# Report Preview

## Report Details

| | |
|---|---|
| Report Year | 2017 |
| Report Type: | NPRI,ON MOE TRA |
| Report Status: | Update 1 - Submitted |
| Modified Date/Time: | 09/11/2018 3:32 PM |
| Report Update Comments: | Correction to Ethyl Acetate VOC |

## Company and Facility Details

| | |
|---|---|
| Company Name: | Greenfield Global Inc. |
| Business Number: | 130336852 |
| Mailing Address: | Address Line 1: 6985 Financial Drive<br>City, Province/Territory, Postal Code: Mississauga Ontario L5N 0G3<br>Country: Canada |
| Facility Name: | Tiverton |
| NAICS Code: | 325190 |
| NPRI ID: | 209 |
| Physical Address: | Address Line 1: 99 Farrell Drive<br>City, Province/Territory, Postal Code: Tiverton Ontario N0G2T0<br>Country: Canada<br>Latitude: 44.3193<br>Longitude: -81.5657 |

## Permits

| | |
|---|---|
| Number or Permit Number: | 2050-743KE4 |
| Government Department, Agency, or Program Name: | Certificate of Approval - Air |
| Number or Permit Number: | ON1524200 |
| Government Department, Agency, or Program Name: | Ontario MOE - Hazardous Waste Generator Number |

## Contacts Details

| | |
|---|---|
| Contact Type | Technical Contact, Certifying Official, Person who prepared the report, Person who coordinated the preparation of the Toxics Reduction Plan |
| Name: | Dianne Schenk |
| Position: | EH&S Manager |
| Telephone: | 5193687723 |
| Extension | 7928 |
| Fax: | 5193687016 |

| | |
|---|---|
| Email: | dianne.schenk@greenfield.com |
| Contact Type | Highest Ranking Employee, Public Contact |
| Name: | James Murr |
| Position: | Plant Manager |
| Telephone: | 5193687723 |
| Extension | 7931 |
| Fax: | 5193687016 |
| Email: | jim.murr@gfsa.com |

## General Information

| | |
|---|---|
| Number of employees: | 40 |
| Activities for Which the 20,000-Hour Employee Threshold Does Not Apply: | None of the above |
| Activities Relevant to Reporting Dioxins, Furans and Hexacholorobenzene: | None of the above |
| Activities Relevant to Reporting of Polycyclic Aromatic Hydrocarbons (PAHs): | Wood preservation using creosote: No |
| Is this the first time the facility is reporting to the NPRI (under current or past ownership): | No |
| Is the facility controlled by another Canadian company or companies: | No |
| Did the facility report under other environmental regulations or permits: | No |
| Is the facility required to report one or more NPRI Part 4 substances (Criteria Air Contaminants): | Yes |
| Was the facility shut down for more than one week during the year: | No |
| Operating Schedule - Days of the Week: | Mon, Tue, Wed, Thu, Fri, Sat, Sun |
| Usual Number of Operating Hours per day: | 24 |
| Usual Daily Start Time (24h) (hh:mm): | 07:00 |

## Substance List

| CAS RN | Substance Name | Releases | Releases (Speciated VOCs) | Disposals | Recycling | Unit |
|---|---|---|---|---|---|---|
| NA - 16 | Ammonia (total) | N/A | N/A | N/A | N/A | tonnes |
| 630-08-0 | Carbon monoxide | 23.9150 | N/A | N/A | N/A | tonnes |
| 67-63-0 | Isopropyl alcohol | 0.0058 | N/A | N/A | N/A | tonnes |
| 67-56-1 | Methanol | 0.1210 | N/A | N/A | N/A | tonnes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | 6.5140 | N/A | N/A | N/A | tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | 10.0990 | N/A | N/A | N/A | tonnes |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | 0.7610 | N/A | N/A | N/A | tonnes |
| 7446-09-5 | Sulphur dioxide | 0.3440 | N/A | N/A | N/A | tonnes |
| 7664-93-9 | Sulphuric acid | N/A | N/A | N/A | N/A | tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | 92.0750 | 92.8380 | N/A | N/A | tonnes |

## Applicable Programs

| CAS RN | Substance Name | NPRI | ON MOE TRA | ON MOE Reg 127/01 | First report for this substance to the ON MOE TRA |
|---|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Yes | Yes | | No |
| 630-08-0 | Carbon monoxide | Yes | Yes | | No |
| 67-63-0 | Isopropyl alcohol | Yes | Yes | | No |
| 67-56-1 | Methanol | Yes | Yes | | No |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Yes | Yes | | No |

| CAS RN | Substance Name | NPRI | ON MOE TRA | ON MOE Reg 127/01 | First report for this substance to the ON MOE TRA |
|---|---|---|---|---|---|
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Yes | Yes | | No |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Yes | Yes | | No |
| 7446-09-5 | Sulphur dioxide | Yes | Yes | | No |
| 7664-93-9 | Sulphuric acid | Yes | Yes | | No |
| NA - M16 | Volatile Organic Compounds (VOCs) | Yes | Yes | | No |

## General Information about the Substance - Releases and Transfers of the Substance

| CAS RN | Substance Name | Was the substance released on-site | The substance will be reported as the sum of releases to all media (total of 1 tonne or less) | 1 tonne or more of a Part 5 Substance (Speciated VOC) was released to air |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No | No | No |
| 67-63-0 | Isopropyl alcohol | Yes | No | No |
| 67-56-1 | Methanol | Yes | Yes | No |
| 7664-93-9 | Sulphuric acid | No | No | No |
| NA - M16 | Volatile Organic Compounds (VOCs) | | No | Yes |

## General Information about the Substance - Disposals and Off-site Transfers for Recycling

| CAS RN | Substance Name | Was the substance disposed of (on-site or off-site), or transferred for treatment prior to final disposal | Is the facility required to report on disposals of tailings and waste rock for the selected reporting period | Was the substance transferred off-site for recycling |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No | No | No |
| 67-63-0 | Isopropyl alcohol | No | No | No |
| 67-56-1 | Methanol | No | No | No |
| 7664-93-9 | Sulphuric acid | No | No | No |
| NA - M16 | Volatile Organic Compounds (VOCs) | | | |

## General Information about the Substance - Nature of Activities

| CAS RN | Substance Name | Manufacture the Substance | Process the Substance | Otherwise Use of the Substance |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | | | As a physical or chemical processing aid |
| 67-63-0 | Isopropyl alcohol | | As a formulation component | |
| 67-56-1 | Methanol | As an impurity | As a formulation component | |
| 7664-93-9 | Sulphuric acid | | | As a physical or chemical processing aid |
| NA - M16 | Volatile Organic Compounds (VOCs) | | | |

## TRA Quantifications

| CAS RN | Substance Name | Use, Creation, Contained in Product | Quantity | Use ranges for public reporting |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Use | 98.016 tonnes | Yes |
| NA - 16 | Ammonia (total) | Creation | 0 tonnes | No |
| NA - 16 | Ammonia (total) | Contained in Product | 0 tonnes | No |
| 630-08-0 | Carbon monoxide | Use | 0 tonnes | No |
| 630-08-0 | Carbon monoxide | Creation | 23.915 tonnes | Yes |
| 630-08-0 | Carbon monoxide | Contained in Product | | |
| 67-63-0 | Isopropyl alcohol | Use | 89.9 tonnes | Yes |
| 67-63-0 | Isopropyl alcohol | Creation | 0 tonnes | No |
| 67-63-0 | Isopropyl alcohol | Contained in Product | 89.84 tonnes | Yes |
| 67-56-1 | Methanol | Use | 302.14 tonnes | Yes |
| 67-56-1 | Methanol | Creation | 8.5 tonnes | Yes |
| 67-56-1 | Methanol | Contained in Product | 301.9 tonnes | Yes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Use | 0 tonnes | No |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Creation | 6.514 tonnes | Yes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Contained in Product | | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Use | 0 tonnes | No |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Creation | 10.099 tonnes | Yes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Contained in Product | | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Use | 0 tonnes | No |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Creation | 0.761 tonnes | Yes |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Contained in Product | | |

| CAS RN | Substance Name | Use, Creation, Contained in Product | Quantity | Use ranges for public reporting |
|---|---|---|---|---|
| 7446-09-5 | Sulphur dioxide | Use | 0 tonnes | No |
| 7446-09-5 | Sulphur dioxide | Creation | 0.344 tonnes | Yes |
| 7446-09-5 | Sulphur dioxide | Contained in Product | | |
| 7664-93-9 | Sulphuric acid | Use | 194.908 tonnes | Yes |
| 7664-93-9 | Sulphuric acid | Creation | 0 tonnes | No |
| 7664-93-9 | Sulphuric acid | Contained in Product | 0 tonnes | No |
| NA - M16 | Volatile Organic Compounds (VOCs) | Use | 473.466 tonnes | Yes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Creation | 92.838 tonnes | Yes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Contained in Product | | |

## TRA Quantifications - VOC Breakdown List

| CAS RN | Substance Name | Use, Creation, Contained in Product | Quantity |
|---|---|---|---|
| 64-17-5 | Ethanol | Creation | 92.758 tonnes |
| 141-78-6 | Ethyl acetate | Creation | 0.08 tonnes |
| 67-63-0 | Isopropyl alcohol | Use | 89.92 tonnes |
| 67-56-1 | Methanol | Use | 302.136 tonnes |

## TRA Quantifications - Total Speciated VOCs

| Use, Creation, Contained in Product | Quantity |
|---|---|
| Use | 392.056 tonnes |
| Creation | 92.838 tonnes |

## TRA Quantifications - Others

| CAS RN | Substance Name | Change in Method of Quantification | Reasons for Change | Description of how the change impact tracking and quantification of the substance | Description of how an incident(s) affected quantifications | Significant Process Change |
|---|---|---|---|---|---|---|
| NA - 16 | Ammonia (total) | | | | | No |
| 630-08-0 | Carbon monoxide | | | | | No |
| 67-63-0 | Isopropyl alcohol | | | | | No |
| 67-56-1 | Methanol | | | | | No |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | | | | | No |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | | | | | No |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | | | | | No |
| 7446-09-5 | Sulphur dioxide | | | | | No |
| 7664-93-9 | Sulphuric acid | | | | | No |
| NA - M16 | Volatile Organic Compounds (VOCs) | | | | | No |

## On-site Releases - Releases to air

| CAS RN | Substance Name | Category | Basis of Estimate | Detail Code | Quantity |
|---|---|---|---|---|---|
| 630-08-0 | Carbon monoxide | Stack or Point Releases | O - Engineering Estimates | | 23.915 tonnes |
| 67-63-0 | Isopropyl alcohol | Storage or Handling Releases | O - Engineering Estimates | | 0.0058 tonnes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Stack or Point Releases | O - Engineering Estimates | | 6.514 tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Stack or Point Releases | O - Engineering Estimates | | 0.906 tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Storage or Handling Releases | E2 - Published Emission Factors | | 2.685 tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Fugitive Releases | E2 - Published Emission Factors | | 0 tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | Other Non-point Releases | E2 - Published Emission Factors | | 6.508 tonnes |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Stack or Point Releases | O - Engineering Estimates | | 0.479 tonnes |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | Storage or Handling Releases | O - Engineering Estimates | | 0.282 tonnes |
| 7446-09-5 | Sulphur dioxide | Stack or Point Releases | O - Engineering Estimates | | 0.344 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Stack or Point Releases | O - Engineering Estimates | | 0.408 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Storage or Handling Releases | O - Engineering Estimates | | 13.370 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Fugitive Releases | O - Engineering Estimates | | 2.399 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Other Non-point Releases | O - Engineering Estimates | | 75.898 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | Other Sources - Speciated VOCs | NA - Not Applicable | | 92.075 tonnes |

## On-site Releases - Releases to air - Total

| CAS RN | Substance Name | Total - Releases to Air |
|---|---|---|
| 630-08-0 | Carbon monoxide | 23.915 tonnes |
| 67-63-0 | Isopropyl alcohol | 0.0058 tonnes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | 6.514 tonnes |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | 10.099 tonnes |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | 0.761 tonnes |
| 7446-09-5 | Sulphur dioxide | 0.344 tonnes |
| NA - M16 | Volatile Organic Compounds (VOCs) | 92.075 tonnes |

## On-site Releases - Releases to air - VOC Breakdown List

| Category | CAS RN | Substance Name | Quantity |
|---|---|---|---|
| Other Sources - Speciated VOCs | 64-17-5 | Ethanol | 92.758 tonnes |
| Other Sources - Speciated VOCs | 141-78-6 | Ethyl acetate | 0.08 tonnes |

## Total Quantity Released (All Media)

| CAS RN | Substance Name | Category | Basis of Estimate | Detail Code | Quantity |
|---|---|---|---|---|---|
| 67-56-1 | Methanol | Total Quantity Released | O - Engineering Estimates | | 0.121 tonnes |

## On-site Releases - Total

| CAS RN | Substance Name | Total releases |
|---|---|---|
| 67-63-0 | Isopropyl alcohol | 0.0058 tonnes |

## On-site Releases - Quarterly Breakdown of Annual Releases

| CAS RN | Substance Name | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 |
|---|---|---|---|---|---|
| 67-63-0 | Isopropyl alcohol | 25 | 25 | 25 | 25 |
| 67-56-1 | Methanol | 25 | 25 | 25 | 25 |

## On-site Releases - Monthly Breakdown of Annual Releases

| CAS RN | Substance Name | Jan | Feb | Mar | Apr | May | June | July | Aug | Sept | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 630-08-0 | Carbon monoxide | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |
| 7446-09-5 | Sulphur dioxide | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |
| NA - M16 | Volatile Organic Compounds (VOCs) | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 | 8.33 | 8.33 | 8.34 |

## On-site Releases - Reasons for Changes in Quantities Released from Previous Year

| CAS RN | Substance Name | Reasons for Changes in Quantities from Previous Year | Comments |
|---|---|---|---|
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No significant change (i.e. < 10%) or no change | |
| 630-08-0 | Carbon monoxide | No significant change (i.e. < 10%) or no change | |
| 67-56-1 | Methanol | No significant change (i.e. < 10%) or no change | |
| 67-63-0 | Isopropyl alcohol | No significant change (i.e. < 10%) or no change | |
| 7446-09-5 | Sulphur dioxide | No significant change (i.e. < 10%) or no change | |
| 7664-93-9 | Sulphuric acid | No significant change (i.e. < 10%) or no change | |
| NA - 16 | Ammonia (total) | Other (specify in On-site Releases comment field) | No on-site releases. |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No significant change (i.e. < 10%) or no change | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No significant change (i.e. < 10%) or no change | |
| NA - M16 | Volatile Organic Compounds (VOCs) | No significant change (i.e. < 10%) or no change | |

## Disposals - Reasons and Comments

| CAS RN | Substance Name | Reasons Why Substance Was Disposed | Reasons for Changes in Quantities from Previous Year | Comments |
|---|---|---|---|---|
| 67-56-1 | Methanol | | Other (specify in On-site Releases comment field) | No disposals. |
| 67-63-0 | Isopropyl alcohol | | No significant change (i.e. < 10%) or no change | |
| 7664-93-9 | Sulphuric acid | | No significant change (i.e. < 10%) or no change | |
| NA - 16 | Ammonia (total) | | Other (specify in On-site Releases comment field) | No disposals. |

## Recycling - Reasons and Comments

| CAS RN | Substance Name | Reasons Why Substance Was Recycled | Reasons for Changes in Quantities Recycled from Previous Year | Comments |
|---|---|---|---|---|
| 67-56-1 | Methanol | | No significant change (i.e. < 10%) or no change | |
| 67-63-0 | Isopropyl alcohol | | No significant change (i.e. < 10%) or no change | |
| 7664-93-9 | Sulphuric acid | | No significant change (i.e. < 10%) or no change | |
| NA - 16 | Ammonia (total) | | Other (specify in recycling comments field) | Consumed in process, no recycling. |

## Comparison Report - Enters, Creation, Contained in Product

| CAS RN | Substance Name | Is Breakdown | Category | Quantity | Last Reported Quantity | Reporting Period of Last Reported Quantity | Change | % Change |
|---|---|---|---|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No | Enters the facility (Use) | 98.016 tonnes | 106.9 tonnes | 2016 | -8.884 | -8.31 |
| NA - 16 | Ammonia (total) | No | Creation | 0 tonnes | 0 tonnes | 2015 | 0 | |
| NA - 16 | Ammonia (total) | No | Contained in Product | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 630-08-0 | Carbon monoxide | No | Enters the facility (Use) | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 630-08-0 | Carbon monoxide | No | Creation | 23.915 tonnes | 24.05 tonnes | 2016 | -0.135 | -0.56 |
| 64-17-5 | Ethanol | Yes | Creation | 92.758 tonnes | 91.588 tonnes | 2016 | 1.170 | 1.28 |
| 141-78-6 | Ethyl acetate | Yes | Creation | 0.08 tonnes | 0.079 tonnes | 2016 | 0.001 | 1.27 |
| 67-63-0 | Isopropyl alcohol | No | Enters the facility (Use) | 89.9 tonnes | 85.796 tonnes | 2016 | 4.104 | 4.78 |
| 67-63-0 | Isopropyl alcohol | No | Creation | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 67-63-0 | Isopropyl alcohol | No | Contained in Product | 89.84 tonnes | 85.79 tonnes | 2016 | 4.05 | 4.72 |
| 67-63-0 | Isopropyl alcohol | Yes | Enters the facility (Use) | 89.92 tonnes | 85.79 tonnes | 2016 | 4.13 | 4.81 |
| 67-56-1 | Methanol | No | Enters the facility (Use) | 302.14 tonnes | 330.1 tonnes | 2016 | -27.96 | -8.47 |
| 67-56-1 | Methanol | No | Creation | 8.5 tonnes | 8.3 tonnes | 2016 | 0.2 | 2.41 |
| 67-56-1 | Methanol | No | Contained in Product | 301.9 tonnes | 330.1 tonnes | 2014 | -28.2 | -8.54 |
| 67-56-1 | Methanol | Yes | Enters the facility (Use) | 302.136 tonnes | 330.1 tonnes | 2016 | -27.964 | -8.47 |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Enters the facility (Use) | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Creation | 6.514 tonnes | 6.550 tonnes | 2016 | -0.036 | -0.55 |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Enters the facility (Use) | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Creation | 10.099 tonnes | 10.177 tonnes | 2016 | -0.078 | -0.77 |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Enters the facility (Use) | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Creation | 0.761 tonnes | 0.772 tonnes | 2016 | -0.011 | -1.42 |
| 7446-09-5 | Sulphur dioxide | No | Enters the facility (Use) | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 7446-09-5 | Sulphur dioxide | No | Creation | 0.344 tonnes | 0.346 tonnes | 2016 | -0.002 | -0.58 |
| 7664-93-9 | Sulphuric acid | No | Enters the facility (Use) | 194.908 tonnes | 183.126 tonnes | 2016 | 11.782 | 6.43 |
| 7664-93-9 | Sulphuric acid | No | Creation | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 7664-93-9 | Sulphuric acid | No | Contained in Product | 0 tonnes | 0 tonnes | 2016 | 0 | |

## Comparison Report - Enters, Creation, Contained in Product : Reason(s) for Change

| CAS RN | Substance Name | Reason(s) for Change | Other Reason |
|---|---|---|---|

| CAS RN | Substance Name | Reason(s) for Change | Other Reason |
|---|---|---|---|
| NA - 16 | Ammonia (total) | Implementation of toxics reduction option(s) | |
| 630-08-0 | Carbon monoxide | No reasons - quantities approximately the same | |
| 67-63-0 | Isopropyl alcohol | Increase in production levels | |
| 67-56-1 | Methanol | Decrease in production levels | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No reasons - quantities approximately the same | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No reasons - quantities approximately the same | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No reasons - quantities approximately the same | |
| 7446-09-5 | Sulphur dioxide | No reasons - quantities approximately the same | |
| 7664-93-9 | Sulphuric acid | Increase in production levels | |
| NA - M16 | Volatile Organic Compounds (VOCs) | Increase in production levels | |

## Comparison Report - On-site Releases

| CAS RN | Substance Name | Is Breakdown | Category | Quantity | Last Reported Quantity | Reporting Period of Last Reported Quantity | Change | % Change |
|---|---|---|---|---|---|---|---|---|
| 630-08-0 | Carbon monoxide | No | Total Releases to Air | 23.915 tonnes | 24.05 tonnes | 2016 | -0.135 | -0.56 |
| 630-08-0 | Carbon monoxide | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 630-08-0 | Carbon monoxide | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 630-08-0 | Carbon monoxide | No | Total Releases to All Media | 0 tonnes | 0 tonnes | 2014 | 0 | |
| 64-17-5 | Ethanol | Yes | Total Releases to Air | 92.758 tonnes | 91.588 tonnes | 2016 | 1.170 | 1.28 |
| 141-78-6 | Ethyl acetate | Yes | Total Releases to Air | 0.08 tonnes | 0.079 tonnes | 2016 | 0.001 | 1.27 |
| 67-63-0 | Isopropyl alcohol | No | Total Releases to Air | 0.0058 tonnes | 0.006 tonnes | 2016 | -0.0002 | -3.33 |
| 67-63-0 | Isopropyl alcohol | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 67-63-0 | Isopropyl alcohol | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 67-63-0 | Isopropyl alcohol | No | Total Releases to All Media | 0 tonnes | | | | |
| 67-56-1 | Methanol | No | Total Releases to Air | 0 tonnes | | | | |
| 67-56-1 | Methanol | No | Total Releases to Water | 0 tonnes | | | | |
| 67-56-1 | Methanol | No | Total Releases to Land | 0 tonnes | | | | |
| 67-56-1 | Methanol | No | Total Releases to All Media | 0.121 tonnes | 0.122 tonnes | 2016 | -0.001 | -0.82 |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Total Releases to Air | 6.514 tonnes | 6.550 tonnes | 2016 | -0.036 | -0.55 |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2015 | 0 | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | Total Releases to All Media | 0 tonnes | | | | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Total Releases to Air | 10.099 tonnes | 10.177 tonnes | 2016 | -0.078 | -0.77 |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | Total Releases to All Media | 0 tonnes | | | | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Total Releases to Air | 0.761 tonnes | 0.772 tonnes | 2016 | -0.011 | -1.42 |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2016 | 0 | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | Total Releases to All Media | 0 tonnes | | | | |
| 7446-09-5 | Sulphur dioxide | No | Total Releases to Air | 0.344 tonnes | 0.346 tonnes | 2016 | -0.002 | -0.58 |
| 7446-09-5 | Sulphur dioxide | No | Total Releases to Water | 0 tonnes | 0 tonnes | 2016 | 0 | |
| 7446-09-5 | Sulphur dioxide | No | Total Releases to Land | 0 tonnes | 0 tonnes | 2016 | 0 | |

| CAS RN | Substance Name | Is Breakdown | Category | Quantity | Last Reported Quantity | Reporting Period of Last Reported Quantity | Change | % Change |
|---|---|---|---|---|---|---|---|---|
| 7446-09-5 | Sulphur dioxide | No | Total Releases to All Media | 0 tonnes | | | | |

## Comparison Report - On-site Releases - Reason(s) for Change

| CAS RN | Substance Name | Reason(s) for Change | Other Reason |
|---|---|---|---|
| 630-08-0 | Carbon monoxide | No reasons - quantities approximately the same | |
| 67-63-0 | Isopropyl alcohol | No reasons - quantities approximately the same | |
| 67-56-1 | Methanol | No reasons - quantities approximately the same | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No reasons - quantities approximately the same | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No reasons - quantities approximately the same | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No reasons - quantities approximately the same | |
| 7446-09-5 | Sulphur dioxide | No reasons - quantities approximately the same | |
| NA - M16 | Volatile Organic Compounds (VOCs) | No reasons - quantities approximately the same | |

## Pollution Prevention

| | |
|---|---|
| Does the facility have a documented pollution prevention plan? | Yes |
| a) Please check all that apply | Plan was prepared or implemented for another government jurisdiction (i.e. other Federal government department, province, municipality). Specify name in comments field below. |
| b) Did the facility update their plan in the current reporting year? | Yes |
| c) Does the plan address substances, energy conservation, or water conservation? | Substances (provide the name of the primary Substances in the comments field below) |
| Please summarize your pollution prevention plan. If you selected "Substances", please specify the substances that were addressed in your plan (this information will be publicly available). | EC E2 plan for ammonia |
| Did the facility complete any pollution prevention activities in the current NPRI reporting year | No |

## Progress on TRA Plan - Objectives

| CAS RN | Substance Name | Objectives |
|---|---|---|
| NA - 16 | Ammonia (total) | GFSA Tiverton intends to reduce the use of ammonia as a nutrient and for pH control during the fermentation process. |
| 630-08-0 | Carbon monoxide | It has been determined that it is not technically and economically feasible at this time to reduce the creation of carbon monoxide. Even though GFSA Tiverton facility has decided not to implement any reduction options at this time it will revisit it in the future. |
| 141-78-6 | Ethyl acetate | It has been determined that it is not technically and economically feasible at this time to reduce the use or creation of Ethyl Acetate. Even though GFSA Tiverton Facility has decided not to implement any reduction options at this time it will revisit it in the future. Ethyl Acetate is used to denature ethyl alcohol as per Canada Revenue Agency (Excise) requirements and is marketed as a product, as well, ethyl acetate is created in the fermentation process. |
| 64-17-5 | Ethyl Alcohol | While GFSA Tiverton Facility does not intend to reduce the creation of ethyl alcohol, any opportunities for improved efficiencies and optimization will be reviewed and considered. |
| 67-63-0 | Isopropyl alcohol | It has been determined that it is not technically and economically feasible at this time to reduce the use of Isopropyl Alcohol. Even though GFSA Tiverton Facility has decided not to implement any reduction options at this time it will revisit it in the future. Isopropyl Alcohol is used to denature ethyl alcohol as per Canada Revenue Agency (Excise) requirements and is marketed as a product. |
| 67-56-1 | Methanol | GFE Tiverton intends to reduce the use of methanol as a denaturant in our ethyl alcohol by 10% over a 5 year period. |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | GFSA Tiverton Facility intends to reduce the creation of nitrogen oxides by minimizing the combustion of furnace oil through improved inventory management. |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | While GFSA Tiverton Facility does not intend to reduce the creation of PM 10 Particulate Matter at the present time, any opportunities for reduction will be reviewed and considered. Leak prevention programs are in place to minimize particulate matter. |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | It has been determined that it is not technically and economically feasible at this time to reduce the creation of PM2.5. While GFSA Tiverton Facility does not intend to reduce the creation of PM 2.5 Particulate Matter at the present time, any opportunities for reduction will be reviewed and considered. Leak prevention programs are in place to minimize particulate matter. |
| 7446-09-5 | Sulphur dioxide | It has been determined that it is not technically and economically feasible at this time to reduce the creation of sulphur dioxide. Even though GFSA Tiverton Facility has decided not to implement any reduction options at this time it will revisit it in the future. |
| 7664-93-9 | Sulphuric acid | GFE, Tiverton Facility intends to reduce the use of sulphuric acid by 10% over a 7 year period. |

## Progress on TRA Plan - Use Targets

| CAS RN | Substance Name | Quantity | Years | Description of Target |
|---|---|---|---|---|

| CAS RN | Substance Name | Quantity | Years | Description of Target |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | 1.2 tonnes | 3 | Trialing of various enzymes requires a target that allows for a time period to ensure no impact in other areas. |
| 630-08-0 | Carbon monoxide | No quantity target | No timeline target | |
| 141-78-6 | Ethyl acetate | No quantity target | No timeline target | |
| 64-17-5 | Ethyl Alcohol | No quantity target | No timeline target | |
| 67-63-0 | Isopropyl alcohol | No quantity target | No timeline target | |
| 67-56-1 | Methanol | 33.2 tonnes | 5 | Reduce the usage of methanol as a denaturant in our ethyl alcohol over a five year period. |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No quantity target | No timeline target | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No quantity target | No timeline target | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No quantity target | No timeline target | |
| 7446-09-5 | Sulphur dioxide | No quantity target | No timeline target | |
| 7664-93-9 | Sulphuric acid | 33.4 tonnes | 7 | - Installation of new pump and flow meter for more accurate and consistent sulphuric acid delivery - Work with enzyme vendor for development of enzyme that requires less sulphuric acid to aid in pH control |

## Progress on TRA Plan - Creation Targets

| CAS RN | Substance Name | Quantity | Years | Description of Target |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No quantity target | No timeline target | |
| 630-08-0 | Carbon monoxide | No quantity target | No timeline target | |
| 141-78-6 | Ethyl acetate | No quantity target | No timeline target | |
| 64-17-5 | Ethyl Alcohol | No quantity target | No timeline target | |
| 67-63-0 | Isopropyl alcohol | No quantity target | No timeline target | |
| 67-56-1 | Methanol | No quantity target | No timeline target | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | 0.21 tonnes | 1.0 | Focus on improving inventory management. |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No quantity target | No timeline target | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No quantity target | No timeline target | |
| 7446-09-5 | Sulphur dioxide | No quantity target | No timeline target | |
| 7664-93-9 | Sulphuric acid | No quantity target | No timeline target | |

## Progress on TRA Plan - Toxic Reduction Options Implemented

| CAS RN | Substance Name | Activity | Steps that were taken in the reporting period to implement the toxic reduction option | Public summary of the description of the steps | Comparison of the steps that were described in the plan for implementation with the actual steps taken during the reporting period | Public summary of the comparison of the steps |
|---|---|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Other | The equipment stated in our plan has been purchased and is operating. | The equipment stated in our plan has been purchased and is operating. | This part of the plan was completed a couple of years ago. | This part of the plan was completed a couple of years ago. |
| NA - 16 | Ammonia (total) | Substituted materials | Throughout this reporting period various enzymes and yeast foods were trialed in order to reduce the amount of ammonia required in the process. | Throughout this reporting period various enzymes and yeast foods were trialed in order to reduce the amount of ammonia required in the process. | As per our plan we will continue to seek out new and improved enzymes to trial with the goal of lowering our use of ammonia. We are on schedule with the steps described in our plan. | As per our plan we will continue to seek out new and improved enzymes to trial with the goal of lowering our use of ammonia. We are on schedule with the steps described in our plan. |
| 67-56-1 | Methanol | Modified design or composition | Continue to work with Revenue Canada to revise the formula for methanol addition to our ethanol. | Continue to work with Revenue Canada to revise the formula for methanol addition to our ethanol. | Continue to work with Revenue Canada to revise the formula for methanol addition to our ethanol. | Continue to work with Revenue Canada to revise the formula for methanol addition to our ethanol. |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | Continued effort to ensure our natural gas supply is maintained through scheduling therefore reducing our use of #2 oil. | Continued effort to ensure our natural gas supply is maintained through scheduling therefore reducing our use of #2 oil. | Our activity of schedule monitoring this reporting period was on schedule with our plan. | Our activity of schedule monitoring this reporting period was on schedule with our plan. |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | This project was completed three years ago and continues to operate effectively. | This project was completed three years ago and continues to operate effectively. | This project was completed three years ago as per plan schedule. | This project was completed three years ago as per plan schedule. |

| CAS RN | Substance Name | Activity | Steps that were taken in the reporting period to implement the toxic reduction option | Public summary of the description of the steps | Comparison of the steps that were described in the plan for implementation with the actual steps taken during the reporting period | Public summary of the comparison of the steps |
|---|---|---|---|---|---|---|
| 7664-93-9 | Sulphuric acid | Modified design or composition | Trials have been completed with a new enzyme to reduce the use of sulphuric acid which has been successful. We continue to research and monitor the development of new enzymes that we can utilize to further reduce sulphuric acid. | Trials have been completed with a new enzyme to reduce the use of sulphuric acid which has been successful. We continue to research and monitor the development of new enzymes that we can utilize to further reduce sulphuric acid. | We have implemented a new enzyme as per our plan resulting in sulphuric acid reduction and continue to research new enzymes for additional reduction. | We have implemented a new enzyme as per our plan resulting in sulphuric acid reduction and continue to research new enzymes for additional reduction. |

| CAS RN | Substance Name | Activity | Will the timelines in the current version of the plan will be met | Comments: |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Other | Yes | Action item completed. |
| NA - 16 | Ammonia (total) | Substituted materials | Yes | We have achieved our targeted reduction but will continue to work at reducing our use of ammonia. |
| 67-56-1 | Methanol | Modified design or composition | Yes | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | Yes | |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | Yes | |
| 7664-93-9 | Sulphuric acid | Modified design or composition | Yes | |

## Progress on TRA Plan - Reductions due to Options Implemented - Equipment or process modifications

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Other | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Other | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified equipment, layout or piping | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |

## Progress on TRA Plan - Reductions due to Options Implemented - Improved inventory management or purchasing techniques

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | 0.04 tonnes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | No Amount |

techniques

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | 0.04 tonnes |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | Other | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |

## Progress on TRA Plan - Reductions due to Options Implemented - Materials or feedstock substitution

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | 8.9 tonnes |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| NA - 16 | Ammonia (total) | Substituted materials | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |

## Progress on TRA Plan - Reductions due to Options Implemented - Product design or reformulation

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | 27.96 tonnes |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | 27.96 tonnes |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | 0.001 tonnes |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 67-56-1 | Methanol | Modified design or composition | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the steps described: | No Amount |

| CAS RN | Substance Name | Activity | Reductions due to Options Implemented | Quantity |
|---|---|---|---|---|
| 7664-93-9 | Sulphuric acid | Modified design or composition | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the steps described: | No Amount |

## Progress on TRA Plan - Additional Actions

| CAS RN | Substance Name | Were there any additional actions outside the plan taken during the reporting period to reduce the use and/or creation of the substance? | Describe any additional actions that were taken during the reporting period to achieve the plan's objectives | Provide a public summary of the description of the additional action taken |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No | | |
| 630-08-0 | Carbon monoxide | No | | |
| 141-78-6 | Ethyl acetate | No | | |
| 64-17-5 | Ethyl Alcohol | No | | |
| 67-63-0 | Isopropyl alcohol | No | | |
| 67-56-1 | Methanol | No | | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | | |
| 7446-09-5 | Sulphur dioxide | No | | |
| 7664-93-9 | Sulphuric acid | No | | |

## Progress on TRA Plan - Reductions due to additional actions taken

| CAS RN | Substance Name | Reductions due to additional actions taken | Quantity |
|---|---|---|---|
| NA - 16 | Ammonia (total) | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - 16 | Ammonia (total) | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 630-08-0 | Carbon monoxide | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |

| CAS RN | Substance Name | Reductions due to additional actions taken | Quantity |
|---|---|---|---|
| 141-78-6 | Ethyl acetate | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 141-78-6 | Ethyl acetate | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 64-17-5 | Ethyl Alcohol | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 67-63-0 | Isopropyl alcohol | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 67-56-1 | Methanol | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93- | Nitrogen oxides | The amount of reduction in **release to air** of the substance at the facility during the reporting period that | |

| CAS RN | Substance Name | Reductions due to additional actions taken | Quantity |
|---|---|---|---|
| 1 | (expressed as NO2) | resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 7446-09-5 | Sulphur dioxide | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in **use** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in **creation** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in the substance **contained in product** at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in **release to air** of the substance at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in **release to water** of the substance at the facility during the reporting period that resulted due to the additional actions. | |

| CAS RN | Substance Name | Reductions due to additional actions taken | Quantity |
|---|---|---|---|
| 7664-93-9 | Sulphuric acid | The amount of reduction in **release to land** of the substance at the facility during the reporting period that resulted due to additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in the substance **disposed on-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in the substance **disposed off-site** (including tailings and waste rocks) at the facility during the reporting period that resulted due to the additional actions. | |
| 7664-93-9 | Sulphuric acid | The amount of reduction in the substance **recycled off-site** at the facility during the reporting period that resulted due to the additional actions. | |

### Progress on TRA Plan - Amendments

| CAS RN | Substance Name | Were any amendments made to the toxic substance reduction plan during the reporting period | Description any amendments that were made to the toxic substance reduction plan during the reporting period | Provide a public summary of the description of any amendments that were made to the toxic substance reduction plan during the reporting period |
|---|---|---|---|---|
| NA - 16 | Ammonia (total) | No | | |
| 630-08-0 | Carbon monoxide | No | | |
| 141-78-6 | Ethyl acetate | No | | |
| 64-17-5 | Ethyl Alcohol | No | | |
| 67-63-0 | Isopropyl alcohol | No | | |
| 67-56-1 | Methanol | No | | |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) | No | | |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns | No | | |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns | No | | |
| 7446-09-5 | Sulphur dioxide | No | | |
| 7664-93-9 | Sulphuric acid | No | | |

## Report Submission and Electronic Certification

### NPRI - Electronic Statement of Certification

Specify the language of correspondence

English

Comments (optional)

I hereby certify that I have exercised due diligence to ensure that the submitted information is true and complete. The amounts and values for the facility(ies) identified below are accurate, based on reasonable estimates using available data. The data for the facility(ies) that I represent are hereby submitted to the programs identified below using the Single Window Reporting Application.

I also acknowledge that the data will be made public.

Note: Only the person identified as the Certifying Official or the authorized delegate should submit the report(s) identified below.

Company Name

Greenfield Global Inc.

Certifying Official (or authorized delegate)

Dianne Schenk

Report Submitted by

Dianne Schenk

I, the Certifying Official or authorized delegate, agree with the statements above and acknowledge that by pressing the "Submit Report(s)" button, I am electronically certifying and submitting the facility report(s) for the identified company to its affiliated programs.

### ON MOE TRA - Electronic Certification Statement

#### Annual Report Certification Statement

As of 09/11/2018, I, James Murr, certify that I have read the reports on the toxic substance reduction plans for the toxic substances referred to below and am familiar with their contents, and to my knowledge the information contained in the reports is factually accurate and the reports comply with the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 (General) made under that Act.

#### TRA Substance List

CAS RN Substance Name

| | |
|---|---|
| NA - 16 | Ammonia (total) |
| 630-08-0 | Carbon monoxide |
| 64-17-5 | Ethanol |
| 141-78-6 | Ethyl acetate |
| 67-63-0 | Isopropyl alcohol |
| 67-56-1 | Methanol |
| 11104-93-1 | Nitrogen oxides (expressed as NO2) |
| NA - M09 | PM10 - Particulate Matter <= 10 Microns |
| NA - M10 | PM2.5 - Particulate Matter <= 2.5 Microns |
| 7446-09-5 | Sulphur dioxide |
| 7664-93-9 | Sulphuric acid |

Company Name

Greenfield Global Inc.

Highest Ranking Employee

James Murr

Report Submitted by

Dianne Schenk

Website address

I, the highest ranking employee, agree with the certification statement(s) above and acknowledge that by checking the box I am electronically signing the statement(s). I also acknowledge that by pressing the 'Submit Report(s)' button I am submitting the facility record(s)/report(s) for the identified facility to the Director under the Toxics Reduction Act, 2009. I also acknowledge that the Toxics Reduction Act, 2009 and Ontario Regulation 455/09 provide the authority to the Director under the Act to make certain information as specified in subsection 27(5) of Ontario Regulation 455/09 available to the public.

## Submitted Report

| Period | Submission Date | Facility Name | Province | City | Programs |
|---|---|---|---|---|---|
| 2017 | 09/11/2018 | Tiverton | Ontario | Tiverton | NPRI,ON MOE TRA |

Note: If there is a change in the contact information for the facility, a change in the owner or operator of the facility, if operations at the facility are terminated, or if information submitted for any previous year was mistaken or inaccurate, please update this information through SWIM or by contacting the National Pollutant Release Inventory directly.

Version: 3.14.0