

EIA REGISTRATION

*Under The Environmental Impact Assessment (EIA) Regulation 87-83
For The Province of New Brunswick*

***Wastewater Treatment System For Organics Diversion
Building Located at the Solid Waste Transfer Station
GRAND MANAN ISLAND, NB***

Prepared For:

Village of Grand Manan
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Grand Manan, NB
E5G 4E5

Prepared By:

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October 2014



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EIA Registration

Wastewater Treatment System Village of Grand Manan

October 16, 2014

Paul Vanderlaan, Director
Sustainable Development, Planning & Impact Evaluation Branch
Department of Environment and Local Government
20 McGloin Street
P.O. Box 6000
Fredericton, N.B. E3B 5H1

Subject: Wastewater Treatment System For Organics Diversion Building Located at Solid Waste Transfer Station, Grand Manan, NB

Dear Mr. Vanderlaan:

Please find attached a completed EIA Registration for the Village of Grand Manan's proposed wastewater treatment system for their planned Organics Diversion Building located at their existing Solid Waste Transfer Station.

As you are aware, the EIA Regulation requires that all "sewage treatment facilities" be registered for an environmental impact assessment with your Department. The proposed undertaking, described herein, consists of a septic tank and disposal field to treat 150 Igal per day of low strength effluent (grey water) from an organic digester.

There are no significant environmental impacts predicted from the construction, operation and maintenance of this undertaking; and we look forward to working with your staff in reviewing this application and securing the necessary approvals. If we can provide any additional information or if you have any questions please do not hesitate to contact me at (506) 645-9357. You can also contact Rob MacPherson of the Village of Grand Manan at (506) 662-7104.

Very truly yours,

D. N. (Dave) Stevens, P. Eng.
Senior Engineer

Silk Stevens Limited
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1.0 THE PROPONENT

1.1 Name of Proponent:

Village of Grand Manan

1.2 Address of Proponent:

4 – 1021 Route 776
Grand Manan, NB
E5G 4E5

1.3 Chief Executive Officer:

Rob MacPherson, CAO
Tel: (506) 662-7104
Fax: (506) 662-7060
office@villageofgrandmanan.com

1.4 Principal Contact Person for Purposes of Environmental Impact Assessment:

David N. Stevens, P.Eng.
Senior Engineer - Silk Stevens Limited
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Cell: (506) 645-9357
dave@silkstevens.ca

1.5 Property Ownership:

PID #15106164
Village of Grand Manan

2.0 THE UNDERTAKING

2.1 Name of the Undertaking:

Wastewater Treatment System For Organics Diversion Building Located at the Solid Waste Transfer Station on Grand Manan Island, NB.

2.2 Project Overview:

- The village of Grand Manan is requesting approval to install a septic tank and disposal field to treat the effluent from an organic digester as part of an organics diversion program, to divert solid waste from landfill. Operating an organic digester will reduce the volume and weight of solid waste currently being transported to the mainland for disposal; thus saving tipping fees and transportation costs (and reducing greenhouse gases).
- The Village of Grand Manan proposes to locate an Organics Diversion Building (for an organic digester) on-site at the existing Transfer Station.
- Besides the new organics building and related building services, a waste water treatment system will be required. The waste water treatment system will consist of an on-site sewage disposal system (septic tank and disposal field).
- The Village of Grand Manan plans to purchase an organic digester from Enviropure (EPW 1500i) which they hope to have in place and running by the end of the calendar year.

2.3 Purpose/Rationale/Need for the Undertaking:

Untreated/unscreened process water (effluent) from the proposed organic digester operations at the Transfer Station is estimated to have the following character:

- * BOD = 30 mg/L
- * TSS = 30 mg/L
- * FOG = 10 mg/L

This information is based on an engineering report commissioned by the manufacturer, and attached in Appendix 'E' – 5-Day Study by Matt Environmental September.

- The capacity of the organic digester is 1,500 kg. per day.
- The volume of effluent from the Organics Diversion Building is expected to be 150 lgal. per day.

- There are no other viable alternatives on Grand Manan Island for diverting organics from landfill.

2.4 Project Location:

The proposed Organics Diversion Building (for Organic Digester) and Related Wastewater Treatment System will be:

- Located on PID# 15106164.
- Located on Curling Club Road at the existing Transfer Station in the Village of Grand Manan, Parish of Grand Manan, County of Charlotte.
- See attached Location Plan in Appendix ‘A’.

2.5 Siting Considerations:

The Organics Diversion Building (for the Organic Digester) and related Wastewater Treatment System needs to be located at the existing Transfer Station because Island residents drop off their solid waste and can source separate their organics.

- Proposed Organics Building and Wastewater Treatment System to be located on-site of the existing Transfer Facility at Curling Club Road:
- The proposed structure will consist of a wood frame building approximately 16 feet x 24 feet.
- The proposed Organics Diversion Building and Related Wastewater Treatment System is shown on the attached Site Plan in Appendix ‘B’.
- The proposed Organics Diversion Building is situated on the site in a location where the process water from the organic digester can drain to the on-site sewage disposal system (septic tank and disposal field).
- The proposed Organics Diversion Building will be connected to the on-site sewage disposal system by a 3 or 4-inch drain line.

2.6 Physical Components and Dimensions of the Project

- The proposed Organics Diversion Building will accommodate the Enviropure (EPW 1500i) Organic Digester, a sorting table, a trash area and some storage. The building will be approximately 285 square feet and consist of a slab on-grade with wood frame construction.
- See attached Organics Building Floor Plan, Septic Tank and Disposal Field, Appendix ‘C’, showing building foot print and proposed general equipment arrangement.
- The Enviropure (EPW 1500i) Organic Digester will be located inside the building footprint, as shown in Appendix ‘C’.

- See Appendix ‘E’ and ‘F’ for a complete description of the proposed organics digester system, components and capacity.

2.7 Construction Details:

- The following construction schedule is related to the construction of a 16 foot x 24 foot wood frame building and related building services, a waste-water treatment system consisting of an on-site sewage disposal system (septic tank and disposal field) and installation of the Organic Digester and related equipment.
 - Step 1 – Building Construction – 4 weeks.
 - Step 2 – On-site Sewage Disposal System - 1 week.
 - Step 3 – Install Organic Digester equipment – 1 week.
 - Step 4 – Commissioning, startup, and testing – 1 week.
- Hours of construction will be 8 a.m. to 5 p.m., Monday to Friday.
- Construction equipment and methods will be typical of residential construction.
- Solid waste is the only potential source of pollution from the construction.
 - Solid waste will go to the Transfer Facility.

2.8 Operation and Maintenance Details:

- The Organic Digester will run on Monday to Friday.
- Estimated run-time will depend on the batch size of the loading.
- All work on the construction of the Organics Diversion Building and preparations for installation of the Organic Digester are scheduled for completion by the end of the calendar year, including installation of the trickle septic tank and disposal field.
- The water and power requirements for the Organics Diversion Building will be met by connecting to the existing Redemption Center Building. Water will be used for wash down and as maintenance water for the organic digester.
- There will be no oil or natural gas heat at the Organics Diversion Building. Heat will be electric.
- Routine maintenance will be scheduled for days when no organics processing is planned; or evenings and/or weekends.
 - Critical spare equipment and parts will be maintained on site.
- The predicted character of the process water from the Organic Digester is as follows:
 - BOD = 30 mg/L.
 - TSS = 30 mg/L.
 - FOG = 10 mg/L.

2.9 Future Modifications, Extensions and Abandonment:

- There are no specific requirements.

2.10 Project Related Documents:

- There has been no environmental work previously performed, by the proponent or others, in relation to this project.
- This property and this undertaking are not known to have been subject to a previous EIA.

3.0 DESCRIPTION OF THE EXISTING ENVIRONMENT

- The “existing environment” at the project location consists of an existing Transfer Facility including a Transfer Station building and Redemption Center. See photographs of existing facility in Appendix ‘D’.
- The proposed Organics Diversion Building is planned to be 16 feet x 24 feet (i.e. approximately 285 ft²). See attached drawing C-1: Organics Building Floor Plan, Septic Tank and Disposal Field found in Appendix ‘C’.
- No significant environmental impacts are expected due to construction of the aforementioned 285 square foot building.
- There will be no removal or alteration of any natural or biological features as the result of the proposed construction.
- There are no streams on the property or nearby.
- There is no reasonable expectation of occurrence of a species listed under Provincial and/or Federal Species at Risk Legislative would be affected as the result of the development.
- There are no wetlands in the vicinity of the proposed development.
- Physical and Natural Features:
 - The site topography is generally flat.
 - The surface drainage is towards the ditch along the Curling Club Road.
 - There are no classified (or other) rivers, streams, watercourses, or wetlands adjacent the site.
 - There are no geological and/or hydrogeological features and/or soils at the project site that have the potential to affect the project.
 - There are no adverse environmental conditions present that could affect the project.
 - There are no municipal well fields and protected water sheds within 500 meters of the subject property.

- There are no environmentally significant areas within 500 meters of the subject property.
- There is no existing vegetation, fish, or wildlife populations and/or habitat at the subject site that will be impacted.
- There are no species at risk, species of conservation concern, critical or sensitive habitat, or environmentally significant areas at the site or in the immediate area.
- Cultural Features:
 - There are no federal, provincial, or locally recognized recreational sites or features, tourism features or attractions, tourism operations, cultural activities, hunting, fishing, gathering, reserves, traditional uses by First Nations, etc, on the subject property or adjacent lands.
 - There are no federal, provincial or locally recognized heritage resources/areas on the subject property or adjacent lands (such as parks, fossils, archeological sites, etc.).
- Existing and Historic Land Uses:
 - The proposed undertaking (i.e. *Waste Water Treatment System For Organics Diversion Building*) is located on PID 15106164 on-site at the Transfer Facility which is zoned as for the activities proposed by the proponent of this undertaking.
 - The most recent use of the property is as a Transfer Station by the Village of Grand Manan.
 - The Village of Grand Manan owns the land and constructed the existing Transfer Station and Redemption Station.
 - Prior to 1990 the site was vacant land.

4.0 SUMMARY OF ENVIRONMENTAL IMPACTS

The anticipated impacts from the proposed undertaking are (and/or will be) in compliance with relevant legislation, policies and standard where they exist.

The proposed undertaking consists of constructing installing a 800 Igal. trickle septic tank and disposal field to treat 150 Igal./day peak flow from an organic digester located in an adjacent Organics Diversion Building. As such, the proposed project will:

- i. not result in the net-loss of wetland functions;
- ii. not result in the destruction of provincially significant wetland;
- iii. not result in the deposit of a deleterious substance harmful to fish or migratory birds;
- iv. not emit effluent in excess of relevant provincial or federal legislation;

Wastewater Treatment Building For Organics Diversion Building – Grand Manan Transfer Station

- v. not violate permissions contained in the Clean Air Act, Clean Water Act, Clean Environment Act, or any relevant regulations made under these acts;
- vi. not result in the loss of individuals of a threatened or endangered species or damage or destroy critical habitat, or compromise the conservation of a species of special concern; and
- vii. not result in the exceedence of Canada-wide standards or national ambient air quality objectives, etc.

The anticipated impacts, for each project phase, on environmental features that exist as the subject site are as follows:

Environmental Attribute	Anticipated Impacts During Project Phase		
	Construction	Operation	Maintenance
• Air Quality			
– Odours	None	Minor - ve(1)	Minor – ve(1)
– Greenhouse Gases	Minor – ve(2)	Minor – ve(2)	Minor – ve(2)
• Biology & Ecology (Aquatic)	None	None	None
• Biology & Ecology (Terrestrial)	None	None	None
• Physical Climate/Atmosphere	Minor – ve(3)	None	None
• Physical Geomorphology	None	None	None
• Groundwater	None	None	None
• Surface Water	None	None	None
• Valued Spaces/Locations	None	None	None
• Community Structure (Socio-Economic)			
– Income levels	Minor + ve(4)	Minor + ve(4)	None
– Employment Opportunities	Minor + ve(5)	Minor + ve(5)	None
– Municipal Income	Minor + ve(6)	Major + ve(6)	None
– Municipal Expenditures	None	None	None
• Community Structure (Physical/Functional)			
– Traffic	Minor – ve(7)	Minor – ve(7)	
• Lifestyle and Quality of Life			
– Noise Levels	Minor – ve(8)	None	None

Notes:

- 1) There will be some odours associated with the operation and maintenance of the Organics Diversion Building, although they are expected to be minor compared to the existing odour from the site.
- 2) There will be a minor release of greenhouse gases and contribution towards global warming during the construction, operation, and maintenance of the Organics Diversion Building.
- 3) There will be some noise during the construction of the Organics Diversion Building that may be able to be heard in the adjacent residences and businesses.
- 4) There will be a minor positive impact on income levels in the community due to job creation associated with the construction and operation of the Organics Diversion Program.
- 5) There will be a minor positive impact on employment opportunities in the community due to the construction and operation of the Organics Diversion Building and wastewater treatment system.
- 6) There will be a minor positive impact on municipal income during the construction phase due to building permit fees, etc.
- 7) There will be some increased traffic on the Curling Club Road due to construction and operation of the Organics Diversion Building and wastewater treatment system.
- 8) There will be increased noise levels during the construction of the Organics Diversion Building that may be heard in adjacent residential areas. Noise levels during the operation and maintenance of the Organics Diversion Building are not expected to be heard in adjacent residential areas.

5.0 SUMMARY OF PROPOSED MITIGATION

The Village of Grand Manan is committed to minimizing all environmental impacts associated with the construction, operation, and maintenance of the Organics Diversion Building (for Organic Digester) and Related Waste Water Treatment System on-site at the Transfer Station Facility on Grand Manan Island. Negative socio-economic and bio-physical impacts will be mitigated to the greatest extent possible as described below; while positive impacts will be enhanced to the greatest extent possible.

- **Air Quality.** There will be minor negative impacts to air quality from odour and from greenhouse gas emissions, during the operation and maintenance of the wastewater treatment facility.

Odour impacts will be from the storage of organics at the facility; and from cleaning the organic digester. Odours will be minimized by:

1. Not storing organics or solid wastes on-site for extended periods of time; and
2. Regular cleaning of the organic digester and related equipment so organic particles don't accumulate.

Greenhouse gas impacts will be from the operation of power tools during construction; and consumption of electricity during operation of the Organics Diversion Building. Greenhouse gas emissions will also be produced primarily in the form of carbon dioxide during the

decomposition of organics on-site awaiting disposal. Greenhouse gas emissions will be minimized by:

1. Efficient construction procedures;
 2. Use of energy efficient equipment and practices;
 3. Responsible management of organic by-products.
- **Physical Atmosphere.** There may be minor negative impacts from noise levels during the construction of the Organics Diversion Building. Noise levels will be from construction equipment such as skill saws, generators, etc. Noise impacts will be minimized by limiting construction to daylight hours and not working on Sunday.
 - **Community Structure.** There will be minor positive impacts to income levels and employment opportunities, and a major positive impact to municipal income from the Organics Diversion Building. The Organics Diversion Building will create 2 new permanent jobs which will have a minor positive impact on income levels and employment opportunities for the community. The Village of Grand Manan **can enhance** the positive impacts to income levels and employment opportunities by offering competitive wages and benefits to its workers and by recruiting locally.
 - **Traffic.** There will be minor negative impacts to the community from traffic associated with the construction, operation, and maintenance of the Organics Diversion Building.

Traffic during operation and maintenance of the Organics Diversion Building will involve daily deliveries of household organics. There may be one (1) or two (2) other traffic events per month associated with the operation and maintenance of the Organics Diversion Building.

Traffic during construction of the Organics Diversion Building will involve on average, between five (5) and ten (10) vehicles per day arriving at and leaving from the site daily. Traffic will vary from workers arriving in passenger vehicles and deliveries of construction materials in large trucks. Construction activities are expected to last approximately 4 weeks.

Increased traffic during construction, operation, and maintenance of the wastewater treatment facility will impact the residents and visitors of the Village of Grand Manan who commute past the Grand Manan Transfer Station Facility.

Traffic impacts will be minimized by:

1. Scheduling deliveries at times other than early morning or evening rush hour; and
2. Recruiting (and hiring) local workers.

6.0 PUBLIC INVOLVEMENT

The proponent of the Organic Diversion Building project, the Village of Grand Manan will seek and consider public input in relation to the proposed project. Individuals, companies, agencies, organized interest groups, and others that may be affected by the project will be contacted, made aware of the undertaking, explained the details of the project and asked for comments, related to the design and operation of the wastewater treatment facility.

Wastewater Treatment Building For Organics Diversion Building -- Grand Manan Transfer Station

It is the Village of Grand Manan's objective to obtain additional information about the project that may help with design and operation of the facility; and to understand any concerns that exist about the facility as proposed.

A report documenting the public involvement process will be submitted to the Department of the Environment within 60 days of this registration as required.

7.0 APPROVAL OF THE UNDERTAKING

The following permits, licenses, approvals, and permissions are required for this undertaking:

- a.) Building Permit – Village of Grand Manan.

8.0 FUNDING

This project is being funded through Gas Tax funds.

9.0 SIGNATURE

Please accept this EIA Registration for construction of a Waste Water Treatment Plant for a proposed organic digester to be located in the Organics Diversion Building at the existing Solid Waste Transfer Station for the Village of Grand Manan



Signature of Chief Executive

Oct. 20/14

Date

Rob MacPherson, CAO
Village of Grand Manan

APPENDIX 'A'

Drawing G-1: Location Plan



VILLAGE OF GRAND MANAN
P.I.D. 01287135

EXISTING C & D
SITE

EXISTING TRANSFER
STATION

VILLAGE OF GRAND MANAN
P.I.D. 15106164

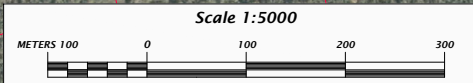
CURTING CLOSE ROAD

HWY 776

SHORE ROAD

BREAKWATER
ROAD

BAY OF
FUNDY



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DRAWN BY	J.D.D.
CHECKED BY	D.N.S.
DATE	OCTOBER 16, 2014
SCALE	AS SHOWN

CLIENT	VILLAGE OF GRAND MANAN
PROJECT	ORGANICS DIVERSION BUILDING
JOB NO.	14-10-053
Issued To:	Village of Grand Manan
By:	Aaron Bennett

DRAWING TITLE	LOCATION PLAN
REV	DESCRIPTION

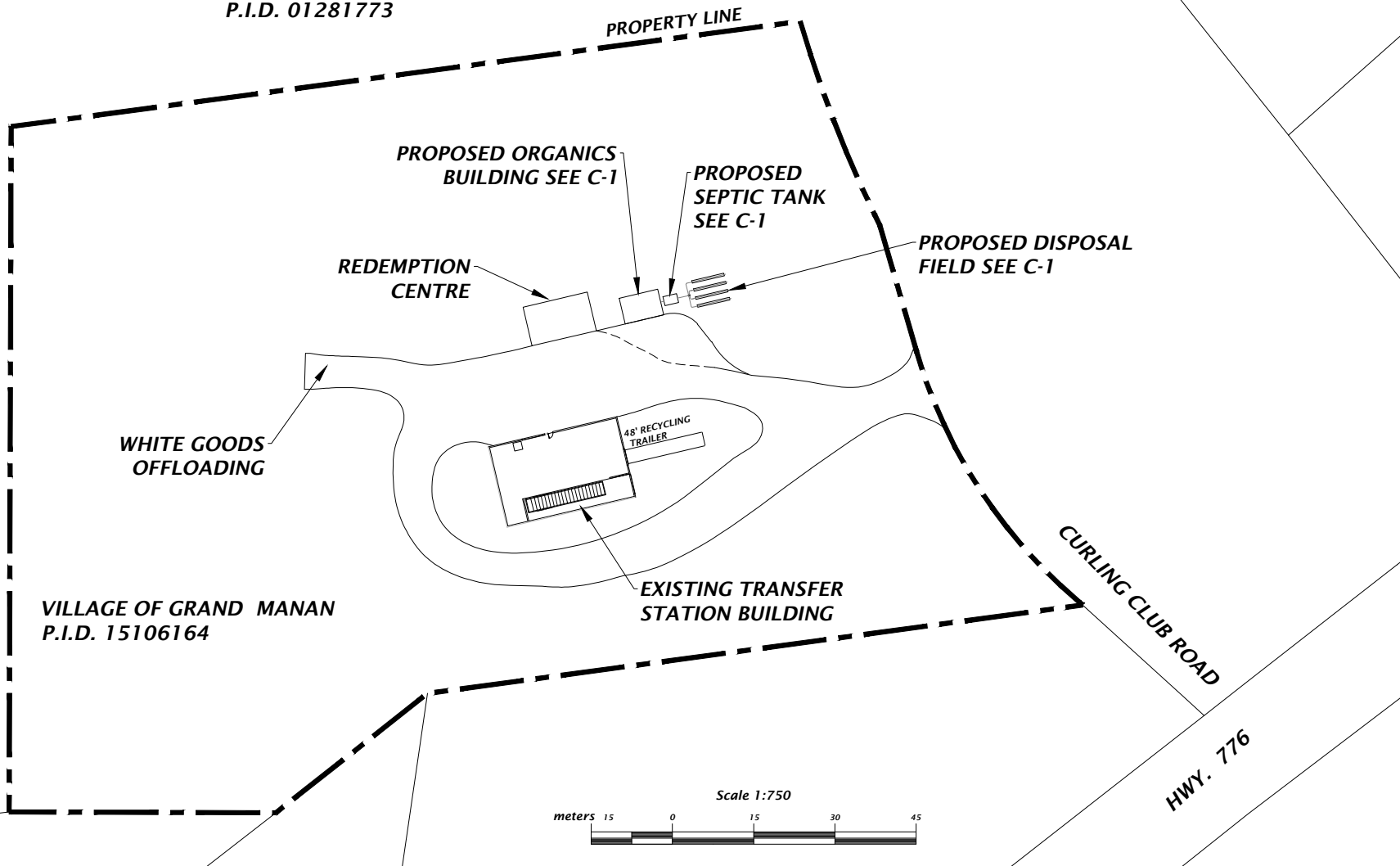
DRAWING NO.	G-1
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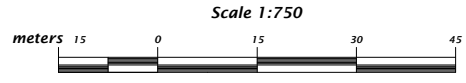
APPENDIX 'B'

Drawing G-2: Site Plan

**GRAND MANAN
DEVELOPMENT ASSOC.
P.I.D. 01281773**



**VILLAGE OF GRAND MANAN
P.I.D. 15106164**



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DATE: OCTOBER 16, 2014
SCALE: AS SHOWN

CLIENT: VILLAGE OF GRAND MANAN
By: Aaron Bennett

PROJECT: ORGANICS DIVERSION BUILDING
JOB NO.: 14-10-053

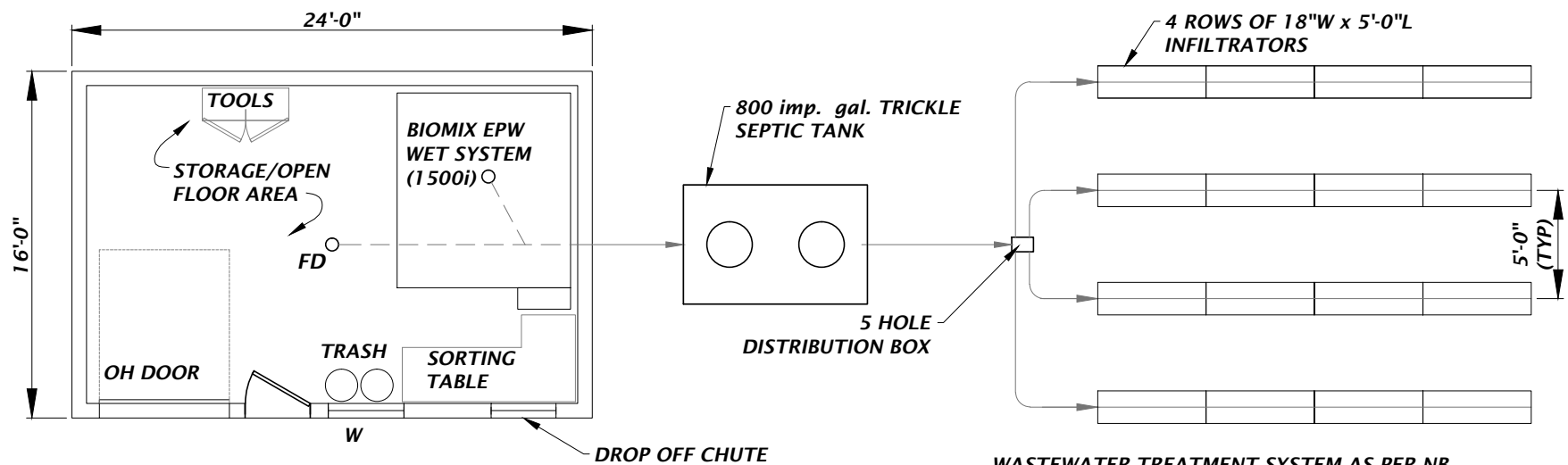
DRAWING TITLE: SITE PLAN
REV: DESCRIPTION

DRAWING NO.: G-2
SHEET NO.: 2 OF 3

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APPENDIX 'C'

*Drawing C-1: Organics Building
Floor Plan, Septic Tank
and Disposal Field*



WASTEWATER TREATMENT SYSTEM AS PER NB TECHNICAL GUIDELINES FOR ON-SITE SEWAGE DISPOSAL SYSTEMS

**NOTE:
WATER AND POWER SUPPLIED
FROM ADJACENT REDEMPTION
CENTRE BUILDING**

APPENDIX 'D'

*Photographs of Existing Site
and Infrastructure*







APPENDIX 'E'

*5-Day Digester Study
by Matt Environmental
September 2010*

The Performance of EPW-XXX with the addition of a Biological Additive

Preliminary Evaluation
A 5-Day Study

Project #7282

Prepared For:

Enviro Pure Systems Inc.
First Canadian Place
100 King Street West, Suite 5700
Toronto, Ontario, M5X 1C7

Prepared By:

Maat Environmental Engineering Corp.
1273 North Service Road East, Unit F2
Oakville, Ontario
L6H 1A7

September 7, 2010

Executive Summary

Maat Environmental Engineering Corp. (MEEC) was retained by Enviro Pure Systems Inc. to conduct a study to determine the concentrations of Total Animal/Vegetable Oil and Grease (TOG), Biological Oxygen Demand (BOD), and Total Suspended Solids (TSS) and level of pH in the effluent of the System and the solution in the System. The study also includes the addition of 60 mL of biological additive into the System every day.

The Enviro-Pure Wet (EPW) System is a self-contained, continual feed, organic waste disposal system designed to convert food waste into water. The system is also designed to accelerate the natural aerobic decomposition process of the food waste.

The biological additive used in this Study is a proprietary blend of organic and inorganic nutrients. The additive is typically used for odor control, solids reductions and improved plant performance efficiencies.

The results of the study identified that the overall removal efficiency of TOG, BOD, and TSS were 94%, 97% and 97%.

The pH of the solution in the reactor ranged from 6.1 to 5.3, and the pH of the effluent ranged from 6.1 to 5.7.

The results of this study show that the EPW-XXX System greatly reduces the concentrations of Total Animal/Vegetable Oil and Grease, Biological Oxygen Demand, and Total Suspended Solids.

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1.0 Introduction

Maat Environmental Engineering Corp. (MEEC) was retained by Enviro Pure Systems Inc. to conduct a study to determine the concentrations of Total Animal/Vegetable Oil and Grease (TOG), Biological Oxygen Demand (BOD), and Total Suspended Solids (TSS) and level of pH in the effluent of the Enviro-Pure Wet System and in the System.

1.1 Enviro-Pure Wet (EPW) System

The Enviro-Pure Wet (EPW) System is a self-contained, continual feed, organic waste disposal system designed to convert food waste into water. The system is also designed to accelerate the natural aerobic decomposition process of the food waste.

The System used in this Study is the EPW-XXX. It requires a water supply of approximately 24 gallons/day and discharges effluent at 127 gallons/day.

1.2 Biological Additive

The biological additive is a containing a proprietary blend of organic and inorganic nutrients. The additive is typically used for odor control, and to stimulate higher solids reductions and improved plant performance efficiencies.

1.3 TOG, BOD and TSS

Oil is any one or a combination of mineral, vegetable, and synthetic substances and animal and vegetable fats, where as grease includes the accumulation of oils, fats, cellulose, starch, proteins and wax. Total Oils and Greases (TOG) are a significant concern in operation of typical municipal wastewater collection system and wastewater treatment plant. Oil and grease can congeal and accumulate along the walls of sanitary sewers, thus constrict pipes, impede the flow of wastewater and raise the potential for pipe blockage.

The efficiency of all wastewater treatment, whether primary, secondary or tertiary, is generally rated in terms of the percentage removal of Biological Oxygen Demand (BOD) and the percentage of Suspended Solids (SS). BOD is the amount of oxygen uptake by bacteria to decompose the waste and SS are the organic and inorganic substances suspended in the wastewater.

2.0 Scope of Work

The scope of work for the study was developed with the Client, and includes but was not limited to the following:

- Pick up food waste from local source (within 8 km) daily (Day 1 to 5)
- Load waste into System daily (Day 1 to 5)
- Add 60 mL of biological additive into System daily (Day 1 to 5)
- Monitor system by taking the following readings:
 - Ambient room temperature – Day 1 to 5
 - Reactor temperature – Day 1 to 5
 - pH – Day 1 to 5
 - CH₄ – Day 1 to 5
 - O₂ – Day 1 to 5
 - CO₂ – Day 1 to 5 (upon instrumentation availability)
- Collect 1) effluent sample, and 2) reactor sample for the following laboratory analysis:
 - Biological Oxygen Demand (BOD) – Day 1 to 5
 - Total Suspended Solids (TSS) – Day 1 to 5
 - Oil & Grease – Day 1 to Day 5

2.1 Method

Each day of the 5-day study, methane (CH₄), oxygen (O₂) and carbon dioxide (CO₂) levels, ambient and reactor temperature, and pH of the reactor solution were monitored and recorded. Water samples were taken from inside the reactor and via the outlet pipe (effluent). The samples were submitted to Maxxam Analytics, a CAEAL accredited laboratory, for the analysis of Total Animal/Vegetable Oil and Grease (TOG), Biological Oxygen Demand (BOD), Total Suspended Solids (TSS).

Once the parameters were monitored and samples were taken, 60 mL of biological additive and food waste were loaded into the EPW System.

3.0 Observations

The liquid in the reactor was consistently translucent and brown in color with vegetable/fibrous debris. A limited amount of foam was observed. No odor was emitted from the System.

The effluent was translucent, colourless and odourless. A very limited amount of small solid particles was also observed in the effluent.

4.0 Results

The methane (CH₄), oxygen (O₂) and carbon dioxide (CO₂) levels, ambient and reactor temperature, and pH of the reactor solution were monitored and recorded. The results can be seen in Table 1 in Appendix A.

The analytical results for the reactor and effluent samples collected in the 5-day study are presented in Table 2 in Appendix A. The TOG, BOD and TSS results are also illustrated in Figure 1A/B, 2A/B and 3A/B, respectively, in Appendix B.

All Certificates of Analyses are found in Appendix C.

5.0 Discussion of Results

The ambient methane (CH₄) and oxygen (O₂) concentrations were the same as the concentrations within the reactor. This suggests that adequate aeration is provided for the decomposition of the food waste and that the biological reactions were aerobic in nature. The atmospheric carbon dioxide concentration is 0.039%. The instrumentation used in this Study can detect CO₂ concentrations from 0.25% to 10%. The carbon dioxide concentrations were detected at 0.25% on Day 2 and Day 4 and were not detected on Day 3 and 5. The presence of 0.25% carbon dioxide in the reactor headspace indicates that aerobic reactions are taking place within the reactor.

The temperature of the reactor increased from 30°C on Day 1 to 32°C on Day 3 and remained at 32°C until Day 5. This indicates that the system has reached steady-state with respect to the temperature and provides further evidence of exothermic aerobic reactions taking place.

The pH of the solution in the reactor ranged from 6.1 to 5.3, where as the pH of the effluent ranged from 6.8 to 5.9. As per Table 1, the solution in the reactor and effluent had a pH level of 6.1.

Figures 1A/B, 2A/B and 3A/B illustrate that the concentrations of Total Animal/Vegetable Oil and Grease (TOG), Biological Oxygen Demand (BOD), and Total Suspended Solids (TSS) were greatly reduced. On average, the removal efficiency of TOG, BOD, and TSS were 94%, 97% and 97%, respectively.

MEEC**6.0 Conclusion**

Maat Environmental Engineering Corp. (MEEC) was retained by Enviro Pure Systems Inc. to conduct a study to determine the concentrations of Total Animal/Vegetable Oil and Grease (TOG), Biological Oxygen Demand (BOD), and Total Suspended Solids (TSS) and level of pH in the effluent of the Enviro-Pure Wet System and in the System. The study also includes the addition of 60 mL of biological additive into the System every day.

The results of the study identified that the overall removal efficiency of TOG, BOD, and TSS were 94%, 97% and 97%.

The pH of the solution in the reactor ranged from 6.1 to 5.3, and the pH of the effluent ranged from 6.8 to 5.9. The pH level also decreased from Day 1 to Day 5.

This study shows that the EPW-XXX System greatly reduces the concentrations of Total Animal/Vegetable Oil and Grease, Biological Oxygen Demand, and Total Suspended Solids.

Respectfully submitted,
Maat Environmental Engineering Corp.

Jenise Lee, BAsC.
Environmental Engineer

Derk Z. Maat, MEng., P. Eng., QP
Chief Executive Officer

Appendix A

Tables

Table 1
TOG, BOD, TSS Results - 5-Day Study
 Performance of EPW-XXX with the addition of BIOLOGIC(R) SR2

Maxxam Job Number		B0B2560		B0B4145		B0B4145		B0B5245		B0B5795	
Sampling Date		18-Aug-10		19-Aug-10		20-Aug-10		21-Aug-10		24-Aug-10	
		Day 1		Day 2		Day 3		Day 4		Day 5	
	Units	Reactor	Effluent	Reactor	Effluent	Reactor	Effluent	Reactor	Effluent	Reactor	Effluent
Calculated Parameters											
Total Animal/Vegetable Oil and Grease	mg/L	ND	ND	39.8	3.2	10.7	1.3	48.7	ND	90.1	4.4
Inorganics											
Total BOD	mg/L	330	8	380	29	240	3	2500	66	2300	25
Total Suspended Solids	mg/L	340	11	750	43	1100	6	1900	35	2000	44
Petroleum Hydrocarbons											
Total Oil & Grease	mg/L	ND	ND	41.2	3.2	10.7	1.3	52.0	ND	105	5.6
Total Oil & Grease Mineral/Synthetic	mg/L	ND	ND	1.4	ND	ND	ND	3.3	ND	14.6	1.2

ND - Not Detected Above Laboratory Reportable Detection Limit (RDL) - See Certificate of Analysis in Appendix C for RDLs

Table 2
Methane, Oxygen, Temperature and pH Results - 5-Day Study
 Performance of EPW-XXX with the addition of BIOLOGIC(R)

	CH4 (%)		O2 (%)		CO2 (%)		Temp (oC)		pH	
	Reactor	Ambient	Reactor	Ambient	Reactor	Atmospheric	Reactor	Ambient	Reactor	Effluent
Day 1	0	0	20.9	20.9	n/a	0.039	30	26	6.1	6.1
Day 2	0	0	20.9	20.9	0.25		31	26	5.9	5.9
Day 3	0	0	20.9	20.9	<0.25		32	26	5.8	5.8
Day 4	0	0	20.9	20.9	0.25		32	26	5.3	5.7
Day 5	0	0	20.9	20.9	<0.25		32	26	5.6	5.8

n/a - not applicable

Appendix B

Figures

Figure 1A: Total Animal/Vegetable Oil and Grease

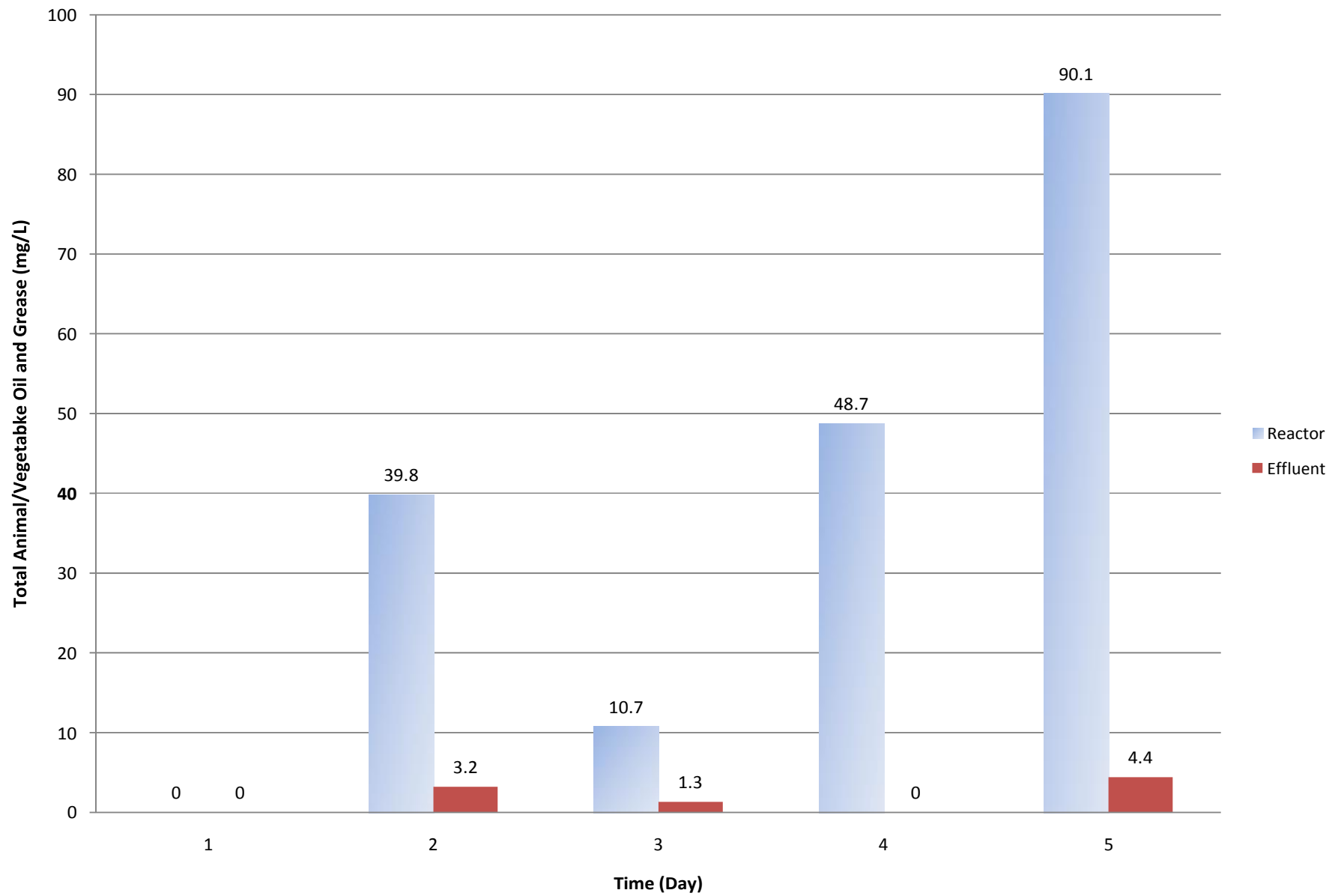


Figure 1A: Total Animal/Vegetable Oil and Grease

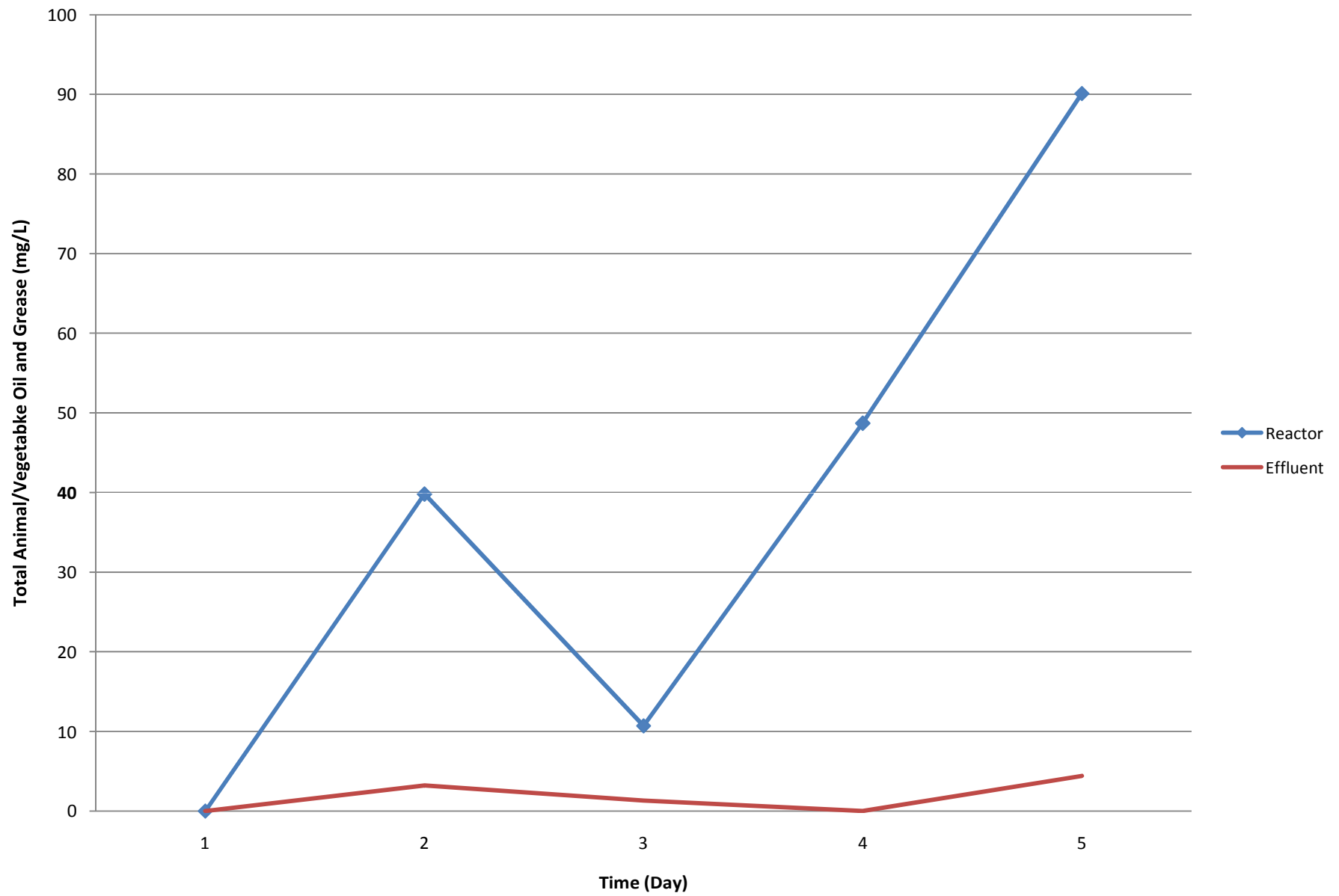


Figure 2A: Total Biological Oxygen Demand (BOD)

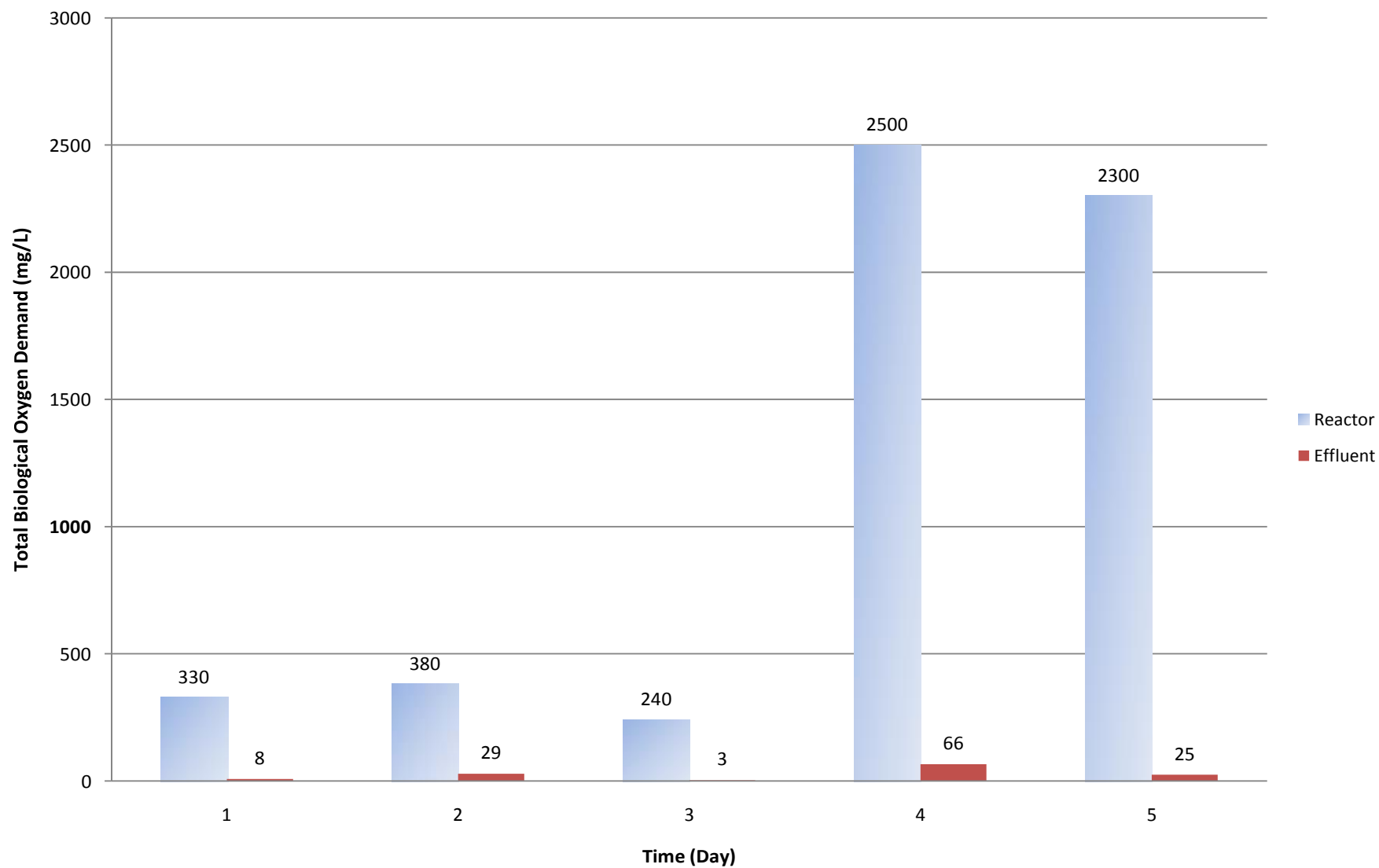


Figure 2A: Total Biological Oxygen Demand (BOD)

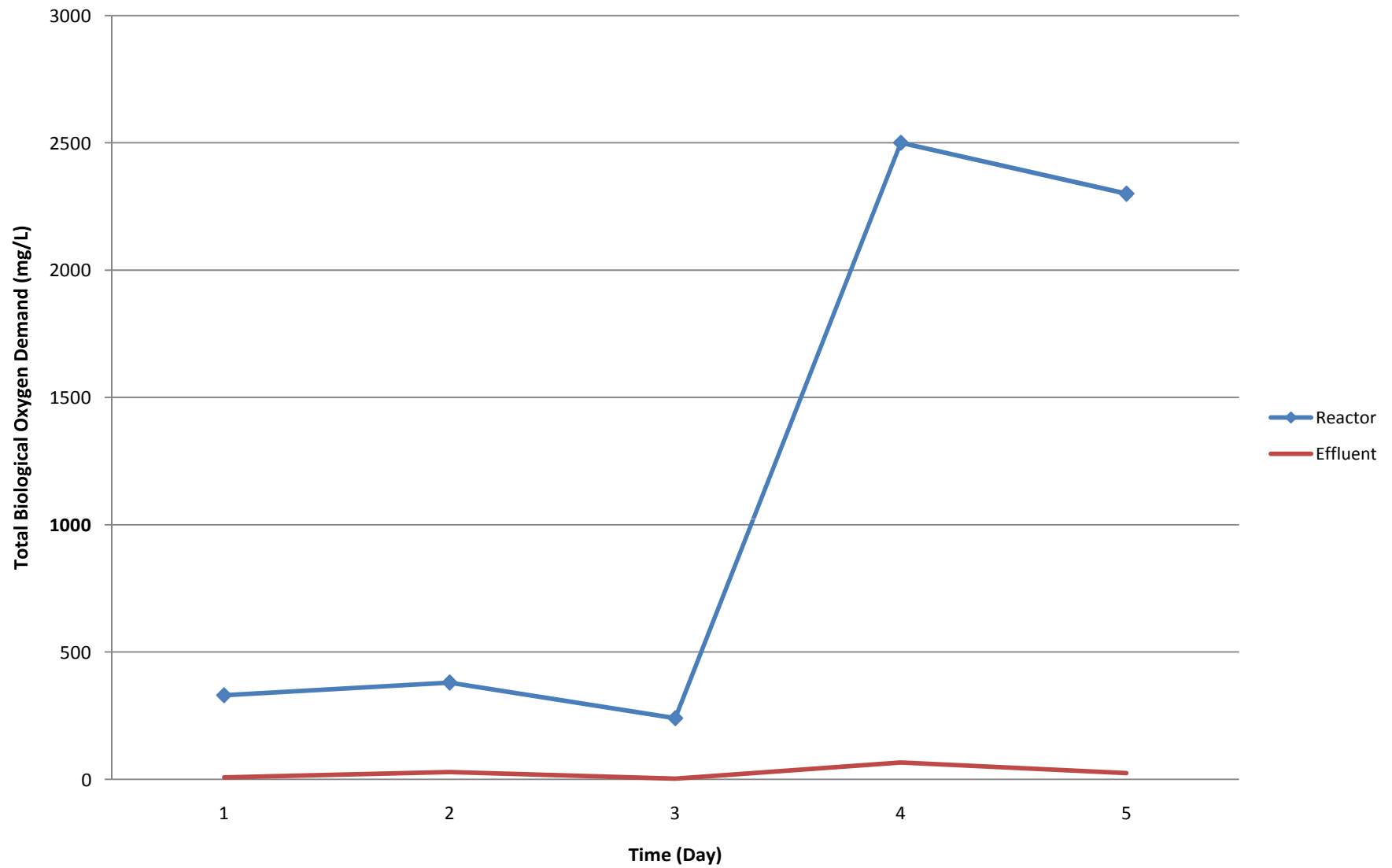


Figure 3A: Total Suspended Solids (TSS)

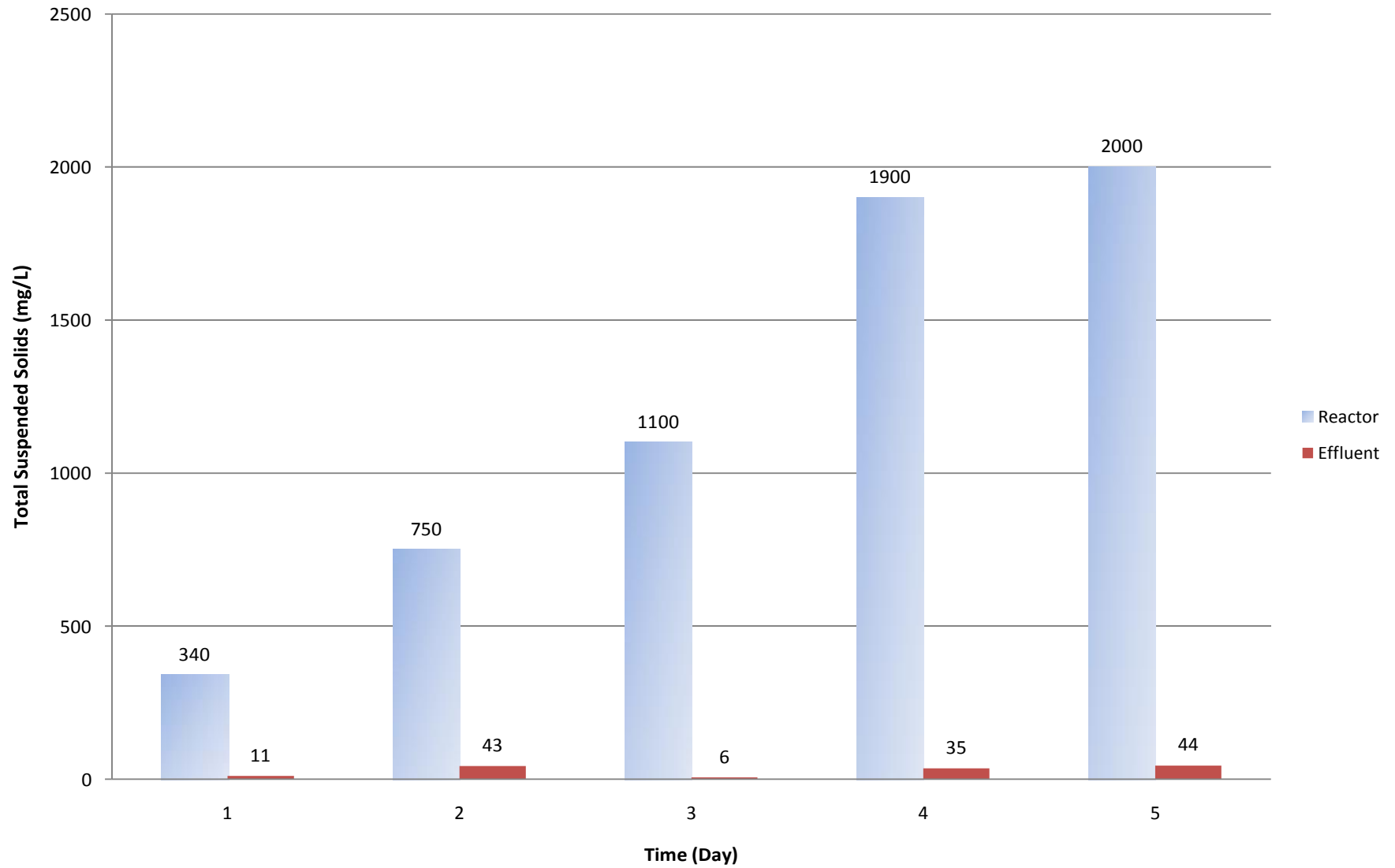
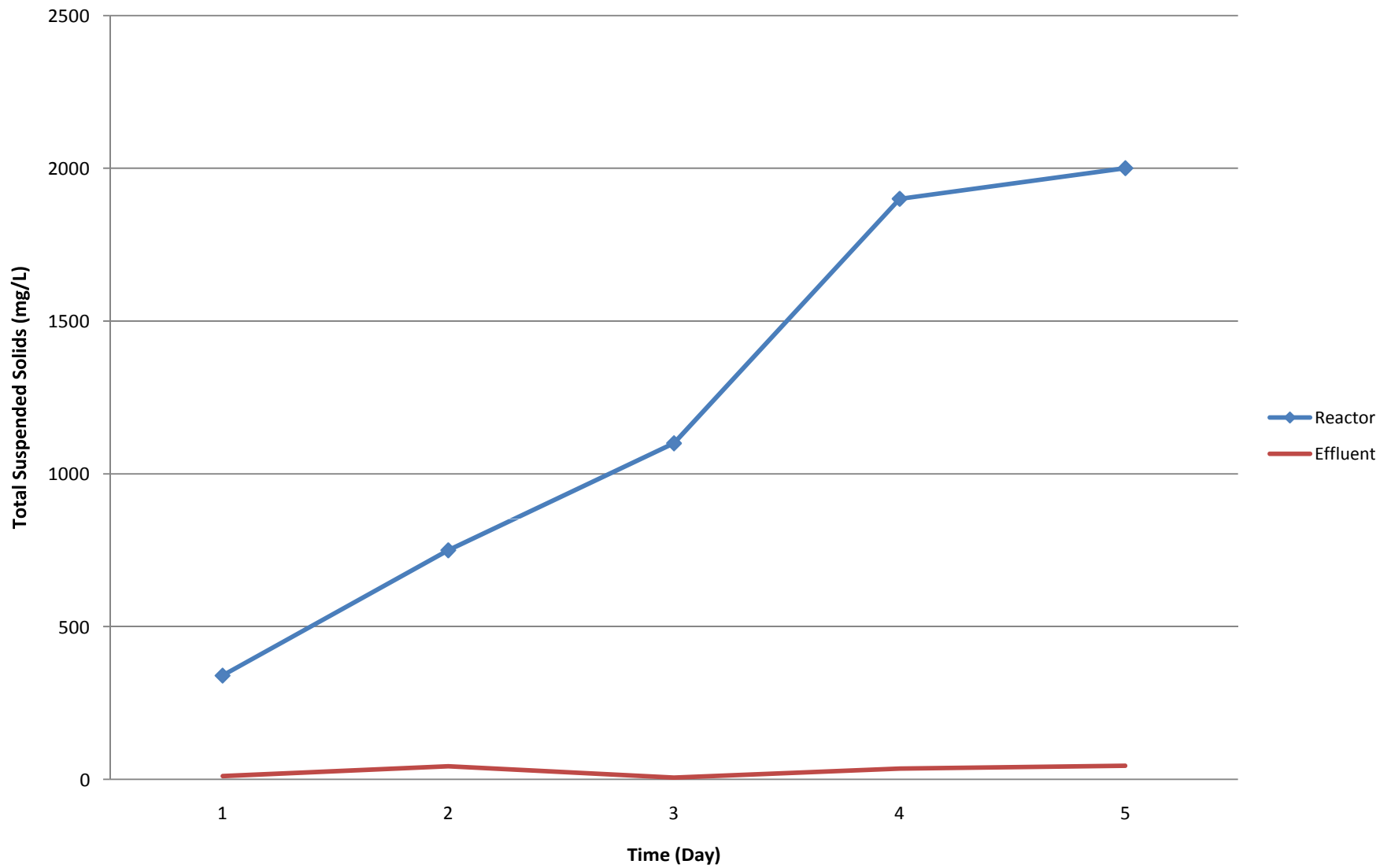


Figure 3A: Total Suspended Solids (TSS)



Appendix C

Certificates of Analyses

Your Project #: 7282 OPUS
 Your C.O.C. #: 00579544

Attention: Derek Maat
 Maat Environmental Engineering Corp
 1273 North Service Rd E
 Unit F2
 Oakville, ON
 L6H 1A7

Report Date: 2010/09/07

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B2560
Received: 2010/08/18, 17:27

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Biological Oxygen Demand (BOD)	2	N/A	2010/08/25	CAM SOP-00427	APHA 5210B
Animal and Vegetable Oil & Grease	2	N/A	2010/08/19	CAM SOP-00326	SM 5520 B
Total Oil and Grease	2	2010/08/19	2010/08/19	CAM SOP-00326	EPA 1664A
TPH (Heavy Oil) ¶	2	2010/08/19	2010/08/19	CAM SOP-00326	SM 5520F
Total Suspended Solids	1	N/A	2010/08/19	CAM SOP-00428	SM 2540D
Low Level Total Suspended Solids	1	N/A	2010/08/19	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ANTONELLA BRASIL, Project Manager
 Email: Abrasil@maxxamanalytics.com
 Phone# (905) 817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0B2560
 Report Date: 2010/09/07

Maat Environmental Engineering Corp
 Client Project #: 7282 OPUS

RESULTS OF ANALYSES OF WATER

Maxxam ID		GW3240			GW3241		
Sampling Date		2010/08/18			2010/08/18		
COC Number		00579544			00579544		
	Units	DAY	RDL	QC Batch	DAY	RDL	QC Batch
		1-EFFLUENT			1-REACTOR		

Calculated Parameters							
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.5	2238148	ND	0.5	2238148
Inorganics							
Total BOD	mg/L	8	2	2240741	330	2	2240741
Total Suspended Solids	mg/L	11	1	2240545	340	30	2240675
Petroleum Hydrocarbons							
Total Oil & Grease	mg/L	ND	0.5	2240184	ND	0.5	2240184
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.5	2240210	ND	0.5	2240210

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0B2560
Report Date: 2010/09/07

Maat Environmental Engineering Corp
Client Project #: 7282 OPUS

GENERAL COMMENTS

Results relate only to the items tested.

Maat Environmental Engineering Corp
 Attention: Derek Maat
 Client Project #: 7282 OPUS
 P.O. #:
 Project name:

Quality Assurance Report
 Maxxam Job Number: MB0B2560

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2240184 AMJ	Spiked Blank	Total Oil & Grease	2010/08/19		95	%	85 - 115
	RPD	Total Oil & Grease	2010/08/19	3.6		%	25
	Method Blank	Total Oil & Grease	2010/08/19	ND, RDL=0.5		mg/L	
2240210 AMJ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2010/08/19		92	%	85 - 115
	RPD	Total Oil & Grease Mineral/Synthetic	2010/08/19	4.3		%	25
	Method Blank	Total Oil & Grease Mineral/Synthetic	2010/08/19	ND, RDL=0.5		mg/L	
2240545 JDO	QC Standard	Total Suspended Solids	2010/08/19		98	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/19	ND, RDL=1		mg/L	
	RPD	Total Suspended Solids	2010/08/19	NC		%	25
2240675 JDO	QC Standard	Total Suspended Solids	2010/08/19		96	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/19	ND, RDL=10		mg/L	
	RPD	Total Suspended Solids	2010/08/19	NC		%	25
2240741 FZH	QC Standard	Total BOD	2010/08/25		110	%	85 - 115
	Method Blank	Total BOD	2010/08/25	ND, RDL=2		mg/L	
	RPD	Total BOD	2010/08/25	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B0B2560

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



CRISTINA CARRIERE, Scientific Services

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: 7282 OPUS
 Your C.O.C. #: 12243

Attention: Derek Maat
 Maat Environmental Engineering Corp
 1273 North Service Rd E
 Unit F2
 Oakville, ON
 L6H 1A7

Report Date: 2010/09/07

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B4145
Received: 2010/08/20, 16:14

Sample Matrix: Water
 # Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Biological Oxygen Demand (BOD)	4	N/A	2010/08/26	CAM SOP-00427	APHA 5210B
Animal and Vegetable Oil & Grease	4	N/A	2010/08/23	CAM SOP-00326	SM 5520 B
Total Oil and Grease	4	2010/08/23	2010/08/23	CAM SOP-00326	EPA 1664A
TPH (Heavy Oil) ¶	4	2010/08/23	2010/08/23	CAM SOP-00326	SM 5520F
Low Level Total Suspended Solids	4	N/A	2010/08/24	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ANTONELLA BRASIL, Project Manager
 Email: Abrasil@maxxamanalytics.com
 Phone# (905) 817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0B4145
 Report Date: 2010/09/07

Maat Environmental Engineering Corp
 Client Project #: 7282 OPUS

RESULTS OF ANALYSES OF WATER

Maxxam ID		GX0877		GX0878		GX0879		
Sampling Date		2010/08/19		2010/08/19		2010/08/20		
COC Number		12243		12243		12243		
	Units	DAY	RDL	DAY	RDL	DAY	RDL	QC Batch
		2 REACTOR		2 EFFLUENT		3 REACTOR		

Calculated Parameters								
Total Animal/Vegetable Oil and Grease	mg/L	39.8	0.5	3.2	0.5	10.7	0.5	2240821
Inorganics								
Total BOD	mg/L	380	2	29	2	240	2	2242112
Total Suspended Solids	mg/L	750	30	43	5	1100	30	2243709
Petroleum Hydrocarbons								
Total Oil & Grease	mg/L	41.2	0.5	3.2	0.5	10.7	0.5	2242525
Total Oil & Grease Mineral/Synthetic	mg/L	1.4	0.5	ND	0.5	ND	0.5	2242529

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam ID		GX0880		
Sampling Date		2010/08/20		
COC Number		12243		
	Units	DAY 3	RDL	QC Batch
		EFFLUENT		

Calculated Parameters				
Total Animal/Vegetable Oil and Grease	mg/L	1.3	0.5	2240821
Inorganics				
Total BOD	mg/L	3	2	2242112
Total Suspended Solids	mg/L	6	1	2242468
Petroleum Hydrocarbons				
Total Oil & Grease	mg/L	1.3	0.5	2242525
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.5	2242529

ND = Not detected
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0B4145
Report Date: 2010/09/07

Maat Environmental Engineering Corp
Client Project #: 7282 OPUS

GENERAL COMMENTS

Revised report: sample IDs changed as per client request.

Results relate only to the items tested.

Maat Environmental Engineering Corp
 Attention: Derek Maat
 Client Project #: 7282 OPUS
 P.O. #:
 Project name:

Quality Assurance Report
 Maxxam Job Number: MB0B4145

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2242112 FZH	QC Standard	Total BOD	2010/08/26		97	%	85 - 115
	Method Blank	Total BOD	2010/08/26	ND, RDL=2		mg/L	
	RPD	Total BOD	2010/08/26	NC		%	25
2242468 HAG	QC Standard	Total Suspended Solids	2010/08/24		100	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/24	ND, RDL=1		mg/L	
	RPD	Total Suspended Solids	2010/08/24	1		%	25
2242525 FA	Spiked Blank	Total Oil & Grease	2010/08/23		99	%	85 - 115
	RPD	Total Oil & Grease	2010/08/23	1.7		%	25
	Method Blank	Total Oil & Grease	2010/08/23	ND, RDL=0.5		mg/L	
2242529 FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2010/08/23		98	%	85 - 115
	RPD	Total Oil & Grease Mineral/Synthetic	2010/08/23	3.1		%	25
	Method Blank	Total Oil & Grease Mineral/Synthetic	2010/08/23	ND, RDL=0.5		mg/L	
2243709 HAG	QC Standard	Total Suspended Solids	2010/08/24		103	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/24	ND, RDL=1		mg/L	
	RPD	Total Suspended Solids	2010/08/24	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B0B4145

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

=====
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Your Project #: 7282/OPUS
 Your C.O.C. #: N/A

Attention: Derek Maat
 Maat Environmental Engineering Corp
 1273 North Service Rd E
 Unit F2
 Oakville, ON
 L6H 1A7

Report Date: 2010/09/07

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B5245
Received: 2010/08/24, 08:07

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Biological Oxygen Demand (BOD)	2	N/A	2010/08/30	CAM SOP-00427	APHA 5210B
Animal and Vegetable Oil & Grease	2	N/A	2010/08/25	CAM SOP-00326	SM 5520 B
Total Oil and Grease	2	2010/08/25	2010/08/25	CAM SOP-00326	EPA 1664A
TPH (Heavy Oil) ¶	2	2010/08/25	2010/08/25	CAM SOP-00326	SM 5520F
Low Level Total Suspended Solids	2	N/A	2010/08/25	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ANTONELLA BRASIL, Project Manager
 Email: Abrasil@maxxamanalytics.com
 Phone# (905) 817-5817

=====
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Total cover pages: 1

Maxxam Job #: B0B5245
 Report Date: 2010/09/07

Maat Environmental Engineering Corp
 Client Project #: 7282/OPUS

RESULTS OF ANALYSES OF WATER

Maxxam ID		GX6053		GX6054		
Sampling Date		2010/08/21		2010/08/21		
COC Number		N/A		N/A		
	Units	DAY4- EFFLUENT	RDL	DAY4- REACTOR	RDL	QC Batch

Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	ND	0.5	48.7	0.5	2244129
Inorganics						
Total BOD	mg/L	66	2	2500	2	2245319
Total Suspended Solids	mg/L	35	3	1900	50	2245348
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	ND	0.5	52.0	0.5	2245123
Total Oil & Grease Mineral/Synthetic	mg/L	ND	0.5	3.3	0.5	2245126

ND = Not detected
 N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0B5245
Report Date: 2010/09/07

Maat Environmental Engineering Corp
Client Project #: 7282/OPUS

GENERAL COMMENTS

Revised report: Reported IDs changed as per client request

Results relate only to the items tested.

Maat Environmental Engineering Corp
 Attention: Derek Maat
 Client Project #: 7282/OPUS
 P.O. #:
 Project name:

Quality Assurance Report
 Maxxam Job Number: MB0B5245

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2245123 AMJ	Spiked Blank	Total Oil & Grease	2010/08/25		99	%	85 - 115
	Method Blank	Total Oil & Grease	2010/08/25	ND, RDL=0.5		mg/L	
	RPD	Total Oil & Grease	2010/08/25	NC		%	25
2245126 AMJ	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2010/08/25		96	%	85 - 115
	Method Blank	Total Oil & Grease Mineral/Synthetic	2010/08/25	ND, RDL=0.5		mg/L	
	RPD	Total Oil & Grease Mineral/Synthetic	2010/08/25	NC		%	25
2245319 JKU	QC Standard	Total BOD	2010/08/30		110	%	85 - 115
	Method Blank	Total BOD	2010/08/30	ND, RDL=2		mg/L	
	RPD	Total BOD	2010/08/30	NC		%	25
2245348 JDO	QC Standard	Total Suspended Solids	2010/08/25		95	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/25	ND, RDL=1		mg/L	
	RPD	Total Suspended Solids	2010/08/25	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B0B5245

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

EWA PRANJIC, M.Sc., C.Chem, Scientific Specialist

=====
Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Your Project #: 7282/OPUS
 Your C.O.C. #: N/A

Attention: Derek Maat
 Maat Environmental Engineering Corp
 1273 North Service Rd E
 Unit F2
 Oakville, ON
 L6H 1A7

Report Date: 2010/09/07

This report supersedes all previous reports with the same Maxxam job number

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B0B5795
Received: 2010/08/24, 17:09

Sample Matrix: Water
 # Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Method Reference
Biological Oxygen Demand (BOD)	2	N/A	2010/08/31	CAM SOP-00427	APHA 5210B
Animal and Vegetable Oil & Grease	2	N/A	2010/08/26	CAM SOP-00326	SM 5520 B
Total Oil and Grease	2	2010/08/26	2010/08/26	CAM SOP-00326	EPA 1664A
TPH (Heavy Oil) ¶	2	2010/08/26	2010/08/26	CAM SOP-00326	SM 5520F
Low Level Total Suspended Solids	2	N/A	2010/08/26	CAM SOP-00428	SM 2540D

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

ANTONELLA BRASIL, Project Manager
 Email: Abrasil@maxxamanalytics.com
 Phone# (905) 817-5817

=====
 Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B0B5795
 Report Date: 2010/09/07

Maat Environmental Engineering Corp
 Client Project #: 7282/OPUS

RESULTS OF ANALYSES OF WATER

Maxxam ID		GX8543		GX8544		
Sampling Date		2010/08/24		2010/08/24		
COC Number		N/A		N/A		
	Units	DAY5- REACTOR	RDL	DAY5-- EFFLUENT	RDL	QC Batch

Calculated Parameters						
Total Animal/Vegetable Oil and Grease	mg/L	90.1	0.5	4.4	0.5	2245180
Inorganics						
Total BOD	mg/L	2300	2	25	2	2246801
Total Suspended Solids	mg/L	2000	50	44	3	2246318
Petroleum Hydrocarbons						
Total Oil & Grease	mg/L	105	0.5	5.6	0.5	2246354
Total Oil & Grease Mineral/Synthetic	mg/L	14.6	0.5	1.2	0.5	2246355

N/A = Not Applicable
 RDL = Reportable Detection Limit
 QC Batch = Quality Control Batch

Maxxam Job #: B0B5795
Report Date: 2010/09/07

Maat Environmental Engineering Corp
Client Project #: 7282/OPUS

GENERAL COMMENTS

Revised report: sample IDs changed as per client request.

Results relate only to the items tested.

Maat Environmental Engineering Corp
 Attention: Derek Maat
 Client Project #: 7282/OPUS
 P.O. #:
 Project name:

Quality Assurance Report
 Maxxam Job Number: MB0B5795

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	Units	QC Limits
2246318 HAG	QC Standard	Total Suspended Solids	2010/08/26		97	%	85 - 115
	Method Blank	Total Suspended Solids	2010/08/26	ND, RDL=1		mg/L	
	RPD	Total Suspended Solids	2010/08/26	NC		%	25
2246354 FA	Spiked Blank	Total Oil & Grease	2010/08/26		97	%	85 - 115
	Method Blank	Total Oil & Grease	2010/08/26	ND, RDL=0.5		mg/L	
	RPD	Total Oil & Grease	2010/08/26	2.9		%	25
2246355 FA	Spiked Blank	Total Oil & Grease Mineral/Synthetic	2010/08/26		98	%	85 - 115
	Method Blank	Total Oil & Grease Mineral/Synthetic	2010/08/26	ND, RDL=0.5		mg/L	
	RPD	Total Oil & Grease Mineral/Synthetic	2010/08/26	11.0		%	25
2246801 JKU	QC Standard	Total BOD	2010/08/31		99	%	85 - 115
	Method Blank	Total BOD	2010/08/31	ND, RDL=2		mg/L	
	RPD	Total BOD	2010/08/31	NC		%	25

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
 QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
 Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
 NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.

Validation Signature Page

Maxxam Job #: B0B5795

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).

Cristina Carriere

CRISTINA CARRIERE, Scientific Services

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

APPENDIX 'F'

Enviropure Process Description

THE ENVIROPURE SOLUTION

- Hyper-accelerated food waste **decomposition system**
- **On-site** elimination of food waste in 24 hours
- Uses physical and biological processes in a **submersed environment** to break down food waste into H_2O and CO_2
- Produces **gray water bi-product** safe for disposal in sewer
- NO odors, NO sludge build-up, NO system clean outs



HOW IT WORKS?

- Just like **COMPOSTING**: uses natural biological decomposition processes
- Decomposition is accelerated through combined action of the SYSTEM and the BIOMIX additive
- **PHYSICAL PROCESSING** by the system breaks down the food waste and releases the **H₂O**
- BioMix facilitates the **BIOLOGICAL CONVERSION** of remaining materials into **CO₂** and **H₂O** and microscopic organic material

Process Steps

Load Food into unit



Mechanical Grinding process occurs



Food Waste enters processing vessel & is stirred in the vessel



Air is introduced into the processing vessel water



Bio Mix (micro nutrient) is added



Filter clean cycle



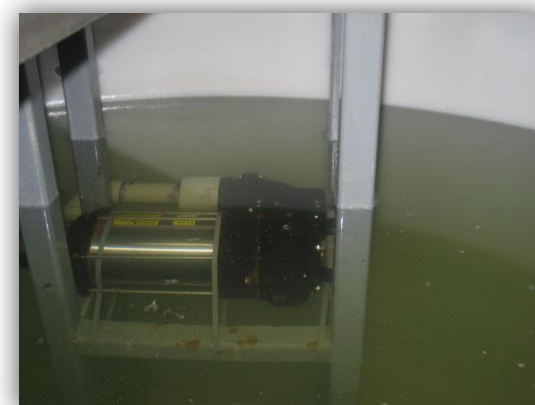
Fresh water



Settle time to allow for solids Breakdown and water treatment

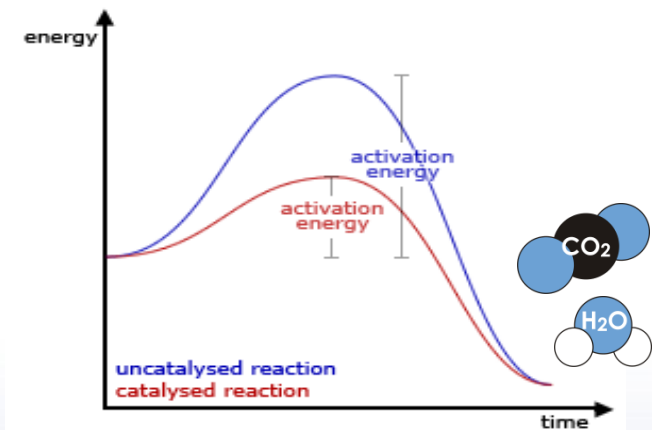
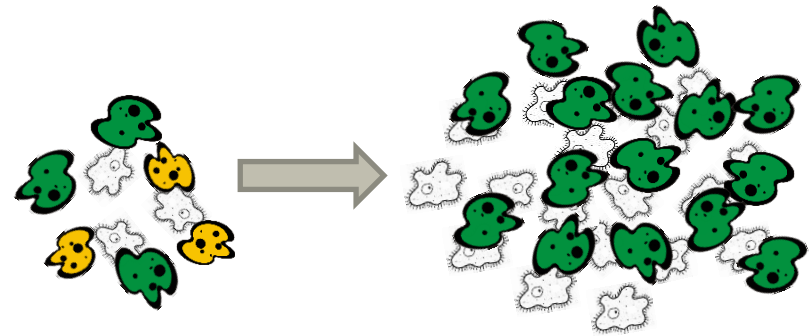
PHYSICAL PROCESSING BY SYSTEM

- Continuous **GRINDING** of the food waste to release water, reduce particle size and increase surface area
- Controlled **ENVIRONMENT** in the reaction chamber (O_2 , PH, Temp levels)
- Aeration of the chamber provides O_2 and **AEROBIC** conversion of carbon components to CO_2
- Insulated chamber retains **HEAT** to accelerate the reaction



BIOLOGICAL PROCESSING WITH BIOMIX

- BioMix is all **NATURAL** non-toxic, biodegradable **NUTRIENT** mix
- BioMix feeds the **BACTERIA** already present in the food waste allowing them to **MULTIPLY**
- “Good” bacteria out-compete the “Bad” bacteria that cause the odors for the food waste
- BioMix provides a **CATALYST** that **ACCELERATES** the decomposition **REACTION**

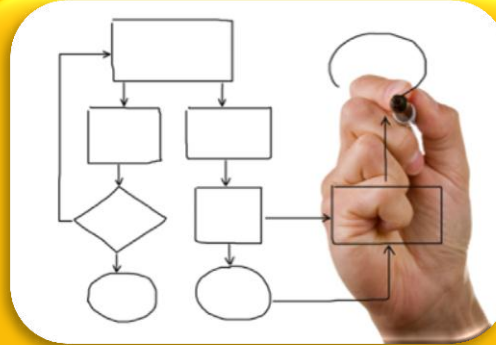


VALUE PROPOSITION TO CUSTOMER



BOTTOM LINE SAVINGS

- Immediate savings vs. current pick up and hauling costs
- Consistent, predictable future disposal costs
- Quick payback and good long term ROI



OPERATIONAL EFFICIENCIES

- Eliminates odors and associated odor and pest control costs
- Improved workplace environment
- Reduces workplace sanitation labor and supply costs



GOOD FOR THE ENVIRONMENT

- Immediate positive impact on environment
- Removes food from landfill and emissions from trucks on the road
- Provides sustainability / business differentiation positioning

CUSTOMER FEEDBACK

“We chose an EnviroPure system as part of our global sustainability initiative because of the immediate environmental impact of the system on our overall carbon foot print. The operational efficiencies and substantial cost savings we achieved made the decision easy!”

-Director of Engineering, Hyatt Regency McCormick Place,
Chicago-



“Food Waste Elimination Solutions *At The Source*”

Offices: 2011 West Fulton Street, Chicago, IL, 888.324.7265
2275 Upper Middle Road E., Suite 101, Oakville, ON 416.237.0390

APPENDIX 'G'

Enviropure EPW Spec Sheet

SYSTEM OVERVIEW

EnviroPure EPW Systems are self-contained, continual feed, organic food waste elimination systems that convert food waste into water. The technology uses a combination of mechanical processing, heat, oxygen and all-natural additives to accelerate the natural aerobic decomposition process. Organic waste is quickly reduced to a gray water effluent that can be safely disposed of into existing municipal waste water systems. EPW systems handle virtually any kind of food waste including vegetables, fruits, meat, fish and poultry, dairy products, bones, shells and pits, with complete decomposition typically occurring within 24 hours!

STANDARD FEATURES

- **UL® U.S. & Canadian Certified**
- Simple one-button on/off, fully automated "feed it and forget it" operation
- Automatic on/off interlock door safety switch
- High quality, heavy duty Gould, Emerson & Vaughan pumps and motors provide quiet operation and superior performance
- Front mounted controls and display panel provide quick and easy operation, troubleshooting, monitoring and reporting of system function
- Commercial grade stainless steel enclosure
- 10 different sizes to fit any size foodservice operation (custom models up to 3 tons/day capacity available)
- Same day installation. Standard 208/220V power requirements, cold water and waste water line hookup using standard PVC/copper fittings

- All natural, non-toxic, biodegradable EPW-BioMix additive catalyzes and accelerates naturally occurring biological decomposition processes
- Continual oxygenation of decomposition tank ensures fully aerobic decomposition process resulting in water and carbon dioxide bi-products
- Complete elimination of all solid food waste with absolutely NO odours, NO sludge build up and NO system cleanout required
- Gray water effluent bi-product meets standards for safe disposal into municipal waste water sewer systems

QUALITY MEASURED	MUNICIPAL LIMITS	ENVIROPURE
Biological Oxygen Demand (BOD)	300 mg / L	< 30 mg / L
Fats, Oils & Grease (FOGs)	150 mg / L	< 10 mg / L
Total Suspended Solids (TSS)	300 mg / L	< 30 mg / L

* Always confirm municipal waste water limits and requirements in your area

- System does **not** require connection to grease interceptor

OPTIONS & ACCESSORIES

- Remote Food Disposal Grinder System**
Commercial grade stainless steel foodservice food waste disposer integrated into your kitchen prep areas and/or dish line for remote feeding of food waste into system
- Custom Configured Chute / Scrap Table / Trough Feeder Systems**
- Interior / Exterior / Combination Install Configurations Available**
- Cold Weather Exterior Install Package**
Steel frame construction, galvanized siding, insulated enclosure, with heater & blower, feed/drain piping sleeves and electrical heat tape wrap for exterior installations in cold weather climates
- 3 Phase 600V Electrical Connection**
- 10/100 Base-T RJ-45 Network Connection**
Network connection for remote control, monitoring, and notification of system functions, performance and fault states. Front end reporting and monitoring software included. (* Available late 2012)



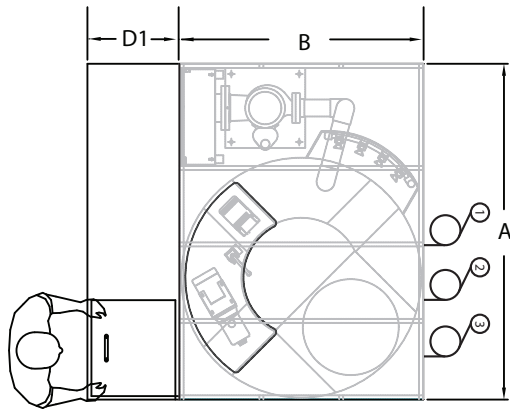
EnviroPure Systems Inc.
2011 West Fulton Street, Chicago, Illinois 60612
tel. 1.888.324.7265 fax. 312.238.9332
www.enviropuresystems.com

EPW Systems

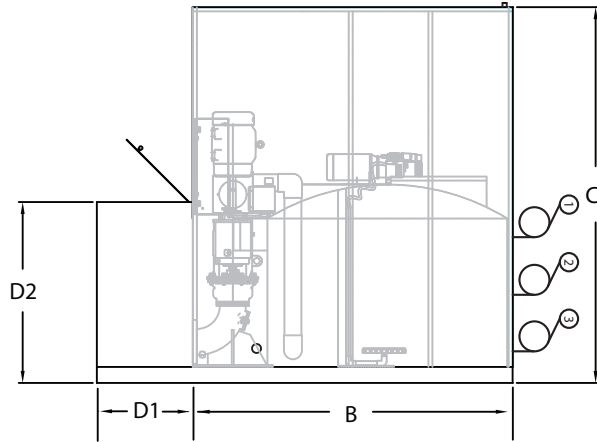
Hyper-accelerated, on-premises

EPW FOOD WASTE ELIMINATION SYSTEM

Dimensions shown in inches.



Top View



Side View

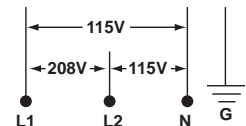
MODEL	CAPACITY		DIMENSIONS					WEIGHT	CONSUMPTION		
	Lbs lbs/day	Tons t/mth	A in	B in	C in	D1 in	D2 in	Empty lbs	Water US Gal / Hr	Power kWh / Hr	BioMix US Gal / Day
EPW-120(i)	120	1.8	34	42	60	N/A	N/A	900	1.1	0.24	0.04
EPW-240(i)	240	3.7	34	54	83	N/A	N/A	1,000	2.0	0.24	0.08
EPW-480(i)	480	7.3	52	66	75	N/A	N/A	2,200	4.0	0.32	0.16
EPW-720(i)	720	11.0	76	90	78	N/A	N/A	2,500	6.0	0.32	0.24
EPW-1000(i)	1,000	15.2	76	90	93	N/A	N/A	2,600	7.9	0.32	0.34
EPW-1500(i)	1,500	22.8	94	108	93	N/A	N/A	2,700	11.8	0.32	0.50
EPW-2000(i)	2,000	30.4	106	120	102	N/A	N/A	3,000	15.8	0.32	0.67
EPW-720v	720	11.0	76	90	78	24	42	3,000	6.0	0.32	0.24
EPW-1000v	1,000	15.2	76	90	93	24	42	3,100	7.9	0.32	0.34
EPW-1500v	1,500	22.8	94	108	93	24	60	3,200	11.8	0.32	0.50
EPW-2000v	2,000	30.4	106	120	102	24	60	3,500	15.8	0.32	0.67

Utilities	
1	<p>Electrical</p> <p>208-240/60/3; 3 wire plus ground, (See Box). 480/60/3; 3 wire plus ground, (See Box).</p>
2	<p>Cold Water</p> <p>1/2" supply; cold water connection. Incoming supply pressure must maintain a minimum flow rate of 5.0 US gpm [18.9 litres per minute]. Machine equipped with 3/4" NPT male fitting for input cold water connection.</p>
3	<p>Waste Water Drain</p> <p>Machine equipped with 1 1/2" PVC drain connection. Maximum drain flow 15.0 US gpm [56.8 litres per minute].</p>

Elec. Specs.	Rated Amps	Minimum Supply Ckt. Conductor Ampacity	Maximum Overcurrent Protective Device
208/60/1	36	40	40
240/60/1	32	40	40
208/60/3	24	30	30
240/60/3	22	30	30
480/60/3	12	15	15

Warning Plumbing and electrical connections should be made by qualified personnel who will observe all the applicable plumbing, sanitary and safety codes and the National Electrical Code.

Note: Electrical supply service must be a 3-wire plus ground for connection shown.



Due to an ongoing value analysis program at EnviroPure, specification contained in this catalog are subject to change without notice.