



# Maintenance of Hydrodynamic Separators: Case Studies from Three Ontario Municipalities

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# **Maintenance of Hydrodynamic Separators: Case Studies from Three Ontario Municipalities**

Prepared by:

Toronto and Region Conservation's Sustainable Technologies Evaluation Program

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## **THE SUSTAINABLE TECHNOLOGIES EVALUATION PROGRAM**

The Sustainable Technologies Evaluation Program (STEP) is a multi-agency program, led by the Toronto and Region Conservation Authority (TRCA). The program helps to provide the data and analytical tools necessary to support broader implementation of sustainable technologies and practices within a Canadian context. The main program objectives are to:

- monitor and evaluate clean water, air and energy technologies;
- assess barriers and opportunities for implementing technologies;
- develop supporting tools, guidelines and policies; and
- promote broader use of effective technologies through research, education and advocacy.

Technologies evaluated under STEP are not limited to physical products or devices; they may also include preventative measures, alternative urban site designs, and other innovative practices that help create more sustainable and liveable communities.

## **ACKNOWLEDGEMENTS**

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Cover Photos Source: Minotaur Guardian Services Ltd.





## **EXECUTIVE SUMMARY**

Hydrodynamic separators (HDS) are intended to remove sediment, screen debris, and separate hydrocarbons from stormwater for small drainage areas. They are typically installed underground as flow through devices within the storm sewer network. In Ontario, there are approximately 13,000 units, with approximately 1,000 new units installed each year. These devices require frequent inspection and maintenance to ensure they continue to function according to design. When they are not maintained, the devices fill with sediment and debris, and provide little to no stormwater treatment, resulting in the degradation of aquatic life and water quality in downstream watercourses.

Unfortunately, the location and ownership of many of these units are not currently being tracked, and investigations in other jurisdictions have shown that maintenance is more often the exception than the rule. Best estimates from manufacturer databases suggest that only about one quarter of existing HDS in Ontario have been inspected, and even fewer have been serviced.

In this paper the following mechanisms and legal avenues, through which municipalities and other government agencies can enforce and improve maintenance of HDS, are reviewed:

- Environmental Compliance Approvals
- Site Plan Agreements
- Municipal By-laws
- Maintenance Agreements

Case studies from three municipalities in Ontario (London, Peterborough and Pickering) that have had some success in educating HDS owners and improving maintenance practices are presented and discussed. A simple, user friendly web-based tool is introduced as a means for government agencies to track the location, inspection and servicing of existing and new HDS in the Greater Toronto Area. Finally, the following recommendations are presented to outline how municipalities can establish programs and procedures to ensure that new and existing HDS are adequately maintained.

- Implement Appropriate Bylaws (i.e. sewer use, waste discharge, etc.)
- Develop an inventory and database
- Develop educational materials
- Devote appropriate staff resources
- Adopt best practices for municipally-owned HDS
- Report on Your Experience



## TABLE OF CONTENTS

<b>1.0</b>	<b>BACKGROUND AND OBJECTIVES .....</b>	<b>1</b>
<b>2.0</b>	<b>REVIEW OF EXISTING ENFORCEMENT MEASURES AND TOOLS .....</b>	<b>2</b>
2.1.	Environmental Compliance Approvals.....	2
2.2.	Site Plan Agreements.....	3
2.3.	Municipal Bylaws .....	5
2.4.	Maintenance Agreements.....	7
<b>3.0</b>	<b>MUNICIPAL CASE STUDIES.....</b>	<b>8</b>
3.1.	City of London, Ontario.....	8
3.2.	City of Peterborough, Ontario.....	9
3.3.	City of Pickering, Ontario.....	10
<b>4.0</b>	<b>WEB-BASED TRACKING TOOL .....</b>	<b>12</b>
<b>5.0</b>	<b>CONCLUSIONS AND RECOMMENDATIONS .....</b>	<b>20</b>

### LIST OF FIGURES

<b>Figure 4.1:</b>	Main menu .....	14
<b>Figure 4.2:</b>	Add new project .....	15
<b>Figure 4.3:</b>	Upload inspection report.....	16
<b>Figure 4.4:</b>	Upload servicing report.....	17
<b>Figure 4.5:</b>	View project map .....	18
<b>Figure 4.6:</b>	Search projects.....	19

**APPENDIX A:** City of London Compliance Program Information

**APPENDIX B:** City of Peterborough Compliance Letter

**APPENDIX C:** City of Pickering Compliance Letter



## **1.0 BACKGROUND AND OBJECTIVES**

Hydrodynamic separators (HDS) are intended to remove sediment, screen debris, and separate hydrocarbons from stormwater for small drainage areas. They are typically installed underground as flow through devices within the storm sewer network. Removal processes vary for different types of HDS, but most depend at least partly on gravity based settling for sediment and associated contaminants (e.g. heavy metals), and phase separation for oil. HDS do not effectively remove dissolved or emulsified oils and pollutants.

HDS are typically applied to small, highly impervious areas such as parking lots, loading areas, or gas stations as part of a multi-barrier approach for water quality control. HDS are not designed with extended detention storage and therefore they do not provide quantity control. However, peak flows can be attenuated if temporary storage is provided upstream of the HDS on roof tops, paved surfaces and/or within the storm sewers as part of the site drainage plan.

In Ontario, there are approximately 13,000 units, with approximately 1,000 new units installed each year. These devices require frequent inspection and maintenance to ensure they continue to function according to design. When they are not maintained, the devices fill with sediment and debris, and provide little to no stormwater treatment, resulting in the degradation of aquatic life and water quality in downstream watercourses.

Unfortunately, the location and ownership of many of these units are not currently being tracked, and investigations in other jurisdictions have shown that maintenance is more often the exception than the rule. Best estimates from manufacturer databases suggest that only about one quarter of existing HDS in Ontario have been inspected, and even fewer have been serviced.

Hydrodynamic separators are easy to ignore because they are installed underground within the storm sewer system, and are accessed through manholes that look the same as other conventional storm sewer manholes. Consequently, property owners and tenants are often not aware that they have HDS on their property, and those that are aware have not usually been informed of their obligation to regularly inspect and service the devices.

In this paper, the mechanisms and legal avenues through which municipalities and other government agencies can enforce and improve maintenance of HDS are reviewed. Case studies from three municipalities in Ontario that have had some success in educating HDS owners and improving maintenance practices are presented and discussed. A simple, user friendly web-based tool is introduced as a means for government agencies to track the location, inspection and servicing of existing and new HDS in the Greater Toronto Area. Finally, recommendations are provided on how municipalities can establish programs and procedures to ensure that new and existing HDS are adequately maintained.



## **2.0 REVIEW OF EXISTING ENFORCEMENT MEASURES AND TOOLS**

### **2.1. Environmental Compliance Approvals**

Environmental Compliance Approvals (ECAs), formerly known as Certificates of Approval (CofAs), are approval documents issued by the Ministry of the Environment in accordance with the Environmental Protection Act and the Water Resources Act. Both of these statutes prohibit the release of any contaminant that may adversely affect the natural environment, and both include strict penalties (i.e. \$250,000 to \$500,000 per day for corporations) for failing to follow the requirements set out in approval documents. ECAs are required for any business that impacts the natural environment through the release of contaminants or pollutants into the air, onto land, into water, or through the transportation and disposal of waste. Property owners intending to install an HDS currently require an ECA from the ministry.

Information contained in an ECA document includes a detailed description of the approved works (location, design specifications, etc.) and a list of legally enforceable terms and conditions. The terms and conditions lay out specific requirements related to, but not limited to, expiry terms, change of ownership, spill contingency plans, and operation and maintenance. With respect to HDS, the terms and conditions may vary by site; however, they generally include stipulations related to the frequency of inspections, requirements for on-going maintenance and an obligation for record keeping of inspection and maintenance activities.

Examples of standard ECA conditions include:

- The owner shall design, construct and operate the oil/grit separator with the objective that no visible oil sheens occur in the effluent discharged from the oil/grit separator
- The owner shall carry out and maintain an annual inspection and maintenance program on the operation of the oil/grit separator in accordance with the manufacturer's recommendation
- The owner shall inspect the works at least once a year and, if necessary, clean and maintain the works to prevent the excessive buildup of sediments and/or vegetation
- The owner shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the site for inspection by the ministry
- The logbook shall include the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed

Where an individual property owner has obtained an ECA for their HDS, a municipality could make reference to the ECA conditions, within the context of a compliance letter, as a means of

encouraging better maintenance practices. However, when considered as a stand-alone solution for encouraging better maintenance practices this mechanism presents some challenges:

- Some property owners are not aware of the requirement for an ECA and install an HDS without contacting the ministry
- Some property owners choose to ignore the ministry's approval process altogether because of time delays and cost and proceed with installation of an HDS without contacting the ministry
- ECA conditions are registered on title and upon transfer of ownership, transfer of ECA should also happen as part of the real estate transaction. Often, this transaction does not occur and therefore, the chain of responsibility is broken.
- In some cases the ministry contacts the local municipality (via the Clerk's office) when an ECA is approved; however, this notification process is not consistently applied and therefore municipalities will not have a complete inventory of approved HDS
- Municipalities have no legal authority to penalize property owners in the event that ECA conditions are not satisfied (enforcement of ECA lies with the ministry)

The ministry's recent transition to a two-stream approval process including ECAs and Environmental Activity and Sector Registry (EASRs) could also affect the way in which the ministry deals with HDS in the future. As previously discussed, under this new approval regime property owners are required to obtain an ECA for their HDS. However, under the EASR process businesses are only required to *register* certain activities with the ministry, rather than requiring an approval for these activities. Projects subject to the EASR are considered routine practices and therefore may receive less scrutiny from the ministry in terms of enforcement. In the future it is possible that the ministry may transfer HDS requirements from the ECA to the EASR process.

## **2.2. Site Plan Agreements**

Site plan agreements (SPAs) are legally binding contracts between a land owner and a municipality. The agreement comprises a written contract, and a set of plans and drawings that represent the various aspects of a proposed development. Through the SPA process municipalities have the ability to guarantee the provision of certain facilities or works, and to impose certain conditions upon the development. SPA conditions can include a range of items including, but not limited to, requirements to submit Letters of Credit or proof of agency approval. Conditions may also include requirements for the ongoing operation and maintenance of stormwater facilities, including HDS.



Examples of specific SPA conditions related to HDS include:

- The owner agrees to undertake an annual inspection and maintenance program of the proposed stormwater quality oil/grit separator manhole in perpetuity and to provide to the city an annual report detailing the results and actions of every such inspection
- The developer covenants and agrees to maintain in good condition and repair all the drainage facilities and services referred to in (insert Section)

SPAs are often registered on the property title which guarantees that the requirements and conditions set out in the agreement are binding on future owners or assignees. Where specific conditions of the agreement are not carried out, or completed as specified, the municipality may draw upon a letter of credit, if applicable, or they may contact the property owner to discuss the compliance issue. Where the latter approach is implemented, and after several attempts to elicit action have failed, the municipality has the right to enter the property (with notification) to carry out the required work, maintenance, etc. at the owner's expense.

A review of SPA documents could be used as a starting point for municipalities looking to develop an inventory of sites. In addition, where SPA documents exist for a site, municipalities could reference the SPA conditions as a means of encouraging property owners to improve maintenance practices. However, similar to the ECA process, the SPA process also presents some logistical challenges:

- Many municipalities have incomplete records of approved SPAs, especially for those sites approved more than ten years ago.
- Not all sites with an HDS will have specific conditions attached to the SPA to stipulate inspection and maintenance. In the absence of specific conditions, the municipality has limited ability to enforce these activities.
- Municipalities cannot send out standard enforcement letters to all HDS owners implying SPA conditions exist.
- Letters of Credit that are provided to the municipality as a security for ongoing maintenance generally expire after a certain time frame. Beyond this date property owners have less incentive to adhere to conditions.
- Unlike bylaws that have assigned enforcement officers, enforcement of the SPA conditions lie with various divisions within the municipality (i.e. engineering looks after engineering-related conditions, planning looks after planning-related conditions, etc.). This arrangement generally means individual divisions must take on additional work to ensure enforcement is carried out.

## **2.3. Municipal Bylaws**

Under the Canadian Constitution, all municipal governments have the authority to develop and pass local regulations, otherwise known as bylaws. Bylaws are rules that apply to specific activities within the jurisdiction of a single municipality. To take effect bylaws must be passed by the local municipal council, and once passed, compliance is monitored and upheld by bylaw enforcement officers. Offenders can be fined or charged with a criminal offence for breach of a bylaw. Penalties for violating a municipal bylaw generally include fines or prosecution.

Over the past few years, municipalities in the province of Ontario are becoming more proactive with respect to various environmental issues including pesticide use, air pollution and stormwater management. As a result, many municipalities are amending existing bylaws, or adopting new bylaws to address this range of issues. Sewer-Use or Waste-Discharge Bylaws are generally the two bylaws that are used to affect HDS operation and maintenance activities; however, the language used in these documents is not always consistent among municipalities.

For example, some bylaws contain clauses that clearly stipulate the municipality's requirements with respect to HDS:

- No person shall fail to install or maintain a suitable device to prevent the entry of grease, oil, sand and dirt into the public sewage upon being required to do so by the City Engineer

Subsequent clause(s) may also be included to stipulate any additional requirements for inspection, monitoring and maintenance and to clarify the city's authority in the event of noncompliance:

- The owner or occupant of commercial, institutional or industrial premises shall, at the discretion of the City Engineer, install devices to monitor discharges to the satisfaction of the City Engineer, and if required to do such installation, shall submit regular reports regarding such discharges to the City Engineer
- Where the owner or occupant of commercial, institutional or industrial premises does not install or maintain each manhole, device or facility required under this bylaw such installation or maintenance may be done at the direction of the City Engineer at the expense of the owner or occupant and the Municipality may recover the costs incurred in doing such work by action or by adding the costs to the tax roll and collecting them in the same manner as municipal

Other bylaws simply contain stipulations with respect to allowable discharge limits. In these cases, the bylaw does not include any specific reference to HDS or other maintenance requirements. Instead, by virtue of the limits defined in the bylaw, the need for routine inspection and maintenance is implied. For example:

- No person shall discharge or deposit or cause or permit the discharge or deposit of matter of a kind listed below into or in land drainage works, private branch drains or connections to any storm sewer,
  - The following matter ***in any amount***:
    - Automotive or Machine Oils and Greases
    - Fuels
    - Paints or Other Organic Solvents
    - PCBs
    - Pesticides
    - Severely Toxic Materials
    - Waste Disposal Site Leachate
    - Waste Radioactive Materials

In this instance, any property owner who installs an HDS unit and then fails to regularly inspect and maintain the unit such that the unit fails to operate as intended and releases one or any of the substances identified above, would be violating the bylaw. While the former example provides more specific language regarding HDS requirements, both examples would enable municipalities to enforce corrective measures or to take legal action where property owners fail to comply.

There are several advantages to using sewer-use or waste-discharge bylaws as a tool to enforce HDS inspection and maintenance:

- These bylaws are applicable to all HDS regardless of when they were installed and regardless of the conditions, or lack of conditions, specified in the SPA or ECA document.
- Most municipalities already have sewer-use or waste-discharge bylaws in place.
- Municipalities already have assigned enforcement officers whose primary responsibility is to enforce the bylaws.
- Unlike SPA or ECA conditions, bylaws do not need to be registered on title. This eliminates the problem of having to notify future property owners about any special conditions.

## **2.4. Maintenance Agreements**

Maintenance agreements are contracts that property owners enter into with either a manufacturer or an independent service provider. Terms of the agreement are generally defined for a set period of time (i.e. two to five years) and provisions in the agreement generally include a defined inspection frequency, a commitment to maintain and structured reporting protocols.

Certain HDS manufacturers are currently offering inspection and maintenance packages as part of the overall product warranty. These types of agreements provide a number of benefits for both the owner and the municipality, including:

- Owner is assured that service frequency and reporting structure complies with municipal and/or provincial regulations.
- Owner recognizes and accepts HDS requirements as part of larger overall site maintenance routines.
- Owner is educated about the benefit of routine inspection as a tool for reducing long-term maintenance costs or potential clean-up costs after a spill.
- Owner likely to extend/renew agreement once initial term has expired rather than doing the work themselves and to ensure continued compliance.
- Municipalities are assured that units are being properly inspected during the life of the agreement.
- Municipalities can focus efforts to encourage improved maintenance practices on other sites where agreements are not in place.
- Municipalities are less likely to use their own resources to carry out necessary maintenance where agreements are in place.
- Manufacturers or service providers could be enlisted to help maintain installation and service records in municipal database (provided privacy issues have been addressed).

Some of the drawbacks with this approach include:

- Difficult for manufacturers or service providers to predict maintenance requirements and therefore some agreements have no, or limited guarantees with respect to maintenance.
- No requirement for owner to renew or extend agreement once initial term expires.
- No enforcement mechanism for municipalities to use in the event that the owner breaks the terms of an agreement.
- No legal way to force owners to purchase, or to require manufacturers to provide these types of agreements.
- Municipalities are not routinely informed when agreements are signed.

## **3.0 MUNICIPAL CASE STUDIES**

### **3.1. City of London, Ontario**

Through the day-to-day operations of the Wastewater Treatment Division, the city of London recognized that adequate inspection and maintenance of HDS was not occurring. As a result, in 2011 the city initiated an educational campaign in an effort to educate HDS owners and to improve the level of maintenance practices. Sections 6.1 through 6.9 of the city's Waste Discharge By-Law contain specific clauses applicable to HDS. These sections clearly identify the city's authority to require property owners, or occupants, to install *and* maintain these units in good repair. These sections also indicate the need to allow access to the units and for the requirement to submit monitoring reports if requested by the city. Section 2.2 of the by-law includes a provision allowing city staff, or others engaged or appointed by the city, the legal right to enter private property (with the exception of dwelling units) for the purpose of conducting inspections or taking samples. These key sections were essential to the city's ability to proceed with the campaign and subsequent enforcement measures, and precluded the need for additional approval from Council.

The city's campaign began with an inventory of existing HDS. This task was accomplished primarily through a review of approved site plan and subdivision agreements and by obtaining installation records from a local manufacturer/supplier. The results of this survey identified approximately 160 HDS. The city selected a subset of 90 sites, each of which was located at a gas station, for the focus of the initial campaign. The city developed an information pamphlet, a notification letter and a survey form to send out to each of the 90 sites (see Appendix A). The information pamphlet contained the basic facts about HDS including, the purpose and environmental benefit, a description of how they function, details about where they are generally located, and an overview of the legal obligations to inspect and maintain these units. The notification letter was used to inform the property owner that an HDS unit may exist on their property and it also made reference to the city's Waste Discharge By-law. The letter also specified a time limit for submitting completed surveys to the city. The one-page survey required owners to provide basic contact information, to confirm if an HDS unit was located on the property and to provide details regarding the inspection and maintenance history of the unit. In addition to these three items, the city also produced a short, educational video about the benefit and operational requirements of HDS.

The pamphlet, letter and survey were mailed to the property owners at each of the 90 sites. Approximately 40% of the owners contacted responded to the survey voluntarily; however, results of the survey were not always accurate. At several locations where the city knew an HDS unit was located, the owner who filled out the survey checked off that an HDS unit did not

exist on the property. In these cases, the city conducted a follow-up call or visit to speak directly with the owner and to confirm the presence of the HDS unit.

Another problem that arose during the survey was with sites that were owned by large corporations. In many of these cases, the corporation owned the land but the site was being operated by an independent business owner through a lease agreement. When the city contacted the corporation they were redirected to the lessee, who then in turn directed them back to the corporation. Ultimately, the city had to issue an “Order to Comply” where organizations failed to respond or to provide the appropriate contact information.

At the end of the initial campaign, the city had received inspection and maintenance reports from all of the sites that originally responded to the initial survey. City staff continues to follow up with the remaining property owners, as well as those sites beyond the initial focus group, as part of their day-to-day operations. Information collected as part of the survey was compiled by the city in a spreadsheet format and will be used to track compliance and to assist with enforcement activities as required. Funding to carry out the educational campaign was provided through the capital budget process. Two summer students were hired to develop the pamphlet, notification letter, survey and video. The only additional staff resources required to complete this work included staff time for supervision of summer students (approximately 10% of supervisor’s time) and minimal time from the existing manager to oversee the entire project.

Through this process the city has noted a number of suggestions that would assist them in tracking and processing inspection and maintenance data, including a centralized database system that would allow manufacturers and suppliers to input new installation data and for end users and service providers to input inspection and maintenance data. Another suggestion was for improved communication between city departments to ensure that information about new installations, identified through the planning and permit process, is conveyed to the appropriate divisions and staff who are responsible for compliance monitoring.

### **3.2. City of Peterborough, Ontario**

In July of 2004, the city of Peterborough experienced a record-breaking rainfall event which led to widespread flooding and significant damage throughout the community. As a result of this event, the city prepared a Flood Reduction Master Plan Study to identify remedial measures to help alleviate future flood risk. Among the recommendations was the need for a comprehensive review and inventory of the existing storm sewer system and better documentation of inspection and maintenance records related to municipal infrastructure. Throughout the process of compiling this information and developing a better understanding of their own inventory, the city also recognized that in order to fully manage future flood risk, more efficient records of private

infrastructure and better tracking of maintenance practices for these measures was also needed.

As a result, in 2008 the city initiated a process for documenting and tracking HDS in the city. This process was completed without the need for additional staffing or budget resources. To begin, a review of approved site plan agreements (SPA) was completed to identify the location of any HDS on private property. In total, 50 units were identified and details of each installation were populated into a relational database. The Utility Services Department then sent out letters to the property owners of all 50 units (see Appendix B). Each of the letters included the HDS model specifications and installation date. The letters also included a reference to the approved SPA conditions which specifically stipulate that:

“ the owner agrees to undertake an annual inspection and maintenance program of the proposed stormwater quality oil-grit separator manhole in perpetuity and to provide to the City of Peterborough Utility Services Department an annual report detailing the results and actions of every such inspection”.

The inclusion of this condition in the SPA precluded the need for additional council and/or legal approval before sending out the letters. The city also stipulated timelines for the completion of all work and provided contact information, where applicable, for local service providers.

Approximately 90% of the 50 property owners responded to the city’s letter by submitting either inspection records and/or maintenance and servicing records. Information received as part of this process was entered into the database as a means of documenting the response and for future tracking purposes. The city continues to send out letters on an annual basis; however, the response rate has slowly been declining over the last couple of years. At present time, the city does not have sufficient staff resources to ensure that the necessary follow up (i.e. phone call and/or site visit) occurs with property owners that do not reply.

Moving forward, the city is currently in the process of undertaking a Stormwater Quality Environmental Assessment. This process will include a review of current practices related to tracking of HDS, and other infrastructure, in the city and will include recommendations for improving the city’s existing compliance program. In total, engineering staff estimate that 10% of one staff person’s time would be required to oversee this program and up to 25% of one staff person’s time if further attention is needed to address compliance issues.

### **3.3. City of Pickering, Ontario**

In 2009, the city of Pickering initiated an annual compliance protocol targeting HDS on private property. An initial inventory of sites was compiled based on knowledge of city staff and a review of approved SPAs. Staff spent approximately two days per week, for one month,

compiling site information and undertaking site visits to verify HDS locations. Information compiled during this review was input into an internal database developed for this purpose.

Compliance letters were mailed out to each of the property owners and included a reference to the approved SPA and a requirement to submit completed inspection certificates to the municipality for their review (see Appendix C). In the city of Pickering, specific notes relating to HDS inspection and maintenance are required on the approved servicing plan which forms part of the approved SPA. The specific notes include a requirement for annual inspection and associated maintenance.

Of the total number of property owners contacted, approximately 25% submitted the requested documentation. An additional 10% of the letters were returned because they had the wrong contact information. This was generally the case for sites where property ownership had changed since the installation of the HDS. In each of these cases, city staff followed up and obtained the new contact information and letters were resent.

A review of the submitted results indicates that 100% of gas station owners complied with the city's request. Similarly, sites that were serviced by a property manager, on behalf of a larger corporation, tended to result in higher compliance rates because the property owners were generally aware of the maintenance requirements for the HDS. Sites that were owned or operated by small businesses, or sites that were leased by tenants, tended to elicit the lowest compliance rates.

The city indicated that the database will continue to be updated as new HDS are installed. New sites will be flagged by the planning and development department through the development review process. Compliance letters continue to be mailed out on an annual basis and any new inspection and/or maintenance information submitted will also be added to the database. As with other municipalities, city staff indicated that additional resources would be needed to ensure follow up occurs with property owners that have not responded to the compliance letters. At this time, the city does not have sufficient resources to undertake further steps (i.e. phone calls, site visits, etc.) to improve the overall compliance rates.



## **4.0 WEB-BASED TRACKING TOOL**

In 2011, the Toronto and Region Conservation Authority (TRCA) developed an online database (<http://www.trcagauging.ca/ogs/index.asp>) to house installation, inspection, maintenance, and servicing data for HDS in the greater Toronto area, with the capacity for eventual expansion to all Ontario municipalities. It is intended that the database will be used by two primary user groups: government agency personnel will use the database to input new installation data and to track compliance-related activities on both municipal and private property, and; property owners and service providers will also use the database to upload inspection and maintenance information as part of their required compliance reporting.

The first phase of database development is now complete and approximately 2300 records have already been populated. Access to the database requires a user name and password; both of which are assigned by TRCA. To ensure security and protection of the data, users will only be permitted to view data for those sites they input into the database. They will not be permitted to view data input by other users. New installations will primarily be flagged by municipal staff during the site plan application process, specifically when an HDS receives municipal approval. Once approved, municipal staff will be responsible for entering new records into the database.

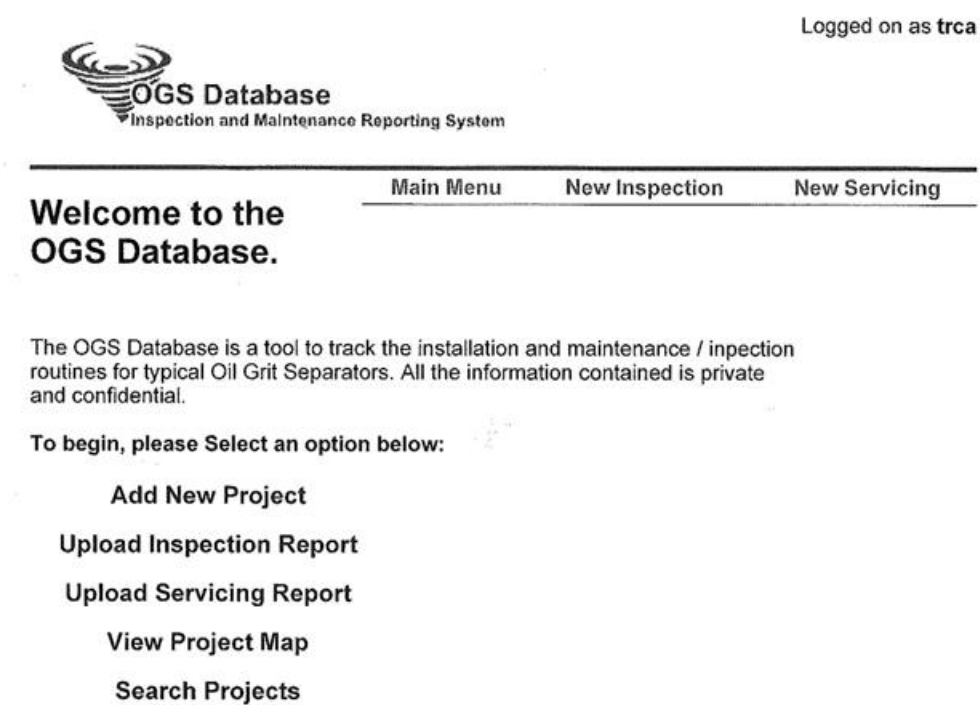
Individual property owners and service providers can also obtain a user name and password; however these users will only be permitted to enter new inspection and/or servicing data. They will not be permitted to input new installations or to browse through the database. Inspection and servicing data can be input using the appropriate submission forms. When filling out the submission form, the user will be prompted to enter a unique site identification number. These identification numbers are assigned by the municipality at the time the HDS is approved. The property owner or service provider must know the identification number in order to input any inspection or servicing data. If the database does not recognize the identification number that has been entered, it means that the municipality has not yet created a record for that particular site. Once the inspection and/or servicing data is submitted, the information is linked to the specific site record in the database. Municipal staff could then search the database to confirm whether or not annual inspections were carried out and to determine which sites were flagged for additional servicing.

The database currently has basic search function capabilities which allow authorized users to search for sites by project name, project ID, by municipality or by a map.

Figures 4.1 through 4.6 show the various forms and tasks that can be carried out using the database. From the main menu (Figure 4.1), users have five options including, add new project, upload inspection report, upload servicing report, view project map and search projects. Both the inspection and servicing report options allow users to upload digital copies (.doc, .pdf or.xls) of existing inspection or servicing reports.


It is anticipated that TRCA will continue to manage the database format and will provide updates to the structure and web interface as required, or as identified by users. Future modifications to the database may include the following updates:

- Enhanced mapping and search tool functions
- Auto-generated reports
- Compliance letter templates
- Ability to upload photos



**Figure 4.1:** Main menu

Logged on as trca

 **OGS Database**  
Inspection and Maintenance Reporting System

---

**Project Submission** Main Menu   New Inspection   New Servicing

---

**Installation Details:**  
Please complete the following information. Use the interactive map if GPS coordinates are not available.

**Site Information**

Project Ref. #:

Project Name:

Site Location:

Street Address:

Site Coordinates:

Decimal Degrees:  \*  \* (Use Locator Map)  
Use Degrees Minutes Seconds

Installation Date:  -

Land Ownership:

Certificate of Approval: ☐ Yes ☐ No

C of A Number: (if applicable)

**OGS Details**

Drainage Area:  (m2)

Percent Impervious:  (%)

Land Use Type:

OGS Manufacturer:

Sump Depth:  (meters)

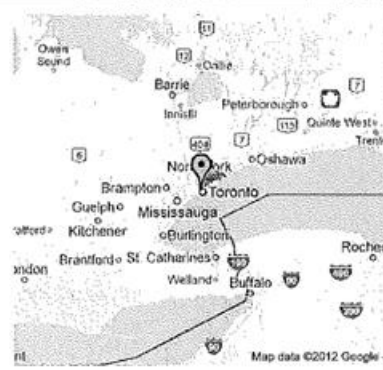
**Contact Information**

Owner:


Property Contact:

Mailing Address:

Municipality:

**Figure 4.2:** Add new project

Logged on as trca

 **OGS Database**  
Inspection and Maintenance Reporting System


---

**Submit Inspection Form** [Main Menu](#) [New Inspection](#) [New Servicing](#)

Head Office (TRCA 101)  
Date: 9/6/2012 9:20:58 AM

**Inspection Details**

Inspection Details

Inspection Date:  

Inspector:

Inspection Results

Uploaded Report: No Report Uploaded

Comments:


Hydrocarbons Present: ☐ Yes ☐ No ☐ Undetermined

Sediment Depth (mm):

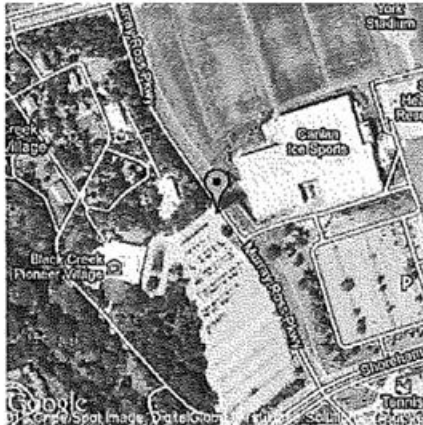
Inspection Recommendations

Maintenance Required: ☐ Yes ☐ No

Repairs Required: ☐ Yes ☐ No

Next Inspection Date:  

**Project Location:**



**Past Inspections**

Inspection Date	Sediment Depth	Comments	Inspector	Inspection Report
-----------------	----------------	----------	-----------	-------------------

Figure 4.3: Upload inspection report

Logged on as trca



[Main Menu](#)   [New Inspection](#)   [New Servicing](#)

Add Servicing Record for Head Office (TRCA 101)

Servicing Details

Service Date:

Uploaded Report: No Report Uploaded

Comments:

Servicing Complete: ☐ Yes ☐ No

Submit

Reset

Project Location:

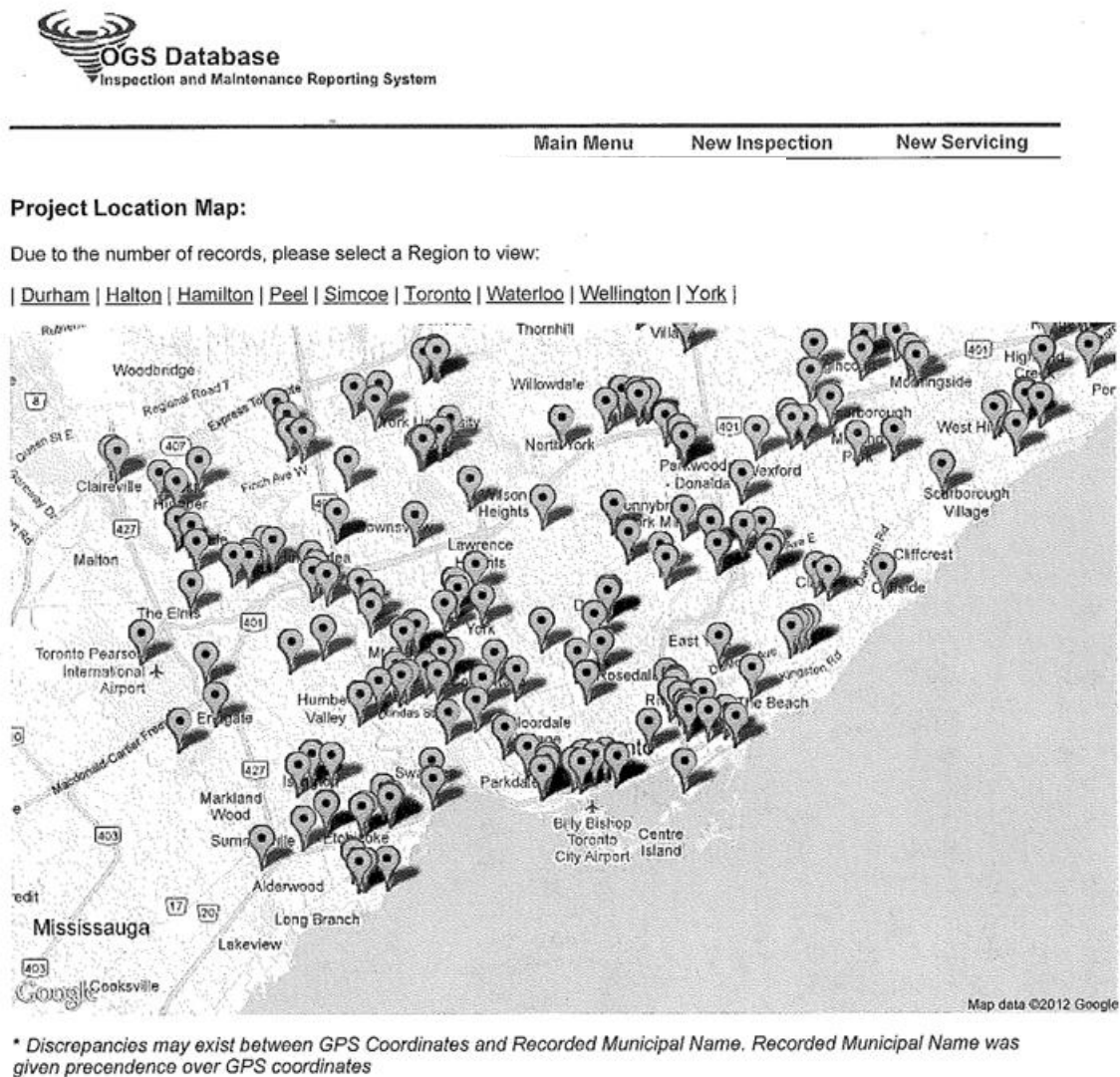
Google

Past Servicing

Service Date

Comments

Figure 4.4: Upload servicing report



**Figure 4.5:** View project map

Logged on as **trca**



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[Main Menu](#)

[New Inspection](#)

[New Servicing](#)

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**Search for a Project:**


Search by Project Name:

Search by Project ID / Order No: (#####\_#/#):

**Or view by Municipality:**

**Figure 4.6:** Search Projects



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

A review of recent initiatives and discussions with key staff at three Ontario municipalities, suggest there is an increasing interest in improving the level of inspection and maintenance of HDS both on private and municipal property. Mechanisms are currently in place, at both the provincial and municipal levels which provide the legal avenues through which municipalities can enforce compliance by HDS owners. Each of the mechanisms reviewed has its own benefits and drawbacks; however, implementation of sewer-use or waste-discharge bylaws provides the least amount of limitations and affects the greatest number of sites. Educational materials can be used to complement any of the legal mechanisms and can provide valuable information for many property owners who are not familiar with HDS, their environmental benefits or the associated regulations. Where implemented, municipal compliance programs have been developed using existing staff resources, or through the use of summer students and have been carried out using normal operating funds (i.e. no additional budget requirements). These programs have been shown to generate significant voluntary response from HDS owners and the level of uptake could be improved even further with additional resources.

The perception of institutional barriers may be preventing more municipalities from taking a proactive approach to this issue. Some of these barriers may include:

- Lack of sufficient inventory/records identifying location of all HDS.
- Lack of clear regulation at the municipal level to use as tool for enforcement.
- Insufficient budget and/or resources to carry out enforcement.

As noted in the case study reviews, municipalities can implement a compliance program with relatively low costs and limited staff resources and many of the perceived barriers can be eliminated where municipalities have the will to take action. The following recommendations reflect the key components of an effective compliance program and present feasible approaches for overcoming the above-noted barriers.

### **Recommendations:**

#### *1. Implement Appropriate Bylaws (i.e. sewer use, waste discharge, etc.)*

- It is recommended that by-laws be reviewed, amended or adopted where necessary to ensure wording is clear and specifically outlines owner responsibility for inspection, maintenance and reporting of HDS.
- Bylaws are the preferred mechanism for enforcing HDS inspection and maintenance.
- The following clauses are recommended as a minimum:
  - The City Engineer may require the owner or occupant of commercial, institutional or industrial premises with one or more connections to the public sewage works to install and maintain in good repair in each connection a suitable device to prevent the entry of grease, oil, sand and dirt into the public sewage works.

- No person shall fail to install or maintain a suitable device to prevent the entry of grease, oil, sand and dirt into the public sewage upon being required to do so by the City Engineer.
- The owner or occupant of commercial, institutional or industrial premises shall, at the discretion of the City Engineer, install devices to monitor discharges to the satisfaction of the City Engineer, and if required to do such installation, shall submit regular reports regarding such discharges to the City Engineer.
- Where the owner or occupant of commercial, institutional or industrial premises does not install or maintain each manhole, device or facility required under this bylaw such installation or maintenance may be done at the direction of the City Engineer at the expense of the owner or occupant and the Municipality may recover the costs incurred in doing such work by action or by adding the costs to the tax roll and collecting them in the same manner as municipal taxes.

*2. Develop an Inventory and Database (or utilize online database developed by TRCA)*

- Allocate appropriate resources to the initial database/inventory development (recognize that this task does not necessarily require more staff or budget).
- Database should allow for input of new installations, inspection reports and maintenance/servicing data.
- Database must ensure privacy of data.
- Database should be developed to allow for user input (by suppliers as they sell units, by service providers as they inspect, service/maintain units) to minimize demand on municipal staff resources.
- Database should have the capability to generate reports and annual compliance letters.
- Ensure database is kept up-to-date (internal system must be established to track new installations and dedicated staff resources must be assigned to input new data).
- Municipalities are encouraged to use the following resources to identify sites:
  - review existing SPA documents.
  - search provincial database of CofAs available online at <http://www.accessenvironment.ene.gov.on.ca/AEWeb/ae/GoSearch.action?search=basic&lang=en>.
  - contact manufacturers and suppliers of HDS to obtain list of sales records.
  - work with internal finance departments to confirm missing property contact information (i.e. whoever pays the taxes for the site is likely same person to contact regarding HDS).

*3. Develop Educational Materials*

- Educational materials can be used a starting point for discussion with property owners and are perceived as a less aggressive approach than compliance letters.

- Provide information about the process: What is stormwater? Where does it go when it leaves their site? What is an HDS? What is it intended to do? Why does it need to be inspected and/or maintained?
- Inform owners that regular inspection and routine maintenance can reduce overall maintenance costs by preventing the need for expensive clean up after a spill.
- Inform owners of their legal responsibility to inspect and maintain the unit and indicate a timeline for undertaking this action+
- Inform property owners about the options to purchase service agreements with local service providers (provide list of providers if possible).
- Inform property owners about what the city is doing to maintain its own HDS. Be a good role model!

*4. Devote Appropriate Staff Resources*

- Design the program so that staff resources are focused on follow up and enforcement (i.e. ensure database can be updated by users and auto-generates annual letters to reduce demands on staff time).
- Ensure staff responsibilities are well defined and incorporate into daily routines (i.e. Who flags new installs? Who inputs into database? Who reviews annual responses?).
- Ensure staff resources are available to undertake follow up (phone calls, site visits, education, etc.). Consider hiring summer students to make initial contact.
- Identify priorities with other divisions to align support and resources (i.e. inform bylaw enforcement of your program).

*5. Adopt Best Practices for Municipally-Owned HDS.*

- Ensure appropriate budget requirements are in place on an annual basis.
- Develop long-term inspection and maintenance plan for municipal HDS.
- Be a good role model for private property owners.

*6. Report on Your Experience!*

- Share your experience with municipal committees (i.e. MESUG, AMO, etc.) and encourage other municipalities to implement their own compliance programs.



## **APPENDIX A**

### **City of London Compliance Program Information**





300 Dufferin Avenue  
P.O. Box 5035  
London, ON  
N6A 4L9

**London**  
CANADA

File: 551/A/1

July 13, 2011

**ATTENTION:** Dear Property Owner/Manager,

Dear Sir/Madam:

**Storm water Oil and Grit Separator Maintenance**

If your building is used for commercial, industrial, or multi-family dwelling and was built after 1985, there is most likely a device connected to the property's storm sewer system that prevents undesirable materials from entering storm water. Storm water is runoff which collects in storm sewers, and drains directly into the nearest natural waterway without treatment.

The device is called an "Oil and Grit Separator". The purpose of an oil and grit separator is to capture solids and liquids that don't belong in our streams and rivers. Property owners are required to ensure the proper operation and maintenance of these devices. In order to operate efficiently, they need to be inspected on a regular basis and cleaned out. The Waste Discharge By-law part 6.2 requires the maintenance of the oil and grit separators and part 6.7 provides the authority to require monitoring and submittal of reports. Please fill in the attached survey **by Friday September 16<sup>th</sup>, 2011** and provide documentation on your oil and grit separator inspection and maintenance for the time period January 1<sup>st</sup> 2010 to July 1<sup>st</sup> 2011. (Copies of invoices are acceptable). For further information you may contact Barry Orr at 519-963-0999.

Please submit your survey form to Wastewater Treatment Operations, 300 Dufferin Ave, PO Box 5035, London ON N6A 4L9 or fax or email at the number and e-mail address below.

Yours truly,

Anthony Van Rossum, P. Eng.  
Environmental Services Engineer  
Wastewater Treatment Operations

The Corporation of the City of London  
Office: 519-861-5701  
Fax: 519-861-0199  
tvanross@london.ca  
www.london.ca

### City of London: Form for Oil and Grit Separator Owners

Company Name:	
Owner's Name:	
Address:	
Contact Information:	
Date:	
Age of building (If known):	
Is there an Oil and Grit Separator attached to your storm sewer outlet line? YES / NO	
If there is, what is your inspection frequency?	
When was its last inspection?	
Did the inspection determine your separator needed cleaning? YES / NO	
If so, when was the cleaning performed?	
Disposal site for material:	
Did the inspection determine your separator needed repair? YES / NO	
If so, when was the repair performed?	
Which company cleaned/repaired your separator?	
Comments:	

Signature: \_\_\_\_\_

Date: \_\_\_\_\_



## DID YOU KNOW?


THERE MAY BE AN OIL AND GRIT SEPARATOR ON YOUR PROPERTY THAT YOU DO NOT KNOW ABOUT.

AS A PROPERTY OWNER, YOU ARE RESPONSIBLE FOR MAINTAINING THIS DEVICE AS PER LONDON'S WASTE DISCHARGE BYLAW WM-16 SECTION 6.2.


IF AN OIL AND GRIT SEPARATOR IS NOT MAINTAINED IT CAN RESULT IN INCOMPLETE TREATMENT OF YOUR STORM WATER RUNOFF, WHICH MAY HARM OUR AQUATIC ECOSYSTEM.

## PROTECT OUR ENVIRONMENT

### OIL AND GRIT SEPARATOR



MAINTAIN YOUR OIL AND GRIT SEPARATOR



Contact information:  
Wastewater Treatment Operations  
City of London  
519-661-5701  
london.ca

## WHAT DO THEY DO?

Oil and Grit Separators are chambers underground that prevent toxic substances from entering the city's storm sewer system, which runs directly into the aquatic ecosystem.

## WHY ARE THEY IMPORTANT?

Fresh water is our most precious resource, and without oil and grit separators, toxins such as hydrocarbons and heavy metals would enter our streams, rivers and lakes. By preventing pollution from entering these water bodies, oil and grit separators ensure the safety of our drinking water sources, and protect local aquatic life.

## HOW DO THEY WORK?

Oil and Grit separators allow larger particles to settle to the bottom, while substances with a specific gravity less than one will rise to the top and are captured.

In order to function properly, these devices need to be maintained through inspections and cleaning.

Inspections should be performed annually, but cleaning frequency may range from 1 to several years, dependent upon site specific conditions.



## YOUR RESPONSIBILITY

Many property owners may not be aware that there is an oil and grit separator on their property.

These devices usually exist on properties used for commercial, industrial, or multi-family dwelling.

If you fail to maintain your oil and grit separator, it will cease to function properly, and you will be in non-compliance with London's Waste Discharge By-law WM-16 part 6.2.



## **APPENDIX B**

### **City of Peterborough Compliance Letter**



Engineering & Construction Division  
Phone 742-7777 ext 1756  
Fax: 705-876-4621  
e-mail: clang@city.peterborough.on.ca

May x, 2008

Attn: Mr. John Smith  
Canadian Tire Inc.  
1050 Chemong Road  
Peterborough, ON  
K9H 7S2

Dear Mr. Smith:

**Re: Urban Stormwater Runoff Quality Compliance – System Maintenance Requirements**

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The City of Peterborough is committed to maintaining a healthy living environment for its residents and continually makes every effort to limit the impact of development on our surrounding our ecosystem, specifically the receiving watercourses for urban runoff.

Our records show that as part of the approved stormwater management for **1050 Chemong Road**, a **Stormceptor Model 750** water quality treatment unit was installed in **October 2002**. The water quality units should be inspected annually for both oil/grease volumes and sediment accumulation. Failure to do so will result in the incomplete treatment of your stormwater runoff, and non-compliance of the Municipal Site Plan Agreement.

The City of Peterborough requires an inspection of the above units to be completed and forwarded to our attention on or before August 31, 2008. If the inspection results warrant maintenance intervention, this task is to be completed on or before November 1, 2008. The inspection and cleaning services can be completed by contacting Minotaur Guardian Services Limited of Brantford, ON ([www.minotaur ltd.com](http://www.minotaur ltd.com)) at 1-519-647-3729.

Should you have any additional comments or concerns, please do not hesitate to contact the undersigned at your convenience.

Sincerely,

Chris Lang, P. Eng  
Water Resource Engineer, Utility Services Department  
cdl/  
cc file

F:\ENG\COMMON\Chris\Letters\Water Quality Unit Maintenance.doc



## **APPENDIX C**

### **City of Pickering Compliance Letter**





April 30, 2012

«Owner»  
«Owner\_Address»

RE: «Site»  
«Site\_Address»  
Oil & Grit Separator Maintenance  
«Models»

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Please be advised that as per Site Plan «Site\_Plan\_», maintenance requirements regarding the «Manufacture» Systems indicate that the systems must be inspected and maintained on a regular basis in order to function in accordance with its intended design. Please refer to the «Manufacture» Owner's maintenance manuals for instructions on inspection and maintenance. Once inspection is completed we will require inspection certificates to be forwarded to the City to ensure that all requirements set forth by the manufacturer are being met.

Should you have any questions or concerns please do not hesitate to contact Joseph Mitschang at 905-420-4617.

Yours truly

Robert Starr  
Manager, Development Control

RS/jm  
I:\Oil & Grit Separators\Maintenance Letters\2010\MASTER.doc

Copy: Inspector, Development Control