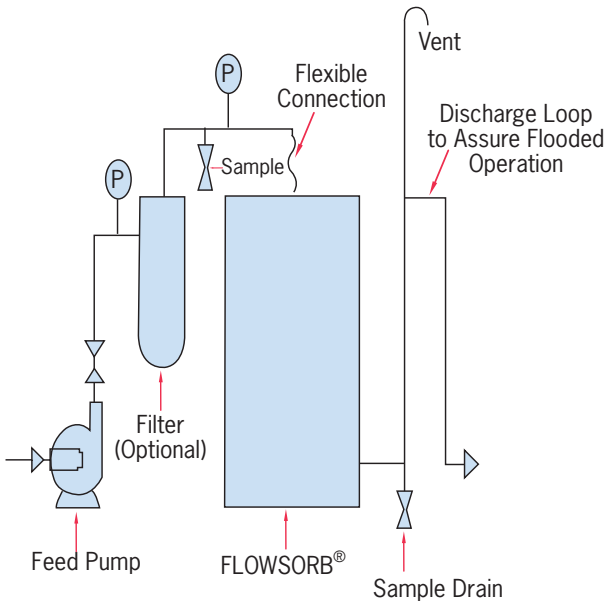
After wetting, the carbon bed can be de-aerated by draining the canister and refilling the canister upflow with clean water. This procedure will eliminate any air pockets which may have formed between the carbon granules. The FLOWSORB is now ready for operation.

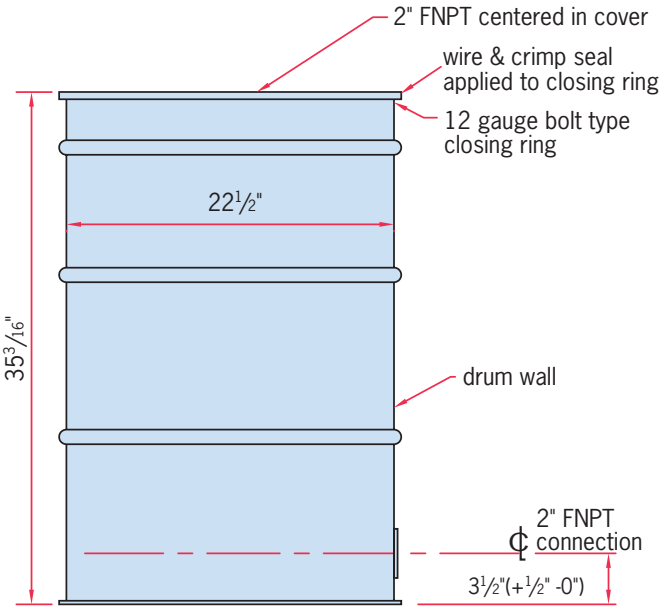
A filter should be installed if the liquid to be treated contains substantial amounts of suspended solids. A simple cartridge or screen filter helps prevent pressure buildup in the carbon bed.

Wetting Curve for GAC (77°F/25°C)



Typical Installation





Operation

FLOWSORB canisters should be full of clean water before treatment begins. Flow rate to the canister should be determined based on required contact time between the liquid and the carbon media. In groundwater treatment applications, the recommended contact time is typically 8-10 minutes with a resultant flow of approximately 5 gpm. Consult your Calgon Carbon Corporation Technical Sales Representative for advice about proper contact time for your application.

FLOWSORBS can be manifolded in parallel operation for higher flow rates. For series operation, two FLOWSORBS can be piped together sequentially, as normal pressure drop will not exceed the recommended operating pressure.

These canisters have space for bed expansion and can be back flushed by introducing clean water or liquid at approximately 20-25 gpm to the outlet and taking backflush water from the inlet.

How to Estimate FLOWSORB Life

The treatment table on this page lists the volume of water that can be purified by the FLOWSORB for typical contamination situations. Most applications, however, involve a unique mixture of organic chemical contaminants including some chemicals that adsorb at different capacities or strengths. Please consult with your Calgon Carbon Technical Sales Representative for more information about carbon usage rates.

Calgon Carbon Liquid Purification System

FLOWSORB is a unit specifically designed for a variety of small flow applications. Calgon Carbon Corporation offers a wide range of carbon adsorption systems and services for a greater range of flow rates and carbon usages to meet specific applications.

Return of FLOWSORB

Arrangements should be made at the time of purchase to return canisters containing spent carbon. Calgon Carbon will provide instructions on how to sample the spent carbon and arrange for carbon acceptance testing. The spent carbon is reactivated by Calgon Carbon and all of the contaminants are thermally destroyed. The company will not accept FLOWSORB for landfill, incineration, or other means of disposal.

FLOWSORB cannot be returned to Calgon Carbon unless the carbon acceptance procedure has been completed, an acceptance number provided, and the return labels (included with the unit at the time of purchase) are attached. FLOWSORB must be drained and inlet/outlet connections must be plugged prior to return to Calgon Carbon.

Theoretical Treatment Capacity for Typical Cases

	Case 1 1,600,000 gal	**Case 2 400,000 gal**	**Case 3 85,000 gal**
Benzene	20 ppb	200 ppb	2 ppm
Toluene	40 ppb	400 ppb	4 ppm
Xylene	40 ppb	400 ppb	4 ppm
	Case 4 1,900,000 gal	**Case 5 550,000 gal**	**Case 6 125,000 gal**
TCE	50 ppb	500 ppb	5 ppm
PCE	50 ppb	500 ppb	4 ppm
	Case 7 230,000 gal	**Case 8 50,000 gal**	**Case 9 10,000 gal**
Phenol	1 ppm	10 ppm	100 ppm
Total SOC	10 ppm	100 ppm	1,000 ppm

Each case represents a groundwater or wastewater stream that contains the combination of contaminants listed. The treatment capacity indicates the total gallons of that particular water that may be treated before any of the specific contaminants are present in the treated water as noted. Theoretical capacity based on 5 gpm water at 70ºF or less and 180 lbs. of FILTRASORB 300. Background TOC is < 1 ppm except phenol cases as noted. Contaminants reduced to < 5 ppb except phenol case which is for 95% phenol reduction.

Warranty

Calgon Carbon Corporation warrants that the FLOWSORB canister will be free from defects in materials and workmanship for a period of 90 days following the date of purchase. In the event of a breach of this warranty, Calgon Carbon Corporation will, in its discretion, repair or replace any defective parts or the complete unit during the warranty period. This warranty does not apply to defects caused by (i) normal wear and tear, (ii) accident, disaster or event of force majeure, (iii) misuse, fault or negligence of or by Buyer, (iv) use of the FLOWSORB canister in a manner for which it is not designed, (v) use of media in the FLOWSORB canister not supplied by Calgon Carbon Corporation, (vi) external causes such as, but not limited to, power failure or electrical power surges, or (v) improper storage and handling of the FLOWSORB canister. Except as expressly provided in this warranty statement, **Calgon Carbon Corporation disclaims all other warranties, whether express or implied, oral or written, including without limitations all implied warranties or merchantability or fitness for particular purpose. Calgon Carbon Corporation does not warrant that the FLOWSORB canisters are error-free or will accomplish any particular result. Any advice or assistance furnished by Calgon Carbon Corporation in relation to the FLOWSORB canister provided for hereunder shall not give rise to any warranty or guarantee of any kind. This warranty will take precedence over any and all other warranties unless specifically disclaimed and referenced by Calgon Carbon Corporation.**

Safety Message

It is unlikely that a worker would be able to physically enter a FLOWSORB canister; however, the following information and precautions apply to partially closed canisters or situations where carbon is to be removed from the canister and stored elsewhere. Wet activated carbon preferentially removes oxygen from air. In closed or partially closed containers and vessels, oxygen depletion may reach hazardous levels. If workers are to enter a vessel containing carbon, appropriate sampling and work procedures for potentially low oxygen spaces should be followed including all applicable federal and state requirements.

Should the canister need to be opened, first vent the drum by slowly opening the inlet or outlet connection before removing the drum ring.

Limitation of Liability

Calgon Carbon Corporation' liability and the Buyer's exclusive remedy for any cause of action arising out this transaction, including, but not limited to, breach of warranty, negligence and/or indemnification, is expressly limited to a maximum of the purchase price of the FLOWSORB canister sold hereunder. All claims of whatsoever nature shall be deemed waived unless made in writing within forty-five (45) days of the occurrence giving rise to the claim. Under no circumstance shall Calgon Carbon Corporation be liable for any incidental, consequential, punitive, exemplary, or special damages of any kind arising as a result of or in connection with the FLOWSORB canisters regardless of the cause giving rise to any claim. Nor shall Calgon Carbon Corporation be liable for loss of profits or fines imposed by governmental agencies. In no event shall Calgon Carbon Corporation's liability exceed the purchase price paid by purchaser, for any reason, whether by reason of breach of contract, tort, indemnification, warranty or otherwise. This limitation of liability statement will take precedence over any and all other liability provisions unless specifically disclaimed and referenced by Calgon Carbon Corporation.

Making Water and Air Safer and Cleaner

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THERE'S A WAY