



## 2016 Annual Report Highlights



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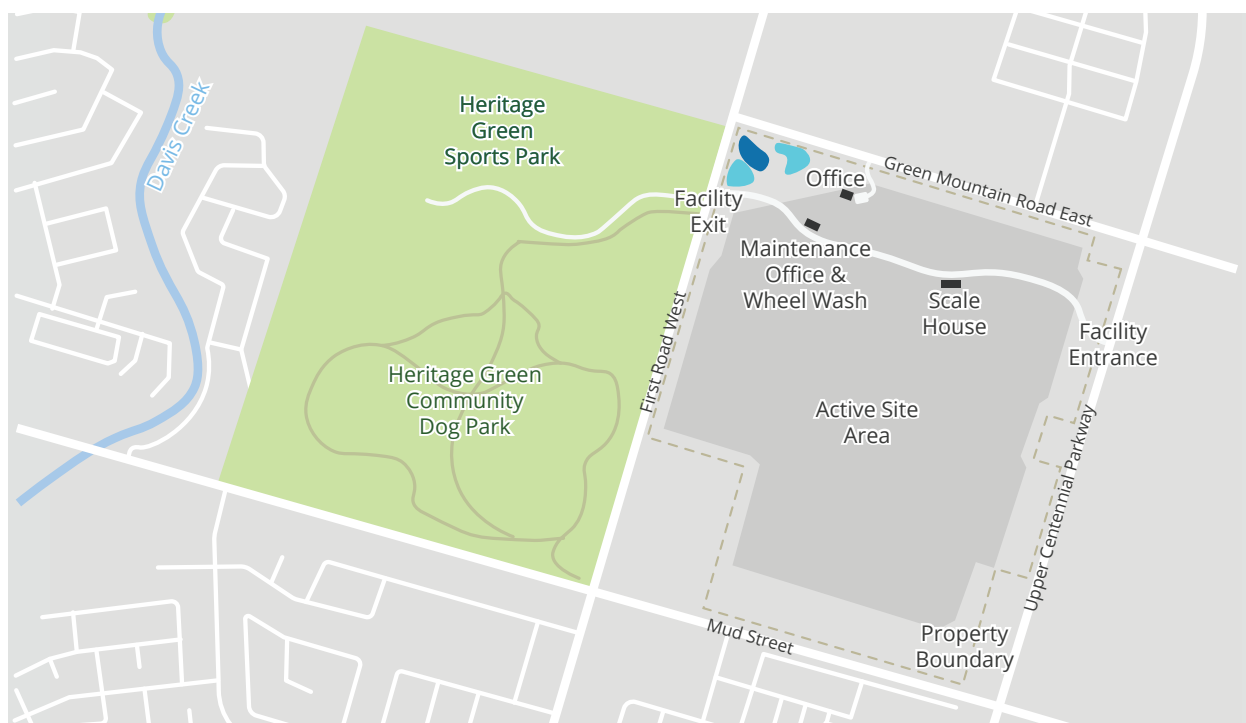
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# INTRODUCTION

## 1.1 ABOUT THE STONEY CREEK REGIONAL FACILITY

Located at 65 Green Mountain Road West in Hamilton, the Terrapure Stoney Creek Regional Facility (SCRF) has operated since 1996, when it was approved by the Minister of the Environment after successfully completing an Environmental Assessment (EA).



The SCRF provides environmental services to Hamilton and Ontario-based generators of solid, non-hazardous residual material from commercial, industrial and institutional sectors, such as:

- Materials from the steelmaking industry
- Soils from infrastructure developments

The SCRF is permitted to receive up to 250 trucks per day, carrying only pre-approved non-hazardous industrial residual material.

The SCRF does not accept any materials that contain organic waste, which can decompose and generate methane gases and odours or attract animals.

Regulated by the Ministry of Environment and Climate Change (MOECC), the design and operation of the SCRF are carried out in accordance with the requirements of the Environmental Compliance Approval (ECA) No. A181008.

## ONTARIO MINISTRY OF ENVIRONMENT AND CLIMATE CHANGE (MOECC)

The MOECC creates policies and regulations that protect the environment. The MOECC also monitors environmental progress and enforces environmental laws. Working with governments, Indigenous groups and organizations, industries and the public, the MOECC ensures protection of Ontario's air, land and water. The MOECC conducts SCRF site inspections, and the Regional Director of the MOECC reviews the SCRF annual report.

"The SCRF has a 3-metre thick double-liner system comprised of clay and geosynthetic material to protect groundwater and the environment."

## 1.2 ABOUT TERRAPURE

As one of Canada's leading providers of environmental services, Terrapure develops innovative, cost-effective solutions to our customers' environmental challenges. We have a long and proven track record of providing safe, professional and reliable services to a broad range of industry sectors. Terrapure has an unwavering focus on health and safety excellence and provides services that minimize waste and maximize the recovery or recycling of valuable industrial by products.



Aerial view of SCRF and surrounding area.

# ABOUT THE ANNUAL REPORT

## 2.1 TERRAPURE'S COMMITMENT TO THE ENVIRONMENT

In accordance with the Environmental Assessment Act (EA Act) and the Environmental Protection Act (EPA), the SCRF must have an approved EA and an approved ECA from the MOECC in order to operate. Terrapure must meet:

- 23 conditions set out in the SCRF's approval under the EA Act
- 115 specific conditions set out in ECA No. A181008

Every year Terrapure provides an annual report to the MOECC, available to the public, documenting how the SCRF has complied with its ECA and EA Act conditions in the previous year. This document summarizes the highlights of the 2016 Annual Report.

The SCRF's EA and ECA approvals require the facility to meet specific conditions regarding operations; material placement; sewage, gas, air and noise emissions; financial assurances; and public documentation. For more information on Ontario's Environmental Approvals process, please visit [www.ontario.ca/page/environmental-compliance-approval](http://www.ontario.ca/page/environmental-compliance-approval) or [www.ontario.ca/page/environmental-assessments](http://www.ontario.ca/page/environmental-assessments).

As part of the EA in the mid-90s, landfill engineering design consultants developed and refined the SCRF's landfill design. It was reviewed by several independent consultants hired by community members of the Study Group by the City of Stoney Creek and the Wentworth County Board of Education. The final design was reviewed and approved by the Director of the Approvals Branch, Ontario Ministry of Environment.

Intrinsic Environmental Sciences Inc. conducts annual assessments to study the long-term health impact of the facility. Terrapure is also required to review landfill diversion technology every 5 years.

## 2.2 WHO PREPARES THIS REPORT?

This report summary was prepared by GHD for Terrapure Environmental. The 2016 SCRF Annual Report was prepared by Jackman Geoscience for Terrapure Environmental with input from the technical staff of the Terrapure SCRF. The Annual Report was also submitted for review to the MOECC.

## 2.3 TERRAPURE'S COMMITMENT TO TRANSPARENCY

In order to keep the community informed, copies of the Stoney Creek Regional Facility 2016 Annual Report and this summary have been forwarded to:

- The Public Record of the Environmental Assessment Branch, Ontario Ministry of the Environment and Climate Change
- The Medical Officer of Health for the City of Hamilton
- The West Central Regional Director of the Ontario Ministry of Environment and Climate Change
- The Clerk for the City of Hamilton
- The Valley Park Community Centre Public Library
- Members of the Terrapure Environmental Community Liaison Committee

A full copy of the annual report and this summary can also be downloaded by visiting [www.terraturestoneycreek.com/document-library/](http://www.terraturestoneycreek.com/document-library/).

# MONITORING AND REPORTING

## 3.1 MATERIALS ACCEPTED IN 2016

**478,655t**

of materials received  
in 2016  

SCRF is permitted to receive  
750,000 tonnes of material/year

**3,106t**   

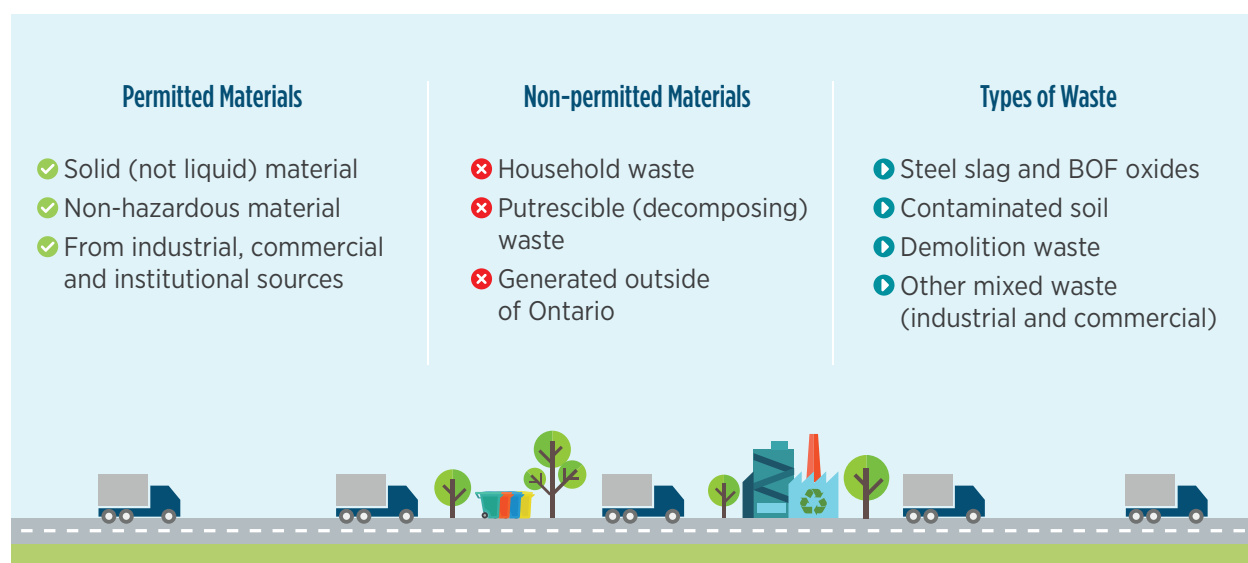
max materials received  
in one day

SCRF is permitted to receive  
8,000 tonnes/day maximum

**50-55**   trucks

of materials received  
every day

SCRF is permitted to receive  
250 trucks/day maximum



## 3.2 HOW DOES TERRAPURE ENSURE ONLY PERMITTED MATERIALS ARE ACCEPTED?

The SCRF uses a Waste Profile system to ensure only permitted materials are accepted at the facility. Before a customer delivers materials to the facility, Terrapure requires them to create a Waste Profile. The Waste Profile includes each customer's details, such as what materials they need to dispose of and why they can't recover or divert the material themselves. These profiles are reviewed by

Environmental Technicians (ETs) to ensure customers are planning to dispose of only permitted materials.

All new materials received at the site must be analyzed and pre-approved for acceptance by independent, accredited third-party laboratories to ensure only permitted non-hazardous industrial material is received.



In addition to reviewing each customer's Waste Profile, Terrapure screens, records and verifies the material received on site in order to confirm that it matches the customer's approved Waste Profile. If a load contains any unacceptable materials, it is rejected. In 2016, Terrapure rejected 17 loads, which were sent back to the customers.

To ensure the SCRF continuously meets its high standards, incoming materials are then subject to inspections and random sampling. At the SCRF, Terrapure maintains full-time staff dedicated to ensuring environmental regulations are met. All trucks are weighed upon arrival and drivers have their documents checked as they enter the facility. A load is automatically rejected if the required paper work is inaccurate or incomplete.

After verifying the necessary paper work, trucks move to the active disposal area and are inspected before proceeding to the tipping area where their load is to be delivered. The facility operators observe materials being unloaded for any non-compliant materials. Once unloaded, the material is spread out and if any non-compliant materials are discovered, they are removed.



## WHAT IS THE WASTE FREE ONTARIO ACT?

The Waste Free Ontario Act was created by the province to help divert more materials from landfills and focuses on:

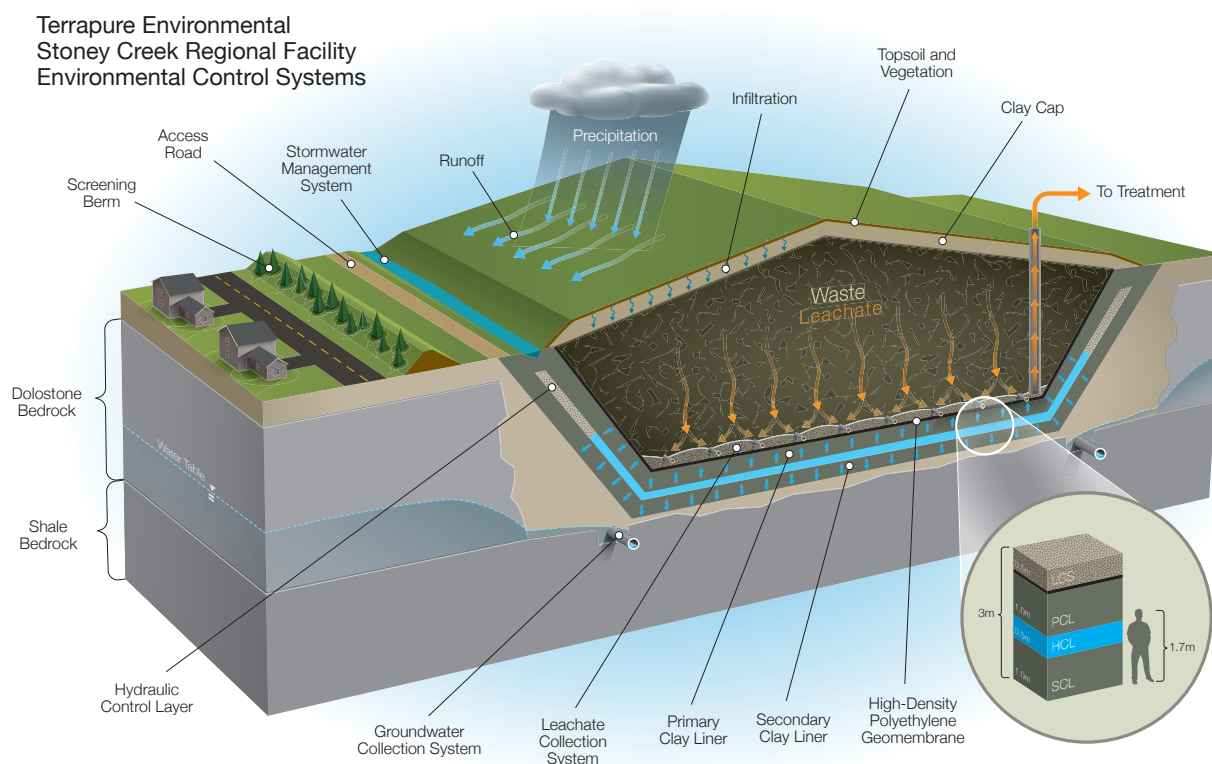
- Encouraging innovation in recycling processes and requires producers to take full responsibility for their products and packaging;
- Lowering recycling costs, giving consumers access to more convenient recycling options;
- Helping fight climate change by reducing greenhouse gas pollution that results from the landfilling of products that could otherwise be recycled or composted;
- Overhauling Waste Diversion Ontario into the Resource Productivity and Recovery Authority, a strong oversight body with new compliance and enforcement powers that will oversee the new approach and existing waste diversion programs until transition is complete.

Terrapure will continue to work with customers to ensure materials are diverted at their source before they arrive at the SCRF.

In the spirit of the Waste Free Ontario Act, Terrapure is currently exploring solutions for diverting materials on site at the SCRF.



### 3.3 LINER SYSTEM AND LEACHATE COLLECTION



**Berm** is a mound of earth that visually blocks the view of the SCRF

**Shale Bedrock** is a mix of clay and parts of other minerals

**Hydraulic Control Layer (HCL)** is confined between the two compacted clay liners and is used to create a “hydraulic trap” and to monitor for unexpected leakage through the primary liner during the Facility-operating period

**Leachate** is water that passes through the waste

**High-Density Polyethylene Geomembrane** is a liner used to contain the leachate

**Dolostone Bedrock** is sedimentary carbonate rock composed mostly of the mineral dolomite

**Stormwater** is water that comes from rain and snow, and flows over land and into drainage systems

**Primary Clay Liner (PCL)** and **Secondary Clay Liner (SCL)** are naturally dense layers of material used to contain leachate

The landfill liner is a double liner system that traps and filters water. It is 3 metres thick and shaped like a bowl. A layer of crushed stone (the Hydraulic Control Layer) is filled with clean water to create pressure that stops leachate from escaping.

Terrapure monitors the quality and quantity of leachate before it leaves the site, ensuring that it's not harmful to the environment or the water system. The leachate collection system is monitored through the use of monitoring pipes (LS1, LS2, LS3), which

measure leachate levels at different points across the liner. Leachate levels are measured at the leachate pumping station manually.

Terrapure regularly inspects the liner and the leachate collection system and uses electric conductivity to allow for early detection of potential leaks in the clay liner. There have been no leaks in the clay liner at the SCRF.

Internal examinations of the leachate collection pipes are also conducted by lowering cameras into various areas. Pipe Flo Contracting Corp. examined the site in early 2017, determining that the lines are free flowing with no significant obstructions.

Leachate is treated on site to meet quantity and quality requirements as laid out in a discharge agreement with the City of Hamilton. After leachate is treated by Terrapure it is discharged to the City's sanitary system to be treated at the sewage treatment plant.

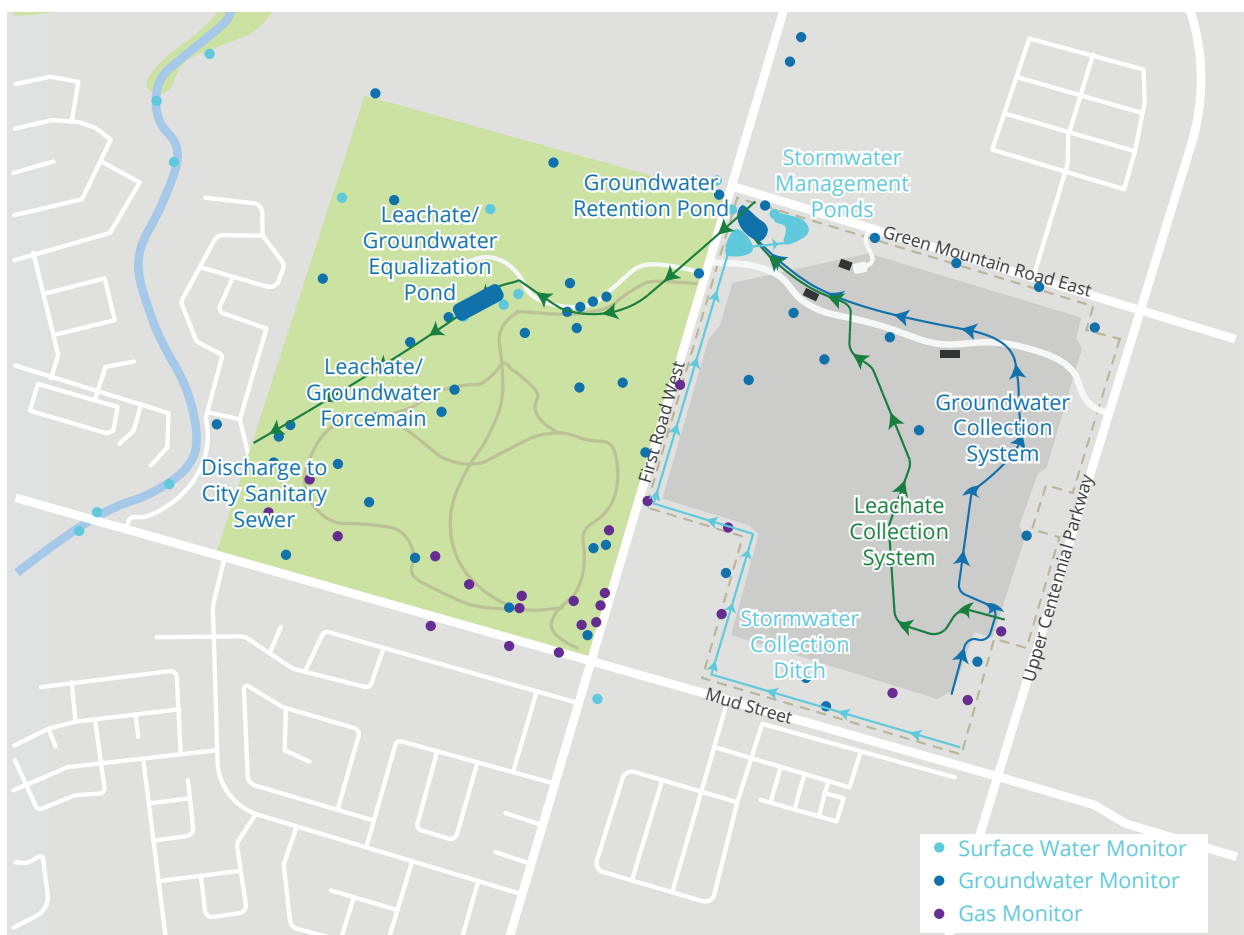


**In 2016, Terrapure met all of the quality and quantity requirements of the discharge agreement with the City of Hamilton.**

### 3.4 GROUNDWATER

Groundwater moves through openings created over time in the rock formations beneath the SCRF. Groundwater is collected through a series of trenches located underneath the liner system to ensure no leachate migrates off site. Terrapure also monitors groundwater to ensure there is no off-site migration of contaminants and that the landfill is not causing the groundwater level to lower.

Terrapure monitors groundwater at 20 locations, with one or more test wells at each location. Water levels are recorded monthly and samples are collected 4 times per year for analysis of a wide variety of parameters, in accordance with the ECA's frequency and testing parameters for groundwater monitoring. There are 6 distinct zones in the surrounding area on and below the facility that are monitored for any impact from facility operations.





In 2016, Terrapure recorded fluctuations in groundwater quality parameters and groundwater levels. These are due to the on-going activities of sewer construction and urbanization, in the surrounding area. Terrapure will continue to monitor these parameters and expects that the majority of the groundwater levels will rebound in time, when the construction is completed, and that the concentration of various parameters in the groundwater will return to normal levels.

### 3.5 STORMWATER MANAGEMENT

Rain that falls on capped areas of the site is conveyed to a stormwater management pond through a series of ditches. It is then tested to meet quality and quantity parameters before it is discharged off site. Rain that falls on the active landfill area is collected and treated as leachate.

Surface water monitoring includes 8 locations focused on the watercourses downstream of the site. A monitoring station (T-3A) at the retention pond collects water from a containment well and the automated wheel wash that trucks leaving the site must pass through. This monitoring station balances and discharges stormwater and groundwater into the sanitary sewer. The T-3 monitoring location also allows staff to determine when additional water samples are needed when levels of contaminants are above the facility's standards.



There were no indications of surface water impact from the landfill in 2016.

### 3.6 LANDFILL GAS

The SCRF does not accept materials capable of decomposing and generating gases. The liner system acts as a physical barrier to the movement of any gases. Terrapure monitors gas levels through 10 monitors at the facility. Based on a gas emission study and annual monitoring, the facility also has an exemption from the MOECC gas collection system requirement.



No gas has been detected at the SCRF since 2012.

### 3.7 AIR QUALITY

A Met One Beta Attenuation Monitor (BAM) 1020 monitors and records air quality at the SCRF by measuring very small particles and dust (PM10 or Particulate Matter 10 micrometers or less in diameter). This monitor also collects weather and hourly wind data for analysis. To ensure the facility meets provincial regulations and standards, Terrapure provides monthly reports to the MOECC and shares monitoring results to the Community Liaison Committee during quarterly meetings.



In 2016, there were 10 instances where dust levels were above MOECC guidelines due to the SCRF. Terrapure continues to review dust control procedures and, as a result, there has been a steady decrease in dust levels each year.

When trucks exit the SCRF, they pass through a wheel wash to reduce the amount of dust and dirt that is tracked off-site onto local roads. A water truck and sweeper are also used to control dust.

### 3.8 NOISE

Noise monitoring was conducted twice in 2016 by Rotek Environmental Inc. Noise levels are below the measured background noise and also meet provincial guidelines.

### 3.9 ODOUR

Odour issues at the SCRF are extremely rare, given the type of material permitted at the site. On the rare occasion that an issue arises, odour is controlled by making adjustments to operations as needed. Terrapure takes all complaints seriously and conducts thorough investigations to ensure the facility continues to meet MOECC regulations.



### 3.10 COMMUNITY HEALTH ASSESSMENT

As part of the Annual Report, a Community Health Assessment Review is prepared by an independent firm, Intrinsik Environmental Sciences Inc. Intrinsik analyzes air quality, leachate, groundwater and surface water monitoring data to determine if the SCRF represents any impact to human and environmental health at the community level.

Based on the 2016 Annual Report, the 2017 Community Health Assessment Review concluded that, **“no adverse health effects within the surrounding community should be expected as a consequence of current operations at the Terrapure Stoney Creek Regional Facility”.**



# COMMUNITY LIAISON COMMITTEE



The Community Liaison Committee (CLC) provides an opportunity for two-way dialogue between Terrapure Environmental and the local community. The mandate of the CLC is to:

- Facilitate communication between Terrapure and the community about the SCRF; and
- Facilitate the addressing of community concerns about the operation of the Site.

The committee meets on a quarterly basis to discuss operational and other issues related to the Terrapure SCRF. It is comprised of citizen members from the local community immediately surrounding the facility, and representatives of Terrapure Environmental, the City of Hamilton and the MOECC.

The CLC was pleased to welcome three new members in 2016. In addition to the regular quarterly meetings, CLC members were provided with the opportunity to participate in several workshops to learn and ask questions about Terrapure's proposal to add capacity for residual materials at the facility.

For more information on the Terrapure CLC, please visit [www.terrapureclc.org](http://www.terrapureclc.org) where upcoming meeting dates and minutes from past meetings are also available.

## 4.1 CLC COMMITTEE MEMBERS

- Brad Hart, Community Representative, Chair
- Josie Bonaventura, Community Representative
- Kathy Lacasse, Community Representative
- Ilona Dicaro, Community Representative
- Sarah Solter, Alternate Community Representative
- Doug Conley, Councillor, City of Hamilton, Ward 9
- Maria Pearson, Councillor, City of Hamilton, Ward 10
- Paul Widmeyer, Acting District Manager, Ministry of the Environment and Climate Change
- Lorenzo Alfano, District Manager, Terrapure
- Greg Jones, Managing Director, Communications & Public Affairs, Terrapure

We would like to thank our outgoing Chair, Randy Valchuk, who has been a long time member of the CLC.

# COMPLAINTS

Terrapure takes all complaints seriously and conducts appropriate investigations, often in partnership with the MOECC, in order to address issues and find solutions that ensure all municipal and provincial regulations are met.

Our complaint procedure includes the following steps:

1. Complaint is received.
2. Complaint is investigated and corrective measures are taken, if necessary.
3. Terrapure responds directly to complainant.
4. Complaint and Terrapure's response is shared with the CLC at their next meeting.
5. Complaint and Terrapure's response is forwarded to MOECC for review.

To submit a complaint, please call 905-561-0305.



In 2016, 9 complaints were received by Terrapure and the MOECC. All complaints were regarding odour and all were investigated by Terrapure. In most cases, it was determined that the SCRF was not the source of the reported odours. Where appropriate, additional measures were taken by Terrapure.







