



2020 Annual Report Highlights

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INTRODUCTION

ABOUT THE STONEY CREEK REGIONAL FACILITY

Located at 65 Green Mountain Road West in Hamilton, the Terrapure Stoney Creek Regional Facility (SCRF) has been in operation since 1996 when it the original Environmental Assessment (EA) was approved by the Minister of the Environment. In September 2019, the SCRF was approved for an EA expansion allowing the Site to continue to receive non-hazardous residual material for safe disposal.

The design and operation of the SCRF is carried out in accordance with the requirements of the Environmental Compliance Approval (ECA) No. A181008 regulated by the Ministry of Environment, Conservation, and Parks (MECP).



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 steel making industry
- Soils from infrastructure developments

The SCRF does not accept any decomposable materials that can cause odours or attract animals.

We understand the importance of demonstrating to the community what we do and what kind of environmental controls we have in place at the SCRF.

That's why we've created two videos to share this information in a visual way!

You can watch the videos here:

<http://bit.ly/SCRFvideos>



ABOUT TERRAPURE

As one of Canada's leading providers of industrial and 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. Terrapure is changing waste for good.



Aerial view of SCRF and surrounding area.

WHAT IS THE ROLE OF THE ONTARIO MINISTRY OF THE ENVIRONMENT, CONSERVATION AND PARKS (MECP)?

The MECP creates policies and regulations that protect the environment. The MECP also monitors environmental progress and enforces environmental laws.

Working with governments, Indigenous groups and organizations, industries and the public, the MECP ensures protection of Ontario's air, land and water. The MECP conducts SCRF site inspections, and the MECP Regional Director reviews the SCRF Annual Monitoring Report.



ABOUT THE ANNUAL REPORT

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 MECP in order to operate. For the SCRF, Terrapure must meet:

- 23 terms and 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 MECP, 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 2020 Annual Monitoring Report.

The SCRF's EA and ECA approvals require the facility to meet specific conditions regarding: operations; material placement; waste water management, gas, air and noise emissions; financial assurances; and public documentation. For more information on Ontario's Environmental Approvals process, please visit <https://www.ontario.ca/page/environmental-compliance-approval>.

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 potential long-term health impact of the facility. Terrapure is also required to review landfill diversion technology every 5 years.

TERRAPURE'S COMMITMENT TO TRANSPARENCY

To maintain our commitment to keeping the community informed, an electronic copy of the 2020 Annual Report is available on the project website. If you or someone you know needs an alternative format, please contact our office to make arrangements.

A USB key copy of the full report and this highlights report has been mailed to the public review locations and will be available for your review. Public review locations include:



- The Public Record of the Environmental Assessment Branch (Hamilton), MECP
- The Clerk for the City of Hamilton
- The Valley Park Community Centre Public Library

WHO PREPARED THIS REPORT?



GHD prepared this highlights summary along with the SCRF Annual Monitoring Report for submission to the MECP on behalf of Terrapure Environmental.

MONITORING AND REPORTING





MATERIALS ACCEPTED IN 2020

455,034t
of materials received
in 2020  

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


5,021 t   
max materials received
in one day

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

166    
max truck loads on any
given day in 2020

SCRF is permitted to receive
250 trucks/day maximum

Permitted Materials	Non-permitted Materials	Types of Waste
<ul style="list-style-type: none"> ✓ Solid (not liquid) material ✓ Non-hazardous material ✓ From industrial, commercial and institutional sources 	<ul style="list-style-type: none"> ✗ Household waste ✗ Putrescible (decomposing) waste ✗ Generated outside of Ontario 	<ul style="list-style-type: none"> ▶ Steel slag and BOF oxides ▶ Contaminated soil ▶ Demolition waste ▶ Other mixed waste (industrial and commercial)



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 2020, Terrapure rejected 15 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?

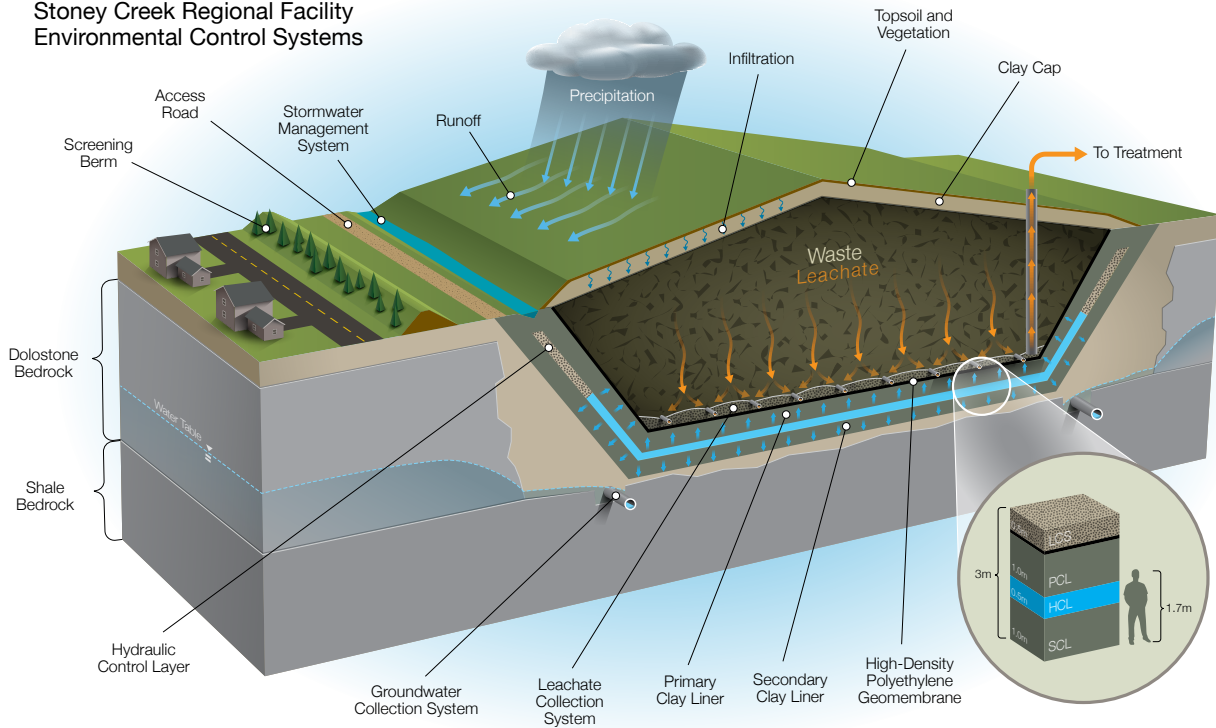
The Waste Free Ontario Act was created by the province to help divert more materials from landfills and focuses on:

- 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 continues to work with customers to ensure materials are diverted at their source before they arrive at the SCRF.

LINER SYSTEM AND LEACHATE COLLECTION

Terrapure Environmental
Stoney Creek Regional Facility
Environmental Control Systems



<p>Berm is a mound of earth that visually blocks the view of the SCRF</p>	<p>Shale Bedrock is a mix of clay and parts of other minerals</p>	<p>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</p>
<p>Leachate is water that passes through the waste</p>	<p>High-Density Polyethylene Geomembrane is a liner used to contain the leachate</p>	
<p>Dolostone Bedrock is sedimentary carbonate rock composed mostly of the mineral dolomite</p>	<p>Stormwater is water that comes from rain and snow and flows over land and into drainage systems</p>	<p>Primary Clay Liner (PCL) and Secondary Clay Liner (SCL) are naturally dense layers of material used to contain leachate</p>

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 while using 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 on a biennial basis. It is important to maintain good condition of the leachate collection piping. Overall, the leachate collection pipes were found to be free flowing. No obstructions noted during 2019 and another video inspection will take place in August 2021.

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.

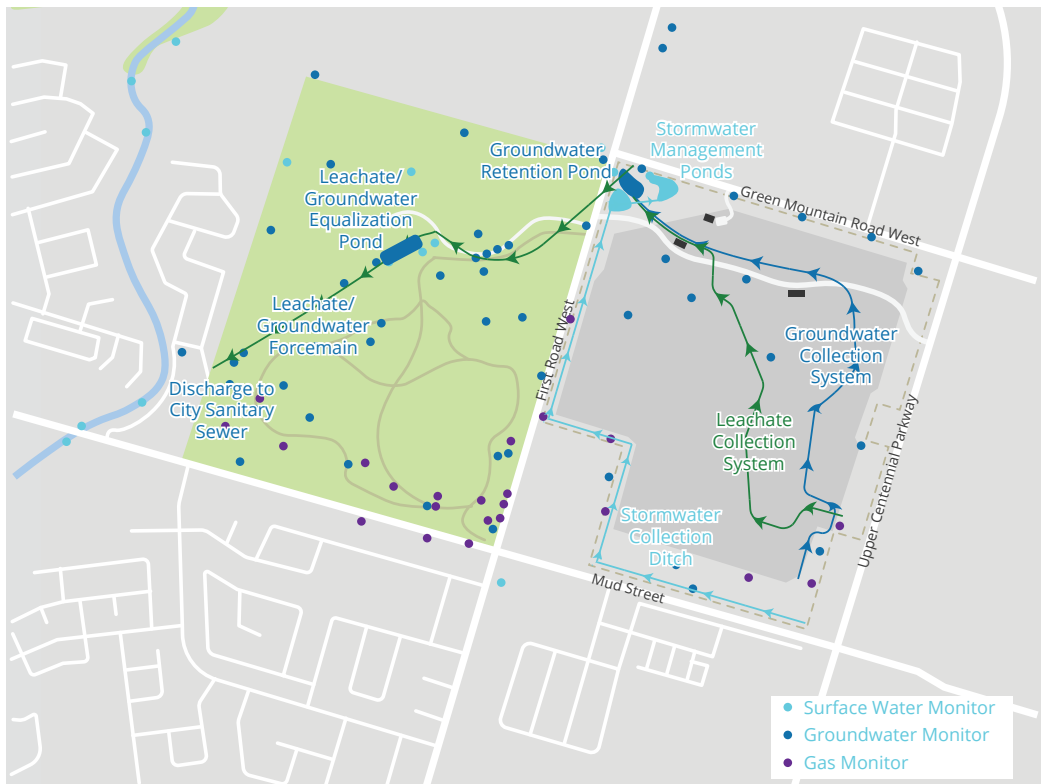
 In 2020, Terrapure met all of the quality and quantity requirements of the discharge agreement with the City of Hamilton.

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 monitors groundwater to ensure there is no off-site migration of contaminants and that the landfill is not causing the groundwater level to lower.

There are 20 groundwater monitoring 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.

 The figure below outlines the locations and the groundwater flow.



STORMWATER MANAGEMENT

Rain that falls on capped areas of the site is transported 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. In 2020, there were 16 surface water samples collected during 11 monitoring events.

 There were no indications of surface water impact from the landfill in 2020.


LANDFILL GAS

The SCRF does not accept materials capable of decomposing and generating gases. Terrapure does however monitor gas levels through 9 monitors at the facility. Since the facility conducts annual monitoring and has completed a gas emission study, the facility has a gas collection system exemption from the MECP.

 No significant landfill gas was detected between December 2012 and 2020.


NOISE

Noise monitoring was conducted twice in 2020 (July and December) by Rotek Environmental Inc.

 Noise levels are below the measured background noise and meet provincial guidelines.


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 MECP regulations.

 In 2020, there were three odour and one visual complaint from community members. All were investigated by Terrapure, responded to the complainant, discussed with the CLC, and submitted to the MECP.

AIR QUALITY

A Met One Beta Attenuation Monitor (BAM) 1020 continuously 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 MECP and shares monitoring results with the Community Liaison Committee during quarterly meetings.

 In 2020, there was 1 event that exceeded MECP guidelines attributable to the SCRF and no dust complaints were received at the Site. Terrapure continues to employ and update dust control procedure.

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.



FUTURE MONITORING

Terrapure is working with the MECP to update the monitoring program at the SCRF moving forward to reflect the changes to the growing community surrounding the Site. Terrapure will continue annual reporting through 2021 to ensure that there continues to be no adverse effects on the environment surrounding the Site.

COMMUNITY HEALTH ASSESSMENT REVIEW

As part of the Annual Report, a Community Health Assessment Review is prepared by an independent firm, Intrinsic Environmental Sciences Inc. Intrinsic 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 2020 Annual Report, the 2020 Community Health Assessment Review concluded once again 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 ENGAGEMENT

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 MECP. In 2020, the CLC membership expanded to include representatives of the two local school boards.

For more information on the Terrapure CLC, please visit www.terrapureclc.org, where upcoming meeting dates and minutes from past meetings are also available.

2020 CLC MEMBERS

- Mary Chedumbarum-Ramasamy, Community Representative
- Ilona Dicaro, Community Representative
- Sarah Solter, Community Representative
- Cam Gallindo, Hamilton-Wentworth District School Board
- Vince Ramelli, Hamilton-Wentworth Catholic District School Board
- Brad Clark, City of Hamilton Ward 9 Councillor
- Maria Pearson, City of Hamilton Ward 10 Councillor
- Paul Widmeyer, District Manager, Ministry of the Environment, Conservation and Parks
- Lorenzo Alfano, Regional Operations Manager, Terrapure
- Greg Jones, Managing Director, Communications & Public Affairs, Terrapure

HERITAGE GREEN COMMUNITY TRUST

The Trust, which is fully funded by Terrapure, provides grants to not-for-profit community, educational or charitable organizations in Upper Stoney Creek, with a particular focus on projects that support children, seniors and opportunities to create green space.

Over its history, Terrapure has provided close to Map\$10 million to the Heritage Green Community Trust (HGCT).

The HGCT is led by a board of Trustees which includes:

- Lori Finelli, Community Representative
- Liz Richardson, Community Representative
- Kathy Lacasse, Community Representative
- Rachel Incretolli, Community Representative
- Franco Valconi, Community Representative
- Brad Clark, City of Hamilton Ward 9 Councillor
- Lorenzo Alfano, Regional Operations Manager, Terrapure



COMMUNITY RESPONSE LINE

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

Our community response procedure includes the following steps:

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

If you have any questions or concerns, please call 1-905-561-0305. The phone line is available for you to call anytime, 24/7, 365 days per year.



